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| **ISHIK UNIVERSITY FACULTY OF SCIENCE Department of INFORMATION TECHNOLOGY,2017-2018 Spring Course Information for IT 301 DATA COMMUNICATIONS AND COMPUTER NETWORKS I** |

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| --- | --- |
| **Course Name:** | DATA COMMUNICATIONS AND COMPUTER NETWORKS I |
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| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course type** | **Regular Semester** | **Theoretical** | **Practical** | **Credits** | **ECTS** |
| IT 301 | 2 | 5 | 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:** | Provide students with enhance specialist knowledge in the area of computer networking which build upon studies at the undergraduate level; Principles of data communications; information transfer, computer networks and their applications. Describe a model for computer networks including a description of interfaces, protocols, layers, and layer functionality; in addition Network structures, architectures and protocols, Communication systems: transmission media (wire-wireless),Investigate the fundamental issues driving network design and Learn about dominant network technologies |
| **Course Description (Course overview):** | This course will cover the fundamental aspects of wireless networks, with emphasis on current and next-generation wireless networks. Various aspects of wireless networking This course will cover the fundamental aspects of wireless networks, with emphasis on current and next-generation wireless networks. Various aspects of wireless networking will be covered including: fundamentals of cellular communication, mobile radio propagation, multiple access techniques, and mobility support, channel allocation, Wireless PAN/LAN/MAN standards, mobile ad-hoc networks, wireless sensor networks, and routing in wireless and mobile networks. |
| **COURSE CONTENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topic** |
| **1** | 3 | 8-12/10/2017 | Introduction And Overview, Introduction to Computer Network, Models of Network Computing |
| **2** | 3 | 15-19/10/2017 | Network Network Types and Classification, Rules of Network Communication, Protocol Suites and Layering Models |
|  |  |  |  |
| **3** | 3 | 22-26/10/2017 | OSI Model , -The purpose of the OSI reference model -The seven layers of the OSI reference model |
| **4** | 3 | 29/10-2/11/2017 | Networking Media ,Twisted Pair Copper Wiring , Shielding: Coaxial Cable And Shielded Twisted Pair, Categories Of Twisted Pair Cable , Media Using Light Energy And Optical Fibers |
|  |  |  |  |
| **5** | 3 | 5-9/11/2017 | Data Link Layer \_Framing |
| **6** | 3 | 12-16/11/2017 | Data Link Layer , Flow Control |
|  |  |  |  |
| **7** | 3 | 19-23/11/2017 | Midterm Exam |
| **8** | 3 | 26-30/11/2017 | Data Flow Methods\_Go-Back-N,Stop-and-Wait |
|  |  |  |  |
| **9** | 3 | 3-7/12/2017 | Data Flow Methods\_Error Detection |
| **10** | 3 | 10-14/12/2017 | CRC |
|  |  |  |  |
| **11** | 3 | 17-21/12/2017 | Media Access Control |
| **12** | 3 | 24-28/12/2017 | ? |
|  |  |  |  |
| **13** | 3 | 31/12/2017-4/1/2018 | Assignment Presentation |
| **14** | 3 | 7-11/1/2018 | Review |
|  |  |  |  |
| **15** | 3 | 14-18/1/2018 | Final Exam |
| **16** | 3 | 21-25/1/2018 | Final Exam |
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| **COURSE/STUDENT LEARNING OUTCOMES**

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|  |  |
| **1** | Show clear understanding of the basic concepts of data communications including the key aspects of networking and their interrelationship, packet switching, circuit switching and cell switching as internal and external operations, physical structures, types, models, and internetworking. |
| **2** | Understanding the interaction between hardware and software elements. |
| **3** | Understanding different network types. |
| **4** | Understanding the layered architecture and protocols. |
| **5** | Learning the application of computer networks. |

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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 | P |
| **2** | An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs | I |
| **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 | I |
| **5** | An ability to analyze the local and global impact of computing on individuals, organizations, and society | I |
| **6** | An ability to use current techniques, skills, and tools necessary for computing practice | I |
| **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 | I |
| **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 | I |
| **9** | An ability to effectively integrate IT-based solutions into the user environment | I |
| **10** | An ability apply problem solving skills, core IT concepts, best practices and standards to information technologies | I |
| **11** | An ability to identify and evaluate organizational requirements and current and emerging technologies | I |
| **12** | An ability to select, design, integrate and administer IT-based solutions into the organizational environment | I |

 |
| **Prerequisites (Course Reading List and References):** | Introduction to computers |
| **Student's obligation (Special Requirements):** | Students are required to attend lectures, enter all quizzes, midterm and final exam, installing cisco packet racer and GNS3 |
| **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, Seminar, Project, Assignments |
| **COURSE EVALUATION CRITERIA**

|  |  |  |
| --- | --- | --- |
| **Method** | **Quantity** | **Percentage (%)** |
| Quiz | 5 | 2 |
| Homework | 2 | 2.5 |
| Project | 1 | 10 |
| Midterm Exam(s) | 1 | 30 |
| Laboratory | 2 | 2.5 |
| Final Exam | 1 | 40 |
| **Total** | **100** |
| **Examinations:**Essay Questions, True-False, 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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