<table>
<thead>
<tr>
<th>ABET Unit Classification:</th>
<th>Engineering</th>
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<tr>
<td>Compliant Catalogue:</td>
<td>2009</td>
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<tr>
<td>Course Code:</td>
<td>0907721</td>
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<tr>
<td>Course Title:</td>
<td>Network Systems Design</td>
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<tr>
<td>Credit Hours:</td>
<td>3</td>
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<tr>
<td>Class Schedule:</td>
<td>Time: S. T. 15:30 - 17:00 P.M. Class Room: CPE 001</td>
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<tr>
<td>Laboratory Schedule:</td>
<td>None</td>
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<tr>
<td>Tutorial Schedule:</td>
<td>None</td>
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<tr>
<td>Duration:</td>
<td>16 Weeks</td>
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<tr>
<td>Course Coordinator:</td>
<td>Dr. Anas N. Al-Rabadi</td>
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<tr>
<td>Prepared by:</td>
<td>Dr. Anas N. Al-Rabadi</td>
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<tr>
<td>Date of Outline Preparation:</td>
<td>September 12, 2011</td>
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<tr>
<td>Date of Last Revision:</td>
<td>September 12, 2011</td>
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<tr>
<td>Checked by:</td>
<td>Dr. Anas N. Al-Rabadi</td>
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The University of Jordan  
Department of Computer Engineering  

COURSE OUTLINE  

I. Course Description  

(0907721) Network Systems Design [3 C.H.]  

This course gives a broad view of the current state of computer networking research. Topics include: Basics of computer networking; Fundamentals of wireless computer networks; Internet architecture; Internet routing: the Border Gateway Protocol (BGP), routing characterization, routing security, Internet AS relationships, traffic engineering, end host congestion control; Quality-of-service parameters and characteristics; Network security: intrusion detection systems, worms, and honeypots; Mobile and wireless networking: Peer-to-peer and overlay networking; Content distribution networks; Sensor-based networks; Critical network infrastructure services: Domain Name Server (DNS), mail servers, etc.; Network measurement: distance estimation, bandwidth measurement, and troubleshooting tools; Network management.  

II. Required Background or Experience  

Prerequisites by course: ----------------------------------  

III. Course Objectives and Expected Outcomes  

Ability to analyze and design complete advanced computer network systems meeting specific networking requirements.  

IV. Textbooks and Readings  


V. Student Materials

Texts, class handouts, engineering calculator, PC, and the Internet.

VI. College Facilities

N/A

VII. Course Outline

1. Computer networking basics and fundamentals
2. Basics of wireless computer networks
3. Internet architecture
4. Internet routing: Border Gateway Protocol (BGP), routing characterization, routing security, Internet AS relationships, traffic engineering, end host congestion control
5. Quality-of-Service (QoS) parameters and characteristics
6. Network security: intrusion detection systems, worms, and honeypots
7. Mobile and wireless networking
8. Peer-to-peer and overlay networking
9. Content distribution networks
10. Sensor-based computer networks
11. Critical network infrastructure services: Domain Name Server (DNS), mail servers, etc
12. Network measurement: distance estimation, bandwidth measurement, and trouble shooting tools
13. Management of computer networks

VIII. Instructional Methods

1. Lectures
2. Instructor Notes

IX. Evaluation of Outcomes

1. Projects: 30%
2. Midterm Exam: 30%
3. Final Exam: 40%

X. Professional Component Contribution

At the end of this course, students must possess the ability to analyze and design complete advanced computer networking systems that meet specific networking requirements.

XI. Course Policies

- Attendance is required
- All mobile phones are closed during the lecture
- All submitted work must be yours
- Cheating will not be tolerated
- No makeup exams will be allowed under any circumstance
- This course requires significant effort