

1. General Information

1a. Submitted by the College of: COMMUNICATION AND INFORMATION

Date Submitted: 9/16/2013

1b. Department/Division: Library & Information Science

1c. Contact Person

Name: Will Buntin

Email: will.buntin@uky.edu

Phone: 859-257-3317

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Specific Term/Year¹ Fall 2013

1e. Should this course be a UK Core Course? No

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: ICT 651

2c. Full Title: Technology Security

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: x

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

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SEP 16 2013

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SENATE COUNCIL

2j. Course Description for Bulletin: An introduction to information security including vocabulary and terminology, threats to information systems, cryptology, ethics, the legal environment, and risk management. Identification of exposures and vulnerabilities and appropriate countermeasures are addressed. The importance of appropriate planning, policies and controls is also discussed. It is expected that each student will possess some knowledge of programming, operating systems, and networking, although advanced knowledge in those areas is not necessary.

2k. Prerequisites, if any:

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Summer,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 35

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: Yes

Will it be of interest to a significant number of students outside the degree pgm?: No

If Yes, explain: [var7InterestExplain]

8. Check the category most applicable to this course: Relatively New – Now Being Widely Established,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: Yes

If YES, name the proposed new program: Information Communication Technology (ICT) Graduate Program

b. Will this course be a new requirement for ANY program?: No

If YES, list affected programs:

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: No

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from 10.a above) are attached: Yes

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4. Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6. How do course requirements ensure that students make appropriate use of learning resources?

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10. Does the syllabus contain all the required components? NO

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|JTHU222|Jeffrey T Huber|Dept approval for ZCOURSE_NEW ICT 651|20130102

SIGNATURE|CEMONA2|E C Monaghan|College approval for ZCOURSE_NEW ICT 651|20130102

SIGNATURE|ZNNIKO0|Roshan N Nikou|Graduate Council approval for ZCOURSE_NEW ICT 651|20130318

SIGNATURE|CEMONA2|E C Monaghan|Approval resent to college for ZCOURSE_NEW ICT 651|20130822

SIGNATURE|ZNNIK00|Roshan N Nikou|Graduate Council approval for ZCOURSE_NEW ICT 651|20130910

Courses | **Request Tracking**

New Course Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

[Open in full window to print or save](#)

Generate P

Attachments:

Upload File

	ID	Attachment
Delete	2224	651 Revised.pdf

1

Select saved project to retrieve...

(*denotes required fields)

1. General Information

- a. * Submitted by the College of: COMMUNICATION AND INFORMATION Submission Date: 9/16/2013
- b. * Department/Division: Library & Information Science
- c.
 - * Contact Person Name: Will Buntin Email: will.buntin@uky.edu Phone: 859-257-3317
 - * Responsible Faculty ID (if different from Contact) Email: Phone:
- d. * Requested Effective Date: Semester following approval OR Specific Term/Year ¹ Fall 2013
- e. Should this course be a UK Core Course? Yes No

If YES, check the areas that apply:

- Inquiry - Arts & Creativity Composition & Communications - II
- Inquiry - Humanities Quantitative Foundations
- Inquiry - Nat/Math/Phys Sci Statistical Inferential Reasoning
- Inquiry - Social Sciences U.S. Citizenship, Community, Diversity
- Composition & Communications - I Global Dynamics

2. Designation and Description of Proposed Course.

- a. * Will this course also be offered through Distance Learning? Yes ⁴ No
- b. * Prefix and Number: ICT 651
- c. * Full Title: Technology Security
- d. Transcript Title (if full title is more than 40 characters):
- e. To be Cross-Listed ² with (Prefix and Number):
- f. * Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours³ for each meeting pattern type.

<input checked="" type="checkbox"/> Lecture	<input type="checkbox"/> Laboratory ¹	<input type="checkbox"/> Recitation	<input type="checkbox"/> Discussion
<input type="checkbox"/> Indep. Study	<input type="checkbox"/> Clinical	<input type="checkbox"/> Colloquium	<input type="checkbox"/> Practicum
<input type="checkbox"/> Research	<input type="checkbox"/> Residency	<input type="checkbox"/> Seminar	<input type="checkbox"/> Studio
<input type="checkbox"/> Other	If Other, Please explain: _____		
- g. * Identify a grading system: Letter (A, B, C, etc.) Pass/Fail Graduate School Grade Scale
- h. * Number of credits: 3
- i. * Is this course repeatable for additional credit? Yes No
 - If YES: Maximum number of credit hours: _____
 - If YES: Will this course allow multiple registrations during the same semester? Yes No

j. * Course Description for Bulletin:

An introduction to information security including vocabulary and terminology, threats to information systems, cryptology, ethics, the legal environment, and risk management. Identification of exposures and vulnerabilities and appropriate countermeasures are addressed. The importance of appropriate planning, policies and controls is also discussed. It is expected that each student will possess some knowledge of programming, operating systems, and networking, although advanced knowledge in those areas is not necessary.

k. Prerequisites, if any:

l. Supplementary teaching component, if any: Community-Based Experience Service Learning Both

3. * Will this course be taught off campus? Yes No

If YES, enter the off campus address:

4. Frequency of Course Offering.

a. * Course will be offered (check all that apply): Fall Spring Summer Winter

b. * Will the course be offered every year? Yes No

If No, explain:

5. * Are facilities and personnel necessary for the proposed new course available? Yes No

If No, explain:

6. * What enrollment (per section per semester) may reasonably be expected? 35

7. Anticipated Student Demand.

a. * Will this course serve students primarily within the degree program? Yes No

b. * Will it be of interest to a significant number of students outside the degree pgm? Yes No

If YES, explain:

8. * Check the category most applicable to this course:

Traditional – Offered in Corresponding Departments at Universities Elsewhere

Relatively New – Now Being Widely Established

Not Yet Found in Many (or Any) Other Universities

9. Course Relationship to Program(s).

a. * Is this course part of a proposed new program? Yes No

If YES, name the proposed new program:

Information Communication Technology (ICT) Graduate Program

b. * Will this course be a new requirement [§] for ANY program? Yes No

If YES [§], list affected programs:

10. Information to be Placed on Syllabus.

a. * Is the course 400G or 500? Yes No

If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in 10.b. You must include: (i) ident additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR

b. * The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if appl 10.a above) are attached.

- Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
- The chair of the cross-listing department must sign off on the Signature Routing Log.
- In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, is two hours per week for a semester for one credit hour. (from SR 5.2.1)
- You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
- In order to change a program, a program change form must also be submitted.

Rev 8/09

[Submit as New Proposal](#) [Save Current Changes](#)



ICT 651: Technology Security

Instructor

TBD
320 Lucille Little Fine Arts Library
Lexington, KY 40506-0224
Phone: 859.257.8876 (administration)
Fax: 859.257.4205
Preferred method of contact: email

Office Hours

TBD and by appointment. Contact me via e-mail to schedule an appointment to meet: I will frequently respond as soon as possible, usually within 24 hours.

CLASS INFORMATION

This is a face-to-face course. You are required to attend scheduled classroom sessions. The Blackboard course management system will be used to facilitate the class. You will need access to an appropriate computer with a broadband Internet connection. Please visit <http://www.uky.edu/Blackboard/> to learn about this system and the login requirements.

COURSE INFORMATION

Course Description

An introduction to information security including vocabulary and terminology, threats to information systems, cryptography, ethics, the legal environment, and risk management. Identification of exposures and vulnerabilities and appropriate countermeasures are addressed. The importance of appropriate planning, policies and controls is also discussed. It is expected that each student will possess some knowledge of programming, operating systems, and networking, although advanced knowledge in those areas is not necessary.

Student Learning Outcomes

Students successfully completing the course will be able to:

- Discuss network fundamentals and security, including network topologies, protocols, and network threats and countermeasures.
- Describe several models of access control, both at a theoretical and practical level, including the basic concepts of firewalls, packet filters, application gateways, and typical firewall configurations.
- Understand the problems and potential solutions associated with implementing operating system and application security.
- Explain common practices and be able to cite some common approaches to risk management and analysis.
- Understand what is required to formulate and implement a plan for incident response.
- Develop processes for system evaluation and assurance and understand what frameworks are commonly used for governance and compliance activities.

- Speak in depth on an information security topic of their choosing as a result of completing the final paper or project requirement.

Course Overview

As more and more companies begin to base their business plans on e-commerce and their ability to deliver their e-goods electronically, protecting information assets now translates directly into pocketbook gains and losses. As a result, corporate executives are now paying attention to information security and it is beginning to get the attention that it has long deserved.

The purpose of this survey course is to help students understand threats to information systems and how to defend against them. Though the primary focus of the course is on technical areas such as cryptology, network security, and operating systems, less technical topics are also examined, including risk management and administration, ethics, and the role of public policy.

The course will be organized around a few broad themes:

- Foundations: the security mindset, essential concepts;
- Software security: vulnerabilities and protections, malware, program analysis;
- Practical cryptography: encryption, authentication, hashing, symmetric and asymmetric cryptography;
- Networks: wired and wireless networks, protocols, attacks and countermeasures;
- Applications: databases, web apps;
- Special topics: privacy and anonymity, ethics, public policy.

Required Text

Charles P. Pfleeger and Shari L. Pfleeger, *Security in Computing, 4th Edition*. Upper Saddle River, NJ: Prentice Hall, 2008. Print. ISBN: 9780132390774

STUDENT EVALUATION

Grading Parameters

Final Exam:	20%
Midterm Exam:	20%
Assignments:	20%
Position Paper:	20%
Class Participation:	20%

Exams

There will be a midterm and a final exam, each representing 20% of your final grade (40% total). These may include multiple choice, true/false, matching, short answer, and essay questions. The final exam is not comprehensive and will only include material covered since the midterm exam.

Assignments

Assignments will account for 20% of the overall course grade. These activities will focus on information that has been covered in your readings and will include homework assignments, practical exercises, and group work. The points associated with each assignment will vary depending on the skills and length of time involved. Assignments will be submitted electronically via Blackboard and are due by midnight on Sunday of the week indicated.

Position Paper

You will be required to write a position paper of 10-12 double-spaced pages on a topic related to technology security. A list of possible topics will be provided. The purpose of a position paper is to generate support on an issue. It describes a position on an issue and the rationale for that position. The position paper is based on facts that provide a solid foundation for your argument.

In the position paper you should:

- Use evidence to support your position, such as statistical evidence or dates and events.
- Validate your position with authoritative references or primary source quotations.
- Examine the strengths and weaknesses of your position.
- Evaluate possible solutions and suggest courses of action.

The position paper will account for 20% of the overall course grade.

Class Participation

Students are expected to participate in the discussion board topics, which will be posted no later than Sunday at midnight at the start of each week. The topics will relate to the course readings and supplementary material assigned. Students will be evaluated based on the substance, facts, ideas, opinions, tone, and style of their responses. Responses will be monitored for inappropriate comments.

Grading Policy

Class assignments are due on or by the due date noted on the individual assignments. Late assignments will only be accepted with prior approval from the instructor.

Grading Scale

- [90% – 100%] = **A (Exceptional Achievement)**
- [80% – 89%] = **B (High Achievement)**
- [70% – 79%] = **C (Average Achievement)**
- [0% – 60%] = **E (Fail)**

GENERAL COURSE POLICIES

Policies concerning academic integrity, excused absences and academic accommodations due to disability are available online at: <http://www.uky.edu/CIS/SLIS/academics/policies.pdf>

TECHNOLOGY INFORMATION & RESOURCES

Distance Learning Students are expected to have a minimum level of technological acumen and the availability of technological resources. Students must have regular access a computer with a reliable Internet connection and audio capabilities. Internet Explorer 7 (IE) or Firefox 2.x are the recommended browsers for those using a Windows-based PC. Those using Firefox 3.x may encounter problems with assignment uploads. Those using an Apple computer with MAC OS X (10.5.x) may use Firefox 3.x or Safari 3.x.

Please be certain that your computer and/or browser allow you to view Adobe Reader documents (.pdf). Microsoft Office and other software products are available free for students:

<https://iweb.uky.edu/MSDownload/>

Where to get Help

As your instructor, I am your first go-to person for technology problems. If you need more immediate assistance, please contact:

- Teaching and Learning Services Center (TASC)
<http://www.uky.edu/TASC/>
859-257-8272
- Information Technology Customer Service Center (UKIT)
<http://www.uky.edu/UKIT/>
859-257-1300

Library Services

- Distance Learning Services
<http://www.uky.edu/Libraries/DLLS>
Carla Cantagallo, DL Librarian
Local phone number: 859 257-0500, ext. 2171
Long distance phone number: (800) 828-0439 (option #6)
Email: dllservice@email.uky.edu
- DL Interlibrary Loan Service:
http://www.uky.edu/Libraries/libpage.php?lweb_id=253&llib_id=16
- Course Reserves
http://www.uky.edu/Libraries/page.php?lweb_id=23<ab_rank=3

COURSE SCHEDULE

Week 1	Introduction: the Need for Information Security. (Ch. 1, pp. 1-32)
Week 2	Elementary Cryptography: Terminology and Background. (Ch. 2, pp. 37-67)
Week 3	Elementary Cryptography: Data Encryption, Encryption Algorithms. (Ch. 2, pp. 68-93)
Week 4	Program Security: Viruses and Other Malicious Code. (Ch. 3, pp. 98-184)
Week 5	Operating System Security. (Ch. 4, pp. 188-241)
Week 6	Database and Data Mining Security. (Ch. 6, pp. 318-375)
Week 7	Midterm Exam.
Week 8	Security in Networks: Network Concepts, Threats to Networks. (Ch. 7, pp. 376-473)
Week 9	Security in Networks: Firewalls, Intrusion Detection Systems. (Ch. 7, pp. 474-507)
Week 10	Administering Security: Risk Analysis and Planning. (Ch. 8, pp. 508-546)
Week 11	Administering Security: Policies and Disaster Recovery. (Ch. 8, pp. 547-567)
Week 12	The Economics of Cybersecurity. (Ch. 9, pp. 571-599)
Week 13	Privacy Issues in Computer Security. (Ch. 10, pp. 603-643)
Week 14	Legal and Ethical Issues in Computer Security. (Ch. 11, pp. 647-714)
Week 15	Final Exam. Please see the "Final Exam Schedule" on the Registrar's web page for the date and time of the final exam.