



**ELECTRICAL
ENGINEERING**

Photonic Integrated Circuits

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| Type of Course | : New |
| Course Snapshot | : Elective |
| | : PG Students and Research Students |
| Pre-requisites | : Electromagnetic Theory, Optics |
| Course Duration | : 10 hours / 4 weeks |

COURSE OUTLINE:

The course on photonic integrated circuits deals with principles, devices and applications where light propagating in optical waveguides takes the central role. Various aspects that will be dealt are optical waveguide theory; passive, dynamic and functional devices; materials and fabrication technology; systems and applications – optical communication devices, optical sensors; micro-opto-electro-mechanical systems; and recent developments.

INSTRUCTOR:

Prof. Srinivas Talabattula
Department of Nanotechnology
IISc Bangalore



ABOUT INSTRUCTOR:

Prof. Srinivas Talabattula is Associate Professor in ECE Dept, Indian Institute of Science, Bangalore. He obtained B Sc (Hons) from New Science College, Hyderabad, and ME (integrated) and Ph D from IISc. He was a post doc at Toyohashi University of Technology, Japan during 1992-1996. His area of research interest is optical communications, in particular, photonic integrated circuits. He guided 24 PhD students, and published several papers. He undertook several sponsored research projects, like National program on Microwave Photonics, National program on Smart structures and Systems, and National program on micro-optics and nanophotonics.

COURSE PLAN:

Week 1 : Optical Waveguide Theory, Materials and Fabrication Technology

Week 2 : Passive and Dynamic Devices, Opto-electronic Devices

Week 3 : Optical Communication applications; Optical Sensors applications

Week 4 : Advanced topics – Nonlinear Integrated Optics, Photonic Bandgap Structures, Recent Topics – Quantum Communications, Micro-opto-electro-mechanical systems