

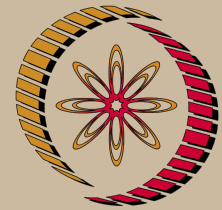
Digital Switching - Video course

COURSE OUTLINE

The course objective is that the student should be able to explain the need of switching networks. He should be able to explain the mechanism of manual telephony, basic components of strowger, operation of crossbar, the concept of crosspoint complexity, why one need multistage interconnection networks for reducing crosspoint complexity. He should be able to explain the difference between call congestion and time congestion, the computation of blocking probabilities for blocking switches, various fundamental theorems to decide on strictly non-blocking, wide-sense non-blocking, rearrange-ably non-blocking properties of the network. He should able to compute the crosspoint complexity bounds and how they can be further improved. He should be able to explain the rearrangement algorithms in rearrange-ably non-blocking switches. He should be able to explain packet switching – input and output queued switch performance, Banyan, Delta network construction and properties, self routing in the Delta networks, performance analysis in Delta networks, prove that the Shufflenet is a Delta network. He should be able to explain the SIP (session initiation protocol) functionality, various message types, data types, message interpretation, call management procedures.

COURSE DETAIL

Module	Topics	No.of Lectures
1	The course objective is that the student should be able to explain the need of switching networks. He should be able to explain the mechanism of manual telephony, basic components of strowger, operation of crossbar, the concept of crosspoint complexity, why one need multistage interconnection networks for reducing crosspoint complexity.	5
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4	He should be able to explain packet switching – input and output queued switch performance, Banyan, Delta network construction and properties, self routing in the Delta networks, performance analysis in Delta networks, prove that the Shufflenet is a Delta network.	7
5	He should be able to explain the SIP (session initiation protocol) functionality, various message types, data types, message interpretation, call management procedures.	8



NP-TEL

NPTEL

<http://nptel.iitm.ac.in>

Electronics & Communication Engineering

Pre-requisites:

- Digital Communication Networks

Additional Reading:

FK.Hwang, Mathematical Theory of Non-blocking switching networks, World Scientific.

Hyperlinks:

<http://www.ietf.org>
<http://brihsvn.iitk.ernet.in/>

Coordinators:

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References:

1. RFC 3261, Session Initiation Protocol, www.ietf.org.
2. Joseph Y. Hui, Switching and traffic theory for integrated broadband networks, Kluwer Academic Press, 1990
3. Mischa Schwartz, Telecommunication networks: protocols, modeling and analysis, Addison-wesley, 1987
4. T. Vishwanathan, Telecommunication engineering, Tata McGraw Hill, Delhi.
5. Shuo-Yen Robert Li, Algebraic switching theory and broadband applications, Academic Press.
6. V.E.Benese, R.P.Kurshan, "Wide sense non-blocking network made of square switches," Electronics Letters, Vol.17, No.19, p.697.