

المملكة العربية السعودية الهيئة الوطنيسة التقويم والاعتماد الأكاديمسي

## ATTACHMENT 2 (e)

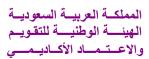
**Course Specifications** 

## Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications (CE)





# **Course Specifications**

Institution:	Umm Al-Qura Un	iversity		Date of Report: 10/06/1437
College/Departm	ent: Computer Engine	ering Depa	rtment	
A. Course Identif	ication and General I	nformatio	n	
Course title ar Signal and Sy	nd code: estems 14032101-4			
2. Credit hours:	4 + 0			
	which the course is off ctive available in many gineering		indicate this rather tha	nn list programs)
4. Name of facul Dr. Imran Tas	lty member responsible adduq	for the cou	ırse	
5. Level/year at	which this course is off	ered: Leve	1 07	
•	for this course (if any) and Circuit Theory			
7. Co-requisites N/A	for this course (if any)			
	t on main campus a University, Abidiyyal	n, Makkah	Al-Mukarammah	
9. Mode of Instr	uction (mark all that ap	ply)		
a. Traditional	classroom	X	What percentage?	100
b. Blended (tra	aditional and online)		What percentage?	
c. e-learning			What percentage?	
d. Correspond	ence		What percentage?	
f. Other			What percentage?	
Comments: N/A				



## **B** Objectives

- 1. What is the main purpose for this course?
  - Understanding of classification, analysis and design of systems in time and frequency domains.
  - Understanding of continuous time linear systems, Fourier series & Fourier transform.
  - Understanding of discrete-time linear systems: difference equations, Discrete-Time Fourier Transform, z-Transform. Sampling, quantization, and discrete-time processing of continuous-time signals
- 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)
  - N/A

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

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Signals, their types and properties	1	3
Discrete-time and continuous-time impulse and step functions	2-3	6
Systems and their properties	4-5	6
Discrete-time and continuous-time impulse, impulse response & convolution	6-7	6
Memory-less, causality and stability properties of LTI systems	8-9	6
Introduction to analysis of LTI systems by differential & difference equations	10	3
Continuous-time Fourier series and Continuous-time Fourier transform	11	3
Discrete-time Fourier series and Discrete-time Fourier transform	12-13	6
Sampling and reconstruction, Introduction to z-transform	14	3



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2.	Course components	(total	contact hours	and credits	s per semester):	

	-				0.1	- 1
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	42	N/A	N/A	N/A	N/A	42
Credit	42	N/A	N/A	N/A	N/A	42

3. Additional private study/learning hours expected for students per week.

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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

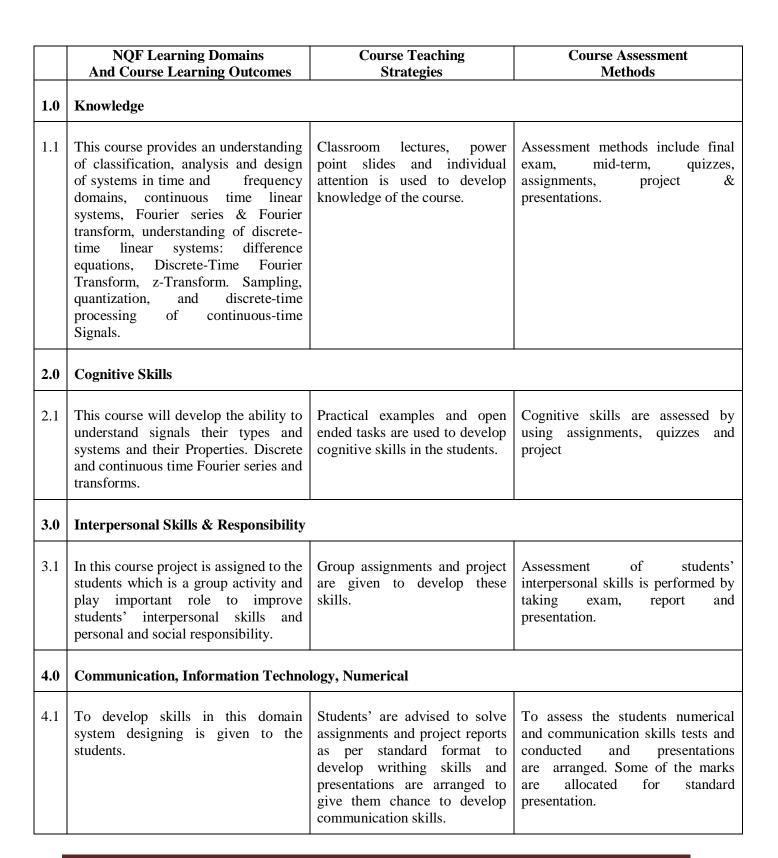
Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

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.

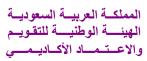
On the table below are the five NQF Learning Domains, numbered in the left column.

<u>First</u>, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). <u>Second</u>, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. <u>Third</u>, 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. <u>Fourth</u>, 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.





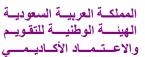


5.	0 Psychomotor	Psychomotor						
5.	System designing is used in the course for psychomotor skill.		The psychomotor skills developed in this course are assessed by assignments, presentations and Project.					

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	Quizzes	4, 10	10
2	Mid Term	8, 12	20
3	Assignments	Throughout semester	05
4	Project	Throughout semester	25
5	Final Exam	16	40



### 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)
  - For individual student consultations and academic advice teaching staff is expected to be available 8 hours per week.

#### E. Learning Resources

- 1. List Required Textbooks
  - Oppenheim A. V., Willsky A. S., and Nawab S. H., Signals and Systems, 2nd Ed., Prentice Hall Signal Processing Series, 1997 ISBN: 0136511759.
- 2. List Essential References Materials (Journals, Reports, etc.)
  - N/A
- 3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
  - N/A
- 4. List Electronic Materials (e.g. Web Sites, Social Media, Blackboard, etc.)
  - http://utwired.engr.utexas.edu/rgd1/
  - http://www.irf.com/technical-info/guide/circuit.html
  - http://www.circuit-magic.com/laws.htm
  - http://www.zen22142.zen.co.uk/adt.htm
  - http://www.physics.uoguelph.ca/tutorials/ohm/
- 5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
  - MatLab is required.



### 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.)
  - A Lecture room having Multimedia projector for lectures and students presentation.
- 2. Computing resources (AV, data show, Smart Board, software, etc.)
  - Computer lab with MatLAB.
- 3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)
  - Computer lab with MatLAB.

#### **G** Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

To improve effectiveness of teaching student feedback is obtained in the form of assignments, tests, quizzes, attendance etc.

2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor

The evaluation of teaching is performed by the department using student survey.

3. Processes for Improvement of Teaching.

The process for improvement of teaching is based on result of student survey and result of student outcomes. Individual attention is provided to weak students.

- 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)
  - N/A

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5. ]	Describe the	planning	arrangements	for	periodically	reviewing	course	effectiveness	and	planning	for
mp	provement.										

The course effectiveness is reviewed for planning and improvement on annual basis.

Faculty or Teaching Staff:						
Signature:	Date Report Completed:					
Received by:	Dean/Department Head					
Signature:	Date:					