



## COURSE SPECIFICATION

### (OPERATING SYSTEM-2)

Programme(s) on which the course is given	Computer Science
Major or Minor element of programs	Major
Department offering the program	Computer Science
Department offering the course	Computer Science
Academic year / Level	3 <sup>rd</sup> Year/ 1 <sup>st</sup> Semester

#### A- Basic Information

Title	Operating System-2			Code	CS434	
Credit Hours	Lecture	3	Tutorial	-	Practical	3
	Total				6	

#### B- Professional Information

##### 6- Overall aims of course

- Understanding how to install and configure Linux as well as know basic shell programming and other Linux utilities.
- Explain how to use the Linux operating system to manage files and documents.
- Customize the Linux operating system to suit their needs.
- Create a simple interactive web page on the Linux operating system running the Apache web server.
- Create a simple device driver for USB on the Linux operating system.

##### 6- Intended learning outcomes of course (ILOs)

###### 2a- Knowledge and understanding

- a4 Know and understand the fundamental concepts, principles and theories of computing and computer science covering topics such as algorithms, operating

system, programming languages and artificial intelligence.

**2b- Intellectual skills**

**b1** Solve a wide range of problems related to the analysis, design and construction of computer systems

**b2** Analyze the requirements of a range of computer-based systems and examine the design alternatives based on the constraints imposed by society, organizations, and technology.

**2c- Professional and practical skills**

**c5** Design, write and debug computer programs in appropriate languages.

**c6** Use appropriate computer-based design support tools

**c8** Appreciate the features of complex computing hardware and software and operate them effectively

**2d- General and transferable skills**

**d1** Display an integrated approach to the deployment of communication skills.

**d2** Use IT skills and display mature computer literacy.

**6- Contents**

<b>Topic</b>	<b>No. of Hours</b>	<b>Lecture</b>	<b>Tutorial /Practical</b>
<b>1 Linux Essentials</b> <ul style="list-style-type: none"> <li>• Introduction.</li> <li>• Differences in Linux and Unix.</li> <li>• Operating Systems Overview.</li> </ul>	3	3	-
<b>2 Linux Installation</b> <ul style="list-style-type: none"> <li>• Install Steps.</li> <li>• Hardware Requirements</li> <li>• Linux Device Names.</li> <li>• Partitioning the Hard Drive.</li> <li>• Network Settings.</li> <li>• Language Support.</li> <li>• Packages to Install.</li> <li>• Graphical Interface Configuration.</li> <li>• First Boot following Installation.</li> </ul>	12	6	6
<b>3 Linux Utilization</b> <ul style="list-style-type: none"> <li>• Introduction.</li> <li>• Login Screens.</li> <li>• Linux Resources.</li> <li>• Types of Commands.</li> <li>• Processes.</li> <li>• Linux communications.</li> </ul>	6	3	3
<b>4 Linux File System.</b> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Types of Files</li> <li>• File Systems Characteristics.</li> <li>• File System Commands.</li> <li>• Directory Commands.</li> <li>• File Manipulation Commands.</li> <li>• Printing Files.</li> </ul>	6	3	3

<b>5 Linux Text Editing</b> <ul style="list-style-type: none"> <li>• Editing Modes.</li> <li>• Entering &amp; Exiting VI.</li> <li>• Navigating within VI.</li> <li>• Creating Text.</li> <li>• Modifying Text.</li> <li>• Text Substitution.</li> <li>• VI Shortcuts.</li> <li>• VI Options.</li> </ul>	6	3	3
<b>6 Linux Shell</b> <ul style="list-style-type: none"> <li>• Shell Overview.</li> <li>• Shell Functions.</li> <li>• Shell Variables.</li> <li>• I/O Redirection.</li> <li>• Pipes.</li> <li>• User Environment.</li> </ul>	12	6	6
<b>7 Shell Programming</b> <ul style="list-style-type: none"> <li>• Creating a Shell Program.</li> <li>• Executing the Shell Program.</li> <li>• Comments.</li> <li>• Debugging Shell Programming.</li> <li>• Functions.</li> <li>• Aliases.</li> <li>• Conditional Testing.</li> <li>• IF Statement.</li> <li>• Looping.</li> </ul>	12	6	6
<b>8 Linux Utilities</b> <ul style="list-style-type: none"> <li>• Regular Expressions.</li> <li>• Printing File Information.</li> <li>• Extracting Information.</li> <li>• Translating Information.</li> <li>• Counting Words.</li> <li>• File Differences.</li> <li>• Finding Files.</li> </ul>	6	3	3
<b>9 Network Commands</b> <ul style="list-style-type: none"> <li>• Ping Command.</li> <li>• Telnet Command.</li> <li>• FTP Command.</li> </ul>	6	3	3
<b>10 Devices Drivers</b> <ul style="list-style-type: none"> <li>• Introduction.</li> <li>• Kernel module.</li> <li>• Character device driver.</li> <li>• Block device driver.</li> <li>• File system driver</li> <li>• System calls</li> <li>• Network Drivers.</li> <li>• Register and unregister device.</li> </ul>	15	6	9
<b>Total number of Hours for the course</b>	<b>84</b>	<b>42</b>	<b>42</b>

## 6- Teaching and learning methods

- 4.1 Lecture
- 4.2 Programs and Tutorials.
- 4.3 Research Assignments.
- 4.4 Cases Study in the Laboratory.

## 5- Student assessment methods

### 5-a Methods

- 5.a.1 Reports, assignments, and exercises to assess knowledge and understanding.
- 5.a.2 Regular oral, practical and written quizzes to assess intellectual skills.
- 5.a.3 Practical projects, final practical and oral exams to assess professional skills.
- 5.a.4 Reports, assignments, and discussions to assess general and transferable skills.
- 5.a.5 Final written exam to assess knowledge and understanding.

### 5-b Assessment schedule

Assessment 1	5 <sup>th</sup> week.	Mid term exam
Assessment 2	8 <sup>th</sup> week.	
Assessment 3	10 <sup>th</sup> week.	
Assessment 4	16 <sup>th</sup> week (Oral and practical)	
Assessment 5	17 <sup>th</sup> -18 <sup>th</sup> weeks (final written exam)	

### 5-c Weighting of assessments

Semester work	10%
Mid-term examination	10%
Oral / Practical examination.	20%
Final-term examination	60%
Total	100%

## 6- List of references

### 6-a Course notes

There are lectures notes prepared in the form electronics by the Lecturer

### 6-b Essential books (text books)

[1] Christopher Negus, Red Hat Linux 7.3 Bible, 2002, Wiley Publishing, Inc.

### 6-c Recommended books

[1] Richard Pertersen, Linux: The Complete Reference, Fourth Edition, 2001 McGraw-Hill Companies.

### 6-d Periodicals, Web sites, ... etc

IEEE transactions on computer software.

## 7- Facilities required for teaching and learning

- Modeling and simulation laboratories.
- Software programs specified in operating system (Red Hat Linux9.1)
- Datashow, screen, and laptop computer.

**Course coordinator:**

**Prof. Arabi El-Said Keshk**

**Head of Department:**

**Prof. Nabil Abd El-Wahed Ismail**

**Date: / /**