PROGRAM MODIFICATION PROPOSAL FORM

Name of Institution: Coastal Carolina University (CCU)

Nature of the Proposed Modification: The proposed modification is for a curriculum change.

Current Name of Program: Bachelor of Science (B.S.) in Information Systems

Proposed Name of Program: Bachelor of Science (B.S.) in Information Systems

Program Designation:

- ☐ Associate's Degree
- ☐ Master's Degree
- ☒ Bachelor's Degree: 4 Year
- ☐ Specialist
- ☐ Bachelor's Degree: 5 Year
- ☐ Doctoral Degree: Research/Scholarship (e.g., Ph.D. and DMA)
- ☐ Doctoral Degree: Professional Practice (e.g., Ed.D., D.N.P., J.D., Pharm.D., and M.D.)

Does the program currently qualify for supplemental Palmetto Fellows and LIFE Scholarship awards?

- ☒ Yes
- ☐ No

If No, should the program be considered for supplemental Palmetto Fellows and LIFE Scholarship awards?

- ☐ Yes
- ☐ No

Proposed Date of Implementation: Fall 2019

CIP Code: 11.0401

Current delivery site(s) and modes: CCU Main Campus, in-person
Proposed delivery site(s) and modes: CCU Main Campus, in-person

Program Contact Information (name, title, telephone number, and email address):

Dr. Crystal Cox
Associate Professor, Department of Computing Sciences
843-349-2144
crystal@coastal.edu

Institutional Approvals and Dates of Approval:

Department of Computing Sciences Information Systems Curriculum Committee	December 6, 2017
Chair, Department of Computing Sciences	April 17, 2018
College of Science Curriculum Committee	April 25, 2018
Dean, College of Science	April 25, 2018
University Academic Affairs Committee	April 25, 2018
Faculty Senate	May 7, 2018
Provost	May 16, 2018
President	May 16, 2018

Background Information

The modification will require the addition of two new courses to the curriculum, Linux Fundamentals and Introduction to Information Systems Security. In addition, this modification will add restrictions to the minor/cognate option to have 15 unique credit hours outside of the Information Systems (IS) course list. The minor/cognate option is used to meet the "information systems environment" for the program's Accreditation Board for Engineering and Technology, Inc. (ABET) accreditation. The B.S. in IS program originally allowed the "information systems requirement" to be a Computer Science (CS) cognate or any official minor degree offered by the University. ABET's most recent criteria provided more direction on the meaning of an "information systems environment." The "information systems environment" should not include any area of study that falls within the Computing Sciences curriculum.

By strengthening the quality of the degree program, this modification directly supports CCU's mission to offer "undergraduate and graduate degree programs of national and/or regional significance in the arts and sciences, business, humanities, education, and health and human services." It further supports the Institution's mission by preparing knowledgeable, productive, and responsible graduates to contribute positively to society and to economic development, in this case through the development of computer information systems.

This modification supports Objective 1.4.5 of the Coastal Carolina University Strategic Plan 2016-2021: "CCU will support high-quality innovative programs and curricula aligned with student demands, accreditation and standards expectations, regulatory requirements, and supportive professional preparation such that the CCU graduate student FTE population can reach 18 percent of the student population and the CCU undergraduate student FTE population can increase by 5 percent over 2015-2016."

Assessment of Need

The IS degree program grew out of one of two tracks of the CS program to provide students with the unique skills associated with an IS education and career. Since its inception, the ABET curriculum has been followed and the need to change the curriculum directly reflects recent updates in the ABET accreditation requirements. These changes include:

1) Require CSCI 216 – Linux Fundamentals I: The CSCI 216 course supports the ABET requirement for coverage of "information technology infrastructure."
2) Require CSCI 385 – Introduction to Information Systems Security: ABET's most recent changes added required coverage of "principles and practices for secure computing."
3) Replace minor or CS cognate with "Information Systems Environment Requirement (Minor or second major required, in which at least 15 credit hours are offered outside the Department of Computing Sciences)": This is a requirement for ABET accreditation. ABET specifically requires "at least 15 credit hours (or equivalent) of a cohesive set of topics that provide an understanding of an information systems environment." The information systems environment is outside of the department's curriculum.

The degree program will be reviewed for re-accreditation with the new requirements in 2020.

Transfer and Articulation

Not applicable for this program.

Description of the Program

Projected Enrollment						
Year	Fall Headcount		Spring Headcount		Summer Headcount	
	New	Total	New	Total	New	Total
2018-2019	20	72	3	64	0	0
2019-2020	21	76	2	68	0	0
2020-2021	22	80	2	72	0	0
2021-2022	23	85	3	76	0	0
2022-2023	24	90	3	80	0	0

This curriculum modification is being implemented in order to meet the ABET requirements. No new enrollment is projected based on this curriculum modification.

Undergraduate enrollment at the University has experienced a five-year growth of 12%. The first row of the table above, that is 2018-2019, is based on actual student enrollment at CCU in the Information Systems program. The remaining years (2019-2020 to 2022-2023) were estimated using a linear growth model of 12% from 2018-2019 to 2022-2023.

Curriculum

B.S. in Information Systems (120 Credit Hours)

- University Core Curriculum Requirements (38-40 credits)
- Graduation Requirements (3-6 credits)
- Foundation Courses (9-14 credits)*
  - Choose one from the following communication options (3 credits):
    - COMM 140 – Modern Human Communication: Principles and Practices (3)*
    - ENGL 290 – Introduction to Business Communication (3)*
    - ENGL 390 – Business and Professional Communication (3)
  - Choose one from the following statistics options (3-4 credits)**:
    - CBAD 291 – Business Statistics (3)*
    - PSYC 225/L* - Psychological Statistics [and Laboratory] (4)
    - STAT 201/L* - Elementary Statistics [and Computer Laboratory] (4)
  - Choose one from the following calculus options (3-7 credits):
    - Business Calculus Option (3 credits)
      - MATH 132 – Calculus for Business and Social Science (3)*
    - Calculus with Trigonometry Option (4-7 credits):
      - MATH 131 – Trigonometry (3)**
      - MATH 160 – Calculus I (4)*
    - Discrete Math Requirement (3 credits)
      - MATH 174 – Introduction to Discrete Mathematics (3)

- Major Requirements (51 credits)*:
  - Choose one from the following (3 credits):
    - CSCI 101 – Introduction to the Internet and World Wide Web (3)*
    - CSCI 130 – Introduction to Computer Science (3)*
  - Complete the following courses (36 credits):
    - CSCI 120 – Introduction to Web Interface Development (3)
    - CSCI 140/L – Introduction to Algorithmic Design I [and Laboratory] (4)
    - CSCI 150/L – Introduction to Algorithmic Design II [and Laboratory] (4)
    - CSCI 170 – Ethics in Computer Science (1)
    - CSCI 216 – Linux Fundamentals I (3)
    - CSCI 225 – Introduction to Relational Database and SQL (3)
    - CSCI 270 – Data Communication Systems and Networks (3)
    - CSCI 303 – Introduction to Server-side Web Application Development (3)
    - CSCI 330 – Systems Analysis & Software Engineering (3)
    - CSCI 335 – Project Management (3)
    - CSCI 385 – Introduction to Information Systems Security (3)
    - CSCI 400 – Senior Assessment (0)
    - CSCI 495 – Information Systems Capstone Course and Project (3)
  - Choose one from the following (3 credits):
    - CSCI 409 – Advanced Web Application Development (3)
    - CSCI 490 – Software Engineering II (3)
  - Choose one CSCI course numbered 200 or above (3 credits)***
  - Choose two CSCI courses numbered 300 or above (6 credits)***
- Information Systems Environment Requirement (15-21 credits)
  - Choose a minor or second major to satisfy the Information Systems Environment Requirement. At least 15 credits used to satisfy this requirement must be taken from courses with prefixes other than BINF, CSCI, and IST.

* Credits for courses taken as part of the core curriculum are not counted elsewhere in the major.
** Students who elect to take MATH 160 may exempt (without credit) the MATH 131 requirement with credit for MATH 160.
*** Courses taken elsewhere in the Core, Foundation, or Major may not be used to satisfy these requirements.

Curriculum Changes

Courses Eliminated from Program	Courses Added to Program	Core Courses Modified
Minor requirement with limited restrictions	Information Systems Environment Requirement (Minor or second major required, in which at least 15 credit hours are offered outside the Department of Computing Sciences) The actual catalog description is "Information System Environment Requirement (15-21 credits) Choose a minor or second major to satisfy the Information Systems Environment Requirement. At least 15 credits used to satisfy this requirement must be taken from courses with prefixes other than BINF, CSCI, and IST."	Previously, the catalog description read "Minor (15-21 credits) Web Application Development minor, Scientific Computing minor or Computer Science minor may not be used to satisfy this requirement. As an alternative to the minor, students may choose the Computer Science cognate option outlined below. Computer Science Cognate Option Choose 15 credit hours from the following courses: (in addition to any foundation or major requirements; courses counted here may not be used toward foundation or major requirements) CSCI 210 - Computer Organization and Programming (3 credits) CSCI 220 - Data Structures (3 credits) CSCI 310 - Introduction to Computer Architecture (3 credits) CSCI 350 - Organization of Programming Languages (3 credits) CSCI 356 - Operating Systems (3 credits) CSCI 380 - Introduction to the Analysis of Algorithms (3 credits) CSCI 390 - Theory of Computation (3 credits) CSCI 440 - Introduction to Computer Graphics (3 credits) CSCI 445 Q* - Image Processing and Analysis (3 credits) CSCI 450 - Principles of Compiler Design (3 credits) CSCI 460 - Algorithms in Bioinformatics (3 credits) CSCI 473 - Introduction to Parallel Systems (3 credits) CSCI 480 - Introduction to Artificial Intelligence (3 credits) CSCI 485 - Introduction to Robotics (3 credits)"
CSCI 211 – Computer Infrastructure	CSCI 216 – Linux Fundamentals I	
One elective CSCI course at the 200-level or above	CSCI 385 – Introduction to Information Systems Security	

New Courses

CSCI 216: Linux Fundamentals I (3 credits) This course provides students with a fundamental understanding of how to use a Linux operating system. Topics include accessing the command line, file manipulation, managing users and groups, file system permissions, controlling services, managing processes, configuring networking, and using package managers. F, S

CSCI 385: Introduction to Information Systems Security (3 credits) (Prereq: 12 credit hours of CSCI courses numbered 120 or above, all with a grade of 'C' or better) Comprehensive survey of security policies, models and mechanisms for confidentiality, integrity, management and legal and ethical issues. S

Similar Programs in South Carolina offered by Public and Independent Institutions

Program Name and Designation	Total Credit Hours	Institution	Similarities	Differences
B.S. in Computer Information Systems [CIP 11.0401]	120+	Clemson University (CU)	Some overlap with mathematics and technology foundation classes.	CU's program is a business-focused program, where in CCU's program, business is not a requirement. No additional application areas like CCU's. CU also includes Computer Organization, Data Structures, Operating Systems, and Microcomputers. That is not CCU's focus which is web and system engineering.
B.S. in Computer Information Systems [CIP 11.0401]	120+	College of Charleston (CoC)	Some overlap with mathematics and technology foundation classes.	CoC's program requires a business component, where CCU's does not.
B.B. in Administration Management Information Systems	120+	Francis Marion University (FMU)	Degree has similar titles.	FMU's program is a business degree – CCU's is a science degree.
B.S. in Computer Information Systems (Software Development and Networking concentrations)	120+	Lander University	Some overlap with mathematics and technology foundation classes.	Lander's program focus includes different programming languages, application software, and computer architecture – where CCU's does not. Lander requires a minor, but only four choices and the choices are limited to a specific minor. CCU's major provides more choices.
B.S. in Computer Information Systems	120+	University of South Carolina (USC) – Columbia	Some overlap with mathematics and	USC – Columbia's program requires a

Program Name and Designation	Total Credit Hours	Institution	Similarities	Differences
			technology foundation classes.	business component, where CCU's does not.
B.S. in Information Science [CIP 11.0401]	120+	University of South Carolina (USC) – Columbia)	Requires a minor.	USC – Columbia's program is not programming focused or highly technical. CCU requires advanced programming and software engineering. Both programs do not share all of the same minors.
B.S. in Business Administration (Business Information Systems concentration) [Similar Name]	120+	University of South Carolina (USC) – Columbia	Similar in name.	USC – Columbia's program is not programming focused or highly technical. CCU requires advanced programming and software engineering. USC's is a bachelor of arts business degree.
B.A. in Computer Information Systems [CIP 11.0401]	120+	University of South Carolina (USC) - Upstate	Similar in name.	USC – Upstate only requires the pre-calculus sequence and has no programming focus.
B.S. in Business Administration (Computer Information Systems concentration) [Similar Name]	120+	Winthrop University (WU)	Some overlap with mathematics and technology foundation classes.	CCU has a minor requirement whereas WU has limited areas of concentration with mostly business-focused areas and limited programming/ software engineering.
B.S.in Business Administration – Computer Information Systems [Similar Name]	120+	Anderson University (AU)	Similar in name.	AU's is a business degree.
B.B. in Administration Business Computer Information Systems [Similar Name]	120+	Anderson University (AU)	Similar in name.	AU's is a business degree.
B.S. in Computer Information Science [CIP 11.0401]	120+	Benedict College (BC)	Similar in name.	Could only find "computer science" in their catalog and not "computer information science." BC's is a typical theoretical CS degree. Not an IS degree. Not related.
B.S. in Information Systems	120+	Bob Jones University (BJU)	Similar in name	BJU no longer lists an "information systems

Program Name and Designation	Total Credit Hours	Institution	Similarities	Differences
Management [Similar Name]				management" degree on their website. They have an "information technology" degree which is not an IS degree.
B.A. in Computer Information Systems [Similar Name]	120+	Columbia College (CC)	Similar name	CC only lists an Associate's Degree on their website in CIS, where CCU's is a B.S. CC has a listing for a Bachelor's in "Management Information Systems" but it requires a business core, which CCU's doesn't.
B.S. in Computer and Information Systems Security	120+	Limestone College	Similar in name	Limestone's degree is more a theoretical Computer Science degree with no Information System focus.
B.S. in Information Technology [CIP 11.0401]	120+	South University (SU)	Same CIP Code. Some overlap in foundational tech classes.	CIP Code is the same, but South University is an IT degree, not IS. SU's technical courses focus on IT-related content such as Networking.

Faculty

No changes in faculty, staff, or administrative personnel are needed for this program modification. Existing faculty have the necessary expertise to teach the courses that have been added to the program, and these courses have already been offered.

Resources

Library Resources: No new library resources are needed.
Equipment: No new equipment is needed.
Facilities: No new facilities are needed.

Impact on Existing Programs
Will the proposed program impact existing degree programs or services at the institution (e.g., course offerings or enrollment)?

☐ Yes
☒ No

Financial Support

Estimated Sources of Financing for the New Costs						
Category	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Total**
Tuition Funding						
Program-Specific Fees						
Special State Appropriation						
Reallocation of Existing Funds						
Federal, Grant, or Other Funding						
Total	0	0	0	0	0	0
Estimated New Costs by Year						
Category	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Total**
Program Administration and Faculty and Staff Salaries						
Facilities, Equipment, Supplies, and Materials						
Library Resources						
Other (specify)						
Total	0	0	0	0	0	0
Net Total (i.e., Sources of Financing Minus Estimated New Costs)						

Budget Justification

The program modification is for a curriculum change. No new costs are associated with this modification.

Evaluation and Assessment

The Student Learning Outcomes (SLOs) for the program are specified by the ABET accreditation criteria[1], which have been revised significantly for the 2019-2020 review cycle. The B.S. in IS program will be submitted for initial accreditation during the 2020-2021 academic year and must therefore meet these new criteria.

Program Objectives	Student Learning Outcomes Aligned to Program Objectives	Methods of Assessment
1. Graduating students should be able to contribute to society and/or economic development through the application of strong core competencies in their particular field of study. Core competencies (listed in the next column as SLOs) include the ability to analyze a complex computing problem; to design, implement, and evaluate a solution; to communicate effectively in a variety of contexts; to function effectively as a member of a team; and to recognize professional responsibilities.	ABET SLO 1. Graduates of the program will have an ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions. ABET SLO 2. Graduates of the program will have an ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline. ABET SLO 6-IT. Graduates of the program will have an ability to identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.	Course activities (assignments, quizzes, tests, examinations, etc.) mapped directly to ABET SLOs and assessed each semester on a per-course basis through Faculty Course Assessment Reports; Senior Exit Exam given to graduating students in their final semester of the program; Exit Survey given to graduating students in their final semester of the program; evaluation of courses twice during each evaluation cycle (with curricular changes made as needed to ensure compliance with the current applicable version of the ABET accreditation guidelines).
2. Graduating students should be able to advance in their careers and/or education by applying: a. Communication and collaboration skills, b. Problem-solving abilities, c. Appreciation of, and commitment to, professional ethics, and d. Knowledge of their field of study.	ABET SLO 3. Graduates of the program will have an ability to communicate effectively in a variety of professional contexts. ABET SLO 5. Graduates of the program will have an ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	Course activities (assignments, quizzes, tests, examinations, etc.) mapped directly to ABET SLOs and assessed each semester on a per-course basis through Faculty Course Assessment Reports; Senior Exit Exam given to graduating students in their final semester of the program; Exit Survey given to graduating students in their final semester of the program; evaluation of courses twice during each evaluation cycle (with curricular changes made as needed to ensure compliance with the current applicable version of the ABET accreditation guidelines).

[1] ABET, Inc. Criteria for Accrediting Computing Programs, 2019 – 2020. https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-computing-programs-2019-2020/

Program Objectives	Student Learning Outcomes Aligned to Program Objectives	Methods of Assessment
3. Graduating students should be able to successfully adapt to technical, societal, and environmental changes by building upon strong foundational competencies and continuing lifelong learning in computing sciences or related areas.	ABET SLO 4. Graduates of the program will have an ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	Course activities (assignments, quizzes, tests, examinations, etc.) mapped directly to ABET SLOs and assessed each semester on a per-course basis through Faculty Course Assessment Reports; Senior Exit Exam given to graduating students in their final semester of the program; Exit Survey given to graduating students in their final semester of the program; evaluation of courses twice during each evaluation cycle (with curricular changes made as needed to ensure compliance with the current applicable version of the ABET accreditation guidelines).

Will any the proposed modification impact the way the program is evaluated and assessed?

☐ Yes

☒ No

Will the proposed modification affect or result in program-specific accreditation?

☒ Yes

☐ No

The department will be seeking ABET accreditation for the B.S. in IS in the 2020-2021 academic year, when the other two programs (Computer Science and Information Technology) are up for reaccreditation. These curriculum changes are necessary to meet the new ABET requirements for initial program accreditation

Will the proposed modification affect or lead to licensure or certification?

☒ Yes

☐ No

Explain how the program will prepare students for this licensure or certification.

The addition of CSCI 385 (Introduction to Information Systems Security) will prepare students to sit for the CompTIA Security+ certification exam. CSCI 270 (Data Communications Systems and Networks), which is already a program requirement, prepares students to sit for the CompTIA Network+ certification.

If the program is an Educator Preparation Program, does the proposed certification area require national recognition from a Specialized Professional Association (SPA)?

☐ Yes

☒ No