**LESSON PLAN**

**Branch**: IV ECE ‘C’ **Semester**: I **Subject** : Optical Communications **Acadamic year:2015-16 faculty :A.JAYALAXMI**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Period | Date (Tentative) | Topic | Unit No. | Teaching Methodology | Remarks | Corrective Action upon Review |
|  | 13.07.2015 | Overview of total syllabus | I | Black Board |  |  |
|  | 13.07.2015 | Overview of OC historical development | I | B.B |  |  |
|  | 15.07.2015 | The general system OC advantages | I | B.B |  |  |
|  | 16.07.2015 | Introduction to optical fibre wave guides | I | B.B |  |  |
|  | 20.07.2015 | Ray theory transmission, Total internal reflection, acceptance angle | I | B.B |  |  |
|  | 20.07.2015 | Numerical aperture skew rays | I | B.B |  |  |
|  | 22.07.2015 | Cylindrical fibres-modes , V number, mode coupling | I | B.B |  |  |
|  | 23.07.2015 | Step index, graded index fibres,problems related to unit 1 | I | B.B |  |  |
|  | 27.07.2015 | Single mode fibres cutoff wavelength, mode field diameter, effective refractive index | II | B.B |  |  |
|  | 27.07.2015 | Fibre meterials glass, halide | II | B.B |  |  |
|  | 29.07.2015 | Active glass, chalgenide glass, plastic optical fibres | II | B.B |  |  |
|  | 30.07.2015 | Signal distortion in OFCS Attenuation | II | B.B |  |  |
|  | 03.08.2015 | Absorption, scattering and blending losses | II | B.B |  |  |
|  | 03.08.2015 | Core and cladding losses, Problems related to unit 2 | II | B.B |  |  |
|  | 05.08.2015 | Information capacity determination, group delay | III | B.B |  |  |
|  | 06.08.2015 | Types of dispersion-Material dispersion, wave guide dispersion | III | B.B |  |  |
|  | 10.08.2015 | Polarization, dispersion mode | III | B.B |  |  |
|  | 10.08.2015 | Intermodel dispersion, pulse broadening | III | B.B |  |  |
|  | 12.08.2015 | Optical fibre connectors-connector types | III | B.B |  |  |
|  | 13.08.2015 | Single mode fiber connectors | III | B.B |  |  |
|  | 17.08.2015 | Connector return loss | III | B.B |  |  |
|  | 19.08.2015 | Fiber splicing –splicing techniques | IV | B.B |  |  |
|  | 19.08.2015 | Splicing single mode fibers | IV | B.B |  |  |
|  | 20.08.2015 | Fiber alignment and joint loss | IV | B.B |  |  |
|  | 24.08.2015 | Multi mode and single mode fiber joints | IV | B.B |  |  |
|  | 24.08.2015 | Optical source-leds structures and materials | IV | B.B |  |  |
|  | 26.08.2015 | Quantum efficiency power and ,modulation, power band width product | IV | B.B |  |  |
|  | 27.08.2015 | Injection , laser diode - modes | IV | B.B |  |  |
|  | 31.08.2015 | Threshold conditions | IV | B.B |  |  |
|  | 31.08.2015 | External quantum efficiency | IV | B.B |  |  |
|  | 02.09.2015 | Laser diode rate eq’s resonant frequencies | IV | B.B |  |  |
|  | 03.09.2015 | Reliability of led and ild | IV | B.B |  |  |
|  | 14.09.2015 | Source to fiber power launching output patterns | V | B.B |  |  |
|  | 14.09.2015 | Source to fiber power launching output patterns | V | B.B |  |  |
|  | 16.09.2015 | Power coupling, power launching | V | B.B |  |  |
|  | 17.09.2015 | Equilibrium N.A | V | B.B |  |  |
|  | 21.09.2015 | Laser diode to fiber coupling | V | B.B |  |  |
|  | 21.09.2015 | Optical detectives physical principle of PIN & APD | VI | B.B |  |  |
|  | 23.09.2015 | Detector response time , temp effect on avalanch gain | VI | B.B |  |  |
|  | 24.09.2015 | Detector response time , temp effect on avalanch gain | VI | B.B |  |  |
|  | 28.09.2015 | Comparison of photo detectors | VI | B.B |  |  |
|  | 28.09.2015 | Optical receiver operation | VI | B.B |  |  |
|  | 30.09.2015 | Fundamental receiver operation | VI | B.B |  |  |
|  | 01.10.2015 | Digital signal transmission | VI | B.B |  |  |
|  | 05.10.2015 | Error sources | VI | B.B |  |  |
|  | 05.10.2015 | Receiver configuration | VI | B.B |  |  |
|  | 07.10.2015 | Digital receiver performance | VI | B.B |  |  |
|  | 08.10.2015 | Probability of error | VI | B.B |  |  |
|  | 12.10.2015 | Quantum limit , analog receivers | VI | B.B |  |  |
|  | 12.10.2015 | Optical system design | VII | B.B |  |  |
|  | 14.10.2015 | Considerations component choice | VII | B.B |  |  |
|  | 15.10.2015 | Multiplexing | VII | B.B |  |  |
|  | 19.10.2015 | Point to point link systems considerations | VII | B.B |  |  |
|  | 19.10.2015 | Link power budget with examples | VII | B.B |  |  |
|  | 21.10.2015 | Overall fiber dispersion in single and multi mode | VII | B.B |  |  |
| 56. | 22.10.2015 | Overall fiber dispersion in single and multi mode | VII | B.B |  |  |
| 57. | 26.10.2015 | Rise time budgets with examples | VII | B.B |  |  |
| 58. | 26.10.2015 | Transmission distance | VIII | B.B |  |  |
| 59. | 28.10.2015 | Line coding in optical links | VIII | B.B |  |  |
| 60. | 29.10.2015 | WDM, necessity | VIII | B.B |  |  |
| 61. | 02.11.2015 | Principles, types of WDM | VIII | B.B |  |  |
| 62. | 02.11.2015 | Principles, types of WDM | VIII | B.B |  |  |
| 63. | 04.11.2015 | Measurements of attenuation and dispersion | VIII | B.B |  |  |
| 64. | 05.11.2015 | Eye pattern | VIII | B.B |  |  |

**TEXT BOOKS** :

1. Optical Fiber Communications – Gerd Keiser, Mc Graw-Hill International edition, 3rd Edition, 2000.

2. Optical Fiber Communications – John M. Senior, PHI, 2nd Edition, 2002.

**RERFERENCE BOOKS :**

1. Fiber Optic Communications – D.K. Mynbaev , S.C. Gupta and Lowell L. Scheiner, Pearson

Education, 2005.

2. Text Book on Optical Fibre Communication and its Applications – S.C.Gupta, PHI, 2005.

3. Fiber Optic Communication Systems – Govind P. Agarwal , John Wiley, 3rd Ediition, 2004.

4. Fiber Optic Communications – Joseph C. Palais, 4th Edition, Pearson Education, 2004.

5. Fiber Optics Communications – Harold Kolimbiris (Pearson Education Asia)