هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	Optical Network
Course Code:	503555-3
Program:	Bachelor in Computer Engineering
Department:	Department of Computer Engineering
College:	College of Computers and Information Technology
Institution:	Taif University

Table of Contents

A. Course Identification

1. Credit hours: 3
2. Course type **a.** University ☐ College ☐ Department ■ Others ☐ **b.** Required ☐ Elective ■
3. Level/year at which this course is offered:10/5
4. Pre-requisites for this course (if any)**:** Computer Networks (503443-4)
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	3	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	45
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	45

B. Course Objectives and Learning Outcomes

1. Course Description

propagation, diffraction, polarization. Optical fiber transmission medium: fiber modes, signal degradation, attenuation, dispersion. Optical components: filters, directional couplers, power attenuators, beam splitters, multiplexers, demultiplexers, cross connects, modulators, amplifiers. Optical communications: signal encoding, network structure, SDH and SONET, WDM, routing and wavelength assignment. DWDM Networks: Topologies, bandwidth management, wavelength management, interoperability.

2. Course Main Objective

1. To provide the students with a sound understanding of the fundamentals of optical communications and networks.
2. Explain system architecture, performance, components and technology.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	An ability to explain optical communications principles.	K1
1.2	Understand the optical components operations	K1
1.3	An ability to explain the optical switching	K1
1...	Learn the optical multiplexing methods	K1
2	**Skills :**	
2.1	Learn the optical multiplexing methods	S1
2.2	Learn about the emerging optical networks	S2
2.3		
2...		
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction, Evolution of Optical Networking	4
2	Propagation of Signals in Optical Fiber	4
3	Optical Transmitters, A Receivers mplifiers,	4
4	Fiber Optic Fundamentals,	4
5	Mid Semester Exams	4
6	Optical Packet Switching	5
7	SDH and WDM Systems	5
8	Optical network topologies, access networks	5
9	Performance analysis of optical networks	5
10	Revision	5
Total		45

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	An ability to explain optical communications principles.	Lecture Problem Solving	Written Exams Quizzes Assignments
1.2	Understand the optical components operations	Lecture Discussion Problem Solving	Written Exams Quizzes Assignments

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.3	An ability to explain the optical switching	Lecture Discussion Problem Solving	Written Exams Quizzes Assignments
1.4	Learn the optical multiplexing methods	Lecture Discussion Problem Solving	Written Exams Quizzes Assignments
2.0	**Skills**		
2.1	Learn the optical multiplexing methods	Lecture Discussion Projects	Written Exams Project
2.2	Learn about the emerging optical networks	Lecture Discussion Projects	Written Exams Project
3.0	**Values**		
3.1			
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments	Continues	5%
2	Midterm Exam	8	20%
3	Project	14	15%
4	Quizzes	Continues	10%
5	Final Exam	16	50%

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Teaching staff provide at least 6 office hours for students to help them in the course as well as in any other academic issues.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	M.Cvijetic, I. B Djordjevic., Advanced Optical Communication Systems and Networks, Artech House, 2012.
Essential References Materials	

Electronic Materials	
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Traditional Classrooms,
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Extent of achievement of course learning outcomes	Students	Indirect (Survey)
Effectiveness of teaching and assessment	Students	Indirect (Survey)
Extent of achievement of course learning outcomes	Faculty	Course Report

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

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