School of **Business & Technology**

CATALOG

PLEASE NOTE:

CATALOG ADDENDUM, CONTAINING IMPORTANT INFORMATION, BEGINS ON PAGE 3.

www.excelsior.edu

EXCELSIOR COLLEGE®

About Excelsior College

Excelsior College was founded in 1971 as the external degree program of the New York State Board of Regents. In 1998, the Board of Regents granted the College (then known as Regents College) an absolute charter to operate as a private, nonprofit, independent college. As are all accredited colleges in the state, Excelsior College is a member of The University of the State of New York. The College is governed by a board of trustees composed of individuals from across the United States who are prominent in the fields of business, education, government, and the professions.

A leader in online and distance learning, Excelsior College awards associate, baccalaureate, and master's degrees, as well as offers certificate programs, through its five schools: Business & Technology, Health Sciences, Liberal Arts, Nursing, and Public Service.

Excelsior's student body represents a diverse group of adult learners. Demographic information about students as well as information about graduates, faculty, course activity, student satisfaction, enrollment, and other areas can be found at excelsior.edu/about/fast-facts.

The faculty of Excelsior College, both full-time and adjunct, are drawn from many colleges and universities as well as from industry and the professions. They teach our courses, establish and monitor academic policies and standards, determine degree requirements and the means by which credit may be earned, develop the content for all examinations, and recommend degree conferral to the Excelsior College Board of Trustees.

Our Philosophy

What you know is more important than where or how you learned it.®

Our Mission

Excelsior College provides educational opportunity to adult learners with an emphasis on those historically underrepresented in higher education. The College meets students where they are—academically and geographically, offering quality instruction and the assessment of learning.

Vision Statement

Excelsior College aspires to be a model university for the 21st century.

- Excelsior will be a provider of choice for those who pursue their educational goals in a flexible, individualized manner.
- Excelsior will continue to serve as a cost-effective stimulus for lifelong learning and individual achievement, advocating the assessment of learning and aggregation of credit.
- Excelsior will be recognized as an ideal academic collaborator and as a valuable partner in addressing societal and workforce needs.

Accreditation

Excelsior College is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19104, telephone: 267-284-5000. The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation (CHEA).

The associate, bachelor's, and master's degree programs in nursing at Excelsior College are accredited by the Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326, (t: 404-975-5000, email: info@acenursing.org, or www.acenursing.org). The ACEN is a specialized accrediting agency for nursing recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation (CHEA).

The bachelor's degree programs in electrical engineering technology and nuclear engineering technology are accredited by the Engineering Technology Accreditation Commission of ABET (www.abet.org). ABET is a specialized accrediting agency recognized by the Council for Higher Education Accreditation (CHEA).

Excelsior College has received specialized accreditation for its business programs through the International Assembly for Collegiate Business Education (IACBE), 11374 Strang Line Rd., Lenexa, KS 66215; (t: 913-631-3009, www.iacbe.org). The IACBE is a specialized accrediting agency recognized by the Council for Higher Education Accreditation (CHEA). The business programs in the following degrees are accredited by IACBE: Master of Business Administration with concentrations in General Track (no concentration), Cybersecurity Management, Health Care Management, Human Performance Technology, Human Resource Management, Information Security, Leadership, Social Media Management, and Technology Management; Bachelor of Science in Accounting (NYS CPA Track); and Bachelor of Science in Business with concentrations in Finance, General Accounting, General Business, Global Business, Management of Human Resources, Management of Information Systems, Marketing, Operations Management, and Risk Management and Insurance.

All the College's academic programs are registered (i.e., approved) by the New York State Education Department.

Recognition

The Master of Arts in Liberal Studies program has been accepted into full membership by the Association of Graduate Liberal Studies Programs (AGLSP).

The American Council on Education's College Credit Recommendation Service (ACE CREDIT) has evaluated and made college credit recommendations for UExcel® exams and Excelsior College® Examinations.

The National League for Nursing (NLN) has designated the Excelsior College School of Nursing as a Center of Excellence in Nursing Education, 2011–2016. This distinction has been awarded in recognition of the College's sustained achievements in creating environments that promote student learning and professional development and it is the third consecutive designation the School has received since the NLN began the program in 2005.

Individual State Registration Authorization Disclosure

This institution is authorized by The Indiana Board for Proprietary Education, 101 W. Ohio St., Suite 670, Indianapolis, IN 46204-1984.

Excelsior College is registered with the Minnesota Office of Higher Education pursuant to Minnesota Statutes sections 136A.61 to 136A.71. Registration is not an endorsement of the institution. Credits earned at the institution may not transfer to all other institutions.

For information on disclosures required by various states, visit http://www.excelsior.edu/about/transparency.

School of Business & Technology

CATALOG ADDENDUM

Addendum to the **January 2016 edition** of the School of Business & Technology Catalog.

ASSOCIATE DEGREE PROGRAMS IN BUSINESS

Effective June 30, 2016, the **Associate in Science in Business** program is closed.

MASTER OF SCIENCE IN BUSINESS ADMINISTRATION

MEDIATION AND ARBITRATION CONCENTRATION (MBA)

The Master of Business Administration program has a new concentration in Mediation and Arbitration as of October 14, 2015. Students who select this concentration must complete the following courses in addition to the core requirements: Mediation [**BUS 601 Mediation**], Workplace/HR Mediation [**BUS 610 Workplace/HR Mediation**], and Arbitration [**BUS 620 Arbitration**]. Course descriptions are available on **page 76** of the catalog.

MASTER OF SCIENCE IN MANAGEMENT

Policies Specific to the Master of Science in Management

The Excelsior College Student Policy Handbook is your resource for understanding the academic and administrative policies that are important to your academic success. It includes a wide range of information from important federal policies, including your right to privacy, to grading policies, and policies and procedures concerning refunds, withdrawals, and other administrative issues. It is your responsibility to be familiar with these policies.

Policies and procedures that apply specifically to the Master of Science in Management program are listed on **pages 46 to 48** of the program catalog. File your handbook with this program catalog and your other important academic papers for easy reference.

Admissions Policy: Students with a bachelor's degree from a regionally accredited institution may be admitted into the Excelsior College MSM program. Students who have completed an undergraduate degree program outside the U.S. are required to submit transcripts of undergraduate and graduate work to Education Credential Evaluators Inc. (ECE). Evaluators will review your undergraduate degree program to verify that it is the equivalent to a bachelor's-level degree in the United States. Students choosing to work with ECE should request that a Course by Course Report, indicating the completion of their bachelor's degree, be conducted and forwarded to Excelsior College. In addition, any graduate courses submitted for transfer require a Subject Analysis Report. More information about ECE is available on its website at **www.ece.org/excelsior.**

The GMAT is not required.

Application Process: You are required to apply for admission into the Excelsior College MSM program. Visit our website at **www excelsior.edu/apply** to apply online or to download the Graduate Application for Admission form. Return the completed form to Excelsior College with the nonrefundable application fee. Please submit an official college transcript verifying completion of a baccalaureate degree along with official transcripts of any graduate-level study you wish to be considered for transfer toward the MSM requirements. Upon review of the transcripts and application, if qualified, you will receive an admittance letter.

To enroll in the MBA program you must submit the acceptance form with your Graduate Student Services fee. You may do so online or through the mail.

MEDIATION AND ARBITRATION CONCENTRATION

The Master of Science in Management program has a new concentration in Mediation and Arbitration as of October 14, 2015. Students who select this concentration must complete the following courses in addition to the core requirements: Mediation [**BUS 601 Mediation**], Workplace/HR Mediation [**BUS 610 Workplace/HR Mediation**], and Arbitration [**BUS 620 Arbitration**]. Course descriptions are available on **page 76** of the catalog.

BACHELOR OF SCIENCE IN CYBERSECURITY

Effective April 6, 2016, the **Bachelor of Science in Cyber Operations** is now called the **Bachelor of Science in Cybersecurity.** Effective July 6, 2016, the degree requirements have changed, as detailed below.

Program Description: The Bachelor of Science in Cybersecurity program is aligned with the academic requirements for cybersecurity set by the National Security Agency (NSA) and will provide students with the ability to enhance technical knowledge and skills in cybersecurity. The program is designed to prepare learners for cybersecurity-related jobs in the U.S. Cyber Command, the NSA's signal intelligence operations, the Federal Bureau of Investigation, law enforcement agencies, and corporate environments. As Excelsior is a Center for Academic Excellence in Information Assurance and Cyber Defense (CAE IA-CD), the program supports the belief of the NSA that cybersecurity should be integrated in all aspects of a person's career. The degree will prepare the student to take several industry certification exams such as CISP, CEH, Security+, Network+, CHFI, SSCP, and ESCP. Typical occupational areas associated with cybersecurity include incident response analyst, cyber compliance analyst, cyber threat management, cyber network operations planner, cyber systems analyst, systems administrator, and cyber systems and operations engineer.

Program (Student) Outcomes:

1. Describe defensive network architecture that use multiple layers of protection.
2. Analyze technologies and processes that monitor, maintain, and protect the data of an institution.
3. Evaluate and apply Industry Tools to respond to cyber incidents.
4. Create and disseminate cyber security reports to stakeholders.
5. Conduct risk and vulnerability assessments of existing and proposed security systems.
6. Develop and implement organizational cybersecurity policies and procedures.
7. Demonstrate the ability to understand professional, ethical, and social responsibility, including the effect of culture, diversity, and interpersonal relations.
8. Demonstrate proficiency in communicating technical information in formal reports, documentation, and oral presentations to users and information technology professionals.
9. Demonstrate a commitment to professional development and to continue to engage in lifelong learning.

Bachelor of Science in Cybersecurity Concentrations

General Track (15 credits of Technical Electives)

Recognizing that the cybersecurity field is continuously evolving, the Bachelor of Science in Cybersecurity program offers the general option concentration. This customizable concentration provides flexibility in designing students' area of specialization in order to meet ever-changing job demands and also to build upon student's current achievements. Students of this concentration can choose from approved technical electives to meet the degree requirements. Our courses cover a wide range of technical electives which help students stay competitive in today's job market.

The courses for the program are as follows:

CYS 203 Introduction to Microprocessors or IT 321 Computer Systems Architecture	IT 350 Business Data Communications
CYS 245 Introduction to Cybersecurity	IT 360 Operating Systems
CYS 260 Governance, Legal and Compliance	IT 380 Overview of Computer Security
CYS 345 Cybersecurity Defense in Depth	IT 403 Network and Application Security
CYS 426 Cyber Attacks and Defense	IT 406 Computer Forensics
CYS 450 Security Focused Risk Management	IT 460 System Administration
CYS 496 Cybersecurity Capstone	Technical Electives (15 credits)

Cyber Operations Concentration

Cyber Operations as part of cybersecurity is defined as organized activities in cyberspace to gather, prepare, disseminate, report, or process information to achieve a goal (Godwin III; et al). The Cyber Operations concentration in the cybersecurity degree provides the learner the ability to specialize their skills on the front line of cybersecurity. The courses selected prepare the students to handle cyber incidents and respond to incidents that happen as part of a cyber team.

Concentration Outcomes:

1. Identify fundamental security design principles that lead to system vulnerabilities.
2. Conduct exploits as part of an offensive cyber operation.
3. Apply fundamental security design principles during system design, development, and implementation to minimize vulnerabilities.

The courses for the program are as follows:

CYS 203 Introduction to Microprocessors or IT 321 Computer Systems Architecture	CYS 450 Security Focused Risk Management	IT 380 Overview of Computer Security
CYS 245 Introduction to Cybersecurity	CYS 496 Cybersecurity Capstone	IT 403 Network and Application Security
CYS 260 Governance, Legal and Compliance	IT 350 Business Data Communications	IT 406 Computer Forensics
CYS 345 Cybersecurity Defense in Depth	IT 360 Operating Systems	IT 460 System Administration
CYS 426 Cyber Attacks and Defense		
	CONCENTRATION	
IT 210 Object-Oriented Programming or IT 240 Introduction to Programming	CYS 400 Reverse Engineering	CYS 475 Large-scale Cybercrime and Terrorism
CJ 125 Introduction to Homeland Security	CYS 470 Secure Software Development	

Health Care Cybersecurity Concentration

Health Care as part of cybersecurity is a field that has no limit. With the growing number of patient records and the reliance of IT needs with the medical field, the adaption of cybersecurity as it pertains to health care is a perfect fit. The Health Care concentration in the cybersecurity degree provides the learner the ability to specialize their skills as they pertain to health care. The courses selected prepare the students to handle cyber incidents and respond to incidents that happen as part of a cyberteam.

Concentration Outcomes:

1. Evaluate and associate information systems and data within health care and lead other team members in the data analysis process.
2. Develop and implement security policies that pertain to health care.
3. Evaluate cybersecurity best practices within the health care field.

The courses for the program are as follows:

CYS 203 Introduction to Microprocessors or IT 321 Computer Systems Architecture	CYS 426 Cyber Attacks and Defense	IT 360 Operating Systems
CYS 245 Introduction to Cybersecurity	CYS 450 Security Focused Risk Management	IT 380 Overview of Computer Security
CYS 260 Governance, Legal and Compliance	CYS 496 Cybersecurity Capstone	IT 403 Network and Application Security
CYS 345 Cybersecurity Defense in Depth	IT 350 Business Data Communications	IT 406 Computer Forensics
		IT 460 System Administration
	CONCENTRATION	
CYS 270 Introduction to Health Care Cybersecurity	HSC 301 Foundations of Health Care Management	CYS or HSC elective
CYS 435 Managing Health Care Technology	CYS 436 Data Analytics in Healthcare	

Revised Bachelor of Science in Cybersecurity degree chart on following page

Bachelor of Science in **Cybersecurity**

BS
120 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* **6 credits** *in the Written English Requirement*	9
Ethics	3
Humanities	3
Social Sciences/History	9
Mathematics and Natural Sciences ■ Natural Science ■ Discrete Math ■ Calculus I ■ Calculus II ■ Statistics	15
Arts and Sciences Electives *May be taken from any areas of humanities, social sciences/history, natural sciences, or math*	21
TOTAL ARTS AND SCIENCES COMPONENT	60

CYBERSECURITY COMPONENT

Credit Hours

Introduction to Microprocessors **or** Computer Systems Architecture
Introduction to Cybersecurity
Governance, Legal and Compliance
Cybersecurity Defense in Depth
Cyber Attacks and Defense
Security Focused Risk Management
Business Data Communications
Operating Systems
Overview of Computer Security
Network and Application Security
Computer Forensics
System Administration
CYS 496 Cybersecurity Capstone①

CONCENTRATION REQUIREMENTS

One of the following concentrations must be declared (see pages 4 and 5 of this addendum for concentration requirements)

■ **General Track** ■ **Cyber Operations** ■ **Health Care Cybersecurity**

TOTAL CYBERSECURITY COMPONENT 15 CREDITS *MUST BE UPPER LEVEL*	52

FREE ELECTIVE COMPONENT

	Credit Hours
Must include **1-credit** *Information Literacy Requirement*	8
TOTAL FREE ELECTIVE COMPONENT	8
TOTAL DEGREE CREDITS	120

① **CYS 496 Cybersecurity Capstone** is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

All students enrolled in the **Bachelor of Science in Information Technology** degree program (featured on catalog page 120), the **Bachelor of Science in Information Technology to Master of Business Administration (Dual Degree Track)** (catalog page 126), or the **Bachelor of Science in Information Technology to Master of Science in Cybersecurity (Dual Degree Track)** (catalog page 131) on or after February 1, 2016, must complete the **Human-Computer Interaction core requirement [IT 375 Human-Computer Interactive Design].**

IT 375 Human-Computer Interactive Design — 3 credits

This course examines human-computer interaction (HCI) and focuses on all aspects of user interface (UI) and user experience (UX) design. Students will explore the fundamental concepts and methods involved in designing digital products, mobile applications, and websites. Students will be challenged to design and prototype a startup digital product in the form of a phone app or Web app/website. The course will be broken down into eight stages (modules) which will cover the concepts and processes that professional designers use every day to design the apps and/or websites that we love using today. For the term project, students will begin with the conceptual model and end with a high fidelity prototype of their newly designed mobile app or website. Each module will include assignments, discussions, and other activities related directly to that module.

Revised Bachelor of Science in Information Technology-related degree charts continue over the following three pages.

Bachelor of Science in **Information Technology**

BS
120 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* **6 credits** *in the Written English Requirement*	9
Ethics	3
Humanities Elective	3
Social Sciences/History	9
Mathematics and Natural Sciences *Must include* **3 credits** *in a natural science, Discrete Math, and one course from the following: Calculus I, Statistics and Probability, Quantitative Methods, Finite Math, or Mathematical Logic*	12
Arts and Sciences Electives	24
TOTAL ARTS AND SCIENCES COMPONENT	60

INFORMATION TECHNOLOGY COMPONENT

Credit Hours

CORE REQUIREMENTS

Object-Oriented Programming②
Computer Systems Architecture②
Operating Systems②
Database Concepts
Data Communications and Networking
Web Design and Development
Human-Computer Interaction
Overview of Computer Security
Project Management
System Administration
IT 495 Integrated Technology Assessment (capstone)①

CONCENTRATION REQUIREMENTS

One of the following concentrations must be declared (see catalog for concentration requirements):

Cybersecurity Technology
General Option
Information Security
Network Operations

TOTAL TECHNOLOGY COMPONENT **15 CREDITS** MUST BE UPPER LEVEL	48

FREE ELECTIVE COMPONENT

Credit Hours

FREE ELECTIVE COMPONENT MUST INCLUDE **1-CREDIT** INFORMATION LITERACY REQUIREMENT	12
TOTAL DEGREE CREDITS	120

① **IT 495 Integrated Technology Assessment** is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.

② The core requirements should be completed in the order listed.

Bachelor of Science in **Information Technology** to Master of Business Administration—**Dual Degree Track**

BS to MBA

150 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* **6-credit** *Written English Requirement*	9
Ethics **BUS 323 Business Ethics**①	3
Humanities	3
Social Sciences/History **BUS 311 Organizational Behavior**① **TECH 330 Economic Analysis for Technologists**① **OR ECON 360 International Economics**①	9
Natural Sciences/Mathematics *Must include* **3 credits** *in a natural science, Discrete Math, and one course from the following:* **Calculus I, Statistics and Probability, BUS 430 Quantitative Methods**① *(prerequisite is statistics and probability),* **Finite Math OR Mathematical Logic**	12
Arts and Sciences Electives	24
TOTAL ARTS AND SCIENCES COMPONENT	**60**

INFORMATION TECHNOLOGY COMPONENT④	Credit Hours
CORE REQUIREMENTS	
Object-Oriented Programming②	
Computer Systems Architecture②	
Operating Systems②	
Database Concepts	
Data Communications and Networking	
Web Design and Development	
Human-Computer Interaction	
Overview of Computer Security	
Project Management	
System Administration	
IT 495 Integrated Technology Assessment (capstone)③	
CONCENTRATION REQUIREMENTS	
One of the following concentrations must be declared (see page 122 for concentration requirements):	
Cybersecurity Technology	
General Option	
Information Security	
Network Operations	
TOTAL TECHNOLOGY COMPONENT **15 CREDITS** MUST BE UPPER LEVEL	**48**

FREE ELECTIVE COMPONENT	Credit Hours
BUS 351 Marketing Concepts and Applications①	5
Information Literacy	1
TOTAL FREE ELECTIVE COMPONENT	**6**

BRIDGE COMPONENT	Credit Hours
Business Communication	3
Global Business Environment	3
TOTAL BRIDGE CREDIT	**6**

GRADUATE COURSE COMPONENT	Credit Hours
BUS 500 Accounting for Managers	
BUS 504 Human Resources Management	
BUS 505 Managerial Finance	
BUS 570 Information Technology	
BUS 552 Leadership	
BUS 554 Change Management	
BUS 511 Strategy and Policy (capstone)③	
Electives (9 elective or concentration course credits)	
TOTAL GRADUATE CREDIT	**30**

GRADUATE STATUS: Students achieve graduate status upon completion of the bridge component and all other undergraduate requirements.

TOTAL DEGREE CREDITS **150**

① Must be taken at the upper level and completed with a grade of B or above within the past 10 years.

② The core requirements should be completed in the order listed.

③ **IT 495 Integrated Technology Assessment** and **BUS 511 Strategy and Policy** are the required capstone courses and must be taken through Excelsior College. They cannot be transferred in.

④ There is a 10-year time limit on IT courses.

Bachelor of Science in **Information Technology** to Master of Science in **Cybersecurity—Dual Degree Track**

BS to MS
144–147[1]
Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* 6-credit *Written English Requirement*	9
Ethics	3
Humanities	3
Social Sciences/History	9
Natural Sciences/Mathematics *Must include* 3 credits *in a natural science, Discrete Math, and one course from the following:* **Calculus I, Statistics and Probability, Finite Math, Mathematical Logic,** OR **Quantitative Methods***)*	12
Arts and Sciences Electives	24
TOTAL ARTS AND SCIENCES COMPONENT	**60**

INFORMATION TECHNOLOGY COMPONENT	Credit Hours
CORE REQUIREMENTS	
Object-Oriented Programming[2]	
Computer Systems Architecture[2]	
Operating Systems[2]	
Database Concepts	
Data Communications and Networking	
Web Design and Development	
Human-Computer Interaction	
Overview of Computer Security	
Project Management	
System Administration	
IT 495 Integrated Technology Assessment (capstone)[3]	
CONCENTRATION REQUIREMENTS	
One of the following concentrations must be declared (see page 122 for concentration requirements):	
Cybersecurity Technology	
General Option	
Information Security	
Network Operations	
TOTAL TECHNOLOGY COMPONENT **15 CREDITS** MUST BE UPPER LEVEL	**48**

FREE ELECTIVE COMPONENT	Credit Hours
Must include **Information Literacy**	1
TOTAL FREE ELECTIVE COMPONENT	**9**

BRIDGE COMPONENT	Credit Hours
MCY requirements; credits apply toward the BS	
CYS 560 Information Assurance	3
TOTAL BRIDGE CREDIT	**3**

GRADUATE COURSE COMPONENT	Credit Hours
CYS 503 Communications and Network Security	
CYS 541 Ethics, Legal and Compliance Issues	
CYS 526 Cyber Attacks and Defenses	
CYS 522 Advanced Networking	
CYS 575 IT Risk Analysis and Management	
CYS 585 Digital Crime Prevention and Investigation	
BUS 530 Project Management Principles and Applications	
CYS 595 Capstone in Cybersecurity[3]	
TOTAL GRADUATE CREDIT	**27**

GRADUATE STATUS: Students achieve graduate status upon completion of the bridge component and all other undergraduate requirements.

TOTAL DEGREE CREDITS **144–147**

[1] Total will vary depending on concentration selected and selection of graduate courses used to apply to BSIT concentration requirement.

[2] The core requirements should be completed in the order listed.

[3] **IT 495 Integrated Technology Assessment** and **CYS 595 Capstone in Cybersecurity** are the required capstone courses and must be taken through Excelsior College. They cannot be transferred in.

MASTER OF SCIENCE IN CYBERSECURITY

Effective July 6, 2016, the degree requirements for the Master of Science in Cybersecurity have changed, as detailed below.

The Master of Science in Cybersecurity is designed to enable students to pursue their career goals within critically important cybersecurity field. This program provides professionals with the techniques and knowledge to protect the organization's cyber assets by focusing on prevention, detection, countering, and recovering from cyber incidents. The curriculum focuses on aspects of cyber security, including strategies, policy, ethics and legal compliance, operational process, and technology to secure and defend an organization's cyber assets. This program is suited for professionals who aim to pursue senior-level technical or managerial positions in cybersecurity such as information security officer, cybersecurity manager, senior security analyst, security and compliance manager, director IT security and governance, digital crime investigator or penetration tester.

Policies Specific to the Master of Science in Cybersecurity

The Excelsior College Student Policy Handbook is your resource for understanding the academic and administrative policies that are important to your academic success. It includes a wide range of information from important federal policies, including your right to privacy, to grading policies and policies and procedures concerning refunds, withdrawals, and other administrative issues. It is your responsibility to be familiar with these policies.
Policies and procedures that apply specifically to the Master of Science in Cybersecurity program are listed on **pages 149 to 150** of the program catalog. File your handbook with the program catalog and your other important academic papers for easy reference.

Time Limit on Coursework: Due to the rapidly changing nature of technology, Excelsior College has established a time-related restriction on the application of credits applied to the Master of Science in Cybersecurity. To meet this requirement, relevant coursework must have been completed more recently than 10 years prior to enrollment in the Master of Science in Cybersecurity degree program. Please note that course content in these areas is subject to faculty approval. The time limit may not be appealed.

Time Limit for Degree Completion: Excelsior College degree programs are designed, within limits, to be completed at a student's own pace. However, students must make continuous progress toward their academic goals. Students will be dismissed if they do not complete the Master of Science in Cybersecurity at the conclusion of 5 years from their enrollment date in the program. Students may seek an extension of the time limit by submitting a request in writing, which will outline the reason the extension is warranted and a plan for completion.

Application and Admissions Information for Master of Science in Cybersecurity

Admissions Policy: Students with a bachelor's degree from a regionally accredited institution, or the foreign equivalent, may be admitted into the Excelsior College Master of Science in Cybersecurity program. Some of the required courses for the Master of Science in Cybersecurity have a prerequisite of basic networking or data communications. Students may be admitted to the program without the prerequisite, but they will be required to take a basic networking or data communications course prior to taking any of the courses that require the prerequisite.

Application Process: You are required to apply for admission to the Excelsior College Master of Science in Cybersecurity program. Visit our website at **www.excelsior.edu/appl**y to apply online or to download the Graduate Application for Admission form. Return the completed form to Excelsior College with the nonrefundable application fee. Please submit an official college transcript verifying completion of a baccalaureate degree along with official transcripts of any graduate-level study you wish to be considered for transfer toward the Master of Science in Cybersecurity requirements. Upon review of the transcripts and application, if qualified, you will receive an admittance letter.

To enroll in the Master of Science in Cybersecurity program, you must submit the acceptance form with your Graduate Student Services fee. You may do so online or through the mail.

Acceptance of Transfer Credit: Graduate-level coursework that has been completed within five years of the date of enrollment may be used to satisfy the requirements of the Master of Science in Cybersecurity program if approved by Excelsior College faculty. Students may transfer up to 9 credits. Excelsior College will require a minimum grade of B- for any approved graduate course accepted for transfer credit. Excelsior College does not use pluses or minuses, so such grades will be converted to the full letter grade. To accept a course that is transferring in with a P grade, the college/department/faculty member issuing the P grade must verify that it is equivalent to a B- or better.

Master of Science in Cybersecurity changes continued on next page

Degree Program Outcomes:

1. Continuously monitor, maintain, and enhance the protection of enterprise-wide information assets through effective industry accepted information management and risk management techniques.
2. Detect, analyze, and respond to cyber attacks on networks and computer systems.
3. Conduct risk and vulnerability assessments of existing and proposed information systems.
4. Utilize the best sources of information available related to cyber security issues, threats, and recovery.
5. Demonstrate the ability to understand professional, ethical, and social responsibility, including the effect of culture, diversity, and interpersonal relations.
6. Demonstrate proficiency in communicating technical information in formal reports, documentation, and oral presentations to users and information technology professionals.
7. Demonstrate a commitment to professional development and to continue to engage in lifelong learning.

Master of Science in Cybersecurity Concentrations

General Track

The General Track allows students to develop a personalized specialization that spans multiple cybersecurity concentrations. Student can tailor their concentration to their specific career goals, providing them with flexibility in developing their specialized knowledge and skills in cybersecurity.

The courses for the program are as follows (3 credits each):

CYS 500 Foundations of Cybersecurity	CYS 560 Information Assurance
CYS 504 Communications Security	CYS 596 Cybersecurity Capstone
CYS 530 Project Management	Technical Elective
CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity	Technical Elective
CYS 550 Leadership and Communication in Cybersecurity	Technical Elective

Information Assurance Concentration

The Information Assurance concentration is designed as a specialization for an individual who wishes to be hands-on while combating cybersecurity threats. The focus will be on software control management tools, software integration, cyber defense mitigation, and digital forensics. The three classes within this concentration will allow students to gain the needed knowledge of both hardware and software issues. Individuals who specialize in cyber operations will be prepared to be on the front line of defense for companies.

Concentration Outcomes:

1. Establish a secure coding environment and maintain and protect source code as an essential corporate asset and develop and maintain secure software and applications.
2. Recommend software appropriate for defending against cyber attacks.
3. Demonstrate knowledge of digital forensics and how it can be used to assist with an investigation.

The courses for the program are as follows (3 credits each):

BUS 530 Project Management	CYS 560 Information Assurance
CYS 500 Foundations of Cybersecurity	(Concentration Course) CYS 523 Software and Application Security
CYS 504 Communications Security	(Concentration Course) CYS 526 Cyber Attacks and Defense
CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity	(Concentration Course) CYS 585 Digital Crime Prevention and Investigation
CYS 550 Leadership and Communication in Cybersecurity	CYS 596 Cybersecurity Capstone

Medical Data Security Concentration

The Medical Data Security concentration of the Master of Science in Cybersecurity is designed for the individual who wants a specialization in the medical aspect of cybersecurity. The focus will be on identification, application, and integration of cybersecurity issues within the medical field. The three classes in the concentration will allow students to have specialized knowledge in the specific risks and policies that preside over health care cybersecurity. Individuals who specialize in Medical Data Securty will be prepared to help defend against security breaches while implementing policies, helping the other employees be more secure.

Concentration Outcomes:

1. Evaluate and associate information systems and data within health care and lead other team members in the data analysis process.
2. Develop and implement security policies that pertain to health care.
3. Evaluate cybersecurity best practices within the health care field.

The courses for the program are as follows (3 credits each):

BUS 530 Project Management	CYS 560 Information Assurance
CYS 500 Foundations of Cybersecurity	(Concentration Course) CYS 555 Cybersecurity in Healthcare
CYS 504 Communications Security	(Concentration Course) CYS 556 Healthcare Information Systems
CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity	(Concentration Course) CYS 557 Healthcare Standards and Policy
CYS 550 Leadership and Communication in Cybersecurity	CYS 596 Cybersecurity Capstone

Policy Administration Concentration

The Policy Administration concentration of the Master of Science in Cybersecurity is designed for the individual who wants specialized knowledge of security policies creation and integration into organizations. The focus will be on security policies and governance, global cybersecurity issues, risk analysis, and assessment. The three classes in the track will allow students to have a specialized knowledge in cybersecurity policy creation, development, and governance. Individuals who specialize in policy administration will be able to apply this knowledge to perform proper risk analysis and help determine the best course of action for risk mitigation.

Concentration Outcomes:

1. Effectively communicate cybersecurity information, including development and implementation of organizational cybersecurity policies and procedures.
2. Develop and implement organizational cybersecurity policies and procedures.
3. Integrate cybersecurity policies into common business process.

The courses for the program are as follows (3 credits each):

BUS 530 Project Management	CYS 560 Information Assurance
CYS 500 Foundations of Cybersecurity	(Concentration Course) CYS 545 Security Policy and Governance
CYS 504 Communications Security	(Concentration Course) CYS 575 IT Risk Analysis and Management
CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity	(Concentration Course) CYS 577 Global Cybersecurity
CYS 550 Leadership and Communication in Cybersecurity	CYS 596 Cybersecurity Capstone

Master of Science in **Cybersecurity**

MS
30 Total Degree Credits Required

CORE REQUIREMENTS	Credit Hours
Foundations of Cybersecurity	
Communications Security	
Project Management	
Ethics, Legal, and Compliance Issues in Cybersecurity	
Leadership and Communication in Cybersecurity	
Information Assurance	
Cybersecurity Capstone	

CONCENTRATION REQUIREMENTS

One of the following concentrations must be declared (see pages 12 and 13 of this addendum for concentration requirements)

- **General Track**
- **Information Assurance**
- **Medical Data Security**
- **Policy Administration**

TOTAL DEGREE CREDITS	30

GRADUATE CERTIFICATE IN CYBERSECURITY MANAGEMENT

Effective August 3, 2016, the requirements for the Graduate Certificate in Cybersecurity Management have changed, as detailed below.

Course Requirements:

The courses for the program are as follows (3 credits each):

- CYS 500 Foundations of Cybersecurity
- CYS 504 Communications & Network Security
- CYS 541 Ethics, Legal & Compliance Issues in Cybersecurity
- CYS 550 Leadership & Communication in Cybersecurity
- CYS 560 Information Assurance
- CYS 591 Capstone Project in Cybersecurity

COURSES

REVISED **CYS 426 Cyber Attacks and Defenses** **3 credits**

This course introduces ethics, laws, metrics, methodologies, project management, tools, techniques, purposes, and practices of penetration testing aka ethical hacking as a proactive measure to improving the overall security posture of a system or network. The students will learn to assess target systems and networks for vulnerabilities and exploits, detect security threats, and recommend and implement defensive, corrective, and preventative measures based on penetration test results.

NEW **CYS 496 Cybersecurity Capstone** **3 credits**

This capstone course will examine computer security technologies and principles, including access control, authentication, external attacks, software security, security assessment and testing, and legal issues in cybersecurity. This course includes a final research project that will expose students to real-life scenarios in cybersecurity.

NEW **IT 375 Human-Computer Interactive Design** **3 credits**

This course examines human-computer interaction (HCI) and focuses on all aspects of user interface (UI) and user experience (UX) design. Students will explore the fundamental concepts and methods involved in designing digital products, mobile applications, and websites. Students will be challenged to design and prototype a startup digital product in the form of a phone app or Web app/website. The course will be broken down into eight stages (modules) which will cover the concepts and processes that professional designers use every day to design the apps and/or websites that we love using today. For the term project students will begin with the conceptual model and end with a high fidelity prototype of their newly designed mobile app or website. Each module will include assignments, discussions, and other activities related directly to that module.

REVISED **NUC 495 (capstone) Integrated Technology Assessment** **3 credits**

The Nuclear Engineering Technology Capstone is an in-depth, student-centered course that requires the integration of theory and practical experience. Students will integrate and apply the theory, technical skills, and professional skills they have learned to offer solutions to a specific nuclear industry event. The project will analyze the Fukushima Nuclear Accident event from an engineering technical problem, potential consequences if the primary containment failed, and provide a recommendation for a design that would mitigate or prevent future events in which the student will conduct research by exploring, evaluating, and theorizing a solution in a final paper. The capstone course is designed to develop the technical and non-technical competencies of students in an integrated fashion.

REVISED **TECH 490 Technology Management Capstone: Integrated Technology Assessment** **3 credits**

This is the required capstone course for the Bachelor of Professional Studies in Technology Management program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Bachelor of Science in Technology Management degree outcomes. The learning statements must be supported by documented evidence that demonstrates the outcomes have been met.

A Message from the Dean

Karl G. Lawrence

Dear Student:

Congratulations on taking the next step in achieving your educational and professional goals. We are honored that you have decided to pursue your goals with the School of Business & Technology.

As a not-for-profit, private institution of higher education chartered by the New York State Board of Regents, the College is fully accredited by the Commission of Higher Education of the Middle States Association of Colleges and Schools, one of the oldest and most respected regional accreditors in the United States. Additionally, you will find that within our school, all applicable business programs are accredited by the International Assembly of Collegiate Business Education (IACBE) while applicable technology programs are accredited by the Accreditation Board for Engineering and Technology (ABET). These specialized accreditations attest to the quality of our programs in preparing students for the workforce.

The College prides itself on providing flexible pathways to assist students in making progress toward their educational goals while balancing the demands of work and family. Our faculty, working closely with industry advisory groups, developed degree programs and curricula that will provide you not only the skills required for the current job market but also the lifelong learning skills required to keep up with future changes in the job market.

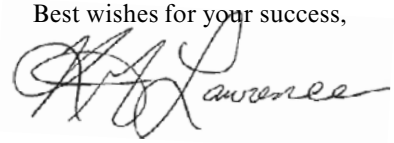
We also take great pride in our record of working with each student to:

- identify prior coursework and work experience, and document that in a single Excelsior College transcript;
- determine his or her career goals and align them with the most appropriate degree program(s);
- determine what courses are required to complete the selected degree program(s); and
- actively support completion of the selected degree program(s).

In this catalog you will find detailed descriptions of the many degree options available through the School of Business & Technology. We encourage you to review it and contact us if you have any questions.

Again, thank you for choosing to pursue your educational and professional goals with the School of Business & Technology. Our faculty, staff, and academic advisors are committed to your success!

Best wishes for your success,



Karl G. Lawrence, PhD, CFP, FRM
Dean, School of Business & Technology

LIMITATIONS

Information in this catalog is current as of July 2015, and is subject to change without advance notice.

CHANGES IN COLLEGE POLICIES, PROCEDURES, AND REQUIREMENTS

The College reserves the right to modify or revise the admission requirements of any program of the College; degree and graduation requirements; examinations, courses, tuition, and fees; and other academic policies, procedures, and requirements. Generally, program modifications and revisions will not apply to currently enrolled students so long as they actively pursue their degree requirements. However, in the event that it is necessary to make program changes for enrolled students, every effort will be made to give notice. It is also the responsibility of students to keep themselves informed of the content of all notices concerning such changes.

Printed in the USA, July 2015.

Excelsior College maintains a drug-free workplace and is a drug-free school, as provided by the Federal Drug-Free Schools and Communities Act Amendments of 1989 and the Drug-Free Workplace Act of 1988.

Excelsior College does not discriminate on the basis of age, color, religion, creed, disability, marital status, veteran status, national origin, race, gender, or sexual orientation in the educational programs and activities which it operates. Portions of this publication can be made available in a variety of formats upon request.

Campus Crime Statistics can be found at the following website: **http://ope.ed.gov/security**

Table of Contents

Important Information for All Students

Student Policy Handbook

The Excelsior College *Student Policy Handbook* is your resource for understanding the academic and administrative policies that are important to your academic success. It includes a wide range of information from important federal policies, including your right to privacy, to grading policies and policies and procedures concerning refunds, withdrawals, and other administrative issues.

It is your responsibility to be familiar with these policies. The term "students" includes those currently matriculated at Excelsior College taking examinations and/or courses, non-matriculated students taking examinations and/or courses, non-matriculated students in the application process, individuals using the OneTranscript® service (formerly Credit Bank), formerly matriculated students currently in withdrawn status, and graduates.

Policies and procedures that apply only to a specific degree program are listed in the appropriate school catalog. You may download a copy of the *Student Policy Handbook* from our website. File your handbook with your other important academic papers and this program catalog for easy reference.

Standardized Testing Participation

Students have a responsibility to participate in standardized tests (an example is the "Proficiency Profile" published by Educational Testing Services) that may be required during the period of their enrollment. These tests may be in addition to regular coursework and are required to gather critical information on achievement of student learning. Students are expected to actively participate and make every effort to do their best on these assessments to produce scores that accurately reflect their abilities. The results from these assessments will not be part of the course grade but are crucial for the purpose of program improvement and are frequently required by regulators and accreditation agencies. Participation in these assessments contributes toward increasing the value of the degree by providing evidence of student learning to external organizations, employers, and the general public.

Excelsior College Website

Through the College's website, you have access to a wealth of information to help you succeed as a student. If you haven't already done so, create a MyExcelsior user account. It will serve as your gateway to a variety of support services and is where you will find up-to-date information tailored to your specific academic program as well as general announcements from the College.

General Education Outcomes for All Undergraduate Degree Programs

Each undergraduate degree program has a strong arts and sciences component designed to help you develop a broad-based understanding of multiple disciplines, provides a breadth of academic experience to enrich your life, and allows you to become more informed and engaged as a citizen and a lifelong learner in an increasingly complex and changing world. This arts and sciences component, offered in a delivery model of flexibility, quality, and accessibility that is based on adult learning theory, helps you to integrate knowledge from multiple sources and experiences in diverse ways of knowing. These guiding principles have thus formed the six learning goals for General Education at Excelsior College.

1. **Communication: Oral and Written Expression**
   Excelsior students will be able to express themselves effectively in English, both orally and in writing, and with clarity, persuasiveness, and coherence using standard conventions of English.
2. **Mathematics and Scientific Method**
   Excelsior students will utilize scientific reasoning and basic mathematical calculations in problem solving in their public discourse.

3. **Information Literacy**
   In this age of information proliferation due to rapid technological advances, students will have to learn to discern information critically. They will have to learn to identify the amount and type of information needed, to understand where to locate, effectively access that information, evaluate the source of the information, and use it as per legal and ethical considerations.
4. **Diversity and Global Understanding**
   Excelsior students will gain an understanding of a global society and appreciation for the complexities of diversity so they will be able to interact effectively with people from backgrounds and cultures different from their own. They will challenge their own sense of "self" vis-a-vis an understanding of those with different thoughts, beliefs, and traditional behaviors.
5. **Ethics**
   Students will recognize the importance of ethical behaviors and decision-making.

For more information on the General Education goals and outcomes, visit: www.excelsior.edu/gened

Average Time to Degree Completion

Excelsior's degree programs are designed to be completed at your own pace. However, at Excelsior, a student attending full-time could complete:

- an associate degree in two years;
- a bachelor's degree in four years; or
- a master's degree in two years.

Technology Literacy

Excelsior College Definition of Technology Literacy [Based on State Educational Technology Directors Association (SETDA)]

Excelsior College defines technology literacy as the ability to identify and responsibly use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning. This will facilitate the ability to acquire new knowledge for lifelong learning in the 21st-century global workplace.

Baseline Technology Skills and Resources

1. Prior to being admitted to Excelsior College, all students should be knowledgeable in the use of a personal computer (Windows or Macintosh). Entering students should have the ability to
   - use a personal computer,
   - use office automation programs to create, edit, store, and print documents,
   - use electronic communication tools, and search and retrieve information from electronic resources to complete assignments and activities.
2. Students must have reliable access to a computer with Internet connectivity.
3. Student's computer and operating systems must meet the minimal technical requirements as noted in the Excelsior College Computer System Requirements (www.excelsior.edu/system-requirements).
4. Students must be able to utilize required software applications.
5. Students need to utilize the Excelsior College website to access information, resources, and the Message Center, and to participate in activities. See the Excelsior College Electronic Use policy (www.excelsior.edu/electronic-use-policy).
6. Students are required to conduct themselves appropriately and professionally at all times, including online.

About Test Preparation and Tutorial Services

The College offers UExcel® exams and Excelsior College® Examinations designed to help you advance your academic objectives through independent study. A variety of learning resources, including content guides, guided learning materials, and practice tests, are available directly from Excelsior. These resources are prepared by Excelsior College so you can be assured that they are current and cover the content you are expected to master for the exams. Along with your own desire to learn, these resources are usually all that you need to help you succeed.

Some students may seek additional assistance or may be contacted by tutorial firms and test-preparation companies offering their own products and services. The College is not affiliated with any of these firms and does not endorse the products or services of any of these vendors since we do not review their materials for content or compatibility with UExcel® exams.

To help you become a well-informed consumer we suggest, before you make any purchase decision regarding study materials provided by organizations other than Excelsior College, that you consider the points outlined on our website.

www.excelsior.edu/testprep

It is important for you to keep us informed of your current contact information, so we can reach you. You can update your address, phone numbers, fax number, and email preference on our website, through your **MyExcelsior** user account, or you can call us with this information.

www.excelsior.edu/myexcelsior

The Excelsior College **School of Business & Technology**

Vision Statement

The School of Business & Technology provides a diversified approach to degree completion to serve adult learners in achieving their educational and career aspirations.

Mission Statement

The mission of the School of Business & Technology's faculty and staff is to provide quality business and technology-focused programs that use innovative academic approaches for adult learners from diverse backgrounds.

Strategies

- Enhance the Student Experience
- Diversification of Programs and Markets
- Use Technology to Enhance Efficiency and Effectiveness
- Build the Brand
- Be a Sector Leader
- Continuously Improve

Programs Offered in the School of Business & Technology

BUSINESS PROGRAMS

Associate in Applied Science in Administrative/Management Studies

Associate in Science in Business

Bachelor of Professional Studies in Business and Management

Bachelor of Science in Business

Bachelor of Science in Business to Master of Business Administration **(Dual Degree Track)**

Master of Business Administration

Master of Science in Management

TECHNOLOGY PROGRAMS

Associate in Science in Technology

Associate in Applied Science in Technical Studies

Bachelor of Professional Studies in Technology Management

Bachelor of Science in Cyber Operations

Bachelor of Science in Electrical Engineering Technology

Bachelor of Science in Information Technology

Bachelor of Science in Information Technology to Master of Business Administration **(Dual Degree Track)**

Bachelor of Science in Information Technology to Master of Science in Cybersecurity **(Dual Degree Track)**

Bachelor of Science in Nuclear Engineering Technology

Bachelor of Science in Nuclear Engineering Technology to Master of Business Administration **(Dual Degree Track)**

Bachelor of Science in Technology

Master of Science in Cybersecurity

Undergraduate Certificate in Cybersecurity

Graduate Certificate in Cybersecurity Management

Admission Requirement

All degree programs in the School of Business & Technology are open-enrollment; however, in order to enroll, each student must submit an undergraduate or graduate application to the College. When submitting the application, each student must include all applicable documents, such as official transcripts, military documents, score reports, and copies of licenses that may qualify for credit toward a degree.

Program Planning

Plan carefully and consult with your academic advisors about the courses and examinations that will fulfill your degree requirements. We recommend that you obtain prior approval to ensure that the courses/examinations will apply toward your degree.

Prior approval may be submitted through the Message Center (located in your MyExcelsior account), via email, or by telephone. If a graduate program is part of your plan, consult the admissions office at the graduate school you are considering and discuss requirements and policies.

Excelsior College Academic Advising Mission Statement

We, as Excelsior College professional academic advisors, actively engage and support our students in the development and achievement of their academic, career, and personal goals.

Excelsior College Academic Advising Values

Our academic advising community is dedicated to:

- Empowering students as lifelong learners;
- Building a collegial environment of mutual trust and respect;
- Providing quality student service;
- Inspiring student success.

Choosing a Degree Program in Business

You may find it helpful to compare the requirements for each degree with your own educational background and career aspirations to determine the best degree for you. Professionals in your field of choice may be able to advise you about the preparation necessary for particular areas, and graduate school admissions counselors can advise you about requirements for entry into specific graduate schools. Excelsior College academic advisors can offer you general information about how previous study might apply to degree requirements and about your general options for continued study.

BUSINESS PROGRAMS

Requirements and Policies for All Business Degrees

Every Excelsior College business degree program requires a specific number of semester hours of credit in each of its component areas. These areas include an arts and sciences component, a business or career/professional component, and a free elective component in which you may earn credits through applicable coursework or examinations in subject areas of interest to you.

In the following pages, you will find a chart relevant to each degree program, which provides a graphic representation of the credit needed to fulfill the requirements.

You are subject to the degree requirements in effect at the time of your enrollment or program/degree transfer (program transfer refers to changes from one school to another; degree transfer refers to changing degrees within the same school).

The faculty reserves the right to make changes in curricular requirements as necessary to reflect current professional practice. Changes may affect both enrolled and prospective students. It is your responsibility to keep informed of such changes. We make every effort to inform you of changes as they occur. Current information about degree requirements is posted on our website. Information about changes to degree requirements is also made available on our website.

Policies Specific to the Business Programs

The Excelsior College Student Policy Handbook is your resource for understanding the academic and administrative policies that are important to your academic success. It includes a wide range of information from important federal policies, including your right to privacy, to grading policies and policies and procedures concerning refunds, withdrawals, and other administrative issues. It is your responsibility to be familiar with these policies.

Policies and procedures that apply specifically to the business degree programs are listed on the following pages. File your Student Policy Handbook with your other important academic papers and this program catalog for easy reference.

Second Degree Restrictions

No student is permitted to earn a second business degree in the same or similar area of study or focus. Please refer to your Student Policy Handbook for specific information.

Minimum Academic Average

You must have a cumulative grade point average of C (2.00) or better for undergraduate degrees, and a cumulative grade point average of B (3.0) or better for graduate degrees, in order to qualify for graduation from Excelsior College. In addition, only course or examination grades of C (or better), P (Pass), or a score acceptable to the Excelsior College faculty will qualify toward satisfying the business requirements. Refer to the Student Policy Handbook for complete information.

Time Limit on Transfer of Credit

Only those business courses completed within 15 years of the date of your enrollment may be used for credit toward the business component of the Associate in Science in Business and all Bachelor of Science in Business (with concentration) degrees. However, credit earned more than 15 years prior to your enrollment may be applied to the arts and sciences component requirements. Also, nonduplicative business credit earned more than 20 years prior to your enrollment may be applied as free elective credit.

There is no time limit on the transfer of credit to any component of the Associate in Applied Science in Administrative/Management Studies or the

Bachelor of Professional Studies in Business and Management.

There is a 10-year time limit on courses that may be used to satisfy the requirements for the MBA and MS in Management degree programs.

Students pursuing the MBA and MS in Management have a maximum of 10 years from the date of enrollment to complete the programs.

Diversity

Excelsior College encourages you to plan your degree program to include study of the perspectives of various ethnic and cultural groups as well as investigation of the fundamental assumptions of Western civilization.

Sources of Credit Applicable Toward Your Degree

There are a variety of means by which you may earn credit for your degree, including Excelsior College online courses, campus-based courses, UExcel® exams, and accredited proficiency examinations. All transfer credit must have a minimum grade of C–.

Information about acceptable examination programs can be found in our **exam guide**, available for download at our website.

Requirements for All Degree Programs

Written English Requirement (WER)

Students are required to demonstrate competence in expository writing in English.

- Associate Degree students must complete one expository writing course or examination (minimum three credit hours or four quarter hour credits) with a minimum of C grade. This must be completed within the first nine (9) Excelsior College credits attempted.
- Bachelor's degrees students must complete two expository writing courses or examinations (minimum six credit hours or eight quarter hour credits) with a minimum of C grade

OR

- one expository writing course or examination (minimum three credit hours or four quarter hour credits) and one applied writing or writing intensive course (minimum three credit hours or four quarter hour credits). The expository writing course must be completed within the first nine (9) Excelsior College credits attempted.

Methods of Satisfying the Written English Requirement

1. **Examination**
   a. Excelsior College® Examination, **ENGx111 English Composition** (fulfills the requirement for associate and bachelor degrees)
   b. UExcel® examination, **ENGx110 College Writing** (fulfills the requirement for the associate degrees; partially fulfills the requirement for the bachelor degrees)
   c. Advanced Placement (AP) English Examinations (fulfills the requirement for associate and bachelor degrees)

Excelsior College does not accept the CLEP General Examination in English Composition with Essay toward this requirement.

2. **College coursework**
   See requirements above.

Coursework must be from an English-speaking institution. English as second language courses may not be used to satisfy this requirement.

3. **Statement of Equivalency**
   Submission of an official statement from a regionally accredited institution, from which transfer credit is being accepted, verifying satisfactory completion of the student's writing requirement. The statement must reflect whether the institution had a one course or two course writing requirement in effect at the time of the student's matriculation.

4. **Noncollegiate-sponsored instruction**
   Successful completion of a noncollegiate-sponsored instructional writing course or

program that has been evaluated by either the NYS Board of Regents National Program on Non-collegiate Sponsored Instruction (National PONSI) or the American Council on Education Center for Adult Learning and Educational Credentials (ACE CREDIT), and contains a recommendation of at least three semester-hour credits for the course; this course must contain an actual assessment of the student's competence in expository writing in English.

A maximum of two 3–4 credit hour courses or three quarter-credit courses in English composition/freshman English courses will apply toward degree requirements. Courses or examinations used to fulfill the Written English Requirement may not be used to satisfy the Humanities requirement.

Information Literacy Requirement

Students are expected to demonstrate competency in information literacy. The standards, performance indicators, and outcomes for this requirement were selected from the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education. Competency will be assessed through a 1-credit pass/fail course offered online by Excelsior College **[INL 102 Information Literacy]** or through successful completion of a course taken at a regionally accredited college covering comparable content.

The information-literate student will be able to:

- determine the nature and extent of the information needed.
- access needed information effectively and efficiently.
- evaluate information and its sources critically.
- incorporate selected information into their knowledge base and value system.
- understand many of the economic, legal, and social issues surrounding the use of information.
- access and use information ethically and legally.

Students seeking additional information should check the Excelsior College website or consult with their academic advising team.

Requirements listed with an "x" in the prefix indicate examinations; requirements listed without an "x" in the prefix indicate courses.

Your Personalized MyExcelsior Account:
www.excelsior.edu/MyExcelsior

Admissions:
toll free 888-647-2388, ext. 27

Fee Schedules, Financial Aid, and Scholarships:
www.excelsior.edu/fees
www.excelsior.edu/financialaid
www.excelsior.edu/scholarships

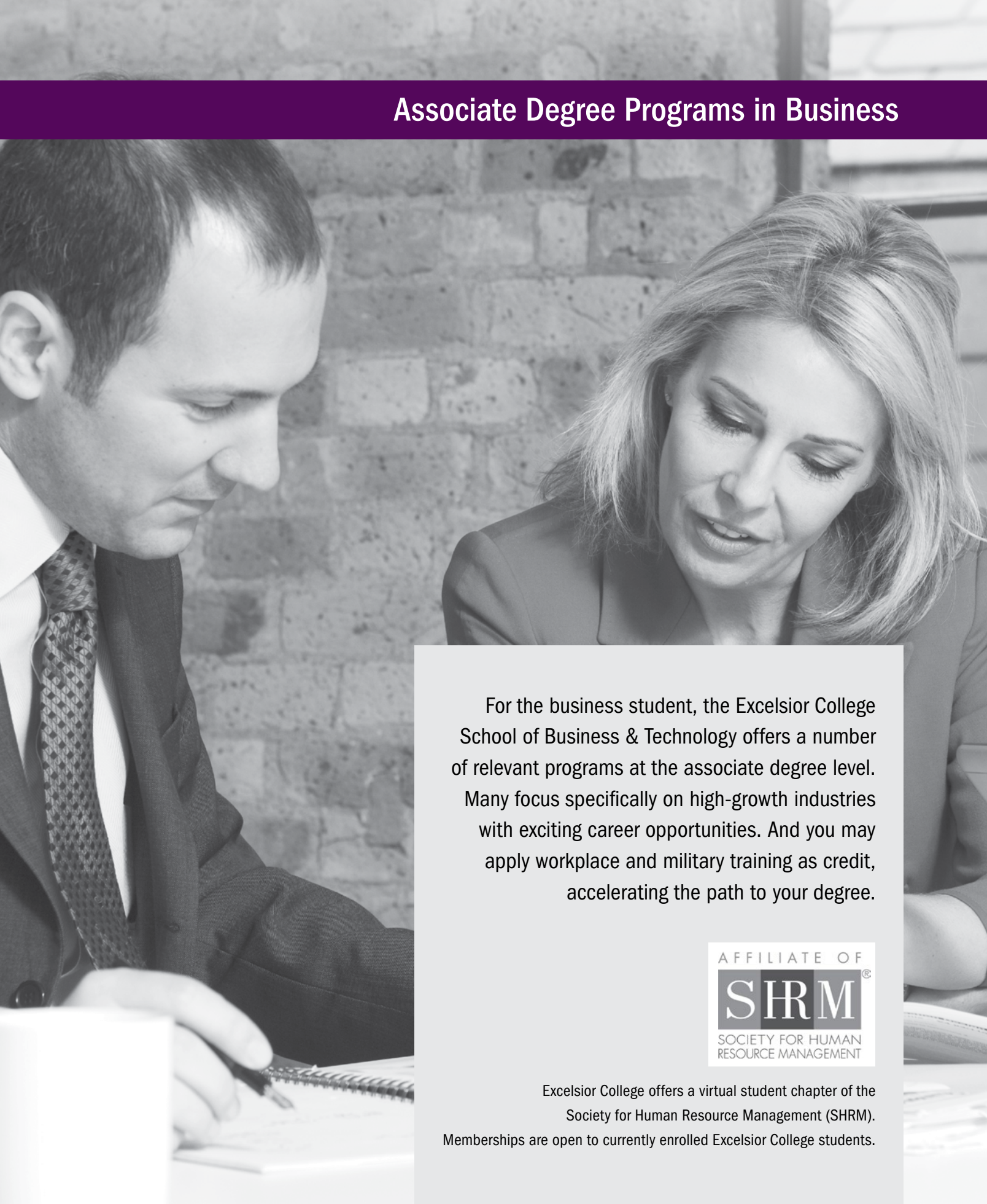
College Publications, Applications, and Forms:
www.excelsior.edu/publications

Student Policy Handbook:
www.excelsior.edu/studentpolicyhandbook

Course and Exam Information and Registration:
www.excelsior.edu/courses
www.excelsior.edu/exams
www.UExcelTest.com

Learning Resources:
www.excelsior.edu/myexcelsior, click on the **Resources** tab

Associate Degree Programs in Business



For the business student, the Excelsior College School of Business & Technology offers a number of relevant programs at the associate degree level. Many focus specifically on high-growth industries with exciting career opportunities. And you may apply workplace and military training as credit, accelerating the path to your degree.

AFFILIATE OF SHRM® SOCIETY FOR HUMAN RESOURCE MANAGEMENT

Excelsior College offers a virtual student chapter of the Society for Human Resource Management (SHRM). Memberships are open to currently enrolled Excelsior College students.

Associate in Applied Science in Administrative/Management Studies

While this degree program was designed specifically to meet the needs of those with military backgrounds by recognizing the college-level learning that takes place as a result of military training, the program may also be appropriate for non-military students. This degree program comprises learning and professional skill development in the areas of administration and/or management. Individuals exploring careers in the following business administration areas may benefit from this degree program: personnel/office administration, recordkeeping, data entry, clerical, secretarial, word processing/typing, reception/front office administration, and customer/guest services. Individuals exploring careers in the following business management areas may benefit from this degree program: human resources/relations management, file/inventory management, personnel management, facilities/equipment management, and general management.

Graduates of the Associate in Applied Science in Administrative/Management Studies program who are interested in continuing to baccalaureate-level study should contact the business advising team for advice in the preferred program of study. See chart on page 10 for a graphic representation of credit required for this degree program. A description of outcomes and specific degree requirements follows.

Program Outcomes

Upon successful completion of the Excelsior College Associate in Applied Science in Administrative/Management Studies program, the graduate will be able to:

1. Recognize key management concepts, theories, and practices within the field of business.
2. Apply good judgment and business ethical reasoning to problems and scenarios that commonly arise in business organizations.
3. Apply business theories and concepts to selected business problems.
4. Communicate clearly, appropriately, and persuasively to a business audience.
5. Utilize business computer applications and information technologies to organize and interpret business data and information.
6. Apply scientific reasoning and college-level mathematics to real-world business problems.

Degree Requirements

60 credits

A minimum of 60 credits is required for the Associate in Applied Science in Administrative/Management Studies, distributed as follows:

- **20 credits** minimum in the arts and sciences
- **20 credits** minimum in the business component
- **20 credits** of electives (to include information literacy)

Arts and Sciences Component

Arts and sciences are those areas of study classified as humanities, social sciences/history, and natural sciences/mathematics. The Associate in Applied Science in Administrative/Management Studies requires a minimum of 20 credits in the arts and sciences distributed as follows:

- **6 credits** in the humanities, including 3 credits in English Composition to fulfill the College's written English requirement and 3 credits in ethics;
- **6 credits** in social sciences/history, including 3 credits in behavioral sciences;
- **6 credits** in natural sciences/mathematics to include 3 credits in natural sciences and 3 credits in mathematics;
- **2 credits** in any arts and sciences area.

Excess credits in arts and sciences or in the business component may be applied toward electives.

Humanities

At least 6 credits must be earned in humanities subjects—3 of those 6 credits must be earned through completion of an examination or course used to satisfy the written English requirement (see page 5). The remaining 3 credits must be in ethics.

Social Sciences/History

At least 6 credits must be earned in social sciences/history of which 3 must be in behavioral sciences.

Social sciences/history subjects include, but are not limited to, anthropology, sociology, government, political science, psychology, geography, history, and economics.

Natural Sciences and Mathematics

At least 6 credits must be earned in natural sciences/mathematics. A minimum of 3 credits in college-level math courses and a minimum of 3 credits in natural sciences may be applied toward degree requirements.

Natural sciences/mathematics subjects include, but are not limited to, anatomy and physiology, microbiology, chemistry, biology, genetics, zoology, physics, precalculus, intermediate algebra, geometry, trigonometry, finite mathematics, astronomy, geology, and oceanography.

Arts and Sciences Electives

A maximum of 2 credits may be applied in this area.

Business Component

The Associate in Applied Science in Administrative/Management Studies requires a minimum of 20 credits in the career component. The business component consists of business credits related to your career field and primarily applies to those with military backgrounds. A maximum of 9 credits in computer courses/exams may be applied to the business component and must include a course/exam in computers, such as **IT 221 Introduction to Computers.**

BUS 299 Business Strategy (capstone) is the required capstone course included in the business component.

The following list shows the classification of military career fields according to the Associate in Applied Science in Administrative/Management Studies program. Career fields have been categorized to assist you in designing your program. If you have earned examination or coursework credit beyond military educational experience, you may choose another degree area that better fits your educational goal. Career fields that do not appear on this list may be appropriate for other Excelsior College degrees.

Military Career Fields

Army MOSs

00Z, 11B, 11C, 11H, 11M, 11Z, 13B, 13C, 13D, 13E, 13F, 13M, 13P, 13R, 13T, 13Z, 14D, 14J, 14L, 14M, 14R, 14S, 14Z, 18B, 18C, 18D, 18E, 18F, 18Z, 19D, 19K, 19Z, 25Z, 37F, 38A, 43M, 57E, 71D, 71G, 71L, 71M, 73C, 73D, 73Z, 75B, 75F, 75H, 76J, 79R, 79S, 79T, 88H, 88K, 88M, 88N, 88X, 88Z, 91B, 91M, 92A, 92G, 92M, 92R, 92Y, 92Z, 93C, 93F, 93P, 95B, 95C, 95D, 96B, 96D, 96H, 96R, 96U, 96Z, 97B, 97E, 97L, 97Z, 98C, 98G, 98H, 98J, 98K, 98Z, and related Warrant Officer MOSs

Navy Ratings

AC, AK, AZ, BM, CTA, CTI, CTO, CTR, DK, IS, LN, MA, MS, NC, PC, PN, QM, RP, SH, SK, SM, YN, and related Warrant Officer and Limited Duty Officer Ratings

Marine Corps MOSs

0150160230310320330332, 0340350352, 0369, 0810842, 0844, 0861171181811812, 2622629, 2632643, 2652672673, 2674, 2675, 3043, 3044, 3112, 3383423453529, 3533, 3537, 4425815812, 5836396597047324, 8438618915

Coast Guard Ratings

BM, IV, PS, QM, RD, SK, SS, TC, YN, and related Warrant Officer Ratings

Electives

The Associate in Applied Science in Administrative/Management Studies allows room for up to 20 credits in electives. Applied to this component is the 1-credit information literacy requirement. See page 6 for more information about this requirement.

Although you may have already fulfilled the minimum credit requirements in the arts and sciences and career component of your degree, you may still need to earn additional credit to fulfill the total 60-credit requirement. To do this, you may apply any of the following:

- arts and sciences credit above the minimum required
- business component credit above the minimum required
- elective credit

Elective credit may be earned in any field of college study, including business and other professional, technical, or career areas, as well as in the arts and sciences. Examples include military science, health, nursing, engineering, education, computer science, home economics, secretarial science, architecture, drafting, auto mechanics, law, social work, and criminal justice. A maximum of two credits in physical education activity courses may be applied to the degree.

Your Personalized MyExcelsior Account:
www.excelsior.edu/MyExcelsior

Admissions:
toll free 888-647-2388, ext. 27

Fee Schedules, Financial Aid, and Scholarships:
www.excelsior.edu/fees
www.excelsior.edu/financialaid
www.excelsior.edu/scholarships

College Publications, Applications, and Forms:
www.excelsior.edu/publications

Student Policy Handbook:
www.excelsior.edu/studentpolicyhandbook

Course and Exam Information and Registration:
www.excelsior.edu/courses
www.excelsior.edu/exams
www.UExcelTest.com

Learning Resources:
www.excelsior.edu/myexcelsior, click on the **Resources** tab

Associate in Applied Science in **Administrative/ Management Studies**

AAS
60 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Written English Requirement	3
Humanities Requirement ① *Must include Ethics*	3
Social Sciences/History Requirement *Must include 3 credits in behavioral sciences subjects*	6
Natural Sciences and Mathematics *Must include 3 credits in natural sciences and 3 credits in mathematics.*	6
Arts and Sciences Electives	2
TOTAL ARTS AND SCIENCES	**20**

BUSINESS COMPONENT ②	Credit Hours
Computers	3
Business Electives	14
BUS 299 Business Strategy (capstone) ③	3
TOTAL BUSINESS COMPONENT	**20**

ELECTIVE COMPONENT	Credit Hours
Free Elective Component *Includes 1-credit Information Literacy Requirement*	20
TOTAL ELECTIVE COMPONENT	**20**
TOTAL DEGREE CREDITS	**60**

① Exception to general education curriculum requirements for the minimum of **6 credits in Humanities.**

② No more than **9 credits in IT** can apply to the business component.

③ **BUS 299 Business Strategy (capstone)** is the required capstone course. It must be taken through Excelsior College and cannot be transferred in.

Associate in Science in Business

This degree is appropriate for you if your future plans include a career that requires an associate degree. Because our Associate in Science in Business articulates fully with the Excelsior College bachelor's degrees, it is also an appropriate step toward a bachelor's degree in business. Refer to the chart on page 14 for a graphic representation of required credit for the Associate in Science in Business. A description of outcomes and specific degree requirements follows.

Program Outcomes

Upon successful completion of the Excelsior College Associate in Science in Business program, the graduate will be able to:

1. Demonstrate effective oral and written communication skills.
2. Demonstrate a fundamental comprehension of the principles of accounting, business law, computers, management, and marketing.
3. Demonstrate a basic comprehension of the principles of macroeconomics, microeconomics, and statistics.
4. Apply quantitative fundamentals to solve business-related problems.
5. Demonstrate a comprehension of diverse cultural heritage, interpersonal relationships, the relationship between business and society, and personal values to make intelligent and discerning judgments.
6. Demonstrate a proficiency in computer applications used in business.

Degree Requirements

60 credits

The Associate in Science in Business requires a minimum of 60 credits, distributed as follows:

- **30 credits** minimum in the arts and sciences
- **24 credits** minimum in the business component
- **6 credits** of electives (to include information literacy)

Arts and Sciences Component

Arts and sciences are those areas of study classified as humanities, social sciences/history, and natural sciences and mathematics. The Associate in Science in Business requires a minimum of 30 credits in the arts and sciences distributed as follows:

Humanities

A minimum of 9 credits is required in this area. At least 3 credits must be earned in ethics and an additional 3 credits must be earned to satisfy the written English requirement.

Social Sciences/History

A minimum of 12 credits is required in this area. At least two courses (minimum of 6 credits total) must be earned in social sciences/history **in addition to microeconomics and macroeconomics.**

Social sciences/history courses include, but are not limited to, anthropology, sociology, government, political science, psychology, geography, history, and economics.

Natural Sciences and Mathematics

A minimum of 9 credits must be earned in natural sciences and mathematics. You are required to complete one course in **precalculus (or higher math),** one course in **statistics,** and one course in a **natural science.**

Natural sciences and mathematics courses include, but are not limited to, anatomy and physiology, microbiology, chemistry, biology, genetics, zoology, physics, precalculus, calculus, astronomy, geology, and oceanography.

Only three college-level math courses below the level of calculus may be applied to degree requirements.

Arts and Sciences Core Requirements

You must earn a grade of C or better in each of the following six areas required as part of the Associate in Science in Business program.

Where an Excelsior College exam or course will satisfy a requirement, it is shown in [brackets]. UExcel® exams have an "x" after the department; for example, **[BUSx310 Ethics: Theory & Practice]**.

1. **Written English Requirement**

   At least 3 credits must come from a course that satisfies the written English requirement (see page 5).

2. **Ethics**

   Study of ethics theory, personal values, and the impacts of organizational culture. An understanding of how ethical principles relate to the organizations in which people function, and the effects of the organization's ethics on its reputation, functioning, and performance. **[BUS 323 Business Ethics, BUSx323 Business Ethics, BUSx310 Ethics Theory & Practice]**

3. **Microeconomics**

   Elementary analysis of economic theory as it relates to the individual consumer and individual firm. Topics covered include supply and demand, consumption and revenue, production and cost, and analysis of output and input markets.

   The microeconomics requirement may be satisfied with credits from coursework in any of the following subjects: introductory microeconomics, principles of economics [micro], managerial economics. **[ECO 260 Introduction to Microeconomics, ECOx260 Introduction to Microeconomics]**

4. **Macroeconomics**

   Study of concepts and methods of economic analysis as well as gross national product, unemployment, money, and theory of national income.

   The macroeconomics requirement may be satisfied with credits from coursework in any of the following subjects: introductory macroeconomics, principles of economics [macro]. **[ECO 262 Introduction to Macroeconomics, ECOx262 Introduction to Macroeconomics]**

5. **Mathematics (at the level of Precalculus or higher)**

   Study of exponents, logarithms, polynomial equations, solution of linear and quadratic equations in more than one unknown, determinants, matrices, permutations and combinations, mathematical induction, binomial theorem, probability, arithmetic, and geometric progressions.

   This course typically precedes calculus in a college math sequence. Elementary or intermediate algebra courses will not apply toward the mathematics requirement.

   The mathematics requirement may be satisfied with credits from coursework in any of the following subjects: college algebra, precalculus. **[MAT 116 Pre-Calculus Algebra, MATx116 Pre-Calculus Algebra]**

6. **Statistics**

   Introduction to the basic concepts of probability and statistics, sample statistics, discrete and continuous probability distributions, confidence intervals, estimation, and regression.

   The statistics requirement may be satisfied with credits from coursework in any of the following subjects: business statistics, economic statistics, elementary statistics, introductory statistics, statistics for the social sciences, any statistics course that covers descriptive or inferential statistics. **[BUS 233 Business Statistics, MATx210 Statistics]**

All credit you apply to the business component of your degree must have been earned fewer than 15 years prior to your enrollment date.

Business Component

The business component includes core requirements that help you gain basic knowledge in business administration and the underlying discipline of decision making. A grade of C or better is required for applicable credit.

The Associate in Science in Business requires a minimum of 24 credits in the business component.

Business Core Requirements

Following are typical course titles for the required business core courses. Refer to the course description section beginning on page 50 for content information. In general, a course or exam worth 3 credits will satisfy each core requirement.

1. **Financial Accounting**

   Financial accounting subjects include, but are not limited to, Fundamentals of Accounting I, Principles of Accounting I. **[ACC 211 Financial Accounting, ACCx211 Financial Accounting]**

2. **Managerial Accounting**

   Managerial accounting subjects include, but are not limited to, fundamentals of accounting II, introductory managerial accounting, principles of accounting II. **[ACC 212 Managerial Accounting, ACCx212 Managerial Accounting]**

3. **Business Communication**

   Business communications subjects should provide students with knowledge and skills to effectively communicate (oral and written) in global, diverse business environments by using computer technologies and social media tools. **[BUS 222 Business Communication]**

4. **Introduction to Business Law (United States Business Law)**

   Subjects that may be used to satisfy this component include, but are not limited to, business law I or II, commercial law I or II, legal environment of business. **[BUS 230 Business Law, BUSx230 Business Law]**

5. **Computers**

   Subjects that may be used to satisfy this component include, but are not limited to, computer programming, computer science, data processing, introduction to management/computer information systems **[IT 221 Introduction to Computers]**. Word processing credit alone will not satisfy this requirement.

   There are many Excelsior College courses that will apply to the computer requirement. A maximum of 6 credits in computers may be applied to the business component of the Associate in Science in Business. Please refer to our website or contact your advising team for more information on our course offerings.

6. **Management**

   Subjects that may be used to satisfy this component include, but are not limited to, introduction to management, management, management concepts. **[BUS 341 Management Concepts and Applications, BUSx240 Principles of Management]**

7. **Marketing**

   Subjects that may be used to satisfy this component include, but are not limited to, introduction to marketing, marketing concepts, marketing principles. **[BUS 351 Marketing Concepts and Application, BUSx250 Principles of Marketing]**

8. **Business Strategy Capstone**

   This is the required capstone course included in the business core requirements. **[BUS 299 Business Strategy (capstone)]**

The capstone course is required and must be taken through Excelsior College and cannot be transferred in.

Elective Credit Component

Although you may have already fulfilled the minimum credit requirements in the arts and sciences and business components of the Associate in Science in Business, you may still need to earn additional credit to fulfill the total credit requirement of 60 credits.

To do this, you may apply any of the following:

- Arts and sciences credit above the minimum required.
- Business credit above the minimum required.
- Free elective credit. A maximum of 2 credits from physical education activity courses may be applied to the degree.

Information Literacy Requirement

Students are expected to demonstrate competency in information literacy with successful completion of the 1-credit information literacy requirement. See page 6 for more information.

Associate in Science in **Business**

AS

60 Total Degree Credits Required

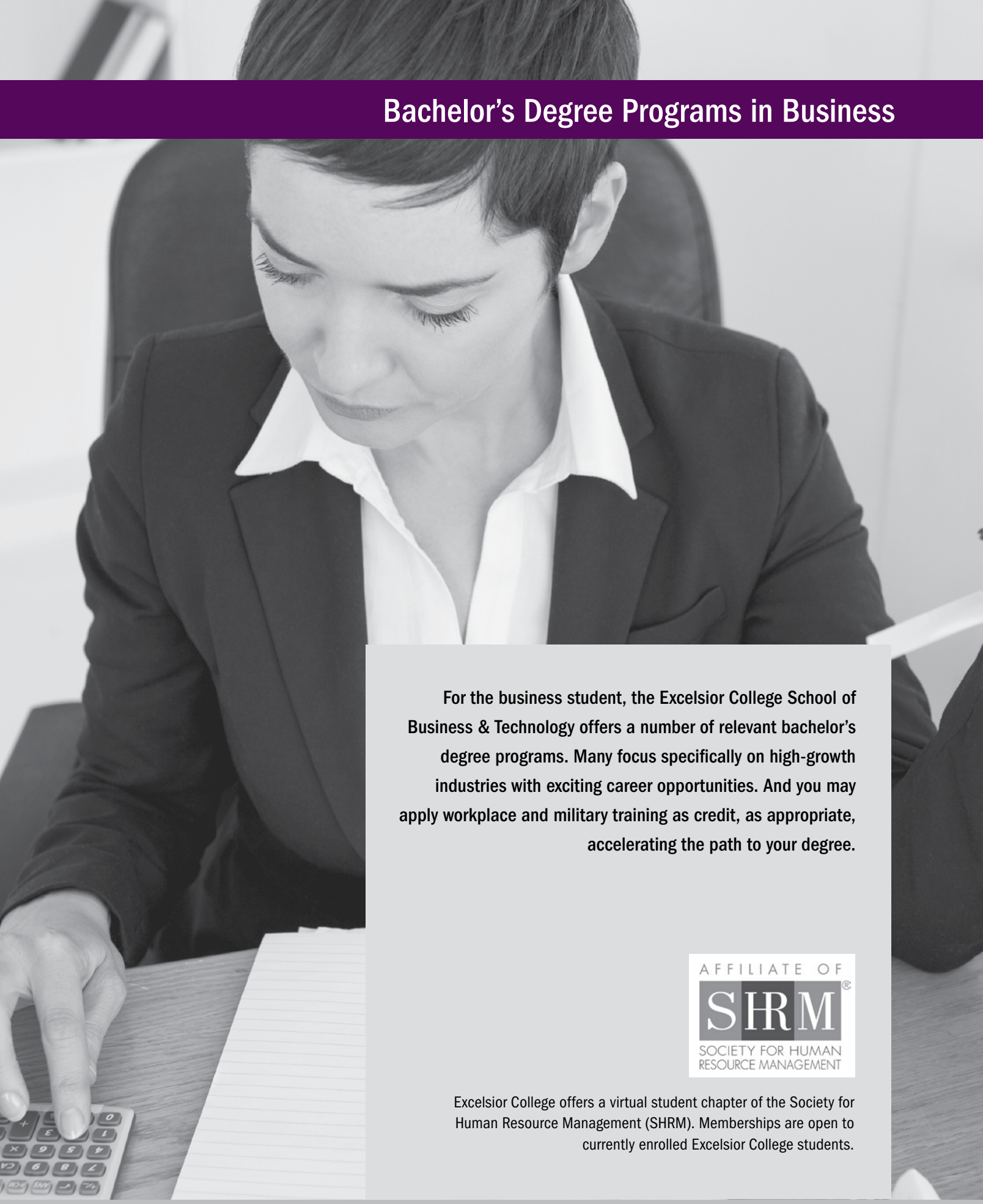
ARTS AND SCIENCES COMPONENT	Credit Hours
Written English Requirement	3
Humanities Requirement *Must include Ethics.*	6
Social Sciences/History Requirement *Must include Microeconomics, Macroeconomics*	12
Natural Sciences and Mathematics Requirement *Must include a math course at the level of Precalculus or above, Statistics, and one course in natural sciences*	9
TOTAL ARTS AND SCIENCES COMPONENT	**30**

BUSINESS COMPONENT	Credit Hours
Financial Accounting	3
Managerial Accounting	3
Business Communications	3
Introduction to Business Law (United States Business Law)	3
Computers	3
Principles of Management	3
Principles of Marketing	3
BUS 295 Integrated Business and Management Assessment (capstone)	3
MINIMUM BUSINESS COMPONENT	**24**

ADDITIONAL CREDIT COMPONENT	Credit Hours
Any Collegiate-Level Study *May include any excess credit in Arts and Sciences and Business areas.*	5
Information Literacy	1
TOTAL ADDITIONAL CREDIT COMPONENT	**6**
TOTAL DEGREE CREDITS	**60**

① **BUS 299 capstone course** is required and must be taken through Excelsior College. It cannot be transferred in.

Bachelor's Degree Programs in Business



For the business student, the Excelsior College School of Business & Technology offers a number of relevant bachelor's degree programs. Many focus specifically on high-growth industries with exciting career opportunities. And you may apply workplace and military training as credit, as appropriate, accelerating the path to your degree.

AFFILIATE OF SHRM® SOCIETY FOR HUMAN RESOURCE MANAGEMENT

Excelsior College offers a virtual student chapter of the Society for Human Resource Management (SHRM). Memberships are open to currently enrolled Excelsior College students.

Requirements and Policies Specific to the Bachelor's Degrees in Business

Every Excelsior College degree program requires a specific number of credits in each of its component areas. The chart relevant to your degree program shows a graphic representation of the credit needed to fulfill all the requirements for your chosen degree.

The Excelsior College Bachelor of Science in Business (with concentration), the Bachelor of Science in Business to Master of Business Administration (Dual Degree Track), and the Bachelor of Professional Studies in Business and Management are composed of three major components: arts and sciences, business, and elective credit. The three components and their respective requirements are explained in the following sections.

You are subject to the degree requirements in effect at the time of your enrollment or program/degree transfer (program transfer refers to changes from one school to another; degree transfer refers to changing degrees within the same school).

The faculty reserves the right to make changes in curricular requirements as necessary to reflect current professional practice. Changes may affect both enrolled and prospective students. It is your responsibility to keep informed of such changes. We make every effort to inform you of changes as they occur. Current information about degree requirements is posted on our website. Information about changes to degree requirements is also made available on our website.

The Excelsior College Student Policy Handbook is your resource for understanding the academic and administrative policies that are important to your academic success. It includes a wide range of information from important federal policies, including your right to privacy, to grading policies and policies and procedures concerning refunds, withdrawals, and other administrative issues. It is your responsibility to be familiar with these policies.

Policies and procedures that apply specifically to the bachelor's programs in business are listed on the following pages. File your handbook with this program catalog and your other important academic papers for easy reference.

The program educational objectives, program outcomes, and specific degree requirements for the degree programs listed above are on the following pages.

Program Educational Objectives

As an Excelsior College bachelor's-level business graduate, within a few years of graduation, you are expected to:

1. Apply general and discipline-specific concepts and methodologies to identify, analyze, and solve business problems.
2. Demonstrate an individual desire and commitment to remain current with and adaptive to changing business conditions through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional business environment.
4. Communicate effectively in a professional business environment.
5. Perform ethically and professionally in business and society.
6. Attain increasing levels of responsibility and leadership in one's chosen career field.

Bachelor of Science in Business *(with concentration)*

The Bachelor of Science in Business is a competency-based degree program focused on preparing students to become business managers and leaders. The program puts special emphasis on developing the knowledge, professional skills, attitudes, and values required for a business person to meet the demands of a 21st-century workforce. To do this, the program emphasizes 15 competency areas that provide students with a broad professional foundation in the functional components of business, as well as with a strong liberal arts base to ensure students have academic breadth and the commitment to lifelong learning needed to adapt to and succeed in an ever-changing world. The integration of all 15 competency areas allows students to apply what they have learned within the degree program to the real-world contexts of the business world.

Student progress within the degree program is based on the demonstration of proficiency, and is attainable through multiple flexible pathways—online courses, credit by exam, and credit aggregation. These avenues can be used in the combination best suited to the preferences of the student.

The course option provides a pathway for students who desire a structured, instructor-led classroom experience. The exam experience provides students with an independent study option, where grades are solely determined by their performance on an exam. Study for the exams is supported by free open educational resources. Finally, students have the opportunity to earn credits elsewhere and transfer them into the degree program to satisfy requirements. Each of these pathways allow students to customize and tailor the program to their own needs and learning styles. Each of these pathways allows students to customize and tailor the program to their own needs and learning styles.

Program Competencies

The competencies provide students with a foundational knowledge of business administration and strategic management. Upon completion of the degree program, students will be able to achieve the following in these competency areas:

1. **Economics**
   Apply micro and macroeconomic concepts and theories to explain the relationship between legal, social, and economic interests of individuals and society.
2. **Accounting**
   Apply basic accounting concepts and principles to the analysis and interpretation of corporate financial statements.
3. **Marketing**
   Explain how modern marketing concepts and theories support and influence business strategies.
4. **Finance**
   Utilize financial management concepts and tools to make informed business decisions.
5. **Management**
   Apply the major concepts and theories of management and leadership in order to develop business strategies in a real-world context.
6. **Quantitative Analysis**
   Utilize quantitative research, statistics, and data analysis to analyze business data, support business decisions, and solve problems.
7. **Global**
   Analyze the opportunities and risks associated with doing business in a global environment.
8. **Ethics**
   Justify decisions by evaluating the social, ethical, and legal implications for business organizations.
9. **Communication**
   Effectively communicate business concepts orally and in writing to multiple audiences.
10. **Computer Skills**
    Utilize business computer applications and information technologies to organize and interpret business data and information.
11. **Teamwork/Cultural Diversity**
    Work effectively and collaboratively on diverse teams to complete projects based on real-world scenarios.
12. **Critical Thinking**
    Employ critical thinking skills to interpret and analyze competing arguments and perspectives in a business environment.
13. **Leadership**
    Organize tasks and understand how to delegate responsibility in order to complete collaborative projects in a timely manner.

14. **Lifelong Learning**
    Evaluate their individual strengths and weaknesses with the desire to update skills and continually improve.
15. **Business Strategy**
    Apply knowledge of business concepts and functions in an integrated manner to make strategic decisions in a real-world context.

Program Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Business program, the graduate will be able to:

1. Demonstrate comprehension of the principles of accounting, marketing, finance, management, and economics.
2. Demonstrate comprehension of the legal and social environment of business.
3. Demonstrate comprehension of the global environment of business.
4. Apply ethical considerations to the obligations and responsibilities of business.
5. Apply business tools to real-world situations.
6. Employ information literacy techniques.
7. Communicate effectively, orally and in writing.
8. Apply business concepts and functions in an integrated manner.
9. Apply business concepts and functions in an integrated manner.
10. Evaluate individual and corporate taxation policies, regulations, and practices of business organizations.
11. Analyze advanced financial and accounting management strategies and applications.

All credit you apply to the business component of your degree must have been earned fewer than 15 years prior to your enrollment date.

Degree Requirements

120 credits

The Bachelor of Science in Business (with concentration) requires a minimum of 120 credits, distributed as follows:

- **60 credits** minimum in the arts and sciences
- **54 credits** minimum in the business component
- **6 credits** in the elective credit component

Arts and Sciences Component

Arts and sciences are those areas of study classified as humanities, social sciences/history, and natural sciences and mathematics. Excelsior College business degrees require a minimum number of credits in humanities and social sciences/history as part of the arts and sciences component:

- **6-credit** written English requirement
- **9 credits** in humanities (must include Ethics)
- **15 credits** in social sciences/history (must include **microeconomics** and **macroeconomics)**
- **9 credits** in natural sciences and mathematics to include a math course at the level of **precalculus** or above, **statistics**, and a course in natural sciences
- up to **21 credits** in any arts and sciences area (must include Organizational Behavior and Quantitative Analysis)

Excess credits in arts and science or in the business component may be applied toward electives.

Humanities

You must successfully complete at least 9 credits in the humanities.

1. A minimum of 3 credits **must** be earned in Business Ethics **[BUS 323 Business Ethics, BUSx323 Business Ethics]**.
2. A minimum of 6 credits must be earned in other humanities subjects such as art, literature, philosophy, religion, theatre, speech, and foreign languages.

Humanities subjects include, but are not limited to, art, music, literature, foreign language, philosophy, religion, speech, and creative/advanced writing.

Examinations or courses used to satisfy the written English requirement **may not** be applied toward the humanities requirement.

Social Sciences/History

You must successfully complete a minimum of 15 credits in the social sciences/history and must include **microeconomics** and **macroeconomics**.

Social sciences/history subjects include, but are not limited to, anthropology, sociology, government, political science, psychology, geography, history, and economics.

Natural Sciences and Mathematics

You must successfully complete a minimum of 9 credits in natural sciences and mathematics comprising a 3-credit course in **precalculus (or higher math)**, a 3-credit course in **statistics,** and a **3-credit course in a natural science.**

Natural sciences and mathematics subjects include, but are not limited to, anatomy and physiology, microbiology, chemistry, biology, genetics, zoology, physics, precalculus, calculus, astronomy, geology, and oceanography.

Only three college-level math courses below the level of calculus may be applied to degree requirements.

Arts and Sciences Core Requirements

You must earn a minimum grade of C in each of the following arts and sciences core requirements:

1. **Written English Requirement**

   At least 6 credits must be taken to satisfy the written English requirement (see page 5).

2. **Ethics**

   Study of ethics theory, personal values, and the impacts of organizational culture. An understanding of how ethical principles relate to the organizations in which people function, and the effects of the organization's ethics on its reputation, functioning, and performance.

   The ethics requirement may be satisfied with credits from ethics-related courses. **[BUS 323 Business Ethics, BUSx310 Ethics Theory & Practice]**.

3. **Microeconomics**

   Elementary analysis of economic theory as it relates to the individual consumer and individual firm. Topics covered include supply and demand, consumption and revenue, production and cost, and analysis of output and input markets.

   The microeconomics requirement may be satisfied with credits from coursework in any of the following subjects: introductory microeconomics, principles of economics [micro], managerial economics. **[ECO 260 Introduction to Microeconomics, ECOx260 Introduction to Microeconomics]**

4. **Macroeconomics**

   Study of concepts and methods of economic analysis as well as gross national product, unemployment, money, and theory of national income.

   The macroeconomics requirement may be satisfied with credits from coursework in any of the following subjects: introductory macroeconomics, principles of economics [macro]. **[ECO 262 Introduction to Macroeconomics, ECOx262 Introduction to Macroeconomics]**

5. **Mathematics**

   (at the level of precalculus or higher)

   Study of exponents, logarithms, polynomial equations, solution of linear and quadratic equations in more than one unknown, determinants, matrices, permutations and combinations, mathematical induction, binomial theorem, probability, arithmetic, and geometric progressions.

   This course typically precedes calculus in a college math sequence. Elementary or intermediate algebra courses will not apply to the mathematics requirement.

   The mathematics requirement may be satisfied with credits from coursework in any of the following subjects: college algebra, precalculus. **[MAT 116 Pre-Calculus Algebra, MATx116 Pre-Calculus Algebra]**

6. **Statistics**

   Introduction to the basic concepts of probability and statistics, sample statistics, discrete and continuous probability distributions, confidence intervals, estimation, and regression.

   The statistics requirement may be satisfied with credits from coursework in any of the following subjects: business statistics, economic statistics,

elementary statistics, introductory statistics, statistics for the social sciences, any statistics course that covers descriptive or inferential statistics. **[BUS 233 Business Statistics, MATx210 Statistics]**

7. **Organizational Behavior**

   An overview of human behavior in work organizations. It examines theoretical, empirical, and applications issues from individual, interpersonal, group, and organizational perspectives. Topics include the overview and history of the field, perceptions, attitudes, learning processes, personality, motivation, stress, performance appraisal, group dynamics, leadership, communication, decision making, job design, organizational structure and design, organizational change, and development. **[BUS 311 Organizational Behavior, BUSx315 Organizational Behavior]**

8. **Quantitative Analysis**

   Quantitative methods and techniques for decision support in a management environment, including applications of the computer. It will include formal project management tools and techniques, such as Gantt charts, Program Evaluation and Review Techniques (PERT) and Critical Path Method (CPM) charts, use of time series analysis for forecasting, applications of regression analysis in management, and aspects of decision theory and simple modeling. Several components include the use of computer software. **[BUS 430 Quantitative Methods, BUSx437 Quantitative Analysis]**

Business Component

The business component includes a core requirement that helps you gain basic knowledge in business administration and the underlying discipline of decision making. Many of the required core courses are offered by community colleges, while some may be available only at four-year institutions.

Credit in the business component of your degree is earned from core courses, both lower-level and upper-level business elective courses, and concentration subjects. A grade of C or better is required for applicable credit.

All credit you apply to the business component of your degree must have been earned fewer than 15 years prior to your enrollment date.

Business Component Core Requirements

The following business subjects comprise the core requirements for the degree program. Refer to the course description section of the catalog beginning on page 50 to locate courses that meet the appropriate subject area. In general, a course or exam worth 3 credits will satisfy each core requirement.

1. **Financial Accounting**

   Financial accounting subjects include, but are not limited to, fundamentals of accounting I, principles of accounting I. **[ACC 211 Financial Accounting, ACCx211 Financial Accounting]**

2. **Managerial Accounting**

   Managerial accounting subjects include, but are not limited to, fundamentals of accounting II, introductory managerial accounting, principles of accounting II. **[ACC 212 Managerial Accounting, ACCx212 Managerial Accounting]**

3. **Introduction to Business Law (United States business law)**

   Subjects that may be used to satisfy this business component core requirement include, but are not limited to, business law I or II, commercial law I or II, legal environment of business. **[BUS 230 Business Law, BUSx230 Business Law]**

4. **Computers**

   Subjects that may be used to satisfy this business component core requirement include, but are not limited to, computer programming, computer science, data processing, and introduction to management/computer information systems. Word processing credit alone will not satisfy this requirement. **[IT 221 Introduction to Computers]**

   There are many Excelsior College courses that will apply to the computer requirement. Please refer to our website or contact your advising team for more information. A maximum of 9 credits in computer courses may be applied to the business component of all baccalaureate business degrees (with the exception of the **Bachelor of Science in Business with a concentration in Management Information Systems**).

5. **Business Communication**

   Business communications subjects should provide students with knowledge and skills to effectively communicate (oral and written) in global,

diverse business environments by using computer technologies and social media tools. **[BUS 222 Business Communication]**

6. **Principles of Management**

   Subjects that may be used to satisfy this component include, but are not limited to, introduction to management, management, management concepts. **[BUSx240 Principles of Management, BUS 341 Management Concepts and Applications]**

7. **Principles of Marketing**

   Subjects that may be used to satisfy this business component core requirement include, but are not limited to, introduction to marketing, marketing concepts, marketing principles. **[BUSx250 Principles of Marketing, BUS 351 Marketing Concepts and Application]**

8. **Financial Management**

   Subjects that may be used to satisfy this business component core requirement include, but are not limited to, business finance, corporation finance, principles of finance. **[BUS 350 Principles of Finance, BUSx350 Principles of Finance]**

   Courses in personal finance will not satisfy this requirement.

9. **International Business**

   Subjects that may be used to satisfy this business component core requirement include, but are not limited to, global business, international business, **[BUS 435 International Business]**

10. **Strategic Management (Capstone) [BUS 499 Strategic Management (Capstone)]**

    The capstone course is required and must be taken through Excelsior College and cannot be transferred in.

Identifying Applicable Business Elective Courses

To see what types of courses you may find applicable as business electives, you may wish to review the course titles listed for specific business concentrations (pages 22–27 in this catalog). Courses that are either required or suggested for concentrations are considered business electives for students pursuing a Bachelor of Science in Business with a concentration in General Business.

Identifying Applicable Business Concentration Courses

To see what types of courses you may find applicable to your selected business concentration, you should review the concentration requirements (beginning on page 22).

Upper-Level Credit Requirements

All students in the Bachelor of Science in Business (with concentration) must earn a minimum of 21 upper-level business credits. If you are pursuing a business degree with a general business concentration, you may apply the upper-level credit in any approved business area. If you choose any other concentration, at least 9 of the 21 required credits of upper-level credit must be in your area of concentration.

In addition to college course credit, you may earn upper-level credit by passing examinations classified by the Excelsior College business faculty as upper level as well as by successfully completing courses or examinations evaluated by the American Council on Education (ACE) College Credit Recommendation Service of the Center for Lifelong Learning or the New York State Board of Regents National College Credit Recommendation Service (formerly known as National PONSI) and accepted by the Excelsior College business faculty as upper level.

Some credit recommended as upper-level by ACE may not apply as upper-level credit toward your business degree.

The Excelsior College business faculty will not classify the following as upper-level business electives, even if such courses are numbered at the junior/senior level:

- **Business Writing**
- **Consumer Finance**
- **Personal Finance**

Other faculty and College policies may also affect the classification of upper-level credit.

There are many Excelsior College courses that will apply as upper-level credit in the business degrees. See our **website** for a list of current course offerings.

Elective Credit Component

Although you may have already fulfilled the minimum credit requirements in the arts and sciences and business components of your chosen degree, you may still need to earn additional credit to fulfill the total credit requirement of your bachelor's degree. To do this, you may apply any of the following: arts and sciences credit above the minimum required, business credit above the minimum required, or free elective credit.

Free elective credit may be earned in any field of collegiate study, including business and other professional, technical, or vocational areas as well as the arts and sciences. Examples include military science, health, nursing, engineering, education, computer science, home economics, secretarial science, architecture, drafting, auto mechanics, law, social work, and criminal justice. A maximum of 2 credits for physical education activity courses may be applied.

Information Literacy Requirement

Students are expected to demonstrate competency in information literacy. See page 6 for more information about the information literacy requirement.

CONCENTRATIONS

In addition to other business component requirements, you must also satisfy requirements specific to your chosen concentration.

The baccalaureate degree program in business offers the following concentrations:

- Finance
- General Accounting
- General Business
- Global Business
- Management of Human Resources
- Marketing
- Operations Management
- Management of Information Systems

Finance

See chart on page 27.

The finance degree curriculum is designed to help you develop a working understanding of financial decision-making processes. It also offers insight into how financial markets function. The finance concentration provides part of the necessary education for students seeking careers in business, industry, financial institutions, government, or not-for-profit organizations in positions such as financial analyst, cost engineer, securities analyst, or commercial or investment banking officer.

Concentration Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Business with a Finance Concentration, the graduate will be able to:

1. Describe managerial functions within global financial markets and banking institutions.
2. Integrate effective strategies for improving the financial management of domestic and foreign corporations.
3. Evaluate organizational financial risks through securities and portfolio analysis.

Subject Requirements for the Finance Concentration

1. **Required Subjects**
   - Advanced Financial Management (sometimes called Advanced Corporate Finance) **[BUS 415 Advanced Financial Management]**
   - Financial Markets and Institutions (or Money and Banking) **[BUS 235 Financial Markets & Institutions]**
   - **Securities Analysis** (or Portfolio Management) **[BUS 437 Security Analysis & Investments]**
2. Additional credit in the concentration may be earned from courses such as commercial banking management, international finance, management of financial institutions, real estate, risk and insurance, and other related courses (with approval). **[BUS 317 International Finance, BUS 305 Principles of Insurance, BUS 438 Risk Control, BUS 302 Risk Management Concepts & Applications]**

General Accounting

See chart on page 27.

Accounting is a changing profession that demands concern for both theory and practice. Accountants must work with people while simultaneously maintaining awareness of the human, social, legal, and environmental factors vital to the operation of an organization. There are two major types of accounting: managerial accounting and public accounting.

Managerial accountants work with people at all levels of management to develop, monitor, and review a firm's information and financial systems in order to help plan and control business activities. Career opportunities include controllership and corporate or managerial accounting as well as public accounting, internal auditing, and consulting. Public accountants work independently or with auditing firms to establish the credibility of financial reports. They often specialize in tax and other financial matters.

Concentration Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Business with a General Accounting concentration, the graduate will be able to:

1. Describe Generally Accepted Accounting Principles (GAAP), concepts, and theories.
2. Integrate accounting decision-making tools for evaluating financial statements, conducting audits, and performing cost accounting.
3. Evaluate individual and corporate taxation policies, regulations, and practices of business organizations.

Subject Requirements for the General Accounting Concentration

1. **Required Subjects**

- Intermediate Accounting I
  [ACC 314 Intermediate Accounting I]
- Intermediate Accounting II
  [ACC 315 Intermediate Accounting II]
- Cost Accounting
  [ACC 360 Cost Accounting]
- Taxation (United States tax)
  [ACC 417 Individual & Corporate Taxation]

2. Additional credit in the concentration may be earned from courses such as advanced accounting, auditing, fund accounting, international accounting, and other related courses with approval.

General Business

See chart on page 27.

Earning the credit required for this concentration helps you create a strong foundation on which to build a career. The Bachelor of Science curriculum is designed to give you an overview of the entire business world. By gaining the knowledge and skills associated with this level of learning, you should acquire the background necessary for a variety of nonspecialist employment opportunities. You may find this option of particular interest if you are considering a career in small business, graduate study in business, or law school following graduation. If Excelsior College does not offer a business concentration in your field of interest, you may choose to demonstrate your preparation in the field by enrolling in the general business option and applying a block of credit in a particular business-related field as electives.

Global Business

See chart on page 27.

The curriculum for the study of global business presents an overview of the current problems and methods of analysis related to the global operations of a business. It focuses on the basic tools of analysis in global operations such as global economic analysis and analysis of the global business environment. It also incorporates study of the techniques of market penetration abroad and the evaluation of investments and financial sources. Expertise in the concentration opens career opportunities in a challenging business world that demands knowledge of global business and economic trends. Such opportunities include entry-level positions in domestic marketing and finance as well as management or entry-level global business positions.

Concentration Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Business with a Global Business concentration, the graduate will be able to:

1. Describe the fundamental tools to examine current issues in global operations and international economies.
2. Integrate the techniques of market penetration abroad and the impact they would have on investments and financial resources.
3. Evaluate the nature and scope of international business, including the institutional, sociocultural, political, legal, ethical, and foreign investment.

Subject Requirements for the Global Business Concentration

1. **Required subjects**
   - International Finance **[BUS 317 International Finance]**
   - International Marketing **[BUS 343 International Marketing]**
2. Additional credit in the concentration may be earned from courses such as export/import management, foreign market analysis, intercultural communication, international accounting, international banking/international monetary theory, international business ethics, international economics, international strategy, multinational management, and other related courses, with approval. **[BUS 480 Global Business Strategy, ECON 360 International Economics]**
3. **Required subjects—Arts and Sciences** (applicable only to arts and sciences component requirements—not applicable to the 15 credits in the concentration)
   - International Relations (International Politics) **[ECON 341 Globalization]**
   - Two semesters of the same foreign language

Management of Human Resources

See chart on page 27.

The curriculum in management of human resources emphasizes the management of individuals and groups in business firms, government agencies, and other organizations. Managers must be competent leaders. They coordinate work and human systems so that employees are motivated. Managers must create an environment conducive to accomplishing the objectives of both the employees and the organization. Employment opportunities in the field include general management, human resource management, labor or industrial relations, and personnel administration.

Concentration Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Business with a Management of Human Resources concentration, the graduate will be able to:

1. Describe the role and context of human resource management.
2. Integrate personnel management and research to real business scenarios.
3. Evaluate human resources management and strategies to achieve organizational goals.

Subject Requirements for the Management of Human Resources Concentration

1. **Required Subjects**
   - Labor Relations **[BUSx360 Labor Relations, BUS 315 Labor Relations]**
   - Personnel Administration (sometimes called Human Resource Management **[BUSx410 Human Resource Management, BUS 312 Managing Human Resources]**
2. Additional credit in the concentration may be earned from courses such as collective bargaining, human resource development, industrial psychology, labor economics, organizational development, training and development, staffing, compensation and benefits, and other related courses (with approval). **[BUS 380 Managing Diversity in the Workplace, BUS 452 Business Leadership, SOC 318 Sociology of the Workplace, BUS 325 Women in Business]**

Management of Information Systems

See chart on page 27.

The management information systems curriculum is designed to prepare you for a career as a management-oriented, technically proficient information systems professional. It provides an overview of systems design, programming, and implementation. Career options are extensive. Graduates in this field are in demand as information systems consultants, programmer analysts, and computer specialists in a wide range of public and private organizations.

Concentration Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Business with a Management of Information Systems concentration, the graduate will be able to:

1. Identify emerging technologies and tools for information technology solutions.
2. Integrate information technologies-based solutions to meet user needs.
3. Apply best practices and standards for information technology applications.

Subject Requirements for the Management Information Systems Concentration

1. **Required Subjects**
   - A business programming language (C, C++, JAVA) **[IT 210 Object Oriented Programming]**
   - Database Management **[IT 370 Database Management Systems]**
   - Data Communications or Telecommunications or Networking **[IT 350 Business Data Communication]**
   - Systems Analysis and Design **[IT 418 Software Systems and Design]**
2. Additional credit in the concentration may be earned from courses such as operating systems, computer architecture, data structures and computer security.

Marketing

See chart on page 27.

Marketing includes all activities required to direct the flow of products and services from producers to consumers. It includes marketing research, which entails interpreting conditions in the marketplace and forecasting future trends; the development of strategies to ensure demand for a product or service; analysis of how consumers behave; advertising and promotion; distribution of goods; and the utilization of effective selling methods. Career opportunities in marketing include product or brand management, retail/wholesale management, industrial marketing, advertising, and market information systems analysis.

Concentration Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Business with a Marketing concentration, the graduate will be able to:

1. Describe marketing activities and strategies that are used to shift products and services from vendors to consumers in the retail and wholesale markets.
2. Integrate marketing research to forecast trends of products and services to analyze the international and domestic markets.
3. Evaluate consumer behavior and promotional policy and determine any ethical implications.

Subject Requirements for the Marketing Concentration

1. **Required Subjects**
   - Consumer Behavior **[BUS 225 Consumer Behavior]**
   - Marketing Management (sometimes called Product Planning) **[BUS 375 Marketing Management]**
   - Market Research **[BUS 460 Marketing Research]**
2. Additional credit in the concentration may be earned from courses such as advertising (or promotional policy), distribution channels management, international marketing, retail/wholesale management, sales management, and other related courses (with approval). **[BUS 310 Entrepreneurial Marketing, BUS 343 International Marketing]**

Operations Management

See chart on page 27.

The concentration in operations management is designed for students interested in the production of goods and services and the application of quantitative methods to solve business problems in this area of increasing importance in the world economy. Business problems analyzed in this field of management include inventory control, facilities planning and location, and productivity analysis. Employment opportunities include production planning or scheduling, inventory management, and manufacturing management.

Concentration Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Business with an Operations Management concentration, the graduate will be able to:

1. Describe inventory control, facilities planning and location, and the warehousing, industrial packaging and distribution of finished goods in terms of reducing costs, maximizing profits, and increasing customer service satisfaction.
2. Integrate quantitative methods to solve business and management problems and use data for decision-making processes.
3. Evaluate the design and implementation of supply chain systems and the impact on ethical issues.

Subject Requirements for the Operations Management Concentration

1. Required Subjects
   - Quality Control
     [BUS 360 Product, Planning, Process, and Quality Control]
   - Operations Management
     [BUS 425 Operations Management]
   - Operations Strategy
     [BUS 450 Operations Strategy]
2. Additional credit in the concentration may be earned from courses such as advanced production management, forecasting, inventory control management, logistics, operations research/management science, production planning, production system design, purchasing, service control management, simulation, and other related courses (with approval). **[BUS 430 Quantitative Methods, BUS 440 Business Supply Chain Management, IT 390 Project Management]**

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www.excelsior.edu/courses
www.excelsior.edu/exams
www.UExcelTest.com

Learning Resources:
www.excelsior.edu/myexcelsior, click on the **Resources** tab

Bachelor of Science in Business (with concentration): Finance, General Accounting, General Business, Global Business, Management of Human Resources, Management of Information Systems, Marketing, and **Operations Management**

BS
120 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT

	Credit Hours
Written English Requirement	6
Humanities Requirement *Must include Ethics*	9
Social Sciences/History Requirement *Must include Microeconomics and Macroeconomics*	15
Natural Sciences and Mathematics Requirement *Must include a math course at the level of Precalculus or above, Statistics, and a natural science course*	9
Arts and Sciences Electives *Must include Organizational Behavior and Quantitative Analysis*	up to 21
MINIMUM ARTS AND SCIENCES COMPONENT	60

BUSINESS COMPONENT

Business Core Requirements	Credit Hours		Credit Hours	Credit Hours
Financial Accounting	3	Principles of Management	3	33
Managerial Accounting	3	Principles of Marketing	3	
Introduction to Business Law (United States Business Law)	3	Financial Management	3	
Business Communication	3	International Business	3	
Computers	3	**BUS 499 Strategic Management (capstone)**①	6	

Business Electives	6
Concentration requirements *Must complete 15 credits in the concentration area of which 9 credits must be upper-level.*	15
Upper-Level Business Requirements *Must complete a minimum of 21 credits at the upper level of which 9 credits must be in the concentration.*	
MINIMUM BUSINESS COMPONENT	54

ELECTIVE CREDIT COMPONENT

	Credit Hours
Any Collegiate-Level Study *May include any excess credit in Arts and Sciences and Business areas*	5
Information Literacy	1
TOTAL ADDITIONAL CREDIT COMPONENT	6
TOTAL DEGREE CREDITS	120

① **BUS 499 Strategic Management** is the required capstone course and must be taken through Excelsior College and cannot be transferred in.

Bachelor of Science in Business to Master of Business Administration (Dual Degree Track)

The dual degree track requires a total of **150** credits, consisting of **60** credits in the arts and sciences component, **48** credits in the business component, **6** credits in the elective credit component, and **36** credits in the graduate component.

Program Educational Objectives

As an Excelsior College bachelor's-level business graduate, within a few years of graduation, you are expected to:

1. Apply general and discipline-specific concepts and methodologies to identify, analyze, and solve business problems.
2. Demonstrate an individual desire and commitment to remain current with and adaptive to changing business conditions through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional business environment.
4. Communicate effectively in a professional business environment.
5. Perform ethically and professionally in business and society.
6. Attain increasing levels of responsibility and leadership in one's chosen career field.

Program Competencies

The competencies provide students with a foundational knowledge of business administration and strategic management. Upon completion of the degree program, students will be able to achieve the following in these competency areas:

1. **Economics**
   Apply micro and macroeconomic concepts and theories to explain the relationship between legal, social, and economic interests of individuals and society.
2. **Accounting**
   Apply basic accounting concepts and principles to the analysis and interpretation of corporate financial statements.
3. **Marketing**
   Explain how modern marketing concepts and theories support and influence business strategies.
4. **Finance**
   Utilize financial management concepts and tools to make informed business decisions.
5. **Management**
   Apply the major concepts and theories of management and leadership in order to develop business strategies in a real-world context.
6. **Quantitative Analysis**
   Utilize quantitative research, statistics, and data analysis to analyze business data, support business decisions, and solve problems.
7. **Global**
   Analyze the opportunities and risks associated with doing business in a global environment.
8. **Ethics**
   Justify decisions by evaluating the social, ethical, and legal implications for business organizations.
9. **Communication**
   Effectively communicate business concepts orally and in writing to multiple audiences.
10. **Computer Skills**
    Utilize business computer applications and information technologies to organize and interpret business data and information.
11. **Teamwork/Cultural Diversity**
    Work effectively and collaboratively on diverse teams to complete projects based on real-world scenarios.

12. **Critical Thinking**
    Employ critical thinking skills to interpret and analyze competing arguments and perspectives in a business environment.
13. **Leadership**
    Organize tasks and understand how to delegate responsibility in order to complete collaborative projects in a timely manner.
14. **Lifelong Learning**
    Evaluate their individual strengths and weaknesses with the desire to update skills and continually improve.
15. **Business Strategy**
    Apply knowledge of business concepts and functions in an integrated manner to make strategic decisions in a real-world context.

Upon successful completion of the Excelsior College Master of Business Administration program, the graduate will be able to:

1. Analyze real-world business problems and generate recommendations for action.
2. Integrate accounting, marketing, finance, management, and economics into a strategic business analysis.
3. Assess the impact of the global business environment on business situations.
4. Apply quantitative methods to analysis of business situations.
5. Perform ethically and professionally in business and society.
6. Communicate effectively to relevant audiences orally and in written materials.
7. Collaborate in teams to produce required deliverables.
8. Apply project management skills to business situations.
9. Assess the ethical implications of actions for diverse stakeholders.

Dual Degree Track Requirements

Arts and Sciences Component (60 credits)

1. **Written English Requirement**
   A minimum of 6 credits must be earned in English composition using approved examinations and/or courses. See the written English requirement explanation on page 5 for additional information.

2. **Humanities**
   a. A minimum of 3 credits must be earned in Ethics[①] **[BUS 323 Business Ethics, BUSx323 Business Ethics]** with a minimum grade of B.
   b. A minimum of 6 credits must be earned in other humanities subjects such as art, literature, philosophy, religion, theatre, speech, and foreign languages.

3. **Social Sciences/History**
   a. A minimum of 3 credits must be earned in Microeconomics with a minimum grade of C.
   b. A minimum of 3 credits must be earned in Macroeconomics with a minimum grade of C.
   c. A minimum of 3 credits must be earned in Economics[①], with a minimum grade of B.
   d. A minimum of 6 credits must be earned in other social science/history subjects, including geography, economics, cultural anthropology, political science, sociology, and psychology.

4. **Natural Sciences and Math**
   a. A minimum of 3 credits must be earned in Statistics with a minimum grade of C.
   b. A minimum of 3 credits must be earned in College Algebra (at the level of precalculus or above) with a minimum grade of C.
   c. A minimum of 3 credits must be earned in natural sciences. Subjects comprising this category include topics in biology, chemistry, genetics, and physics.

[①] Must be completed at the upper level.

5. **Arts and Sciences Electives**

An additional 21 credits must be completed in the arts and sciences areas of the humanities, social sciences/history, or natural sciences/math. Students may distribute the remaining 15 credits across the arts and sciences subjects in any fashion.

a. A minimum of 3 credits must be earned in Organizational Behavior[1] **[BUS 311 Organizational Behavior, BUSx315 Organizational Behavior]** with a minimum grade of B.

b. A minimum of 3 credits must be earned in Quantitative Analysis[1] **[BUS 430 Quantitative Methods, BUSx437 Quantitative Analysis]** with a minimum grade of B.

Elective Credit Component (6 credits)

1. **Information Literacy**

A minimum of 1 credit must be earned in information literacy. See the information literacy requirement explanation on page 6 for more information.

2. **Other College-Level Credit**

A minimum of 5 (determined by concentration) credits must be earned in other college-level credit. This essentially is an elective area that can be fulfilled with additional arts and sciences credits or applied professional credits.

Business Component (48 credits)

- Financial Accounting
  [ACC 211 Financial Accounting]
- Managerial Accounting
  [ACC 212 Managerial Accounting]
- Introduction to Business Law (U.S.)
  [BUS 230 Business Law]
- Computers
  [IT 221 Introduction to Computers]
- Business Communication
  [BUS 222 Business Communication]
- Principles of Management
  [BUS 341 Management Concepts and Applications]
- Principles of Marketing[1]
  [BUS 351 Marketing Concepts & Applications]
- Financial Management
  [BUS 350 Principles of Finance]
- International Business
  [BUS 435 International Business]
- Strategic Management (capstone)
  [BUS 499 Strategic Management (capstone)]
  The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.
- Concentration (15 credits are required)

Bridge Component

- Business Communication
  [BUS 501 Business Communication]
- Global Business Environment
  [BUS 502 Global Business Environment]

Graduate Component

- Accounting for Managers
  [BUS 500 Accounting for Managers]
- Human Resources Management
  [BUS 504 Human Resource Management]
- Managerial Finance
  [BUS 505 Finance]
- Leadership
  [BUS 552 Leadership]
- Change Management
  [BUS 554 Change Management]
- Information Technology
  [BUS 570 Information Technology]
- Strategy and Policy (capstone)
  [BUS 511 Strategy and Policy (capstone)]
  The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.
- Concentration (9 credits are required)

[1] Must be completed at the upper level.

Policies Specific to the BS in Business to MBA (Dual Degree Track) Program

The Excelsior College Student Policy Handbook is your resource for understanding the academic and administrative policies that are important to your academic success. It includes a wide range of information from important federal policies, including your right to privacy, to grading policies and policies and procedures concerning refunds, withdrawals, and other administrative issues. It is your responsibility to be familiar with these policies.

BS in Business/MBA

- Minimum grades of B are required for each of the five MBA foundational courses (Ethics, Quantitative Analysis, Organizational Behavior, Marketing, and Economics). These courses must be upper level and no older than 10 years.
- Minimum grades of C are required in each of the courses composing the business core areas for the Bachelor of Science.
- Students must be within 10 credits of completing the undergraduate component in order to enroll in the bridge courses.
- A minimum grade point average (GPA) of 2.0 is required to move forward with the graduate course component.
- Students must complete all undergraduate requirements in order to move forward with the graduate component courses. (A minimum GPA of 3.0 is required to complete the MBA.)
- Upon completion of all undergraduate requirements, students have two options:

  a. Continue in the program and receive both the Bachelor of Science in Business and MBA at the conclusion of the graduate studies. [1]

  OR

  b. Switch to bachelor's degree and graduate. If students wish to pursue the MBA within 12 months after the conferral of the Bachelor of Science in Business, they will not be required to apply for admission to the MBA program.[1] The student will be required to apply to the MBA program and will be subject to requirements and fees in place at that time if they wish to pursue the MBA after 12 months from the date of the Bachelor of Science in Business conferral.

- Students may transfer up to a maximum of 24 approved graduate credits (including 15 foundation credits).

[1] Students will be required to pay all applicable fees.

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Bachelor of Science in Business to Master of Business Administration—
Dual Degree Track, All Concentrations

BSB to MBA

150 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Written English Requirement	6
Humanities Requirement *Must include Ethics*[1] **BUS 323 Business Ethics**	9
Social Sciences/History Requirement *Must include Microeconomics, Macroeconomics, Economics* **ECON 360 International Economics**[1]	15
Natural Sciences and Mathematics Requirement *Must include a math course at the level of Precalculus or above, Statistics, and a natural science course*	9
Arts and Sciences Electives *Must include Organizational Behavior*[1] *and Quantitative Analysis*[1] **BUS 311 Organizational Behavior,** **BUS 430 Quantitative Methods**	21
TOTAL ARTS AND SCIENCES COMPONENT	**60**

BUSINESS COMPONENT	Credit Hours
Financial Accounting	3
Managerial Accounting	3
Introduction to Business Law (United States Business Law)	3
Business Communication	3
Computers	3
Principles of Management	3
Principles of Marketing[1] **BUS 351 Marketing Concepts and Applications**	3
Financial Management	3
International Business	3
BUS 499 Strategic Management (capstone)[2]	6
Concentration Credits	15
Upper-level Business Credit *Must complete a minimum of 21 upper-level credits. Of the credits required in a concentration, 9 must be earned at the upper level.*	
TOTAL PROFESSIONAL CREDIT	**48**

ELECTIVE CREDIT COMPONENT	Credit Hours
Free Electives *May include any excess credit in the arts/sciences, business, or applied professional areas.*	5
Information Literacy	1
TOTAL ADDITIONAL CREDIT COMPONENT	**6**

BRIDGE COMPONENT	Credit Hours
Business Communication	3
Global Business Environment	3
TOTAL BRIDGE CREDIT	**6**

GRADUATE COURSE COMPONENT	Credit Hours
Accounting for Managers	3
Human Resource Management	3
Managerial Finance	3
Information Technology	3
Leadership	3
Change Management	3
BUS 511 Strategy and Policy (capstone)[2]	3
Concentration Credits	9
TOTAL GRADUATE CREDIT	**30**

GRADUATE STATUS: Students achieve graduate status upon completion of the bridge component and all other undergraduate requirements.

TOTAL DEGREE CREDITS **150**

[1] Must be taken at the upper level and completed with a grade of B or above within the past 10 years.

[2] **BUS 499** and **BUS 511** are the required capstone courses and must be taken through Excelsior College and cannot be transferred in.

Bachelor of Professional Studies in Business and Management

See chart on page 36.

The Bachelor of Professional Studies in Business and Management is a flexible career-oriented program developed to serve the needs of students who want to build upon their existing knowledge and earn a bachelor's degree within their career field.

The structure and flexibility of the Bachelor of Professional Studies (BPS) in Business and Management makes it an excellent educational next step for graduates of Excelsior College associate in applied science programs in business and technology. As with other bachelor's programs in the School of Business & Technology, credit is awarded for Excelsior College courses and examinations, courses taken at accredited institutions other than Excelsior, approved proficiency exams, approved military training and programs and courses approved for credit by the American Council on Education (ACE) or the New York State Board of Regents National College Credit Recommendation Service (formerly known as National PONSI).

The Excelsior College BPS degree is an attractive option for students who seek to apply credit for military and other training toward a bachelor's degree. Additionally, the BPS degree is an attractive option for military spouses and for veterans and DOD civilians who have completed government-sponsored training that has been evaluated for college credit by ACE.

The outcomes and specific degree requirements for the Bachelor of Professional Studies in Business and Management follow.

Program Outcomes

Upon successful completion of the Excelsior College Bachelor of Professional Studies in Business and Management program, the graduate will be able to:

1. Apply basic accounting concepts and principles to the analysis and interpretation of corporate financial statements.
2. Explain how modern marketing concepts and theories support and influence business strategies.
3. Utilize financial management concepts and tools in order to make informed business decisions.
4. Apply the major concepts and theories of management to develop business strategies in a real-world context.
5. Analyze the opportunities and risks associated with doing business in a global environment.
6. Employ organizational theories and concepts to explain the impact of the organizational environment on management practices and employee relations.
7. Analyze various leadership approaches and their application to different organizational contexts.
8. Apply project management tools and techniques in a business environment.
9. Effectively communicate strategic management concepts orally and in writing to multiple audiences.
10. Apply various information technologies to support business strategies.
11. Justify decisions by evaluating the social, ethical, and legal implications for business organizations.
12. Apply knowledge of business concepts and functions in an integrated manner.

Degree Requirements

Every Excelsior College degree program requires a specific number of credits in each of its component areas. The chart relevant to your degree program shows a graphic representation of the credit needed to fulfill all the requirements for your chosen degree.

The Excelsior College Bachelor of Professional Studies in Business and Management program comprises three major components: arts and sciences, professional, and elective credit. The three components and their respective requirements are explained in the following sections.

A grade of "C" or higher is required for all Professional Component core requirements, the written English requirement (both courses), Precalculus Algebra, Statistics, and Ethics.

Arts and Sciences Component
(30 credits, including 9 upper-level)

Excess credits in arts and sciences may be applied toward electives.

Written English Requirement

At least 6 credits must come from courses that satisfy the written English requirement (see page 5).

Humanities

You must successfully complete at least 9 credits in the humanities (must include Ethics). **[BUS 323 Business Ethics, BUSx310 Ethics: Theory and Practice]**

Humanities subjects include, but are not limited to, art, music, literature, foreign language, philosophy, religion, speech, and creative/advanced writing.

Examinations or courses used to satisfy the written English requirement may not be applied toward the humanities requirement.

Social Sciences/History

You must successfully complete a minimum of 6 credits in the social sciences/history. This is an exception to the general education requirements for a minimum of 9 credits in social sciences/history.

Social sciences/history subjects include, but are not limited to, anthropology, sociology, government, political science, psychology, geography, history, and economics.

Natural Sciences and Mathematics

You must successfully complete a minimum of **6 credits** in mathematics to include a 3-credit course in either College Algebra at the level of precalculus or above **[MAT 116 Precalculus Algebra]** or Statistics **[BUS 233 Business Statistics]**.

You must successfully complete a minimum of 3 credits in natural sciences. **[BIO 110 Biology (Non-Lab), GEOL 108 Earth Science and Society, GEOL 114 Introduction to Oceanography, PHYS 201–203 Physics I–II]**

Natural sciences and mathematics subjects include, but are not limited to, anatomy and physiology, microbiology, chemistry, biology, genetics, zoology, physics, precalculus, calculus, astronomy, geology, oceanography, etc.

Only three college-level math courses below the level of calculus may be applied to degree requirements.

Professional Component
(45 credits, including 15 upper-level)

The professional component includes a professional core that helps you gain basic knowledge in business administration and the underlying discipline of decision making, and a business and management core and professional electives that allow you to apply and synthesize this knowledge through the study of various business content areas. At least 15 credits at the upper (junior/senior) level must be completed in the professional component; 9 of these upper-level credits must be in the business and management core and/or professional component electives. Credits may be earned through Excelsior College courses and examinations and those completed through other approved sources, as well as approved military and business and industry training.

Professional Core Requirements

One course required in each professional core area below.

- General Management
  [BUS 341 Management Concepts and Applications, BUSx240 Principles of Management]
- Leadership
  [BUS 452 Business Leadership]
- Accounting
  [ACC 211 Financial Accounting, ACC 212 Managerial Accounting, ACCx211 Financial Accounting, ACCx212 Managerial Accounting]
- Computer Applications
  [IT 221 Introduction to Computers]
- Project Management
  [IT 390 Project Management]

Business and Management Core

One course required in each business and management core area below.

- Human Resources Management
  [BUS 312 Managing Human Resources, BUSx410 Human Resource Management]
- Marketing
  [BUS 351 Marketing Concepts and Application, BUSx250 Principles of Marketing]
- Finance
  [BUS 350 Principles of Finance, BUSx350 Principles of Finance]
- Organizational Behavior
  [BUS 311 Organizational Behavior, BUSx315 Organizational Behavior]
- Global Business
  [BUS 435 International Business]
- Integrated Business and Management Assessment Capstone
  [BUS 490 Integrated Business and Management Assessment]

Professional Component Electives

Any business/management-related credits outside the core are applied as professional component electives. Business/management credits in excess of the professional component maximum of 45 may be applied to the additional credit component.

Elective Credit Component
(45 credits, including 6 upper-level)

Although you may have already fulfilled the minimum credit requirements in the arts and sciences and professional components of your degree, you may still need to earn additional credit to fulfill the total credit requirement of the Bachelor of Professional Studies. To do this, you may apply any of the following: arts and sciences credit above the minimum required, professional component credit (business/management) above the minimum required, or free elective credit.

Free elective credit may be earned in any field of collegiate study, including business and other professional, technical, or career areas as well as the arts and sciences. Examples include military science, health, nursing, engineering, education, computer science, home economics, secretarial science, architecture, drafting, auto mechanics, law, social work, and criminal justice. A maximum of 2 credits for physical education activity courses may be applied.

Information Literacy Requirement

Students are expected to demonstrate competency in information literacy. See page 6 for more information about the information literacy requirement. The information literacy requirement is applied to the additional credit component.

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College Publications, Applications, and Forms:
www.excelsior.edu/publications

Student Policy Handbook:
www.excelsior.edu/studentpolicyhandbook

Course and Exam Information and Registration:
www.excelsior.edu/courses
www.excelsior.edu/exams
www.UExcelTest.com

Bachelor of Professional Studies in **Business and Management**

BPS
120 Total Degree Credits Required
30 Total Upper-Level (UL) Credits Required

ARTS AND SCIENCES COMPONENT

Minimum of 9 upper-level credits

	Credit Hours
Written English Requirement	6
Humanities Requirement *Must include Ethics*	9
Social Sciences/History Requirement ①	6
Natural Sciences and Mathematics Requirement	
College Algebra or Statistics	3
Mathematics Elective	3
Natural Science Elective	3
MINIMUM ARTS AND SCIENCES COMPONENT	30

PROFESSIONAL COMPONENT

Minimum of 15 upper-level credits; a minimum of 9 upper-level credits must be in the Business and Management Core or Professional Electives

PROFESSIONAL CORE	BUSINESS AND MANAGEMENT CORE
General Management	Human Resource Management
Leadership	Marketing
Accounting	Finance
Computer Applications	Organizational Behavior
Project Management	Global Business
	BUS 490 Integrated Business and Management Assessment (capstone) ②

	Credit Hours
Professional Component Electives	
MINIMUM PROFESSIONAL COMPONENT REQUIREMENT	45

ELECTIVE CREDIT COMPONENT

Minimum of 6 upper-level credits

	Credit Hours
Free Electives *May include any excess credit in arts and sciences, business, or any approved free elective area*	44
Information Literacy	1
TOTAL ADDITIONAL CREDIT COMPONENT	45
TOTAL DEGREE CREDITS	120

① Indicates an exception to the general education requirements for a minimum of **9 credits** in social science/history.

② **BUS 490 Integrated Business and Management Assessment** is the required capstone course and must be taken through Excelsior College and cannot be transferred in.

Master of Business Administration

The Excelsior College Master of Business Administration (MBA) program continues the long-standing Excelsior College model for adult higher education, which recognizes prior learning and enables self-paced study. The MBA is designed to provide a quality education to facilitate career advancement, especially for those who work in middle management positions in business and in other organizations. It emphasizes ethics, communication, and other workplace-oriented skills, and the application of theory to practical situations. Students are encouraged to build upon their existing work-based knowledge and to share this with others in their courses.

Consistent with Excelsior College's mission to provide academic opportunities that overcome barriers of time, distance, and cost, the MBA program allows students to transfer and/or waive up to 24 credits from outside sources. The School of Business & Technology offers online courses to fulfill all MBA foundation and core requirements, as well as elective and concentration requirements.

Upon admission to the program, each candidate receives an individualized evaluation that indicates which courses the candidate must complete to qualify for the degree. Students can complete the MBA 100 percent online.

MBA foundation requirements are designed to provide the academic background required for the core and concentration courses. Upon applying to the program, up to 15 credits of foundation courses may be waived on the basis of upper-level undergraduate study in the relevant areas. Newly enrolled students may also waive foundation requirements through the successful completion of online challenge examinations.

The Excelsior College MBA is the flexible, accessible, and relevant option for adults who want to enhance their career options and obtain a first-rate graduate education while maintaining family, work, and community obligations.

Program Outcomes

The Excelsior College MBA program is framed within a work-related global business setting to increase academic understanding of business topics, improve career prospects, and expand individual horizons. Students can capitalize upon their existing work-based knowledge while engaging in a process of reflective learning. This program will equip successful students to further their careers through enhanced knowledge, understanding, and application to the business environment.

Upon successful completion of the Excelsior College Master in Business Administration program, the graduate will be able to:

1. Analyze real-world business problems and generate recommendations for action.
2. Integrate accounting, marketing, finance, management, and economics into a strategic business analysis.
3. Assess the impact of the global business environment on business situations.
4. Apply quantitative methods to analysis of business situations.
5. Perform ethically and professionally in business and society.
6. Communicate effectively to relevant audiences orally and in written materials.
7. Collaborate in teams to produce required deliverables.
8. Apply project management skills to business situations.
9. Assess the ethical implications of actions for diverse stakeholders.

Policies Specific to the MBA

The Excelsior College Student Policy Handbook is your resource for understanding the academic and administrative policies that are important to your academic success. It includes a wide range of information from important federal policies, including your right to privacy, to grading policies and policies and procedures concerning refunds, withdrawals, and other administrative issues. It is your responsibility to be familiar with these policies.

Policies and procedures that apply specifically to the MBA program are listed on the following pages. File your handbook with this program catalog and your other important academic papers for easy reference.

Admissions Policy

Students with a bachelor's degree from an accredited institution may be admitted into the Excelsior College MBA program. Students who have completed an undergraduate degree program outside the U.S. are required to submit transcripts of undergraduate and graduate work to Education Credential Evaluators Inc. (ECE). Evaluators will review your undergraduate degree program to verify that it is the equivalent to a bachelor's-level degree in the United States. Students choosing to work with ECE should request that a Course by Course Report, indicating the completion of their bachelor's degree, be conducted and forwarded to Excelsior College. In addition, any graduate courses submitted for transfer require a Subject Analysis Report. More information about ECE is available on its website at www.ece.org/excelsior.

The GMAT is not required.

Application Process

You are required to apply for admission into the Excelsior College MBA program. Visit our website at www.excelsior.edu/apply to apply online or to download the Graduate Application for Admission form. Return the completed form to Excelsior College with the nonrefundable application fee. Please submit an official college transcript verifying completion of a baccalaureate degree along with official transcripts of any graduate-level study you wish to be considered for transfer toward the MBA requirements. Upon review of the transcripts and application, if qualified, you will receive an admittance letter.

To enroll in the MBA program you must submit the acceptance form with your Graduate Student Services fee. You may do so online or through the mail.

Acceptance of Transfer Credit

Graduate-level coursework that has been completed within 10 years of the date of enrollment may be used to satisfy the requirements of the MBA program if approved by Excelsior College faculty. Students may transfer up to 24 credits. Excelsior College will require a minimum grade of B- for any approved graduate course accepted for transfer credit. Excelsior College does not use pluses or minuses, so such grades will be converted to the full letter grade. To accept a course that is transferring in with a P grade, the college/department/faculty member issuing the P grade must verify that it is equivalent to a B- or better. Waivers for foundation courses will apply toward the 24 credits allowed in transfer.

Maximum Time to Complete the MBA Program

Students pursing the MBA have a maximum of 10 years from the date of enrollment to complete the program.

Grade Point Average

Excelsior College requires an overall 3.0 cumulative GPA for completion of the MBA. Refer to the Student Policy Handbook for complete information.

Program Content and Requirements

Enrolled MBA students work with Excelsior College academic advisors to make degree plans that meet student needs and conform to the academic policies and course requirements of the program. The program is designed to be flexible and ensure student success by providing traditional education, distance education, and American Council on Education (ACE)-approved course alternatives. Excelsior College advisors help students determine appropriate options for fulfilling course requirements that meet their academic and career objectives, preferred learning styles, and current lifestyles. We believe this diversity of educational alternatives makes our program unique and helps to ensure that additional graduate business education alternatives are provided to populations traditionally underserved by higher education.

The Excelsior College MBA offers diverse options for degree completion through online courses offered by Excelsior College and courses offered by Excelsior Preferred Providers. For more information, access the course search feature for enrolled students at the Excelsior website.

Waiver of Foundation Requirements/ Foundation Challenge Examinations

MBA foundation requirements provide the academic background required for the core and elective courses. The faculty has identified five foundation requirements: Ethics; Economics; Marketing; Organizational Behavior; and Quantitative Analysis.

Students may waive one or more of the foundation requirements on the basis of prior upper-level undergraduate study in the relevant area(s). Approved undergraduate courses must be no older than 10 years with a grade of B or above. The waiver determination is made during the admission process at the time a student's undergraduate and prior graduate transcripts are reviewed. Credit is not awarded for courses used to waive foundation requirements; instead, students who are granted foundation waivers ultimately complete fewer credits toward the degree than students who do not qualify for waiver. Students may not complete undergraduate courses to waive foundation requirements once they have enrolled in the MBA program.

Students who possess the requisite knowledge but have not completed prior graduate or upper-level undergraduate work in one or more of the foundation areas may elect to attempt to waive foundation requirements by successfully completing one or more foundation challenge examinations. These exams may be attempted one time each upon enrollment in the MBA program. The foundation challenge exams are completed at a testing center, and are scored on a pass/fail basis. These exams carry no credit; rather, they result in a waiver of foundation requirements.

MBA Program Content and Degree Requirements

36 – 51 credits

Successful fulfillment of these requirements ensures a quality education. Refer to the graduate-level course descriptions beginning on page 71 for course content information.

Foundation Requirements
(0 – 15 credits, waivable)

- Ethics (3 credits)
  [BUS 523 Business Ethics for Managers]
- Economics (3 credits)
  [ECO 508 Managerial Economics]
- Marketing (3 credits)
  [BUS 506 Marketing]
- Organizational Behavior (3 credits)
  [BUS 553 Organizational Behavior]
- Quantitative Analysis (3 credits)
  [BUS 503 Quantitative Analysis]

Core Courses (24 credits required)

- Accounting for Managers (3 credits)
  [BUS 500 Accounting for Managers]
- Business Communication (3 credits)
  [BUS 501 Business Communication]
- Global Business Environment (3 credits)
  [BUS 502 Global Business Environment]
- Human Resource Management (3 credits)
  [BUS 504 Human Resource Management]
- Change Management (3 credits)
  [BUS 554 Change Management]
- Leadership (3 credits)
  [BUS 552 Leadership]
- Information Technology (3 credits)
  [BUS 570 Information Technology]
- Strategy and Policy (capstone) (3 credits)
  [BUS 511 Business Strategy and Policy (capstone)]

The capstone course is required and must be taken through Excelsior College and cannot be transferred in.

Concentration Requirements
(9 credits required)

Students round out the MBA by selecting a concentration.

Courses from other Excelsior College master's programs may apply here. Contact your advisor for more information.

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Learning Resources:
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CONCENTRATIONS

9 credits each

Accounting

The Accounting concentration is designed to equip graduates with the necessary accounting principles and tools to be successful in management positions in business, management and accounting firms, corporations, government, and nonprofit organizations. Along with the business knowledge of the MBA, the accounting concentration deepens the understanding of financial statement analysis, corporate disclosure, and nonprofit accounting. The program provides the background to sit for the Certified Public Accountant (CPA), Certified Management Accountant (CMA) and Certified Internal Auditor (CIA) examinations.

Concentration Outcomes

Upon completion of an Excelsior College Master of Business Administration with an Accounting concentration, the graduate will be able to:

1. Apply advanced financial accounting knowledge to corporations, government, and nonprofits
2. Prepare and evaluate financial statements and reports

Required Subjects

- Financial Statement Analysis
  [ACC 505 Financial Statement Analysis]
- Corporate Financial Reporting and Disclosure
  [ACC 510 Financial Reporting and Disclosure]
- Accounting for Government and Not-for-Profit Organizations
  [ACC 515 Accounting for Government and Non For-Profit Organizations]

Cybersecurity Management

The Cybersecurity Management concentration is designed to enable students to earn a master's degree related to the cybersecurity field. The degree program will meet the needs of students who have completed Bachelor of Science (BS) degrees and who want to enhance their knowledge and earn a master's degree within their career field.

Concentration Outcomes

Upon completion of an Excelsior College Master of Business Administration with a Cybersecurity Management concentration, the graduate will be able to:

1. Apply cybersecurity principles and regulatory standards to minimize liabilities and risks associated with electronic information.
2. Integrate IT risk management and threat mitigation techniques to business decision making and IT governance.

Required Subjects

- Ethics, Legal, and Compliance Issues in Cybersecurity
  [CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity]
- IT Risk Analysis and Management
  [CYS 575 IT Risk Analysis and Management]
- Information Assurance
  [CYS 560 Information Assurance]

General Business

The General Business concentration allows students to develop a personalized concentration area that spans multiple business concentrations. Students can tailor their concentration to their specific life and career goals, providing them with flexibility in developing their knowledge and skill.

Required Subjects

- Business Elective
- Business Elective
- Business Elective

Health Care Management

This concentration meets the needs of experienced managers who have completed a baccalaureate degree in a health care/health services program and strive for additional academic rigor to gain a health care master's degree.

Concentration Outcomes

Upon completion of an Excelsior College Master of Business Administration with a Health Care Management concentration, the graduate will be able to:

1. Manage a diverse workforce providing health care for an increasingly heterogeneous population.
2. Analyze and interpret health care funding and delivery trends to provide recommendations for organizational action.

Required Subjects

- Health Care Policy, Politics, and Power **[BUS 510 Health Care Policy, Politics & Power]**
- Communication Strategy for the Health Care Leader **[BUS 516 Communication Strategy for the Health Care Leader]**
- Strategic Management of Health Care Organizations **[BUS 526 Strategic Management or Health Care Organizations]**

Human Performance Technology

The Human Performance Technology concentration uses a variety of interventions that are drawn from many disciplines, including human resource management, organizational development, behavioral psychology and instructional systems design. It stresses a rigorous analysis of present and desired levels of performance, identifies the causes for performance gaps, offers a wide range of interventions with which to improve performance, guides the change management process, and evaluates the results.

Concentration Outcomes

Upon completion of an Excelsior College Master of Business Administration with a Human Performance Technology concentration, the graduate will be able to:

1. Analyze employee productivity and identify barriers to improved performance.
2. Design interventions to increase organizational efficiency.

Required Subjects

There are no required subjects in this concentration. Students may complete courses **[MLS 685 Strategic Problem Solving, BUS 530 Project Management Principles & Applications, BUS 555 Principles & Practices of Performance Improvement, BUS 557 Human Performance Technology II: Performance Counseling]** at Excelsior College, and transfer approved courses from other institutions. In addition, Excelsior College has reviewed and approved several educational programs offered by the International Society for Performance Improvement (ISPI) for credit toward this concentration. Each student wishing to earn academic credit for an approved ISPI educational program must submit a work sample to demonstrate an understanding and mastery of the subject matter and practical application of knowledge. A listing of the qualifying ISPI educational programs follows.

HPT INSTITUTES

Principles and Practices of Performance Improvement (3 credits, GR)

Making the Transition to Performance Improvement (3 credits, GR)

PROFESSIONAL SERIES WORKSHOPS

Introduction to Serious Performance Consulting (2 credits, GR)

Results Through Effective Implementation (2 credits, GR)

WORKSHOPS

Evaluation of Training: Making Sense of the Morass and Building Sensible, Practical, Useful Approaches (2 credits, GR)

Business-Driven Strategic Planning for Learning and Development (2 credits, GR)

Connecting Human Performance Improvement Interventions to Business Goals (1 credit, GR)

Measuring Human Capital (2 credits, GR)

Needs Assessment—Approaches and How to Get One Done, One-day version (1 credit, GR)

Needs Assessment—Approaches and How to Get One Done, Three-day version (3 credits, GR)

In addition to the approved training available through ISPI, there are a variety of approved graduate-level distance courses offered at other institutions that students can combine with the approved ISPI training to complete the Human Performance Technology requirements.

For more information, including a schedule of upcoming institutes and workshops, visit the ISPI website (www.ispi.org) or contact the MBA advising team.

Human Resource Management

The Human Resource Management concentration provides students with the knowledge and skills required of human resource managers who deal with human capital issues, challenges, and opportunities on a daily basis. The students are expected to effectively apply contemporary theories and applications to successfully perform several key functions in human resource management, including staffing, employee development, labor relations, conflict resolutions, compensation, and benefits.

Concentration Outcomes

Upon completion of an Excelsior College Master of Business Administration with a Human Resource Management concentration, the graduate will be able to:

1. Analyze the legal requirements applicable to human resource decisions.
2. Apply human resource management principles to support organizational objectives.

Required Subjects

- Compensation and Benefits
  [BUS 512 Compensation and Benefits]
- Labor Relations and Conflict Resolution
  [BUS 515 Labor Relations and Conflict Resolution]
- Employee Staffing and Development
  [BUS 517 Employee Staffing and Development]

Leadership

The Leadership concentration is designed to recognize the unique competencies that today's leaders have gained, while overcoming the complexities within their organizations. These innovative characteristics should be recognized by earning a master's degree associated with the leadership aspects within their careers. This program is tailored toward managers desiring to become successful leaders within an organization that demands creativity and innovation to gain success. Each of these individuals is being challenged every day to design creative solutions and develop complex courses of action with direct impacts to the organization's employees and mission. The Leadership concentration is designed to prepare each manager for the multifaceted complexities they will face today and in the future as a leader. A graduate of this program will be able to successfully serve at a senior-level position within one's respective organization and can be routinely called upon as an expert in one's field. This concentration meets the needs of experienced managers who have completed a baccalaureate degree and strive for additional academic rigor to gain a leadership master's degree. It will be especially suited for Excelsior College baccalaureate degree graduates who wish to continue graduate studies with the School of Business & Technology.

Concentration Outcomes

Upon completion of an Excelsior College Master of Business Administration with a Leadership concentration, the graduate will be able to:

1. Discuss key issues and challenges associated with managing organizational changes.
2. Apply leadership strategies to manage conflicts in the workplace.

Required Subjects

- Conflict Management
  [BUS/MWB 601 Mediation]
- Leading Teams
  [BUS 518 Leading Teams]
- Contingency Planning
  [BUS 550 Contingency Planning]

Social Media Management

The Social Media Management concentration provides students with the knowledge and skills to effectively explore strategies in building community, maintaining a brand, and creating engaging Web content. Students will also demonstrate understanding of Social Media Management principles and tactics and apply various mediums to changing business communications, marketing strategies, and customer service.

Concentration Outcomes

Upon completion of an Excelsior College Master of Business Administration with a Social Media concentration, the graduate will be able to:

1. Discuss the key principles, strategies, and applications of social networking and social media marketing.
2. Achieve underlying business objectives through the creation, evaluation, and adaption of strategic social campaigns.

Required Subjects

- Principles, Strategy and Community Management
  [BUS 525 Social Media: Principles, Strategy, and Community Management]
- Marketing Strategies
  [BUS 545 Social Media: Marketing]
- Metrics
  [BUS 565 Social Media: Metrics]

Technology Management

The Technology Management concentration provides students with the knowledge and skills necessary for a managerial position in the technology field.

Concentration Outcomes

Upon completion of an Excelsior College Master of Business Administration with a Technology Management concentration, the graduate will be able to:

1. Integrate and manage technology effectively in organizations to improve products, services, and productivity in organizations.
2. Apply strategic management principles to the development and implementation of innovative technologies in organizations.

Required Subjects

Students may complete Excelsior College courses or transfer approved courses from other institutions to satisfy these concentration requirements.

- Strategic Management of Innovative Technology
  [BUS 540 Strategic Management of Innovative Technology]
- Project Management
  [BUS 530 Project Management Principles and Application]
- Quality and Productivity Methods in the Management of Technology
  [BUS 535 Quality & Productivity Methods in the Management of Technology]

Master of **Business Administration**

MBA

36–51 Total Degree Credits Required

FOUNDATION REQUIREMENTS

0–15 credits, *waivable*

	Credit Hours
Ethics	3
Economics	3
Marketing	3
Organizational Behavior	3
Quantitative Analysis	3
FOUNDATION REQUIREMENTS	**0–15**

CORE COURSES

24 credits, *Required*

	Credit Hours
Accounting for Managers	3
Business Communication	3
Change Management	3
Global Business Environment	3
Human Resource Management	3
Information Technology	3
Leadership	3
Managerial Finance	3
BUS 511 Strategy and Policy Capstone ①	3
CORE COURSES	**27**

CONCENTRATION REQUIREMENTS

9 credits, *Required*

Accounting Concentration
- Financial Statement Analysis
- Corporate Financial Reporting and Disclosure
- Accounting for Government and Not-for-Profit Organizations

Cybersecurity Management Concentration
- Ethics, Legal, and Compliance Issues in Cybersecurity
- IT Risk Analysis and Management
- Information Assurance

General Business Concentration
- Business Elective
- Business Elective
- Business Elective

Health Care Management Concentration
- Health Care Policy, Politics and Power
- Communication Strategy for the Health Care Leader
- Strategic Management of Health Care Organizations

Human Performance Technology Concentration

Students may complete faculty-approved courses from Excelsior College, other institutions, and from the International Society for Performance Improvement (ISPI)

Human Resource Management Concentration
- Compensation and Benefits
- Labor Relations and Conflict Resolution
- Employee Staffing and Development

Leadership Concentration
- Conflict Management
- Leading Teams
- Contingency Planning

Social Media Management Concentration
- Principles, Strategy, and Community Management
- Marketing Strategies
- Metrics

Technology Management Concentration
- Strategic Management of Innovative Technology
- Project Management
- Quality and Productivity Methods in the Management of Technology

CONCENTRATION REQUIREMENTS **9**

TOTAL DEGREE CREDITS **36–51**

① **BUS 511 Strategy and Policy** is the required capstone course and must be taken through Excelsior College and cannot be transferred in.

Master of Science in Management

The Master of Science in Management (MSM) is a **30**-semester-hour professional degree intended for those who desire to advance their career in the business, nonprofit, military, or government sector. This interdisciplinary program focuses on leadership, organizational behavior, change management, global business environment, and conflict management to enable the participant to build a strong foundation to qualify for an organizational leadership or management role. The program integrates theory, case study, practice, and virtual simulations to prepare the participant to grow both their personal and organizational leadership and motivational abilities. Progressive and growing organizations are in constant demand of candidates who possess advanced leadership and project management knowledge and skills obtainable through Excelsior College's Master of Science in Management (MSM).

Consistent with Excelsior College's mission to provide academic opportunities that overcome barriers of time, distance, and cost, the MSM program allows students to transfer up to **15** credits from outside sources. The School of Business & Technology offers online courses to fulfill all MSM core requirements. Upon admission to the program, each candidate receives an individualized evaluation that indicates which courses the candidate must complete to qualify for the degree. Students can complete the MSM 100 percent online.

The Excelsior College MSM is the flexible, accessible, and relevant option for adults who want to enhance their career options and obtain a first-rate graduate education while maintaining family, work, and community obligations.

Program (Student) Outcomes

Upon successful completion of the Excelsior College Master of Science in Management program, the graduate will be able to:

1. Formulate sustainable solutions to practical management problems encountered in a complex global environment.
2. Evaluate different methods and strategies used to develop individuals and manage teams in multiple settings.
3. Analyze how different functional areas within a business organization affect its strategic direction.
4. Apply project management tools and techniques in a business environment.
5. Create sustained and coherent arguments to summarize work for both internal (e.g. management, peers, subordinates) and external audiences.
6. Develop an ethical argument that challenges existing assumptions or prevailing practices in a business environment.
7. Generate solutions to business problems through the use of information technologies.
8. Integrate theory and practice for the purpose of strategic analysis.
9. Evaluate individual strengths and weaknesses with the desire to update skills and continuously improve.

Degree Requirements

30 credits

The Master of Science in Management requires a minimum of 30 graduate-level credits, with 10 required courses. Students in this program are allowed to transfer in a maximum of 15 approved, graduate-level credits, thus requiring a minimum of 15 credits to be taken directly at Excelsior College.

Core Courses

- Organizational Communication (3 credits)
  [BUS 501 Business Communication]
- Ethics for Managers (3 credits)[①]
  [BUS 523 Business Ethics for Managers]

① Students who have taken an approved upper-level undergraduate course in Business Ethics and/or Organizational Behavior within the last 10 years with a grade of B or above may waive this requirement. However, they must then take one or more approved graduate courses to meet the required total of 30 credits for the degree. Any waivers will count toward the 15 credits accepted in transfer.

- Managing Global Environments (3 credits)
  [BUS 502 Global Business Environments]
- Organizational Behavior (3 credits) ①
  [BUS 553 Organizational Behavior]
- Human Resource Management (3 credits)
  [BUS 504 Human Resource Management]
- Project Management (3 credits)
  [BUS 530 Project Management Principles and Application]
- Strategy and Policy (capstone) (3 credits)
  [BUS 599 Strategic Management Capstone]
  The capstone course is required and must be taken through Excelsior College and cannot be transferred in.

Maximum Time to Complete the MSM Program
Students pursuing the MSM have a maximum of 10 years to complete the program from the date of enrollment.

Grade Point Average
Excelsior College requires an overall 3.0 cumulative GPA for completion of the MSM.

CONCENTRATION/OPTION REQUIREMENTS

9 credits

Students round out the MSM by selecting a concentration or option. Courses from other Excelsior College master's programs may apply here. Contact your academic advisor for more information.

Human Resource Management

The Human Resource Management concentration provides students with the knowledge and skills required of human resource managers who deal with human capital issues, challenges, and opportunities on a daily basis. The students are expected to effectively apply contemporary theories and applications to successfully perform several key functions in human resource management, including staffing, employee development, labor relations, conflict resolutions, compensation, and benefits.

Concentration Outcomes

Upon completion of an Excelsior College Master of Science in Management with a Human Resource Management concentration, the graduate will be able to:

1. Analyze the legal requirements applicable to human resource decisions.
2. Apply human resource management principles to support organizational objectives.

Required Subjects

- Compensation and Benefits
  [BUS 512 Compensation and Benefits]
- Labor Relations and Conflict Resolution
  [BUS 515 Labor Relations and Conflict Resolution]
- Employee Staffing and Development
  [BUS 517 Employee Staffing and Development]

Organizational Leadership

The Organizational Leadership concentration is designed to recognize the unique competencies that today's leaders have gained, while overcoming the complexities within their organizations. These innovative characteristics should be recognized by earning a master's degree associated with the leadership aspects within their careers. This program is tailored toward managers desiring to become successful leaders within an organization that demands creativity and innovation to gain success. Each of these individuals is being challenged every day to design creative solutions and develop complex courses of action with direct impacts to the organization's employees and mission. The Organizational Leadership concentration is designed to prepare each manager for the multifaceted complexities they will face today and in the future as a leader. A graduate of this program will be able to successfully serve at a senior-level position within one's respective organization and can be routinely called upon as an

① Students who have taken an approved upper-level undergraduate course in Business Ethics and/or Organizational Behavior within the last 10 years with a grade of B or above may waive this requirement. However, they must then take one or more approved graduate courses to meet the required total of 30 credits for the degree. Any waivers will count toward the 15 credits accepted in transfer.

expert in one's field. This concentration meets the needs of experienced managers who have completed a baccalaureate degree and strive for additional academic rigor to gain a leadership master's degree. It will be especially suited for Excelsior College baccalaureate degree graduates who wish to continue graduate studies with the School of Business & Technology.

Concentration Outcomes

Upon completion of an Excelsior College Master of Science in Management with an Organizational Leadership concentration, the graduate will be able to:

1. Discuss key issues and challenges associated with managing organizational changes.
2. Apply leadership strategies to manage conflicts in the workplace.

Required Subjects

- Mediation
  [BUS 601 Mediation, MLS 694 Theories of Conflict and Conflict Resolution]
- Leadership
  [BUS 552 Leadership]
- Change Management
  [BUS 554 Change Management]

General Business Management Option

The General Business Management option is designed for students seeking more flexibility in their degree program. Selecting the this concentration allows students to choose three business electives that span multiple discipline areas in the field business management, helping students tailor a program and develop broad-based skills.

Required Subjects

- Management Elective
- Management Elective
- Management Elective

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Master of Science in **Management**

MS
30 Total Degree Credits Required

CORE COURSES	Credit Hours
Organizational Communication	3
Ethics for Managers ①	3
Managing Global Environments	3
Organizational Behavior ①	3
Human Resource Management	3
Project Management	3
BUS 599 Strategic Management (Capstone) ②	3
Electives, *if needed to replace waived core course(s)*	0–6
TOTAL CORE CREDITS	**21**

CONCENTRATION/OPTION REQUIREMENTS	Credit Hours
General Business Management Option	
■ Management Elective	3
■ Management Elective	3
■ Management Elective	3
Human Resource Management Concentration	
■ Compensation and Benefits	3
■ Labor Relations and Conflict Resolution	3
■ Employee Staffing and Development	3
Organizational Leadership Concentration	
■ Leadership	3
■ Change Management	3
■ Mediation	3
TOTAL CONCENTRATION CREDITS	**9**
TOTAL DEGREE CREDITS	**30**

① May be waived with approved upper-level, undergraduate course within the last 10 years with a grade of B or above. If waived, additional approved credit must be taken to meet the required total of 30 credits for the degree.

② **BUS 599 Strategic Management Capstone** is the required capstone and must be taken through Excelsior College. It cannot be transferred in.

Undergraduate Level

ACC 211 Financial Accounting — 3 credits

This course develops skills of basic financial accounting principles in the pursuit of organizational goals and strategies. Topics covered include financial statement analysis, accounting information systems, operating decisions, and financing.

ACC 212 Managerial Accounting — 3 credits

This course focuses on the processes of identifying, measuring, analyzing, interpreting, and communicating financial information for managerial decision making. It covers such topics as the fundamentals of basic unit costs, cost flow management systems and processes, budgeting and performance measurement, and cost analysis and pricing decisions.

ACC 314 Intermediate Accounting I — 3 credits

This course expands on topics covered in previous accounting courses by providing an in-depth study and review of accounting principles, concepts, and theory. Concepts addressed in this course focus on the conceptual framework, Generally Accepted Accounting Principles (GAAP), preparation of financial statements, the time value of money, cash and receivables, accounting for inventory, and inventory valuation.

ACC 315 Intermediate Accounting II — 3 credits

This course is the second course in a sequence of Intermediate Accounting in preparation of a career in accounting. This course expands on topics previously covered in Intermediate Accounting I. Topics presented in this course focus on accounting for company's financing, investing activities, and accounting for the acquisition, maintenance, and disposal of company's assets. The discussion will continue students' development of understanding GAAP, ethical and moral issues in accounting, and related disclosures required by GAAP. Students will have the opportunity to deepen their understanding of financial statement preparation, analyzing financial statements, and applying analytical tools in making business and financial decisions.

ACC 360 Cost Accounting — 3 credits

This course develops an understanding of the attributes of cost behavior, cost accumulation systems and techniques, management planning and control systems, relevant cost information for short-term decision-making, and accounting data in long-term capital budgeting decisions. It includes detailed coverage of cost-volume-project analysis; job order and process costing including spoilage, budgeting, standard costing and variance analysis; absorption and variable costing; relevant costs; and capital budgeting.

ACC 370 Accounting Theory — 3 credits

This course will provide students with an understanding of the theory and guidelines of accounting. A close examination of current accounting rules and literature is examined while applying accounting research tools to current accounting issues. Other topics include theory and research of accounting questions related to inventory, fixed assets, leases, derivative instruments, debt, contingencies, segment reporting, pensions, business combinations, consolidations, and stockholder equity.

ACC 400 Auditing — 3 credits

This course is intended to help you understand the theory of auditing, including the educational and ethical qualifications for auditors, as well as the role of the auditor in the American economy. By the end of the course, you should be familiar with the professional standards, professional ethics,

and legal liability of auditors. As a manager, you should be able to effectively plan and design an audit program, gather and summarize evidence, and evaluate internal controls.

ACC 415 / BUS 415
Advanced Financial Management — 3 credits

This course will introduce advanced concepts and methods of financial management. Students will examine risk and return management and will utilize processes in capital and cash management for effective business decision-making.

ACC 417
Individual and Corporate Taxation — 3 credits

This course provides students with an understanding of the principles of federal income taxation and their applications. Students will identify and analyze federal tax issues to support the design of effective tax plans, which are used to ensure tax compliance and improve financial decision-making abilities. Student will develop their research techniques to facilitate the collection of information for analyzing tax regulations. Upon completion of the course, students will be able to recognize and evaluate fundamental tax issues that affect both individuals and corporations. Students will be prepared to recommend effective strategies for correctly estimating income tax liabilities. Effective communications of tax plans and strategies will be emphasized.

BUS 210 Writing in the Workplace — 3 credits

The course focuses on designing effective workplace messages, both written and oral, from concept to delivery. Examines the strategic communication model to identify objectives, analyze audiences, choose information, and create the most effective arrangement and channel for that message. Explores the use of audiovisual and electronic tools in persuasive messages and group communication.

BUS 222 Business Communication — 3 credits

This course will provide students with knowledge and skills to effectively communicate in global business environments. Students will identify and use computer technologies and social media tools for conducting interpersonal communications with diverse organizations. Additionally, students will develop and evaluate both written and oral business communications.

BUS 225 Consumer Behavior — 3 credits

In this course, students will explore the principles of consumer behavior by reviewing topics about consumer motivation, perception, learning, attitude, and information processing. Additionally, students will discover the impacts of life style, demographics, social class/culture, groups, leaders, family, and diverse/global environments on consumer behavior. Students will examine consumer behavior from a marketing strategy perspective to successfully develop products and services that will fulfill the wants and needs of individuals in the marketplace. Students will look at the factors influencing acquisition and consumption of products and services.

BUS 230 Business Law — 3 credits

This course presents the analysis of key legal issues affecting businesses with an emphasis on development of legal strategies to support the venture over its expected life cycle. It focuses on the legal environment of the United States. Students examine a series of real-world scenarios and apply the legal tools developed during the course to those cases.

BUS 233 Business Statistics — 3 credits

This course develops skills in the essential tools used for statistical analysis and decision making in business. It covers descriptive and inferential statistics and emphasizes research techniques such as sampling and experimental design concepts for single and multiple sample groups.

BUS 235 Financial Markets and Institutions — 3 credits

This course studies the fundamental principles which govern global financial markets and institutions. Some topics include: characteristics of financial instruments and establishments, the Federal Reserve, monetary policy, the banking industry, and capital markets.

BUS 290 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Associate in Applied Science in Administration/Management Studies program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Associate in Applied Science in Administration/Management Studies outcomes. The learning statements must be supported by documented evidence that demonstrates the outcomes have been met.

BUS 295 (capstone) Integrated Business and Management Assessment — 3 credits

This is the required capstone course for the Associate in Science in Business program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Associate in Science in Business outcomes. The learning statements must be supported by documented evidence that demonstrates the outcomes have been met.

BUS 299 Business and Management Capstone — 3 credit

The Associate Level Capstone Course is an in-depth, student-centered learning experience which requires the integration of theory and practical experience. The course focuses on the key competencies expected of a graduate from the program in the following areas: general management, personnel administration, human and organizational behavior, ethics, communication skills, and leadership. During the course, students will apply their knowledge and skills in these areas to specific business projects.

BUS 300 Introduction to Entrepreneurship — 3 credits

This course develops skills in opportunity recognition, business concept development, and preliminary feasibility testing. Students gain the knowledge, skills, concepts, and strategies relevant for start-up and early-stage entrepreneurs. The practical, hands-on approach encourages students to immerse themselves in the entrepreneurial experience.

BUS 302 Principles of Risk Management — 3 credits

This course introduces corporate Risk Management (CRM) as a systemic approach to minimizing an organization's exposure to risk. Students will explore risk management policies, procedures, and practices that work in unison to identify, analyze, evaluate, and monitor risk. Students will identify situations that may significantly or materially interfere with the achievement of an organization's desired goals or events/activities that may cause a significant opportunity to be missed. Some risk management topics for this course include purchasing insurance, installing security systems, maintaining cash reserves, and diversification.

BUS 305 Principles of Insurance — 3 credits

This course introduces students to principles, concepts, and applications for understanding health, life/casualty, and property insurances. Students will develop an understanding of terms and issues relating to premiums, deductibles, policy coverage/terms, risks, underwriting, and regulations. The course will prepare managers with the tools necessary to make effective and ethical decisions concerning their organization's insurance programs.

BUS 310 Entrepreneurial Marketing — 3 credits

This course focuses on the role of marketing within startup or growing small businesses. Analysis of entrepreneurial marketing strategies, techniques and management. It examines marketing activities required within the first one to two years of a company's life and emphasizes steps to be taken in the new product/service development process. Students will learn how to be customer-oriented, to design and introduce products/services, to use advertising and public relations, to manage distribution channels, and develop the marketing section of a business plan.

BUS 311 Organizational Behavior 3 credits

This course offers an overview of human behavior in work organizations. It examines theoretical, empirical, and applications issues from individual, interpersonal, group, and organizational perspectives. Topics include the overview and history of the field, perceptions, attitudes, learning processes, personality, motivation, stress, performance appraisal, group dynamics, leadership, communication, decision making, job design, organizational structure and design, organizational change, and development.

BUS 312 Managing Human Resources 3 credits

This course offers an overview of the role and context of human resource management, fair employment practices, human resource planning, human resource staffing, performance management, employee development, employee compensation, and labor relations. Students will apply personnel management theories to real-world scenarios.

BUS 315 Labor Relations 3 credits

This course focuses on the study of the relationships between unions and employers, including various aspects of labor history, law, and collective bargaining. In addition, it will examine issues such as public sector unionism and unionism around the world. A core emphasis will be the changing nature of labor-management relations in the United States as a result of global competition and the internationalization of markets. Finally, the course touches on patterns of union resistance and preventive labor relations strategies.

BUS 317 International Finance 3 credits

This course will provide students with an understanding of financial management issues in a global setting. It will help students develop analytical tools that incorporate key international considerations into fundamental financial decisions. Some areas of concentration include: an overview of multinational corporations, the behavior of exchange rates in business decision making and the risks associated with exchange rates, the international flow of funds relative to its impact on international trade and the balance of payments, how governments influence exchange rates, the impact of long-term debt financing, and an understanding of international cash management.

BUS 323 Business Ethics 3 credits

This course examines corporate governance, business government relations, the impact of economic and social change, organizational ethics, and the political role of business. Considers the measures businesses may use to anticipate and provide appropriate responses to changes in public and government expectations while defending legitimate business interests.

BUS 325 Women in Business 3 credits

This course will examine a number of theories and findings looking at the roadblocks women continue to face in their quest for upward mobility, as well as offering insight into how women are gaining access to upper management. Topics covered will include 1) the economic strength of women as a market, 2) an examination of the status of women in the United States compared with other countries, 3) obstacles faced by women such as the glass ceiling, nonlinear career paths, and work/life/family balance, 4) the importance of attracting and retaining talented women, and 5) leadership styles and traits of women.

BUS 341 Management Concepts and Applications 3 credits

This course presents fundamental management theories while examining the manager's role in today's global business environment. Topics include the role of managers in the business environment, strategies for planning and decision making, organization and controls, leadership, motivation, staffing, and managing change.

BUS 343 International Marketing 3 credits

This course introduces students to concepts, practical applications, and strategies for increasing an organization's competitive advantage through effective marketing behavior in the global business

environment. Students will examine emerging issues and considerations faced by marketing managers due to business and governmental actions affecting trade, investment, and operations in the international marketplace. Students will evaluate social, cultural, ethical, legal, and economic environments to determine their impact on international marketing decision making.

BUS 350 Principles of Finance — 3 credits

This course presents an introduction to the discipline of finance. It examines general principles of finance and corporate finance. Topics include financial objectives of the firm, the time value of money, risk and return, capital budgeting, the cost of capital, financial forecasting and ratio analysis, working capital management, Economic Value Added (EVA) and Market Value Added (MVA) concepts, and current and future trends in corporate finance.

BUS 351 Marketing Concepts and Application — 3 credits

This course is an introduction to the concepts, analyses, and activities involved in marketing as applied to marketing's role in meeting customer needs. Students will be introduced to the major functions of marketing theory and practice including marketing management, research, product planning, distribution channels, pricing, promotion and the impact of technology in a variety of settings including services, consumer and business-to-business products.

BUS 360 Product Planning, Process, and Quality Control — 3 credits

In this course students will explore the connections between various different business activities and processes that impact production. Some of these areas include the organization's ability to meet product specifications, adhere to contractual requirements, schedule deliverables, and effectively utilize available resources to attain profitability. Students will study the influences on production outcomes, with an emphasis on facilities layout, capacity management, process analysis, quantitative work measurement, and production control. The course will enhance students' understanding of production activities, processes, and systems by investigating business tools for effective production management.

BUS 375 Marketing Management — 3 credits

This course provides students with the necessary tools and frameworks to better prepare them for making effective marketing decisions. Students will explore effective marketing strategies across global business organizations. They will investigate concepts, theories, and real-world applications to create and implement a marketing strategy for launching a product. This course focuses on both the strategic planning process and marketing's cross/inter-functional relationships. Students will discover market opportunities, forecasting, targeting, and brand positioning for new and mature markets. Students will examine how to organize, plan, implement, and measure an effective marketing campaign.

BUS 380 Managing Diversity in the Workplace — 3 credits

This course examines how effective diversity management can improve organizational learning, knowledge creation, and profitability in culturally complex environments and organizations. It places emphasis on such demographic variables as ethnicity, culture, age, religion, language, socio-economic and family status, education, sexual orientation, and physical and mental ability.

BUS 425 Operations Management — 3 credits

This course provides an overview of the systematic planning, designing, operating, controlling, and improving processes that transform inputs into finished goods and services. It develops students' abilities to recognize, model, and solve problems inherent in production and service environments. Specific topics include product and process design, queuing, facility layout and location, linear programming, decision analysis, forecasting, and inventory models.

BUS 430 Quantitative Methods — 3 credits

The course will explore quantitative methods and techniques for decision support in a management environment, including applications of the computer. It will include formal project management tools and techniques, such as Gantt charts, Program Evaluation and Review Techniques (PERT) and Critical Path Method (CPM) charts, use of time series analysis for forecasting, applications of regression analysis in management, and aspects of decision theory and simple modeling. Several components include the use of computer software.

BUS 435 International Business — 3 credits

This course presents an examination and analysis of global business in its historical, theoretical, environmental, and functional dimensions. Focus is on understanding the growing economic interdependence of nations and its impact on managerial and corporate policy decisions that transcend national boundaries.

An introduction to globalization and the cultural, economic, political, and legal environments of international business including an overview of risks, challenges, and opportunities of competing in the global marketplace.

BUS 437 Securities Analysis — 3 credits

This course focuses on the fundamental analysis, the concept of investment risk, and investment management. Students examine security valuation, risk measurement, portfolio diversification, and portfolio performance measurement preparation of pro forma financial statements. The goal of the course is to provide students with a strong theoretical and applied understanding of the valuation of equity securities.

BUS 438 Risk Control — 3 credits

The Risk Control course prepares students to identify, quantify and qualify the regulatory, legal, financial and contractual aspects of enterprise risk; the control and minimization of such risks; and the application of risk financing techniques to control risk exposures in organizations. Emphasis is also placed on the understanding of the principles and risks underlying complex business contracts.

BUS 440 Business Supply Chain Management — 3 credits

This course presents an examination of logistics and supply chain systems. The focus is on analyzing, designing, and implementing systems. Topics include supply chain management strategy, planning, and operations; the role of e-commerce; and financial factors that influence decisions. Discussion also covers the trade-offs between cost and service and between the purchase and supply of raw materials; the warehousing and control of inventory; industrial packaging; materials handling within warehouses; and the distribution of finished goods to customers required to minimize costs, maximize profits, or increase customer service levels.

BUS 450 Operations Strategy — 3 credits

Production management is crucial for achieving efficiency in manufacturing and service industries in today's marketplace. Students will explore the connections between various business activities and processes which impact production. Some of these areas include the organization's ability to meet product specifications, adhere to contractual requirements, schedule deliverables, and effectively utilize available resources to attain profitability. Students will study the influences on production outcomes, with an emphasis on facilities layout, capacity management, process analysis, quantitative work measurement, and production control. The course will enhance students' understanding of production activities, processes, and systems by investigating business tools for effective production management.

BUS 452 Business Leadership — 3 credits

This course focuses on research findings about leadership, leadership practice, and leadership skill development. It explores and evaluates leadership

practices, behaviors, and personal attributes of leaders and includes case studies of leaders and organizations. The course balances theory with real-world applications for a practical, skill-building approach to leadership.

BUS 460 Market Research 3 credits

This course examines the systematic design, collection, analysis, and reporting of data relevant to the marketing function within the organization. It specifically addresses the growing role that technology plays in predicting consumer behavior, marketing trends, addressing marketing problems, and the development of new products and services.

BUS 480 Global Business Strategy 3 credits

The course examines business-level global strategies whose purpose is to create competitive advantages in the global market. It also examines the cultural, political, legal, and economic international environment; global trade theories; foreign direct investments; foreign exchange; country evaluation and selection; collaborate strategies; control strategies; risk management; international marketing; import-export; international finance; international accounting and tax; international management; and international human resources.

BUS 490 (capstone) Integrated Business and Management Assessment 3 credits

The Bachelor of Professional Studies Capstone Course is an in-depth, student-centered learning experience which focuses on the integration of theory and practical experience. The course focuses on the key business and professional competencies expected of a graduate from the program in the following areas: strategic management, organizational behavior, general accounting, finance, marketing, and global business. In addition, students will be expected to demonstrate professional competencies expected from the program in the following areas: communication, leadership, project management, critical thinking, information technology, teamwork, and lifelong learning. Students will apply their knowledge, skills, and experiences to specific business projects.

BUS 495 (capstone) Business Strategy 3 credits

This is the required capstone course for the Bachelor of Science in Business program. It requires the student to complete a capstone case study course in managerial decision making intended to integrate previous training in the functional areas of business (accounting, finance, marketing, operations, and personnel). It focuses on problems from the point of view of the chief executive officer or general manager and is mainly concerned with the design and implementation of corporate strategy. All BUS 495 students are required to complete an online examination designed to assess the basic knowledge and understanding achieved by senior undergraduates in business. This examination will be delivered directly in the course, consist of 100 multiple-choice questions, and last three hours.

BUS 499 Strategic Management Capstone 6 credits

This capstone course integrates all fields of business. Students will draw on their awareness of the body of business knowledge and competencies to solve business problems. The purpose of the course is to integrate the learning achieved in individual business courses taken to earn a business degree, professional competencies needed in the workforce, and action planning for life-long learning. The knowledge and competencies acquired in accounting, finance, operations, information technology, marketing, management, and ethics will be utilized to study the strategic management of an organization. Students will participate in a simulation experience that requires taking into account multiple decision-making factors used in business and analyzing the industry and environment. A capstone project will be developed.

CYS 203 Introduction to Microprocessors 3 credits

The course introduces the fundamental principles, operations and applications of microprocessors. The architecture and organization of microprocessors including hardware, software and peripheral interfacing will be covered. In addition, the basic organization and function of microcontrollers will also be covered.

Principles and applications of microprocessors, including hardware and software, interfacing, assembly language programming, and microprocessor-based systems. Eight, 16, and 32-bit microprocessor technology and features are presented. This course contains a lab component.

CYS 245 Introduction to Cybersecurity 1 credit

The course provides students with an introduction to the basic and fundamental concepts of cyber security from both a technical and managerial perspective. Students will gain insight on common cyber-attacks and the techniques for identifying, detecting and defending against cyber security threats. The course will cover the basics of physical, network and web security as well as standards and laws in Cybersecurity. The knowledge gained in this course will provide students with a concrete foundation to further master the concepts of Cybersecurity.

CYS 260 Governance Legal and Compliance 3 credits

To minimize liabilities and reduce risks from cyber security threats and reduce the losses from legal action, the information security practitioner must understand governance, compliance, and the legal environment and stay informed of emerging laws and regulations. This course will introduce you to the challenges of governance, ethics, legal, and regulatory compliance through the eyes of information security professionals. We will examine compliance requirements in response to key mandates and laws, including Sarbanes-Oxley, HIPAA, Privacy, Gramm-Leach-Bliley, the Foreign Corrupt Practices Act (FCA), and the Payment Card Industry Data Security Standards (PCI DSS). Lastly, we will examine some of the challenges of compliance and ethics in the practice of Information Security.

CYS 300 Computer System Security Fundamentals 3 credits

This course provides an introduction to all aspects of computer security. It describes threats and types of attacks against computers to enable students to understand and analyze security requirements and define security policies. In the course we will discuss major models in computer security such as Bell-La Padula, Biba, and Clark-Wilson, and compare their properties and roles in implementation. Security mechanisms and enforcement issues will be introduced and security features of major application systems will be discussed as practical examples. Other topics include cryptography, planning for security, risk management, security standards, law, and ethics.

CYS 345 Cybersecurity Defense in Depth 3 credits

This course examines the world of cybersecurity risks and defenses which pose significant threats to governments and businesses. This course will provide knowledge, skills, and techniques to identify and address the many cybersecurity threats facing our world today. This course will provide a framework for current and future cybersecurity threats by first examining the history of cybersecurity. The course will then apply lessons learned in the past to current cybersecurity risks and defenses. Lastly, the course will attempt to predict future cybersecurity concerns and the necessary preparations needed to defend against them. This course will examine how IT security threats are constantly evolving and provide insight into cybersecurity defenses from business and government perspectives using real-world scenarios to demonstrate actual cybersecurity threats and the strategies used to defend against those threats.

CYS 400 Reverse Engineering 3 credits

This course will focus on providing students the knowledge, skills, and hands-on experience in using reverse engineering to deduce the design of a software component to determine how it accomplishes its goals. Specific topics include reverse engineering software tools and techniques for software recovery such as malware analysis,

de compilation of code, intellectual property protections such as digital rights management, and communication protocols utilizing static and dynamic techniques.

CYS 401 Organizational Information Security — 3 credits

The course will provide learners with knowledge in the broad outlines of implementing information security initiatives in organizations. The course will cover the technical concepts as well as the managerial, operational and policy dimensions of information security. The learners will also examine the personnel and organizational skills required to manage information security initiatives in organization consisting of staffing, training, certifications and ethical responsibilities.

CYS 426 Cyber Attacks and Defenses — 3 credits

The course will provide learners with knowledge in the broad outlines of implementing information security initiatives in organizations. The course will cover the technical concepts as well as the managerial, operational and policy dimensions of information security. The learners will also examine the personnel and organizational skills required to manage information security initiatives in organization consisting of staffing, training, certifications and ethical responsibilities.

CYS 450 Security Focused Risk Management — 3 credits

This course will focus on providing you with insights, guidance and best practices in security focused risk management. Students will review the fundamental principles of security focused risk management. Students will utilize a disciplined and standard approach to risk management including risk identification, risk assessment, risk prioritization, and risk prevention or mitigation. Students will learn to identify classes of possible vulnerabilities, threats, attack vectors, consequences and mitigation strategies.

CYS 455 Business Continuity — 3 credits

This course focuses on two important aspects of information security — data integrity and data availability. Malicious attacks, natural disasters, and unplanned events can threaten the availability and integrity of an organization's data assets. This course emphasizes the development of business continuity and disaster recovery plans that result in action plans to mitigate the effect of a breach in security or the occurrence of a disaster.

CYS 456 Securing Mobile and Cloud Computing Environments — 3 credits

This course covers the secure design and management of ubiquitous computing environments formed by the convergence of fixed and mobile devices, shared services, cloud computing, and other Internet-based computing methods. Students learn best practices and challenges associated with managing these heterogeneous environments and ensuring their ability to communicate in a secure manner.

CYS 460 Cybersecurity Investigations and Case Studies — 3 credits

This course is a capstone course for the Undergraduate Certificate in Cybersecurity. It provides a comprehensive analysis of the methods, tools, and best practices for handling, responding, and investigating cybersecurity incidents and product vulnerabilities. It covers building a security Incidence Response Team (IRT) and a Product Security Team for security vulnerability handling. Students review legal issues from a variety of national perspectives and consider practical aspects of coordination with other organizations.

CYS 470 Secure Software Development — 3 credits

In today's environment, perimeter and infrastructure security is not enough to mitigate security attacks against data and information stored, transmitted, and processed by computer systems. In order to design and build secure IT systems, all elements of the system need to be secure. Unfortunately, more

and more security vulnerabilities are exploited due to insecure software systems. This course gives insight, guidance, and best practices in the design, development, and testing of secure software systems.

CYS 475 Large-Scale Cybercrime and Terrorism — 3 credits

This course examines cyber crime and terrorism in a global context and focuses on large-scale incidents that effect international security. The foundation of the course emphasizes the evolution of cyber crime and terrorism within the context of globalization and the increasing complexity of cyber crime and international, nation-less decentralized terror networks. The course discusses the relationship of cyber crime and uses of information technology that cultivated and sustained current international terror networks. The course also discusses emerging trends and potential threats such as electromagnetic pulse attacks (EMPs) and methods (and limitations) to confront large-scale cyber crime and terrorism such as advanced data mining techniques by the intelligence community and use of fusion centers.

CYS 480 System Security Engineering — 3 credit

The course will present a system engineering and management perspective of information security. Learners will examine what drives the requirements and specifications for information security and how it can be integrated in to the systems design process and life cycle management of information systems. The course will also cover the basics of U.S federal government information security policies and methodologies.

ECO 260 Introduction to Microeconomics — 3 credits

This course examines contemporary economic systems based on tools of microeconomics. It covers theoretical analysis of prices and profits as guides to resource allocation, industrial structure, meaning of economic welfare, proper function of government in the economy, and distribution of income.

ECO 262 Introduction to Macroeconomics — 3 credits

This course examines determinants of the Gross National Product, incomes and employment, sources' demand for goods and services, problems of unemployment and inflation, use of taxes, and government spending and control over supply of money to fight unemployment and inflation. It covers causes of economic growth and arguments for and against growth.

ELEC 152 Circuit Theory I — 4 credits

This course is an introduction to the basic principles of DC electricity. Topics covered include: current, voltage, resistance (both linear and non-linear), Ohms Law, work and power, series and parallel resistance, resistance networks, Kirchhoff's Law, network theorems (Norton's, Thevenin's, superposition, and Millman's), mesh and nodal analysis, inductance, capacitance, and time constants. This course contains a lab component.

ELEC 153 Circuit Theory II — 4 credits

This course presents the principles and applications of alternating current circuits, the sine wave, reactance, complex algebra and phasors, impedance, power in AC circuits, series and parallel impedances, impedance networks, and resonance. This course contains a lab component.

ELEC 160 Electronics I — 4 credits

This course is an introduction to the study of semiconductor devices such as PN-junction diodes, Bipolar Junction Transistors (BJT), Field-Effect Transistors (FETs,) and Metal-Oxide Semiconductor Field-Effect Transistors (MOSFET), which enable students to perform analysis of DC transistors biasing; small-signal single and multi-stage amplifiers using BJTs, FETs, and MOSFETs; and frequency response of transistor single and multi-stage amplifiers. This course contains a lab component.

ELEC 161 Electronics II — 4 credits

This course overviews the analysis and application of advanced electronic circuits. Topics include differential amplifiers, stage gain in decibels, input and output impedances, linear Integrated Circuit (IC) operational amplifiers, frequency response, Bode plots, active filters, D/A and A/D circuits, oscillators, and high frequency amplifiers. The course emphasizes troubleshooting of test circuits and analysis based on computer simulation. This course contains a lab component.

ELEC 201 Digital Electronics — 4 credits

This course presents the principles and applications of digital circuits. Topics include number systems, binary arithmetic, logic gates and Boolean algebra, logic families, combinational and synchronous logic circuit design, logic minimization techniques (Karnaugh maps, Quine-McCluskey), counters, shift registers, encoders and decoders, multiplexors and demultiplexors, and interfacing. This course contains a lab component.

ELEC 202 Microprocessors — 4 credits

This course presents the principles and applications of microprocessors, including hardware and software, interfacing, assembly language programming, and microprocessor-based systems. It presents 8, 16, and 32-bit microprocessor technology and features. This course contains a lab component.

ELEC 210 Programmable Logic Controllers — 3 credits

This course introduces students to programmable logic controllers (PLCs) and their applications. Topics include PLC programming, troubleshooting, networking, and industrial applications. This course contains a lab component.

ELEC 305 Introduction to Nanotechnology — 3 credits

This course is an introduction to the underlying principles of nanotechnology, nanoscience, and nanoengineering. It introduces scientific principles and laws relevant on the nanoscale and discusses applications in engineering, physics, chemistry, and biology.

ELEC 306 Advanced Digital Design — 3 credits

This course builds on the student's background from a first course in logic design and microprocessors. Systematic design methods for synthesizing sequential digital circuits using hardware description language HDL are covered, while details of its associated languages too are brought to familiar ground. Specification, modeling, and design principles of sequential systems, as well as design implementation and testing using programmable logic devices and Computer Aided Design (CAD) tools are studied. The course includes laboratory experiments and a group project.

ELEC 307 Microcontrollers — 3 credits

This course builds on the student's background from a first course in logic design and microprocessors. This course discusses various concepts used in the design of microprocessor/microcontroller based systems. It also provides a detailed study of microprocessor/microcontroller applications in data acquisition and process control systems. The course includes laboratory experiments and a group project.

ELEC 310 Basic Nanofabrication Process — 3 credits

This course provides an introduction to the basic principles and methods of nanofabrication. It covers such topics as crystal growth, silicon wafer preparation, and the ten-step patterning process. It also includes detailed coverage of the challenges associated with contamination, productivity, and process yields as applied to the nanofabrication of integrated circuits.

ELEC 321 Control Systems — 3 credits

This is an introductory course on continuous linear control systems covering analysis, design, and practical applications. Modeling first- and second-

order dynamic physical systems, transient response and steady-state analyses, Routh-Hurwitz stability criteria, roles of feedback in controlling steady-state errors, frequency response design methods (Bode, Nyquist), etc. are covered. The course emphasizes the application of established methodology with the aid of examples, calculators, and computer programs such as MATLAB.

ELEC 331
Digital and Analog Communications — 3 credits

This course introduces the principles and applications of communication circuits, Radio Frequency (RF) circuit theory (transmitters, receivers), modulation (AM, FM), transmission lines and media, wave propagation, analog versus digital communication techniques, protocols, and communication networks. This course contains a lab component.

ELEC 345 Electrical Machines — 3 credits

In this course you will learn about principles and applications of DC motors and generators, ideal transformers and three-phase transformers, three-phase induction machines, equivalent circuit of the induction motor, synchronous generators, and motors.

ELEC 350 Power Electronics — 3 credits

This course covers characteristics of power transistors and diodes. Switching-mode DC-DC converters, including buck and boost converters and regulation of DC-DC converters by PWM. Rectification using diodes. Power factor correction. Switch-mode DC power supplies. DC-AC inverters. Applications of power electronics in motor drives, UPS, and power systems.

ELEC 360
Generation and Transmission of Electric Power — 3 credits

This course introduces the concept of generation of electrical energy using hydro, thermal, nuclear, and wind; transmission lines and equivalent circuits; power distribution systems including substations, protection, and low voltage distribution; the cost of electricity; direct current transmission; solid state controllers for power flow, and harmonics.

ELEC 370
Instrumentation and Data Acquisition — 3 credits

This course provides and introduction to virtual instrumentation and data acquisition. Topics covered include virtual instruments, sub virtual instruments, structures, and data acquisition. This course contains a lab component.

ELEC 410
Nanotechnology Process Equipment — 3 credits

This course presents the equipment used in nano-fabrication processes at the manufacturing level as well as research and development stages. It covers nanotechnology, 300-mm wafer processing, “green” processes and devices, new fabrication advances and non-vacuum processing tools. Examples of equipment used in applications for micro/nanoelectronics and photovoltaics will be presented, including equipment for doping, layer deposition, device evaluation, and packaging. This course contains a lab component.

ELEC 415
Introduction to Nanofabrication Manufacturing Technology — 3 credits

This course is an introduction to the fundamentals and applications of nanofabrication manufacturing technology. Topics include etching and micromachining, nanogrinding, laser-based nanofabrication, pulse water drop micromachining, diamond nanogrinding, and commercialization issues of nanotechnology. This course contains a lab component.

ELEC 420
Micro-Electro Mechanical Systems — 3 credits

This course focuses on Micro Electromechanical Systems (MEMS) and Nano Electromechanical Systems (NEMS). Topics include MEMS and NEMS architecture, synthesis, modeling, and control. Micro-sensors, micro-actuators, micro-engines, and

optical MEMS applications are explored. Electronic applications of MEMS, such as in data storage and bio-medical sensors, are also covered. This course contains a lab component

ELEC 495 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Bachelor of Science in Electrical Engineering Technology program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Bachelor of Science in Electrical Engineering Technology outcomes. The learning statements must be supported by documented evidence that demonstrate that the outcomes have been met. All ELEC 495 students are required to complete an online examination designed to assess the basic knowledge and understanding achieved by senior undergraduates in electrical engineering technology.

IT 210 Object-Oriented Programming — 3 credits

This course covers problem solving and algorithm development using the object-oriented programming language Java. Introduction to object-oriented features, including encapsulation, inheritance, and polymorphism. It examines the development of processes of design, coding, debugging, and documentation, and focuses on techniques of good programming style.

IT 221 Introduction to Computers — 3 credits

This course provides students with a fundamental knowledge of the computer system and its components, including computer hardware and architecture, application software, operating systems, networks, and the Internet. Advanced topics such as information privacy and security, database and data warehouse, business intelligence, and human-computer interactions will also be introduced in this course. Additionally, students will participate in learning activities to develop the needed skills to work with Microsoft Office suite.

IT 240 Introduction to Programming — 3 credits

This course is an introduction to the C++ programming language through a study of the concepts of program specification and design, algorithm development, and coding and testing using a modern software development environment. The student will grasp the basics of both procedural and non-procedural (Object Oriented) Programming. Topics covered include fundamentals of algorithms, problem solving, programming concepts, classes and methods, control structures, arrays, and strings. This course will serve not only as an introduction to programming in C++ but also as a preparation for a more advanced C++ course involving data structures and algorithmic development.

IT 321 Computer Systems Architecture — 3 credits

This course is an introduction to the basic components and structure of the computer. The course covers in detail basic Boolean algebra, fundamentals of computer design, instruction set principles, RISC/CISC processors, instruction and processor level parallelism, memory hierarchy, pipelining, assembly language, and parallel computer architectures. The course will also address the architecture and microprogramming of the processor.

IT 325 Introduction to Multimedia — 3 credits

This course introduces the basic concepts of multimedia and an introduction to industry standard applications and emerging technologies. Using different tools, students design multimedia applications that incorporate text, video, sound, graphics, and animation.

IT 330 Internet Programming — 3 credits

This course offers a comprehensive introduction to Web development using scripting languages used in industry. Covers client-side and server-side development, including the use of Javascript for client-side programming and Hypertext Preprocessor (PHP) for server-side programming.

IT 350 Business Data Communications 3 credits

This course offers an overview of the current theory and practice of business data communications and networks. It places emphasis on the role of the telecommunications industry in the growth of information societies and their reliance on knowledge and information services to stimulate economic growth. The course examines the seven-layered Open Systems Interconnection (OSI) reference model proposed by the International Standards Organization (ISO) and the notion of network architecture to manage information and communications.

IT 360 Operating Systems 3 credits

This course offers an introduction to the basic components and structure of a generic operating system. It considers in detail processes, process management and synchronization, threads, interrupts and interrupt handling, memory management, virtual memory management, resource allocation, and an introduction to file systems, protection, and security.

IT 370 Database Management Systems 3 credits

This course examines the technology and impact of the design of database systems on the organization. It covers the application, design, and implementation of database systems. Topics include an introduction to basic database concepts, database design principles including Entity-Relationship (E-R) diagrams and database normalization, SQL queries, transaction management, distributed databases, data warehousing, and database administration. The course focuses on the relational model.

IT 371 Web Design and Development 3 credits

This course will provide practical instruction on the design, creation and maintenance of web pages. The course will cover the fundamental principles of web programming and formatting. This will include learning the difference between client side and server side scripting technologies, effective use of web authoring tools and code development. The course will also cover web design standards and the need for integrating human-computer interaction principles in web design. The final project in the course will enable learners to apply current development and production practices to design web pages.

IT 375 Human-Computer Interactive Design 3 credits

This course examines human-computer interaction (HCI) and focuses on all aspects of user interface (UI) and user experience (UX) design. Students will explore the fundamental concepts and methods involved in designing digital products, mobile applications, and websites. Students will be challenged to design and prototype a startup digital product in the form of a phone app or Web app/website. The course will be broken down into eight stages (modules) which will cover the concepts and processes that professional designers use every day to design the apps and/or websites that we love using today. For the term project students will begin with the conceptual model and end with a high fidelity prototype of their newly designed mobile app or website. Each module will include assignments, discussions, and other activities related directly to that module.

IT 380 Overview of Computer Security 3 credits

This course will focus on providing you with insights, guidance, and best practices on the principles of information security. Students develop an understanding of the technologies and methods utilized to defend systems and networks. They learn to describe, evaluate, and operate a defensive network architecture employing multiple layers of protection, using technology appropriate for secure mission accomplishment. Students will also examine the various types of vulnerabilities (design and implementation weaknesses), their underlying causes, their identifying characteristics, the ways in which they are exploited, and potential mitigation strategies.

IT 390 Project Management — 3 credits

This course explores system development life cycle (SDLC) and project life cycle to enhance skills in budget and time line management. Use of project management software to design project schedules, using bar charts, Program Evaluation and Review Technique (PERT), and critical path method.

IT 402 Network Security — 3 credits

This course covers the foundations of network security and provides an in-depth review of commonly used security mechanisms and techniques, security threats and network-based attacks, applications of cryptography, authentication, access control, intrusion detection and response, security protocols (IPsec, SSL, Kerberos), denial of service, viruses and worms, software vulnerabilities, Web security, wireless security, and privacy. Additionally the course covers important network security tools, applications, and methods for preventing breaches.

IT 403 Network and Application Security — 3 credits

The course will cover the fundamental concepts of network and application security. The course will equip learners with the technical and conceptual skills required to secure and defend computer networks in organizations. Learners will analyze network security threats and learn to configure and manage network security devices such as firewalls, intrusion detection and prevention systems. The course will also cover elements of web and wireless security.

IT 404 Web Security — 3 credits

This course provides an overview of both Web application security concepts and software security concepts in general, including the current top 10 most critical Web application vulnerabilities identified by the Open Web Application Security Project (OWASP). Additionally the course deals with principles of securing common areas of functionality of Web applications and presents concepts regarding secure development and deployment methodologies, including Microsoft's Security Development Lifecycle (SDL), OWASP's Comprehensive Lightweight Application Security Process (CLASP), the Software Assurance Maturity Model (SAMM), and Building Security In Maturity Model (BSIMM).

IT 406 Computer Forensics — 3 credits

This course emphasizes the technical and legal aspects of electronic evidence and the computer forensic investigative process. Topics include the discovery and recovery of electronic evidence stored on or transmitted by computers, networks, and cellular devices.

IT 408 Information Assurance Management — 3 credits

This course focuses on the protection of information systems against unauthorized access to or modification of information whether in storage, processing or transit, and against the denial of service to authorized users, including those measures necessary to detect, document, and counter such threats. Emphasizes importance of sensitivity to threats and vulnerabilities of information systems and the recognition of the need to protect data.

IT 410 Fundamentals of Cryptography — 3 credits

In this course students will learn the history of cryptography and its role in information assurance. Students will examine the inner workings of various cryptographic models and techniques and will be able to identify the appropriate uses of symmetric and asymmetric encryption. Students will learn how to assign measures of strength based on cryptographic algorithms and keys. This course will focus on applied cryptography, and students will examine various situations and identify the level of cryptographic strength that is needed as well as the implementation factors related to its suitability for use. Lastly, students will understand the common pitfalls and weaknesses associated with the implementation of cryptography techniques, and will understand the challenges and limitations of various key management systems.

IT 418 Software Systems Analysis and Design — 3 credits

The course will focus on the concepts and techniques of modern systems analysis and design. It examines approaches to systems analysis and design, including traditional approaches to the system development life cycle and modeling of system requirements and design. The course also describes the role of the analyst in investigating current systems, defining IT requirements, working with technical and non-technical staff, and making recommendations. Some course topics include the system development environment, types of information systems, rapid application development, role of the systems analyst, initiating and planning a systems development project, determining systems requirements, process modeling, logic modeling, project documentation, understanding the elements of systems design, designing the user interface, designing system interfaces, and controls and security considerations.

IT 422 Advanced Networking — 3 credits

This course will review several advanced networking topics, including wireless and mobile networking, satellite and near field communications, RFID (Radio Frequency Identification), and the use of cryptography and encryption in data transmission and networking. This course will also discuss privacy and security issues related to the use of these networking technologies.

IT 424 Network Operating Systems — 3 credits

This course identifies the main functions of operating systems and network operating systems, and distinguishes between the two. Examines and compares the basic features of common network operating systems such as Novell NetWare, all versions of Windows, Unix, and Linux. It discusses the common examples of network utility software and Internet software, software licensing agreements, and network security and backup/recovery issues.

IT 425 Network Management — 3 credits

This course will cover the essentials of network management and monitoring for enterprise networks. This includes the tools, protocols and operational procedures involved in administering and maintaining networks in organizations. The network management standards, technologies, security issues and best practices will be addressed. The knowledge gained will prepare learners to effectively manage and monitor networks by considering performance and quality of service issues. The course will consist of practical hands-on-labs that will enable learners to apply the concepts of network management in real-time environments.

IT 426 Wireless Technology — 3 credits

Describes the infrastructures, components and protocols of a wide range of wireless technologies. The course commences with a brief review of networking fundamentals including software and hardware used for interconnection of traditional wired networks. Examines existing wireless technologies such as global positioning satellite (GPS), cellular digital packet data (CDPD), general packet radio service (GPRS), infrared (IR), the operation and protocols for simplex tone and data paging systems, and local multi-point communication systems (LMCS). Addresses future technologies such as Bluetooth, digital audio broadcast (DAB) and IMT-2000.

IT 428 Telecommunications Management — 3 credits

This course focuses on the management of diverse network systems involving a set of layered responsibilities, which ensure that network communications channels are continuously available and perform optimally from source to destination. Topics include differentiating between technical, financial and operational responsibilities, network capacity planning and traffic analysis techniques, measurement of network reliability and availability, basic hardware and software network diagnostic tools, network security issues, and network help desk operations.

IT 430 Network Systems Design and Management — 3 credits

This course covers network design and management principles that network analysts, architects, engineers, and administrators must consider when planning, designing, implementing, and maintaining their network. Course topics include network management functions, network and system architectures, data and network communications technologies and protocols, server architectures and network operating systems, network security, and network and system administration. Additional topics covered that impact network design and management include network management tools and applications, wireless network architectures, interoperability, cloud computing, and virtualization.

IT 442 Internetworking with TCP/IP — 3 credits

This course focuses on the broad outlines of TCP/IP and its application to organizational networks. The course will provide the skills required to recognize, analyze, and troubleshoot a broad range of TCP/IP-related networking problems. The structure of Internet packets, IP addressing and the various layers of the TCP/IP protocol suite will be analyzed in detail. This will be accomplished by a combination of hands-on lab activities and discussions that focus on developing the skills required to plan design and maintain networks. The course will also address current trends and issues relevant to internetworking with TCP/IP.

IT 460 System Administration — 3 credits

This course provides learners with the knowledge and hands-on skills necessary to administer systems and its resources. Topics covered include directory services, user account management, file and print services, load balancing, security and user/client administration. Students will setup and manage a fully functioning computer network of systems. Furthermore, through hands-on (labs) assignments, students deal with challenges designed to help them install, configure and manage servers

IT 495 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Bachelor of Science in Information Technology program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Bachelor of Science in Information Technology outcomes. The learning statements must be supported by documented evidence that demonstrate that the outcomes have been met. All IT 495 students are required to complete an online examination designed to assess the basic knowledge and understanding achieved by senior undergraduates in information technology.

NUC 210 Health Physics and Radiation Protection — 3 credits

This course provides a fundamental grounding in the theory and principles of radiation protection relevant to nuclear power plant operations. The course covers the following broad topics: radioactivity & radiation interactions, biological effects of ionizing radiation, radiological approximations and calculations, radiation sources & detectors, radiation protection standards & 10 CFR 20, external & internal dosimetry, workplace & environmental monitoring, radiation protection principles, and handling radiological emergencies.

NUC 211 Radiation Measurement Lab — 1 credit

This course provides experience in the use of instruments for the detection and analysis of radiation. Instruments included in the course are gas-filled detectors, scintillation counters, semiconductor detectors, radiation spectroscopy, neutron detectors, dosimetry, external dosimetry, and counting statistics.

NUC 212 Health Physics — 3 credits

This course will prepare students for Part I of the Health Physics Certification Examination. Topics covered during the course are a math and science review, interaction with matter, radiation detection

instrumentation, radiobiology, dosimetry, ALARA, shielding, standards and regulations, and non-ionizing radiation protection. Course assessments will be similar to questions and format on the Health Physics Certification Examination. It also provides the foundation to prepare the students for the Part II of the Health Physics Certification Examination which will focus on the problem solving skills in Health Physics.

NUC 220 Nuclear Plant Chemistry — 3 credits

This course provides a fundamental grounding in the chemistry principles and practices associated with the safe operation of commercial nuclear generating facilities. While designed to meet the requirements of the Nuclear Uniform Curriculum Program, this course has broad applicability for anyone interested in entering a power plant technology degree program. This course offers the following broad topics: measurement, basic concepts of matter, atomic structure, periodic table, structure of compounds, chemical formulas/chemical equations, states of matter, solutions, acids and bases, corrosion, oxidation and reduction, and nuclear chemistry.

NUC 230 Basic Atomic Physics — 2 credits

This course introduces the physics of the components of matter, including the prevailing atomic models and their role in understanding the structure of materials. Also included in the scope of the course are the wave and particle theories of light, interactions between matter and energy which lead to different atomic energy levels, and bonding mechanisms of atoms to form molecules. While designed to meet academic requirements for students enrolled in the nuclear uniform curriculum program, this course would be of interest to any student who wishes to learn more about the structure of the physical world.

NUC 240 Atomic and Nuclear Physics — 4 credits

This course includes the study of the structure of the atom and of the nucleus, of atomic and nuclear energy states, wave-particle duality, electron and nucleon spin, multi-electron atoms, atomic spectra, atomic bonding, electron motion, nuclear reactions, radioactivity, fission, and fusion. It examines the theories postulated and proven that formed the branch of physics known as atomic physics in the late 19th century and early 20th century and became the foundation for the development of nuclear physics and electronics shortly thereafter. This course will enhance learning of reactor physics, radiation safety, electronics, materials science, and chemistry in future courses as well as in your professional and military career.

NUC 245 Thermodynamics — 3 credits

This course presents basic thermodynamics concepts, including energy, temperature, specific heat, enthalpy, entropy, and pressure. Topics include the First and Second Laws of Thermodynamics, Rankine power cycles, use of steam tables and Mollier diagrams, and properties of gases, vapors, mixtures, and pure substances.

NUC 250 Introduction to Heat Transfer and Fluid Mechanics — 3 credits

This course provides a fundamental grounding in the principles of heat, heat transfer, and fluid mechanics, as they apply to power plant operation. While designed to meet the requirements of the Nuclear Uniform Curriculum Program, specifically Section 1.1.5 Heat Transfer and Fluid Flow of ACAD 08-006 for Non-Licensed Nuclear Operators, this course has broad applicability for anyone interested in power plant technology, regardless of the heat source used. The course covers the following broad topics: temperature, its measurement, and pressure-temperature relationships in power plant steam and water systems; heat, its various forms, mechanisms and mechanics of heat transfer, and the related power plant components used to transfer heat; and fluid mechanics as they relate to heat and heat transport in power plant steam systems and power plant water systems.

NUC 255 AC/DC Electrical Theory — 3 credits

This course is a basic concept course covering electrical charge: AC and DC current, voltage, capacitance, inductance, energy, power, Kirchhoff's laws, loop and nodal analysis, linear voltage-current characteristics, and AC and DC motor operation

NUC 260 Power Plant Components — 3 credits

This course will describe the theory, construction and application of mechanical components such as (but not limited to): air compressors, heat exchangers and condensers, pumps, filtration systems, valves, and turbines. This course will also describe the theory, construction, and application of the following as used in the industry: diesel engines, air conditioning, refrigeration, heating and ventilation systems, generators, electrical equipment, valve actuators and electronics and other systems and processes that are plant specific.

NUC 271 Fundamentals of Reactor Safety — 3 credits

This course will explain basic concepts related to reactor plant protection, accident analysis, and transient prevention and mitigation of core damage and accident management, and examine and analyze information regarding major industry incidents.

NUC 295 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Associate of Science in Nuclear Technology/Nuclear Uniform Curriculum program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Associate of Science in Nuclear Technology/ Nuclear Uniform Curriculum Program outcomes. The learning statements must be supported by documented evidence that demonstrate that the outcomes have been met.

NUC 323 Material Science — 3 credits

This course is is a study of how materials are used in nuclear engineering applications. Topics include basic nuclear plant operation overview, atomic bonding, crystalline and non-crystalline structures, diffusion, phase diagrams, mechanical and thermal behavior, failure analysis and prevention, structural materials, ceramics, corrosion, radiation effects on materials, materials commonly used in reactor core and nuclear plant design, and material problems associated with reactor core operation.

NUC 330 Reactor Core Fundamentals — 3 credits

This course presents a study of the basics of neutron chain reaction systems. Topics include neutron cross sections, flux, reaction rates, fission processes, neutron production, neutron multiplication, six-factor formula, reactivity, subcritical multiplication, prompt and delayed neutron fractions, reactor period, reactivity coefficients, control rod worth, and fission product poisons.

NUC 350 Plant Systems Overview — 3 credits

This course offers an overview of the basic aspects of design, layout, and function of all major systems associated with nuclear power plant designs typically used for U.S. power production. The approach to the course is to build a power plant system by system. Covers major system components, controls, and their design features. Emphasizes the systems' interconnection and functions. Systems are grouped/ classified regarding their use and characteristics, e.g. production vs. safety, primary (nuclear interface) vs. balance of plant, active vs. passive.

NUC 495 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Bachelor of Science in Nuclear Engineering Technology program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Bachelor of Science in Nuclear Engineering Technology outcomes. The learning statements

must be supported by documented evidence that demonstrates that the outcomes have been met. All NUC 495 students are required to complete an online examination designed to assess the basic knowledge and understanding achieved by senior undergraduates in nuclear engineering technology.

TECH 150 Power Plant Mathematics 3 credits

This course has broad applicability for anyone interested in entering a power plant technology degree program. The course covers: basic arithmetic functions, scientific notation, dimensional analysis, basic algebraic operations, graphical analysis, basic geometric concepts, basic trigonometric operations, basic statistical analysis, and introduction to higher level mathematics.

TECH 200 Technical Writing 3 credits

This course develops skills in technical writing and communication. The course will cover the basics of technical writing and communication through email, presentation, social media, and word processing.

TECH 201 Foundations of Technology Problem Solving I 4 credits

This course offers an introduction to the basic concepts of calculus and their applications in engineering technology. It discusses use of limits, derivatives, and integrals to solve problems related to different engineering technology disciplines.

TECH 202 Foundations of Technology Problem Solving II 4 credits

This course is a continuation of **TECH 201.** It focuses on the applications of calculus in engineering technology. Topics include sequences and series, polar coordinates, introduction to ordinary differential equations, eigenvalue solutions, and Laplace transform methods.

TECH 205 Discrete Structures 3 credits

This course provides the mathematical foundations for information technology, including set theory, patterns of inference, elementary combinatorics, automata theory and formal languages, cryptography, and graph theory.

TECH 225 Applied Instrumentation and Control 3 credits

This course focuses on instrumentation; temperature, pressure, and flow measurements; transducers; pneumatic and hydraulic systems; programmable logic controllers; and process control. In this course the students will have the opportunities to explore the characteristics and operations of different types of transducers and measuring instruments. The importance of system models as well as their relationship between process control will also be covered in this course.

TECH 230 Technology and Society 3 credits

This course considers technological change from historical, artistic, and philosophical perspectives and its effect on human needs and concerns. Emphasis is placed on the causes and consequences of technological change and the evaluation of the implications of technology.

TECH 233 Electrical Power Distribution 3 credits

This course provides an overview of the design, operation, and technical details of modern power distribution systems, including generating equipment, transmission lines, plant distribution, and protective devices. It includes calculations of fault current, system load analysis, rates, and power economics.

TECH 250 Renewable Energy Overview I: Solar and Geothermal 3 credits

This course offers an overview of solar (photovoltaic) energy, solar thermal energy, and geothermal energy. It also describes green building technologies (sustainable systems design). Political, economic, and environmental impact will also be discussed.

TECH 251 Renewable Energy II: Wind and Water — 3 credits

This course offers an overview of wind energy and water energy in both commercial and noncommercial applications. It continues discussion from **TECH 250** regarding sustainable system design regarding green building technologies. Political, economic, and environmental impact will also be discussed.

TECH 290 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Associate in Applied Science in Technical Studies program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Associate in Applied Science in Technical Studies outcomes. The learning statements must be supported by documented evidence that demonstrate that the outcomes have been met.

TECH 295 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Associate in Science in Technology program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Associate in Science in Technology outcomes. The learning statements must be supported by documented evidence that demonstrates the outcomes have been met.

TECH 330 Economic Analysis for Technologists — 3 credits

This course studies the application of economics and decision theory to the evaluation of engineering alternatives in planning, developing, constructing, and managing engineering projects.

TECH 340 Introduction to Energy Utilization — 3 credits

This course details the high rate of fossil fuel consumption by developed and developing nations, the limited amounts of fossil fuels remaining, and the environmental damage due to their use. Renewable energy sources are encouraged, and renewable energy source data is presented as well as information regarding state-of-the-art renewable energy technologies for the electric power and transportation industries. Renewable energy sources include wind, photovoltaics, fuel cells, and biomass.

TECH 490 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Bachelor of Professional Studies in Technology Management program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Bachelor of Science in Technology Management degree outcomes. The learning statements must be supported by documented evidence that demonstrates the outcomes have been met.

TECH 495 (capstone) Integrated Technology Assessment — 3 credits

This is the required capstone course for the Bachelor of Science in Technology program. It requires students to reflect on their past academic and professional experiences and use the information gained from this reflective exercise to develop learning statements related to the Bachelor of Science in Technology outcomes. The learning statements must be supported by documented evidence that demonstrates the outcomes have been met.

Graduate Level

ACC 505 Financial Statement Analysis — 3 credits

This course investigates the role and value of accounting information for users as they make business decisions. It includes a review of the generally accepted accounting principles and assumptions underlying the basic accounting model that generates the financial statements. The course focuses on the interpreting and analyzing financial statements to assess:

A. historical trends and patterns,
B. short-term liquidity and long-term solvency,
C. profitability and operating performance, and
D. capital structure and asset utilization.

Additional topics include the effects of alternative accounting methods, specialized industry analysis (e.g., banks, insurance, and utilities) and earnings quality and earnings management.

ACC 510 Financial Reporting and Disclosure — 3 credits

The course will cover an in depth examination of financial report disclosures, with an emphasis on how firms use financial reporting to achieve such ends as managing earnings or keeping debt off of the balance sheet. By the end of the course, students will have an appreciation for what information is missing from the primary financial statements, the knowledge to understand the content of important footnotes, and the tools to conduct financial analyses using the information contained therein. The course will use a combination of textbook problems, case studies, and most importantly, actual financial report disclosures. The course is geared for students going into public accounting, investment banking, equity research, or consulting.

ACC 515 Accounting for Government and Non-for-Profit organizations — 3 credits

This course is designed to provide a comprehensive overview of the accounting, managerial, auditing, fiduciary, financial reporting, and regulatory issues related to Government and Not-for-Profit organizations. It builds on the builds on the concepts, principles, and processes shared within **BUS 500 Managerial Accounting** and **ACC 510 Financial Reporting and Disclosure**.

BUS 500 Accounting for Managers — 3 credits

This course is intended to help the student understand how to analyze a company's basic financial statements and annual report. By the end of the course, you should be familiar with the four basic financial statements, some of the key accounts on the balance sheet as well as the overall accounting cycle. As a manager, you should be able to effectively analyze a company's financial statements and annual report. Additionally managers should be able to conclude on a company's profitability, efficiency, liquidity and solvency.

BUS 501 Business Communications — 3 credits

This course focuses on the development of clear written communication and oral presentation skills. It examines a variety of communication techniques, formats, and processes for sharing organizational information. The course explores the use of audiovisual and electronic media to enhance the quality of presentation and communication.

BUS 502 Global Business Environment — 3 credits

This course examines the global business environment and its impact on an organization's business strategy and decision making. It focuses on the complexities and risk/reward assessments that arise due to highly diversified markets, cross cultural issues, globalization, international organizations (WTO, IMF, World Bank, etc.), nongovernmental organizations (NGOs), foreign direct investment, and currency risk challenges.

BUS 503 Quantitative Analysis — 3 credits

This course offers a review of the major quantitative techniques required for successful performance in graduate-level quantitative courses. It emphasizes descriptive statistics, inferential statistics, and math models with business applications to analyze management and organizational problems. Topics include measures of central tendency and variation, probability distributions, estimation, hypothesis testing, linear and multivariate regression and correlation, decision theory, linear programming, time series and supply chain management, transportation and assignment models, and inventory management and queuing theory models.

BUS 504 Human Resource Management — 3 credits

This course, aligned with Society of Human Resource Management (SHRM) human resource graduate curriculum, will provide students with an understanding of the evolution and roles of human resource management in organizations, as well as an overview of the basic functions of HR management. These functions include: staff planning; recruitment and selection; job analysis and design; performance management; labor relations and laws; training and development; compensation and rewards; HR strategy; strategic, corporate, and HRM objectives; HRM policies, practices and leadership behavior; employee involvement; diverse workforces; the impact of globalization; and HR's role in change management and internal consulting.

BUS 505 Finance — 3 credits

This course introduces students to the major financial concepts, principles, and analytical tools of corporate finance. The course introduces students to the topics of financial statement analysis, forecasting, the risk/return tradeoff, the time value of money concept, valuation, the cost of capital, and the capital budgeting process. The course helps students understand how to utilize these concepts, principles, and techniques so that they, as managers, can make well-reasoned decisions.

BUS 506 Marketing — 3 credits

This course presents a systematic framework for understanding marketing management and strategy. It focuses on creating and executing marketing strategies and policies and examines the ethical, legal, social, and environmental issues relevant to the development of sound marketing strategies and policies.

BUS 511 (capstone) Strategy and Policy — 3 credits

MBA capstone course. Integrates previous study and various business disciplines to formulate, analyze, and implement effective business strategy. Students will analyze complex business situations for making strategic decisions under conditions of uncertainty. All Bus 511 students are required to complete an online examination designed to assess the basic knowledge and understanding achieved by graduates in the Master of Business Administration program.

BUS 512 Compensation and Benefits — 3 credits

This course studies the total rewards provided to employees in return for their contributions to an organization, investigates its strategic and tactical aspects, and examines current issues with compensation and benefits. The principles of modern compensation and benefits are considered from legal, practical, and theoretical perspectives. Students will examine how compensation and benefits can add strategic value by aligning total compensation with organizational goals and investigate the challenges facing organizations operating on a global scale.

BUS 515 Labor Relations and Conflict Management — 3 credits

This course explores the complex relationship among management, unions, and employees in the workplace. The course will concentrate on the behavioral and organizational issues that arise in the often-contentious environment of a unionized workplace. Students will study and learn the general nature of labor relations. This will include the historical, legal, and structural environments that have greatly influenced contractual management; the negotiation, administration, and major contents of labor relations documents; struggles and disputes between labor and management; and the various tools and mechanisms to resolve these conflicts.

BUS 516 Communication Strategy for the Health Care Leader — 3 credits

This course examines theories of interpersonal, organizational and mass communication relevant to the health care administrator. The course provides a conceptual framework for strategic communication, and focuses on effective health communication strategies. Students will examine a variety of contexts of communication including; health campaign message design, dissemination and management and intercultural and generational communication. The course will also look at the new age of communication technology in developing a communication strategic plan within a health care environment.

BUS 517 Employee Staffing and Development — 3 credits

This course covers key principles and practices in staffing and employee development. The course curriculum focus is on interdependence of effective organizational performance with proper staffing, including recruiting and selection functions and proper assessment of personnel and employment training involved in human resource management.

BUS 518 Leading Teams — 3 credits

This course applies concepts, theories, and practices necessary to build, lead, and maintain high performance teams. Students will focus on team dynamics, decision-making, leadership, communication and conflict management in various organizational settings.

BUS 520 Operations Management — 3 credits

This course provides a fundamental understanding of manufacturing and service operations and their role in the organization. Surveys a wide range of operations topics, including but not limited to, process flow analysis, inventory management, capacity planning, logistics, facilities location, supply chain management, total quality management, human resource management, technology management and manufacturing and service strategy. Deals with these topics through a managerial, applications-oriented perspective. Special emphasis is placed on the international dimensions of operations. The course is integrative in nature, emphasizing the fit and relationship of operations with other functions of the firm.

BUS 523 Business Ethics for Managers — 3 credits

The focus of this course is on the application of moral philosophy with regard to the social responsibility of business, corporate governance, and business/government relations. The course examines other issues as well, including the rights and obligations of employers and employees; hiring, firing and discrimination; gathering, concealing and gilding information; and issues in dealing with foreign cultures. Students will consider how organizations can be guided toward fulfilling their social responsibilities.

BUS 525 Social Media: Principles, Strategy, and Community Management — 3 credits

This course will develop the students understanding of social networking principles, effective engagement, and how to effectively manage online communities. Students will engage in evaluating social media writing, developing social branding, creating value-driven content, and understanding basic social media measurement tools. Students will analyze corporate social media case studies and apply best practices to real-world environments.

BUS 526 Strategic Management of Health Care Organizations — 3 credits

This course explores how healthcare organizations can create a sustainable competitive advantage in a volatile, reimbursement driven industry. Topics include external and internal environmental analysis, strategy formulation, organizational design and control and the impact of mergers and alliances on industry performance. This graduate course integrates accounting, finance, marketing, informatics, and organizational behavior in the creation of a sustainable competitive advantage specifically for a health care organization.

BUS 530 Project Management Principles and Application — 3 credits

This course covers the key components of project management process including effectively defining the project, identifying the scope, project life cycle, communication, planning, performing, and controlling the project. Case studies and a final project are used to examine best practices, including risk assessment.

BUS 535 Quality and Productivity Methods in the Management of Technology — 3 credits

This course presents current management techniques and processes for improving products, services, and productivity in organizations that make extensive use of technology. It focuses on issues and solutions specific to the management of technology.

BUS 540 Strategic Management of Innovative Technology — 3 credits

This course examines theories and methods to prepare managers to handle strategic issues related to the effective management of innovative technologies. It explores the principles of strategic management with direct application to technology. Integrates: strategy setting, implementation, and assessment; historical cases of business innovation through a maturation life cycle; and application of lessons learned in contemporary business cases.

BUS 545 Social Media: Marketing — 3 credits

This course will develop students' ability to strategically create and implement an effective social media marketing campaign. Focus will be placed on fully understanding and integrating appropriate social media tools for supporting and improving the effectiveness of organizations' marketing and communication processes. Students will examine social media in context with advertising, marketing, and public relations. Additionally, students will gain basic hands-on experience with current social media technology. Practical applications with both limitations and opportunities of different social media contexts will be explored to assess their impact on appropriate constituencies and/or organizational cultures. Finally, the course will focus on demonstrating best practices for developing and implementing effective techniques, tactics, and strategies to more effectively and efficiently reach target markets.

BUS 550 Contingency Planning — 3 credits

This course examines the planning process in organizations to continually confront the unlikelihood of a disaster causing an unexpected interruption of normal operations. Specifically, it provides an overview of the key elements and strategies of implementing a crisis management program within an organization. Undertaking a business function analysis approach, students will be able to define anticipated consequences when a disruption of normal organizational operations occurs and develop a recovery plan built around desired outcomes.

BUS 552 Leadership — 3 credits

This course focuses on the leadership process within the broad context of organizational dynamics. It explores leadership from four different perspectives: the leader; the follower; the situation; and leadership skills. Theories, concepts, and models are applied to workplace situations.

BUS 553 Organizational Behavior — 3 credits

This course examines the application of behavioral science to organization behavior, formal and informal groups, structure and management processes, decision making and controlling processes, communication within the organization, and organizational development. It covers: theories of organization and management; individual behavior; group dynamics; organizational change; organizational performance, efficiency, and effectiveness; and the impact of technology on the workplace and its constituents.

BUS 554 Change Management — 3 credits

This course presents a study of the process of change and change management. It focuses on the types of changes that take place within organizations, identifying the key issues and challenges associated

with each type of change. Utilizes macro and micro tools for working with change, including management skills and styles, communications patterns, and force-field and gap analysis. The course covers the human and economic factors in organizational change and restructuring.

BUS 555 Principles and Practices of Performance Improvement — 3 credits

This course focuses on decisions, events, and concepts driving business decision making with the goal of leading to improved employee and financial performance, while recognizing that doing so is a key indicator to business success. By examining cases and creating a performance management action plan, students will be exposed to key parts of performance improvement.

BUS 557 Human Performance II: Performance Counseling — 3 credits

Performance Counseling focuses on decisions, events, concepts, tools, and strategies that drive business decision making with the goal of leading to improved employee, organizational, and financial performance. Throughout the course, learners will be challenged with scenarios and decision making opportunities that are designed to help them understand how to apply the Total Performance System to profile organizational development; identify possible drivers for performance issues; prescribe appropriate solutions; close performance gaps and achieve desired results; identify levels of performance evaluation and the types of data each level yields; identify strategies and tactics for institutionalizing change; and embed performance improvement technologies in your organizations.

BUS 565 Social Media: Metrics — 3 credits

This course introduces the various measures used to describe outputs, outtakes, and outcomes of communication work, particularly focusing on social media. The course will cover terminology, review applicable cases, and measure both social and mainstream media. It will prepare you to assess the current state of measurement—the issues, problems, resolution, and means being employed in the profession. The course will examine measurement in a public relations context rather than a marketing/advertising context.

BUS 570 Information Technology — 3 credits

This course examines the strategic, operational, and ethical uses of information technology. It explores global and electronic markets and data management, and it examines how IT can support customer and supply chain management.

BUS 580 Management of Information Security — 3 credits

The course addresses the role of management in protecting an organization's information assets. It looks at various aspects of Information Security Management such as risk management, systems security planning, business continuity planning, disaster recovery planning, and cryptography in the overall process of securing corporate and government information. It considers the measures businesses may use to anticipate and provide appropriate responses to changes in public and government recommendations on mobile device security, adaptive threat defense, Web 2.0, virtualization, data leakage, and security governance.

BUS 590 Special Topics in Network Security Management — 3 credits

The course will address the role of network and cyber security and protection of information assets. This course examines the fundamental skills, techniques, tools, and understanding required for identifying and defending against vulnerabilities in computer systems and networks as well as the techniques for detecting and preventing computer and cyber attacks. It looks at various aspects of computer and cyber security such as common cyber attacks, viruses, vulnerabilities, cryptographic concepts, physical security, intrusion systems, malware, network security concepts, web security, and overall, applications of security including social networking security concepts. We will explore the measures individuals and businesses may use to think and deploy security mechanisms early on

in designing information systems or in making strategic procurement decisions. The intent of the course is to create security savvy professionals who will have a thorough understanding of the security ramifications and be prepared to provide appropriate responses to the potential threats which are so rampant in the network security world.

BUS 599 Strategic Management — 3 credits

This is the Master of Science in Management (MSM) Capstone course. It integrates previous study and various management disciplines to formulate, analyze, and implement effective management strategy. Students will analyze complex management situations to make strategic decisions under conditions of uncertainty.

BUS/MWB 601 Mediation — 3 credits

Using the inAccord Conflict Analysis model, the class employs directive, facilitative and relational methods to create a deeply rewarding learning experience. Role-play, mentoring and other active learning strategies bring to life theory, case studies and the field of human relations to equip students with the foundation and actionable ability to mediate, negotiate and conquer conflict in almost any situation. Students learn how disputes, power, gender and culture inform ADR interventions and prepare them to analyze unique conflict styles and the wide varieties of human interaction and personalities.

BUS/MWB 605 Applied Practice Internship — 3 credits

This course is designed to facilitate the application of mediation skills learned in the course work directly to cases and to facilitate the development of additional techniques. Through consultation and group conflict resolution practice, students are guided to expand their understanding of the use of relational and directive mediation techniques and interpersonal communication skills. Students will gain practice in facilitating the inAccord research surveys during this practice oriented course. Students take part in simulated role plays offered via teleconference and the web and have the option of combining this practice with their own cases, informal or formal, which can be brought to the faculty conflict coach for consultation.

BUS/MWB 610 Workplace/HR Mediation — 3 credits

Workplace mediation is an emerging specialty within the field of mediation. The high costs of workplace conflict are driving companies and regulatory agencies such as the EEOC to use mediation and other conflict resolution practices in the workplace. Building on theory and skills introduced in CORE Mediation, this course begins with an overview of workplace conflict and the costs involved for companies, application of mediation practice to the workplace environment, strategies to handle difficult workplace behavior, and a summary of informal and formal arbitration practices. The course covers the process of planning workplace mediation within profit, nonprofit, and governmental workplace settings. The course specifically addresses unique workplace mediation issues including civil rights, sexual harassment, and disability disputes. Special issues such as power and emotions along with cross-cultural and multi-party cases are covered. The course concludes with a presentation of emerging concepts of appreciative inquiry and its application to workplace disputes.

BUS/MWB 620 Arbitration — 3 credits

The Arbitration course is a collaborative online class, which covers the history of arbitration, its relationship in law, and common applications. The course will present topics such as arbitration statutes, awards, staying proceedings, costs, and fees. Issues of jurisdiction, arbitrator qualifications and duties, contract analysis, rules of evidence, admissibility, and relevance will be discussed in readings and online discussions with other students and the instructor. The second half of the class covers the actual pre-hearing procedures, the hearing itself (including discussion of both procedure and dealing with substantive issues), the award (including issues of determination on the issue and potential remedies available, and the practical matter of writing the award), and grounds for challenging the award

(including the concepts of appeal and judicial review). The class methodology will rely on case study evaluations to highlight weekly topics.

CYS 503 Communications and Network Security — 4 credits

This course will cover penetration testing as a form of ethical hacking to proactively identify, validate, and remediate vulnerabilities within a given system or application. Learners will research and discuss current topics in cyber-attacks and defenses including, but not limited to ethics, laws, permissions, assessment guidelines, planning, execution, and management of penetration testing along with reporting of the discovered results as a strategy to improving the overall security posture of a system or network. Learners will gain hands-on experience working with preconfigured targets systems within a virtual sandbox lab where they can enumerate them for open ports and running services, identify vulnerabilities, and exploit the discovered vulnerabilities, and engage in post-exploitation activities

CYS 522 Advanced Networking — 3 credits

This course will review several advanced networking topics, including wireless and mobile networking, satellite and near field communications, RFID (Radio Frequency Identification), and the use of cryptography and encryption in data transmission and networking. This course will also discuss privacy and security issues related to the use of these networking technologies.

CYS 526 Cyber Attacks and Defense — 3 credits

This course investigates security issues, vulnerabilities, and mechanisms to identify, respond to and prevent cyber attacks and to build active defense systems. The course will follow the formal ethical hacking methodology including reconnaissance, scanning and enumeration, gaining access, escalation of privilege, maintain access and reporting. Ethical Hackers are computer and network experts who attack security systems on behalf of its owners, seeking vulnerabilities that a malicious hacker could exploit.

CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity — 3 credits

Coursework examines the ethical, legal, and regulatory compliance issues related to the practice of cybersecurity. The course focuses on the requirements, challenges, and dilemmas of data protection, due diligence, privacy laws, fraud and risk management, intellectual property, IT auditing, and ethical corporate codes of conduct. The course covers key mandates and laws in Cybersecurity and also the IT audit process and techniques. To minimize liabilities and reduce risks from electronic, physical threats and reduce the losses from legal action, the information security practitioner must understand the current legal environment and stay informed of emerging laws and regulations as well as auditing frameworks.

CYS 560 Information Assurance — 3 credits

This course will focus on providing students with insights, guidance, and best practices on the principles of information security. Students will examine the foundations of information security as defined by experts and ISC^2, which is considered a definitive source for information security best practices. Students will examine information security using the 10 domains of knowledge as our guidebook. The materials will include course textbooks, other sources, and case studies to support class discussions. Students will learn to apply some of the information security knowledge and skills through individual activities. The course will include an opportunity to apply the course topics to a mock digital crime scene.

CYS 565 Security Management Awareness — 3 credits

This course introduces Security Management awareness and provides important and cost-effective methods to protect sensitive information. Through a structured environment of physical, computer, and network security measures, implementation of effective user training, establishment of policies and procedures, and sharing of knowledge and expertise within an organization to protect sensitive information, each student is provided essential information to create and maintain a secure environment.

CYS 575
IT Risk Analysis and Management — 3 credits

This course examines information security risk analysis and management from a business perspective. The course will provide an overview of the key aspects of risk analysis and management, including asset identification and associated risk identification, qualitative and quantitative risk assessment and prioritization, determination of risk mitigation strategies, budgeting for risk, and ongoing risk management. This course will provide knowledge, skills, and techniques to identify, prioritize, and manage the many IT security risks facing businesses today. Students will also examine how IT risk management supports IT governance and decision making by businesses. The role of risk analysts, auditors, security personnel, and management will be discussed.

CYS 585 Digital Crime Prevention and Investigation — 4 credits

This course provides an in-depth analysis of the digital defense planning, technologies, and methods to safeguard organizational networks, databases, and applications. It presents a plan-protect-respond framework of digital security; the interaction of policies, implementation, and oversight; and ways to perform a computer forensic investigation.

CYS 590
Special Topics in Cybersecurity — 4 credits

This is a capstone course for the Graduate Certificate in Cybersecurity Management. It is designed to explore the most up-to-date technologies used to combat and mitigate the evolving threats within the domain of cybersecurity. Through the analysis of vulnerabilities, failure analysis, and continuous improvement of first-line defenses, and knowledge of relevant standards, the cybersecurity expert must be prepared for threats of an unknown origin at all times.

CYS 595
Capstone Project in Cybersecurity — 4 credits

This capstone course for the Master of Science in Cybersecurity examines computer security technology and principles, including cryptography, authentication, access control, and database security; software security; management issues, including physical and infrastructure security; human factors; and security auditing. This course also covers IT security management, risk assessment, and legal and ethical considerations.

ECO 508 Managerial Economics — 3 credits

This course is intended to provide students with an understanding of the micro economic forces that influence company decision making. Game theory will provide a framework to understand strategic interaction between firms in markets. The topics that will be covered include competitive markets, benefit-cost analysis, demand estimation and forecasting, decision making under risk and uncertainty, production and cost estimation, and market structure analysis. Engaged students should also acquire a basic competence in the theoretical derivation and empirical estimation of demand, cost, and production functions, answering the fundamental managerial questions of what, how, and for whom to produce.

Choosing a Degree Program in Technology

You may find it helpful to compare the requirements for each degree with your own educational background and career aspirations to determine the best degree for you. Professionals in your field of choice may be able to advise you about the preparation necessary for particular areas, and graduate school admissions counselors can advise you about requirements for entry into specific graduate schools. Excelsior College academic advisors can offer you general information about how previous study might apply to degree requirements and about your general options for continued study.

TECHNOLOGY PROGRAMS

The bachelor's degree programs in electrical engineering technology and nuclear engineering technology are accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org, 111 Market Place, Suite 1050, Baltimore, MD 21202, 410-347-7700. ABET is a specialized accrediting agency recognized by the Council for Higher Education Accreditation (CHEA).

Requirements and Policies for All Technology Degrees

Because of limited technological degree program opportunities across the country, completing degree requirements at a distance is often the only option for adults with technical backgrounds acquired at institutions of higher education, on the job, and/or in the military. As an adult learner undertaking study for a technology degree at a distance, you should familiarize yourself with the various academic requirements and policies that form the basis of available programs and make your educational decision based on a complete understanding of all relevant factors. Included here is a summary of the most important information regarding the Excelsior College technology degree programs.

Policies Specific to All Technology Programs

The Excelsior College Student Policy Handbook is your resource for understanding the academic and administrative policies that are important to your academic success. It includes a wide range of information from important federal policies, including your right to privacy, to grading policies and policies and procedures concerning refunds, withdrawals, and other administrative issues. It is your responsibility to be familiar with these policies.

Policies and procedures that apply specifically to the technology degree programs are listed on the following pages. File your Student Policy Handbook with your other important academic papers and this program catalog for easy reference.

Minimum Academic Average

You must have a cumulative grade point average of C (2.00) or better in order to qualify for graduation from Excelsior College. Only courses or examinations with grades of C or higher (to include pass [P] grades) may be used to satisfy the technology component and other specific requirements.

Time Limits on Coursework

Since the content of different technologies changes at varying rates, most degree programs have specific time limits applied to certain technology component courses submitted for transfer credit. Unless otherwise specified, the time limit for the application of credits for information technology and electrical technology is 10 years prior to the date of enrollment. See particular degree information for further details.

Integrated Technology Assessment

All students must complete this capstone course. It is an online portfolio development experience that requires students to reflect on their past academic and professional experiences and use the information gained to develop learning statements related to degree program outcomes. These learning statements must be supported by documented evidence demonstrating that the outcomes have been met.

Second Degree Restrictions

No student is permitted to earn a second technology degree in the same or similar area of study or focus. Please refer to your *Student Policy Handbook* for specific information.

Mathematics Policy

Arithmetic courses and other mathematics courses designated as developmental or remedial may not be used toward the degree. No more than 9 credits of math below the level of calculus may be applied to any degree. Representative titles of math courses below the level of calculus include College Math, College Algebra, Trigonometry, and Precalculus.

Business/Industry/Military Training

Courses offered by business, industry, and the military tend to be application-oriented and may not contain sufficient depth and breadth of content to meet our technology core requirements. Transfer credit from the Community College of the Air Force, for example, is usually applicable to the arts and sciences, career/professional, or free elective credits components of our technology degree programs. We encourage you to contact our Admissions Office before you enroll if you have questions about how your business, industry, and/or military courses will apply.

Diversity

Excelsior College encourages you to plan your program in the humanities and social sciences to include study of the diverse perspectives of various ethnic and cultural groups as well as investigation of the fundamental assumptions of Western civilization.

Requirements for All Technology Degree Programs

Every Excelsior College technology degree program requires a specific number of semester hours of credit in each of its component areas. These areas include an arts and sciences component, a technology component (or, in some programs, a career/professional component) and, for some degrees, a free elective component in which you may earn credits through applicable coursework or examinations in subject areas that interest you to individualize your program design.

Within the arts and sciences component, you must earn a specified number of credits by successfully completing coursework or examinations in the humanities, social sciences/history, and natural sciences/mathematics areas. Within the technology component (or career/professional component), you must earn a specified number of credits by successfully completing coursework in core requirement and technology elective areas. The free elective component includes courses taken in any discipline. A maximum of two credits in physical education activity courses may be applied to your degree.

Written English Requirement (WER)

Students are required to demonstrate competence in expository writing in English.

- Associate Degree students must complete one expository writing course or examination (minimum three credit hours or four quarter hour credits) with a minimum of C grade. This must be completed within the first nine (9) Excelsior College credits attempted.
- Bachelor's degrees students must complete two expository writing courses or examinations (minimum six credit hours or eight quarter hour credits) with a minimum of C grade

  OR

- one expository writing course or examination (minimum three credit hours or four quarter hour credits) and one applied writing or writing intensive course (minimum three credit hours or four quarter hour credits). The expository writing course must be completed within the first nine (9) Excelsior College credits attempted.

Methods of Satisfying the Written English Requirement

1. **Examination**
   a. Excelsior College® Examination, **ENGx111 English Composition** (fulfills the requirement for associate and bachelor degrees)
   b. UEXCEL® examination, **ENGx110 College Writing** (fulfills the requirement for the associate degrees; partially fulfills the requirement for the bachelor degrees)
   c. Advanced Placement (AP) English Examinations (fulfills the requirement for associate and bachelor degrees)

Excelsior College does not accept the CLEP General Examination in English Composition with Essay toward this requirement.

2. **College coursework**
   See requirements above.

   Coursework must be from an English-speaking institution. English as second language courses may not be used to satisfy this requirement.

3. **Statement of Equivalency**
   Submission of an official statement from a regionally accredited institution, from which transfer credit is being accepted, verifying satisfactory completion of the student's writing requirement. The statement must reflect whether the institution had a one course or two course writing requirement in effect at the time of the student's matriculation.

4. **Noncollegiate-sponsored instruction**
   Successful completion of a noncollegiate-sponsored instructional writing course or program that has been evaluated by either the NYS Board of Regents National Program on Non-collegiate Sponsored Instruction (National PONSI) or the American Council on Education Center for Adult Learning and Educational Credentials (ACE CREDIT), and contains a recommendation of at least three semester-hour credits for the course; this course must contain an actual assessment of the student's competence in expository writing in English.

A maximum of two 3–4 credit hour courses or three quarter-credit courses in English composition/freshman English courses will apply toward degree requirements. Courses or examinations used to fulfill the Written English Requirement may not be used to satisfy the Humanities requirement.

Information Literacy Requirement

Students are expected to demonstrate competency in information literacy. The standards, performance indicators, and outcomes for this requirement were selected from the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education. Competency will be assessed through a 1-credit pass/fail course offered online by Excelsior College **[INL 102 Information Literacy]**, the successful completion of one of two 3 credit courses offered online at Excelsior College **[CCS 112 Success Strategies for Military and Veterans, CCS 120 EC Success Seminar]**, or through successful completion of a course taken at a regionally accredited college **within the past five years** covering comparable content.

The information-literate student will be able to:

- determine the nature and extent of the information needed.
- access needed information effectively and efficiently.
- evaluate information and its sources critically.
- incorporate selected information into their knowledge base and value system.
- understand many of the economic, legal, and social issues surrounding the use of information.
- access and use information ethically and legally.

Students seeking additional information should check the **Excelsior College website** or consult with their academic advising team.

Requirements listed with an "x" in the prefix indicate examinations; requirements listed without an "x" in the prefix indicate courses.

Associate Degree Programs in Technology

For the technology student, the Excelsior College School of Business & Technology offers two programs at the associate degree level focused specifically on high-growth industries with exciting career opportunities. You may apply workplace and military training as credit, accelerating the path to your degree.

Excelsior College offers virtual student chapters of the **Association of Computing Machinery (ACM), Institute of Electrical and Electronic Engineers (IEEE),** and the **American Nuclear Society (ANS).** Memberships are open to currently enrolled Excelsior College students.

Visit **www.excelsior.edu** or more information about these chapters.

Requirements and Policies for the Associate Degrees in Technology

Every Excelsior College technology degree program requires a specific number of semester hours of credit in each of its component areas. These areas include an arts and sciences component, a technology component (or, in some programs, a career/professional component), and for some degrees a free elective component in which you may earn credits through applicable coursework or examinations in subject areas that interest you to individualize your program design.

Within the arts and sciences component, you must earn a specified number of credits by successfully completing coursework or examinations in the humanities, social sciences/history, and natural sciences/mathematics areas. Within the technology component (or career component), you must earn a specified number of credits by successfully completing coursework in career component and technology elective areas. The free elective component includes courses taken in any discipline.

You are subject to the degree requirements in effect at the time of your enrollment or program/degree transfer (program transfer refers to changes from one school to another; degree transfer refers to changing degrees within the same school).

The faculty reserves the right to make changes in curricular requirements as necessary to reflect current professional practice. Changes may affect both enrolled and prospective students. It is your responsibility to keep informed of such changes. We make every effort to inform you of changes as they occur. Current information about degree requirements is posted on our website. Information about changes to degree requirements is also made available on our **website.**

Your Personalized MyExcelsior Account:
www.excelsior.edu/MyExcelsior

Admissions:
toll free 888-647-2388, ext. 27

Fee Schedules, Financial Aid, and Scholarships:
www.excelsior.edu/fees
www.excelsior.edu/financialaid
www.excelsior.edu/scholarships

College Publications, Applications, and Forms:
www.excelsior.edu/publications

Student Policy Handbook:
www.excelsior.edu/studentpolicyhandbook

Course and Exam Information and Registration:
www.excelsior.edu/courses
www.excelsior.edu/exams
www.UExcelTest.com

Learning Resources:
www.excelsior.edu/myexcelsior, click on the **Resources** tab

Associate in Applied Science in Technical Studies

The Associate in Applied Science in Technical Studies (AAT) program focuses on preparing students to be employed as technicians in technology-related industries such as nuclear, energy, computer, electronics, and electrical. While the AAT program is designed specifically to meet the needs of students with military backgrounds by recognizing college-level learning that takes place as a result of military training, the program may also be appropriate for non-military students. Specifically, the program has identified four technical concentrations that provide students with a broad professional and technical foundation in the various functional components of technology. The concentrations are a group of related college-level courses within a technical component that combine depth and breadth of study in a recognized math/science-based technology discipline. The goal of the degree program in specific concentrations is to foster the ability of students to apply what they have learned within the degree program to the real-world contexts of a technology-based industry. The four concentrations are:

- **Computer Technologies**
- **Electromechanical Technologies**
- **Electronic/Instrumentation Technologies**
- **Nuclear Technologies/Power Plant Technologies**

Student progress within the degree program is based on the demonstration of proficiency, and is attainable through multiple, flexible pathways — offering aggregation pathways to degree completion. In this way, the program is customizable and tailored to each student's need and learning style. Graduates of the Associate in Applied Science in Technical Studies program who are interested in continuing on to baccalaureate-level study should contact the technology advising team for advice on the preferred program of study.

Refer to **pages 92 – 95** to review sample concentration area subjects and technical elective subjects.

Program Outcomes

Upon successful completion of the Excelsior College Associate in Applied Science in Technical Studies program, the graduate will be able to:

1. Demonstrate effective oral and written communication skills.
2. Demonstrate introductory college-level proficiency in one or more of the subject areas in mathematics and/or natural sciences.
3. Demonstrate introductory college-level proficiency in one or more of the social sciences.
4. Demonstrate a comprehension of cultural diversity, human behavior, and the relationship between technology and society.
5. Demonstrate the application of technology in the concentration area.

CONCENTRATIONS

Computer Technologies

A concentration in computer technologies focuses on training and preparing students to stay up-to-date with the rapidly changing tech environment. The computer technologies concentration is a technical discipline centered on the design, assembly, testing, and maintenance of computer circuitry and peripheral hardware. The concentration also emphasizes the design, development, operation, and troubleshooting of computer, database, and network systems. The computer technologies outcomes are geared toward providing students with a foundational knowledge of computer technologies in a wide variety of subject areas and preparing students for positions including circuit design engineer, hardware technician, software developer, database specialist, or network engineer.

Electromechanical Technologies

A concentration in electromechanical technologies focuses on training and preparing the students with the knowledge and practical skills in mechanical technology along with electrical and electronic circuits. It is centered on design, assembly, testing, maintenance, and upgrading of electronic and computer-integrated mechanical components and

systems, such as automated manufacturing tools and engineering service equipment. The electromechanical technologies' outcomes are geared toward providing students with fundamental as well as applied knowledge in automated, servo-mechanical, or electromechanical tools, equipment, and processes. These will prepare the students for positions in operating, repairing, and upgrading unmanned submarines, aircraft, robots, or such automated equipment.

Electronic/Instrumentation Technologies

A concentration in electronic/instrumentation technologies focuses on training and preparing the students with the knowledge and practical skills in electrical/electronic circuits and process instrumentation. It is centered on design, assembly, testing, maintenance, and upgrading of electrical and electronic components and systems used in analytical instruments and measurements, medical technology, communications, and industrial process control. The electronic/instrumentation technologies' outcomes are geared toward providing students with fundamental as well as applied knowledge in AC, DC, and digital circuits, microprocesseors, and programmable controllers. These will prepare the students for positions in operating, repairing, and upgrading process instrumentation tools, equipment, and systems.

Nuclear Technologies/ Power Plant Technologies

A concentration in nuclear technologies/power plant technologies focuses on preparing students for technician/operator positions in the nuclear industry. The nuclear technologies/power plant technologies concentration is a technical discipline centered on the design, materials, operations, and maintenance associated with radiation shielding, radiation detection instrumentation, and emergency planning for nuclear research and power generation facilities. The nuclear technologies/power plant technologies outcomes are geared toward providing students with a foundational knowledge of nuclear technologies/ power plant technologies in support of technician/ operator positions at nuclear facilities.

Degree Requirements

60 credits The Associate in Applied Science in Technical Studies requires a minimum of 60 credits, distributed as follows:

- **20 credits** minimum in the arts and sciences
- **27 credits** minimum in the career component (to include the capstone)
- **13 credits** in the free electives component (to include information literacy)

Arts and Sciences Component (20 credits)

Arts and sciences are those areas of study classified as humanities, social sciences/history, and natural sciences/mathematics. The Associate in Applied Science in Technical Studies requires a minimum of 20 credits in the arts and sciences, distributed as follows:

Humanities

At least 6 credits must be earned in humanities. Three credits must come from a course that satisfies the written English requirement **[ENGx111 English Composition, ENG 101 English Composition]** (see page 81). The remaining 3 credits must be in humanities subjects other than writing, which include literature, foreign languages, religion, philosophy, art, ethics, and music.

Social Sciences/History

At least 6 credits must be earned in social sciences/ history, including a course (minimum 3 credits) in behavioral sciences. *Social sciences/history subjects include, but are not limited to,* political science, anthropology, economics, geography, and history. *Behavioral sciences subjects include, but are not limited to,* psychology and sociology.

Natural Sciences/Mathematics

A least 6 credits must be earned in natural sciences/ mathematics — a minimum of 3 credits in college-level math and a minimum of 3 credits in natural sciences. Some sample natural science subjects and courses are biology, chemistry, physics, and geology. Some sample math subjects and courses are intermediate algebra, college algebra, trigonometry, and statistics.

Career Component (27 credits)

A minimum of 27 credits are required in the career component. The career component consists of 6 core component credits, 15 concentration area credits, and 6 technical electives credits in the concentration area:

Core Component (6 credits)

Introduction to Computing

Integrated Technology Assessment is required capstone course included in the career component.

Technology Component (15 credits)

Computer Technologies

Electromechanical Technologies

Electronic/Instrumentation Technologies

Nuclear Technologies/Power Plant Technologies

Technical Elective (6 credits)

The **TECH 290** capstone course is required and must be taken through Excelsior College. It cannot be transferred in.

Free Elective Component (13 credits)

The degree program allows room for up to 13 credits in free electives. Applied to this component is the 1 credit for Excelsior College's information literacy requirement **[INL 102 Information Literacy]**. See page 82 or refer to our website for more information about information literacy.

Associate in Applied Science in **Technical Studies**

AAT
60 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Written English Requirement	3
Humanities *Must be in subjects other than writing*	3
Social Sciences/History Requirement *Must be* **TECH 230 Technology and Society**	3
Behavioral Sciences	3
Natural Sciences/Mathematics *Must include one natural science course and one college-level math course*	6
Arts and Sciences Electives	2
TOTAL ARTS AND SCIENCES COMPONENT	**20**

CAREER COMPONENT *A minimum of* **27 credits** *are required in the career component. The career component consists of* **6 core component credits, 15 concentration area credits,** *and* **6 technical electives credits** *in the concentration area.*	Credit Hours
CORE COMPONENT ■ Introduction to Computing ■ **Integrated Technology Assessment** is required capstone course included in the career component.	6
TECHNOLOGY COMPONENT ■ Computer Technologies ■ Electromechanical Technologies ■ Electronic/Instrumentation Technologies ■ Nuclear Technologies/Power Plant Technologies	15
TECHNICAL ELECTIVE	6
TOTAL CAREER COMPONENT	**27**

FREE ELECTIVE COMPONENT	Credit Hours
Free Elective Component *Includes* **1-credit** *Information Literacy Requirement*	13
TOTAL ELECTIVE COMPONENT	**13**

① **TECH 290 capstone course** is required and must be taken through Excelsior College. It cannot be transferred in. A grade of "C" or higher is required.

Associate in Science in Technology

The Associate in Science in Technology program focuses on preparing students to be employed as technicians in technology-related industries such as nuclear, energy, computer, electronics, and electrical. The program puts special emphasis on developing the technical knowledge, skills, and values required for technicians to meet the demands of a 21st-century workforce. This includes an emphasis on specific areas like: field services, design, testing, manufacturing, and quality assurance. To do this, the program emphasizes a strong liberal arts base; ensuring students have the academic breadth required in an increasingly project-based work environment. A focus on lifelong learning prepares students to adapt to and succeed in an ever-changing world. Specifically, the program has identified four technical Areas of Focus that provide students with a broad professional and technical foundation in the various functional components of technology. The Areas of Focus are a group of related college-level courses within a technical component that combine depth and breadth of study in a recognized math/science-based technology discipline. The goal of the degree program in specific Areas of Focus is to foster the ability of students to apply what they have learned within the degree program to the real-world contexts of a technology-based industry. The Areas of Focus are:

- Computer Technologies
- Electromechanical Technologies
- Electronic/Instrumentation Technologies
- Nuclear Technologies
- Power Plant Technologies

Student progress within the degree program is based on the demonstration of proficiency, and is attainable through multiple, flexible pathways—offering course-based, prior learning assessment, and credit aggregation pathways to degree completion. In this way, the program is customizable and tailored to each student's need and learning style. Earning an Associate in Science in Technology degree can be an intermediate step to earning a Bachelor of Science in Technology.

Refer to pages 92 – 95 to review sample area of focus subjects and technical elective subjects.

Program Outcomes

Upon successful completion of the Excelsior College Associate in Science in Technology program, the graduate will be able to:

1. Demonstrate effective oral and written communication skills.
2. Apply observation and measurement skills to develop quantitative expressions of natural science phenomena.
3. Apply algebra, trigonometry, or higher order mathematics to solve technology-related problems.
4. Demonstrate introductory college-level proficiency in one or more of the social sciences.
5. Demonstrate a comprehension of diverse cultural heritage, interpersonal relationships, the relationship between technology and society, and personal values to make intelligent and discerning judgments.
6. Demonstrate a proficiency in computer applications used in technology areas.

AREA OF FOCUS OUTCOMES

Computer Technologies

An area of focus in computer technologies focuses on training and preparing students to stay up-to-date with the rapidly changing tech environment. The computer technologies area of focus is a technical discipline centered on the design, assembly, testing, and maintenance of computer circuitry and peripheral hardware. The concentration also emphasizes the design, development, operation, and troubleshooting of computer, database, and network systems. The computer technologies outcomes are geared toward providing students with a foundational knowledge of computer technologies in a wide variety of subject areas and preparing students for positions including circuit design engineer, hardware technician, software developer, database specialist, or network engineer. Upon successful completion of the Excelsior College Associate in Science in Technology with a Computer Technologies area of focus, the student will be able to:

1. Use electric circuits, analog and digital electronics, software applications, and operating systems to build, test, operate, and maintain computer systems and networks.
2. Install, update, and configure computer applications software.

Electromechanical Technologies

An Area of Focus in electromechanical technologies focuses on training and preparing students with the knowledge and practical skills in mechanical technology along with electrical and electronic circuits. It is centered on design, assembly, testing, maintenance, and upgrading of electronic and computer-integrated mechanical components and systems, such as automated manufacturing tools and engineering service equipment. The electromechanical technologies' outcomes are geared toward providing students with fundamental as well as applied knowledge in automated, servo-mechanical, or electromechanical tools, equipment, and processes. These will prepare the students for positions in operating, repairing, and upgrading unmanned submarines, aircraft, robots, or such automated equipment. Upon successful completion of the Excelsior College Associate in Science in Technology with an Electromechanical Technologies area of focus, the student will be able to:

1. Use circuit analysis, analog and digital electronics, basic instrumentation, and computers to aid in the characterization, analysis, and troubleshooting of electromechanical systems.
2. Use mechanics, strength of materials, engineering materials, and manufacturing processes to aid in the characterization, analysis, and troubleshooting of electromechanical systems.

Electronic/Instrumentation Technologies

An Area of Focus in electronic/instrumentation technologies focuses on training and preparing students with the knowledge and practical skills in electrical/electronic circuits and process instrumentation. It is centered on design, assembly, testing, maintenance, and upgrading of electrical and electronic components and systems used in analytical instruments and measurements, medical technology, communications, and industrial process control. The electronic/instrumentation technologies' outcomes are geared toward providing students with fundamental as well as applied knowledge in AC, DC, and digital circuits, microprocesseors, and programmable controllers. These will prepare the students for positions in operating, repairing, and upgrading process instrumentation tools, equipment, and systems. Upon successful completion of the Excelsior College Associate in Science in Technology with an Electronic/Instrumentation Technologies area of focus, the student will be able to:

1. Apply the concepts of automatic control, measurements, and sensor selection for the operation and testing of continuous and discrete systems.
2. Use electrical/electronic devices, computers, and instrumentation for the operation and troubleshooting of analog and digital communication systems.

Nuclear Technologies

Upon successful completion of the of the Excelsior College Associate in Science in Technology with a Nuclear Technologies Area of Focus, the graduate will be able to:

1. Apply the applicable regulations and the concepts of control performance, human interface, and quality assurance to the operation and maintenance of nuclear systems.
2. Demonstrate a proficiency in radiation protection procedures and regulations pertaining to the safe operation of nuclear systems.

Power Plant Technologies

Upon successful completion of the Excelsior College Associate in Science in Technology with a Power Plant Technologies Area of Focus, the graduate will be able to:

1. Describe the key procedures in the recording and interpretation of measurements, start-up and shut-down of plant equipment and the maintenance of power plant systems.
2. Identify the key principles in the proper operation, testing, and troubleshooting of boilers, turbines, electric generators, pumps, and other auxiliary power plant equipment.

Refer to pages 92 – 95 to review sample areas of focus subjects and technical elective subjects.

Degree Requirements

61 credits The Associate in Science in Technology requires a minimum of 61 credits, distributed as follows:

- **30 credits** minimum in the arts and sciences
- **30 credits** minimum in the technology component
- **1 credit** to satisfy the information literacy requirement

Arts and Sciences Component (30 credits)

The Associate in Science in Technology requires a minimum of 30 credits in the arts and sciences distributed as follows:

1. **Communications**

   At least 6 credits must be earned in communications, including a course (minimum of 3 credits) that satisfies the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 201 Writing for the Professions]** (see page 81). Courses in speech, technical writing, or similar courses either in written or oral communications are applicable toward the communications requirement.

2. **Humanities**

   At least 3 credits must be earned in humanities subjects other than writing. *Humanities subjects include, but are not limited to,* literature, foreign languages, religion, philosophy, art, ethics, and music.

3. **Social Sciences/History**

   At least 6 credits must be earned in social sciences/history. *Social sciences/history subjects include, but are not limited to,* political science, anthropology, economics, geography, history, psychology, and sociology.

4. **Natural Sciences**

   At least 6 credits must be earned in natural sciences. Some sample natural science courses are biology, chemistry, astronomy, oceanography, and geology.

5. **Mathematics**

   At least 6 credits must be earned in mathematics at the level of college algebra or higher **[MAT 116 Precalculus Algebra, MAT 118 Trigonometry, TECH 201–202 Foundations of Technology Problem Solving I–II]**.

6. **Arts and Sciences Electives**

   The remaining 3 credits needed to satisfy the 30-credit requirement may be earned in any area of the arts and sciences.

Technology Component (30 credits)

The Associate in Science in Technology requires a grade of C or better for applicable credit, and a minimum of 30 credits in technology distributed as follows:

1. **Area of Focus**

   At least 18 credits must be earned in an area of focus. See page 88 for a list of sample area of focus subjects. **TECH 295 Integrated Technology Assessment (capstone)** is the required capstone course included in the Area of Focus.

2. **Technical Electives**

   A maximum of 12 credits in technical electives may be applied toward the Associate in Science in Technology. This includes at least 3 credits to satisfy the Computer Applications requirement or Computer Programming **[IT 210 Object-Oriented Programming or TECH 221 Business Communication and Information Systems]**. See pages 92 – 95 for a list of sample technical electives for each concentration area.

Information Literacy Requirement (1 credit)

Students are expected to demonstrate competency in information literacy **[INL 102 Information Literacy]**. See page 82 or visit our website for more information about this requirement.

Degree-Specific Policies

Policies and procedures that apply specifically to the Associate in Science in Technology follow. Refer to your **Student Policy Handbook** for academic and administrative policies that apply to all students and programs.

Time Limit on Coursework

Because of the rapidly changing nature of technology, Excelsior College has established a time-related restriction on the application of credit from previous computer- and electronics-related coursework, with the exception of Circuit Theory I and Circuit Theory II. To meet this requirement, relevant coursework must have been completed more recently than 10 years prior to enrollment in Excelsior College. The time limit may be appealed with verification of appropriate and current professional and/or academic experience showing that electronics/computer knowledge is current.

Associate in Science in **Technology**

AS
61 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include a course that satisfies the* **3-credit** *Written English Requirement*	6
Humanities *Must be in subjects other than writing*	3
Social Sciences/History	6
Natural Sciences	6
Mathematics *At the level of college algebra or above*	6
Arts and Sciences Electives	3
TOTAL ARTS AND SCIENCES COMPONENT	30
INFORMATION LITERACY REQUIREMENT	1

TECHNOLOGY COMPONENT	Credit Hours
AREA OF FOCUS *At least* **18 credits** *must be earned in a chosen concentration area.* **TECH 295 Integrated Technology Assessment (capstone)** is the required capstone course included in the Technology component.① *See* **page 92** *for sample Area of Focus and technical elective subjects for each Area of Focus.* Computer Technologies Electromechanical Technologies Electronic/Instrumentation Technologies Nuclear Technologies Power Plant Technologies	18
Technical Electives *Must include one course in computer applications*	12
TOTAL TECHNOLOGY COMPONENT	30
TOTAL DEGREE CREDITS	61

① **TECH 295 Integrated Technology Assessment capstone course** is required and must be taken through Excelsior College and cannot be transferred in.

Areas of Focus and Technical Electives

Associate in Science in Technology and Bachelor of Science in Technology

Students enrolled in the Associate in Science in Technology and Bachelor of Science in Technology programs have the flexibility to explore a wide range of subjects in their declared Areas of Focus and the opportunity to branch out into different areas of technology education to round out the program.

The following charts contain typical concentration area subjects and technical elective subjects for each of the concentration areas. While these charts do not list all of the possible subjects, they provide a solid base upon which you can plan your educational goals. As always, it is best to speak with a member of your advising team before registering for courses.

Computer Technologies

A technical discipline centered on the design, assembly, testing, and maintenance of computer circuitry and peripheral hardware. It also emphasizes the design, development, operation, and troubleshooting of computer, database, and network systems.

TYPICAL AREA OF FOCUS SUBJECTS		
AC Circuit Theory	Operating Systems	Data Communications
Applied Electronics	Computer Architecture	Data Structures
DC Circuit Theory	Digital Systems Design I	Electronic Communications
Digital Circuits	Database Concepts	Computer Security
Microprocessors	Systems Analysis and Design	Project Management

TYPICAL TECHNICAL ELECTIVE SUBJECTS		
Assembly Language Programming	Software Engineering	Industrial Safety
High-Level Structured Language	Microprocessor Interfacing	Computer Programming
Digital Systems Design II	Computer-Based Robotics	CAD
Advanced Digital Electronics	Statistical Quality Control	Engineering Graphics
Computer Graphics	Control Theory	Computer Security
Computer Integrated Manufacturing	Blueprint Reading	

Electromechanical Technologies

A technical discipline centered around the combined efforts of the electrical engineer and mechanical engineering technologist to design, develop, and maintain devices that combine electrical, electronic, and mechanical principles in their operations.

The number of technology credits should be evenly distributed between electronics/electricity technologies and mechanical technologies.

TYPICAL AREA OF FOCUS SUBJECTS

Applied Circuit Theory	Machine Components and Mechanisms	Machine Processes
Applied Mechanics	Microprocessors	Statics
Digital Circuits	Pneumatic and Hydraulic Systems	Dynamics
Electromechanical Devices and Mechanisms	Heat Transfer	Strength of Materials
Electronic Devices	Applied Thermodynamics	Materials Science

TYPICAL TECHNICAL ELECTIVE SUBJECTS

Applied Dynamics	Instrumentation	Solutions of Engineering Problems
Applied Electronics	Kinematics of Mechanisms	Thermal Technology
Control Systems	Machine and Power Systems	Vibration Analysis
Digital Signal Processing	Materials Technology	Blueprint Reading
Electromagnetics	Mechanical Design	Industrial Safety
Electromechanical Control Systems	Power Systems Analysis	CAD
Energy Conversion	Programmable Controllers	Computer Programming
Engineering Economics	Quality Control	Engineering Drawing
Industrial Electronics	Robotics	

Electronic/Instrumentation Technologies

A technical discipline centered around the design, materials development, manufacture, and maintenance of devices that adapt and use electrical energy economically.

TYPICAL AREA OF FOCUS SUBJECTS		
AC Circuit Theory	Electronic Communications	Control Systems
Electronics	Electronic Devices	Data Communications
DC Circuit Theory	Machines and Power Systems	Computer Architecture
Digital Circuits	Microprocessors	

TYPICAL TECHNICAL ELECTIVE SUBJECTS		
Computer Network Analysis	High Frequency Circuit Design	Switching Circuit Design
Electrical Instrumentation	Industrial Electronics	Blueprint Reading
Electromagnetics	Optoelectronics	Industrial Safety
Electronic Design and Fabrication	Linear Amplifier Design	CAD
Electronic Design Project	Power Amplifier Design	Computer Programming
Electronic Systems Design	Power Systems Analysis	Engineering Graphics
Energy Conversion	Programmable Controllers	

Nuclear Technologies/Power Plant Technologies

A technical discipline centered on providing students with a foundational knowledge of nuclear technologies/power plant technologies in support of technician/operator positions at nuclear facilities. The nuclear technologies/power plant technologies is a technical discipline centered on the design, materials, operations, and maintenance associated with radiation shielding, radiation detection instrumentation, and emergency planning for nuclear research and power generation facilities.

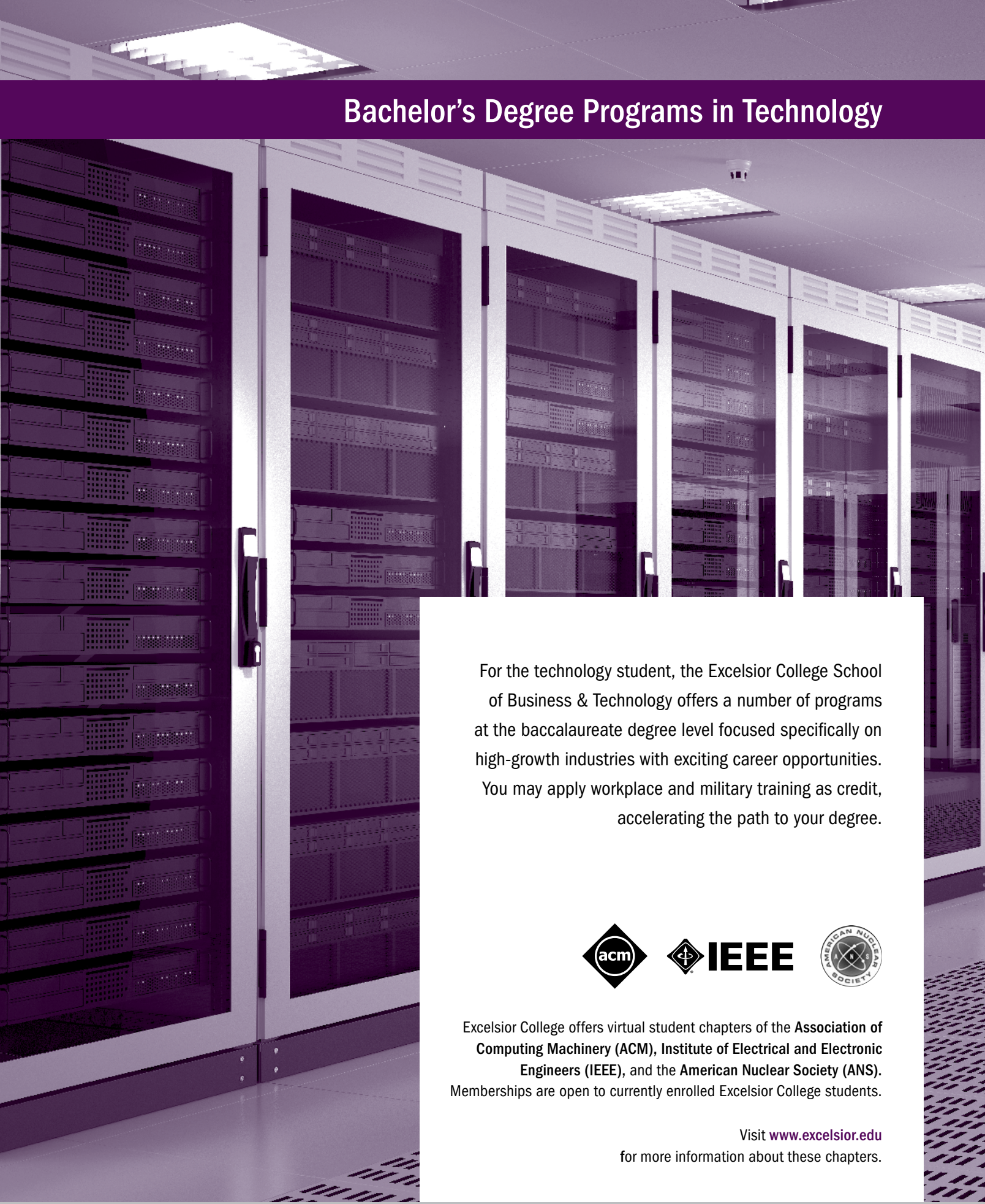
TYPICAL AREA OF FOCUS SUBJECTS

- Applied Health Physics I
- Emergency Planning
- Introduction to Reactor Systems
- Radiation Instrumentation
- Environmental Compliance
- Thermodynamics
- AC/DC Theory and Circuits
- Radiation Measurement
- Radiation Shielding
- Radiological Science
- Reactor Chemistry
- Digital Electronics
- Plant Management
- Instrumentation and Control Systems
- Pneumatic and Hydraulic Systems
- Dynamics
- Statics
- Materials
- Heat Transfer
- Fluids
- Project Management
- Microprocessors
- Nuclear Materials
- Radiation Protection
- Electrical Theory
- Power Plant Components
- Electrical Power Distribution
- Engineering Economics *(Economic Analysis for Technologist)*

TYPICAL TECHNICAL ELECTIVE SUBJECTS

- Advanced Instrumentation
- Applied Analytical Chemistry
- Applied Health Physics II
- Applied Instrumental Analysis
- Applied Radiation Biology
- Applied Radiochemistry
- Applied Water Chemistry
- Corrosion Science
- Digital Electronics
- Health Physics Regulations
- Industrial Electronics
- Instrument Calibration
- Interaction of Radiation with Matter
- Metrology
- Quality Assurance
- Radiation Shielding II
- Reliability Analysis
- Blueprint Reading
- Industrial Safety
- Computer Programming
- Welding
- Turbine Design and Operation
- Generator Design and Operation
- Transformer Design and Operation
- Electronics Theory and Application
- Electronic Instrumentation
- Strength of Materials
- Materials (w/Corrosion)
- Lubrication
- Plant Efficiency
- Predictive Maintenance
- Metrology
- Protective Relays

Bachelor's Degree Programs in Technology



For the technology student, the Excelsior College School of Business & Technology offers a number of programs at the baccalaureate degree level focused specifically on high-growth industries with exciting career opportunities. You may apply workplace and military training as credit, accelerating the path to your degree.

Excelsior College offers virtual student chapters of the **Association of Computing Machinery (ACM), Institute of Electrical and Electronic Engineers (IEEE),** and the **American Nuclear Society (ANS).** Memberships are open to currently enrolled Excelsior College students.

Visit **www.excelsior.edu** for more information about these chapters.

Requirements and Policies for the Bachelor's Degrees in Technology

Every Excelsior College technology degree program requires a specific number of semester hours of credit in each of its component areas. These areas include an arts and sciences component, a technology or professional component, and a free elective component in which you may earn credits through applicable coursework or examinations in subject areas of interest to you.

The chart relevant to your degree program shows a graphic representation of the credit needed to fulfill all the requirements for your chosen degree.

You are subject to the degree requirements in effect at the time of your enrollment or program/degree transfer (program transfer refers to changes from one school to another; degree transfer refers to changing degrees within the same school).

The faculty reserves the right to make changes in curricular requirements as necessary to reflect current professional practice. Changes may affect both enrolled and prospective students. It is your responsibility to keep informed of such changes. We make every effort to inform you of changes as they occur. Current information about degree requirements is posted on our website. Information about changes to degree requirements is also made available on our website.

You are a good candidate for a bachelor's-level technology degree program if you:

- have a two-year technology degree or a significant number of credits in a technology discipline from a regionally accredited college.
- are prepared to complete coursework in mathematics at the level of college algebra or above, which may include Discrete Math, Calculus I and II, and/or Differential Equations, if required for your degree program.
- have completed or have access to professional courses that have been evaluated for college-level credit by either the American Council on Education (ACE) College Credit Recommendation Service of the Center for Adult Learning and Educational Credentials or the New York State Board of Regents National College Credit Recommendation Service (formerly known as National PONSI).
- have completed military training that has been evaluated by the American Council on Education. Based on its content and your degree program, this credit may apply toward the technology or professional component, arts and sciences component, or free elective component.

Requirements for All Bachelor's Degrees in Technology

Level Requirement

Excelsior College bachelor's-level technology degree programs require 15 or 16 upper-level credits within the technology or professional component, depending on the discipline selected. A course is considered upper level if it is offered at the junior or senior level and is not introductory in content. Course credits from two-year institutions may not be used to satisfy upper-level requirements. Acceptance of course credits toward the upper-level requirement is subject to faculty approval.

Free Elective Credits

All Excelsior College technology bachelor's degree programs allow you the flexibility of using free elective credits to meet degree requirements beyond the required credits in arts and sciences and general education. Free elective credits can be earned in disciplines including, but not limited to: agriculture, architecture, business, criminal justice, education, graphic design, law, library science, medicine, and nutrition.

Bachelor of Professional Studies in Technology Management

The Bachelor of Professional Studies in Technology Management is a flexible career-oriented program developed for students who want to build upon their knowledge and earn a bachelor's degree within their technical field. The program puts special emphasis on developing the knowledge, skills, attitudes, and values required for a technical person to meet the demands of a 21st-Century workforce. To do this, the program has identified 10 different outcomes, which provide students with a broad professional foundation in the various functional components of technology and management, as well as a strong liberal base to ensure students have academic breadth and the commitment to lifelong learning needed to adapt to and succeed in an ever-changing world. Additionally, the program has identified four technical concentrations that provide students with a broad professional and technical foundation in the various functional components of technology. The concentrations are a group of related college-level courses within a technical component that combine depth and breadth of study in a recognized math/science-based technology discipline. The goal of the degree program in specific concentrations is to foster the ability of students to apply what they have learned within the degree program to the real-world contexts of a technology-based industry. The four concentrations are:

- Electrical Technology
- Information Technology
- Nuclear Technology
- Renewable Energy Technology

Student progress within the degree program is based on the demonstration of proficiency, and is attainable through multiple, flexible pathways—offering course-based, prior learning assessment, and credit aggregation pathways to degree completion. In this way, the program is customizable and tailored to each student's need and learning style. The Bachelor of Professional Studies in Technology Management is an option for students who seek to apply credit for military and other training toward a bachelor degree.

Program Outcomes

The outcomes are geared toward providing students with a foundational knowledge of professional studies in technology management and the discipline of effective decision making in the technology industry. Upon successful completion of the degree program, students will be able to:

1. Apply knowledge of mathematics and natural sciences to problem-solving in technology management contexts.
2. Develop cohesive written and oral arguments in your technical concentration using appropriate supporting evidence.
3. Critically evaluate and propose solutions for technology management problems.
4. Critically evaluate the ethical, legal, and social implications associated with the management of technology in your concentration field.
5. Participate effectively in diverse teams to address technical issues in your technology concentration.
6. Apply project management tools and techniques to plan, manage, and close a project in the applicable technology field.
7. Apply computer applications or computer software packages to solve technical problems in your technical concentration.
8. Apply technological and management concepts in an integrated manner using both a local and global perspective.
9. Employ critical thinking skills to interpret and analyze competing arguments and multiple perspectives in a technology environment.
10. Evaluate your individual strengths and weaknesses with the desire to update skills and continuously improve.

Degree Requirements

120 credits

The Excelsior College Bachelor of Professional Studies in Technology Management program requires a total of 120 credits and comprises three major components—arts and

sciences, professional, and additional credit. The three components and their respective requirements are explained in the following sections.

- **30 credits** minimum required in the arts and sciences
- **45 credits** minimum required in the professional component
- **45 credits** required in the additional credit component (to include information literacy)

Arts and Sciences Component
(30 credits, including 9 upper-level)

Excess credits in arts and science may be applied toward the additional credit component as electives.

Written English Requirement

At least 6 credits must come from courses or exams that satisfy the written English requirement (see page 81). **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 English Composition II, ENG 201 Writing for the Professions]**

Humanities

You must successfully complete at least 9 credits in the humanities, including ethics **[BUS 323 Business Ethics, BUSx310 Ethics: Theory and Practice]**. *Humanities subjects include, but are not limited to,* art, music, literature, foreign language, philosophy, religion, speech, creative writing, and advanced writing. Examinations or courses used to satisfy the written English requirement may not be applied toward the humanities requirement.

Social Sciences/History

You must successfully complete a minimum of 6 credits in social sciences/history. *Social sciences and history subjects include, but are not limited to,* anthropology, sociology, government, political science, psychology, geography, history, and economics.

Natural Sciences/Mathematics

You must successfully complete a minimum of 6 credits in mathematics to include a 3-credit course in college algebra **[MAT 116 Precalculus Algebra]** or Statistics **[BUS 233 Business Statistics]**.

You must successfully complete a minimum of 3 credits in natural sciences **[BIO 110 Biology (Non-Lab), GEOL 108 Earth Science and Society, GEOL 114 Introduction to Oceanography, PHYS 201–203 Physics I–II]**. *Natural sciences subjects include, but are not limited to,* astronomy, geology, oceanography, anatomy and physiology, microbiology, chemistry, biology, genetics, zoology, and physics. Mathematics courses include intermediate alegbra, precalculus, calculus, etc.

Only three college-level math courses below the level of calculus may be applied to degree requirements.

Professional Component
(45 credits, including 15 upper-level)

The professional component includes a professional core that helps you gain basic knowledge in business administration and the underlying discipline of decision making, and a technology management core and professional component electives that allow you to apply and synthesize your technical knowledge in one of four concentration areas—electrical technology, information technology, nuclear technology, and renewable energy technology A minimum of 15 credits is required in the concentration areas.

At least 15 credits at the upper (junior/senior) level must be completed in the professional component; 9 of these upper-level credits must be in the technology management core and/or professional component electives. Credits may be earned through Excelsior College courses and examinations and other approved sources, as well as approved military, business, and industry training. A grade of C or better is required for applicable credit.

Professional Core Requirements

One course required in each professional core area below.

General Management
[BUS 341 Management of Concepts and Applications]

Leadership
[BUS 452 Business Leadership]

Accounting
[ACC 211 Financial Accounting]

Computer Applications
[IT 221 Introduction to Computers OR TECH 221 Business Communication and Information Systems]

Project Management
[IT 390 Project Management]

Technology Management Core Requirements

One 3-credit course required in each technology management core area below.

Technology and Society
[TECH 230 Technology and Society]

Engineering Economics
[TECH 330 Economic Analysis for Technologists]

Introduction to Energy Utilization
[TECH 340 Intro to Energy Utilization]

Integrated Technology Assessment (capstone)
[TECH 490 Integrated Technology Management Assessment (capstone) — the capstone course is required and must be taken through Excelsior College and cannot be transferred in.]

Concentration Areas

- **Electrical Technology**
- **Information Technology**
- **Nuclear Technology**
- **Renewable Energy Technology**

Students must select a concentration area in one of four areas: electrical technology, information technology, nuclear technology and renewable energy technology. A minimum of 15 credits must be earned in the concentration area.

CONCENTRATION OUTCOMES

Electrical Technology

A concentration in electrical technology focuses on training and preparing students with the knowledge and practical skills in electrical technology along with electrical circuits, electrical systems, and electrical equipment. It is centered on design, assembly, testing, maintenance, repairing, and upgrading of electrical circuits, components, and equipment. The electrical technology outcomes are geared toward providing students with fundamental as well as applied knowledge in electrical systems, electrical equipment, and processes. These will prepare the students for positions in operating, repairing, and upgrading electrical circuits, electrical systems, and electrical equipment. Upon successful completion of the Excelsior College Bachelor of Professional Studies with an Electrical Technology concentration, the student will be able to:

1. Identify, formulate, and present solutions to a variety of technical problems in the area of electrical technology.
2. Demonstrate competency in the analysis, interpretation, and application of data in the area of electrical technology.

Information Technology

A concentration in information technology focuses on training and preparing students to stay up-to-date with the rapidly changing technical environment. The information technology concentration is a technical discipline centered on the design, assembly, testing, and maintenance of computer circuitry and peripheral hardware. The concentration also emphasizes the information system concepts, principles, and practices, and problem solving of information technology domains. The information technology outcomes are geared toward providing students with a foundational knowledge of information technology in a wide variety of subject areas and preparing students for positions including information technicians, database management systems, software management, data communications, information security, and network management.

Upon successful completion of the Excelsior College Bachelor of Professional Studies with an Information Technology concentration, the student will be able to:

1. Analyze and apply a range of information system concepts, principles, and practices in the context of solving problems across a spectrum of information technology domains.
2. Develop computer-based applications using appropriate information technology concepts and principles.

Nuclear Technology

A concentration in nuclear technology focuses on preparing students for technical background in the nuclear industry. The nuclear technology concentration is a technical discipline centered on the design, materials, operations, and maintenance associated with radiation shielding, radiation detection instrumentation, and emergency planning for nuclear research and power generation facilities. The nuclear technology concentration is geared toward providing students with a foundational knowledge of nuclear technology for positions at nuclear facilities. Upon completion of the Excelsior College Bachelor of Professional Studies with a Nuclear Technology concentration, the students will be able to:

1. Demonstrate a proficiency in the operation and maintenance of nuclear processes and systems.
2. Demonstrate a proficiency in the applicable rules, regulations, and procedures pertaining to radiological safety and radiation protection.
3. Identify the key principles in the proper operation, testing, and troubleshooting of turbines, electric generators, pumps, and other auxiliary plant equipment.

Renewable Energy Technology

A concentration in renewable energy technology focuses on training and preparing students to stay current with the renewable energy industry. The renewable energy technology concentration is a technical discipline centered on renewable energies such as solar, wind, water, and geothermal. The concentration also emphasizes the political and economic influences on the renewable energy business. The renewable energy technology outcomes are geared toward providing students with a foundational knowledge of renewable energy in a wide variety of subject areas and preparing students for positions in the renewable energy industry including an understanding of economics and politics associated with renewable energy. Upon successful completion of the Excelsior College Bachelor of Professional Studies with a Renewable Energy Technology concentration, the student will be able to:

1. Identify and discuss renewable energy technologies being used commercially and residentially.
2. Perform an analysis of political and economic influences on the renewable energy business.

Renewable Energy Technology Requirements

NUC 255 AC/DC Theory

TECH 225 Applied Instrumentation and Control

TECH 233 Electrical Power Distribution

TECH 250 Renewable Energy Overview I

TECH 251 Renewable Energy Overview II

Professional Component Electives

Any technology-related credits outside the core are applied as professional component electives.

Technology management credits in excess of the professional component maximum of 45 may be applied to the additional credit component.

Additional Credit Component
(45 credits, including 6 upper-level)

Although you may have already fulfilled the minimum credit requirements in the arts and sciences and professional components of your degree, you may still need to earn additional credit to fulfill the total credit requirement of your Bachelor of Professional Studies in Technology Management. To do this, you may apply any of the following: arts and sciences credit above the minimum required, professional component credit (technology/management) above the minimum required, or free elective credit.

Free elective credit may be earned in any field of collegiate study, including business and other professional, technical, or vocational areas as well as the arts and sciences. Examples include military science, health, nursing, engineering, education, computer science, home economics, secretarial science, architecture, drafting, auto mechanics, law, social work, and criminal justice. A maximum of 2 credits for physical education activity courses may be applied.

Information Literacy Requirement (1 credit)

Students are expected to demonstrate competency in information literacy **[INL 102 Information Literacy]**. See page 82 or visit our website for more information about this requirement. The information literacy requirement is applied to the additional credit component.

Your Personalized MyExcelsior Account:
www.excelsior.edu/MyExcelsior

Admissions:
toll free 888-647-2388, ext. 27

Fee Schedules, Financial Aid, and Scholarships:
www.excelsior.edu/fees
www.excelsior.edu/financialaid
www.excelsior.edu/scholarships

College Publications, Applications, and Forms:
www.excelsior.edu/publications

Student Policy Handbook:
www.excelsior.edu/studentpolicyhandbook

Course and Exam Information and Registration:
www.excelsior.edu/courses
www.excelsior.edu/exams
www.UExcelTest.com

Learning Resources:
www.excelsior.edu/myexcelsior, click on the **Resources** tab

Bachelor of Professional Studies in **Technology Management**

BPS
120 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT

Minimum of **9 upper-level** *credits*

	Credit Hours
Written English Requirement	**6**
Humanities	**6**
Ethics	**3**
Social Sciences/History	**6**
College Algebra **OR** Statistics	**3**
Mathematics Elective	**3**
Natural Science	**3**
MINIMUM ARTS AND SCIENCES COMPONENT	**30**

PROFESSIONAL COMPONENT

Minimum of **15 upper-level credits;** *a minimum of* **9 upper-level credits** *must be in the Technology Management Core or Professional Electives*

Credit Hours

PROFESSIONAL CORE
General Management
Leadership
Accounting
Computer Applications
Project Management

TECHNOLOGY MANAGEMENT CORE
Technology and Society
Engineering Economics
Introduction to Energy Utilization
TECH 490 Integrated Technology Management Assessment (capstone)②

PROFESSIONAL COMPONENT ELECTIVES
Approved technology-related courses; includes **15 credits** *in the concentration area.*①

MINIMUM PROFESSIONAL COMPONENT REQUIREMENT	**45**

ADDITIONAL CREDIT COMPONENT

Minimum of **6 upper-level credits**

Credit Hours

Any Collegiate-Level Study
May include any excess credit in Arts and Sciences, Business, or any approved free elective area

Information Literacy	**1**
TOTAL ADDITIONAL CREDIT COMPONENT	**45**
TOTAL DEGREE CREDITS	**120**

① Fifteen credits of Professional Component Electives must be in **one** of the following areas:
- Electrical Technology
- Information Technology
- Nuclear Technology
- Renewable Energy Technology

② **TECH 490 Integrated Technology Management Assessment** is the required capstone course and must be taken through Excelsior College and cannot be transferred in.

Bachelor of Science in Technology

The Bachelor of Science in Technology program focuses on preparing students for technology positions in technology-related industries such as nuclear, energy, computer, electronics, and electrical. The program is designed specifically to advance job skills by ensuring a breadth of knowledge in technology concepts as well as a depth of understanding and skill in a chosen concentration area. Specifically, the program has identified five technical concentrations that provide students with a broad professional and technical foundation in the various functional components of technology. The concentrations are a group of related college-level courses within a technical component that combine depth and breadth of study in a recognized math/science-based technology discipline. The goal of the degree program in specific concentrations is to foster the ability of students to apply what they have learned within the degree program to the real-world contexts of a technology-based industry. The five areas of focus are:

- Computer Technologies
- Electromechanical Technologies
- Electronic/Instrumentation Technologies
- Nuclear Technologies
- Power Plant Technologies

Student progress within the degree program is based on the demonstration of proficiency, and is attainable through multiple, flexible pathways—offering course-based, prior learning assessment, and credit aggregation pathways to degree completion. In this way, the program is customizable and tailored to each student's need and learning style.

Program Outcomes

The outcomes are geared toward providing students with a foundational knowledge of technology in a specific concentration area and provide an opportunity for advancement in the technology industry. Upon completion of the degree program, students will be able to:

1. Demonstrate the ability to understand and use quantitative expressions in the natural sciences.
2. Demonstrate the application of algebra and higher mathematics to problem solving in technology areas.
3. Demonstrate proficiency in oral and written communications.
4. Demonstrate an ability to understand professional, ethical, and social responsibilities, including the impacts of culture, diversity, and interpersonal relations.
5. Demonstrate computer usage in the concentration area, including technical problem solving in the global environment.
6. Demonstrate the ability to identify, analyze, and solve problems in the concentration area.

AREAS OF FOCUS OUTCOMES

The Bachelor of Science in Technology program allows you to earn a technology degree with an area of focus from one of five technical areas.

Computer Technologies

An area of focus in computer technologies emphasizes training and preparing students to stay up-to-date with the rapidly changing technology environment. The computer technologies concentration is a technical discipline centered on the design, assembly, testing, and maintenance of computer circuitry and peripheral hardware. The concentration also emphasizes the design, development, operation, and troubleshooting of computer, database, and network systems. The computer technologies outcomes are geared toward providing students with a foundational knowledge of computer technologies in a wide variety of subject areas and preparing students for positions including circuit design engineer, hardware technician, software developer, database specialist, or network engineer. Upon successful completion of the Excelsior College Bachelor of Science in Technology with a Computer Technologies area of focus, the student will be able to:

1. Identify, formulate, and solve computer technology problems including the specification, operation, and troubleshooting of computer systems.
2. Demonstrate an ability to design, fabricate, and test systems containing computer hardware and software components.

Electromechanical Technologies

An area of focus in electronic/instrumentation technologies emphasizes training and preparing the students with the knowledge in electrical/electronic circuits and process instrumentation. It is centered on design, assembly, testing, maintenance, and upgrading of electrical and electronic components and systems used in analytical instruments and measurements, medical technology, communications, and industrial process control. The electronic/ instrumentation technologies' outcomes are geared toward providing students with fundamental as well as applied knowledge in AC, DC, and digital circuits, microprocesseors, and programmable controllers. These will prepare the students for positions in operating, repairing, and upgrading process instrumentation tools, equipment, and systems. Upon successful completion of the Excelsior College Bachelor of Science in Technology with an Electromechanical Technologies area of focus, the student will be able to:

1. Use electrical/electronic devices, computers, and instrumentation for applied design, operation, analysis, and troubleshooting of electromechanical systems.
2. Use applied mechanics, strength of materials, engineering materials and standards, and fluid mechanics for applied design, analysis, operation, and troubleshooting of electromechanical systems.

Electronic/Instrumentation Technologies

An area of focus in electronic/instrumentation technologies emphasizes training and preparing the students with the knowledge and practical skills in electrical/electronic circuits and process instrumentation. It is centered on design, assembly, testing, maintenance, and upgrading of electrical and electronic components and systems used in analytical instruments and measurements, medical technology, communications, and industrial process control. The electronic/instrumentation technologies' outcomes are geared towards providing students with fundamental as well as applied knowledge in AC, DC, and digital circuits, microprocesseors, and programmable controllers. These will prepare the students for positions in operating, repairing, and upgrading process instrumentation tools, equipment, and systems. Upon successful completion of the Excelsior College Associate in Science in Technology with an Electronic/ Instrumentation Technologies concentration, the student will be able to:

1. Design, prototype, fabricate, calibrate, test, maintain, and upgrade electronic instrumentation equipment or processes.
2. Install, update, and configure instrumentation software, industrial control and automation programs, and enterprise resource software.
3. Assist engineers and researchers in testing and designing advanced electronic instrumentation tools, equipment, or processes.
4. Apply the concepts of automatic control, measurements, and sensor selection for the operation and testing of continuous and discrete systems.

Nuclear Technologies

An area of focus in nuclear technologies emphasizes preparing students for technology-related positions in the nuclear industry. The nuclear technologies concentration is a technical discipline centered on design, materials, operations, and maintenance associated with radiation shielding, radiation detection instrumentation, and emergency planning for nuclear research and power generation facilities. The nuclear technologies outcomes are geared towards providing students with a foundational knowledge of nuclear technologies in support of potential advancement in the nuclear industry. Upon completion of the Excelsior College Bachelor of Science in Technology with an area of focus in Nuclear Technologies, the students will be able to:

1. Apply the concepts of reactor chemistry, reactor systems, nuclear materials, and instrumentation to the operation and design of nuclear systems and processes.
2. Apply the concepts of radiation protection, radiological science, radiation measurement and shielding, and instrumentation for the measurement and shielding, and instrumentation for the design, operation, and maintenance of radiological safety systems.

Power Plant Technologies

An area of focus in power plant technologies focuses on preparing students for technology related positions at power plants. The power plant technologies concentration is a technical discipline centered on the design, materials, operations, and maintenance associated with power generation facilities. The power plant technologies outcomes are geared towards providing students with a foundational knowledge of power plant operations in support of potential advancement in the nuclear industry. Upon completion of the Excelsior College Bachelor of Science in Technology with an area of focus in power plant technologies, the students will be able to:

1. Describe the theories in power plant operations, turbine and generator operations, and power plant instrumentation.
2. Identify and use appropriate methods for installation, maintenance, testing, and troubleshooting of power plant mechanical and electrical equipment.

Degree Requirements

120 credits

The Bachelor of Science in Technology requires a minimum of 120 credits distributed as follows:

- **60 credits** minimum required in the arts and sciences component
- **48 credits** minimum required in the technology component
- **12 credits** required in the free elective component (to include information literacy)

Arts and Sciences Component (60 credits)

The Bachelor of Science in Technology requires a minimum of 60 credits in the arts and sciences distributed as follows:

A. Humanities and Social Science/History

At least 24 credits must be earned in humanities and social sciences/history and are distributed as follows:

1. **Communications**
   At least 9 credits must be earned in communications, including 6 credits to satisfy the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 Composition II, ENG 201 Writing for the Professions]** (see page 81). Courses in speech, technical writing, or a similar course either in written or oral communications are applicable toward the communications requirement.
2. **Humanities**
   At least 6 credits must be earned in humanities, including a course in ethics **[BUS 323 Business Ethics]**. *Humanities subjects include, but are not limited to,* advanced writing, literature, foreign languages, religion, philosophy, art, and music.

B. Social Sciences/History

At least 9 credits must be earned in social sciences/history. *Social sciences/history subjects include, but are not limited to,* political science, anthropology, economics, geography, history, psychology, and sociology.

C. Natural Sciences

At least 9 credits must be earned in natural sciences. Some sample natural science courses are biology, chemistry, astronomy, oceanography, and geology.

D. Mathematics

At least 12 credits must be earned in mathematics at the level of College Algebra or above **[MAT 116 Precalculus Algebra, MAT 118 Trigonometry, TECH 201–202 Foundations of Technology Problem Solving I – II]**.

E. Arts and Sciences Electives

The remaining 15 credits needed to satisfy the 60-credit requirement may be earned in any area of the arts and sciences.

Technology Component (48 credits)

The Bachelor of Science in Technology requires a grade of C or better for applicable credit, and a minimum of 48 credits in technology distributed as follows:

A. Area of Focus

At least 24 credits, including 9 upper-level credits, must be earned in a chosen area of focus. See pages 91–94 for a list of sample focus area subjects. (The Integrated Technology Assessment is part of the area of focus.)

Integrated Technology Assessment Capstone **[TECH 495 Integrated Technology Assessment (capstone)** — the capstone course is required and must be taken through Excelsior College and cannot be transferred in.]

B. Technical Electives

A maximum of 24 credits in technical electives, including 6 upper-level credits, may be applied toward the Bachelor of Science in Technology. This includes 3 credits in computer applications or computer programming **[IT 221 Introduction to Computers]**. See pages 92 – 95 for a list of sample technical electives for each concentration.

C. Level Requirement

Of the 48 credits required for the technology component, at least 15 credits must be upper level (9 upper-level credits in the area of focus and 6 upper-level credits in technical electives). A course is generally considered upper level if it is offered at the junior or senior level and clearly not introductory in content. Courses taken at two-year institutions may not be used to satisfy upper-level requirements. The acceptance of coursework for credit toward the upper-level requirement is subject to faculty review.

Free Elective Component (12 credits)

The Bachelor of Science in Technology allows room for up to 12 credits in free electives. Applied to this component is the 1 credit for Excelsior College's information literacy requirement **[INL 102 Information Literacy]**. See page 82 or visit our website for more information about information literacy.

Degree-Specific Policy

Time Limit on Coursework

Because of the rapidly changing nature of technology, Excelsior College has established a time-related restriction on the application of credit from previous computer- and electronics-related coursework. To meet this requirement, relevant coursework must have been completed more recently than 10 years prior to enrollment in Excelsior College, with the exception of Circuit Theory I and Circuit Theory II. The time limit may be appealed with verification of appropriate and current professional and/or academic experience.

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Admissions:
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Fee Schedules, Financial Aid, and Scholarships:
www.excelsior.edu/fees
www.excelsior.edu/financialaid
www.excelsior.edu/scholarships

College Publications, Applications, and Forms:
www.excelsior.edu/publications

Student Policy Handbook:
www.excelsior.edu/studentpolicyhandbook

Course and Exam Information and Registration:
www.excelsior.edu/courses
www.excelsior.edu/exams
www.UExcelTest.com

Learning Resources:
www.excelsior.edu/myexcelsior, click on the **Resources** tab

Bachelor of Science in **Technology**

BS
120 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* 6-credit *Written English Requirement*	9
Humanities	3
Ethics	3
Social Sciences/History	9
Natural Sciences	9
Mathematics *At the level of College Algebra or above*	12
Arts and Sciences Electives	15
TOTAL ARTS AND SCIENCES COMPONENT	60

TECHNOLOGY COMPONENT	Credit Hours
AREAS OF FOCUS 24 credits **must be earned in one of the areas of focus listed below.** **TECH 495 Integrated Technology Assessment (capstone)** is the required capstone course included in the Technology component.[1] Computer Technologies Electromechanical Technologies Electronic/Instrumentation Technologies Nuclear Technologies Power Plant Technologies	24
Technical Electives *Must include one course in computer language or programming*	24
TOTAL TECHNOLOGY COMPONENT **15 CREDITS** MUST BE UPPER LEVEL, INCLUDING **9 CREDITS** IN THE AREA OF FOCUS	48

FREE ELECTIVE COMPONENT	Credit Hours
TOTAL FREE ELECTIVE COMPONENT MUST INCLUDE **1-CREDIT INFORMATION LITERACY REQUIREMENT**	12
TOTAL DEGREE CREDITS	120

[1] **TECH 495 Integrated Technology Assessment** is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.

Bachelor of Science in Electrical Engineering Technology

The Bachelor of Science in Electrical Engineering Technology degree program focuses on preparing students for electrical and allied engineering technology positions in technology-related industries such as electronics, electrical power, semiconductors and computers, and nanotechnology. While The program is designed specifically to advance job skills by ensuring a breadth of knowledge in technology concepts as well as a depth of understanding and skill in a chosen concentration area. Specifically, the program has three technical concentrations that provide students with a broad professional and technical foundation in the various functional components of electrical engineering technology. Each concentration is a group of related college-level courses within electrical engineering technology that combines depth and breadth of study in a recognized math/science-based technology discipline. The goal of the degree program in specific concentrations is to foster the ability of students to apply what they have learned within the degree program to the real-world contexts of a technology-based industry. The three concentrations are:

- **Electronics**
- **Nanotechnology**
- **Power Systems**

Student progress within the degree program is based on the demonstration of proficiency, and is attainable through multiple, flexible pathways—offering course-based, prior learning assessment, and credit aggregation pathways to degree completion. In this way, the program is customizable and tailored to each student's need and learning style.

The Bachelor of Science in Electrical Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org, telephone: 410-347-7700. ABET is a specialized accrediting agency recognized by the Council for Higher Education Accreditation (CHEA).

Program Educational Objectives

As an Excelsior College bachelor's-level electrical engineering technology graduate, within a few years of graduation, you are expected to:

1. Apply general and discipline-specific concepts and methodologies to identify, analyze, and solve technical problems in the electrical discipline.
2. Demonstrate an individual desire and commitment to remain technically current with, and adaptive to, changing technologies through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional/industrial environment.
4. Communicate effectively in a professional/industrial environment.
5. Perform ethically and professionally in business, industry, and society.
6. Attain increasing levels of responsibility and leadership in the electrical field.

Program (Student) Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Electrical Engineering Technology program, the graduate will be able to:

1. Select and apply appropriate knowledge, techniques, skills, and modern tools of mathematics, engineering technology, and natural sciences, including physics, to solve problems in the electrical engineering technology area.
2. Demonstrate the ability to test, measure, and provide quantitative expressions of natural science phenomena, including experimentation, observation, and accurate measurement.
3. Apply the fundamentals of algebra, trigonometry, and calculus to problem solving in electrical engineering technology areas.
4. Make oral technical presentations in Standard English using graphics and language appropriate to the audience.
5. Demonstrate proficiency in the written and graphical communication of technical

information supported by appropriate technical references using Standard English.

6. Demonstrate a working knowledge of computer usage, including knowledge of one or more computer languages or documentation of the use of one or more computer software packages for technical problem solving appropriate to the electrical engineering technology discipline.
7. Demonstrate technical competency in the core electrical engineering technologies including electronics, circuit analysis, and digital systems, and in the student's chosen concentration such as electronics, power systems, or nanotechnology.
8. Integrate knowledge of the functional areas of electrical engineering technology from a variety of resources.
9. Demonstrate the ability to analyze, apply design concepts, and implement systems as appropriate to electrical engineering technology and consider their societal and global impact.
10. Participate effectively in groups, as a member or leader, and apply project management techniques as appropriate to complete assignments.
11. Demonstrate understanding and commitment to professional, ethical, and social responsibilities, including the effects of culture, diversity, and interpersonal relations.
12. Demonstrate a commitment and ability to continue to engage in self-directed continuing professional development.
13. Demonstrate a commitment to quality, timeliness, and continuous improvement.

Degree Requirements

124 credits

The Bachelor of Science in Electrical Engineering Technology requires a minimum of 124 credits distributed as follows:

- **60 credits** minimum required in the arts and sciences component
- **57 credits** minimum required in the electrical engineering technology component
- **7 credits** required in the free elective component (to include information literacy)

Arts and Sciences Component (60 credits)

The distribution requirement ensures basic college-level competence in three arts and sciences areas: humanities, social sciences/history, and natural sciences/mathematics.

1. **Humanities and Social Sciences/History**

   At least 24 credits must be earned in the humanities and social sciences/history and are distributed as follows:

   a. **Communications**
   At least 9 credits must be earned in communications courses, including 6 credits to satisfy the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 Composition II, ENG 201 Writing for the Professions]**. Courses in speech, written composition, technical writing, or similar courses in either written or oral communications are applicable toward the communications requirement.

   b. **Ethics**
   At least 3 credits must be earned in ethics **[BUS 323 Business Ethics]**.

   c. **Humanities Electives**
   At least 3 credits must be earned in a humanities elective such as art, music, literature, foreign language, philosophy, and speech.

   d. **Social Sciences/History**
   At least 9 credits must be earned in subjects such as sociology, economics, history, psychology, and anthropology.

2. **Mathematics and Natural Sciences**

   Students are required to complete at least 24 semester hours of credit in the combined areas of mathematics and natural sciences, with at least 12 credit hours in math at the level of college algebra or above **[MAT 116 Precalculus Algebra, MAT 118 Trigonometry]**, including Calculus I **[TECH 201 Foundations of Technology Problem Solving I]**, Calculus II **[TECH 202 Foundations of Technology Problem Solving II]**, and Differential Equations **[TECH 202 Foundations of Technology Problem Solving II]** ①.

① **TECH 202 Foundations of Problem Solving II** *satisfies Calculus II and Differential Equations.*

There is no minimum credit hour requirement for natural sciences. Rather, students must complete specific required courses in the natural sciences: Physics I and II (with at least one physics lab) **[PHYS 201 Physics I, PHYS 203 Physics II, PHYS 202 Physics I Laboratory, PHYS 204 Physics II Laboratory]**.

3. **Arts and Sciences Electives**

   The remaining 12 credits needed to satisfy the 60-credit requirement may be earned in any arts and sciences subjects.

Electrical Engineering Technology Component (57 credits)

The electrical engineering technology component ensures college-level competence in the major functional areas of electrical engineering technology. A grade of C or better is required for applicable credit.

1. **Core Requirements**

   The following core requirements must be completed:

   - DC Circuits
     [ELEC 152 Circuit Theory I]
   - AC Circuits
     [ELEC 153 Circuit Theory II]
   - Electronics I
     [ELEC 160 Electronics I]
   - Electronics II
     [ELEC 161 Electronics II]
   - Digital Electronics
     [ELEC 201 Digital Electronics]
   - Microprocessors
     [ELEC 202 Microprocessors]
   - Computer Programming)
     [IT 210 Object-Oriented Programming]
   - Project Management
     [IT 390 Project Management]
   - Integrated Technology Assessment (capstone)
     ELEC 495 Integrated Technology Assessment, the capstone course, is required and must be taken through Excelsior College. It cannot be transferred in.
   - Four labs from the following core courses must be completed:
     DC Circuits
     AC Circuits, Electronics I
     Electronics II
     Digital Electronics, Microprocessors

2. **Concentration Requirements**

   One of the following concentrations must be declared:

   - **Electronics**
   - **Nanotechnology**
   - **Power Systems**

CONCENTRATIONS

Electronics Concentration

Concentration Outcomes

A concentration in Electronics focuses on training and preparing students to stay up-to-date with the rapidly changing electronics hardware and software technology environment. This concentration is a technical discipline centered on the analysis, design, assembly, testing, upgrading, and maintenance of electronics, computers, and communications hardware. The concentration also emphasizes the analysis, design, development, operation, and troubleshooting of control systems, software, and computer-based process controls. This concentration's outcomes are geared toward providing students with a foundational knowledge of electronics hardware and software in a wide variety of subject areas and preparing students for positions including circuit design engineer, hardware technician, communications engineer, software developer, or network engineer. Upon successful completion of the Excelsior College Bachelor of Science in Electrical Engineering Technology with an Electronics concentration, the student will be able to:

1. Analyze and design different types of digital and analog electronic communication systems.
2. Design, integrate, and analyze digital and analog control systems.

3. Use high-level computer languages to develop techniques for designing and modeling electronic systems.

Requirements

Minimum of 15 credits, including 9 upper-level. At least three courses must have labs.

Concentration requirements

- Electronic Communications
  [ELEC 331 Digital and Analog Communications]
- Advanced Digital Electronics
  [ELEC 306 Advanced Digital Design]
- Data Communications
  [IT 350 Business Data Communications]
- Control Systems
  [ELEC 321 Control Systems]
- Microprocessors II
  [ELEC 307 Microcontrollers]

Nanotechnology Concentration

Concentration Outcomes

A concentration in Nanotechnology focuses on training and preparing students to stay up-to-date with the rapidly changing micro- and nano-electronics R&D and manufacturing, nano-materials, and nano-medicine technology environment. This concentration is a technical discipline centered on the analysis, design, assembly, testing, upgrading, and maintenance of nanotechnology processes and equipment, developing highly functional nano-materials, and grasping/shaping societal implications of nanotechnology. This concentration's outcomes are geared toward providing students with a foundational knowledge of nanotechnology processes, equipment, and hardware in a wide variety of subject areas and preparing students for positions including semiconductor and nano-electronics manufacturing engineer, nanotechnology hardware technician, or software developer for nanotechnology processes. Upon successful completion of the Excelsior College Bachelor of Science in Electrical Engineering Technology with a Nanotechnology concentration, the student will be able to:

1. Identify, analyze, and discuss the processes and equipment used in nanotechnology fabrication.
2. Identify and discuss nanotechnology applications and their societal and ethical implications.
3. Analyze the relationship between the material scale (nanostructure) and the properties/functionality of materials.

Requirements

Minimum of 15 credits, including 9 upper-level. At least three courses must have labs.

Concentration requirements

- Introduction to Nanotechnology
  [ELEC 305 Introduction to Nanotechnology]
- Basic Nanofabrication Process
  [ELEC 310 Basic Nanofabrication Process]
- Nanotechnology Process Equipment
  [ELEC 410 Nanotechnology Process Equipment]
- Introduction to Nanofabrication Manufacturing Technology
  [ELEC 415 Introduction to Nanofabrication Manufacturing Technology]
- Micro-electro-mechanical Systems (MEMS)
  [ELEC 420 Micro-Electro Mechanical Systems]

Power Systems Concentration

Concentration Outcomes

A concentration in Power Systems focuses on training and preparing students to stay up-to-date with the rapidly modernizing power electronics and power systems technology environment. This concentration is a technical discipline centered on the analysis, design, assembly, testing, upgrading, and maintenance of DC/AC power conversion systems, electric power generation and distribution, and power control technologies. The concentration also emphasizes the analysis, design, development,

operation, and troubleshooting of single-phase and three-phase electric motors and electric machines, data acquisition, and instrumentation. This concentration's outcomes are geared towards providing students with a foundational knowledge of electric power systems in a wide variety of subject areas and preparing students for positions including power electronics design engineer, electrical power generation and grid maintenance technician, HVDC maintenance engineer, or instrumentation engineer. Upon successful completion of the Excelsior College Bachelor of Science in Electrical Engineering Technology with a Power Systems concentration, the student will be able to:

1. Identify, analyze, and discuss methods used for generation, transmission, and control of electric power.
2. Design, integrate, and analyze DC/AC power conversion systems and related instrumentation.
3. List and describe techniques for analysis and design of power electronics systems.

Requirements

Minimum of 15 credits, including 9 upper-level. At least three courses must have labs.

Concentration requirements

- Programmable Logic Controllers
  [ELEC 210 Programmable Logic Controllers]
- Generation and Transmission of Electric Power
  [ELEC 360 Generation and Transmission of Electric Power]
- Power Electronics
  [ELEC 350 Power Electronics]
- Electrical Machines/Energy Conversion
  [ELEC 345 Electrical Machines]
- Instrumentation and Data Acquisition
  [ELEC 370 Instrumentation and Data Acquisition]

A. Electrical Engineering Technology Electives

Any remaining credits in the electrical engineering technology component may be satisfied by approved electrical/computer technology electives. Please note that only two of these electives may be approved computer courses. Please check with your academic advisor for approval prior to registering for electrical engineering technology electives.

B. Laboratory Requirement

The degree requires at least eight laboratories. Of those eight, one physics laboratory is required in the natural sciences/mathematics area and the remaining seven must be in the electrical engineering technology component. Of the seven technology labs, four must be in the following electrical engineering technology core content areas: DC Circuits, AC Circuits, Electronics I, Electronics II, Digital Electronics, and Microprocessors. The remaining three laboratories must be in your area of concentration.

Students must be able to demonstrate competence in the use of standard design practices, tools, techniques, and computer hardware and software appropriate to the electrical discipline and the program goals.

C. Level Requirement

Of the 57 credits required for the electrical engineering technology component, at least 16 must be upper level. Nine of the upper-level credits must be in the area of concentration. A course is generally considered upper level if it is offered at the junior or senior level and clearly not introductory in content. Courses taken at two-year institutions may not be used to satisfy upper-level requirements. No upper-level credit is awarded for introductory coursework in computer languages. The acceptance of coursework for credit toward the upper-level requirement is subject to faculty review.

A grade or "C" or higher is needed for all core requirements.

Free Elective Component (7 credits)

The Bachelor of Science in Electrical Engineering Technology allows room for up to 7 credits in free electives. Applied to this component is the 1 credit for Excelsior College's information literacy requirement **[INL 102 Information Literacy].** See page 82 or refer to our website for more information about information literacy.

You may earn the remaining 6 credits in any field of college study, including professional or technical subjects as well as in the arts and sciences. A maximum of 2 credits in physical education activity courses may be applied to the degree.

Degree-Specific Policies

Policies and procedures that apply specifically to the Bachelor of Science in Electrical Engineering Technology follow. Refer to your Student Policy Handbook for academic and administrative policies that apply to all students and programs.

Course Materials Policy

The faculty requires that students submit course materials for all math, science, and technology component courses taken outside of Excelsior College. Course materials should include graded homework, quizzes, tests, lab reports, papers, and other student work as appropriate. Course outlines/syllabi should be included as well. This material is required for curriculum review and accreditation purposes. Once we have received your transcript indicating completion of a course and the corresponding student work materials, credit for the course will be added to your evaluation.

Time Limit on Coursework

Because of the rapidly changing nature of technology, Excelsior College has established a time-related restriction on the application of credit from previous computer- and electrical/electronics-related coursework. To meet this requirement, relevant coursework must have been completed more recently than 10 years prior to enrollment in Excelsior College (except AC Circuits and DC Circuits). Please note that course content in these areas is subject to faculty approval. The time limit may be appealed with verification of appropriate and current professional and/or academic experience.

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Admissions:
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Fee Schedules, Financial Aid, and Scholarships:
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College Publications, Applications, and Forms:
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Student Policy Handbook:
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Course and Exam Information and Registration:
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www.UExcelTest.com

Learning Resources:
www.excelsior.edu/myexcelsior, click on the **Resources** tab

Bachelor of Science in
Electrical Engineering Technology

BS
124 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT

	Credit Hours
Communications *Must include 6 credits in the Written English Requirement*	9
Ethics	3
Humanities Elective	3
Social Sciences/History	9
Mathematics and Natural Sciences ■ Mathematics *12 credits at the level of college algebra and above, including Calculus I and II and Differential Equations* ■ Natural Sciences *Physics I and II with at least one physics lab*	24
Arts and Sciences Electives	12
TOTAL ARTS AND SCIENCES COMPONENT	60

ELECTRICAL ENGINEERING TECHNOLOGY COMPONENT

CORE REQUIREMENTS
DC Circuits
AC Circuits
Electronics I
Electronics II
Digital Electronics
Microprocessors
Computer Programming
Project Management
ELEC 495 Integrated Technology Assessment (capstone)①

CONCENTRATION REQUIREMENTS
One of the following concentrations must be declared (see catalog for concentration requirements):
Electronics
Nanotechnology
Power Systems

ELECTRICAL TECHNOLOGY ELECTIVES

LAB REQUIREMENT
*Seven labs are required*②

Credit Hours: 57

TOTAL TECHNOLOGY COMPONENT **16 CREDITS** MUST BE UPPER LEVEL, INCLUDING **9 CREDITS** IN THE CONCENTRATION	57

FREE ELECTIVE COMPONENT

	Credit Hours
FREE ELECTIVE COMPONENT MUST INCLUDE **1-CREDIT** INFORMATION LITERACY REQUIREMENT	7
TOTAL DEGREE CREDITS	124

① **ELEC 495 Integrated Technology Assessment** is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.

② Seven technology labs are required. Four must be from the following:
DC Circuits
AC Circuits
Digital Electronics
Electronics I
Electronics II
Microprocessors

The other three must be in the concentration area.

Bachelor of Science in Cyber Operations

Cyber Operations is an interdisciplinary field of study that comprehensively covers the technical, operational, and managerial elements of cyberspace and security.

The Bachelor of Science in Cyber Operations program is aligned with the academic requirements for cyber operations set by the National Security Agency (NSA) and will provide students with the ability to enhance technical knowledge and skills in cyber operations. The program is designed to prepare learners for cybersecurity-related jobs in the U.S. Cyber Command, the NSA's signals intelligence operations, the Federal Bureau of Investigation, law enforcement agencies, and corporate environments. Typical occupational areas associated with cyber operations include incident response analyst, cyber compliance analyst, cyber threat management, cyber network operations planner, cyber systems analyst, systems administrator, and cyber systems and operation engineer.

Program Educational Outcomes

As an Excelsior College bachelor's-level cyber operations graduate, within a few years of graduation, you are expected to:

1. Apply general and discipline specific concepts and methodologies to identify, analyze, and solve problems in the cyber technology discipline.
2. Demonstrate an individual desire and commitment to remain technically current with, and adaptive to, changing technologies through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional/industrial environment.
4. Communicate effectively in a professional/industrial environment.
5. Perform ethically and professionally in business, industry, and society.
6. Attain increasing levels of responsibility and leadership in the cyber technology field.

Program (Student) Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Cyber Operations, the graduate will be able to:

1. Emphasize technologies and techniques related to specialized cyber operations (e.g., collection, exploitation, and response) involved in national security.
2. Utilize technologies and processes that continuously monitor, maintain, and protect the national security posture of the United States.
3. Utilize an interdisciplinary approach in employing the best sources and expertise for information related to cyber operations and threats to national security.
4. Detect, analyze, and respond to cyber attacks on networks and computer systems that threaten national security.
5. Conduct risk and vulnerability assessments of existing and proposed security systems.
6. Develop and implement organizational cybersecurity policies and procedures designed to protect areas involving national security.
7. Develop skills that further the goal to broaden the pool of skilled workers capable of supporting a cyber-secure nation.

Degree Requirements

120 credits

The Bachelor of Science in Cyber Operations requires 120 semester hours of credit distributed as follows:

- **60 credits** minimum required in the arts and sciences component
- **51 credits** minimum required in the cyber operations component with at least 15 credits at the upper level
- **9 credits** maximum allowed in the free elective component (to include information literacy)

Arts and Sciences Component (60 credits)

The Bachelor of Science in Cyber Operations requires a minimum of 60 credits in the arts and sciences distributed as follows:

A. Humanities and Social Sciences

At least 24 credits must be earned in the humanities and social sciences and are distributed as follows:

1. **Communications**
   At least 9 credits must be earned in communications courses, including 6 credits to satisfy the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 Composition II, ENG 201 Writing for the Professions]**. Courses in speech, written composition, technical writing, or similar courses in either written or oral communications are applicable toward the communications requirements.
2. **Ethics**
   At least 3 credits must be earned in ethics **[BUS 323 Business Ethics]**.
3. **Humanities Elective**
   At least 3 credits must be earned in a humanities elective. *Humanities subjects include, but are not limited to,* advanced writing, literature, foreign languages, religion, philosophy, art, and music.
4. **Social Sciences/History**
   At least 9 credits must be earned in such subjects as sociology, economics, history, psychology, and anthropology.

B. Natural Sciences/Mathematics

At least 15 credits must be earned in natural sciences/ mathematics and include 3 credits in a natural science and the following four math courses:

1. Discrete Math **[TECH 205 Discrete Structures]**
2. Calculus I **[TECH 201 Foundations of Technology Problem Solving I]**
3. Calculus II **[TECH 202 Foundations of Technology Problem Solving II]**
4. Statistics **[BUS 233 Business Statistics, MAT 201 Statistics]**

Sample natural sciences subjects include biology, chemistry, geology, physics, and genetics.

C. Arts and Sciences Electives

At least 21 additional credits in any arts and sciences areas must be completed.

Cyber Operations Component (51 credits)

The Bachelor of Science in Cyber Operations requires a grade of C or better for applicable credit, and a minimum of 51 credits in the area of cyber operations distributed as follows:

A. The following core requirements must be met:

C++ Programming (3 credits)
[IT 240 Introduction to C++ Programming]

Overview of Computer Security (3 credits)
[IT 380 Overview of Computer Security]

Governance, Legal, and Compliance (3 credits)
[CYS 260 Governance, Legal, and Compliance]

Microprocessors (3 credits)
[CYS 203 Introduction to Microprocessors]

Computer Architecture (3 credits)
[IT 321 Computer Systems Architecture]

Operating Systems (3 credits)
[IT 360 Operating Systems]

System Administration (3 credits)
[IT 460 System Administration]

Computer Forensics (3 credits)
[IT 406 Computer Forensics]

Network and Application Security (3 credits)
[IT 403 Network and Application Security]

Secure Mobile and Cloud Computing Environments (3 credits)
[CYS 456 Secure Mobile and Cloud Computing Environments]

Cyber Security Defense in Depth (3 credits)
[CYS 345 Cyber Security Defense in Depth]

Cyber Attacks and Defenses (3 credits)
[CYS 426 Cyber Attacks and Defense]

Reverse Engineering (3 credits)
[CYS 400 Reverse Engineering]

Security Focused Risk Management (3 credits)
[CYS 450 Security Focused Risk Management]

Secure Software Development and Analysis (3 credits)
[CYS 470 Secure Software Development and Analysis]

Systems Security Engineering (3 credits)
[CYS 480 Systems Security Engineering]

Cyber Operations Capstone (3 credits)
[CYS 495 Cyber Operations Capstone —
The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.]

B. Level Requirement

Of the 51 credits required for the cyber operations component, at least 15 must be upper level. No upper-level credit is awarded for introductory coursework in computer languages. A course is generally considered upper level if it is offered at the junior or senior level and clearly not introductory in content. Courses taken at two-year institutions may not be used to satisfy upper-level requirements. The acceptance of coursework for credit toward the upper-level requirement is subject to faculty review.

A grade of "C" or higher is needed for all core requirements.

Free Elective Component (9 credits)

The Bachelor of Science in Cyber Operations allows room for up to 9 credits in free electives. Applied to this component is the 1 credit for Excelsior College's information literacy requirement **[INL 102 Information Literacy]**. See page 82 or visit our website for more information about information literacy.

You may earn the remaining 8 credits in any field of college study, including professional or technical subjects as well as in the arts and sciences.

A maximum of 2 credits in physical education activity courses may be applied to the degree.

Degree-Specific Policies

Policies and procedures that apply specifically to the Bachelor of Science in Cyber Operations follow. Refer to your Student Policy Handbook for academic and administrative policies that apply to all students and programs.

The College has placed a 9-credit cap on introductory programming language courses in the cyber operations component, which includes the following languages:

- **JAVA**
- **C++**
- **C**
- **Visual Basic**
- **PYTHON**
- **C#**

No upper-level credit is awarded for coursework in introductory computer languages.

Credit for Vendor Examinations

Excelsior College awards credit for certain examinations from vendors/professional organizations such as Microsoft, CompTIA, ISC^2 Novell, Cisco, Sun, ORACLE, and SAS. You may apply up to 9 credits from vendor certification examinations toward the cyber operations component of your degree; additional credits from such examinations may apply toward the free elective component. Please contact a technology advisor about the possibility of receiving college-level credit toward your degree requirements.

Time Limit on Coursework

Because of the rapidly changing nature of technology, Excelsior College has established a time-related restriction on the application of credit from previous computer- and electronics-related coursework. To meet this requirement, relevant coursework must have been completed more recently than 10 years prior to enrollment in Excelsior College. This may not be appealed. The Bachelor of Science in Technology with a Computer Technologies specialty has a time limit that may be appealed.

Bachelor of Science in **Cyber Operations**

BS

120 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* 6 credits *in the Written English Requirement*	9
Ethics	3
Humanities	3
Social Sciences/History	9
Mathematics and Natural Sciences *Must include* 3 credits *in natural sciences* ■ Discrete Math ■ Calculus I ■ Calculus II ■ Statistics	15
Arts and Sciences Electives *May be taken from any areas of humanities, social sciences/history, natural sciences, or math*	21
TOTAL ARTS AND SCIENCES COMPONENT	60

CYBER OPERATIONS COMPONENT

			Credit Hours
C++ Programming	Microprocessors	Secure Mobile and Cloud Computing Environments	51
Computer Architecture	Network and Applications Security	Security Focused Risk Management	
Computer Forensics	Operating Systems	Secure Software Development and Analysis	
Cyber Security Defense in Depth	Overview of Computer Security	System Administration	
Cyber Attacks and Defenses	Reverse Engineering	Systems Security Engineering	
Governance, Legal, and Compliance		**CYS 495 Cyber Operations (capstone)**①	

TOTAL CYBER OPERATIONS COMPONENT **15 CREDITS** *MUST BE UPPER LEVEL*	51

FREE ELECTIVE COMPONENT

	Credit Hours
Must include **1-credit** *Information Literacy Requirement*	9
TOTAL FREE ELECTIVE COMPONENT	9
TOTAL DEGREE CREDITS	120

① **CYS 495 Cyber Operations** is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.

Bachelor of Science in Information Technology

The Bachelor of Science in Information Technology program focuses on preparing students to stay at the forefront of the rapidly changing technical environment, and training students to be the leaders in the Information Technology field. To accomplish this goal, the program is centered on the fundamental concepts, skills, applications, and practices across a wide variety of information technology domains including software and web development, computer systems, database management, data communication, information security, and project management. Built upon this core knowledge foundation, our program has identified three technical concentrations: Cybersecurity Technology, Information Security, and Network Operation. These concentrations represent the high-demand job areas in the IT industry, which equip students with in-depth specialties in order for them to excel in the workplace. To allow students the flexibility to design a study plan that meets their career goals, a general option concentration is also available, in which students can compile their own course milestones toward the degree.

In addition to the necessary technical knowledge and skills, the strong liberal component of our program helps students maintain academic breath and prepare students with quantitative, communication, and interpersonal skills, as well as with an awareness of business ethics and social responsibility. Our goal is to prepare students to be critical thinkers and problem solvers, and to become committed lifelong learners.

Student progress within the degree program is based on the demonstration of proficiency, and is attainable through multiple, flexible pathways—offering course-based, direct assessment, and credit aggregation pathways to degree completion. In this way, the program is customizable and tailored to each student's need and learning style.

Program Educational Objectives

As an Excelsior College bachelor's-level information technology graduate, within a few years of graduation, you are expected to:

1. Apply general and discipline-specific concepts and methodologies to identify, analyze, and solve technical problems in the information technology discipline.
2. Demonstrate an individual desire and commitment to remain technically current with, and adaptive to, changing technologies through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional/industrial environment.
4. Communicate effectively in a professional/industrial environment.
5. Perform ethically and professionally in business, industry, and society.
6. Attain increasing levels of responsibility and leadership in the information technology field.

Program (Student) Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Information Technology program, the graduate will be able to:

1. Apply knowledge of computing and mathematics for problem solving in the field of information technology.
2. Demonstrate the ability to identify and analyze user needs to define and create appropriate computing requirements and solutions.
3. Demonstrate the ability to effectively select, evaluate, and integrate information technologies-based solutions in a user environment.
4. Demonstrate the ability to participate effectively in groups or team projects.
5. Demonstrate an ability to understand professional, ethical, and social responsibilities, including the impacts of culture, diversity, and interpersonal relations.
6. Demonstrate proficiency in communicating technical information in formal reports, documentation, and oral presentations to users and information technology professionals.
7. Demonstrate the ability to identify and analyze the impacts of information technologies and computing on public, organizations, and individuals.
8. Demonstrate the ability to identify and apply current and emerging technologies and tools for information technologies solutions.

9. Demonstrate expertise in the core information technologies, including web technologies, database management, information management and security, object-oriented programming, computer architecture, systems architecture, operating systems, networking, and system administration.
10. Demonstrate the ability to analyze computing and information security requirements and risks, and apply the appropriate tools and techniques to protect organizational data assets in an ethically responsible manner.
11. Demonstrate the ability to apply best practices and standards for information technology applications.
12. Demonstrate the ability to assist in the creation of an effective project plan.
13. Demonstrate a commitment to professional development and to continue to engage in lifelong learning.

Degree Requirements

120 credits

The Bachelor of Science in Information Technology requires 120 semester hours of credit distributed as follows:

- **60 credits** minimum required in the arts and sciences
- **48 credits** minimum required in the information technology component with at least 15 credits at the upper level
- **12 credits** required in the free elective component (to include information literacy)

Arts and Sciences Component (60 credits)

The Bachelor of Science in Information Technology requires a minimum of 60 credits in the arts and sciences distributed as follows:

1. **Humanities and Social Sciences**

   At least 24 credits must be earned in the humanities and social sciences and are distributed as follows:

   a. **Communications**
   At least 9 credits must be earned in communications courses, including 6 credits to satisfy the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 Composition II, ENG 201 Writing for the Professions]**. Courses in speech, written composition, technical writing, or similar courses in either written or oral communications are applicable toward the communications requirements.

   b. **Ethics**
   At least 3 credits must be earned in ethics **[BUS 323 Business Ethics]**.

   c. **Humanities Electives**
   At least 3 credits must be earned in humanities electives. *Humanities subjects include, but are not limited to,* advanced writing, literature, foreign languages, religion, philosophy, art, and music.

   d. **Social Sciences/History**
   At least 9 credits must be earned in such subjects as sociology, economics, history, psychology, and anthropology.

2. **Natural Sciences/Mathematics**

   At least 12 credits must be earned in natural sciences/mathematics and include 3 credits in a natural science, a course in discrete mathematics **[TECH 205 Discrete Structures]**, and one course from the following list:

   a. Calculus I
   [TECH 201 Foundations of Technology Problem Solving I]

   b. Statistics and Probability
   [BUS 233 Business Statistics, MAT 201 Statistics]

   c. Quantitative Methods
   [BUS 430 Quantitative Methods]

3. Finite Math
4. Mathematical Logic
5. Sample natural sciences subjects include biology, chemistry, geology, physics, and genetics.
6. **Arts and Sciences Electives**

   At least 24 additional credits in any arts and sciences areas must be completed.

Information Technology Component (48 credits)

The Bachelor of Science in Information Technology requires a grade of C or better for applicable credit, and a minimum of 48 credits in the area of information technology distributed as follows:

Core Requirements

The following core requirements must be met:

- Object-Oriented Programming
  [IT 210 Object-Oriented Programming]
- Computer Systems Architecture
  [IT 321 Computer Systems Architecture]
- Operating Systems
  [IT 360 Operating Systems]
- Database Concepts
  [IT 370 Database Management Systems]
- Data Communications and Networking
  [IT 350 Business Data Communications]
- Web Design and Development
  [IT 371 Web Design and Development]
- Human-Computer Interaction
  [IT 375 Human-Computer Interactive Design]
- Overview of Computer Security
  [IT 380 Overview of Computer Security]
- Project Management
  [IT 390 Project Management]
- System Administration
  [IT 460 System Administration]
- Integrated Technology Assessment Capstone
  [IT 495 Integrated Technology Assessment (capstone) — The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.]

Concentration Requirements

One of the following concentrations must be declared. See below for specific requirements for each Information Technology concentration. A minimum of 15 credits is required for each concentration.

- **Cybersecurity Technology**
- **Information Security**
- **General Option**
- **Network Operations**

CONCENTRATIONS

Cybersecurity Technology

The Cybersecurity Technology concentration focuses on providing broad coverage on the technical, operational, and legal dimensions of cybersecurity. Students of this concentration will attain a holistic view of implementing effective cybersecurity programs appropriate to the environment. The curriculum focuses on areas such as organizational, network, application security issues as well as penetration testing, incidence response, and digital forensics. This will enable students to utilize a variety of cybersecurity tools and techniques in protecting information assets in organizations. The Cybersecurity Technology concentration will prepare students to pursue careers in cybersecurity in positions such as security analyst, security architect, IT security coordinator, data protection analyst, incident responder, or penetration tester. Upon successful completion of the Excelsior College Bachelor of Science in Information Technology with a concentration in Cybersecurity Technology, the learner will be able to:

1. Apply cybersecurity best practices in managing various computing environments comprised of heterogeneous devices and services.
2. Define and protect data assets in organizations by mitigating risks and integrating business continuity.
3. Identify and analyze the impact of large scale cyber-crime incidents on international security and terrorism.

Concentration Requirements

Minimum of 15 credits

- Computer Forensics
  [IT 406 Computer Forensics]
- Cyber Attacks and Defenses
  [CYS 426 Cyber Attacks and Defenses]
- Business Continuity
  [CYS 455 Business Security and Continuity]
- Network and Application Security
  [IT 403 Network and Application Security]
- Organizational Information Security
  [CYS 401 Organizational Information Security]

General Option

Recognizing that the Information Technology field is continuously evolving, the Bachelor of Science in Information Technology program offers the general option concentration. This customizable concentration provides flexibility in designing students' area of focus in order to meet ever-changing job demands and also to build upon students' current achievements. Students of this concentration can choose from approved IT electives to meet the degree requirements. Our course offerings cover a wide range of IT specialties, which help students stay competitive in today's job market.

Concentration Requirements

- Approved IT Electives

Information Security

The Information Security concentration focuses on providing comprehensive knowledge in aspects of information security management and operations. This includes identifying and mitigating risk in computer networks and Web applications. The curriculum covers information security areas such as network, Web, digital forensics, information assurance management and cryptography. The information security concentration will prepare students to pursue careers in information security in positions such as Network Security Engineer, Security Analyst, IT Security Officer, or Data Security specialist. Upon successful completion of the Excelsior College Bachelor of Science in Information Technology with a concentration in Information Security, the learner will be able to:

1. Apply security principles toward the design and management of secure networks and Web applications.
2. Perform computer forensic analysis on network-based and stored information.
3. Integrate information assurance principles into the management of networks and Web applications.

Concentration Requirements

Minimum of 15 credits

- Network Security
  [IT 402 Network Security]
- Web Security
  [IT 404 Web Security]
- Computer Forensics
  [IT 406 Computer Forensics]
- Information Assurance Management
  [IT 408 Information Assurance Management]
- Fundamentals of Cryptography
  [IT 410 Fundamentals of Cryptography]

Network Operations

The Network Operations concentration focuses on providing students with the critical knowledge and skills in telecommunications and networking, and preparing students for careers including, but not limited to, network technician, network administrator, network engineer, and network architect. Our curriculum incorporates courses in network design and network project management, network operating systems and network administration, wireless systems, RFID technology, and network security, which is designed to guide students through the process of planning, designing, managing, and securing network and telecommunications systems. Upon successful completion of the Excelsior College Bachelor of Science in Information Technology with a Network Operation concentration, the student will be able to:

1. Apply advanced networking techniques and network operating system principles toward the operation of a robust network.
2. Integrate wireless technology solutions into the network infrastructure.
3. Apply telecommunication management principles into the management of networks.

Concentration Requirements

Minimum of 15 credits

- Advanced Networking
  [IT 422 Advanced Networking]
- Network Operating Systems
  [IT 424 Network Operating Systems]
- Wireless Technology
  [IT 426 Wireless Technology]

- Telecommunication Management
  [IT 428 Telecommunications Management]
- Network Systems Design and Management
  [IT 430 Network Systems Design and Management]

Level Requirement

Of the 48 credits required for the information technology component, at least 15 must be upper level. No upper-level credit is awarded for introductory coursework in computer languages. A course is generally considered upper level if it is offered at the junior or senior level and clearly not introductory in content. Courses taken at two-year institutions may not be used to satisfy upper-level requirements. The acceptance of coursework for credit toward the upper-level requirement is subject to faculty review.

A grade of "C" or higher is needed for all core requirements.

Free Elective Component (12 credits)

The Bachelor of Science in Information Technology allows room for up to 12 credits in free electives. Applied to this component is the 1 credit for Excelsior College's information literacy requirement **[INL 102 Information Literacy]**. See page 82 or visit our website for more information about information literacy.

You may earn the remaining 11 credits in any field of college study, including professional or technical subjects as well as in the arts and sciences.

A maximum of 2 credits in physical education activity courses may be applied to the degree.

Degree-Specific Policies

Policies and procedures that apply specifically to the Bachelor of Science in Information Technology follow. Refer to your Student Policy Handbook for academic and administrative policies that apply to all students and programs.

Programming Language Cap

The College has placed a 9-credit cap on introductory programming language courses in the information technology component, which includes the following languages:

- **JAVA**
- **Visual Basic**
- **C++**
- **PYTHON**
- **C**
- **C#**

No upper-level credit is awarded for coursework in introductory computer languages.

Credit for Vendor Examinations

Excelsior College awards credit for certain examinations from vendors such as Microsoft, CompTIA, Novell, Cisco, Sun, ORACLE, and SAS. You may apply up to 9 credits from vendor certification examinations toward the IT component of your degree; additional credits from such examinations may apply toward the free elective component. Please contact a technology academic advisor about the possibility of receiving college-level credit toward your degree requirements.

Time Limit on Coursework

Because of the rapidly changing nature of technology, Excelsior College has established a time-related restriction on the application of credit from previous computer- and electronics-related coursework. To meet this requirement, relevant coursework must have been completed more recently than 10 years prior to enrollment in Excelsior College. This may not be appealed. The Bachelor of Science in Technology with a Computer Technologies concentration has a time limit that may be appealed.

Course Materials Policy

The faculty requires that students submit course materials for all math and technology component courses taken outside of Excelsior College for the Bachelor of Science in Information Technology Course materials should include graded homework, quizzes, tests, lab reports, papers, and other student work as appropriate. Course outlines/syllabi should be included as well. This material is required for curriculum review and accreditation purposes. Once we have received your transcript indicating completion of a course and the corresponding student work materials, credit for the course will be added to your evaluation.

Bachelor of Science in **Information Technology**

BS
120 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* **6 credits** *in the Written English Requirement*	9
Ethics	3
Humanities Elective	3
Social Sciences/History	9
Mathematics and Natural Sciences *Must include* **3 credits** *in a natural science, Discrete Math, and one course from the following: Calculus I, Statistics and Probability, Quantitative Methods, Finite Math, or Mathematical Logic*	12
Arts and Sciences Electives	24
TOTAL ARTS AND SCIENCES COMPONENT	60

INFORMATION TECHNOLOGY COMPONENT		Credit Hours
CORE REQUIREMENTS Object-Oriented Programming② Computer Systems Architecture② Operating Systems② Database Concepts Data Communications and Networking Web Design and Development Human-Computer Interaction Overview of Computer Security Project Management System Administration **IT 495 Integrated Technology Assessment (capstone)**①	**CONCENTRATION REQUIREMENTS** *One of the following concentrations must be declared (see catalog for concentration requirements):* **Cybersecurity Technology** **General Option** **Information Security** **Network Operations**	
TOTAL TECHNOLOGY COMPONENT **15 CREDITS** MUST BE UPPER LEVEL		48

FREE ELECTIVE COMPONENT	Credit Hours
FREE ELECTIVE COMPONENT MUST INCLUDE **1-CREDIT** INFORMATION LITERACY REQUIREMENT	12
TOTAL DEGREE CREDITS	120

① **IT 495 Integrated Technology Assessment** is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.

② The core requirements should be completed in the order listed.

Bachelor of Science in Information Technology to Master of Business Administration (Dual Degree Track)

The dual degree track requires a total of **150** credits. Students achieve graduate status by completing **60** credits in the arts and sciences component, **48** credits in the information technology component, **6** credits in the additional credit component. The graduate phase requires a total of **36** graduate credits including the bridge component and the graduate course component. Students receive the baccalaureate and graduate degrees after completion of the dual degree program in its entirety.

The BSIT-MBA dual degree program is designed to provide a streamlined path for learners to blend their technical skills with managerial skills. The dual degree track is designed with bridge components that enable learners to transition to the MBA program. The BSIT-MBA dual degree prepares learners to leverage their technical skills to pursue leadership and managerial positions in the industry.

You are subject to the degree requirements in effect at the time of your enrollment or program/degree transfer (program transfer refers to changes from one school to another; degree transfer refers to changing degrees within the same school).

The faculty reserves the right to make changes in curricular requirements as necessary to reflect current professional practice. Changes may affect both enrolled and prospective students. It is your responsibility to keep informed of such changes. We make every effort to inform you of changes as they occur. Current information about degree requirements is posted on our website. Information about changes to degree requirements is also made available on our website.

Program Educational Objectives

As an Excelsior College bachelor's-level information technology graduate, within a few years of graduation, you are expected to:

1. Apply general and discipline-specific concepts and methodologies to identify, analyze, and solve technical problems in the information technology discipline.
2. Demonstrate an individual desire and commitment to remain technically current with, and adaptive to, changing technologies through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional/industrial environment.
4. Communicate effectively in a professional/industrial environment.
5. Perform ethically and professionally in business, industry, and society.
6. Attain increasing levels of responsibility and leadership in the information technology field.

Program (Student) Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Information Technology program, the graduate will be able to:

1. Apply knowledge of computing and mathematics for problem solving in the field of information technology.
2. Demonstrate the ability to identify and analyze user needs to define and create appropriate computing requirements and solutions.
3. Demonstrate the ability to effectively select, evaluate, and integrate information technologies-based solutions in a user environment.
4. Demonstrate the ability to participate effectively in groups or team projects.
5. Demonstrate an ability to understand professional, ethical, and social responsibilities, including the impacts of culture, diversity, and interpersonal relations.
6. Demonstrate proficiency in communicating technical information in formal reports, documentation, and oral presentations to users and information technology professionals.

7. Demonstrate the ability to identify and analyze the impacts of information technologies and computing on the public, organizations, and individuals.
8. Demonstrate the ability to identify and apply current and emerging technologies and tools for information technologies solutions.
9. Demonstrate expertise in the core information technologies, including Web technologies, database management, information management and security, object-oriented programming, computer architecture, systems architecture, operating systems, and system administration.
10. Demonstrate the ability to analyze computing and information security requirements and risks, and apply the appropriate tools and techniques to protect organizational data assets in an ethically responsible manner.
11. Demonstrate the ability to apply best practices and standards for information technology applications.
12. Demonstrate the ability to assist in the creation of an effective project plan.
13. Demonstrate a commitment to professional development and to continue to engage in lifelong learning.

Upon successful completion of the Excelsior College MBA program, the graduate will be able to:

1. Analyze real-world business problems and generate recommendations for action.
2. Integrate accounting, marketing, finance, management, and economics into a strategic business analysis.
3. Assess the impact of the global business environment on business situations.
4. Apply quantitative methods to analysis of business situations.
5. Perform ethically and professionally in business and society.
6. Communicate effectively to relevant audiences in written materials.
7. Collaborate in teams to produce required deliverables.
8. Apply project management skills to business situations.
9. Assess the ethical implications of actions for diverse stakeholders.

Dual Degree Track Requirements

Arts and Sciences Component (60 credits)

1. **Humanities and Social Sciences**
   At least 24 credits must be earned in the humanities and social sciences and are distributed as follows:
   a. **Communications**
      At least 9 credits must be earned in communications courses, including 6 credits to satisfy the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 Composition II, ENG 201 Writing for the Professions].** Courses in speech, technical writing, or similar courses in either written or oral communications are applicable toward the communications requirements.
   b. **Ethics**
      At least 3 credits must be earned in ethics① **[BUS 323 Business Ethics]**
   c. **Humanities Electives**
      At least 3 credits must be earned in humanities electives. *Humanities subjects include, but are not limited to,* advanced writing, literature, foreign languages, religion, philosophy, art, and music.
   d. **Social Sciences/History**
      3 credits must be earned in Organizational Behavior **[BUS 311 Organizational Behavior]**①, 3 credits must be earned in Economics **[ECON 360 International Economics]**① and 3 credits must be earned in additional subjects such as sociology, economics, history, psychology, and anthropology.
2. **Natural Sciences/Mathematics**
   At least 12 credits must be earned in natural sciences/mathematics and include 3 credits in a natural science, a course in discrete mathematics **[TECH 205 Discrete Structures]**, and one course from the following list:

① *Must be taken at the upper level with a grade of B or above within the last 10 years to satisfy MBA foundation requirement.*

a. Calculus I
[TECH 201 Foundations of Technology Problem Solving I]

b. Statistics and Probability
[BUS 233 Business Statistics, MAT 201 Statistics]

c. Quantitative Methods①②
[BUS 430 Quantitative Methods]

d. Finite Math

e. Mathematical Logic

f. Sample natural sciences subjects include biology, chemistry, geology, physics, and genetics.

3. **Arts and Sciences Electives**
At least 24 additional credits in any arts and sciences areas must be completed.

Information Technology Component (48 credits)

The Bachelor of Science in Information Technology requires a grade of C or better for applicable credit, and a minimum of 48 credits in the area of information technology distributed as follows:

1. **IT Core Requirements:**
The following core requirements must be met:

a. Object-Oriented Programming
[IT 210 Object Oriented Programming]

b. Computer Systems Architecture
[IT 321 Computer Systems Architecture]

c. Operating Systems
[IT 360 Operating Systems]

d. Database Concepts
[IT 370 Database Management Systems]

e. Data Communications and Networking
[IT 350 Business Data Communications]

f. Web Design and Development
[IT 371 Web Design and Development]

g. Human-Computer Interaction
[IT 375 Human-Computer Interactive Design]

h. Overview of Computer Security
[IT 380 Overview of Computer Security]

i. Project Management
[IT 390 Project Management]

j. System Administration
[IT 460 System Administration]

k. Integrated Technology Assessment Capstone
[IT 495 Integrated Technology Assessment (capstone)—The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.]

2. **Concentration Requirements:**
A concentration must be declared. A minimum of 15 credits is required for each concentration (see concentration requirements on page page 122).

3. **Approved IT Electives**

4. **Level Requirement**
Of the 48 credits required for the information technology component, at least 15 must be upper level. No upper-level credit is awarded for introductory coursework in computer languages.
A course is generally considered upper level if it is offered at the junior or senior level and clearly is not introductory in content. Courses taken at two-year institutions may not be used to satisfy upper-level requirements. The acceptance of coursework for credit toward the upper-level requirement is subject to faculty review.

Free Elective Component (6 credits)

1. **Information Literacy**
A minimum of 1 credit must be earned in information literacy. See the information literacy requirement explanation on page 82 for more information.

2. **Other College-Level Credit**

a. Marketing Concepts & Applications①
[BUS 351 Marketing Concepts & Applications]

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① *Must be taken at the upper level with a grade of B or above within the last 10 years to satisfy MBA foundation requirement.*

② **Quantitative Methods** *may be taken to waive the MBA foundation requirement as part of this dual degree; however, Statistics is a prerequisite for Quantitative Methods. Please consult your academic advisor with any concerns about completing Quantitative Methods in the undergraduate portion of this program.*

Bridge Component

A grade of B or above is required.

1. Business Communications
   [BUS 501 Business Communications]
2. Global Business Environment
   [BUS 502 Global Business Environment]

Graduate Component

1. Accounting for Managers
   [BUS 500 Accounting for Managers]
2. Human Resource Management
   [BUS 504 Human Resource Management]
3. Managerial Finance
   [BUS 505 Finance]
4. Information Technology
   [BUS 570 Information Technology]
5. Leadership
   [BUS 552 Leadership]
6. Change Management
   [BUS 554 Change Management]
7. Strategy and Policy (capstone)
   [BUS 511 Strategy and Policy (capstone)]
8. 9 credits in Business Electives or Concentration
   (see concentration requirements on page 122).

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Bachelor of Science in **Information Technology** to Master of Business Administration—**Dual Degree Track**

BS to MBA

150 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* 6-credit *Written English Requirement*	9
Ethics BUS 323 Business Ethics①	3
Humanities	3
Social Sciences/History BUS 311 Organizational Behavior① TECH 330 Economic Analysis for Technologists① OR ECON 360 International Economics①	9
Natural Sciences/Mathematics *Must include* 3 credits *in a natural science, Discrete Math, and one course from the following:* Calculus I, Statistics and Probability, BUS 430 Quantitative Methods① *(prerequisite is statistics and probability),* Finite Math OR Mathematical Logic	12
Arts and Sciences Electives	24
TOTAL ARTS AND SCIENCES COMPONENT	**60**

INFORMATION TECHNOLOGY COMPONENT④	Credit Hours
CORE REQUIREMENTS	
Object-Oriented Programming②	
Computer Systems Architecture②	
Operating Systems②	
Database Concepts	
Data Communications and Networking	
Web Design and Development	
Human-Computer Interaction	
Overview of Computer Security	
Project Management	
System Administration	
IT 495 Integrated Technology Assessment (capstone)③	
CONCENTRATION REQUIREMENTS	
One of the following concentrations must be declared (see page 122 *for concentration requirements):*	
Cybersecurity Technology	
General Option	
Information Security	
Network Operations	
TOTAL TECHNOLOGY COMPONENT **15 CREDITS** MUST BE UPPER LEVEL	**48**

FREE ELECTIVE COMPONENT	Credit Hours
BUS 351 Marketing Concepts and Applications①	5
Information Literacy	1
TOTAL FREE ELECTIVE COMPONENT	**6**

BRIDGE COMPONENT	Credit Hours
Business Communication	3
Global Business Environment	3
TOTAL BRIDGE CREDIT	**6**

GRADUATE COURSE COMPONENT	Credit Hours
BUS 500 Accounting for Managers	
BUS 504 Human Resources Management	
BUS 505 Managerial Finance	
BUS 570 Information Technology	
BUS 552 Leadership	
BUS 554 Change Management	
BUS 511 Strategy and Policy (capstone)③	
Electives (9 elective or concentration course credits)	
TOTAL GRADUATE CREDIT	**30**

GRADUATE STATUS: Students achieve graduate status upon completion of the bridge component and all other undergraduate requirements.

TOTAL DEGREE CREDITS **150**

① Must be taken at the upper level and completed with a grade of B or above within the past 10 years.

② The core requirements should be completed in the order listed.

③ **IT 495 Integrated Technology Assessment** and **BUS 511 Strategy and Policy** are the required capstone courses and must be taken through Excelsior College. They cannot be transferred in.

④ There is a 10-year time limit on IT courses.

Bachelor of Science in Information Technology to Master of Science in Cybersecurity (Dual Degree Track)

The dual degree track requires a total of **144 –147** credits. The total amount of credits earned will vary depending on the concentration selected and the selection of graduate courses applied to baccalaureate concentration requirements. Students achieve graduate status by completing **60** credits in the arts and sciences component, **48** credits in the information technology component, and **9** credits in the additional credit component. The graduate phase requires a total of **30** graduate credits including the bridge component and the graduate course component. Students receive the baccalaureate and graduate degrees after completion of the dual degree program in its entirety.

The BSIT-MCY dual degree program is designed to provide a streamlined path for learners to obtain a solid foundation for a graduate degree in Cybersecurity. The dual degree track is designed with a bridge component that enables learners to transition to the graduate degree program in Cybersecurity. The BSIT-MCY dual degree track provides avenues for learners to leverage their knowledge and skills to pursue advanced career positions in Cybersecurity through an effective and structured course plan.

You are subject to the degree requirements in effect at the time of your enrollment or program/degree transfer (program transfer refers to changes from one school to another; degree transfer refers to changing degrees within the same school). The faculty reserves the right to make changes in curricular requirements as necessary to reflect current professional practice. Changes may affect both enrolled and prospective students. It is your responsibility to keep informed of such changes. We make every effort to inform you of changes as they occur. Current information about degree requirements is posted on our website. Information about changes to degree requirements is also made available on our website.

Program Educational Objectives

As an Excelsior College bachelor's-level information technology graduate, within a few years of graduation, you are expected to:

1. Apply general and discipline-specific concepts and methodologies to identify, analyze, and solve technical problems in the information technology discipline.
2. Demonstrate an individual desire and commitment to remain technically current with, and adaptive to, changing technologies through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional/industrial environment.
4. Communicate effectively in a professional/industrial environment.
5. Perform ethically and professionally in business, industry, and society.
6. Attain increasing levels of responsibility and leadership in the information technology field.

Program (Student) Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Information Technology program, the graduate will be able to:

1. Apply knowledge of computing and mathematics for problem solving in the field of information technology.
2. Demonstrate the ability to identify and analyze user needs to define and create appropriate computing requirements and solutions.
3. Demonstrate the ability to effectively select, evaluate, and integrate information technologies-based solutions in a user environment.
4. Demonstrate the ability to participate effectively in groups or team projects.
5. Demonstrate an ability to understand professional, ethical, and social responsibilities, including the impacts of culture, diversity, and interpersonal relations.

6. Demonstrate proficiency in communicating technical information in formal reports, documentation, and oral presentations to users and IT professionals.
7. Demonstrate the ability to identify and analyze the impacts of information technologies and computing on the public, organizations, and individuals.
8. Demonstrate the ability to identify and apply current and emerging technologies and tools for information technologies solutions.
9. Demonstrate expertise in the core information technologies, including web technologies, database management, information management and security, object-oriented programming, computer architecture, systems architecture, operating systems, networking, and system administration.
10. Demonstrate the ability to analyze computing and information security requirements and risks, and apply the appropriate tools and techniques to protect organizational data assets in an ethically responsible manner.
11. Demonstrate the ability to apply best practices and standards for information technology applications.
12. Demonstrate the ability to assist in the creation of an effective project plan.
13. Demonstrate a commitment to professional development and to continue to engage in lifelong learning.

Upon successful completion of the Excelsior College Master of Science in Cybersecurity program, the graduate will be able to:

1. Continuously monitor, maintain, and enhance the protection of enterprise-wide information assets through effective industry accepted information management and risk management techniques.
2. Implement an Incident Response team that legally, ethically, and efficiently responds to cyber incidents.
3. Detect, analyze, and respond to cyber attacks on networks and computer systems.
4. Conduct risk and vulnerability assessments of existing and proposed information systems.
5. Develop and implement organizational cybersecurity policies and procedures.
6. Utilize the best sources of information available related to cybersecurity issues, threats, and recovery.

Dual Degree Track Requirements

Arts and Sciences Component (60 credits)

1. **Humanities and Social Sciences**

   At least 24 credits must be earned in the humanities and social sciences and are distributed as follows:

   a. **Communications**
   At least 9 credits must be earned in communications courses, including 6 credits to satisfy the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 Composition II, ENG 201 Writing for the Professions].** Courses in speech, technical writing, or similar courses in either written or oral communications are applicable toward the communications requirements.

   b. **Ethics**
   At least 3 credits must be earned in ethics **[BUS 323 Business Ethics]**.

   c. **Humanities Electives**
   At least 3 credits must be earned in humanities electives. *Humanities subjects include, but are not limited to,* advanced writing, literature, foreign languages, religion, philosophy, art, and music.

2. **Social Sciences/History**

   At least 9 credits must be earned in such subjects as sociology, economics, history, psychology, and anthropology.

3. **Natural Sciences/Mathematics**

   At least 12 credits must be earned in natural sciences/mathematics and include 3 credits in a natural science, a course in discrete mathematics **[TECH 205 Discrete Structures]**, and one course from the following list:

   a. Calculus I
   [TECH 201 Foundations of Technology Problem Solving I]

b. Statistics and Probability
[BUS 233 Business Statistics, MAT 201 Statistics]

c. Quantitative Methods
[BUS 430 Quantitative Methods]

d. Finite Math

e. Mathematical Logic
Sample natural sciences subjects include biology, chemistry, geology, physics, and genetics.

4. Arts and Sciences Electives

At least 24 additional credits in any arts and sciences areas must be completed.

Information Technology Component (48 credits)

The Bachelor of Science in Information Technology requires a grade of C or better for applicable credit, and a minimum of 48 credits in the area of information technology distributed as follows:

1. IT Core Requirements

The following core requirements must be met:

a. Object-Oriented Programming
[IT 210 Object Oriented Programming]

b. Computer Systems Architecture
[IT 321 Computer Systems Architecture]

c. Operating Systems
[IT 360 Operating Systems]

d. Database Concepts
[IT 370 Database Management Systems]

e. Data Communications and Networking
[IT 350 Business Data Communications]

f. Web Design and Development
[IT 371 Web Design and Development]

g. Human-Computer Interaction
[IT 375 Human-Computer Interactive Design]

h. Overview of Computer Security
[IT 380 Overview of Computer Security]

i. Project Management
[IT 390 Project Management]

j. System Administration
[IT 460 System Administration]

k. Integrated Technology Assessment Capstone
[IT 495 Integrated Technology Assessment (capstone) — The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.]

2. Concentration Requirements

A concentration must be declared. A minimum of 15 credits is required for each concentration (see concentration requirements on page 122).

3. Approved IT Electives

4. Level Requirement

Of the 48 credits required for the information technology component, at least 15 must be upper-level. No upper-level credit is awarded for introductory coursework in computer languages.

- A course is generally considered upper level if it is offered at the junior or senior level and clearly is not introductory in content. Courses taken at two-year institutions may not be used to satisfy upper-level requirements. The acceptance of coursework for credit toward the upper-level requirement is subject to faculty review.

Free Elective Component (9 credits)

1. Information Literacy

A minimum of 1 credit must be earned in information literacy. See the information literacy requirement explanation on page 82 for more information.

2. Other College-Level Credit

A minimum of 8 (determined by concentration) credits must be earned in other college-level credit. This essentially is an elective area that can be fulfilled with additional arts and sciences credits or applied professional credits.

Graduate Phase
(Total graduate credits: 30)

Bridge Component

A grade of "B" or higher is required.

1. Information Assurance
   [CYS 560 Information Assurance]

Graduate Component

1. Digital Crime Prevention and Investigation
   [CYS 585 Digital Crime Prevention and Investigation]
2. Communications and Network Security
   [CYS 503 Communications and Network Security]
3. Ethics, Legal, and Compliance Issues in Cybersecurity
   [CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity]
4. Advanced Networking
   [CYS 522 Advanced Networking]
5. IT Risk Analysis and Management
   [CYS 575 IT Risk Analysis and Management]
6. Cyber Attacks and Defenses
   [CYS 526 Cyber Attacks and Defenses]
7. Project Management
   [BUS 530 Project Management Principles and Application]
8. Capstone Project in Cybersecurity
   [CYS 595 Capstone Project in Cybersecurity—The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.]

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Bachelor of Science in **Information Technology** to Master of Science in **Cybersecurity—Dual Degree Track**

BS to MS
144–147[1]
Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* 6-credit *Written English Requirement*	9
Ethics	3
Humanities	3
Social Sciences/History	9
Natural Sciences/Mathematics *Must include* 3 credits *in a natural science, Discrete Math, and one course from the following:* **Calculus I, Statistics and Probability, Finite Math, Mathematical Logic,** OR **Quantitative Methods***)*	12
Arts and Sciences Electives	24
TOTAL ARTS AND SCIENCES COMPONENT	**60**

INFORMATION TECHNOLOGY COMPONENT	Credit Hours
CORE REQUIREMENTS	
Object-Oriented Programming[2]	
Computer Systems Architecture[2]	
Operating Systems[2]	
Database Concepts	
Data Communications and Networking	
Web Design and Development	
Human-Computer Interaction	
Overview of Computer Security	
Project Management	
System Administration	
IT 495 Integrated Technology Assessment (capstone)[3]	
CONCENTRATION REQUIREMENTS	
One of the following concentrations must be declared (see page 122 for concentration requirements):	
Cybersecurity Technology	
General Option	
Information Security	
Network Operations	
TOTAL TECHNOLOGY COMPONENT **15 CREDITS** MUST BE UPPER LEVEL	**48**

FREE ELECTIVE COMPONENT	Credit Hours
Must include **Information Literacy**	1
TOTAL FREE ELECTIVE COMPONENT	**9**

BRIDGE COMPONENT	Credit Hours
MCY requirements; credits apply toward the BS	
CYS 560 Information Assurance	3
TOTAL BRIDGE CREDIT	**3**

GRADUATE COURSE COMPONENT	Credit Hours
CYS 503 Communications and Network Security	
CYS 541 Ethics, Legal and Compliance Issues	
CYS 526 Cyber Attacks and Defenses	
CYS 522 Advanced Networking	
CYS 575 IT Risk Analysis and Management	
CYS 585 Digital Crime Prevention and Investigation	
BUS 530 Project Management Principles and Applications	
CYS 595 Capstone in Cybersecurity[3]	
TOTAL GRADUATE CREDIT	**27**

GRADUATE STATUS: Students achieve graduate status upon completion of the bridge component and all other undergraduate requirements.

TOTAL DEGREE CREDITS **144–147**

① Total will vary depending on concentration selected and selection of graduate courses used to apply to BSIT concentration requirement.

② The core requirements should be completed in the order listed.

③ **IT 495 Integrated Technology Assessment** and **CYS 595 Capstone in Cybersecurity** are the required capstone courses and must be taken through Excelsior College. They cannot be transferred in.

Bachelor of Science in Nuclear Engineering Technology ①

The Bachelor of Science in Nuclear Engineering Technology program focuses on preparing students for technical positions in the nuclear industry. The BSNET program is designed specifically to advance job skills by ensuring a breadth of knowledge in nuclear engineering technology concepts. The program emphasizes the practical applications of engineering technology principles related to the nuclear industry. The program provides the students with knowledge in areas such as reactor operations, health physics, quality assurance, chemistry, and instrumentation and control related to the nuclear engineering technology field. The goal of the BSNET program is to foster the ability of students to apply what they have learned within the degree program to the real-world contexts of the nuclear industry.

Student progress within the degree program is based on the demonstration of proficiency, and is attainable through multiple, flexible pathways—offering course-based, prior learning assessment, and credit aggregation pathways to degree completion. In this way, the program is customizable and tailored to each student's need and learning style.

Program Educational Objectives

As an Excelsior College bachelor's level nuclear engineering technology graduate, within a few years of graduation, you are expected to:

1. Apply general and discipline-specific concepts and methodologies to identify, analyze, and solve technical problems in the nuclear discipline.
2. Demonstrate an individual desire and commitment to remain technically current with, and adaptive to, changing technologies through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional/industrial environment.
4. Communicate effectively in a professional/industrial environment.
5. Perform ethically and professionally in business, industry, and society.
6. Attain increasing levels of responsibility and leadership in the nuclear field.

Program (Student) Outcomes

Upon successful completion of the Excelsior College Bachelor of Science in Nuclear Engineering Technology program, the graduate will be able to:

1. Select and apply appropriate knowledge, techniques, skills, and modern tools of the natural sciences, including physics, chemistry, thermodynamics, atomic physics, and nuclear physics to solving problems in nuclear engineering technology areas.
2. Demonstrate the ability to understand, measure, and provide quantitative expressions for natural phenomena, including observation, standard tests, experimentation, and accurate measurement.
3. Select and apply appropriate knowledge, techniques, skills, and modern tools of algebra, trigonometry, and calculus to solving problems in nuclear engineering technology areas.
4. Make oral technical presentations in Standard English using graphics and language appropriate to the audience.
5. Demonstrate proficiency in the written and graphical communication of technical information supported by appropriate technical references using Standard English.
6. Demonstrate a working knowledge of computer applications or documentation of the use of one or more computer software packages for technical problem solving appropriate to the nuclear engineering technology discipline.
7. Demonstrate technical competency in the electrical theory, nuclear and engineering materials, reactor core fundamentals, power plant systems, heat transfer, fluids, health

① *Specialized Accreditation/Recognition: The Bachelor of Science in Nuclear Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202, 410-347-7700. ABET is a specialized accrediting agency recognized by the Council for Higher Education Accreditation (CHEA).*

physics/radiation protection, and radiation measurement.

8. Demonstrate comprehension of currently applicable rules and regulations in the areas of radiation protection, operations, maintenance, quality control, quality assurance, and safety.
9. Integrate and apply knowledge of the functional areas of nuclear engineering technology to the safe operation and maintenance of nuclear systems.
10. Design systems, components, or processes while demonstrating a commitment to quality, timeliness, and continuous improvement of the design and operation of nuclear systems.
11. Participate effectively as a member or a leader of technical teams
12. Demonstrate an understanding of and commitment to professional, ethical, and social responsibilities, including the effects of culture, diversity, and interpersonal relations.
13. Demonstrate a commitment and ability to engage in self-directed continuing professional development.

Degree Requirements

124 credits

The Bachelor of Science in Nuclear Engineering Technology requires 124 semester hours of credit distributed as follows:

- **60 credits** minimum required in the arts and sciences component
- **48 credits** minimum required in the nuclear engineering technology component
- **16 credits** required in the free elective component (to include information literacy)

Arts and Sciences Component (60 credits)

This distribution requirement ensures basic college-level competence in three arts and sciences areas: humanities, social sciences/history, and natural sciences/mathematics.

A. Humanities and Social Sciences

At least 24 credits must be earned in the humanities and social sciences and are distributed as follows:

1. **Communications**
   At least 9 credits must be earned in communications courses, including 6 credits to satisfy the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 Composition II, ENG 201 Writing for the Professions].** Courses in speech, written composition, technical writing, or similar courses in either written or oral communications are applicable toward the communications requirement.
2. **Ethics**
   At least 3 credits must be earned in ethics **[BUS 323 Business Ethics].**
3. **Humanities Elective**
   At least 3 credits must be earned in a humanities elective. *Humanities subjects include, but are not limited to,* advanced writing, literature, foreign languages, religion, philosophy, art, and music.
4. **Social Sciences/History**
   At least 9 credits must be earned in such subjects as sociology, economics, history, psychology, and anthropology.

B. Mathematics and Natural Sciences

Students are required to complete at least 26 semester hours of credit in the combined areas of mathematics and natural sciences, with at least 12 credit hours in math at the level of college algebra or above, including Calculus I and II **[TECH 201–202 Foundations of Technology Problem Solving I and II].**

There is no minimum credit hour requirement for natural sciences. Rather, students must complete specific required courses in the natural sciences:

- Chemistry (with lab)
  [CHE 101L General Chemistry Laboratory I]
- Physics I and II (with at least one physics lab)
  [PHYS 201–203 Physics I and II, PHYS 202–204 Physics Laboratory I and II]
- Atomic Physics
  [NUC 240 Atomic and Nuclear Physics]
  (also satisfies Nuclear Physics)

- Nuclear Physics
  [NUC 240 Atomic and Nuclear Physics]
  (also satisfies Atomic Physics)
- Thermodynamics
  [NUC 245 Thermodynamics]

3. Arts and Sciences Electives

The remaining 10 credits needed to satisfy the 60-credit requirement may be earned in any arts and sciences subjects.

Nuclear Engineering Technology Component (48 credits)

A. Core Requirement

The nuclear engineering technology component ensures basic college-level competence in the major functional areas of nuclear engineering technology. A grade of C or better is required for applicable credit.

The following core requirements must be completed:

- Electrical Theory
  [ELEC 152–153 Circuit Theory I and II] (Both courses must be completed.)
  OR
  [NUC 255 Electrical Theory]
- Computer Applications
  [IT 221 Introduction to Computers, TECH 221 Business Communications and Information Systems]
- Fundamentals of Reactor Safety
  [NUC 271 Fundamentals of Reactor Safety]
- Material Science
  [NUC 323 Material Science]
- Health Physics/Radiation Protection
  [NUC 210 Health Physics and Radiation Protection]
- Radiation Measurement Lab
  [NUC 211 Radiation Measurement Lab]
- Plant Systems Overview
  [NUC 350 Plant Systems Overview]
- Reactor Core Fundamentals
  [NUC 330 Reactor Core Fundamentals]
- Fluids
  [NUC 250 Introduction to Heat Transfer and Fluid Mechanics] *(Also satisfies Heat Transfer)*
- Heat Transfer
  [NUC 250 Introduction to Heat Transfer and Fluid Mechanics] *(Also satisfies Fluids)*
- Integrated Technology Assessment (capstone)
  [NUC 495 Integrated Technology Assessment — The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.]

B. Nuclear Engineering Technology Electives

You may apply electives from nuclear and related subject areas toward completion of the 48-credit requirement of the technology component. Sample titles include Instruments and Controls, Reactor Safety, Quality Assurance Regulations, Radiation Biology, Radiochemistry, Radiation Waste Processing, and others, as approved. Be sure to contact your academic advisor for approval before registering for courses.

C. Laboratory Requirement

Your bachelor's degree program must include a minimum of five laboratories. Three of these must be in physics, chemistry, and radiation measurement. The remaining two may be in the natural sciences or in nuclear engineering technology subjects.

D. Level Requirement

Of the 48 credits required for the nuclear engineering technology component, at least 16 must be upper level. A course is generally considered upper level if it is offered at the junior or senior level and is clearly not introductory in content. Courses taken at two-year institutions cannot be used to satisfy upper-level requirements. Upper-level credit is not given for Navy Enlisted Ratings or military service school courses with the exception of those offered by the Navy Nuclear Power School. The acceptance of courses toward the upper-level requirement is subject to faculty review.

A grade of "C" or higher is needed for all core requirements.

Free Elective Component (16 credits)

The nuclear engineering technology degree program is designed to allow room for up to 16 credits from free electives. This component must include the 1-credit information literacy requirement **[INL 102 Information Literacy]**. See page 82 or visit our website for more information about information literacy.

You may earn the remaining 15 credits in any field of college study, including professional or technical subjects and the arts and sciences. You may apply a maximum of 2 credits in physical education activity courses to the degree.

Degree-Specific Policies

Policies and procedures that apply specifically to the Bachelor of Science in Nuclear Engineering Technology follow. Refer to your Student Policy Handbook for academic and administrative policies that apply to all students and programs.

Course Materials Policy

The faculty requires that students submit course materials for all math, science, and technology component courses completed outside of Excelsior College. Course materials should include graded homework, quizzes, tests, lab reports, papers, and other student work as appropriate. Course outlines/syllabi should be included as well. This material is required for curriculum review and accreditation purposes. Once we have received your transcript indicating completion of a course and the corresponding student work materials, credit for the course will be added to your Status Report.

Time Limit on Coursework

Because of the rapidly changing nature of technology, Excelsior College has established a time-related restriction on the application of credit from previous computer- and electronics-related coursework, with the exception of Circuit Theory I and Circuit Theory II. To meet this requirement, relevant coursework must have been completed more recently than 10 years prior to enrollment in Excelsior College. To apply course credit from the nuclear materials area, you must have completed relevant coursework more recently than January 1970.

Credit for the National Registry of Radiation Protection Technologists (NRRPT)①

The American Council on Education (ACE) College Credit Recommendation Service recommends the awarding of a total of 30 college credits for members accepted to the National Registry of Radiation Protection Technologists (NRRPT) from November 1978 to the present. Excelsior College recognizes the credit recommendations of the ACE College Credit Recommendation Service.

The Excelsior College faculty has reviewed the ACE credit recommendation toward the nuclear engineering technology requirement and will award 8 of the 30 credits toward the upper level in health physics/radiation protection. The remaining 22 credits will be applied toward the nuclear engineering technology electives. Credit will be awarded upon receipt of official documentation from the NRRPT.

Credits from Training Programs Completed at United States Nuclear Power Plants That Are Accredited by the National Academy for Nuclear Training (NANT)①

The Excelsior College Nuclear Engineering Technology Faculty evaluated several of the standardized training programs at nuclear power facilities that are accredited by NANT. The 10 utility training programs that have been evaluated for college credit are:

- Shift Technical Advisor
- Senior Reactor Operator
- Reactor Operator
- Non-licensed Operator
- Engineering Support Personnel
- Radiation Protection Technician
- Chemistry Technician
- Electrical Maintenance Technician
- Instrumentation and Controls Technician
- Mechanical Maintenance Technician

① *Students may earn between 24 and 52 credits, depending on the utility training program completed. Contact a technology academic advisor for details.*

Credits from Training Programs Completed at the United States Navy Nuclear Power School and Prototype[1]

The Excelsior College Nuclear Engineering Technology Faculty evaluated several of the standardized training programs at the United States Navy Nuclear Power School and Prototype, and Excelsior College recognizes the credit recommendations of the ACE College Credit Recommendation Service. The standardized training programs that have been evaluated for college credit are:

Nuclear Field 'A' School

MM January 2007–present;
EM and **ET** January 2004–present
12–27 credits

Navy Nuclear Power School

January 2007–present
32–34 credits

Prototype Training

January 2007–present
15 credits

[1] *Graduates of the United States Navy Nuclear Power School and Prototype may earn between 59 and 76 credits, depending on the specific training program completed. Contact a technology academic advisor for details.*

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Bachelor of Science in **Nuclear Engineering Technology**

BS
124 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT	Credit Hours
Communications *Must include* 6 credits *in the Written English Requirement*	9
Ethics	3
Humanities	3
Social Sciences/History	9
Mathematics and Natural Sciences ■ Mathematics 12 credits *at the level of College Algebra or above including* **Calculus I** *and* **II** ■ Natural Sciences **Physics I** *and* **II** *with at least one physics lab,* **Chemistry** *with lab* **Atomic Physics, Nuclear Physics, Thermodynamics**	26
Arts and Sciences Electives	10
TOTAL ARTS AND SCIENCES COMPONENT	60

NUCLEAR ENGINEERING TECHNOLOGY COMPONENT

Credit Hours

Electrical Theory
Computer Applications
Fundamentals of Reactor Safety
Material Science
Health Physics/Radiation Protection
Radiation Measurement Lab

Plant Systems Overview
Reactor Core Fundamentals
Fluids
Heat Transfer
NUC 495 Integrated Technology Assessment (capstone)①

NUCLEAR TECHNOLOGY ELECTIVES

Five labs are required
- chemistry
- radiation measurement lab
- physics
- 2 technology or natural science labs

TOTAL TECHNOLOGY COMPONENT **16 CREDITS** MUST BE UPPER LEVEL	48

FREE ELECTIVE COMPONENT	Credit Hours
Any Collegiate-Level Study *May include any excess credit in Arts and Sciences, Business, or any applied professional area*	15
Information Literacy Requirement	1
TOTAL FREE ELECTIVE COMPONENT	16
TOTAL DEGREE CREDITS	124

① **NUC 495 Integrated Technology Assessment** is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.

Bachelor of Science in Nuclear Engineering Technology with a Dual Degree Option for an MBA[1]

This dual degree track program allows students to complete the bachelor's degree component to meet Bachelor of Science in Nuclear Engineering Technology requirements and then move forward to completion of the MBA. The program is framed to increase academic understanding of nuclear engineering technology topics, improve career prospects, and expand individual horizons. Students can capitalize upon their existing work-based knowledge while engaging in a process of reflective learning. This program will equip students to further their careers through enhanced knowledge, understanding, and application to the nuclear engineering and business environments.

A 6-credit bridge component consisting of subjects in business communications and global business environment completes the bachelor's degree with the student then achieving graduate status. The student is then eligible to move on to complete the graduate course component consisting of subjects such as accounting for managers, human resources management, operations management, leadership, and change management.

Program Educational Outcomes

As an Excelsior College baccalaureate-level nuclear engineering technology graduate you will be able to:

1. Apply general and discipline-specific concepts and methodologies to identify, analyze, and solve technical problems in the nuclear discipline.
2. Demonstrate an individual desire and commitment to remain technically current with, and adaptive to changing technologies through continuous learning and self-improvement.
3. Demonstrate independent thinking, function effectively in team-oriented settings, and maintain a high level of performance in a professional/industrial environment.
4. Communicate effectively in a professional/industrial environment.
5. Perform ethically and professionally in business, industry, and society.
6. Attain increasing levels of responsibility and leadership in the nuclear field.

[1] *Specialized Accreditation/Recognition: The Bachelor of Science in Nuclear Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202, 410-347-7700. ABET is a specialized accrediting agency recognized by the Council for Higher Education Accreditation (CHEA).*

Program (Student) Outcomes

We expect the graduate of an Excelsior College baccalaureate program in nuclear engineering technology will be able to:

1. Select and apply appropriate knowledge, techniques, skills, and modern tools of the natural sciences, including physics, chemistry, thermodynamics, atomic physics, and nuclear physics to solving problems in nuclear engineering technology areas.
2. Demonstrate the ability to understand, measure, and provide quantitative expressions for natural phenomena, including observation, standard tests, experimentation, and accurate measurement.
3. Select and apply appropriate knowledge, techniques, skills, and modern tools of algebra, trigonometry, and calculus to solving problems in nuclear engineering technology areas.
4. Make oral technical presentations in Standard English using graphics and language appropriate to the audience.
5. Demonstrate proficiency in the written and graphical communication of technical information supported by appropriate technical references using Standard English.
6. Demonstrate a working knowledge of computer applications or documentation of the use of one or more computer software packages for

technical problem solving appropriate to the nuclear engineering technology discipline.

7. Demonstrate technical competency in the electrical theory, nuclear and engineering materials, reactor core fundamentals, power plant systems, heat transfer, fluids, health physics/radiation protection, and radiation measurement.
8. Demonstrate comprehension of currently applicable rules and regulations in the areas of radiation protection, operations, maintenance, quality control, quality assurance, and safety.
9. Integrate and apply knowledge of the functional areas of nuclear engineering technology to the safe operation and maintenance of nuclear systems.
10. Design systems, components, or processes while demonstrating a commitment to quality, timeliness, and continuous improvement of the design and operation of nuclear systems.
11. Participate effectively as a member or a leader of technical teams
12. Demonstrate an understanding of and commitment to professional, ethical, and social responsibilities, including the effects of culture, diversity, and interpersonal relations.
13. Demonstrate a commitment and ability to engage in self-directed continuing professional development.

Upon successful completion of the Excelsior College MBA program, the graduate will be able to:

1. Analyze real-world business problems and generate recommendations for action.
2. Integrate accounting, marketing, finance, management, and economics into a strategic business analysis.
3. Assess the impact of the global business environment on business situations.
4. Apply quantitative methods to analysis of business situations.
5. Perform ethically and professionally in business and society.
6. Communicate effectively to relevant audiences in written materials.
7. Collaborate in teams to produce required deliverables.
8. Apply Project Management skills to business situations.
9. Assess the ethical implications of actions for diverse stakeholders.

Dual Degree Track Requirements

Arts and Sciences Component (60 credits)

This distribution requirement ensures basic college-level competence in three arts and sciences areas: humanities, social sciences/history, and natural sciences/mathematics.

A. Humanities and Social Sciences

1. At least 24 credits must be earned in the humanities and social sciences and are distributed as follows:
2. **Communications**
   At least 9 credits must be earned in communications courses, including 6 credits to satisfy the written English requirement **[ENGx111 English Composition, ENG 101 English Composition, ENG 102 Composition II, ENG 201 Writing for the Professions].** Courses in speech, written composition, technical writing, or similar courses in either written or oral communications are applicable toward the communications requirement.
3. **Ethics**
   At least 3 credits must be earned in ethics **[BUS 323 Business Ethics].**
4. **Humanities Elective**
   At least 3 credits must be earned in a humanities elective. *Humanities subjects include, but are not limited to,* advanced writing, literature, foreign languages, religion, philosophy, art, and music.
5. **Social Sciences/History**
   A minimum of 3 credits must be earned in Economics at the upper level with a minimum grade of B, 3 credits in Organizational Behavior at the upper level, with a minimum grade of B, and 3 credits must be earned in such subjects as sociology, economics, history, psychology, and anthropology.

B. Mathematics and Natural Sciences

Students are required to complete at least 26 semester hours of credit in the combined areas of mathematics and natural sciences, with at least 12 credit hours in math at the level of college algebra or above, including Calculus I and II **[TECH 201–202 Foundations of Technology Problem Solving I and II].**

There is no minimum credit hour requirement for natural sciences. Rather, students must complete specific required courses in the natural sciences:

- Chemistry (with lab)
  [CHE 101L General Chemistry Laboratory I]
- Physics I and II (with at least one physics lab)
  [PHYS 201–203 Physics I and II, PHYS 202–204 Physics Laboratory I and II]
- Atomic Physics
  [NUC 240 Atomic and Nuclear Physics]
  (also satisfies Nuclear Physics)
- Nuclear Physics
  [NUC 240 Atomic and Nuclear Physics]
  (also satisfies Atomic Physics)
- Thermodynamics
  [NUC 245 Thermodynamics]

C. Arts and Sciences Electives

The 10 credits in Arts and Sciences Electives must include **BUS 430 Quantitative Methods** and any arts and sciences subjects.

Nuclear Engineering Technology Component (48 credits)

A. Core Requirement

The nuclear engineering technology component ensures basic college-level competence in the major functional areas of nuclear engineering technology. A grade of C or better is required for applicable credit.

The following core requirements must be completed:

- Electrical Theory
  [ELEC 152–153 Circuit Theory I and II]
  Both courses must be completed.
  OR
  [NUC 255 Electrical Theory]
- Computer Applications
  [IT 221 Introduction to Computers]
  [TECH 221 Business Communications and Information Systems]
- Fundamentals of Reactor Safety
  [NUC 271 Fundamentals of Reactor Safety]
- Material Science
  [NUC 323 Material Science]
- Health Physics/Radiation Protection
  [NUC 210 Health Physics and Radiation Protection]
- Radiation Measurement Lab
  [NUC 211 Radiation Measurement Lab]
- Plant Systems Overview
  [NUC 350 Plant Systems Overview]
- Reactor Core Fundamentals
  [NUC 330 Reactor Core Fundamentals]
- Fluids
  [NUC 250 Introduction to Heat Transfer and Fluid Mechanics] *(Also satisfies Heat Transfer)*
- Heat Transfer
  [NUC 250 Introduction to Heat Transfer and Fluid Mechanics] *(Also satisfies Fluids)*
- Integrated Technology Assessment (capstone)
  [NUC 495 Integrated Technology Assessment —
  The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.]

B. Nuclear Engineering Technology Electives

You may apply electives from nuclear and related subject areas toward completion of the 48-credit requirement of the technology component. Sample titles include Instruments and Controls, Reactor Safety, Quality Assurance Regulations, Radiation Biology, Radiochemistry, Radiation Waste Processing, and others, as approved. Be sure to contact your academic advisor for approval before registering for courses.

C. Laboratory Requirement

Your bachelor's degree program must include a minimum of five laboratories. Three of these must be in physics, chemistry, and radiation measurement. The remaining two may be in the natural sciences or in nuclear engineering technology subjects.

D. Level Requirement

Of the 48 credits required for the nuclear engineering technology component, at least 16 must be upper level. A course is generally considered upper level if it is offered at the junior or senior level and is clearly not introductory in content. Courses taken at two-year institutions cannot be used to satisfy upper-level requirements. Upper-level credit is not given for Navy Enlisted Ratings or military service school courses with the exception of those offered by the Navy Nuclear Power School. The acceptance of courses toward the upper-level requirement is subject to faculty review.

Free Elective Component (10 credits)

The nuclear engineering technology degree program is designed to allow room for up to 10 credits from free electives. This component includes the 1-credit information literacy requirement **[INL 102 Information Literacy].** See page 82 or visit our website for more information about information literacy.

You may earn the remaining 10 credits in any field of college study, including professional or technical subjects and the arts and sciences. You may apply a maximum of 2 credits in physical education activity courses to the degree.

Degree-Specific Policies

Policies and procedures that apply specifically to the Bachelor of Science in Nuclear Engineering Technology follow. Refer to your Student Policy Handbook for academic and administrative policies that apply to all students and programs.

Course Materials Policy

The faculty requires that students submit course materials for all math, science, and technology component courses completed outside of Excelsior College. Course materials should include graded homework, quizzes, tests, lab reports, papers, and other student work as appropriate. Course outlines/syllabi should be included as well. This material is required for curriculum review and accreditation purposes. Once we have received your transcript indicating completion of a course and the corresponding student work materials, credit for the course will be added to your Status Report.

Time Limit on Coursework

Because of the rapidly changing nature of technology, Excelsior College has established a time-related restriction on the application of credit from previous computer- and electronics-related coursework, with the exception of Circuit Theory I and Circuit Theory II. To meet this requirement, relevant coursework must have been completed more recently than 10 years prior to enrollment in Excelsior College. To apply course credit from the nuclear materials area, you must have completed relevant coursework more recently than January 1970.

Credit for the National Registry of Radiation Protection Technologists (NRRPT)[①]

The American Council on Education (ACE) College Credit Recommendation Service recommends the awarding of a total of 30 college credits for members accepted to the National Registry of Radiation Protection Technologists (NRRPT) from November 1978 to the present. Excelsior College recognizes the credit recommendations of the ACE College Credit Recommendation Service.

The Excelsior College faculty has reviewed the ACE credit recommendation toward the nuclear engineering technology requirement and will award 8 of the 30 credits toward the upper level in health physics/radiation protection. The remaining 22 credits will be applied toward the nuclear engineering technology electives. Credit will be awarded upon receipt of official documentation from the NRRPT.

① *Students may earn between 24 and 52 credits, depending on the utility training program completed. Contact a technology academic advisor for details.*

Credits from Training Programs Completed at United States Nuclear Power Plants That Are Accredited by the National Academy for Nuclear Training (NANT)①

The Excelsior College Nuclear Engineering Technology Faculty evaluated several of the standardized training programs at nuclear power facilities that are accredited by NANT. The 10 utility training programs that have been evaluated for college credit are:

- Shift Technical Advisor
- Senior Reactor Operator
- Reactor Operator
- Non-licensed Operator
- Engineering Support Personnel
- Radiation Protection Technician
- Chemistry Technician
- Electrical Maintenance Technician
- Instrumentation and Controls Technician
- Mechanical Maintenance Technician

Credits from Training Programs Completed at the United States Navy Nuclear Power School and Prototype②

The Excelsior College Nuclear Engineering Technology Faculty evaluated several of the standardized training programs at the United States Navy Nuclear Power School and Prototype, and Excelsior College recognizes the credit recommendations of the ACE College Credit Recommendation Service. The standardized training programs that have been evaluated for college credit are:

Nuclear Field 'A' School

MM January 2007–present;
EM and **ET** January 2004–present
12–27 credits

Navy Nuclear Power School

January 2007–present
32–34 credits

Prototype Training

January 2007–present
15 credits

Bridge Component

- Business Communications
  [BUS 501 Business Communication]
- Global Business Environment
  [BUS 502 Global Business Environment]

Graduate Component

- Accounting for Managers
  [BUS 500 Accounting for Managers]
- Human Resources Management
  [BUS 504 Human Resource Management]
- Managerial Finance
  [BUS 505 Finance]
- Leadership
  [BUS 552 Leadership]
- Change Management
  [BUS 554 Change Management]
- Information Technology
  [BUS 570 Information Technology]
- Strategy and Policy (capstone)
  [BUS 511 Strategy and Policy] (capstone)
  The capstone course is required and must be taken through Excelsior College.

① *Students may earn between 24 and 52 credits, depending on the utility training program completed. Contact a technology academic advisor for details.*

② *Graduates of the United States Navy Nuclear Power School and Prototype may earn between 59 and 76 credits, depending on the specific training program completed. Contact a technology academic advisor for details.*

Bachelor of Science in **Nuclear Engineering Technology** to Master of Business Administration—**Dual Degree Track**

BSNET to MBA

154 Total Degree Credits Required

ARTS AND SCIENCES COMPONENT

	Credit Hours
Communications *Must include 6 credits to satisfy Written English Requirement*	9
Ethics **BUS 323 Business Ethics**①	3
Humanities	3
Social Sciences/History **BUS 311 Organizational Behavior**① **TECH 330 Economic Analysis for Technologists**① **OR ECON 360 International Economics**①	9
Mathematics and Natural Sciences ■ Mathematics *At least 12 credits at the level of College Algebra and above to include Calculus I and II* ■ Natural Sciences *Physics I and II with at least one Physics lab, Chemistry with lab, Atomic Physics, Nuclear Physics, and Thermodynamics*	26
Arts and Sciences Electives **BUS 430 Quantitative Methods**① *Statistics is a pre requisite for* **BUS 430**	10
TOTAL ARTS AND SCIENCES COMPONENT	**60**

NUCLEAR ENGINEERING TECHNOLOGY COMPONENT

	Credit Hours
Electrical Theory Computer Applications Fundamentals of Reactor Safety Material Science Health Physics/Radiation Protection Radiation Measurement Lab Plant Systems Overview Reactor Core Fundamentals Fluids Heat Transfer **NUC 495 Integrated Technology Assessment (capstone)**②	

NUCLEAR ENGINEERING TECHNOLOGY ELECTIVES

NOTE: Five labs are required:

- **chemistry**
- **physics**
- **radiation measurement lab**
- **2 technology or natural science labs**

TOTAL NUCLEAR ENGINEERING TECHNOLOGY COMPONENT **16 CREDITS** MUST BE UPPER LEVEL	**48**

FREE ELECTIVE COMPONENT

	Credit Hours
Any Collegiate-Level Study *May include any excess credit in Arts and Sciences, Business, or any applied professional area* **BUS 351 Marketing Concepts and Applications**①	9
Information Literacy	1
TOTAL FREE ELECTIVE COMPONENT	**10**

BRIDGE COMPONENT

	Credit Hours
Business Communication	3
Global Business Environment	3
TOTAL BRIDGE CREDIT	**6**

GRADUATE COURSE COMPONENT

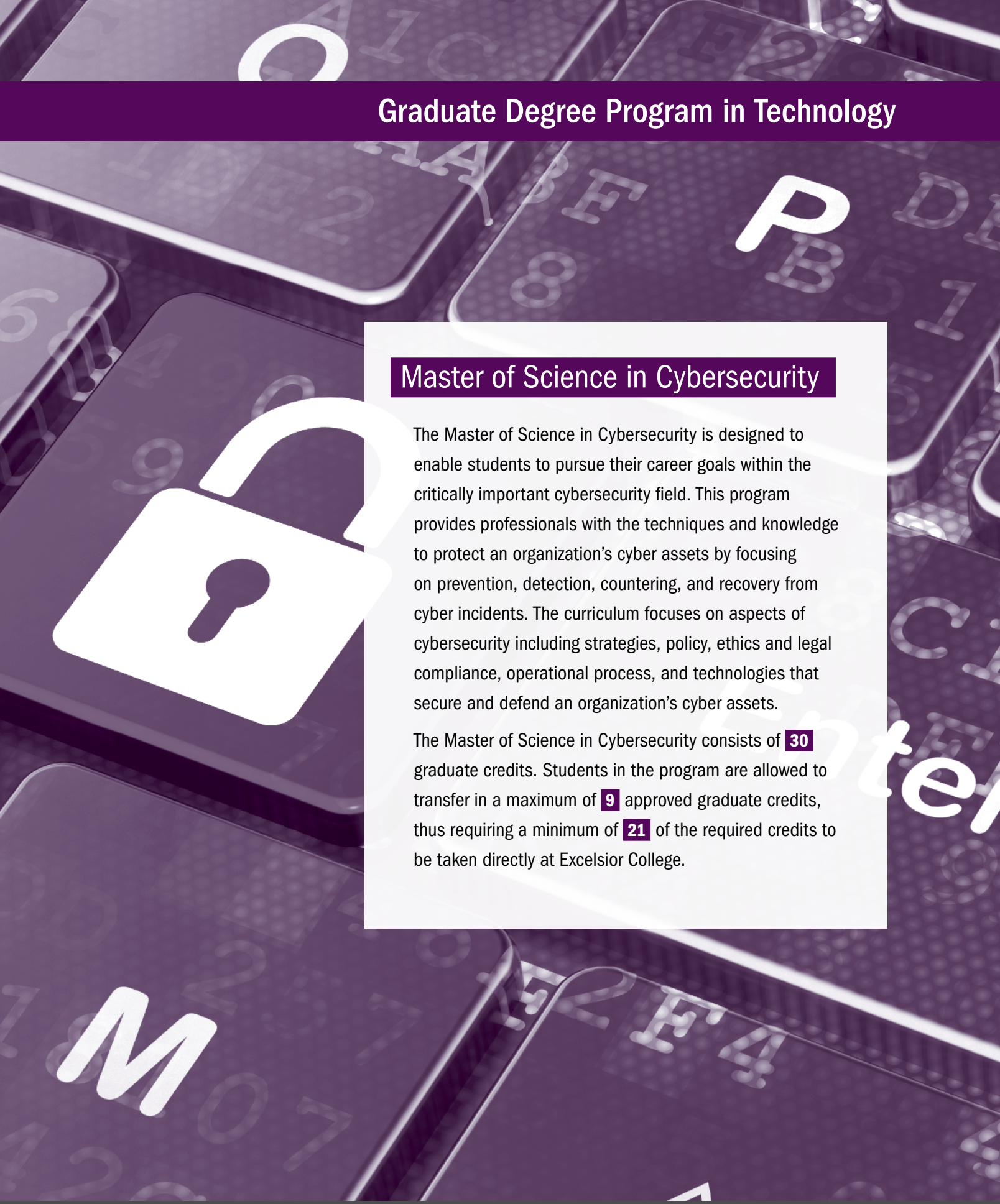
	Credit Hours
BUS 500 Accounting for Managers	
BUS 504 Human Resources Management	
BUS 505 Managerial Finance	
BUS 570 Information Technology	
BUS 552 Leadership	
BUS 554 Change Management	
BUS 511 Strategy and Policy (capstone)②	
Electives (9 elective or concentration course credits)	
TOTAL GRADUATE CREDIT	**30**

GRADUATE STATUS: Students achieve graduate status upon completion of the bridge component and all other undergraduate requirements.

TOTAL DEGREE CREDITS **154**

① Must be taken at the upper level and completed with a grade of B or above within the past 10 years.

② **NUC 495 and BUS 511** are the required capstone courses and must be taken through Excelsior College. They cannot be transferred in.



Master of Science in Cybersecurity

The Master of Science in Cybersecurity is designed to enable students to pursue their career goals within the critically important cybersecurity field. This program provides professionals with the techniques and knowledge to protect an organization's cyber assets by focusing on prevention, detection, countering, and recovery from cyber incidents. The curriculum focuses on aspects of cybersecurity including strategies, policy, ethics and legal compliance, operational process, and technologies that secure and defend an organization's cyber assets.

The Master of Science in Cybersecurity consists of **30** graduate credits. Students in the program are allowed to transfer in a maximum of **9** approved graduate credits, thus requiring a minimum of **21** of the required credits to be taken directly at Excelsior College.

The Master of Science in Cybersecurity prepares professionals with an interdisciplinary perspective and cutting-edge knowledge in techniques and strategies to protect critical information in organizations. The curriculum focuses on aspects of cybersecurity such as data communication, ethics, legal and compliance issues, operational process, ethical hacking, software security, project management, risk management, and technologies that secure and defend an organization's cyber assets. This program is suited for professionals who aim to pursue senior-level technical or managerial positions in cybersecurity such as Information Security Officer, Cybersecurity Manager, Senior Security Analyst, Security and Compliance Manager, Director IT Security and Governance, Digital Crime Investigator, or Penetration Tester.

Program Outcomes

Upon successful completion of the Excelsior College Master of Science in Cybersecurity program, the graduate will be able to:

1. Continuously monitor, maintain, and enhance the protection of enterprise-wide information assets through effective industry accepted information management and risk management techniques.
2. Implement an Incident Response team that legally, ethically, and efficiently responds to cyber incidents.
3. Detect, analyze, and respond to cyber attacks on networks and computer systems.
4. Conduct risk and vulnerability assessments of existing and proposed information systems.
5. Develop and implement organizational cybersecurity policies and procedures.
6. Utilize the best sources of information available related to cyber security issues, threats, and recovery.

Degree Requirements

30 credits

The Master of Science in Cybersecurity program requires a minimum of 30 graduate-level credits, with nine required courses. Students in this program are allowed to transfer in a maximum of 9 approved, graduate-level credits, thus, requiring a minimum of 21 credits to be taken directly at Excelsior College.

Courses more than 10 years old will not be considered for credit.

Grade Point Average

Excelsior College requires an overall 3.0 cumulative GPA for completion of the Master of Science in Cybersecurity. No more than two Excelsior College courses with C grades can be applied toward the degree; these C grades must be offset by A grades in other Excelsior College courses. Refer to the **Student Policy Handbook** for complete information.

Maximum Time to Complete the Master of Science in Cybersecurity

Students pursuing the Master of Science in Cybersecurity have a maximum of 5 years to complete the program from the date of enrollment.

Required Subjects

- Digital Crime Prevention and Investigation (4 credits)
  [CYS 585 Digital Crime Prevention and Investigation]
- Communications and Network Security (4 credits)
  [CYS 503 Communications and Network Security]
- Ethics, Legal, and Compliance Issues in Cybersecurity (3 credits)
  [CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity]
- Information Assurance (3 credits)
  [CYS 560 Information Assurance]
- IT Risk Analysis and Management (3 credits)
  [CYS 575 IT Risk Analysis and Management]

- Cyber Attacks and Defenses (3 credits)
  [CYS 526 Cyber Attacks and Defenses]
- Advanced Networking
  [CYS 522 Advanced Networking]
- Project Management (3 credits)
  [BUS 530 Project Management Principles and Application]
- Capstone Project in Cybersecurity (4 credits)
  [CYS 595 Capstone Project in Cybersecurity — The capstone course is required and must be taken through Excelsior College. It cannot be transferred in.]

A course in computer networking is required as a prerequisite in the program. **IT 350 Business Data Communications** can be completed to meet the requirements. Professional Certifications like Network +, CCNA can be used to waive the computer networking prerequisite requirement.

Master of Science in **Cybersecurity**

MS
30 Total Degree Credits Required

REQUIRED SUBJECTS	Credit Hours
Digital Crime Prevention and Investigation	4
Communications and Network Security	4
Ethics, Legal, and Compliance Issues in Cybersecurity	3
Information Assurance	3
IT Risk Analysis and Management	3
Cyber Attacks and Defenses	3
Advanced Networking	3
Project Management	3
Capstone Project in Cybersecurity	4
TOTAL DEGREE CREDITS	**30**

Certificates in Technology

Certificate programs provide the opportunity to gain expertise in a particular field of study by concentrating on core elements within an accelerated framework. The career benefits from obtaining a certificate include, but are not limited to, promotion, salary increases, employee recognition, or simply personal achievement.

Our certificate programs can be completed in a relatively short period of time, therefore, for some, this approach may prove more practical and time efficient than a full degree program. Certificate programs are also a great way to help determine whether going back to school is right for you, because you are not committing to an entire degree program.

Credits earned for the undergraduate Cybersecurity certificate may transfer into the Bachelor of Science in Business or Information Technology programs from the School of Business & Technology, or the Bachelor of Science with a major in Criminal Justice from the School of Public Service.

Credits earned for the graduate Cybersecurity Management certificate may transfer into the MBA or Master of Science in Cybersecurity from the School of Business & Technology, or the Master of Science in Criminal Justice from the School of Public Service.

Contact your academic advisor for more information.

Undergraduate Certificate in Cybersecurity

The undergraduate certificate in Cybersecurity focuses on providing learners with an overview of the basic principles, techniques, policies, and operational procedures in securing information assets and detecting cybersecurity attacks. The undergraduate certificate in Cybersecurity will prepare learners to pursue entry-level careers in information security technical support, incidence response, and digital crime investigation.

Program Outcomes

The undergraduate certificate in Cybersecurity is cross-listed between the School of Business & Technology and the School of Public Service. This 16-credit undergraduate certificate comprises introductory courses in cybersecurity technology and fundamental knowledge in cyber crime investigation.

All students will be required to complete the capstone course, **CYS 460,** at Excelsior College. Approved courses from other institutions may be accepted in transfer for the remaining requirements.

Upon successful completion of the Excelsior College undergraduate certificate in Cybersecurity, the student will be able to:

1. Explain incident response handling, incident coordination, and ethical and legal issues.
2. Explain the process of building and coordinating a Security Incident Response team and a Product Security team.
3. Assess security risk and vulnerability of existing and proposed information systems.
4. Investigate cyber crime and apply best practices for managing attack situations with a Security Incident Response team.
5. Explain how to build relationships with other Incident Response teams, organizations, and law enforcement to improve incident response effectiveness.

Course Requirements

- **CYS 245 Introduction to Cybersecurity** (1 credit)
- **CYS 300 Computer System Security Fundamentals** (3 credits)
- **CYS 345 Cybersecurity Defense in Depth** (3 credits)
- **CYS/CJ 475 Large-Scale Cyber Crime and Terrorism** (3 credits)
- **CYS/CJ 387 White Collar Crime** (3 credits)
- **CYS 460 (capstone) Cybersecurity Investigations and Case Studies** (3 credits)[①]

Total: 16 credits

① **CYS 460 Cybersecurity Investigations and Case Studies** *is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.*

Graduate Certificate in Cybersecurity Management

The graduate certificate in cybersecurity management provides professionals with the techniques and strategies to manage cybersecurity threats at enterprise, nationa,l and global levels. The graduate certificate program in cybersecurity management prepares learners to pursue careers in security compliance, legal, and risk management in positions such as security compliance officer, security risk analyst, security training manager, or IT security coordinator.

Program Outcomes

The 16-credit graduate certificate in Cybersecurity Management is a graduate-level certificate composed of five graduate-level courses. This certificate will serve as a lead-in to the MBA concentration in Cybersecurity Management or the Master of Science in Cybersecurity.

Depending on content, students may transfer up to 8 credits into the certificate program. All students must complete the capstone course, **CYS 590,** at Excelsior College.

Upon successful completion of the graduate certificate in Cybersecurity Management, the student will be able to:

1. Apply effective information security techniques to monitor, maintain, and enhance the protection of enterprise-wide information assets.
2. Implement an Incident Response team that legally, ethically, and efficiently responds to cyber incidents.
3. Detect, analyze, and respond to cyber attacks on networks and computer systems.
4. Conduct risk and vulnerability assessments of existing and proposed information systems.
5. Utilize the best sources of information available related to cyber-security issues, threats, and recovery.
6. Apply strategies to build relationships with other Incident Response teams, organizations, and law enforcement to improve incident response effectiveness.

Course Requirements

CYS 541 Ethics, Legal, and Compliance Issues in Cybersecurity (3 credits)

CYS 560 Information Assurance (3 credits)

CYS 575 IT Risk Analysis and Management (3 credits)

CYS 565 Security Management Awareness (3 credits)

CYS 590 (capstone) Special Topics in Cybersecurity (4 credits)[①]

Total: 16 credits

① **CYS 590 Special Topics in Cybersecurity** *is the required capstone course and must be taken through Excelsior College. It cannot be transferred in.*

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Business Programs

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United States Air Force HQ Medical Operations Agency

Chriss Miller
Senior Reactor Operator,
Dominion Nuclear
Millstone Power Station

Bryan Smith, MBA
Wind Training Leader,
GE Power and Water

New York State Education Department
Inventory of Registered Programs

Higher Education General Information Survey Code for Classifying Academic Subject Areas.

Program Title	HEGIS	Award
School of Business and Technology, Business Programs		
Administrative/Management Studies	5004	AAS
Business	5001	AS
Business	0501	BS
Accounting (NYS CPA Track)	0502	BS
Bachelor of Professional Studies in Business and Management	0599	BPS
Business	0506	MBA
Management	0506	MS
School of Business and Technology, Technology Programs		
Cybersecurity	5199	Certificate
Cybersecurity Management	0799	Certificate
Cyber Operations	0702	BS
Technical Studies	5315	AAS
Nuclear Technology	5316	AS
Technology	5315	AS
Technology	0925	BS
Electrical Engineering Technology	0925	BS
Information Technology	0702	BS
Nuclear Engineering Technology	0925	BS
Bachelor of Professional Studies in Technology Management	0599	BPS
Cybersecurity	0702	MS

Program Title	HEGIS	Award
School of Health Sciences Programs		
Health Care Informatics	1203.12	Certificate
Health Care Management	1202	BS
Health Sciences	1201	BS, MS
School of Liberal Arts Programs		
Liberal Arts	5649	AA, AS
Liberal Arts	4901	BA, BS
Liberal Studies	4901	MA
History	2205	BA, BS
Humanities	1599	BA
Natural Sciences	1901	BS
Psychology	2001	BA, BS
Social Sciences	2201	BS
Sociology	2208	BA, BS
School of Nursing Programs		
Nursing	5208	AAS, AS
Nursing	1203.10	BS, RN-MS, MS
Nursing Education	1203.12	Certificate
Nursing Leadership and Administration of Health Care Systems	1203.12	Certificate
School of Public Service Programs		
Criminal Justice	2105	BS, MS
Homeland Security	5505	Certificate
Military Studies	2299	BS

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