

LSC Use Only Proposal No: \_\_\_\_\_ UWUCC Use Only Proposal No: 11-124j  
 LSC Action-Date: \_\_\_\_\_ UWUCC Action-Date: App-4/3/12 Senate Action Date: App-5/10/12

**Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee**

|   |                                      |
|---|--------------------------------------|
| Contact Person(s) <b>William W. Oblitey</b>       | Email Address <b>oblitey@iup.edu</b> |
| Proposing Department/Unit <b>Computer Science</b> | Phone <b>7-4491</b>                  |

Check all appropriate lines and complete all information. Use a separate cover sheet for each course proposal and/or program proposal.

**1. Course Proposals (check all that apply)**

- |  |  |   |
|--|--|---|
| <input checked="" type="checkbox"/> New Course | <input type="checkbox"/> Course Prefix Change              | <input type="checkbox"/> Course Deletion            |
| <input type="checkbox"/> Course Revision       | <input type="checkbox"/> Course Number and/or Title Change | <input type="checkbox"/> Catalog Description Change |

Current course prefix, number and full title: \_\_\_\_\_

Proposed course prefix, number and full title, if changing: **COSC 454 Information Assurance Administration**

**2. Liberal Studies Course Designations, as appropriate**

This course is also proposed as a Liberal Studies Course (please mark the appropriate categories below)

- |  |   |   |   |
|--|---|---|---|
| <input type="checkbox"/> Learning Skills   | <input type="checkbox"/> Knowledge Area       | <input type="checkbox"/> Global and Multicultural Awareness | <input type="checkbox"/> Writing Across the Curriculum (W Course) |
| <input type="checkbox"/> Liberal Studies Elective (please mark the designation(s) that applies – must meet at least one) |   |   |   |
| <input type="checkbox"/> Global Citizenship  | <input type="checkbox"/> Information Literacy | <input type="checkbox"/> Oral Communication                 |   |
| <input type="checkbox"/> Quantitative Reasoning  | <input type="checkbox"/> Scientific Literacy  | <input type="checkbox"/> Technological Literacy             |   |

**3. Other Designations, as appropriate**

- |  |   |
|--|---|
| <input type="checkbox"/> Honors College Course | <input type="checkbox"/> Other: (e.g. Women's Studies, Pan African) |
|--|---|

**4. Program Proposals**

- |   |  |  |                                    |
|---|--|--|------------------------------------|
| <input type="checkbox"/> Catalog Description Change | <input type="checkbox"/> Program Revision  | <input type="checkbox"/> Program Title Change                | <input type="checkbox"/> New Track |
| <input type="checkbox"/> New Degree Program         | <input type="checkbox"/> New Minor Program | <input type="checkbox"/> Liberal Studies Requirement Changes | <input type="checkbox"/> Other     |

Current program name: \_\_\_\_\_

Proposed program name, if changing: \_\_\_\_\_

| 5. Approvals                                     | Signature | Date      |
|--|-----------|-----------|
| Department Curriculum Committee Chair(s)         |           | 2/6/12    |
| Department Chairperson(s)                        |           | 2/10/2012 |
| College Curriculum Committee Chair               |           | 3/7/12    |
| College Dean                                     |           | 3/12/12   |
| Director of Liberal Studies (as needed)          |           |           |
| Director of Honors College (as needed)           |           |           |
| Provost (as needed)                              |           |           |
| Additional signature (with title) as appropriate |           |           |
| UWUCC Co-Chairs                                  |           | 4/3/12    |

**Received**

**MAR 12 2012**

**Liberal Studies**

## Part II. Description of Curriculum Change

### 1. Syllabus of Record

#### I. Catalog Description

##### **COSC 454 Information Assurance Administration**

3c-01-3cr

Prerequisite: COSC 316 or permission of instructor

This course explores the various issues pertinent to maintaining acceptable levels of Information Security within organizations. It addresses issues involved in administering and managing information security systems. The course is intended to raise awareness of information security issues across organizations.

#### II. Course Objectives

Upon completing the course, the student will be able to:

- formulate information assurance system security management plans.
- understand the importance of the need for managing information assurance systems.
- ensure that an information assurance systems will operate at its proposed level of trust.
- able to analyze and judge information for validity and reliability.

#### III. Course Outline

- |  |                |
|--|----------------|
| <b>A. Fundamentals of Information Security</b>   | <b>3 hours</b> |
| 1. Overview of information security  |                |
| 2. Challenge and importance of information security                                    |                |
| 3. Exploration of the terminology used in information security.                        |                |
| 4. Common information security careers.  |                |
| 5. Importance of systems management in information security and information assurance. |                |
| <b>B. Effectiveness of Information Security</b>  | <b>4 hours</b> |
| 1. Identification of personnel responsible for information security.                   |                |
| 2. Security principles.  |                |
| 3. Examination of effective authentication methods, control of access to systems.      |                |
| 4. Auditing information security schemes.  |                |
| <b>C. Attacks and Attackers</b>  | <b>6 hours</b> |
| 1. Basic attacks on systems  |                |
| 2. Developing attack profiles  |                |
| 3. Importance of threats and attacks on the system.                                    |                |
| 4. Environmental and natural threats.  |                |
| 5. Intentional and unintentional human threats.  |                |
| 6. Issues on theft avoidance   |                |
| 7. Organizational threats, threat analysis, and threat assessment                      |                |

## New Course Proposal - Computer Science Curriculum

|   |          |
|---|----------|
| D. Vulnerability Assessment and Risk Management   | 6 hours  |
| 1. Vulnerability and the importance of vulnerability analysis.  |          |
| 2. Host versus network vulnerability  |          |
| 3. Vulnerability appraisal  |          |
| 4. Cost/benefit analysis of information assurance   |          |
| 5. Risk assessment and risk management  |          |
| 6. Role of documentation in reducing risk   |          |
| 7. Residual risk and the risk acceptance process  |          |
| E. Mid-Term Exam  | 1 hour   |
| F. Protection and Countermeasures to Security Breaches  | 4 hours  |
| 1. Role of education, training, and awareness as countermeasures  |          |
| 2. Procedurals and administrative countermeasures   |          |
| 3. Automated countermeasures and deterrents   |          |
| 4. Use of tunneling protocols, authentication technologies, and secure transmission protocols, VPNs, etc. as protection mechanisms. |          |
| G. Security Policies and Procedures   | 6 hours  |
| 1. Developing security policies   |          |
| 2. Role of licensing and copyright protection   |          |
| 3. The need for criminal prosecution  |          |
| 4. Due diligence  |          |
| 5. Evidence collection and preservation.  |          |
| H. Issues in Security Assessment  | 6 hours  |
| 1. Business and enterprise benefits   |          |
| 2. Security assessment tools  |          |
| 3. Security and web services  |          |
| 4. Remote maintenance services  |          |
| I. The Security Management Cycle  | 3 hours  |
| 1. Planning   |          |
| 2. Protection   |          |
| 3. Responding   |          |
| 4. Testing  |          |
| J. Issues in Disaster Recovery  | 3 hours  |
| 1. Planning for business continuity   |          |
| 2. Securing the physical environment  |          |
| 3. Creating a disaster recovery plan  |          |
| 4. Identifying secure recovery  |          |
| 5. Protecting backups   |          |
| <hr/>   |          |
| Total   | 42 hours |
| Final   | 2 hours  |

## IV. Evaluation Methods

|  |     |
|--|-----|
| Evaluation: Exams: 3 (including final) | 50% |
| Projects: 5-6                          | 35% |
| Quizzes, Homework, and Lab Exercises:  | 15% |

## New Course Proposal - Computer Science Curriculum

Grading Scale: The standard grading scale will be used.

90-100% : A; 80-89% : B; 70-79% : C; 60-69% : D; below 60% : F.

Attendance policy: The attendance policy will conform to the University wide attendance criteria.

### V. Textbook(s)

1. Professor notes and reading materials.
2. Mark Ciampa, Security guide to Network Security, Second Edition, Thompson Course Technology, Boston, MA, 2005.

### VI. Special Resource Requirements

None.

### VII. Bibliography

1. Benton, Chris, Mastering Network Security, SYBEX, Inc., San Francisco, CA 1999.
2. Brown, Keith, Programming Windows Security, Addison-Wesley, Reading, MA 2000.
3. CNET Newsletters, <http://nl.com.com/general.jsp>.
4. Frisch, A. and Loukides, Essential System Administration, 2nd Ed. O'Reilly & Associates, Inc., Sebastopol, CA 1995.
5. Garfinkel, S., Spafford, G., and Russell D., Practical UNIX and Internet Security, 2nd Ed. O'Reilly & Associates, Inc., Sebastopol, CA 1995.
6. Goncalves, M. Firewalls: A Completer Guide, McGraw-Hill, New York, NY, 2000.
7. Hatch, B., Lee, J., Kurtz, G., Hacking Linux Exposed: Linux Security Secrets & Solutions, Osborne/McGraw-Hill, Berkeley, CA 2001.
8. IEEE Journal on Security and Privacy, The Institute of Electrical and Electronics Engineers, Inc., Los Alamitos, CA, 2005.
9. Maiwald, Eric, Network Security: A Beginner's Guide, Second Edition, Osborne/McGraw-Hill, Boston, MA, 2004.
10. McNab, Chris, Network Security Assessment, O'Reilly Media, Inc., Sebastopol, CA, 2004.
11. Journal by Science Direct, Network Security, Elsevier Ltd., 2005.
12. Panko, R. R., Corporate Computer and Network Security, Prentice Hall Publishers, Upper Saddle River, New Jersey, 2004.
13. Pardoe, T.D., and Snyder G.F. Jr., Network Security, Thompson/Delmar Learning Series, Clifton Park, NY, 2005.
14. Russell, R. and Cunningham S., Hack Proofing Your Network: Internet Tradecraft, Syngress Publishing, Rockland, MA 2000.
15. SANS Newsletters, <http://server2.sans.org/sansnews>.
16. Scambray, J. and McClure, S., Network Security Secrets & Solutions, McGraw-Hill, Boston, MA 2000.
17. Schneier, B., Digital Security in a Networked World, John Wiley & Sons, Somerset, NJ 2000.
18. Stallings, W., Network Security Essentials: Applications and Standards, Prentice-Hall, Inc., Upper Saddle River, NJ 2000.
19. Wadlow, Thomas A., The Process of Network Security: Designing and Managing a Safe Network, Addison Wesley Longman, Inc., Reading, MA 2000.

## **2. Course Analysis Questionnaire**

### **A. Details of the Course**

- A1 This course will be an upper level elective and available to all interested students who meet the requirement.
- A2 This course does not affect any other course.
- A3 This course has been previously offered two times as COSC481 in the spring of 2010 and spring 2011.
- A4 This course is not dual listed.
- A5 This course is not to be taken for variable credit.
- A6 Similar courses are offered at these institutions:
- Murray College, Illinois
  - Oregon Institute of Technology, Oregon
  - Sonoma State University, California
  - Vrije Universiteit, Amsterdam, The Netherlands
- A7 This course is highly recommended by the National Security Agency (NSA). The offering of this course will help towards the NSA reaccreditation process for the Institute of Information Assurance education. The course is required to grant NIST 4012 certification.

### **B. Interdisciplinary Implications**

- B1. This course will be taught by one instructor.
- B2. The content of this course does not overlap with any other at the University.
- B3. This course is not cross-listed.

### **C. Implementation**

- C1. No new faculty member will be hired to teach this course. This course will be included in the normal rotation of upper-level electives for majors.
- C2. The current classroom and laboratory space available on campus are sufficient for this course.
- C3. No grant funds are necessary to provide supplementary materials.
- C4 This course will be offered on an as needed basis.
- C5. One section will be offered at a time.

New Course Proposal - Computer Science Curriculum

C6 The enrollment in this course will be limited to the number of computers available in our teaching lab.

C7. No professional society recommends enrollment limits or parameters for this course.

C8. This course does not involve the use of distance education.

**D. Miscellaneous**

No additional information is necessary