



COMMUNICATION NETWORKS

PROF. GOUTAM DAS

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Telecommunications
IIT Kharagpur

TYPE OF COURSE : New | Elective | PG

COURSE DURATION : 12 Weeks (24 Jan' 22 - 15 Apr' 22)

EXAM DATE : April 24, 2022

INTENDED AUDIENCE : Master students in the field of telecommunication of final year B. Tech/BE students of EE, ECE, CS departments

INDUSTRIES APPLICABLE TO : CISCO, Broadcom, QUALCOMM, Ericson, Samsung, Vodafone, Jio, Tejas Network, Xilinx etc.

COURSE OUTLINE :

A network is a set of devices (nodes) connected through communication links. Computer network indicates a collection of autonomous computers interconnected by means of communication infrastructure. Two computers are said to be interconnected if they are able to exchange information. The connection might be via a copper wire, fiber optics, microwaves, infrared, and communication satellites. Networks come in many sizes, shapes and forms and are usually connected together to make larger networks. Internet is the most well-known example of a network of networks.

Study of networks require knowledge of networking architectures, protocol or algorithm that carries out different sub-task of networking or information exchange and tools for network design and its performance analysis.

ABOUT INSTRUCTOR :

Prof. Goutam Das received the Ph.D. degree from the University of Melbourne, Melbourne, Australia, in 2008. He has worked as a Postdoctoral Fellow at Ghent University, Ghent, Belgium, from 2009–2011. He is currently working as an Associate Professor in the Indian Institute of Technology Kharagpur, Kharagpur, India. His research interests include optical access networks, optical data center networks, radio over fiber technology, optical packet switched networks and media access protocol design for application specific requirements.

COURSE PLAN :

Week 1: Communication Networks basics

Week 2: Circuit Switched Networks

Week 3: Switching Concepts

Week 4: Layered Architecture, Introduction to DLL Layer

Week 5: MAC Protocols – Ethernet, Wireless LAN, PON

Week 6: Network Layer - IP

Week 7: Routing Algorithms and Associated Protocols

Week 8: Transport Layer

Week 9: Introduction to Queuing

Week 10: Application of Queuing theory for Design of Circuit Networks

Week 11: Performance analysis of CSMA CD, CSMA CA

Week 12: Advanced Networking Concepts: Open Flow switching, SDN and NFV, Network slicing, cognitive Networks