Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. *The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.*

College: CITE   Dept/Division: Computer Science   Alpha Designator/Number: CYBR/500   ● Graded   ○ CR/NC

Contact Person: Dr. Wook-Sung Yoo   Phone: x5452

NEW COURSE DATA:

New Course Title: Computer Security Design

Alpha Designator/Number: | C | Y | B | R | / | 5 | 0 | 0 | | |

Title Abbreviation: | C | o | m | p | u | t | e | r | | S | e | c | u | r | i | t | y | | D | e | s | i | g | n | |

(Limit of 25 characters and spaces)

Course Catalog Description:
(Limit of 30 words)

The course covers
~~Foundation of~~ technical and analytical skills to implement comprehensive computer security that encompass designing secure systems, information security, protecting information assets, managing computer security, risk mitigation strategies, ~~and~~ incident response.

Co-requisite(s): None   First Term to be Offered: Fall 2019

Prerequisite(s): None   Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*):   NA

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head ____*You, work*____   Date _9/17/18_

Registrar ____*Alex J Hill*____ 110101   Date _9/21/18_

College Curriculum Chair ____*Tracy*____   Date _9/28/18_

Graduate Council Chair _____   Date _____

Form updated 10/2011   Page 1 of 5

College: CITE   Department/Division: Computer Science   Alpha Designator/Number: CYBR/500

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

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1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Paulus Wahjudi, Ph.D.
Cong Pu, Ph.D.
Husnu Narman, Ph.D.

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "**Not Applicable**" if not applicable.

Not Applicable

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "**Not Applicable**" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "**Not Applicable**" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "**Not Applicable**" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

Please see attached document

7. COURSE OUTLINE   (May be submitted as a separate document)

Please see attached document

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

Please see attached document

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Please see attached document

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Exam, Homework Assignments and Projects

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

Not applicable

12. PROVIDE COMPLETE BIBLIOGRAPHY   (May be submitted as a separate document)

Please see attached document

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Computer Science
Course Number and Title: CYBR 500 Computer Security Design
Catalog Description: The course covers technical and analytical skills to implement comprehensive computer security that encompass designing secure systems, information security, protecting information assets, managing computer security, risk mitigation strategies, incident response.
Prerequisites: None
First Term Offered: Fall 2019
Credit Hours: 3

BIBLIOGRAPHY

Cybersecurity - Attack and Defense Strategies: Infrastructure security with Red Team and Blue Team tactics, 1st Edition by Yuri Diogenes and Erdal Ozkaya, ISBN-13: 978-1788475297, ISBN-10: 1788475291

Computer Security: Art and Science, 1st Edition by Matt Bishop , ISBN-13: 978-0134289519 ISBN-10: 013428951X

Computer Security: A Hands-on Approach, 1st Edition by Wenliang Du , ISBN-13: 978-1548367947 ISBN-10: 154836794X

Guide to Disaster Recovery (1st Edition) by Michael Erbschloe ISBN-13: 978-0619131227 ISBN-10: 0619131225

CYBR 500 Computer Security Design

Course Title/Number	Computer Security Design /CYBR 500
Semester/Year	Fall/2019
Days/Time	TBD
Location	TBD
Instructor	Wook-Sung Yoo
Office	WAEC 3101A
Phone	X5452
E-Mail	yoow@marshall.edu
Office Hours	TBD
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to www.marshall.edu/academic-affairs/policies/. Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment

Course Description

The course covers technical and analytical skills to implement comprehensive computer security that encompass designing secure systems, information security, protecting information assets, managing computer security, risk mitigation strategies, incident response.

Course Student Learning Outcomes

Course Student Learning Outcomes	How students will practice each outcome in this Course	How student achievement of each outcome will be assessed in this Course
Students will be able to explore the threat landscape and ways to mitigate risks.	Homework assignments, In class examples, Group discussions	Graded exam problems Graded homework assignments
Students will be able to respond to an incident using the six-step process of incident response: Preparation, Identification, Containment, Eradication, Recovery, and Lessons Learned	Homework Assignments, In class examples Group discussions	Graded exam problems Graded homework assignments

Students will be familiar with approaches to analyzing malware, ranging from fully automated analysis to static properties analysis, behavioral analysis, and code analysis	Homework, In class examples	Graded exam problems Graded homework assignments

Required Texts, Additional Reading, and Other Materials

Required Text
Cybersecurity - Attack and Defense Strategies: Infrastructure security with Red Team and Blue Team tactics, 1st Edition by Yuri Diogenes and Erdal Ozkaya, ISBN-13: 978-1788475297, ISBN-10: 1788475291

Additional Text
Computer Security: A Hands-on Approach, 1st Edition by Wenliang Du , ISBN-13: 978-1548367947 ISBN-10: 154836794X

Course Requirements / Due Dates

Interim Examinations
There will be two exams, midterm and final exams.

Homework Assignments
Homework problems will be assigned regularly and must be completed individually.

Class Projects
Class Projects are done in teams and focus on specific objectives.

Late Submission Policy
No Late submission will be accepted

Attendance Policy
Missing more than 3 classes will result in a 10 points reduction from your final grade.

Grading Policy

Activity	Points
Attendance and Participation	10
Midterm Exam	25
Homework Assignments	20
Class Projects	20
Final Exam	25
Total	100

Course grades are awarded based on the following scheme:

Score	Letter Grade
>= 90	A
>= 80 & < 90	B
>= 70 & < 80	C
>= 60 & < 70	D
< 60	F

Course Schedule

This is the list of topics. This could be adjusted as the semester progresses at the discretion of the instructor. Lecture slides will be posted to MUOnline.

Week	Schedule
1	Security Benchmarks, Standards, and the Role of Audit in Defending Infrastructure
2	Social Engineering
3	Enterprise Vulnerability Scanning
4	Identifying Malicious Content and Streams
5	Traffic Visualization & Handling Encrypted Network Traffic
6	Digital Forensics and Incident Response
7	Midterm Exam
8	Malware Analysis
9	Static Properties Analysis & Interactive Behavior Analysis
10	Manual Code Reversing
11	Identify and remediate malware across organization
12	Data classification program and data-loss-prevention solutions
13	Risk analysis, risk assessment and risk mitigation
14	Qualitative and quantitative risk assessment methods
15	Six-step incident handling process