



GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ଵର

ACADEMIC LESSON PLAN FOR WINTER SEMESTER - 2026

DEPT. OF ELECTRONICS & TELECOMMUNICATION, GOVT. POLYTECHNIC, BALASORE

NAME OF THE FACULTY: ER. LIPIKA SANDHA (LECT. STAGE -I, E & TC)

TH3(a): - Fibre Optic Communication

DISCIPLINE: ELECTRONICS & TELECOMMUNICATION ENGINEERING	SEMESTER: 5th	NAME OF THE TEACHING FACULTY: ER. LIPIKA SANDHA (LECT. STAGE -I)
SUBJECT: TH3(a): Fibre Optic Communication	NO. OF DAYS/PER WEEK CLASS ALLOTTED: 3	SEMESTER FROM DATE: 1 st JULY 2026 NO. OF WEEKS: 15
WEEK	CLASS DAY	THEORY TOPICS
1 ST	1 ST	Introduction to Fiber Optic Communication 1.1 Introduction to vector nature of light
	2 ND	1.2 Propagation of light
	3 RD	1.2 Propagation of light
2 ND	1 ST	1.3 Propagation of light in a cylindrical dielectric rod
	2 ND	1.3 Propagation of light in a cylindrical dielectric rod
	3 RD	1.3 Propagation of light in a cylindrical dielectric rod
3 RD	1 ST	1.4 Ray model
	2 ND	1.4 Ray model
	3 RD	1.5 Wave model
4 TH	1 ST	1.5 Wave model
	2 ND	Optical Fibers 2.1 Different types of optical fibers
	3 RD	2.1 Different types of optical fibers
5 TH	1 ST	2.2 Modal analysis of a step index fiber
	2 ND	2.2 Modal analysis of a step index fiber

	3 RD	2.3 Signal degradation on optical fiber due to dispersion and attenuation
6 TH	1 ST	2.3 Signal degradation on optical fiber due to dispersion and attenuation
	2 ND	2.4 Fabrication of fibers and measurement techniques like OTDR
	3 RD	2.4 Fabrication of fibers and measurement techniques like OTDR
7 TH	1 ST	. Optical sources 3.1 LEDs and Lasers
	2 ND	3.1 LEDs and Lasers
	3 RD	3.2 Photo-detectors
8 TH	1 ST	3.2 Photo-detectors
	2 ND	3.3 Pin-detectors
	3 RD	3.4 Detector responsivity
9 TH	1 ST	3.5 Noise
	2 ND	3.6 Optical receivers
	3 RD	Optical link design 4.1 BER calculation
10 TH	1 ST	4.1 BER calculation
	2 ND	4.2 Quantum limit
	3 RD	4.2 Quantum limit
11 TH	1 ST	4.3 Power penalties
	2 ND	4.3 Power penalties
	3 RD	Optical switches 5.1 Coupled mode analysis of directional couplers
12 TH	1 ST	5.1 Coupled mode analysis of directional couplers
	2 ND	5.2 Electro-optic switches
	3 RD	5.2 Electro-optic switches

13 TH	1 ST	5.2 Electro-optic switches
	2 ND	Nonlinear effects in fiber optic links 6.1 Concept of self-phase modulation
	3 RD	6.1 Concept of self-phase modulation
14th	1 ST	6.2 Group velocity dispersion
	2 ND	6.2 Group velocity dispersion
	3 RD	6.3 Optical amplifiers: EDFA , Raman amplifier
15 TH	1 ST	6.3 Optical amplifiers: EDFA , Raman amplifier
	2 ND	6.4 Coherent communication and WDM systems
	3 RD	6.4 Coherent communication and WDM systems

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23/06/2024
Faculty

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H.O.D 23/06/2024