Course specification

(3102 Operating Systems)

Faculty: HICIT- **Higher Institute for Computers & Information Technology**
Programme(s) on which the course is given: Under graduate program in Computer Science
Major or minor element of programme: Compulsory
Department offering the programme: Department of Computer Science
Department offering the course: Department of Computer Science
Year / Class: 3rd Year – 1st semester
Date of specification approval: 22/9/2015

A- Basic Information

Title: Operating Systems **Code:** 3102
Weekly Hours:
Lecture: 3 **Exercise: 1** **Practical:** 2 **Total:** 6

B- Professional Information

1- Course Objectives:

The objective of CS3202 is to teach concepts and the fundamentals of the operating systems. The course starts with basic concepts needed to understand the objectives of the operating systems and the tools and criteria's used to meet the objectives. The processor time management, the memory managements, devices management and problems of concurrent processing are the main foucs of the course.

2- Program ILOs Covered by Course

Program Intended Learning Outcomes			
Knowledge and understanding	**Intellectual Skills**	**Professional and practical skills**	**General and Transferable skills**
a8, a10, a18, a19,	**b2, b4, b16**	**c6, c9, c10, c11, c14**	

3 - Intended learning outcomes of course (ILOs)

After Completing this course the student must demonstrate the Knowledge and ability to:

a: Knowledge and Understanding

a1. Understanding the major functions performed by the operating systems.
a2. Understand hardware and software concepts needed to understand operating systems design.
a3. Understand the process concept, process states and time sharing.
a4. Explain Memory management.
a5. Understand Virtual memory.
a6. Explain Job and processor Scheduling.
a7. Explain Deadlocks and Concurrent Update problems.
a8. understand Device Scheduling .

b: Intellectual skills

Cognitive skills of critical thinking, analysis, synthesis, including :

b1.Analyze the resources sharing concepts in time and space analysis, synthesis.

b2. Analyze modes of operations and alternating in modes to deal with problems solving.

b3. Illustrate Diagrams in representing and problems formulation and search for solutions.

b4. Synthesis of clearly and precisely analysis for problems.

b5. Differentiate between operating systems.

c: Professional and practical skills

c1- Apply virtual memory expansion in the cases in which there is a space problem.

c2- Design and implement application of time sharing concept in problems with such nature.

c3- Measure the system performance.

c4- Design and implement producer and consumer applications.

c5- Design and implement applications that can detect deadlocks in systems.

d: General and transferable skills

d1. Work effectively as an individual and as a member of a team.

d2. Write technical Report.

4- Contents

Topic	Hours	Lec.	Exc/Lab
Major operating systems functions	6	3	3
Hardware and software concepts	6	3	3
The process concept	12	6	6
Memory management	12	6	6
Virtual memory	12	6	6
Job and processor Scheduling	6	3	3
Deadlocks	6	3	3
Concurrent Update problems	6	3	3
Device Scheduling	6	3	3
Selected Topics	6	3	3

5- Teaching and learning methods

5.1 Lectures

5.2 Tutorial Exercises

5.3 Practical Lab

5.4 Discussions.

6 -Student assessment methods

6.1 Midterm Exam: To assess the knowledge and understanding achieved by the student during the previous weeks.

6.2 Final Exam: To evaluate what the student gain at the end of the course, and to assess: the knowledge and understanding, general skills, and intellectual skills.

6.3 Course Work & Quizzes: To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.

6.4 Practical Exam: to measure the ability of students to design and implement a software program.

Assessment Schedule

Assessment	Week #
Mid Term Exam	**8**
Final Exam	**16**
Course Work &Quizzes	**2-14**
Practical Exam	**15**

Assessment Weight

Assessment	Weight %
Mid Term Exam	**5%**
Final Exam	**70%**
Course Work &Quizzes	**5%**
Practical Exam	**20%**
Total	**100**

Course Work &Quizzes: (Short Exams, Assignments, Researches, Reports, Presentations, Class/Project discussion)

7 -List of references

7.1 Text Books

-Operating Systems, H.M. Deitel and others, Fourth edition,Pearson prentice Hall international,2010.

8- Required Facilities

-Visual Studio .Net

9- Course Matrices

9-1 **Course Contents/ILOs Matrix**

Course Contents	a1	a2	a3	a4	a5	a6	a7	a8	b1	b2	b3	b4	b5	c1	c2	c3	c4	c5	d1	d2
Major operating systems functions	x											x								
Hardware and software concepts			x														x			
The process concept	x																			
Memory management		x		x					x	x	x	x								
Virtual memory		x	x	x									x	x	x		x			
Job and processor Scheduling								x												
Deadlocks													x		x					
Concurrent Update problems					x															
Device Scheduling						x												x		
Selected Topics							x						x							

9-2 **Learning Methods /ILOs Matrix**

Learning Methods	a1	a2	a3	a4	a5	a6	a7	a8	b1	b2	b3	b4	b5	c1	c2	c3	c4	c5	d1	d2
Lectures	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Tutorial Exercises									x	x	x	X	x	x	x	x	x	x		
Practical Lab									x	x	x	X	x	x	x	x	x	x		
Discussions.									x	x	x	X	x	x	x	x	x	x	x	x

9-3 **Assessment Methods /ILOs Matrix**

Assessment Methods	a1	a2	a3	a4	a5	a6	a7	a8	b1	b2	b3	b4	b5	c1	c2	c3	a4	c5	d1	d2
Mid Term Exam	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Final Exam	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Course Work &Quizzes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Practical Exam	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		

Course Coordinator: Dr. Abdellatif Hussien **( )**
Head of Department: Dr. Farouk Shabaan **( )**
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