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**COLLEGE OF INFORMATION TECHNOLOGY**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**COURSE SYLLABUS/ SPECIFICATION**

**Course Code & Title: ITCS 441 - System Administration II**

**Weight: (2-2-3)**

**Prerequisite: ITCS 341**

**NQF Level Allocated: Level 8**

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| **NQF Notional Hours / Credits:**  **120 notional hours/ 12 NQF credit** |

**Description:** This course provides critical knowledge and experience for IT professionals. Student will have the knowledge required to assemble components based on customer requirements, install, configure and maintain devices, PCs and software for end users, understand the basics of networking and security/forensics, properly and safely diagnose, resolve and document common hardware and software issues while applying troubleshooting skills. Student will also provide appropriate customer support; understand the basics of virtualization, desktop imaging, and deployment.

**Objective:**

1. To explain commercial operating Systems functionality and components.
2. To configure commercial operating systems to suite personnel & corporate uses.
3. To explain troubleshooting techniques and executing them.
4. To explain the differences between mobile devices and standard PC architecture and functionality.

**Semester:**

**Instructor:**

**Office Telephone: Email (s):**

**Intended Learning Outcomes (ILOs):**

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| 1. **Knowledge and Understanding** | | | | **NQF Descriptor/ Level** | |
| **A1** | | **Concepts and Theories:** Demonstrate critical understanding of various Microsoft operating systems, its command line tools, some of its networking and security utilities as well as different Mobile devices and troubleshooting techniques. | | Knowledge: theoretical understanding  [Level 8] | |
| 1. **Subject-specific Skills** | | | | **NQF Descriptor/ Level** | |
| **B1** | | | **Problem Solving:** Detect various system symptoms and choose the appropriate tool for troubleshooting it. | Knowledge: Practical  Application [Level 8]  Skills: Communication,  ICT & Numeracy [Level 8] | |
| **B3** | | | **Application of Methods and Tools:** Perform preventive maintenance procedures using appropriate tools as well as use different command line tools to customize and configure the operating system. | Knowledge: Practical  Application [Level 8]  Skills: Communication,  ICT & Numeracy [Level 8] | |
| 1. **Critical-Thinking Skills** | | | | **NQF Descriptor/ Level** | |
| **C1** | | | **Analytic skills:** Analyze specific scenario to choose appropriate security methods and tools | Generic Problem Solving & Analytical skills  [Level 8] | |
| 1. **General and Transferable Skills (other skills relevant to employability and personal development)** | | | | | **NQF Descriptor/ Level** | |
| **D1** | **Communication:** Communicate efficiently and fluently. | | | | Communication, ICT and Numeracy Skills [Level 8] | |
| **D3** | **Organizational and Developmental Skills:** Demonstrate ability to organize ideas and effectively allocate time in given assignment. | | | | Competence: Autonomy, Responsibility and Context [Level 8] | |

**Course Structure (Outline)**

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| **Week** | **Hours** | | **ILOs** | **Unit/Module or Topic Title** | **Teaching**  **Method** | **Assessment**  **Method** |
| **Lecture** | **Lab** |
| 1 | 2 | 2 | A1 | **Syllabus, Introduction** | Lecture |  |
| 2 | 2 | 2 | A1, B3 | **Operating Systems**   1. The Windows OS 2. Windows XP 3. Windows Vista 4. Windows 7 5. 32 or 64 bit 6. Upgrading Windows 7. Windows Upgrade Advisor 8. Upgrade Paths | Lecture/ In- Lab Supervised Work | In-Lab Exercises |
| 3 | 2 | 2 | A1, B3, C1 | **Installing Windows**   1. Hardware Requirements 2. Boot Methods 3. Hard Disk Partitioning 4. Partition Schemes and Types 5. File System Formatting- part I 6. File System Formatting- part II 7. Workgroup Vs. Domain 8. Factory Recovery Partitions | Lecture/ In- Lab Supervised Work | In-Lab Exercises |
| 4-5 | 4 | 4 | A1, B3 | **Windows command Line**  **Tools**   1. OS Commands 2. TASKKILL 3. BootRec 4. Shutdown 5. Working with Directories- Part I 6. Working with Directories- Part II 7. FDISK 8. FORMAT 9. Copying Files 10. DISKPART 11. CHKDSK 12. DEL | Lecture/ In- Lab Supervised Work | In-Lab Exercises/ Quiz1 |
| 6 | 2 | 2 | A1, B3 | **Networking Command Line**  **Tools**   1. PING 2. IPCONFIG 3. TRACERT 4. NETSTAT 5. NET 6. NSLOOKUP | Lecture/ In- Lab Supervised Work | In-Lab Exercises |
| 7-8 | 4 | 4 | A1, B3, C1, D1, D3 | **Administrative Tools**   1. Computer Management 2. Device Manager 3. Local Security Policy 4. Performance Monitor 5. Services 6. Windows Memory Diagnostic 7. Windows Firewall 8. WFAS 9. MSCONFIG 10. Task Manager 11. Disk Management | Lecture/ In- Lab Supervised Work | In-Lab Exercises/ Assignment 1 |
| 9 | 2 | 2 | A1, B3 | **Control Panel Utilities**   1. Internet Options 2. Display 3. Folder Options 4. User Accounts 5. System 6. Power Options | Lecture/ In- Lab Supervised Work | In-Lab Exercises |
| 10 | 2 | 2 | A1, B3 | **Configuring Windows**  **Networking**   1. Windows 7 Homegroups 2. Network Shares 3. Mapping Drives 4. Network Types 5. Alternative IP Addresses | Lecture/ In- Lab Supervised Work | Major Test |
| 11 | 2 | 2 | A1, B3, C1 | **Sharing Resources**   1. NTFS Vs. Share Permissions. 2. Allow Vs. Deny 3. Moving Vs. Copying. | Lecture/ In- Lab Supervised Work | In-Lab Exercises |
| 12 | 2 | 2 | A1, B3, C1 | **Security**   1. Physical Security. 2. Digital Security. 3. User Education 4. Common Security Threats 5. Malware - Part I 6. Malware - Part II 7. Hard Drive Disposal 8. Securing A Wireless Network | Lecture/ In- Lab Supervised Work | In-Lab Exercises |
| 13 | 2 | 2 | A1, B3, C1 | **Mobile**   1. Android Vs. iOS. 2. Mobile Features. 3. Bluetooth 4. Laptops Vs. Tablet PCs | Lecture/ Class  Discussion/ In-Lab Supervised Work | In-Lab Exercises/ Quiz2 |
| 14-15 | 4 | 4 | A1, B1, B3, C1, D1, D3 | **Troubleshooting**   1. Common Hard Drive Symptoms. 2. Hard Drive Troubleshooting Tools. 3. Common Display Symptoms 4. Troubleshooting Network Issues 5. Network Troubleshooting Tools 6. Common OS Symptoms 7. OS Troubleshooting Tools 8. Common Printer Symptoms | Lecture/ Class Discussion/ In-Lab Supervised Work/  Independent Learning/ Demonstration | In-Lab Exercises/ Assignment 2 |
| 16 | 2 | - | A1, B1, C1 | All Topics |  | Final Exam |

\* Formative assessment

**Teaching Materials:**

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| **Textbook(s):** | CompTIA A+ Certification |
| **Handout(s):** | Available on Moodle i.e. <http://www.ahlia.edu.bh/moodle> |
| **Reference(s):** | COMPTIA A+ CERTIFICATION Website <https://certification.comptia.org/getCertified/certifications/a.aspx> |

**Assessments:**

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| --- | --- | --- | --- |
| **Type of**  **Assessment** | **Description** | **ILOs** | **Weighting** |
| In-Lab Exercises | Each of the In-Lab exercises consists of a set of practical tasks to be carried by the students during lab time and that will help in evaluating hands-on capability of the students. | B1, B3, C1 | Formative |
| Quizzes | The purpose of the quiz is to assess the students’ knowledge and understanding of the topics covered in the course like various Windows OS, its command line tools, different mobile devices, etc.. Students will be given two quizzes, each one is 30 minutes, and the best one will be considered. | A1, C1 | 10% |
| Major Test | The test will be an in-class 60 minutes exam that will consist of multiple choice questions, fill in the blank, short-answer and few essay questions. It will cover the topics studied in the first 10 weeks. | A1, C1 | 30% |
| Assignments | The students will be given 2 research based assignments each worth 15 marks and their average will be considered at the end. | A1, B1, C1, D1, D3 | 20% |
| Final Exam | The final exam is comprehensive and will be of two hours duration. It will consist of multiple choice questions, fill in the blank, short-answer and few essay questions. | A1, B1, C1 | 40% |
| **Overall** |  |  | **100%** |

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| **Admissions** | |
| **Minimum number of students** | **5** |
| **Maximum number of students** | **20** |

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| **Ahlia University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see** [www.ahlia.edu.bh/integrity](http://www.ahlia.edu.bh/integrity) **for more information).** |