Academic Program Specification Form For The Academic

Universitiy: University of Baghdad
College : AlKhwarizmi College of Engineering
Number Of Departments In The College :
Date Of Form Completion : October, 2023

Dean's Name	*Dean's Assistant For Scientific Affairs*	*The College Quality Assurance And University Performance Manager*
Date : / /		
	Date : / /	*Date : / /*
Signature	*Signature*	*Signature*

Quality Assurance And University Performance Manager
Date : / /
Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	University of Baghdad/Al_Khwarizmi College of Engineering
2. University Department/Centre	Information and Communication Engineering
3. Programme Title	Digital Signal Processing
4. Title of Final Award	BSc degree in Information and Communication Engineering
5. Modes of Attendance offered	Attendance is according to the university rules in 2023-2024
6. Accreditation	Abet
7. Other external influences	
8. Date of production/revision of this specification	2023
9. Aims of the Programme	
This course is designed to provide students with a comprehensive treatment of the important issues in design, implementation and applications of digital signal processing concepts and algorithms.	

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

At the completion of the course, students will be able to…

A1. an ability to apply knowledge of mathematics, science and engineering.

A2. an ability to design and conduct experiments, as well as to analyze and interpret data.

A3. an ability to design a system, component, or process to meet desired needs

A4. an ability to identify, formulate, and solve engineering problems

A5. an ability to communicate effectively

A6. Recognition of the need for, and an ability to engage in life-long learning

A7. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

A8. An ability to work in a hand-on laboratory in most of required courses.

B. Subject-specific skills

B1. Review of discrete time signals and systems: linearity, time invariance, causality, stability, and convolution.

B2. Discrete Time Fourier transform (DTFT), Discrete Fourier Series (DFS), Discrete Fourier Transform (DFT), and Fast Fourier Transform (FFT).

B3. Finite impulse response (FIR) and infinite impulse response (IIR) networks.

B4. IIR filter design using analog prototypes, and transforms from continuous-time to discrete-time.

Teaching and Learning Methods

Lectures, Presentations, Recitation and Documentations

Assessment methods
homework 10%   quizzes - 20%   midterm -10%   Lab 10%   final exam - 50%
C. Affective and value goals   C1. Ability to apply knowledge of mathematics, science and engineering.   C2. Ability to identify, formulate and solve engineering problems.   C3. Ability to use the techniques, skills and modern engineering tools necessary   for engineering practice.

D. General and Transferable Skills (other skills relevant to employability and personal development)   D1. Ability to design and conduct experiments.   D2. Ability to design a system, component or process to meet desired needs
Teaching and Learning Methods
Lectures, Presentations, Recitation and Documentations

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
3rd		Digital Signal Processing		Bachelor Degree Requires (3) credits

13. Personal Development Planning

1. provide strong foundation in mathematical, scientific and engineering fundamentals necessary to analyze, formulate and solve engineering problems in the field of Information and Communication Engineering.
2. enhance the skills and experience in defining problems in Information and Communication Engineering design and implement, analyzing the experimental evaluations, and finally making appropriate decisions.
3. enhance their skills and embrace new Information and Communication Engineering Technologies through self-directed professional development and post-graduate training or education.

14. Admission criteria .
According to the rules of Ministry of Higher Education and Scientific Research in Iraq.

15. Key sources of information about the programme
1. Books 2. Trusted Internet sources related to the Program 3. Papers.

Curriculum Skills Map

please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
3rd		Digital		■		■		■	■			■	■	■	■	■			

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and   demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	
2. University Department/Centre	University of Baghdad/Al_Khwarizmi College of Engineering
3. Course title/code	Digital Signal Processing
4. Modes of Attendance offered	attendance is according to the university rules in 2023-2024
5. Semester/Year	1st semester/ 3rd year
6. Number of hours tuition (total)	45
7. Date of production/revision of this specification	2023
8. Aims of the Course	
This course is designed to provide students with a comprehensive treatment of the important issues in design, implementation and applications of digital signal processing concepts and algorithms.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals .
B- Knowledge and Understanding

At the completion of the course, students will be able to…
A1. an ability to apply knowledge of mathematics, science and engineering.
A2. an ability to design and conduct experiments, as well as to analyze and interpret data.
A3. an ability to design a system, component, or process to meet desired needs
A4. an ability to identify, formulate, and solve engineering problems
A5. an ability to communicate effectively
A6. Recognition of the need for, and an ability to engage in life-long learning
A7. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
A8. An ability to work in a hand-on laboratory in most of required courses.

B. Subject-specific skills

B1. Review of discrete time signals and systems: linearity, time invariance, causality, stability, and convolution.
B2. Discrete Time Fourier transform (DTFT), Discrete Fourier Series (DFS), Discrete Fourier Transform (DFT), and Fast Fourier Transform (FFT).
B3. Finite impulse response (FIR) and infinite impulse response (IIR) networks.
   B4. IIR filter design using analog prototypes, and transforms from continuous-time to discrete-time.

Teaching and Learning Methods

Lectures, Presentations, Recitation and Documentations

Assessment methods

homework 10%

quizzes+ oral exam - 20%

midterm -10%

Lab 10%

final exam - 50%

C. Affective and value goals
C1. Ability to apply knowledge of mathematics, science and engineering.
C2. Ability to identify, formulate and solve engineering problems.
C3. Ability to use the techniques, skills and modern engineering tools .necessary for engineering practice

Teaching and Learning Methods

Assessment methods
homework 10%
quizzes+ oral exam - 20%
midterm -10%
Lab 10%
final exam - 50%

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)
D1. Ability to design and conduct experiments.
D2. Ability to design a system, component or process to meet desired needs .

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3		Review of Discrete Signals	Classroom with whiteboard	Quizzes
2	3		Discrete Time Fourier transform (DTFT),	Classroom with whiteboard	Quizzes
3	3		Discrete Time Fourier transform (DTFT),	Classroom with whiteboard	Quizzes
4	3		Discrete Fourier Series (DFS),	Classroom with whiteboard	Quizzes
5	3		Discrete Fourier Transform (DFT),	Classroom with whiteboard	Quizzes
6	3		Discrete Fourier Transform (DFT),	Classroom with whiteboard	Quizzes
7	3		Fast Fourier Transform (FFT),	Classroom with whiteboard	Quizzes
8	3		Fast Fourier Transform (FFT),	Classroom with whiteboard	Quizzes
9	3		FIR	Classroom with whiteboard	Quizzes
10	3		FIR	Classroom with whiteboard	Quizzes
11	3		IIR	Classroom with whiteboard	Quizzes
12	3		IIR	Classroom with whiteboard	Quizzes
13	3		Digital filter realization	Classroom with whiteboard	Quizzes
14	3		Introduction to Digital signal processing chips	Classroom with whiteboard	Quizzes
15	3		Digital signal processing chips (cont.)	Classroom with whiteboard	Quizzes

11. Infrastructure

1. Books Required reading:

2. Main references (sources)	
A- Recommended books and references (scientific journals, reports…).	
B-Electronic references, Internet sites…	

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	TEXT BOOK 1: " APPLIED DIGITAL SIGNAL PROCESSING THEORY AND PRACTICE" Dimitris g. Manolakis, and Vinay k. Ingle, 2011 Text book 2: " SIGNALS AND SYSTEMS WITH MATLAB" BY WON Y. YANG · TAE G. CHANG · IK H. SONGM, YONG S. CHO · JUN HEO · WON G. JEON · JEONG W. LEE · JAE K. KIM, 2009. Text book 3: "DIGITAL SIGNAL PROCESSING" by John J. Proakis, and Dimitris G. Manolakis .
Special requirements (include for example workshops, periodicals, IT software, websites)	Nil.
Community-based facilities (include for example, guest Lectures , internship , field studies)	Summer training, Scientific visits.