

University of Kentucky
School of Library & Information Science (SLIS)

[ICT-390-002]

[Special Topics in ICT: Introduction to Networking Technologies]

[Spring 2015/2015]

[January 14, 2015 – May 8, 2015]

Instructor

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Associate Professor

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Preferred method of contact: Email

Office Hours

- Mondays: 11 AM to 2 PM

Wednesdays: 11 AM to 1 PM

- How to contact me for an appointment:
Email

- Maximum time frame for response:
Will respond as soon as possible
Maximum: 12 hours any day of the week
including weekends

- Office Hours:
I am available anytime by email. I am also
available in the office anytime if a prior
arrangement is made

Class Information

- Final exam date and time
May 4, 2015

COURSE INFORMATION

Course Description

ICT 390-002: Special Topics in ICT – Introduction to Networking Technologies

This course provides an introduction to various networking technologies that have been deployed and are in use today. The course covers the basic principles of operations of computer networks and communication protocols. It provides a good understanding of the operation of the components of different types of networks (mobile networks, wireless networks, wired networks) and the applications deployed over them. The course also covers network management technologies and tools that are used to manage different types of networks. We also plan to discuss other relevant networking issues including network security, network planning, etc. The projects assigned in this course are intended to give strong hands-on networking experience.

Course Objectives

- Describe the basic computer networking terminologies.
- Explain the basic operations of computer networks and networking protocols.
- Describe the fundamental components of different types of networks including wired, wireless, and mobile networks.
- Explain network management, administration and troubleshooting techniques.
- Provide a basic introduction to network security.
- Provide some hands-on networking experience.

Course Outcomes

By the end of this course, you will:

- Know the basic definitions and terminologies in computer networking.
- Understand how computer networks work.
- Understand the basic design and implementation of network protocols.
- Understand the various components of a network and how they are connected.
- Understand the operations of various networking technologies.
- Know how to manage networks using various network management tools.
- Have a basic understanding of network security issues.
- Have some good hands-on experience with networks and protocols.

Required Reading

Lecture notes primarily.

Reference Textbooks

1. Douglas Comer, *Computer Networks and Internets (4th Edition)*, Addison-Wesley, 5th edition, ISBN-10: 0136066984, 2008. The latest edition (6th) of the book is: ISBN-10: 0133587932, January 2014.
2. Greg Tomsho, *Guide to Networking Essentials*, 6th Edition, 2011. ISBN-13: 978-1111312524.
3. Jorge Olenewa, *Guide to Wireless Communications*, 3rd Edition. Course Technology Incorporated, 2013, ISBN-13: 9781111307318.

STUDENT EVALUATION

Grading Parameters

- 2 projects: 15%
- 3 quizzes (30%)
- 2 homeworks (5%)
- **Midterm exam** (25%) [covers the first half of the course]
- **Final exam** (25%) [covers the second half of the course]. However, the instructor reserves the right to retest on material that was not appropriately understood. Such material will be highlighted before the final exam

Grading Rubric (See Submission of Course Assignments for details)

- Late assignments are only acceptable under exceptional circumstances or if the instructor has been notified ahead of time. For all other cases, submissions handed in after the submission deadline will be assessed with a penalty of 5% per day.
- Submitted work which does not conform to the required standard (in terms of file format, line spacing, grammar, etc.) as set in the “Submission of Course Assignments” in this syllabus will be graded with points taken off accordingly.

Grading Scale

- [90% – 100%] = **A (Exceptional Achievement)**
- [80% – 89%] = **B (High Achievement)**
- [70% – 79%] = **C (Average Achievement)**
- [60% – 69%] = **D (Below Average Achievement)**
- [0% – 59%] = **E (Failing)**

Absences/Attendance

The instructor’s policies on academic integrity, excused absences, incompletes, accommodations due to disability are described in the general course policies of SLIS described at <http://ci.uky.edu/lis/sites/default/files/policies.pdf>

Submission of Course Assignments

- All assignments and project reports must be submitted electronically.
- All times specified for submission deadlines are Eastern Standard Time (EST).

- All submitted work must be typed [12 point, Time Roman, single line spacing, 1 inch margins] using **Microsoft WORD (.doc, .docx, .rtf)** and be thoroughly spellchecked and free of grammatical mistakes.
- All files submitted must have the following text “**firstname_lastname<day-month submitted>**” as part of the filename.
- All sources used during the preparation of all submitted works must be clearly identified in a separate list of ordered [e.g., [1], [2], [3], etc.] references (in a **Reference** section placed after the main document). These references must be cited within the text of the submission where appropriate. Please avoid using Wikipedia, blogs, white papers as direct sources for cited references in your submitted papers or reports.

Group Work and Collaboration

All assignments should be undertaken individually. For projects requiring group work, detailed instructions will be outlined in the project description. When group work is performed, each member of the group must state his/her contributions very clearly and all members of the group must agree on each member’s contributions before the start of the project and inform the instructor (in writing) about the expected efforts of each member of the group.

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 free for students: <https://iweb.uky.edu/MSDownload/>.

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

Information Technology Customer Service Center (UKIT)

<http://www.uky.edu/UKIT/>; 859-218-4357

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&lib_id=16

Course Reserves

http://www.uky.edu/Libraries/page.php?lweb_id=23<ab_rank=3

GENERAL COURSE POLICIES

Military Members and Veterans

We recognize the complexities of being a member of the military community and also a student. If you are a member of the military or a military veteran or dependent, please inform your instructor if you are in need of special accommodations. Drill schedules, calls to active duty, mandatory training exercises, complications with GI Bill disbursement, and other unforeseen military and veteran related developments can complicate your academic life. If you are aware of a complication, we will work with you and put you in contact with university staff members who are trained to assist you. Please contact the Coordinator of

the University of Kentucky Veterans Resource Center at (859) 257-1148 for additional assistance. Please visit <http://www.uky.edu/veterans> for more available resources.

Academic Integrity

Policies concerning academic integrity, excused absences and academic accommodations due to disability are available online at:

<http://ci.uky.edu/lis/sites/default/files/policies.pdf>

COURSE CALENDAR

Lecture Material, Quizzes, Projects, Exams	
Lecture Material	Provided during lectures
Quiz 1	January 30, 2015
Homework 1	February 4, 2015
Quiz 2	February 18, 2015
Project 1	Due 10 AM (EST) on February 23, 2015
Mid-term exam	March 9, 2015
Homework 2	March 30, 2015
Quiz 3	April 3, 2015
Project 2	Due 10 AM (EST) on April 17, 2015
Final exam	May 4, 2015

NOTE: Please contact me as early as possible to make the appropriate arrangements in case you cannot take the quizzes or exams on the dates specified above.

Tentative topics to be covered in this course include:

- Fundamental Concepts and Basic Definitions
- Digital Encoding
- Transmission Media
- Error Control and Recovery
- Local Area Networks
- Wireless Communications
- Network functions: addressing, routing, multicasting, subnets
- Network Protocols and Transport Protocols
- Mobile and Ad-hoc Networks
- Network Security
- Network Management, Troubleshooting, Administration

Lecture notes cover important materials that need a thorough understanding by the students. Homework assignments are intended to reinforce the material in the text and will often require external materials outside the book to be consulted. Quizzes will help ensure

students stay up with the materials being taught. Midterm and final exams may be preceded by short reviews of the materials to be tested.

COURSE ASSIGNMENTS

The homework assignments will help reinforce the understanding of the fundamental concepts, key terms, techniques, etc that have been covered by the lecture materials. The hands-on projects will require students to apply their knowledge and skills to design solutions and answer questions of varying difficulty for realistic business scenarios. In addition, as part of the homework assignment or project, students will often need to develop their critical thinking skills for given realistic scenarios: they must be able to identify the problem, analyze the options available, and develop an appropriate solution to meet the requirements of the given project scenario.

Projects	Due Dates
Project 1	Due 10 AM (EST) on February 23, 2015
Project 2	Due 10 AM (EST) on April 17, 2015

As mentioned earlier in the syllabus, all assignments and project reports must be submitted electronically by the date and time due.

NOTE: This syllabus may be changed at any time at the discretion of the instructor.