**Operating Systems Course Specifications**

Faculty: Computer and Informatics

**Department:** Computer Science, Information Systems, Scientific Computing, Computer Systems

**Program(s) on which the course is given :** Computer Science, Information Systems, Scientific Computing, Computer Systems

**Major or Minor element of programs :**  Computer Science/ Computer Systems

**Department offering the program :** Computer Science, Information Systems, Scientific Computing, Computer Systems

**Department offering the course :** Computer Science

**Academic year / Level : 3**rd Year/BSc

**Date of specification approval :**  20/2/2012

## Basic Information

**Title: Code:** CSW355

**Lecture**: 3 hrs/week **Practical:** 2 hrs/week **Tutorial: ---**

**Total: 5** hrs/week

## Professional Information

* 1. **Overall Aims of Course:**

To teach the concepts and mechanisms employed in modern operating systems, including the use of concurrent processing. To provide students with experience of programming using an OS application programming interface. To provide a foundation for further study in distributed systems.

* 1. **Intended Learning Outcomes of Course (ILOs):**

1. Knowledge & understanding:
2. Explain and illustrate operating systems structure & components
3. Explain Inter-process communication
4. Give an account on multithreading & concurrency
5. Explain application programming interfaces
6. Summarize OS case studies
7. Intellectual skills:
8. Criticize OS design alternatives
9. Employ appropriate OS API services
10. Practical skills:
11. Handle C programs that use the UNIX/LINUX API.
12. Handle IPC programs
13. Handle and inject multithreaded programs

c4. Design multithreaded & concurrent programs

1. Transferable skills:
2. Present solutions for problems
3. Evaluate and discuss alternatives
   1. **Contents:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **No. of hours** | **Lecture** | **Tutorial/Practical** |
| Introduction | 5 | 3 | 2 |
| Computer-System Structure | 5 | 3 | 2 |
| Operating-System Structure | 10 | 6 | 4 |
| Processes | 10 | 6 | 4 |
| Threads | 10 | 6 | 4 |
| CPU Scheduling | 10 | 6 | 4 |
| Processes Synchronization | 10 | 6 | 4 |
| Deadlocks | 10 | 6 | 4 |

* 1. **Teaching and Learning Methods:**
     1. Lectures (knowledge and understanding)
     2. Practical Training / Laboratory (Practical skills)
     3. Class Activities (assignments) (intellectual skills)
     4. Group Projects (transferable skills)
  2. **Student Assessment Methods:**

1. Assignments to assess progress on students’ learning, effectiveness of course

materials, and approaches to instruction

1. Mid-Term exam to assess level of knowledge acquisition and concepts

understanding that can be used as a feedback for enhancing the learning process

1. Oral exam to assess communication of technical information that

demonstrate scientific understanding

1. Practical exam to assess application of knowledge and skills

of understanding in a specific situation

1. Semester Final exam to assess level of mastery of the concepts, algorithms, and

problem solving techniques learned in the course

1. Application Project to assess performance in which students carry out an activity or

produce a product

**Assessment Schedule:**

Assessment 1 Assignments Week 3

Assessment 2 Assignments Week 5

Assessment 3 Mid-Term exam Week 7

Assessment 4 Assignments Week 10

Assessment 5 Oral and Practical exam Week 15

**Weighting of Assessments:**

Final-term Examination 65%

Oral Examination 10%

Practical Examination 15%

Semester Work 10%

Other types of assessment ---

Total 100 %

**Formative assessments**

* Assignments
  1. **List of references :**
  2. Essential Books (Text Books) :

“OPERATING SYSTEM CONCEPTS”, A. SILBERSCHATZ, P. GALVIN and G. GAGNE, JOHN WILEY & SONS, INC, 2008, 8th edition

Operating System Concepts Essentials, Eight Edition, Avi Silberschatz, Peter Baer Galvin and

Greg Gagne , John Wiley & Sons, Inc., ISBN 978-0-470-88920-6,2011.

* 1. Recommended Books:

“OPERATING SYSTEMS”, W. Stallings

* 1. **Facilities required for teaching and learning:**

Lecture Halls, Computer Labs, and audiovisual equipment

**Course Coordinator:**

**Dr.**

**signature ( )**

**Head of Department:**  **Dr. Hala Helmy** **signature ( )**

**Date:** 20/2/2012