**MEHRAN UNIVERSITY OF ENGINEERING & TECHNOLOGY**
**DEPARTMENT OF TELECOMMUNICATION ENGINEERING**

FRM-001/00/QSP-004
Dec. 01, 2001

# TENTATIVE TEACHING PLAN

Name of Teacher: **Hyder Bux Mangrio** Subject: **Optoelectronics**
Batch: **14TL-I** Year: 3rd Semester: 2nd
Term Starting Date: **11-07-2016** Term Suspension Date: **30-09-2016**

| S.No # | Topic | No. Of Lectures required |
|---|---|---|
| 01 | Historical Background, Laws, Light and Units of Light | 02 |
| 02 | Properties of Light and Absorption and Emission of Radiation | 02 |
| 03 | Light Emitting Diodes, LED power and efficiency | 02 |
| 04 | Types of Light Emitting Diodes (LEDs) | 02 |
| 05 | Homojunction and Heterojunction LEDs | 02 |
| 06 | LED Characteristics: Output Optical Power, Output Spectrum | 02 |
| 07 | LED Characteristics: Modulation Bandwidth, Reliability | 02 |
| 08 | LASER basics, The Einstein relation | 02 |
| 09 | Population inversion | 02 |
| 10 | Laser operation, Optical feedback, Pumping | 02 |
| 11 | Threshold conditions for laser oscillation | 02 |
| 12 | Optical Emission from semiconductors | 02 |
| 13 | Direct and Indirect bandgap semiconductors, Stimulated Emission and Lasing | 02 |
| 14 | Heterojunction, Semiconductors materials, Semiconductors Injection Lasers | 02 |
| 15 | Efficiency and Stripe geometry | 02 |
| 16 | Semiconductors Injection Structures | 02 |
| 17 | Injection laser characteristics | 02 |
| 18 | Photo detection in semiconductors, Quantum efficiency | 02 |
| 19 | Responsivity, Long Wavelength Cutoff | 02 |
| 20 | Semiconductor Photodiodes, PIN Photodiodes, Avalanche Photodiodes (APDs) | 02 |
| 21 | SLD and LED Drive Circuits, Optical receivers design, Receiver noise | 02 |
| | **Total lectures** | **42** |

Signature of Teacher: Dated: 19-05-2016

Remarks of DMRC:

Signature of Chairman: Dated: