**AMOUD UNIVERSITY**
**"A Vehicle for Peace and Development"**
**AMOUD UNIVERSITY**

**FACULTY OF COMPUTING AND ICT**

**BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY PROGRAMME**

**ACADEMIC YEAR 2015/ 2016**

**COURSE DESCRIPTION**

| **BIT 222** | **Operating Systems** | |
|---|---|---|
| Contact Hours | 52 | |
| Prerequisite | **BIT 212 Computer Architecture and Organization** | |
| Purpose/Aim | This course gives an overview of the main facilities provided by an operating system and also introduces the basic functions of two mainstream operating systems. | |
| Course Objective (Indicative Learning Outcomes | • The learner can describe the interface between hardware and software<br>• The learner can describe the main facilities underlying the operating environment of a computer<br>• The learner demonstrates basic skills in a command-based operating system | |
| Course Content | • Operating systems concepts and overview: Historical perspective, types of Operating Systems, Architecture – Components and Structure of Operating Systems.<br>• Process Management [description and control]: Process model, Process scheduling - Scheduler, Scheduling algorithms; Processes and threats; Process Concurrency and Synchronization; Communication (mutual exclusion, Semaphores, monitors), Deadlocks.<br>• Memory Management: Real Memory Management, Virtual Memory Management; Memory Partitioning, Paging, Segmentation,<br>• File Organization and Access - Disk Scheduling, RAID, Disk cache, File Sharing, File Systems.<br>• I/O Management – I/O devices, I/O Buffering<br>• Protection and Security threats | |
| Learning & Teaching Methodologies | Lectures, tutorials and computer laboratory exercises | |
| Instructional Materials/Equipment | Classroom with audio visual aids<br>Computer laboratory<br>UNIX and Windows Operating System | |
| Course Assessment | **Type** | **Weighting (%)** |
| | Examination | 60 |
| | Continuous Assessment | 40 |

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|---|---|---|---|
| | Total | 100 | |
| Recommended Reading | **Title** | **Author** | **Publisher** |
| | Modern Operating Systems | Andrew Tanenbaum | Prentice Hall (2001) |
| Additional Reading | Operating Systems: Internals and Design Principles | William Stallings | Prentice Hall (2000) |
| | Operating System Concepts | Abraham Silberschatz, Greg Gagne, Peter Baer Galvin | Wiley (2002) |
| Other Support Material | A variety of multimedia systems and electronic information resources as prescribed by the lecturer.<br>Various application manuals, URL search and journals. | | |