Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation
International Accreditation Dept.

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, 2021

Dean ’s Name

Date : / /

Signature

Dean ’s Assistant For Scientific Affairs

Date : / /
Signature

The College Quality Assurance And University Performance Manager

Date : / /
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	**Wireless Mobile Communications**
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 (Full-Time)
6. Accreditation	Abet
7. Other external influences	
8. Date of production/revision of this specification	2023
9. Aims of the Programme	
The course aims to give the student the following subjects:	

Introduction to 3G/4G wireless communication systems, Fading Channel, Wirless channel, CDMA, Diversity techniques, MIMO Communication System, Basics of cellular communication, frequency reuse, co-channel interference, capacity improvement, Handoff techniques.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A- Knowledge and Understanding

At the completion of the subject items the students will be able to:

A1. Knowledge the basics behind the development of satellite communication.

A2. Understanding the advantages and disadvantages of satellite communication systems

A3. Pinpoint the different generations of wireless communication system.

A4. Analyze the specific wireless communication system requirements.

A5. Discrimination between different orbits, antennas, operating frequeny bands, uplink, downlink.

A6 . knowledge about different communication channel effects

B. Subject-specific skills

In addition to the measurable student learning outcomes listed above, students enrolled in Wireless mobile communication Course will be required to demonstrate their more in-depth knowledge of the course material by

B1. Analyze the specific channel of wireless communication system requirements

B2. Design a specific wireless communication system for a given rate, bandwidth, probability of error requirements

B3. decision for selection of specific multiplexing technique to accommodate specific requirements.

Teaching and Learning Methods

Lectures, Presentations, Recitation and Documentations

Assessment methods

homework 10%

quizzes+ oral exam - 20%

midterm -10%

final exam - 60%

C. Affective and value goals

C1. To introduce the basic mathematical concepts related to Wireless mobile communication.

C2. To impart knowledge on the concepts of cellular mobile communication systems.

C3. To impart knowledge on the concepts of last generations of Wireless mobile communication.

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C4. To impart knowledge on the concepts of modern techniques in Wireless mobile communication.

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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
Assessment Methods
homework 10% quizzes+ oral exam - 20% midterm -10% final exam - 60%

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit Rating	
4th		Wireless mobile communication.		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.
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

s where individual Programme Learning Outcomes are being assessed

Programme Learning Outcomes

Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
	A2	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D1**	**D2**	**D3**	**D4**

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	University of Baghdad/Al_Khwarizmi College of Engineering
2. University Department/Centre	Information and communication engineering
3. Course title/code	Wireless mobile communication
4. Modes of Attendance offered	attendance is according to the university rules in 2023-2024 (Full-Time)
5. Semester/Year	1st semester/ 4th year
6. Number of hours tuition (total)	45
7. Date of production/revision of this specification	2023
8. Aims of the Course	
The course aims to give the student the following subjects: Introduction to 3G/4G wireless communication systems, Fading Channel, Wirless channel, CDMA, Diversity techniques, MIMO Communication System, Basics of cellular communication, frequency reuse, co-channel interference, capacity improvement, Handoff techniques.	

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Knowledge and Understanding

At the completion of the subject items the students will be able to:

A1. Knowledge the basics behind the development of satellite communication.

A2. Understanding the advantages and disadvantages of satellite communication systems

A3. Pinpoint the different generations of wireless communication system.

A4.Analyze the specific wireless communication system requirements.

A5. Discrimination between different orbits, antennas, operating frequeny bands, uplink, downlink.

A6 . knowledge about different communication channel effects

B. The skills goals special to the course.

In addition to the measurable student learning outcomes listed above, students enrolled in Wireless mobile communication Course will be required to demonstrate their more in-depth knowledge of the course material by

B1.Analyze the specific channel of wireless communication system requirements

B2. Design a specific wireless communication system for a given rate, bandwidth, probability of error requirements

B3. decision for selection of specific multiplexing technique to accommodate specific requirements.

Teaching and Learning Methods

Lectures, Presentations, Recitation and Documentations

Assessment methods
homework 10% quizzes+ oral exam - 20% midterm -10% final exam - 60%
C1. To introduce the basic mathematical concepts related to Wireless mobile communication. C2. To impart knowledge on the concepts of cellular mobile communication systems. C3. To impart knowledge on the concepts of last generations of Wireless mobile communication. . C4. To impart knowledge on the concepts of modern techniques in Wireless mobile communication.
Teaching and Learning Methods
Lectures, Presentations, Recitation and Documentations
Assessment methods
homework 10% quizzes+ oral exam - 20% midterm -10% final exam - 60%

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	Introducing different wireless generations	Introduction to 3G / 4G Wireless mobile communication systems	Class room lecture	Scheduled Quizzes
2	3	Study the effects of multipath effects and fading channel	Wireless Communications	Class room lecture	
3	3	Computing BER for wireline and wireless communicatio s	BER performance of wireless communications	Class room lecture	
4	3	Define the important affecting wireless channel	Wireless Channel	Class room lecture	
5	3	Define spreading delay and Coherence B.W.	Spreading delay and Coherence B.W. of the wireless channel	Class room lecture	
6	3	Define the ISI and Doppler frequency and solutions to combact ISI	ISI and Doppler in wireless communications	Class room lecture	
7	3	Study CDMA and its applications	Introduction to CDMA, spread spectrum and LFSR	Class room lecture	
8	3	Describe the diversity technique and MRC	Multiple Antenna Systems	Class room lecture	
9	3	Analyze MIMO		Class room lecture	

		communicatio n systems	MIMO wireless communication systems		
10	3	introduction - - Examples of mobile radio systems	Principles of Cellular communication		Mid term exam
11	3	Study of reuse frequency	Frequency reuse	Class room lecture	
12	3	Study of Co-channel interference	Co-channel interference	Class room lecture	
13	3	Cell splitting and cell sectoring	. Improving capacity in cellular system	Class room lecture	
14	3	Study of Handoff techniques	Handoff techniques	Class room lecture	
15	3	Introducing the important techniques for 5G wireless communica tions	5G wireless communications	Class room lecture	

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Text book: **Wireless Communications by Theodore Rappaport** References: **Wireless Communications by Gold Smith**
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	Summer training, Scientific visits