

**Jerash University**

**Faculty of Computer Science and Information Technology**

**Computer Sciences Department**

**Semester**: Fall Semester 2018/2019

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| **Course symbol and number: 1003351** | **Course Name:** شبكات الحاسوب المتقدمة  Advance Computer Networks |
| **Teaching Language:** English | **Prerequisites:** . **1003251** |
| **Credits:** 3 hours**.** | **Course Level:** 3 |

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| **Course Description** |
| This course presents and describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. |

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| **Course Objectives** |
| The main goal of this course is to provide you with a comprehensive understanding of networking technologies, concepts and terminology. You will learn about the equipment and technologies used in LANs and WANs. You will learn about the network topologies used today and design a network using these topologies. A variety of network equipment will be discussed, including hubs, routers, switches, and NICs. LAN architectures are covered including Ethernet, Token ring, and FDDI. Also, you will learn about wide area networking technologies and remote access technologies such as X.25, ISDN, frame relay, ATM, DSL, SMDS, and SONET networks. Wireless networking and handheld computing is also discussed. All major LAN and WAN protocols will be discussed including TCP/IP and the newer IPv6, In addition you will learn about the OSI layered communications model. Aside from learning the technologies involved in networking, you will get to understand the daily tasks involved with managing and troubleshooting a network. |

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| **Learning Outcomes** |
| Data Communications & Computer Networks: A Business User’s Approach, 4th Edition, **ISBN:** 0-619-16035-7. |

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|  | **Text Book(s)** |
| **Title** | Data Communications & Computer Networks: A Business User’s Approach |
| **Author(s)** | by Curt M. White |
| **Publisher** | *2012* |
| **Year** | *2012* |
| **Edition** | , 4th Edition |

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|  | **References** |
| **Books** | [Data Communications and Computer Networks](https://www.isbns.net/isbn/9780619160357/)(3rd Edition) A Business User’s Approach, Third Edition by [Curt M. White](https://www.isbns.net/author/Curt_M_White) |
| **Internet links** | http://www.jpu.edu.jo/lms |
| **Course link** | [Click here](http://www.jpu.edu.jo/lms) |

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|  | **Instructors** |
| **Instructor** |  |
| **Office Location** | الطابق السادس - 611 |
| **Office Phone** | 666 |
| **E-mail** |  |

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| **Topics Covered** | | | |
| **Topics** | **Chapters in Text** | **Week number** | **Teaching hours** |
| Routing & Switching - Introduction to Switched Networks  Introduction, LAN Design, Switched Environment, Summary. | **Chapter 1** | 1-3 | 2 |
| Routing & Switching - Introduction to Switched Networks  Introduction, Basic Switch Configuration, Switch Security: Management and Implementation | **Chapter 2** | 4, 5, 6 | 7 |
| Routing & Switching - VLANs  VLAN Segmentation, VLAN Implementation, VLAN Security and Design. | [Chapter 3](http://www.ciscolk.com/2015/05/ccna-1-chapter-3-introduction-to.html) | 8,9, 10 | 7 |
| Routing & Switching - Routing Concepts  Routing Concepts, Initial Configuration of a Router, Routing Decisions, Router Operation | [Chapter 4](http://www.ciscolk.com/2015/05/ccna-1-chapter-3-introduction-to.html) | 11 | 3 |
| Routing & Switching - Inter-VLAN Routing  Inter-VLAN Routing Configuration, Troubleshooting Inter-VLAN Routing, Layer 3 Switching | [Chapter 5](http://www.ciscolk.com/2015/05/ccna-1-chapter-3-introduction-to.html) | 12 | 3 |
| Routing & Switching - Static Routing  Static Routing Implementation, Configure Static and Default Routes, Review of CIDR and VLSM, Configure Summary and Floating Static Routes, Troubleshoot Static and Default Route Issues | [Chapter 6](http://www.ciscolk.com/2015/05/ccna-1-chapter-3-introduction-to.html) | 13,14 | 4 |
| Routing & Switching -  Routing Dynamically  Dynamic Routing Protocols, Distance Vector Dynamic Routing, RIP and RIPng Routing,Link-State Dynamic Routing, The Routing Table | [Chapter 7](http://www.ciscolk.com/2015/05/ccna-1-chapter-3-introduction-to.html) | 15 | 3 |
|  | Handout | 15 |  |

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|  | **Evaluation** |  |
| **Assessment Tool** | **Expected Due Date** | **Weight** |
| Programming assignments and LMS |  | 20 % |
| First Exam |  | 20 % |
| Second Exam |  | 20 % |
| Final Exam | According to the University final examination schedule | 40 % |

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|  | **Policy** |
| **Attendance** | Attendance is very important for the course. In accordance with university policy, students missing more than the allowed absence rate of total classes are subject to failure. Penalties may be assessed without regard to the student's performance. Attendance will be recorded at the beginning or end of each class. |
| **Exams** | All exams will be CLOSE-BOOK; necessary algorithms/equations/relations will be supplied as convenient. |

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| **Class Schedule & Room** |

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| **Office Hours** | | |
| Sun: 11 – 12.30  Mon: 11 - 12:30  Tues: 11- 12.30  Wed: 11 – 12:30 | | |
|  | \* Or by an appointment through email |  |

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|  | **Teaching Assistant** |
| To announced later on. |  |

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|  | **Prerequisites** |
| **Prerequisites by course** |  |