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| **ISHIK UNIVERSITY FACULTY OF SCIENCE Department of INFORMATION TECHNOLOGY,2017-2018 Spring Course Information for** **IT 302 DATA COMMUNICATIONS AND COMPUTER NETWORKS II** |

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| --- | --- |
| **Course Name:** | DATA COMMUNICATIONS AND COMPUTER NETWORKS II |
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| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course type** | **Regular Semester** | **Theoretical** | **Practical** | **Credits** | **ECTS** |
| IT 302 | 2 | 6 | 3 | - | 3 |  |

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| **Name of Lecturer(s)-Academic Title:** | Safwan Mawlud - MSc |
| **Teaching Assistant:** | - |
| **Course Language:** | English |
| **Course Type:** | Non-area Elective |
| **Office Hours** | 8  |
| **Contact:** | Email:safwan.mawlud@ishik.edu.iq Tel:075000000  |
| **Teacher's academic profile:** | Head of Computer Engineering  |
| **Course Objectives:** | The course contents include protocols and equipment in communications network such as the Internet, local area networks and wide area networks. The course provides both practical and general knowledge of communication: It deals with principles and methods for constructing digital communication systems with an emphasis on data-link and network protocols, and provides an introduction to TCP / IP protocols. |
| **Course Description (Course overview):** | This course is the further step of Computer Networks -1- course. Based on the outcomes of Computer Networks -1 students should have the basics of networking and Network structures, architectures and protocols. Open systems and the OSI and TP/IP reference models; services and network standardization. Communication systems: transmission media (wire-wireless), analog and digital transmission modes. Circuit, packet and message switching. Networking characteristics: storage, delay, multiplexing, bandwidth sharing and dynamic bandwidth management, QoS. Channel organization, framing, channel access control. LANs, MANs and WAN concepts, routing algorithm and protocols. |
| **COURSE CONTENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topic** |
| **1** | 3 | 4-8/2/2018 | Introduction and Overview |
| **2** | 3 | 11-15/2/2018 | Data Link Layer Technologies, Multiple Access |
|  |  |  |  |
| **3** | 3 | 18-22/2/2018 | Carrier Sense Multiple Access (CSMA) , Carrier Sense Multiple Access with Collision Detection (CSMAlCD) |
| **4** | 3 | 25/2-1/3/2018 | NetworkLayer: Logical Addressing |
|  |  |  |  |
| **5** | 3 | 4-8/3/2018 | NetworkLayer: Logical Addressing |
| **6** | 3 | 25-29/3/2018 | Network Layer: Delivery, Forwarding, and Routing |
|  |  |  |  |
| **7** | 3 | 1-5/4/2018 | Midterm Exam |
| **8** | 3 | 8-12/4/2018 | Process-to-Process Delivery: UDP, TCP, and SCTP |
|  |  |  |  |
| **9** | 3 | 15-19/4/2018 | Process-to-Process Delivery: UDP, TCP, and SCTP |
| **10** | 3 | 22-26/4/2018 | Application Layer |
|  |  |  |  |
| **11** | 3 | 29/4-3/5/2018 | Domain Name System |
| **12** | 3 | 6-10/5/2018 | Network management System |
|  |  |  |  |
| **13** | 3 | 13-17/5/2018 | Presentation |
| **14** | 3 | 20-24/5/2018 | Presentation |
|  |  |  |  |
| **15** | 3 | 27-31/5/2015 | Final Exam |
| **16** | 3 | 3-7/6/2018 | Final Exam |
|  |  |  |  |
| **17** | 3 | 10-14/6/2018 |  |

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| **COURSE/STUDENT LEARNING OUTCOMES**

|  |  |
| --- | --- |
|  |  |
| **1** | Identify network layer, network layer protocols , transport layer and transport layer protocols and application layer of the Internet model. |
| **2** | Solve mathematical problems for data-link and network protocols |
| **3** | To calculate the best path of transmitting packets based on routing |
| **4** | Design , implement and evaluate advanced network topology |

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| **COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES**(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced )

|  |  |  |
| --- | --- | --- |
|  | **Program Learning Outcomes** | **Cont.** |
| **1** | An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution | A |
| **2** | An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs | P |
| **3** | An ability to function effectively on teams to accomplish a common goal | I |
| **4** | An understanding of professional, ethical, legal, security, social, and economic issues and responsibilities |  |
| **5** | An ability to analyze the local and global impact of computing on individuals, organizations, and society |  |
| **6** | An ability to use current techniques, skills, and tools necessary for computing practice | P |
| **7** | An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, web systems and technologies |  |
| **8** | An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems | P |
| **9** | An ability to effectively integrate IT-based solutions into the user environment |  |
| **10** | An ability apply problem solving skills, core IT concepts, best practices and standards to information technologies |  |
| **11** | An ability to identify and evaluate organizational requirements and current and emerging technologies |  |
| **12** | An ability to select, design, integrate and administer IT-based solutions into the organizational environment | I |

 |
| **Prerequisites (Course Reading List and References):** | familiarity with the core concepts of data communication and networking, including awareness of the existence of protocols; an understanding of hardware such as hubs and switches, common operating systems. |
| **Student's obligation (Special Requirements):** | Students expected to attend all the classes,There is a required term project on a topic related to computer Networks. |
| **Course Book/Textbook:** | Data Communications and Networking”, B. A. Forouzan, McGraw-Hill |
| **Other Course Materials/References:** | Computer Networks and Internets, 5/e”, By Douglas Comer, Prentice-Hall, Cisco Academic Programing “CCNA” “Computer Networking”, Kurose & Ross, Addison-Wesley, “Computer Networks”, Andrew S. Tanenbaum, Prentice-Hall, |
| **Teaching Methods (Forms of Teaching):** | Lectures, Presentation, Project, Assignments |
| **COURSE EVALUATION CRITERIA**

|  |  |  |
| --- | --- | --- |
| **Method** | **Quantity** | **Percentage (%)** |
| Participation | 5 | 1 |
| Quiz | 5 | 2 |
| Project | 1 | 5 |
| Midterm Exam(s) | 1 | 30 |
| Presentation | 1 | 5 |
| Laboratory | 5 | 1 |
| Final Exam | 1 | 40 |
| **Total** | **100** |
| **Examinations:**Essay Questions, Multiple Choices, Short Answers |  |  |

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| **Extra Notes:** |
| **ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD**

|  |  |  |  |
| --- | --- | --- | --- |
| **Activities** | **Quantity** | **Duration (Hour)** | **Total Work Load** |
| Course Duration (Including the exam week: 16x Total course hours) |  |  | 0 |
| Hours for off-the-classroom study (Pre-study, practice) |  |  | 0 |
| Assignments Mid-terms |  |  | 0 |
| Final examination |  |  | 0 |
| Other |  |  | 0 |
| **Total Workload** | **0** |
| **ECTS Credit (Total workload/25)** | **0** |

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**Peer review**

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| --- | --- | --- |
| Signature: | Signature: | Signature: |
| Name: | Name: | Name: |
| Lecturer                                                                       | Head of Department                                                         | Dean |

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