

# Course Outlines

## Course Details:

Course Code : CSE-441                      Credit hours: 3.0  
Course Title : Optical Fibre Communication  
Program : CSE / CSIT  
Semester : Fall 2016  
Course Teacher : Nushrat Jahan Bubly  
Lecturer, Dept. of CSE

## Course Assessment:

The assessment components for evaluation of students are as follows:

Item/Activity	Marks (%)
Work Sheet (including class attendance and class tests)	25%
Assignment/ Presentation	10%
Mid-Term Test	25%
Final Examination	40%
<b>Total</b>	<b>100%</b>

## Course Contents:

Lectures	Contents (Each lecture will be 1.5 hours duration)
Lecture-1	Introduction Optical Fibre Communication
Lecture-2	Optical Communications Systems
Lecture -3	Information, Transmission, Modulation, and Noise, Schwartz, McGraw
Lecture -4	Sources (LED and lasers)
Lecture -5	Detectors and Receivers
	<b>Assignment/Presentation</b>
Lecture -6	Connectors, couplers, isolators, polarization controllers
Lecture -7	Amplifiers, filters, modulators, and regenerators
Lecture -8	Optoelectronic integrated circuits
Lecture -9	Signal modulation formats and techniques
	<b>Class Test</b>
Lecture -10	Detection schemes
Lecture -11	Signal fidelity (signal-to-noise ratio and bit-error-rates)
Lecture -12	Optical switching (time-, wavelength-, and space-division-multiplexing)
	<b>Class Test</b>

	<b>Mid-Term</b>
Lecture -13	System topologies (bus, ring, star) and evolution (.86, 1.3, and 1.5 $\mu\text{m}$ )
Lecture -14	Network considerations (circuit vs. packet switching, contention
Lecture -15	Fiber attenuation and dispersion measurement
Lecture -16	Single Mode Fiber Characteristic
	<b>Assignment/Presentation</b>
Lecture -17	Mode distribution in Multimode Fiber
Lecture -18	Fiber coupling efficiency
	<b>Class Test</b>
Lecture -19	Connectors/Splices construction and loss measurements
Lecture -20	Construction of MUX and DEMUX for WDM systems
Lecture -21	Design of Fiber Optic WDM link
Lecture -22	Fiber Numerical Aperture Measurements
Lecture -23	Introduction to OptiSystem, OptiBPM, and OptiFiber
	<b>Class Test</b>
Lecture -24	Overview
	<b>Final Examination</b>
<b>Textbooks:</b>	Optical Fiber Communications by John Senior, 3rd Edition, Prentice Hall, 2009.