2023/2024 CATALOG ADDENDUM - I

Bay Atlantic University reserves the right to make changes in the offerings and regulations announced in publications as circumstances may require. Every reasonable effort has been made to present information, at the time of publication, that accurately describes the curriculum and the regulations and requirements of the University; however, no responsibility is assumed for editorial or publication errors. Statements in the catalog do not establish contractual relationships and the University reserves the right to make changes as required in course offerings, curricula, academic policies, and other rules and regulations affecting students, to be effective whenever determined by the University. These changes will govern currently and formerly enrolled students. The current and latest edition of the catalog along with any addendums may be found on the University website. Enrollment of all students is subject to these conditions. This Addendum is an addition to the Catalog and is to be used alongside the Catalog, not in isolation. Changes listed in the Catalog Addendum supersede the published Catalog.

Catalog changes included in this Addendum are listed below:

- Revised Course Attendance Policy – Catalog page 32
- Revised Course Load Policy for Undergraduate Students - Catalog page 50
- Revised Course Load Policy for Graduate Students - Catalog page 57
- Business Administration and Management Program revision – Catalog page 65
- CMPS 110 course is no longer offered and has been removed from the catalog - Catalog page 84
- CMPS 202 course description has been changed - Catalog page 85
- CMPS 222 course description has been changed - Catalog page 85
- CMPS 230 course description has been changed - Catalog page 85
- HIST 166 course is no longer offered and has been removed from the catalog - Catalog page 92
- INTL 220 course description has been changed - Catalog page 93
- ISIT 356 course description has been changed - Catalog page 95
- POLS 342 course prerequisite has been removed - Catalog page 102
- POLS 342 course code has been changed to POLS 210 - Catalog page 102
- BGDA 522 course description has been changed - Catalog page 106
- BUSN 210 new course created
- CAPS 623 new course created
- BS in Software Engineering program created
- MS in Software Engineering created
- MS in Artificial Intelligence created
- MS in Cloud Computing Engineering created

COURSE ATTENDANCE POLICY

Catalog Page Reference: Page 32
Effective Date: January 2024
Summary of Changes: Language added regarding falsifying medical documentation

Change

Changes are in red.

There are only three acceptable reasons for absence from class or lab: (1) serious illness of the student, (2) a family emergency, or, (3) any legal obligation that occurs at the same time as class. Non-emergency appointments and non-emergency travel do not count as excused absences. In cases of illness, the student must submit a doctor's or clinic note explaining the reason for the absence to the Registrar. The doctor or clinic note excusing the student is subject to verification. Falsifying medical notes is a breach of integrity. Consistent with the University's expectations on academic integrity and student conduct, students who falsify medical notes will fail all classes for which the note is falsified.

The violation of integrity offense will become part of the student's official record. Students who continue to falsify medical notes will face expulsion from the University and notification will be sent to SEVIS (for international students with an I20) for violating academic integrity expectations.

Once proper documentation is provided and verified, instructors will notify the registrar to mark the student's absence(s) as excused. Explanations for excused absences must be received no later than one week after the last missed class. However, exceptions can be made by the instructor for prolonged emergencies when a student does not have means or opportunity to inform the University of the situation.

COURSE LOAD POLICY FOR UNDERGRADUATE STUDENTS

Catalog Page Reference: Page 50

Effective Date: January 2024

Summary of Changes: Language added regarding first semester credits and summer session

Change

Changes are in red.

Full-time Study*: Undergraduate students registered for fifteen (15) or more credits in fall and spring are considered full-time students. A first-time incoming freshmen student with no transfer credits may take thirteen (13) credits in the first or second semester (not both). Summer session is optional for students who have completed two full semesters.

*F-1 students must maintain full-time enrollment throughout their studies. An F-1 student entering the university in a spring or summer session must take nine (9) credits in the summer session to be considered full time

COURSE LOAD POLICY FOR GRADUATE STUDENTS

Catalog Page Reference: Page 57
Effective Date: January 2024
Summary of Changes: Language added regarding summer session

Change

Changes are in red.

Full-time Study*: Graduate students registered for nine (9) or more credit hours per semester are considered full-time students. Summer session is optional for students who have completed two full semesters.

*F-1 students must maintain full-time enrollment throughout their studies. An F-1 student entering the university in a spring or summer session must take six (6) credits in the summer session to be considered full time

BUSINESS ADMINISTRATION AND MANAGEMENT PROGRAM REVISION

Catalog Page Reference: Page 65

Effective Date: January 2024

Summary of Changes: Revision to the core and elective courses

Three optional concentrations have been added

Change

Core Requirements: 60 Credits (20 courses)

Course Code	Course Name	Pre-requisite	Credit
ACCT 112	Introduction to Financial Accounting		3
ACCT 114	Introduction to Managerial Accounting		3
BUSN 101	Introduction to Business		3
BUSN 210	Business Law		3
BUSN 375	Entrepreneurship		3
ECON 101	Introduction to Microeconomics		3
ECON 111	Introduction to Macroeconomics		3
ECON 353	Globalization and the World Economy	ECON101, ECON111	3
FINC 221	Introduction to Financial Management		3
FINC 455	International Finance	FINC 221	3
INTL 220	International Human Resources Management		3
MATH 110	Introduction to Statistics	MATH104	3
MGMT 200	Introduction to Project Management		3
MGMT 201	Leadership		3
MGMT 301	Organizational Behavior		3
MGMT 325	Operations Management	Math 110	3
MGMT 337	Strategic Management		3
MGMT 453	Cross-Cultural Management		3
MKTG 201	Introduction to Marketing		3
Phil 200	Ethics		3

Optional Concentrations (each concentration requires 18 credits, 6 courses)

Economics Concentration

Course Code	Course Name	Pre-requisite	Credit
ECON 221	Intermediate Microeconomics	ECON101	3
ECON 222	Intermediate Macroeconomics	ECON111	3
ECON 251	International Economics	ECON101, ECON111	3
ECON 371	The Development of Economic Thought	ECON101, ECON111	3
ECON 437	Econometrics	MATH110	3
ECON 440	Economics of International Development	ECON101, ECON111	3

Finance Concentration

Course Code	Course Name	Pre-requisite	Credit
FINC 224	Corporate Finance I	FINC221	3
FINC 222	Financial Markets and Institutions	FINC221	3
FINC 373	Monetary Theory and Policy	ECON101, ECON111	3
FINC 421	Investment Strategies	FINC221	3
FINC 431	Derivative Markets	FINC221	3
FINC 455	International Finance	FINC221	3

Information Systems Concentration

Course Code	Course Name	Pre-requisite	Credit
CMPS 211	Computer Networks		3
CMPS 318	Database Management Systems		3
CMPS 320	Computer Forensics		3
ISIT 224	Information Systems Analysis and Design		3
ISIT 226	Management Information Systems	ISIT 224	3
ISIT 401	Information Technology Audits & Controls	ISIT 224	3

CMPS 110 INTRODUCTION TO COMPUTER SCIENCE

Catalog Page Reference: Page 84
Effective Date: January 2024
Summary of Changes: Course removed from the catalog

Change

The course is more advanced than what is required of a General Education course and is no longer offered.

CMPS 202 DATA STRUCTURES AND ALGORITHMS I

Catalog Page Reference: Page 85

Effective Date: January 2024

Summary of Changes: Course description change – The primary rationale for changing the course descriptions and objectives on CMPS 202 is to correct grammatical errors and insert topics to provide more precise information.

Change

The objective of this course is to introduce algorithms, algorithm complexities, basic data structures, data organizations, sorting and searching algorithms. This course will also focus on the implementation details of the algorithms. Students will learn to analyze the efficiency of operations and algorithms executed on various data structures, including array, stack, queue, and linked list. The course will also cover recursion and iteration used in computer programming.

CMPS 222 Programming II

Catalog Page Reference: Page 85

Effective Date: January 2024

Summary of Changes: Course description change – The primary rationale for changing the course descriptions for CMPS 222 is to insert topics to provide more precise information.

Change

This course offers a continuation of the programming skills learned in CMPS 122. Students will learn more advanced applications of a programming language through lab work and independent assignments. Topics include Graphical User Interface, File I/O, Exception, Database Programming, Networking Basics, and Multi-Thread Programming.

CMPS 230 INFORMATION VISUALIZATION

Catalog Page Reference: Page 85

Effective Date: January 2024

Summary of Changes: Course description change – The course description had grammatical errors and restructured sentences to provide more precise information.

Change

This course introduces the foundation and the state of the art of information visualization that explores and reflects on the design, application, and evaluation of a diverse range of information systems. Students will demonstrate how a number of common types of information can be visually, intuitively and interactively represented. The course provides a first-hand experience of visualizing a variety of realistic data types.

HIST 166 ATLANTIC HISTORY

Catalog Page Reference: Page 84
Effective Date: January 2024
Summary of Changes: Course removed from the catalog

Change

The content of this course is of limited academic value based on current trends in the teaching of History within the General Education context. The course content focuses on a very narrow period of time which is touched upon in other courses also taught at BAU and would be more appropriate for a History degree.

INTL 220 INTERNATIONAL HUMAN RESOURCES MANAGEMENT

Catalog Page Reference: Page 93

Effective Date: January 2024

Summary of Changes: Course description change – The course description better reflects an introductory policy formulation course for graduate business students who do not have any background or knowledge of public policy.

Change

This course surveys the principles and methods of effectively managing people in a work environment. It includes the recruitment, selection, development, utilization of, and accommodation of people by organizations. The course also focuses on how MNC manage HR and their responsibilities when doing business with their host countries. Employee motivation and contemporary personnel management issues are examined in terms of the impact they have on organizational effectiveness, goal attainment, sustainability, and overall performance.

ISIT 356 SOFTWARE QUALITY AND TESTING

Catalog Page Reference: Page 95

Effective Date: January 2024

Summary of Changes: Course description change – The course description had grammatical errors and restructured sentences to provide more precise information.

Change

This course provides an elementary introduction to software quality assurance and testing. Topics include: Why do software testing? The meaning of black-box testing and white-box testing; Software Testing throughout the Software Process; Software Testing and Extreme Programming; The Automation of Software Testing; Difficulties and Limitations of Software Testing; The Business of Software Testing; and Implementation of Automated Testing. Students gain intensive hands-on experiences as Software Tester, including planning and executing software testing projects.

POLS 342 POLITICAL SOCIOLOGY

Catalog Page Reference: Page 102

Effective Date: January 202

Summary of Changes: Change course code to POLS 210

                                  Remove prerequisite INTL 370

Change

The subject matter and content of the course is not appropriate for a 300-level course, as can be seen from the course description and the CLOs, as the course code has changed, POLS 370 is no longer appropriate as a prerequisite.

BGDA 522 APPLIED STATISTICS

Catalog Page Reference: Page 106

Effective Date: January 2024

Summary of Changes: Course description change – The course description had grammatical errors and restructured sentences to provide more precise information..

Change

The course introduces fundamental topics in statistics and implements its applications to industrial, medical, financial, energy, and similar type of very large-size datasets to infer meaningful statistical results. The course is for graduate students with no significant background in this subject. Implementations will be performed on open-source statistical software. An introduction to R programming will be given.

BUSN 210 BUSINESS LAW

Catalog Page Reference: NA
Effective Date: January 2024
Summary of Changes: New course added to the catalog

Change

BUSN 210: BUSINESS LAW (3 CREDITS)

This course provides the student with an introduction to the legal framework within which formal business organizations must operate. The course is a survey of the American legal system designed to develop a broad understanding of the fundamentals of business law including topics in the nature of law, courses and court procedures, crimes and torts, contracts, sales, and negotiable instruments.

CAPS 623 Internship

Catalog Page Reference: NA

Effective Date: January 2024

Summary of Changes: New course added to the catalog

Change

CAPS 623: INTERNSHIP (3 CREDITS) PREREQUISITE: ALL CORE COURSES

The Internship is a capstone course that is designed to provide the student with an opportunity to gain knowledge and skills from a planned work experience in the student's program of study. The internship will provide graduate-level, career-related experience, and workplace competencies that employer's value when hiring new employees. The purpose of the Internship course is to provide each student with practical experience in a standard work environment.

BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING PROGRAM

Catalog Page Reference: NA
Effective Date: January 2024
Summary of Changes: New Program

Change

BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING PROGRAM

The program is designed to prepare students to become highly skilled technicians in software engineering who can produce computing solutions for various scales of software development projects. The SWE program focuses on all aspects of the Software Development Life Cycle (SDLC), including requirement analysis, design, implementation, testing, and maintenance to ensure the software and system applications' usability, operation, and security. The engineering process covers all types of software, such as standalone applications, web applications, mobile applications, etc., from small-scale software to enterprise level to ensure the effectiveness and efficiency of digital products. The market for the workforce in the industry, commercially and academically, is continually growing worldwide, which places our graduates in very high demand. BAU is located in one of the largest areas for a collection of technology and software companies, which graduates will tremendously benefit from while they pursue their degrees for experiences and after graduation for job opportunities. This major will prepare students for job positions such as Software Engineer, Front-End Engineer, Back-End Engineer, Full-Stack Engineer, DevOps Engineer, Software Developer, Mobile Application Developer, Analyst/Programmer, Web Developer, Software Testers, etc.

PROGRAMING LEARNING OBJECTIVES

1. Understand the theories and methodologies used in software engineering and architecture in various Software Development Life Cycle (SDCL) models.
2. Apply the foundation and principle of software engineering and SDLC to solve real-world problems with programmatic and computing approaches.
3. Utilize advanced tools for managing, designing, implementing, analyzing, and enhancing software solutions for various domains and industries.
4. Integrate new and advanced technological disciplines into software development, such as artificial intelligence, data mining, machine learning, the Internet of Things (IoT), etc.
5. Develop reliable and cost-effective software applications to ensure usability, availability, integrity, and security using multiple technologies, including database management systems, network and communication protocols, cloud computing, software frameworks, etc.
6. Communicate effectively orally and in writing with technical and non-technical stakeholders regarding computing solutions, project management, and ethical considerations to information systems decisions.
7. Assess technical skills and knowledge to pursue various professional technology certifications globally recognizable in the industry, such as CSSLP – Certified Secure Software Lifecycle Professional, IEEE Professional Software Developer Certification, Oracle Database SQL Certified

Associate Certification, Java Certified Foundations Associate, ISACA – Data Science Fundamentals Certification etc.

8. Understand the role of responsible citizenship in the legitimate use of technology and digital data.

MININUM HARDWARE REQUIREMENTS

Students must have a computer system that meets the following general requirements: (Most computers are equipped with these components.)

- Memory/RAM (8 GB or Higher)
- Video Card
- Sound Card
- Speakers and Microphone
- Headphones (not required but recommended)
- Webcam
- USB Ports
- Network Card (10/100/1000 Mbps Ethernet)
- Wireless Network Card (2.4 and 5.0 GHz)
- Operating Systems
    - Windows 10 64-bit or Later
    - MacOS Catalina or Later

SOFTWARE ENGINEERING Program Course Listing

Core Requirements: 60 Credits (20 courses)

Course Code	Course	Pre-requisites	Credits
CMPS 122	Introduction to Programming I		3
CMPS 202	Data Structures and Algorithms I	CMPS 122	3
CMPS 205	Data Structures and Algorithms I	CMPS 202	3
CMPS 211	Computer Networks		3
CMPS 222	Programming II	CMPS 122	3
CMPS 315	Operating Systems	CMPS 122	3
CMPS 324	Software Design and Implementation with Object-Oriented	CMPS 222	3
CMPS 433	Game Programming	CMPS 205	3
ISIT 350	Advanced Web Application Design	CMPS 122	3
ISIT 351	Software Engineering	CMPS 122	3
ISIT 352	Web Development	CMPS 122	3
ISIT 353	Software User Interface Analysis and Design	CMPS 122	3
ISIT 354	Software Architecture		3
ISIT 356	Software Quality and Testing	CMPS 122	3
ISIT 355	Advanced Mobile Application Development	ISIT 350 or CMPS 222	3
ISIT 370	Agile Project Management	MGMT 200	3
MATH 110	Introduction to Statistics		3
MATH 140	Discrete Mathematics		3

MGMT 200	Introduction to Project Management	3
PHIL 200	Ethics	3

Electives: 18 Credits (Choose 6 courses)

Course Code	Course	Pre-requisite	Credits
CMPS 226	Introduction to Data Science		3
CMPS 310	Introduction to Artificial Intelligence	CMPS 322	3
CMPS 320	Computer Forensics		3
CMPS 322	Machine Learning and Pattern Recognition	CMPS 205	3
CMPS 350	Cyber Security Laws		3
ISIT 224	Information Systems Analysis and Design		3
ISIT 226	Management Information Systems	ISIT 224	3
ISIT 325	Cloud Computing		3
ISIT 335	Cloud Security	ISIT 325	3
ISIT 357	Content Management Software		3
ISIT 360	Data Mining	CMPS 226	3

MASTER OF SCIENCE IN SOFTWARE ENGINEERING

Catalog Page Reference: NA

Effective Date: January 2024

Summary of Changes: New Program

Change

MASTER OF SCIENCE IN SOFTWARE ENGINEERING PROGRAM

The program is designed to prepare students to become highly skilled leaders in software engineering who can produce computing solutions for various scales of software development projects. The SWE program focuses on all aspects of the Software Development Life Cycle (SDLC), including requirement analysis, design, implementation, testing, and maintenance to ensure the software and system applications' usability, operation, and security. The engineering process covers all types of software, such as standalone applications, web applications, mobile applications, etc., from small-scale software to enterprise level to ensure the effectiveness and efficiency of digital products. The market for the workforce in the industry, commercially and academically, is continually growing worldwide, which places our graduates in very high demand. BAU is located in one of the largest areas for a collection of technology and software companies, which graduates will tremendously benefit from while they pursue their degrees for experiences and after graduation for job opportunities. This major will prepare students for job positions such as Software Engineer, Front-End Engineer, Back-End Engineer, Full-Stack Engineer, DevOps Engineer, Software Developer, Mobile Application Developer, Analyst/Programmer, Web Developer, Software Testers, including managerial and executive positions (e.g., engineering lead, director of engineering, chief technology officer, etc.)

PROGRAMING LEARNING OBJECTIVES
1. Categorize the theories and methodologies used in software engineering and architecture in various Software Development Life Cycle (SDLC) models.
2. Utilize advanced tools for managing, designing, implementing, analyzing, and enhancing software solutions for various domains and industries.
3. Combine programmatic and computing approaches of the principles of software engineering and SDLC to solve real-world problems.
4. Adapt new and advanced technological disciplines into software development, such as artificial intelligence, data mining, machine learning, the Internet of Things (IoT), etc.
5. Build reliable and cost-effective software applications to ensure usability, availability, integrity, and security using multiple technologies, including database management systems, network and communication protocols, cloud computing, software frameworks, etc.
6. Perform leadership roles in software development projects to oversee verbal, written, and technical communications with stakeholders regarding computing solutions, project management, and ethical considerations to information systems decisions.
7. *Appraise* technical skills and knowledge to pursue various professional technology certifications globally recognizable in the industry, such as CSSLP – Certified Secure Software Lifecycle Professional, IEEE Professional Software Developer Certification, Oracle Database SQL Certified

Associate Certification, Java Certified Foundations Associate, Project Management Professional (PMP) Certification, etc.

8. Justify the role of responsible citizenship in the legitimate use of technology and digital data.

MININUM HARDWARE REQUIREMENTS

Students must have a computer system that meets the following general requirements: (Most computers are equipped with these components.)

- Memory/RAM (8 GB or Higher)
- Video Card
- Sound Card
- Speakers and Microphone
- Headphones (not required but recommended)
- Webcam
- USB Ports
- Network Card (10/100/1000 Mbps Ethernet)
- Wireless Network Card (2.4 and 5.0 GHz)
- Operating Systems
    - Windows 10 64-bit or Later
    - MacOS Catalina or Later

SOFTWARE ENGINEERING Program Course Listing

Core Requirements: 21 Credits (7 courses)

Course Code	Course	Pre-requisites	Credits
CAPS 621	Capstone Projects	All Cores	3
CMPS 510	Principles and Concepts of Software Engineering		
CMPS 560	Object-Oriented Software Development		3
CMPS 570	Software Design and Architecture		3
CMPS 580	Development of Graphical User Interface		3
CMPS 620	Software Project Management	CMPS 570	3
CMPS 635	Software Testing and Quality Assurance	CMPS 510 &CMPS 560	3

Electives: 15 Credits (Choose 5 courses)

Course Code	Course	Pre-requisites	Credits
BGDA 501	Introduction to Big Data		3
BGDA 510	Data Mining	CMPS 514	3
BGDA 522	Applied Statistics		3
BGDA 511	Big Data Analytics	CMPS 514	3
BGDA 513	Artificial Intelligence	BGDA 511	3
BGDA 521	Technology Management		3
CMPS 514	Management Information Systems		3
CMPS 515	Network Security & Cryptography	CMPS 514	3

CMPS 520	Database Design Concepts		3
CMPS 524	Computer Networks and Mobile Communications	CMPS 514	3
CMPS 525	Cloud Computing and Infrastructure		3
CMPS 565	Cloud Data Storage Management		3
CMPS 530	Machine Learning and Pattern Recognition	CMPS 524	3
CMPS 564	Information Security Management	CMPS 515	3
CMPS 618	Penetration Testing	CMPS 564	3
CMPS 623	Web Application Security	CMPS 564	3
CMPS 627	Wireless Sensor Network	CMPS 524	3

MASTER OF SCIENCE IN ARTIFICIAL INTELLIGENCE ENGINEERING

Catalog Page Reference: NA
Effective Date: January 2024
Summary of Changes: New Program

Change

MASTER OF SCIENCE IN ARTIFICIAL INTELLIGENCE ENGINEERING PROGRAM

Artificial Intelligence Engineering is a fast-growing field in the STEM industry essential to create more robust, high-performance digital elements. The program is designed to prepare students with advanced knowledge and skills in artificial intelligence, machine learning, and deep learning in the engineering domain. The AI program consists of core courses training students to become highly skilled AI engineers who can develop and apply AI-based solutions within the engineering discipline. The program also prepares students to become leaders in applying AI and Machine Learning to their fields of expertise. This STEM program focuses on various AI engineering frameworks and representations for inventing, tuning, and specializing AI structures and algorithms. The engineering topics include various AI aspects such as pattern recognition, machine learning, deep learning, natural language processing, computer vision, etc., fundamental to building systems that can intelligently interact with humans and other digital processes. The program will prepare students for career positions such as AI Engineer, Machine Learning Engineer, Analytics Research Scientist, Data Scientist Engineer, etc. The market for the workforce in the industry, commercially and academically, is continually growing worldwide, which places our graduates in very high demand. BAU is located in one of the largest areas for a collection of technology companies, which graduates will tremendously benefit from while they pursue their degrees for experiences and after graduation for job opportunities.

PROGRAMING LEARNING OBJECTIVES

1. Understand the scientific theories and methodologies of AI and Machine Learning trends used in designing and implementing AI-based processes and products.
2. Apply the foundation and models of machine learning and deep learning to create AI solutions that can overcome digital challenges in various domains.
3. Utilize various AI and Machine Learning tools for analyzing, inventing, and tuning AI Algorithms for new and existing digital products.
4. Develop reliable and scalable AI-based applications using the latest methods and technologies to ensure usability, availability, integrity, and security.
5. Communicate effectively orally and in writing with technical and non-technical stakeholders regarding computing solutions, project management, and ethical considerations to information systems decisions.
6. Assess technical skills and knowledge to pursue various professional technology certifications globally recognizable in the industry, such as Certified Artificial Intelligence Engineer (CAIE™), AIE™ Certification, etc.
7. Understand the role of responsible citizenship in the legitimate use of technology and digital data.

MININUM HARDWARE REQUIREMENTS

Students must have a computer system that meets the following general requirements: (Most computers are equipped with these components.)

- Memory/RAM (8 GB or Higher)
- Video Card
- Sound Card
- Speakers and Microphone
- Headphones (not required but recommended)
- Webcam
- USB Ports
- Network Card (10/100/1000 Mbps Ethernet)
- Wireless Network Card (2.4 and 5.0 GHz)
- Operating Systems
  - Windows 10 64-bit or Later
  - MacOS Catalina or Later

AI ENGINEERING Program Course Listing

Core Requirements: 21 Credits (7 courses)

Course Code	Course	Pre-requisites	Credits
BGDA 511	Big Data Analytics	CMPS 514	3
BGDA 513	Artificial Intelligence	BGDA 511	3
BGDA 515	Fundamental of Deep Learning	BGDA 511	3
CAPS 621	Capstone Projects	All Cores	3
CMPS 514	Management Information Systems		3
CMPS 516	Models and Algorithms in AI Engineering	BGDA 511	3
CMPS 530	Machine Learning and Pattern Recognition	CMPS 524 or CMPS 516	3

Electives: 15 Credits (Choose 5 courses)

Course Code	Course	Pre-requisites	Credits
BGDA 510	Data Mining	CMPS 514	3
CMPS 515	Network Security & Cryptography	CMPS 514	3
CMPS 520	Database Design Concepts		3
CMPS 524	Computer Networks and Mobile Communications	CMPS 514	3
CMPS 525	Cloud Computing and Infrastructure		3
CMPS 560	Object-Oriented Software Development		3
CMPS 565	Cloud Data Storage Management		3
CMPS 570	Software Design and Architecture	CMPS 564	3
CMPS 610	Natural Language Processing	CMPS 516	3
CMPS 612	Image Processing and Computer Visualization	CMPS 516	3

Catalog Page Reference: NA
Effective Date: January 2024
Summary of Changes: New Program

Change

MASTER OF SCIENCE IN CLOUD ENGINEERING PROGRAM

The program is designed to prepare students to become highly skilled in implementing and managing cloud computing technology. This STEM program focuses on engineering aspects of the cloud environment and infrastructure, including requirement analysis, design, implementation, testing, and maintenance to ensure the digital infrastructure and resources' usability, operation, and security. The engineering topics cover cloud architectures of systems and applications running on the cloud, business processes, security management, data analytics, etc., from small-scale to enterprise level to ensure the effectiveness and efficiency of the cloud technology and services. The program will prepare students for career positions such as cloud engineer, cloud architect, cloud analyst, cloud administrator, cloud developer, software engineer, network architect, etc. The market for the workforce in the industry, commercially and academically, is continually growing worldwide, which places our graduates in very high demand. BAU is located in one of the largest areas for a collection of technology and cloud provider companies, which graduates will tremendously benefit from while they pursue their degrees for experiences and after graduation for job opportunities.

PROGRAMING LEARNING OBJECTIVES

1. Understand the theories, methodologies, and trends used in cloud computing and on-premises infrastructure.
2. Apply the foundation and principle of cloud engineering to create cloud solutions that can overcome digital challenges.
3. Utilize advanced digital tools for managing, designing, implementing, analyzing, migrating, and enhancing digital and business processes in various domains and industries.
4. Integrate new and advanced technological disciplines into cloud development, such as artificial intelligence, data mining, machine learning, the Internet of Things (IoT), etc., to leverage cloud computing processes and extend an organizational IT environment.
5. Implement reliable and cost-effective cloud infrastructure and data storage to ensure usability, availability, integrity, and security using multiple technologies.
6. Communicate effectively orally and in writing with technical and non-technical stakeholders regarding computing solutions, project management, and ethical considerations to information systems decisions.
7. Assess technical skills and knowledge to pursue various professional technology certifications globally recognizable in the industry, such as AWS Certified Cloud Practitioner, Google Cloud Certification, etc.
8. Understand the role of responsible citizenship in the legitimate use of technology and digital data.

MININUM HARDWARE REQUIREMENTS

Students must have a computer system that meets the following general requirements: (Most computers are equipped with these components.)

- Memory/RAM (8 GB or Higher)
- Video Card
- Sound Card
- Speakers and Microphone
- Headphones (not required but recommended)
- Webcam
- USB Ports
- Network Card (10/100/1000 Mbps Ethernet)
- Wireless Network Card (2.4 and 5.0 GHz)
- Operating Systems
    - Windows 10 64-bit or Later
    - MacOS Catalina or Later

CLOUD ENGINEERING Program Course Listing

Core Requirements: 21 Credits (7 courses)

Course Code	Course	Pre-requisites	Credits
BGDA 511	Big Data Analytics	CMPS 514	3
CAPS 621	Capstone Projects	All Cores	3
CMPS 514	Management Information Systems		3
CMPS 525	Cloud Computing and Infrastructure		3
CMPS 565	Cloud Data Storage Management		3
CMPS 625	Cloud Security	CMPS 525	3
CMPS 640	Cloud System Administrator and Architect	CMPS 525	3

Electives: 15 Credits (Choose 5 courses)

Course Code	Course	Pre-requisites	Credits
BGDA 510	Data Mining	CMPS 514	3
BGDA 513	Artificial Intelligence	BGDA 511	3
BGDA 521	Business Intelligence		3
BGDA 552	Big Data Analytics and Cloud Computing	CMPS 511	
CMPS 515	Network Security & Cryptography	CMPS 514	3
CMPS 520	Database Design Concepts		3
CMPS 524	Computer Networks and Mobile Communications	CMPS 514	3
CMPS 530	Machine Learning and Pattern Recognition	CMPS 524	3
CMPS 564	Information Security Management	CMPS 515	3
CMPS 570	Software Design and Architecture	CMPS 564	3
CMPS 627	Wireless Sensor Network	CMPS 524	3