

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

University:

College :

Number Of Departments In The College :

Date Of Form Completion :

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	<i>University of Baghdad/Al_Khwarizmi College of Engineering</i>
2. University Department/Centre	<i>Information and Communication Engineering</i>
3. Programme Title	<i>Optical Communication & Networking</i>
4. Title of Final Award	<i>BSc degree in Information and Communication Engineering</i>
5. Modes of Attendance offered	<i>Attendance is is Classroom (Electronic Lectures and learning) according to the university rules in 2023-2024</i>
6. Accreditation	<i>Abet</i>
7. Other external influences	
8. Date of production/revision of this specification	<i>Oct 2023</i>
9. Aims of the Program	<i>At completing this course the student should be able to: To understand the main component parts, standards and protocols making up the optical communication system & networks.</i>

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A- Knowledge and Understanding

- A1. Mathematical tools relevant to communications and electronics systems
- A2. Fundamental technological concepts, principles, and techniques associated with optical communications systems.
- A3. The structure of different optical communication systems.
- A4. The way of thinking and how to design.
- A5. The methods of developing an optical communication systems.
- A6. Design and simulate different system,

B. Subject-specific skills

The students will acquire and develop the thinking skills that should enable them to:

- B1. Understanding, designing and developing optical communication and systems for processing signals and data.

C. Affective and value goals

C1. Undertake ongoing learning in order to keep up to date in the field on optical and communication technologies.

D. General and Transferable Skills (other skills relevant to employability and personal development)

- D1. Manage tasks, and solve problems.
- D2. Think logically and critically.

Teaching and Learning Methods

Classroom assignments and homework
Individual projects and groups
Practical activities

Assessment methods

Homework-10%
quizzes - 15%
midterm -15%
practical LAB-10%
final - 50%

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
4th year		Optical Comm. Systems & Networking		Bachelor Degree Requires (3) credits

13. Personal Development Planning
<ol style="list-style-type: none"> 1. Manage tasks, and solve problems. 2. Negotiate learning contracts. 3. Think logically and critically. 4. Use a range of technological equipment and systems.
14. Admission criteria .
attendance is mandatory according to the university rules
15. Key sources of information about the programme
<ol style="list-style-type: none"> 1. Books 2. Trusted Internet sources related to the Program 3. Papers.



TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Optical Communications spread widely along the world nowadays, especially for long distance communications, and Local Area Network LAN. The concept of optical communications differs from the concept of the conventional electronic communications from many aspects. This course is organized due to the increased interest of industry in optical communications engineering.

1. Teaching Institution	University of Baghdad/Al_Khwarizmi College of Engineering
2. University Department/Centre	Information and Communication Engineering
3. Course title/code	Optical Communication & Networking
4. Modes of Attendance offered	attendance is mandatory according to the university rules
5. Semester/Year	Autumn / 2023-2024
6. Number of hours tuition (total)	45
7. Date of production/revision of this specification	Oct 2023
8. Aims of the Course	
<i>At completing this course the student should be able to:</i> <i>To understand the main component parts, standards and protocols making up the optical communication system & networks.</i>	

9. Learning Outcomes, Teaching, Learning and Assessment Methods

B- Knowledge and Understanding

- A1. Mathematical tools relevant to communications and electronics systems
- A2. Fundamental technological concepts, principles, and techniques associated with optical communications systems.
- A3. The structure of different optical communication systems.
- A4. The way of thinking and how to design.
- A5. The methods of developing an optical communication systems.
- A6. Design and simulate different system,

B. Subject-specific skills

The students will acquire and develop the thinking skills that should enable them to:

- B1. Understanding, designing and developing optical communication and systems for processing signals and data.

C. Affective and value goals

C1. Undertake ongoing learning in order to keep up to date in the field on optical and communication technologies.

D. General and Transferable Skills (other skills relevant to employability and personal development)

- D1. Manage tasks, and solve problems.
- D2. Think logically and critically.

Teaching and Learning Methods

Classroom assignments and homework
Individual projects and groups
Practical activities

Assessment methods

Homework-10%
quizzes - 15%
midterm -15%
practical LAB-10%
final - 50%

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	1	Light generation & Wave properties	Light generation & Wave properties Snell's Law	Classroom with whiteboard	Quizzes
	1		-Optical fiber structure - Propagation of light in fiber	Classroom with whiteboard	Quizzes
	1		Types of optical fiber	Classroom with whiteboard	Quizzes
2			Signal degradation in optical fiber	Classroom with whiteboard	Quizzes
	2	Signal degradation in optical fiber	Attenuation, Absorption, Scattering	Classroom with whiteboard	Quizzes
	1		Material dispersion, Waveguide dispersion	Classroom with whiteboard	Quizzes
3			Optical Sources	Classroom with whiteboard	Quizzes
	1	Optical Sources	Light emitting diodes(LED)	Classroom with whiteboard	Quizzes
	1		Modulation of an LED	Classroom with whiteboard	Quizzes
4	1		Laser diodes(LD) structures	Classroom with whiteboard	Quizzes
	2		Modulation of laser diode	Classroom with whiteboard	Quizzes
5			Photo-Detectors: Physical principals	Classroom with whiteboard	Quizzes
	1	Photo-Detectors	The PIN photo-detector	Classroom with whiteboard	Quizzes
	2	Photo-Detectors	Signal-to-noise ratio	Classroom with whiteboard	Quizzes
6			Optical Amplifiers: Basic applications and types	Classroom with whiteboard	Quizzes
	2	Optical Amplifiers	Semiconductor optical amplifier	Classroom with whiteboard	Quizzes
	1		Erbium-Doped fiber amplifier	Classroom with whiteboard	Quizzes
7	3		Amplifier noise	Classroom with whiteboard	Quizzes
8			Digital transmission system	Classroom with whiteboard	Quizzes

		Digital transmission system	System considerations	Classroom with whiteboard	Quizzes
	3		Link power budget & Rise time edge	Classroom with whiteboard	Quizzes
9	2		Noise effect on system performance	Classroom with whiteboard	Quizzes
10	2		WDM concepts	Classroom with whiteboard	Quizzes
11	2		Passive components	Classroom with whiteboard	Quizzes
	2		Active components	Classroom with whiteboard	Quizzes
13	2	Optical network	Optical network	Classroom with whiteboard	Quizzes
	2		1st generation	Classroom with whiteboard	Quizzes
14	2		2nd generation optical network	Classroom with whiteboard	Quizzes
15	3		SONET & SDH Formats	Classroom with whiteboard	Quizzes

11. Infrastructure	
<p>Required reading:</p> <ul style="list-style-type: none"> · CORE TEXTS · COURSE MATERIALS · OTHER 	<p>1- John Senior, “ Optical Fiber Communications Principle and practice”,</p> <p>2- Gerd_keiser, “Optical Fiber Communication “ 2008.</p>
<p>Special requirements (include for example workshops, periodicals, IT software, websites)</p>	NIL
<p>Community-based facilities (include for example, guest Lectures , internship , field studies)</p>	

12. The development of the curriculum plan

Adding new CH. For Access Network theory & application

