→ Dr. R. Pandeeshwari

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE PLAN – PART I			
Name of the programme and specialization	B.TECH. ELECTRONICS AND COMMUNICATION ENGINEERING		
Course Title	FIBER OPTIC COMMUNICATION LABORATORY		
Course Code	ECLR18	No. of Credits	01
Course Code of Pre-requisite subject(s)	ECPC28	FIBER OPTIC COMMUNICATION	
Session	✓July / ~~Jan.~~ 2019	Section (if, applicable)	✓ A / ~~B~~
Name of Faculty	Dr. R. K. JEYACHITRA	Department	Electronics and Communication Engineering
Official Email	jeyachitra@nitt.edu	Telephone No.	0431 2503320
Name of Course Coordinator(s) (if, applicable)	---		
Official E-mail	---	Telephone No.	---
Course Type (please tick appropriately	✓ Core course	-- Elective course	

Syllabus (approved in BoS)

List of Experiments

1. Characteristics of Laser Diode & LED
2. Characteristics of Photo Detector
3. Characteristics of Avalanche Photodiode (APD)
4. Measurement of Attenuation and Bending Loss
5. Measurement of Numerical Aperture
6. Analog and Voice Communication through Optical Link
7. Photonics CAD-WDM Link
8. Fiber Dispersion Measurement
9. Study of BER and Q-factor Measurement
10. Study of Optical Receiver Sensitivity Characteristics

Reference: LAB Manuals and Supplier manuals are distributed among students.

COURSE OBJECTIVES	
To understand the characteristics of optical fibers, optical sources and photodetectors, to realize the analog and voice communication links and to comprehend the effects and performance of fiber optic communication systems.	
MAPPING OF COs with POs	
Course Outcomes	**Programme Outcomes (PO)** (Enter Numbers only)
At the end of the course student will be able to	
1. Understand the characteristics of optical sources and photodetectors in the fiber optic communication systems	PO1, PO2, PO3, PO4, PO9, PO10, PO12
2. Establish the analog and voice communication through the optical fibers	PO1, PO2, PO3, PO4, PO6, PO9, PO10, PO12
3. Understand the various propagation effects of the optical fibers	PO1, PO2, PO4, PO7, PO9, PO10, PO12
4. Analyze the performance parameters of the fiber optic communication systems	PO1, PO2, PO4, PO9, PO10, PO12
5. Analyze the operating principle of WDM systems	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO12

COURSE PLAN – PART II

COURSE OVERVIEW

Students get exposure to the fundamentals and advance level of optical communication systems. Course includes series of hardware and software experiments which provide hands-on- experiment needed to understand the basic concepts and laboratory techniques of fiber optic communication. The lab is well equiped with computers, optical simulation softwares, Optical CAD tools such as OPTSIM and Photonics CAD respectively.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	I WEEK	Instruction class	Lecture C&T/ PPT or Any suitable mode
2	II WEEK	Characteristics of Laser Diode & LED	LAB EXERCISE
3	III WEEK	Characteristics of Photo Detector	
4	IV WEEK	Characteristics of Avalanche Photodiode (APD)	

5	V WEEK	Measurement of Attenuation and Bending Loss	LAB EXERCISE
6	VI WEEK	Measurement of Numerical Aperture	
7	VII WEEK	Analog and Voice Communication through Optical Link	
8	VIII WEEK	Photonics CAD-WDM link	
9	IX WEEK	Fiber Dispersion Measurement	
10	X WEEK	Study of BER and Q-factor Measurement	
11	XI WEEK	Study of Optical Receiver Sensitivity Characteristics	
12	XII WEEK	Compensation Lab Session	
END SEMESTER EXAMINATION			LAB EXERCISE

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	OBSERVATION	To be submitted every week while coming to the lab	-	15
2	RECORD	To be submitted every next week after completion of experiment	-	20
3	PERFORMANCE AND CONDUCTION	Every Lab session	-	05
4	VIVA VOCE (WRITTEN TEST)	One week prior to the end semester	60 Minutes	30
5	END SEMESTER EVALUATION	-	90 Minutes	30

***mandatory; refer to guidelines on page 5**

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

- Feedback from the students during class committee meetings.
- Individual Subject feedback through MIS website at the end of the semester.

COURSE POLICY (including compensation assessment to be specified)

MODE OF CORRESPONDENCE (email/ phone etc.)

1. All the students are advised to check their NITT WEBMAIL regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be done through their webmail only.
2. Queries (if required) to the course teacher shall only be emailed to the email id specified by the teacher.

ASSESSMENT

1. Attending all the assessments is MANDATORY for every student.
2. Finally, every student is expected to score a minimum (Peak/3) or (Class Average/2) in the total assessments (1, 2, 3, 4 and 5) to pass the course. Otherwise the student would be declared fail and 'F' grade will be awarded.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION

The faculty is available for consultation at times as per the intimation given by the faculty.

FOR APPROVAL

Course Faculty (Dr. R.K. JAYACHITRA) **CC-Chairperson** **HOD**

Guidelines:

a) The number of assessments for any theory course shall range from 4 to 6.

b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.

c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.

d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	2017	2016	2015	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.

f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.

g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.