

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

PRACTICAL LESSON PLAN (WINTER 2026)

SEMESTER / DISCIPLINE:	5TH / ETC Engineering	PERIODS PER WEEK:	4 (Tue-2, Fri-2)
SUBJECT:	Fiber Optic Communications Lab [PR-3(a)]	TOTAL PERIODS:	60 Hours
FACULTY NAME:	Hemanta Sethi, Lecturer (ETC)	SEMESTER DURATION:	01.07.2026 to 05.11.2026
MARKS EVALUATION:	Progressive Assessment: 35 End Sem Exam: 15 Total: 50	CLASS TIMETABLE:	Tuesday (2) & Friday (2)

Week / Month	Period	Experiment	Practical Topic / Activity to be Covered
1st Week / July	1st-2nd (03.07.2026)	Intro	1. Introduction to Fiber Optics Laboratory, essential optical tools, handling of fiber optic trainer kits, and safety precautions. 2. Briefing on maintenance of practical record notebooks and lab protocols.
	3rd-4th (07.07.2026)	Expt.-1	Study of setting up an analog link using optical fiber cable and observing the transmitted/received waveforms.
2nd Week / July	5th-6th (10.07.2026)	Expt.-1	Study of setting up a digital optical link, data transmission, and signal reconstruction.
	7th-8th (14.07.2026)	Expt.-2	Measurement of Numerical Aperture (NA) of the provided plastic optical fiber using a 660 nm optical source.
3rd Week / July	9th-10th (17.07.2026)	Expt.-3	Study of Frequency Modulation (FM) and Demodulation techniques using optical fiber link.
	11th-12th (21.07.2026)	Expt.-4	Study of Pulse Width Modulation (PWM) and Demodulation techniques using optical fiber.
4th Week / July	13th-14th (24.07.2026)	Expt.-5	Study of optical and V-I characteristics of Semiconductor LASER diode.
	15th-16th (28.07.2026)	Expt.-6	Study of V-I Characteristics of Fiber Optic LED source and Photodetector.
1st Week / August	17th-18th (31.07.2026)	Expt.-7	Measurement of bending losses in optical fiber cables at various bend radii.
	19th-20th (04.08.2026)	Expt.-7	Measurement of propagation loss (attenuation loss) in optical fiber cables per unit length.
2nd Week / August	21st-22nd (07.08.2026)	Expt.-8	Setting up Fiber Optics voice link using Frequency Modulation (FM) and testing audio transmission.
	23rd-24th (11.08.2026)	Expt.-9	Plotting transcendental equations for Transverse Electric (TE) modes in a symmetric step index planar waveguide.
3rd Week / August	25th-26th (18.08.2026)	Expt.-10	Plotting transcendental equations for Transverse Magnetic (TM) modes in a symmetric step index planar waveguide.
	27th-28th (21.08.2026)	Expt.-11	Optical Power Management and attenuation analysis using Virtual Lab simulation modules.
4th Week / August	29th-30th (25.08.2026)	Expt.-12	Measurement of Numerical Aperture using Virtual Lab platform and comparative analysis.
	31st-32nd (28.08.2026)	Expt.-13	Intensity modulation of laser output through an optical fiber using Virtual Lab.
1st Week / September	33rd-34th (01.09.2026)	Expt.-14	Measurement of maximum data rate for digital optical communication link using Virtual Lab.

Week / Month	Period	Experiment	Practical Topic / Activity to be Covered
	35th-36th (08.09.2026)	Expt.-15	Measurement of propagation losses in plastic optical fiber using Virtual Lab simulation.
2nd Week / September	37th-38th (11.09.2026)	Expt.-16	Study of operating characteristics and gain profile of Avalanche Photodiode (APD) using Virtual Lab.
	39th-40th (18.09.2026)	Review	Intermediate evaluation, record verification, and viva-voce practice on Experiments 1 to 8.
3rd Week / September	41st-42nd (22.09.2026)	Review	Intermediate evaluation, simulation performance check, and viva-voce on Experiments 9 to 16.
	43rd-44th (25.09.2026)	Practice	Repeat performance of hardware experiments (Analog/Digital Link, NA Measurement, Bending Loss).
4th Week / September	45th-46th (29.09.2026)	Practice	Repeat performance of optical source/detector V-I & optical voice link hardware experiments.
	47th-48th (06.10.2026)	Practical Test	Internal Practical Examination - Batch A (Hardware setup, calculation & viva-voce).
1st Week / October	49th-50th (09.10.2026)	Practical Test	Internal Practical Examination - Batch B (Hardware setup, calculation & viva-voce).
	51st-52nd (20.10.2026)	Verification	Final Practical Record Notebook submission, checking, and signature verification.
2nd Week / October	53rd-54th (23.10.2026)	Viva Voce	Mock Viva-Voce preparation covering all hardware and Virtual Lab optical experiments.
	55th-56th (27.10.2026)	Assessment	Compilation of Progressive Assessment marks (Practical Performance, Attendance & Record Note).
1st Week / November	57th-60th (03.11.2026)	Final Review	Final Lab Review, instrument calibration verification, and preparation for SCTE&VT End-Semester Practical Examination.

Key Schedule & Academic Calendar Notes:

- **1st Internal Assessment:** 01.09.2026 to 08.09.2026 | **2nd Internal Assessment:** 26.10.2026 to 31.10.2026
- **Institute Level FEST:** 12.10.2026 to 16.10.2026 | **Closing of Attendance:** 05.11.2026
- **Excluded Holidays:** Independence Day (15 Aug), Prophet Mohammad Birthday (26 Aug), Jhulana Purnima (27 Aug), Janmashtami (04 Sep), Ganesh Puja / Nuakhai (14–16 Sep), Gandhi Jayanti (02 Oct), Durga Puja / Vijaya Dasami (17–20 Oct).

Hemanta Sethi
Lecturer (ETC)
UGMIT, Rayagada