HI Cathy,

Answers/comments below.

>Renee,
>Several staff members of the Registrar’s office have just finished a review of your proposal for changes >to the CSIS Graduate program. We have one FYI and two questions for you.

- Just FYI from our DegreeWorks scribe (Julie)...Citadel courses PMGT 651, 652, 653...are being removed as possible electives from the program. Just a point of information...they were never scribed as elective possibilities in DW.

Renee: I think we handled these as special cases - great that no change needs to be made.

- Changes to the CSIS program involving the development of a new specialization in Cybersecurity....Will the thesis options remain: Non-thesis: 9 hours of electives, Project Thesis: 6 hours of electives + 3 CSIS 698, Research Thesis: 6 credit CSIS 699...or will all students just take electives?

Renee: the options of thesis, project or coursework remains for all specializations and will apply to Cybersecurity as well.

- New CSIS 641 Course (Advanced Cybersecurity)...you selected “NO” on page 2 to the question “Will course be added to the Degree Requirements”? Is the answer not “yes” for the students selecting this specialization?

Renee: you are correct. students in Cybersecurity specialization WILL BE REQUIRED to take 641.

Renee: As far as I know, students don't declare in Banner their specialization, we work that out through advising, so I assumed question "Will course be added to Degree Requirements" applied to CSIS, not specifically to Cybersecurity specialization. Thanks for catching that.

Thanks,

Renee
Change/Delete Graduate Program Proposal Form

Contact Name: Renee McCauley        Email: mccauleyr@cofc.edu        Phone: 3-3187

Department and School Name: Computer Science, SSM        Name and Acronym of Graduate Program: CSIS

Date (Semester/Year) changed/deleted program will take effect: Fall 2013

I. CATEGORY OF REVIEW (Check all that apply)

☒ Change Request (attach details):
☐ Add existing course or courses to requirements or electives
☐ Add new course(s) to requirements or electives (complete and attach COURSE FORM for each)
☒ Delete courses from requirements or electives
☐ Add new emphasis (check one): ☐ concentration ☐ track Total # of hours:
 (note: any emphasis involving more than 18 credit hours will also require CHE approval)

☐ Terminate Program (check one): ☐ Degree ☐ Certificate ☐ Emphasis (concentration/track)
(if checked, skip section II, IV, V, and VII below)

Are students currently enrolled in the program? ☐ Yes ☐ No
If yes, what semester will students complete the program?

If the program termination includes deleting courses from the inventory, a COURSE FORM must be included
with this form for each course deletion.

☐ Interdisciplinary (attach evidence of acknowledgement from relevant departments)

II. DESCRIPTION OF CHANGES: If a changed program—please explain changes below; if a new
emphasis—please provide the details below.

Currently the degree requirements for M.S. in Computer & Information Sciences specifies that Citadel courses
PMGT 651, PMGT 652, and PMGT 653 can be taken as electives. The Graduate Committee of CSIS proposes
to eliminate PMGT 651, PMGT 652, and PMGT 653 as electives in the CSIS program.
III. RATIONALE or JUSTIFICATION

For changes or termination, please provide a detailed justification. For a new emphasis, briefly address the goals/objectives for the new emphasis, provide evidence of student interest (i.e., has the program offered special topics courses in this area? has the program interviewed student focus groups as part of an internal assessment? etc.), and explain how the emphasis supports the liberal arts tradition and the mission of the institution.

The previous decision to accept PMGT 651, PMGT 652, and PMGT 653 was made in order to attract more graduate students in the program and allow students in Computer & Information Sciences to get a certification in Project Management. The decision was made prior to creation of the Citadel's Masters degree in Project Management. Since that time the PGMT courses have not attracted any students into CSIS. CSIS students will still be allowed to take one PGMT course, which is cross-listed with CSCI 634. However, the committee believes that taking additional PGMT courses, which are not technical and not computer science, is not in the best interest of students or the program.

IV. CURRICULUM

Provide the COMPLETE curriculum for the changed program and/or new emphasis distinguishing between required and elective courses. Note pre-requisite courses where appropriate. Note any sequencing of courses or requirements in the program, listed exactly as it should appear in the catalog.

Attach the completed COURSE FORM and a sample syllabus for each new course.
V. STUDENT LEARNING OUTCOMES and ASSESSMENT

<table>
<thead>
<tr>
<th>Program-Level Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will students know and be able to do when they complete the program/emphasis? Attach Curriculum Map.</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
</tr>
</tbody>
</table>

1. Not applicable

2.

3.

4.

Additional Outcomes or Comments:

VI. IMPACT ON EXISTING PROGRAMS and COURSES Please briefly document the impact of this changed/deleted program or new emphasis on other programs and courses; if changing/deleting a program—list all programs that will be impacted (and how); if adding a new emphasis—explain any overlap with existing programs or courses in the same or different departments.

No impact.

Is this changed/deleted program used by others? □ Yes  □ No
If yes, please provide a letter of support in each case.

VII. COSTS ASSOCIATED WITH THE ACTION REQUESTED List all of the new costs or cost savings, (including new faculty/staff requests, library or equipment, etc.) associated with the action requested.

None
VIII. APPROVAL and SIGNATURES

Signature of Program Director:

Date: 11-29-2012

Signature of Department Chair:

Date: 1-16-13

Signature of School Dean:

Date: 1-23-13

Signature of the Provost:

Date: 2/15/13

Return form to the Graduate School Office for Further Processing

Signature of Chair of the Faculty Committee on Graduate Education, Continuing Education & Special Programs:

Date: 2/28/2013

Signature of Chair of the Graduate Council:

Date: 3/18/13

Signature of Faculty Senate Secretary:

Date:

Date Approved by Faculty Senate:
FACULTY COMMITTEE ON GRADUATE EDUCATION, CONTINUING EDUCATION
AND SPECIAL PROGRAMS

CHANGE/DELETE GRADUATE PROGRAM PROPOSAL FORM

Contact Name: Renee McCauley          Email: mccauleyr@cofc.edu          Phone: 3-3187

Department and School Name: Computer Science, SSM           Name and Acronym of Graduate Program: CSIS

Date (Semester/Year) changed/deleted program will take effect: Fall 2013

I. CATEGORY OF REVIEW (Check all that apply)

☑ Change Request (attach details):
☐ Add existing course or courses to requirements or electives
☐ Add new course(s) to requirements or electives (complete and attach COURSE FORM for each)
☐ Delete courses from requirements or electives
☐ Add new emphasis (check one): ☐ concentration ☑ track           Total # of hours: 12
     (note: any emphasis involving more than 18 credit hours will also require CHE approval)

☐ Terminate Program (check one): ☐ Degree ☐ Certificate ☐ Emphasis (concentration/track)
     (if checked, skip section II, IV, V, and VII below)

Are students currently enrolled in the program? ☐ Yes ☐ No
If yes, what semester will students complete the program?
If the program termination includes deleting courses from the inventory, a COURSE FORM must be included with this form for each course deletion.

☐ Interdisciplinary (attach evidence of acknowledgement from relevant departments)

II. DESCRIPTION OF CHANGES: If a changed program—please explain changes below; if a new emphasis—please provide the details below.

A new specialization in Cybersecurity is proposed for MS in Computer & Information Sciences. The specialization will consist of 4 courses, only one of which is a new course (also proposed).

CSIS 614 Advanced Operating Systems
CSIS 631 Privacy and Security Issues
CSIS 632 Data Communications and Networking
CSIS 641 Advanced Cyber Security (NEW COURSE)
III. RATIONALE or JUSTIFICATION

For changes or termination, please provide a detailed justification. For a new emphasis, briefly address the goals/objectives for the new emphasis, provide evidence of student interest (i.e., has the program offered special topics courses in this area? has the program interviewed student focus groups as part of an internal assessment? etc.), and explain how the emphasis supports the liberal arts tradition and the mission of the institution.

Our nation’s leaders recognize cybersecurity as a national imperative. In 2010, President Obama established the National Initiative for Cybersecurity Education (NICE). The NICE is a nationally coordinated effort focused on cybersecurity awareness, education, training, and professional development. It seeks to encourage and help build cybersecurity awareness and competence across the nation and to build an agile, highly skilled federal workforce capable of responding to a dynamic and rapidly developing array of threats.

Due to the importance of this area of study, the National Security Agency (NSA) has published a list of academic requirements for establishing National Centers of Academic Excellence (CAE) in the area of Cyber Operations (Cybersecurity).

SPAWAR, a major employer of computing professionals in the low country, and other defense industry contractors in the area, are interested in access to academic studies in Cybersecurity for their employees. The goal of this specialization is to update our graduate offerings to provide professionals in the low country with access to education in Cybersecurity that follows the guidelines of Academic Requirements of NSA Cyber Operations CAE.

IV. CURRICULUM

Provide the COMPLETE curriculum for the changed program and/or new emphasis distinguishing between required and elective courses. Note prerequisite courses where appropriate. Note any sequencing of courses or requirements in the program, listed exactly as it should appear in the catalog.

Students in all specializations take the following four core courses:

- CSIS 601 Data Modeling and Database Design
- CSIS 602 Foundations of Software Engineering
- CSIS 603 Object-Oriented Design Patterns
- CSIS 604 Distributed Computer Systems Architecture

This specialization will require the following four specialization courses:

- CSIS 614 Advanced Operating Systems
- CSIS 631 Privacy and Security Issues
- CSIS 632 Data Communications and Networking
- CSIS 641 Advanced Cybersecurity (new course)

(Continued on next page.)
Finally, all students are required to take 3 general electives from all of the CS courses offered. For this specialization, we will suggest, but not require, that students choose three of the following:

- CSIS 612 Advanced Computer Organizations
- CSIS 616 Automata
- CSIS 634 Project Change and Management
- CSIS 656 Software Systems Design and Implementation
- CSIS 657 Embedded Systems Design

Attach the completed COURSE FORM and a sample syllabus for each new course.

Is a syllabus for each new course attached?  ☒ Yes  ☐ No

V. STUDENT LEARNING OUTCOMES and ASSESSMENT

<table>
<thead>
<tr>
<th>Program-Level Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will students know and be able to do when they complete the program/emphasis? Attach Curriculum Map.</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
</tr>
<tr>
<td>1. Students will acquire competency in core areas appropriate for a program with several specialization tracks, including competency in data modeling, object-oriented design, software engineering, and distributed computer systems architecture.</td>
<td>All students are required to take courses in these four areas: CSIS 601, 602, 603, 604. Assessment through course grades: a grade of B or better is expected in each course.</td>
</tr>
<tr>
<td>2. Students will acquire depth in cybersecurity appropriate for a professional graduate degree and compatible with local needs.</td>
<td>Students in this specialization will take courses providing the required depth: CSIS 614, 631, 632, 641 Assessment through course grades: a grade of B or better is expected in each course.</td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
</tbody>
</table>

Additional Outcomes or Comments:
VI. IMPACT ON EXISTING PROGRAMS and COURSES Please briefly document the impact of this changed/deleted program or new emphasis on other programs and courses; if changing/deleting a program—list all programs that will be impacted (and how); if adding a new emphasis—explain any overlap with existing programs or courses in the same or different departments.

No impact.

Is this changed/deleted program used by others? □ Yes □ No
If yes, please provide a letter of support in each case.

VII. COSTS ASSOCIATED WITH THE ACTION REQUESTED List all of the new costs or cost savings, (including new faculty/staff requests, library or equipment, etc.) associated with the action requested.

No costs.
VIII. APPROVAL and SIGNATURES

Signature of Program Director:

_________________________ Date: 11-29-2012

Signature of Department Chair:

_________________________ Date: 1-16-13

Signature of School Dean:

_________________________ Date: 1-23-13

Signature of the Provost:

_________________________ Date: 2/15/13

Return form to the Graduate School Office for Further Processing

Signature of Chair of the Faculty Committee on Graduate Education, Continuing Education & Special Programs:

_________________________ Date: 2/29/2013

Signature of Chair of the Graduate Council:

_________________________ Date: 3/18/13

Signature of Faculty Senate Secretary:

_________________________ Date: ____________________

Date Approved by Faculty Senate: ____________________
FACULTY COMMITTEE ON GRADUATE EDUCATION, CONTINUING EDUCATION AND SPECIAL PROGRAMS

GRADUATE COURSE PROPOSAL FORM

Contact Name: Renee McCauley Email: mccauleyr@cofc.edu Phone: 3-3187

Department Name: Computer Science Graduate Program name: Computer and Information Sciences

Course Prefix, Number, and Title: CSIS 641 Advanced Cybersecurity

I. CATEGORY OF REVIEW (Check all that apply)

NEW COURSE CHANGE COURSE DELETE COURSE

□ New Course □ Change Number (IV, VII, VIII, IX) □ Delete Course (IV, VII, IX)
□ (attach syllabus*) □ Change Title (IV, VII, VIII, IX)
□ Change Credits/Contact hours (II, IV, VII, IX)
□ Prerequisite Change (IV, VII, VIII, IX)
□ Edit Description (III, IV, VII, VIII, IX)

□ Approve for Cross-listing (attach Graduate Permission to Cross-list Form)

Date (Semester/Year) the course will first be offered, course changes or deletion will go into effect: Fall 2013

NEW COURSE:

*ATTACH THE SYLLABUS FOR A NEW GRADUATE COURSE to include:

• Course description and objectives
• Method of teaching (e.g., lecture, seminar, on-line, hybrid)
• Required and optional texts and materials
• Graduate School Grading Scale
• Assignments, student learning outcomes and assessment components
• Policies to include attendance, Honor Code, American Disabilities Act statement
• Tentative course schedule with specific topics
List prerequisites and/or other restrictions below

CSIS 631

Will this course be added to the Degree Requirements?

a) X Yes  ☐ No  
   As per Renee  
   2/15/13  

b) If yes, explain

This course will be required for the new Cybersecurity specialization only.

II. NUMBER OF CREDITS and CONTACT HOURS per week

A. Contact Hours

<table>
<thead>
<tr>
<th></th>
<th>Lecture</th>
<th>Lab</th>
<th>Seminar</th>
<th>Ind. Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

B. Credit Hours 3

Is this course repeatable? ☐ yes  ☑ no  If so, how many credit hours may the student earn in this course?

III. CATALOG DESCRIPTION Limit to 50 words EXACTLY as you want it to appear in the catalog: include prerequisites, co-requisites, and other restrictions. If changing course description, please include both old and new course descriptions.

This course will cover the techniques used to secure cybersystems. Topics covered will include security policies, computer security management and risk assessment, secured network protocols, software security issues, ethical and legal aspects of cybersecurity, and disaster recovery. Special emphasis will be given to designing, deploying, and managing complete secured cybersystems.
**IV. RATIONALE / JUSTIFICATION:** If course change – please indicate the course change details. If course change or deletion—please provide reasons for change(s) to or deletion of a course. If a new course—briefly address the goals/objectives for the course and the relationship to the strategic plan.

Not applicable.

---

**V. STUDENT LEARNING OUTCOMES and ASSESSMENT**

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will students know and be able to do when they complete the course?</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
</tr>
<tr>
<td>1. understand the concept of cybersecurity management</td>
<td>Assessment will involve in-class exam questions on topic. Students should score 80% or better on these questions.</td>
</tr>
<tr>
<td>2. be able to perform risk assessment of a cybersystem</td>
<td>Assessment will involve in-class exam questions on topic. Students should score 80% or better on these questions.</td>
</tr>
<tr>
<td>3. be able to analyze different methods of attacking and defending cybersystems</td>
<td>Assessment will involve in-class exam questions on topic. Students should score 80% or better on these questions.</td>
</tr>
<tr>
<td>4. be able to write secure programs</td>
<td>Assessment will involve in-class exam questions on topic and programming projects. Students should score 80% or better on these questions and projects.</td>
</tr>
<tr>
<td>5. understand the concepts of network security and secured protocols</td>
<td>Assessment will involve in-class exam questions on topic. Students should score 80% or better on these questions.</td>
</tr>
<tr>
<td>6. have the knowledge of the legal and ethical issues of cybersecurity</td>
<td>Assessment will involve in-class exam questions on topic. Students should score 80% or better on these questions.</td>
</tr>
<tr>
<td>7. know standard practices of backup and recovery</td>
<td>Assessment will involve in-class exam questions on topic. Students should score 80% or better on these questions.</td>
</tr>
</tbody>
</table>

How does this course align with the student learning outcomes articulated for the major, program, or general education? What program-level outcome or outcomes does it support? Is the content or skill introduced, reinforced, or demonstrated in this course?
VII. IMPACT ON EXISTING PROGRAMS and COURSES: Please briefly document the impact and expected changes of this new/changed/deleted course on other departments, programs and courses; if deleting a course—list all departments and programs that include the course; if adding/changing a course—explain any overlap with existing courses in the same or different departments; if adding or deleting a course that will be part of a joint program identify the partner institution.

This new course will have no impact on other departments, programs or courses.

VIII. COSTS ASSOCIATED WITH THE ACTION REQUESTED: List all of the new costs or cost savings, (including new faculty/staff requests, library or equipment, etc.) associated with the action requested. New courses requiring additional resources will need special justification.

No new costs anticipated. Will be taught in place of other courses previously taught, now being rotated differently. Will be taught by existing faculty.
IX. APPROVAL AND SIGNATURES

Signature of Program Director:

_________ Date: __11-29-2012__

Signature of Department Chair:

_________ Date: __1-16-13__

Signature of Additional Chair*:

_________ Date: __________

Signature of Schools' Dean:

_________ Date: __1/23/13__

Signature of Additional Schools' Dean*:

_________ Date: __2/15/13__

Signature of the Provost:

_________ Date: __________

Signature of Budget Director/Business Affairs Office:

_________ Date: __________

*For interdisciplinary courses

Return form to the Graduate School Office for Further Processing

Signature of Chair of the Faculty Committee on Graduate Education, Continuing Education & Special Programs:

_________ Date: __2/20/2013__

Signature of Chair of the Graduate Council:

_________ Date: __3/18/13__

Signature of Faculty Senate Secretary:

_________ Date: __________

Date Approved by Faculty Senate: ____________________________
Syllabus
CSIS 641 – Advanced Cybersecurity
Fall / Spring 20XX

Course Description

This course will cover the techniques used to secure cybersystems. Topics covered will include security policies, computer security management and risk assessment, secured network protocols, software security issues, ethical and legal aspects of cybersecurity, and disaster recovery. Special emphasis will be given to designing, deploying, and managing complete secured cybersystems.

Prerequisite: CSIS 631

Method of teaching: lecture

Textbooks:


Optional reference: Cyberspace and Cybersecurity, George Kostopoulos, CRC Press

Optional reference: Elementary Information Security, Richard E. Smith, Jones and Bartlett

Graduate School Grading Scale
There are four components to the course grade. They are weighted as follows.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>30</td>
</tr>
<tr>
<td>Final</td>
<td>20</td>
</tr>
<tr>
<td>Homeworks</td>
<td>20</td>
</tr>
<tr>
<td>Papers and Projects</td>
<td>30</td>
</tr>
</tbody>
</table>

Scale: 90-100% A; 85-89% B+; 80-84 B; 70-79 C; 0-69 F.
Assignments, assessment components, and student learning outcomes

Assignments and assessment components:

- Homework
  There will be approximately five homeworks. Each homework should be turned in at the beginning of the class on the due date. The homework must be typed. Late and/or illegible work will not be accepted. For every 24 hours late, you will be deducted 10% of the grade of the homework. Any homework that is more than 5 days late will not be evaluated.

- Projects and Papers
  Students will write 1 to 3 papers on cybersecurity. Typical topics of the papers are description of NSA security standards, discussion on spyware, description of firewall, discussion on cybercrimes, and discussion of legal and ethical aspects of cybersecurity. Students will complete various computer security projects. These will include hacking projects, defending computer systems, designing a security plan for a cybersystem, doing a risk analysis for a cybersystem.

- Midterm Examinations
  There will be two Midterm Exams during the semester. Tentative dates for the Midterm Examinations are XXXX and XXX. Missing an examination without a previously approved excuse will result in a grade of zero for that examination. Makeup examinations are never available.

- Comprehensive Final Examination
  The Final Examination is from XXX. The Final Examination is comprehensive. No Final Examination can be given early, except as required by The Citadel / College of Charleston Policy.

Student learning outcomes:
Upon successful completion of this course, students will

- understand the concept of cybersecurity management;
- be able to perform risk assessment of a cybersystem;
- be able to analyze different methods of attacking and defending cybersystems;
- be able to analyze secured software practices;
- be able to write secure programs;
- understand the concepts of network security and secured protocols;
- have knowledge of the legal and ethical issues of cybersecurity; and
- know standard practices of backup and recovery.
Course Policies

Class Attendance and Discussion: It is advised that students attend all lectures. Everyone in the class is expected to participate in the class discussion.

Class Webpage: All course materials and grades will be posted on XXXX.

E-mail: Any announcement will be sent through email. Class emails are sent to your official email address. You are responsible for making sure that you are receiving class e-mails. It is your responsibility to have your official email account working properly and forwarding to the location where you read emails.

Disability

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact the instructor personally as soon as possible so that accommodations necessary can be made to ensure full participation and to facilitate educational opportunities.

Academic Integrity

It is your responsibility to be familiar with the Academic Integrity Policies and The Honor Manual of The Citadel / College of Charleston. Ignorance of these policies is not an excuse for violating them.