

# Coherent Optical Communication

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## Overview

Optical communication is a dynamically evolving technology that requires continual update of knowledge base for both academia and industry; especially with the advent of coherent communication in the optical domain. This course is intended to cover the fundamental aspects of optical communication with advanced modulation formats - generation and detection, basic digital signal processing tools to recover the data, and optical networks in the context of advanced modulation formats.

The course runs for two weeks. The physical layer optical coherent communication will be explained along with a detailed description of the digital signal processing algorithms to counter the impairments in an optical fiber communication system. This would be followed by the description of optical networks in the context of advanced modulation formats. Some current state-of-the art research systems will also be described. The course is complemented with computer-based simulation exercises and case studies.

<b>Dates for the Course</b>	<b>4<sup>th</sup> January 2016 to 15<sup>th</sup> January 2016</b>
<b>Host Institute</b>	<b>IIT Madras</b>
<b>No. of Credits</b>	<b>2</b>
<b>Maximum No. of Participants</b>	<b>40</b>
<b>You Should Attend If...</b>	<ul style="list-style-type: none"><li>▪ You are an engineer working in the area of optical communication/network in industry</li><li>▪ You are a masters/research student wishing to pursue research in the area of optical communication or allied areas</li><li>▪ You are a faculty in an academic institution teaching/wishing to pursue research in the area of optical communication or allied areas</li></ul>
<b>Course Registration Fees</b>	<p>The participation fees for taking the course is as follows: <b>Student Participants:</b> Rs.2000 <b>Faculty Participants:</b> Rs.6000 <b>Government Research Organization Participants:</b> Rs.10000 <b>Industry Participants:</b> Rs.20000 <b>PI register at <a href="http://www.gian.iitkgp.ac.in/">http://www.gian.iitkgp.ac.in/</a></b></p> <p>The above fee is towards participation in the course, the course material, and computer use for tutorials and assignments. The participants may be provided with hostel accommodation, depending on the availability, on payment basis.</p>

## Course Faculty



**Prof. Liam Barry** is a faculty in the School of Electronic Engineering in the Dublin City University, Dublin, Ireland. His research interests include all-optical signal processing, optical pulse generation and characterization, hybrid radio/fibre communication systems, wavelength tunable lasers for reconfigurable optical networks, and optical performance monitoring



**Deepa Venkitesh** is an Associate Professor in the Department of Electrical Engineering, Indian Institute of Technology Madras Chennai. Her research interests include nonlinear optics, optical signal processing and fiber lasers.



**Prof David Koilpillai** is a faculty in the Department of Electrical Engineering, Indian Institute of Technology Madras, Chennai. His research interests include digital signal processing, multi rate signal processing, and wireless communication systems.

Course Coordinator

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