



ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

**Course Specifications
(CS)**



Course Specifications

Institution	Al Yamamah University	Date of Report	31 Oct 2013
College/Department Computing and Information Systems			

A. Course Identification and General Information

1. Course title and code: CIS 321 Operating Systems			
2. Credit hours: 3			
3. Program(s) in which the course is offered. Bachelor of Computing and Information Technology (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course Dr. Mohan Sellappa Gounder			
5. Level/year at which this course is offered 2 nd Year			
6. Pre-requisites for this course (if any) CIS 101 Basic Programming I			
7. Co-requisites for this course (if any)			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="100"/>
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>
d. Correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. Other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			



B Objectives

<p>1. What is the main purpose for this course? The course deals with the fundamentals of operating system which includes various resource management and scheduling policies, inter process communication. This course covers the working principle of various operating system modules.</p>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p>

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

A course on computer systems topics, focusing on operating systems components and their relevance for application programming. Linking, processes, virtual memory, dynamic memory allocation, system level I/O, networking and network programming, concurrent servers and web services.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Operating system – Basics	1.5	4.5
Memory Management	2	6
Process Management	2	6
Interprocess communication	2	6
Deadlocks	1.5	4.5
File Management	2	6
Disk Scheduleing	2	6
I/O management	2	6
Total	15	45



2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45					45
Credit	3					3

3. Additional private study/learning hours expected for students per week.	3
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge At the end of the course, the students will be able to		
1.1	define the basic concepts of Understand the basic concepts of Operating Systems	Lectures	Written exams (quizzes, mid-term, and final exams)
1.2	describe various memory management schemes.	Lectures Demonstration	Homework Written exams (quizzes, mid-term, and final exams)
1.3	list various process scheduling policies and inter process communication	Lectures Student centered teaching methodology.	Group work Assignments Oral presentations.
1.4	state various device management techniques used to control I/O devices	Lectures Demonstration Group discussions.	Assginemts Written exams (quizzes, mid-term, and final exams)
1.5	outline the file management techniques and various disk scheduling policies	Lectures Demonstration	Written exams (quizzes, mid-term, and final exams)
2.0	Cognitive Skills At the end of the course, the students will be able to		
2.1	analyze the need for paging, demand paging and various memory management schemes.	Design specialized course work and assignments that promote critical thinking and ability to seek solutions.	All assignments, quizzes and tests will include items related to cognitive skills that require the usage of investigation methodology.
2.2	explain how the process management is carried out by the operating system	Encourage students to be actively involved in group projects and case studies to enable them to have an experience in problem solving situations	Assessment of course work and assignments that promote critical thinking and the ability to solve problems
2.3	compare and contrast various file systems, device management techniques		
3.0	Interpersonal Skills & Responsibility At the end of the course, the students will be able to		
3.1	demonstrate team work constructively in groups.	Students are required to perform presentations either individually or in groups to meet specific requirements of some assignments.	Monitoring and grading students' performance based on the teaching strategies
3.2	illustrate specific tools to search for new information, data and techniques of analysis.	Course work and assignments are designed to include tasks that require students to search for information on their	



		own.	
3.3	be aware of ethical and professional values and moral judgments	Students will be exposed to ethical and professional issues throughout the course.	
3.4	show values relevant to the professional code.		
4.0	Communication, Information Technology, Numerical At the end of the course, the students will be able to		
4.1	communicate effectively in oral and written English.	Course work and assignments/homework will implement tasks that support the above mentioned skills throughout the course.	Monitoring and grading students' performance on the above mentioned teaching strategies
4.2	effectively research the web using top rated search engines and verified searching techniques.		
4.3	use the Al-Yamamah University information systems, such as: Students' email system, Students' Absence system (EDUGATE), Al-Yamamah Electronic Community (YEC), and e-registry.		
5.0	Psychomotor		
5.1			
5.2			

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct



Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider Maximize Continue Review Ensure Enlarge Understand
Maintain Reflect Examine Strengthen Explore Encourage Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Final Exam	16	40%
2	Midterm Exam	8	20%
3	Homework/Assignment/Project	3,6,11	20%
4	Quiz	7, 12	10%
5	Punctuality and Attendance		10%



D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

In addition to class time, teacher is supposed to display his/ her advisory hours for the students (8 hours)

E. Learning Resources

1. List Required Textbooks

1. Silberschatz and Galvin, Operating System Concepts, John Wiley & Sons ,9th edition, 2012, ISBN 1118063333
2. Andrew Tanenbaum, Modern Operating Systems, Pearson Education, 3rd Edition, 2009, ISBN 0131429388

2. List Essential References Materials (Journals, Reports, etc.)

1. Milan Milenkovic, "Operating Systems: concepts and design", McGraw-Hill, 2001, ISBN 0074632728

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Materials shared via YU Learning Management System

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
Class room with LCD projection



2. Computing resources (AV, data show, Smart Board, software, etc.)
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

<p>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <p>During the course, students receive a feedback forms that covers all aspects relating to their learning experience. These forms will then be collected and analyzed by the Academic Advising and Counseling Department. Next, the Academic Advising and Counseling Department will conduct a meeting with the concerned faculty to discuss the students' feedback outcomes.</p>
<p>2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor</p> <p>Peer review visits are normally conducted among faculties wherever possible during academic year. During the lecture time Chair (Head)/ Dean of the department visits the classroom. At the end of each visit, faculties are usually set together to discuss related issues.</p>
<p>3 Processes for Improvement of Teaching</p> <ul style="list-style-type: none">• Feedbacks from students using different types of survey including Student Experience Survey (SES), Program Evaluation Survey (PES), and Alumni Survey (AS) are shown and discussed with faculty members to improve the teaching.• Specialized workshops and seminars are conducted throughout academic year to address specific teaching strategies and improvements.
<p>4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)</p> <p>Peer review and discussion with course coordinator. There should be a strong liaison with teacher from some external university/institute in order to exchange ideas related to marking/ evaluating quizzes and assignments.</p>

Faculty or Teaching Staff: _____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____