

SEMESTER : II  
 BRANCH : CSE  
 SUBJECT : Multimedia Computing  
 SUBJECT CODE : 14SCS21  
 NO OF HRS/WK : 5

NAME OF THE FACULTY : Savitha S  
 DATE OF COMMENCEMENT : 01-2-2016  
 DATE OF CLOSING : 21-05-2016  
 CLASS STRENGTH : 19  
 TOTAL HRS : 52

| Sessi<br>On<br>No | Chapter no<br>(No of hrs<br>planed for<br>the chapter) | DATE     | Topics planned for the session                                                | Teaching<br>Aids           | Assignm<br>ents/<br>Tests<br>planned<br>for the<br>chapter | Topics<br>covered<br>As per<br>plan |
|-------------------|--------------------------------------------------------|----------|-------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------|-------------------------------------|
| 1                 | 1                                                      | 02-02-16 | Pre-requisites                                                                | White<br>board &<br>marker |                                                            |                                     |
| 2                 | 1/1                                                    | 04-02-16 | <b>MODULE I Introduction to<br/>Multimedia Communications</b>                 | „                          |                                                            |                                     |
| 3                 | 2/1                                                    | 05-02-16 | Human communication model                                                     | „                          |                                                            |                                     |
| 4                 | 3/1                                                    | 05-02-16 | Evolution and<br>Convergence,                                                 | „                          |                                                            |                                     |
| 5                 | 4/1                                                    | 08-02-16 | Evolution and<br>Convergence,                                                 | „                          |                                                            |                                     |
| 6                 | 5/1                                                    | 10-02-16 | Technology framework                                                          | „                          |                                                            |                                     |
| 7                 | 6/1                                                    | 12-02-16 | Technology framework                                                          | „                          |                                                            |                                     |
| 8                 | 7/1                                                    | 13-02-16 | Standardization framework.                                                    | „                          |                                                            |                                     |
| 9                 | 8/1                                                    | 13-02-16 | Standardization framework.                                                    | „                          | Assignm<br>ent-1                                           |                                     |
| 10                | 9/1                                                    | 15-02-16 | Standardization framework.                                                    | „                          |                                                            |                                     |
| 11                | 10/1                                                   | 17-02-16 | Standardization framework.                                                    | „                          |                                                            |                                     |
| 12                | 1/2                                                    | 22-02-16 | <b>MODULE 2:Framework for<br/>Multimedia Standardization:</b><br>Introduction | „                          |                                                            |                                     |
| 13                | 2/2                                                    | 23-02-16 | Standardization activities                                                    | „                          |                                                            |                                     |
| 14                | 3/2                                                    | 23-02-16 | Standards to build a new global<br>information infrastructure,                | „                          |                                                            |                                     |

|    |      |          |                                                             |   |                  |  |
|----|------|----------|-------------------------------------------------------------|---|------------------|--|
| 15 | 4/2  | 24-02-16 | Standards to build a new global information infrastructure, | “ |                  |  |
| 16 | 5/2  | 26-02-16 | Standardization processes on multimedia communications,     | „ |                  |  |
| 17 | 6/2  | 01-03-16 | Standardization processes on multimedia communications,     | ” |                  |  |
| 18 | 7/2  | 02-03-16 | ITU-T mediacom2004 framework for multimedia                 | „ |                  |  |
| 19 | 8/2  | 02-03-16 | ITU-T mediacom2004 framework for multimedia                 | „ |                  |  |
| 20 | 9/2  | 03-03-16 | ISO/IEC MPEG-21 multimedia framework,                       | „ | Assignm<br>ent-2 |  |
| 21 | 10/2 | 05-03-16 | ISO/IEC MPEG-21 multimedia framework                        | „ |                  |  |
| 22 | 11/2 | 09-03-16 | IETF multimedia Internet standards.                         | ” |                  |  |
| 23 | 12/2 | 10-03-16 | IETF multimedia Internet standards.                         | “ |                  |  |
| 24 | 1/3  | 10-03-16 | <b>MODULE III</b><br><b>Application Layer:</b> Introduction | ” |                  |  |
| 25 | 2/3  | 11-03-16 | ITU applications                                            | ” |                  |  |
| 26 | 3/3  | 18-03-16 | ITU applications                                            | ” |                  |  |
| 27 | 4/3  | 21-03-16 | ITU applications                                            | ” |                  |  |
| 28 | 5/3  | 22-03-16 | MPEG applications                                           | ” |                  |  |
| 29 | 6/3  | 22-03-16 | MPEG applications                                           | ” |                  |  |
| 30 | 7/3  | 23-03-16 | MPEG applications                                           | ” |                  |  |
| 31 | 8/3  | 28-03-16 | MPEG applications                                           | ” |                  |  |
| 32 | 9/3  | 30-03-16 | Mobile services and applications                            | “ |                  |  |
| 33 | 10/3 | 31-03-16 | Mobile services and applications                            | ” |                  |  |
| 34 | 11/3 | 31-03-16 | MPEG applications                                           | „ | Assignm<br>ent-3 |  |
| 35 | 12/3 | 01-04-16 | Universal multimedia access                                 | „ |                  |  |
| 36 | 13/3 | 04-04-16 | Universal multimedia access                                 | „ |                  |  |
| 37 | 14/3 | 06-04-16 | Universal multimedia access                                 | ” |                  |  |

|    |      |          |                                                                                                                            |   |                  |  |
|----|------|----------|----------------------------------------------------------------------------------------------------------------------------|---|------------------|--|
| 38 | 1/4  | 07-04-16 | <b>MODULE IV</b><br><b>Middleware Layer: Introduction</b>                                                                  | ” |                  |  |
| 39 | 2/4  | 07-04-16 | Middleware for multimedia                                                                                                  | “ |                  |  |
| 40 | 3/4  | 11-04-16 | Middleware for multimedia                                                                                                  | ” |                  |  |
| 41 | 4/4  | 13-04-16 | Media Coding: Multimedia Content Representation, Core Compression Technologies                                             | ” |                  |  |
| 42 | 5/4  | 16-04-16 | Core Compression Technologies                                                                                              | ” |                  |  |
| 43 | 6/4  | 18-04-16 | Core Compression Technologies                                                                                              | ” |                  |  |
| 44 | 7/4  | 18-04-16 | Core Compression Technologies                                                                                              | ” |                  |  |
| 45 | 8/4  | 20-04-16 | Transcoding Architectures and Technologies                                                                                 | ” |                  |  |
| 46 | 9/4  | 22-04-16 | Transcoding Architectures and Technologies                                                                                 | ” |                  |  |
| 47 | 10/4 | 28-04-16 | Multimedia Implementation                                                                                                  | “ |                  |  |
| 48 | 11/4 | 29-04-16 | Multimedia Implementation                                                                                                  | ” |                  |  |
| 49 | 12/4 | 29-04-16 | Media Streaming                                                                                                            | ” | Assignm<br>ent-4 |  |
| 50 | 13/4 | 30-04-16 | Media Streaming                                                                                                            | ” |                  |  |
| 51 | 14/4 | 03-05-16 | Media Streaming                                                                                                            | ” |                  |  |
| 52 | 15/4 | 05-05-16 | Media Streaming                                                                                                            | ” |                  |  |
| 53 | 16/4 | 06-05-16 | Infrastructure for multimedia content distribution.                                                                        | ” |                  |  |
| 54 | 17/4 | 06-05-16 | Infrastructure for multimedia content distribution.                                                                        | ” |                  |  |
| 55 | 18/4 | 07-05-16 | Infrastructure for multimedia content distribution.                                                                        | “ |                  |  |
| 56 | 1/5  | 11-05-16 | <b>MODULE V</b><br><b>Network Layer: Introduction</b>                                                                      | ” |                  |  |
| 57 | 2/5  | 13-05-16 | Selection and Configuration of QoS Mechanisms                                                                              | ” |                  |  |
| 58 | 3/5  | 14-05-16 | QoS Architecture, OSI QoS Framework                                                                                        | ” |                  |  |
| 59 | 4/5  | 14-05-16 | QoS from Providers' and Customers' Viewpoints                                                                              | ” | Assignm<br>ent-5 |  |
| 60 | 5/5  | 15-05-16 | Quality of Service (Qos) in Network Multimedia Systems                                                                     | ” |                  |  |
| 61 | 6/5  | 16-05-16 | Quality of Service Parameters, Quality of Service Classes, QoS Maintenance and Monitoring, Framework for QoS-Based Routing | “ |                  |  |

|    |     |          |                                             |  |  |  |
|----|-----|----------|---------------------------------------------|--|--|--|
| 62 | 7/5 | 18-05-16 | Generic Networks, Access Broadband Networks |  |  |  |
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### Syllabus for Internal Assessment Tests (IAT)

| Sessional # | Syllabus        |
|-------------|-----------------|
| T1          | Class # 01 - 31 |
| T2          | Class # 31 – 50 |
| T3          | Class # 51-62   |

\*: See calendar of events for the schedules of IATs.

#### Literature:

| Book Type  | Code | Author & Title                                                                                                             | Publication information        |                   |
|------------|------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|
|            |      |                                                                                                                            | Edition // Publisher           | ISBN #            |
| Text Book  | TB1  | K.R. Rao, Zoran S. Bojkovic, Dragorad A. Milovanovic: Introduction to Multimedia Communications –Applications, Middleware. | Networking, Wiley India, 2006. | 978-81-265-2302-3 |
| References | RB1  | Fred Halsall: Multimedia Communications – Applications, Networks, Protocols, and Standards.                                | Pearson,2001.                  | 978-81-317-0994-8 |
| References | RB2  | Nalin K Sharad: Multimedia information Networking.                                                                         | PHI, 2002.                     | 978-01-325-8773-0 |

SEMESTER : II  
 BRANCH : CNE  
 SUBJECT : Network Management  
 SUBJECT CODE : 14SCN23  
 NO OF HRS/WK : 5

NAME OF THE FACULTY : Mrs. Priya L  
 DATE OF COMMENCEMENT : 01-2-2016  
 DATE OF CLOSING : 21-06-2016  
 CLASS STRENGTH : 11  
 TOTAL HRS : 62

| Sessi<br>on<br>No | Chapter no<br>(No of hrs<br>planed for<br>the chapter) | DATE     | Topics planned for the session           | Teaching<br>Aids | Assignm<br>ents/<br>Tests<br>planned<br>for the<br>chapter | Topics<br>covered<br>As per<br>plan |
|-------------------|--------------------------------------------------------|----------|------------------------------------------|------------------|------------------------------------------------------------|-------------------------------------|
| 1                 | 1/1                                                    | 2.2.2016 | Pre-requisites                           |                  |                                                            |                                     |
| 2                 | 2/1                                                    | 3.2.2.16 | <b>MODULE I Introduction:</b>            | ”                |                                                            |                                     |
| 3                 | 3/1                                                    | 3.2.2.16 | Analogy of Telephone Network Management, | ”                |                                                            |                                     |
|                   |                                                        |          | Data and Telecommunication               | ”                |                                                            |                                     |

|    |             |           |                                                                                                                         |    |              |  |
|----|-------------|-----------|-------------------------------------------------------------------------------------------------------------------------|----|--------------|--|
| 4  | <b>4/1</b>  | 5.2.2016  | Network Distributed computing Environments,                                                                             |    |              |  |
| 5  | <b>5/1</b>  | 8.2.2016  | TCP/IP-Based Networks: The Internet and Intranets, Communications Protocols and Standards- Communication Architectures, | „  |              |  |
| 6  | <b>6/1</b>  | 10.2.2016 | Protocol Layers and Services;                                                                                           | “” |              |  |
| 7  | <b>7/1</b>  | 11.2.2016 | Case Histories of Networking and Management – The Importance of topology , Filtering Does Not Reduce Load on Node,      | „  |              |  |
| 8  | <b>8/1</b>  | 11.2.2016 | Some Common Network Problems; Challenges of Information Technology Managers,                                            | „  | Assignment 1 |  |
| 9  | <b>9/1</b>  | 13.2016   | Network Management: Goals                                                                                               | „  |              |  |
| 10 | <b>10/1</b> | 15.2016   | Organization, and Functions- Goal of Network Management, Network Provisioning, Network Operations And                   | „  |              |  |

|    |      |           |                                                                                                                                                           |   |                  |  |
|----|------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------|--|
|    |      |           | the NOC,                                                                                                                                                  |   |                  |  |
| 11 | 11/1 | 17.2.2016 | Network Installation and Maintenance; Network and System Management, Network Management System platform, Current Status and Future of Network Management. | „ |                  |  |
| 12 | 1/1  | 18.2.2016 | <b>MODULE II Basic Foundations: Standards, Models, and Language:</b> Network Management Standards, Network Management Model, Organization Model,          | „ |                  |  |
| 13 | 2/1  | 18.2.2016 | Information Model – Management Information Trees, Managed Object Perspectives,                                                                            | „ |                  |  |
| 14 | 3/1  | 23.2.2016 | Communication Model; ASN.1-Terminology, Symbols, and Conventions, Objects and Data Types, Object Names,                                                   | “ | Assignm<br>ent 2 |  |
| 15 | 4/1  | 24.2.2016 | An Example of ASN.1 from ISO 8824;                                                                                                                        | „ |                  |  |
| 16 | 5/1  | 26.2.2016 | Encoding Structure                                                                                                                                        | „ |                  |  |
| 17 | 6/1  | 29.2.2016 | Macros, Functional Model.                                                                                                                                 | „ |                  |  |
| 18 | 1/1  | 29.2.2016 | <b>MODULE III: SNMPv1 Network Management:</b> Managed Network: The History of SNMP Management,                                                            | „ |                  |  |
| 19 | 2/1  | 1.3.2016  | Internet Organizations and standards, Internet Documents,                                                                                                 | „ |                  |  |
| 20 | 3/1  | 3.3.2016  | The SNMP Model, The Organization Model, System Overview.                                                                                                  | „ |                  |  |
| 21 | 4/1  | 5.3.2016  | The Information Model – Introduction, The Structure of Management Information,                                                                            | „ |                  |  |
| 22 | 5/1  | 8.3.2016  | Managed Objects, Management Information Base.                                                                                                             | “ |                  |  |
| 23 | 6/1  | 8.3.2016  | The SNMP Communication Model – The SNMP Architecture, Administrative Model,                                                                               | „ |                  |  |
| 24 | 7/1  | 10.3.2016 | SNMP Specifications, SNMP Operations, SNMP MIB Group, Functional Model                                                                                    | „ | Assignm<br>ent 3 |  |
| 25 | 8/1  | 11.3.2016 | <b>SNMP Management – RMON:</b> Remote Monitoring, RMON SMI                                                                                                | „ |                  |  |

|    |      |            |                                                                                                             |   |              |  |
|----|------|------------|-------------------------------------------------------------------------------------------------------------|---|--------------|--|
|    |      |            | and MIB,                                                                                                    |   |              |  |
| 26 | 9/1  | 18.3.2016  | RMON1- RMON1 Textual Conventions, RMON1 Groups and Functions, Relationship Between Control and Data Tables, | „ |              |  |
| 27 | 10/1 | 19.3.2016  | RMON1 Common and Ethernet Groups,                                                                           | „ |              |  |
| 28 | 11/1 | 19.3.2016  | RMON Token Ring Extension Groups,                                                                           | „ |              |  |
| 29 | 12/1 | 22.03.2016 | RMON2 – The RMON2 Management Information Base, RMON2 Conformance Specifications.                            | „ |              |  |
| 30 | 1/1  | 23.3.2016  | <b>Module IV:Broadband Network Management:</b> Broadband Access Networks and Technologies                   | „ |              |  |
| 31 | 2/1  | 28.3.2016  | HFCT Technology                                                                                             | „ |              |  |
| 32 | 3/1  | 29.3.2016  | The Broadband LAN, The Cable Modem, The Cable Modem Termination System,                                     | „ |              |  |
| 33 | 4/1  | 29.3.2016  | The HFC Plant, The RF Spectrum for Cable Modem                                                              | „ |              |  |
| 34 | 5/1  | 31.3.2016  | Data Over Cable, Reference Architecture;                                                                    | „ |              |  |
| 35 | 6/1  | 1.4.2016   | HFC Management – Cable Modem and CMTS Management                                                            | „ |              |  |
| 36 | 7/1  | 4.4.2016   | HFC Link Management, RF Spectrum Management, DSL Technology;                                                | „ |              |  |
| 37 | 8/1  | 5.4.2016   | Asymmetric Digital Subscriber Line Technology – Role of the ADSL Access Network in an Overall Network,      | „ | Assignment 4 |  |
| 38 | 9/1  | 5.4.2016   | ADSL Architecture, ADSL Channeling Schemes, ADSL Encoding Schemes;                                          | „ |              |  |
| 39 | 10/1 | 7.4.2016   | ADSL Management – ADSL Network Management Elements, ADSL Configuration Management,                          | „ |              |  |
| 40 | 11/1 | 11.4.2016  | ADSL Fault Management, ADSL Performance Management                                                          | „ |              |  |
| 41 | 12/1 | 13.4.2016  | SNMP-Based ADSL Line MIB, MIB Integration with Interfaces Groups in MIB-2, ADSL Configuration Profiles      | „ |              |  |
| 42 | 1/1  | 15.4.2016  | <b>MODULE V Network Management Applications:</b> Configuration                                              | „ |              |  |

|    |             |            |                                                                                                                                                                      |   |              |  |
|----|-------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------|--|
|    |             |            | Management- Network Provisioning                                                                                                                                     |   |              |  |
| 43 | <b>2/1</b>  | 15.4.2016  | Inventory Management, Network Topology,                                                                                                                              | „ |              |  |
| 44 | <b>3/1</b>  | 18.4.2016  | Fault Management- Fault Detection, Fault Location and Isolation techniques                                                                                           | „ |              |  |
| 45 | <b>4/1</b>  | 20.4.2016  | Performance Management – Performance Metrics, Data Monitoring, Problem Isolation, Performance Statistics                                                             | „ |              |  |
| 46 | <b>5/1</b>  | 22.4.2016  | Event Correlation Techniques – Rule-Based Reasoning, Model-Based Reasoning, Case-Based Reasoning                                                                     | „ |              |  |
| 47 | <b>6/1</b>  | 23.4.2016  | Codebook correlation Model, State Transition Graph Model                                                                                                             | „ |              |  |
| 48 | <b>7/1</b>  | 29.4.2016  | Finite State Machine Model,                                                                                                                                          | „ |              |  |
| 49 | <b>8/1</b>  | 30.4.2016  | Security Management – Policies and Procedures, Security Breaches and the Resources Needed to Prevent Them, Firewalls, Cryptography, Authentication and Authorization | „ | Assignment 5 |  |
| 50 | <b>9/1</b>  | 3.5.2016   | Client/Server Authentication Systems, Messages Transfer Security,                                                                                                    | „ |              |  |
| 51 | <b>10/1</b> | 4.5.2016   | Protection of Networks from Virus Attacks, Accounting Management,                                                                                                    | „ |              |  |
| 52 | <b>11/1</b> | 4.5.2016   | Report Management,                                                                                                                                                   | „ |              |  |
| 53 | <b>12/1</b> | 6.5.2016   | Policy- Based Management, Service Level Management.                                                                                                                  | „ |              |  |
| 54 |             | 7.5.2016   | Case study                                                                                                                                                           | „ |              |  |
| 55 |             | 10.5.2016  | Case study                                                                                                                                                           | „ |              |  |
| 56 |             | 11.5.2016  | Assignment Presentation                                                                                                                                              |   |              |  |
| 57 |             | 12.5.2106  | Assignment Presentation                                                                                                                                              |   |              |  |
| 58 |             | 13.5.2016  | Assignment Presentation                                                                                                                                              |   |              |  |
| 59 |             | 14.05.2016 | Revision                                                                                                                                                             |   |              |  |
| 60 |             | 14.5.2016  | Revision                                                                                                                                                             |   |              |  |
| 61 |             | 15.5.2016  | Revision                                                                                                                                                             |   |              |  |
| 62 |             | 16.5.2016  | Revision                                                                                                                                                             |   |              |  |

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### Syllabus for Internal Assessment Tests (IAT)

| Sessional # | Syllabus        |
|-------------|-----------------|
| IAT-1       | Class # 01 – 25 |
| IAT-2       | Class # 21– 36  |
| IAT-3       | Class # 37 - 54 |

\*: See calendar of events for the schedules of IATs.

#### Literature:

| Book Type | Code | Author & Title                                                                    | Publication info                      |                   |
|-----------|------|-----------------------------------------------------------------------------------|---------------------------------------|-------------------|
|           |      |                                                                                   | Edition & Publisher                   | ISBN #            |
| Text Book | TB1  | Mani Subramanian: Network Management- Principles and Practice,                    | 2nd Edition, Pearson Education, 2010. | 978-81-317-2759-1 |
| Reference | RB1  | J. Richard Burke: Network management Concepts and Practices: a Hands-On Approach, | PHI, 2008.                            | 978-0130329509    |

SEMESTER: II-M.Tech(CNE)  
 BRANCH : CSE  
 SUBJECT : Optical Networks  
 SUBJECT CODE : 14SCN253  
 NO OF HRS/WK : 5

NAME OF THE FACULTY : Ms. Anisha Kunjan  
 DATE OF COMMENCEMENT : 01-2-2016  
 DATE OF CLOSING : 21-06-2016  
 CLASS STRENGTH : 11  
 TOTAL HRS : 56

| Session No | Chapter no (No of hrs planed for the chapter) | DATE     | Topics planned for the session                                                                              | Teaching Aids | Assignments/ Tests planned for the chapter | Topics covered As per plan |
|------------|-----------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------------|----------------------------|
| 1          | -                                             | 3-02-16  | Pre-requisites                                                                                              | CHALK & BOARD |                                            |                            |
| 2          | -                                             | 3-02-16  | Pre-requisites                                                                                              | „             |                                            |                            |
| 3          | 1/1                                           | 5-02-16  | MODULE I Client Layers of the Optical Layer: SONET/SDH: Multiplexing, CAT and LCAS, Sonnet/SDH Layers       | PPT           |                                            |                            |
| 4          | 2/1                                           | 5-02-16  | SONET Frame Structure, SONET/SDH Physical Layer , Elements of a SONET/SDH Infrastructure                    | CHALK & BOARD |                                            |                            |
| 5          | 3/1                                           | 8-02-16  | Optical Transport Network: Hierarchy, Frame Structure, Multiplexing, Generic Framing Procedure              | „             |                                            |                            |
| 6          | 4/1                                           | 11-02-16 | Ethernet: Frame Structure, Switches, Ethernet Physical Layer, Carrier Transport IP: Routing and Forwarding, | „             |                                            |                            |

|    |      |          |                                                                             |   |                    |  |
|----|------|----------|-----------------------------------------------------------------------------|---|--------------------|--|
|    |      |          | Quality of Service.                                                         |   |                    |  |
| 7  | 5/1  | 11-02-16 | ----Continued-----                                                          | “ | Assignm<br>ent – 1 |  |
| 8  | 6/1  | 13-02-16 | Multiprotocol Label Switching: Labels<br>and Forwarding, Quality of Service | ” |                    |  |
| 9  | 7/1  | 13-02-16 | Signaling and Routing, Carrier<br>Transport                                 | ” |                    |  |
| 10 | 8/1  | 15-02-16 | Resilient Packet Ring: Quality of Service,<br>Node Structure                | ” |                    |  |
| 11 | 9/1  | 18-02-16 | Fairness Storage-Area Networks: Fiber<br>Channel.                           | ” |                    |  |
| 12 | 10/1 | 18-02-16 | ----Continued-----                                                          |   |                    |  |
| 13 | 1/2  | 23-02-16 | MODULE II WDM Network Elements:<br>Optical Line Terminals, Optical Line     | ” |                    |  |

|    |      |          |                                                                                                                |               |                    |  |
|----|------|----------|----------------------------------------------------------------------------------------------------------------|---------------|--------------------|--|
|    |      |          | <b>Amplifiers</b>                                                                                              |               |                    |  |
| 14 | 2/2  | 23-02-16 | <b>Optical Add/Drop Multiplexers: OADM Architectures</b>                                                       | PPT           |                    |  |
| 15 | 3/2  | 24-02-16 | ----Continued-----                                                                                             |               |                    |  |
| 16 | 4/2  | 29-02-16 | <b>Reconfigurable OADMs</b>                                                                                    | CHALK & BOARD | Assignm<br>ent - 2 |  |
| 17 | 5/2  |          | ----Continued-----                                                                                             |               |                    |  |
| 18 | 6/2  | 29-02-16 | <b>Optical Cross connects: AllOptical OXC Configurations.</b>                                                  | “             |                    |  |
| 19 | 7/2  | 2-03-16  | ----Continued-----                                                                                             | ”             |                    |  |
| 20 | 1/3  | 2-03-16  | <b>MODULE III Control and Management Network Management Functions: Management Framework, Information Model</b> | ”             |                    |  |
| 21 | 2/3  | 3-03-16  | <b>Management Protocols. Optical Layer Services and Interfacing, Layers within the Optical Layer</b>           | ”             |                    |  |
| 22 | 3/3  | 8-03-16  | <b>Multivendor Interoperability. Performance and Fault Management: The Impact of Transparency</b>              | ”             |                    |  |
| 23 | 4/3  | 8-03-16  | <b>BER Measurement, Optical Trace, Alarm Management, Data Communication Network (DCN) and Signaling</b>        | ”             |                    |  |
| 24 | 5/3  | 10-03-16 | <b>Policing, Optical Layer Overhead, Client Layers. Configuration Management: Equipment Management</b>         | ”             |                    |  |
| 25 | 6/3  | 10-03-16 | <b>Connection Management, Adaptation Management. Optical Safety: Open Fiber Control Protocol</b>               | ”             | Assignm<br>ent – 3 |  |
| 26 | 7/3  | 11-03-16 | ----Continued-----                                                                                             | ”             |                    |  |
| 27 | 1/4  | 19-03-16 | <b>MODULE IV Protection in SONET/SDH: Point-to-Point Links, Self-Healing Rings</b>                             | ”             |                    |  |
| 28 | 2/4  | 19-03-16 | <b>Unidirectional LineSwitched Rings, Bidirectional Line-Switched Rings</b>                                    | ”             |                    |  |
| 29 | 3/4  | 22-03-16 | <b>Ring Interconnection and Dual Homing.</b>                                                                   | ”             |                    |  |
| 30 | 4/4  | 22-03-16 | <b>Protection in the Client Layer: Protection in Resilient Packet Rings</b>                                    | ”             |                    |  |
| 31 | 5/4  | 23-03-16 | <b>Protection in Ethernet</b>                                                                                  | ”             |                    |  |
| 32 | 6/4  | 29-03-16 | <b>Protection in IP</b>                                                                                        | ”             |                    |  |
| 33 | 7/4  | 29-03-16 | <b>Protection in MPLS</b>                                                                                      | ”             |                    |  |
| 34 | 8/4  | 31-03-16 | <b>Why Optical Layer Protection: Service Classes Based on Protection.</b>                                      | ”             |                    |  |
| 35 | 9/4  | 31-03-16 | <b>Optical Layer Protection Schemes: 1+1 OMS Protection, 1:1 OMS Protection</b>                                | ”             |                    |  |
| 36 | 10/4 | 1-04-16  | <b>OMSDPRing, OMS-SPRing</b>                                                                                   | ”             | Assignm<br>ent – 4 |  |
| 37 | 11/4 | 5-04-16  | <b>1:N Transponder Protection</b>                                                                              | ”             |                    |  |
| 38 | 12/4 | 5-04-16  | <b>1+1 OCh Dedicated Protection, OChSPRing</b>                                                                 | ”             |                    |  |
| 39 | 13/4 | 7-04-16  | <b>OCH-Mesh protection, GMPLS Protection</b>                                                                   | ”             |                    |  |
| 40 | 15/4 | 7-04-16  | <b>Interworking between Layers.</b>                                                                            | ”             |                    |  |
| 41 | 1/5  | 11-04-16 | <b>MODULE V WDM Network Design:</b>                                                                            | ”             |                    |  |

|    |      |          |                                                                              |   |                |  |
|----|------|----------|------------------------------------------------------------------------------|---|----------------|--|
|    |      |          | <b>Cost Trade-OFFS: A Detailed Ring Network Example LTD and RWA Problems</b> |   |                |  |
| 42 | 2/5  | 15-04-16 | ----Continued-----                                                           | „ |                |  |
| 43 | 3/5  | 15-04-16 | <b>Light path Topology Design, Routing and Wavelength Assignment</b>         | „ |                |  |
| 44 | 4/5  | 18-04-16 | ----Continued-----                                                           | „ |                |  |
| 45 | 5/5  | 18-04-16 | <b>Wavelength Conversion. Dimensioning Wavelength- Routing Networks</b>      | „ |                |  |
| 46 | 6/5  | 20-04-16 | ----Continued-----                                                           | „ | Assignment – 5 |  |
| 47 | 7/5  | 23-04-16 | <b>Statistical Dimensioning Models: First-Passage Model</b>                  | „ |                |  |
| 48 | 8/5  | 23-04-16 | ----Continued-----                                                           | „ |                |  |
| 49 | 9/5  | 29-04-16 | <b>Blocking Model</b>                                                        | „ |                |  |
| 50 | 10/5 | 29-04-16 | <b>Maximum Load Dimensioning Models: Offline Light path Requests</b>         | „ |                |  |
| 51 | 11/5 | 30-04-16 | ----Continued-----                                                           | „ |                |  |
| 52 | 12/5 | 4-05-16  | <b>Online RWA in Rings.</b>                                                  | „ |                |  |
| 53 |      | 4-05-16  | Revision on Module-1                                                         | „ |                |  |
| 54 |      | 6-05-16  | Test on Module-1                                                             |   |                |  |
| 55 |      | 6-05-16  | Revision on Module-2                                                         | „ |                |  |
| 56 |      | 7-05-16  | Test on Module-2                                                             | „ |                |  |
| 57 |      | 10-05-16 | Revision on Module-3                                                         | „ |                |  |
| 58 |      | 13-05-16 | Test on Module-3                                                             |   |                |  |
| 59 |      | 14-05-16 | Revision on Module-4                                                         | „ |                |  |
| 60 |      | 19-05-16 | Test on Module-4                                                             | „ |                |  |
| 61 |      | 20-05-16 | Revision on Module-5                                                         | „ |                |  |
| 62 |      | 21-05-16 | Test on Module-5                                                             | „ |                |  |

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### Syllabus for Internal Assessment Tests (IAT)

| Sessional # | Syllabus  |
|-------------|-----------|
| T1          | #1 - #23  |
| T2          | #24 - #40 |
| T3          | #41 - #52 |

\*: See calendar of events for the schedules of IATs.

### Literature:

| Book Type  | Code | Author & Title                                                          | Publication info                              |               |
|------------|------|-------------------------------------------------------------------------|-----------------------------------------------|---------------|
|            |      |                                                                         | Edition & Publisher                           | ISBN #        |
| Text Book  | TB1  | Optical Networks by Rajeev Ramaswamy, Kumar N Shivanjan, Galen H Sasaki | Elsevier Publication, 3 <sup>rd</sup> Edition | 9780123740922 |
| References | RB1  | Uyless Black, Optical Networks- third generation transport system       | Pearson, 2013 edition                         | 9780130607263 |

SEMESTER : II

NAME OF THE FACULTY : Mrs. Sherly noel

BRANCH : CSE

DATE OF COMMENCEMENT : 03-2-2016

SUBJECT : Switching & Statistical Multiplexing

in Telecommunications

DATE OF CLOSING : 21-05-2016

SUBJECT CODE : 14SCS23

CLASS STRENGTH : 11

NO OF HRS/WK : 5

TOTAL HRS : 54

| Session No | Chapter no<br>(No of hrs planned for the chapter) | DATE     | Topics planned for the session                           | Teaching Aids | Assignments/<br>Tests planned for the chapter | Topics covered<br>As per plan |
|------------|---------------------------------------------------|----------|----------------------------------------------------------|---------------|-----------------------------------------------|-------------------------------|
| 1          | -                                                 | 3-02-16  | Pre-requisites                                           | C & B         |                                               |                               |
| 2          | -                                                 | 4-02-16  | Pre-requisites                                           | „             |                                               |                               |
| 3          | 1/1                                               | 4-02-16  | <b>Introduction</b><br>Evolution of Telecommunication,   | PPT           |                                               |                               |
| 4          | 2/1                                               | 8-02-16  | Simple Telephone Communication,                          | C & B         |                                               |                               |
| 5          | 3/1                                               | 10-02-16 | Simple Telephone Communication,                          | „             |                                               |                               |
| 6          | 4/1                                               | 11-02-16 | Basics of a Switching System,                            | „             |                                               |                               |
| 7          | 5/1                                               | 12-02-16 | Manual Switching System,                                 | „             |                                               |                               |
| 8          | 6/1                                               | 12-02-16 | Major Telecommunication Networks.                        | „             |                                               |                               |
| 9          | 7/1                                               | 15-02-16 | <b>Why Digital:</b> Advantages of Digital Voice Networks | „             |                                               |                               |
| 10         | 8/1                                               | 17-02-16 | Advantages of Digital Voice Networks                     | „             | Assignment – 1                                |                               |
| 11         | 9/1                                               | 18-02-16 | Digital Signal Processing,                               | „             |                                               |                               |

|    |             |          |                                              |       |                 |  |
|----|-------------|----------|----------------------------------------------|-------|-----------------|--|
| 12 | <b>10/1</b> | 22-02-16 | Disadvantages of Digital Voice Networks.     | „     |                 |  |
| 13 | <b>11/1</b> | 22-02-16 | Revision on unit - I                         |       |                 |  |
| 14 | <b>1/2</b>  | 25-02-16 | <b>Switching</b><br>Crossbar Switching,      | PPT   | Test for unit 1 |  |
| 15 | <b>2/2</b>  | 26-02-16 | Principles of Common Control                 | C & B |                 |  |
| 16 | <b>3/2</b>  | 29-02-16 | Touch Tone Dial Telephone                    | „     |                 |  |
| 17 | <b>4/2</b>  | 1-03-16  | Touch Tone Dial Telephone                    | „     |                 |  |
| 18 | <b>5/2</b>  | 1-03-16  | Principles of Crossbar Switching             | „     |                 |  |
| 19 | <b>6/2</b>  | 3-03-16  | Crossbar Switch Configurations               | „     |                 |  |
| 20 | <b>7/2</b>  | 5-03-16  | Crossbar Switch Configurations               | „     |                 |  |
| 21 | <b>8/2</b>  | 8-03-16  | Cross point Technology                       | „     | Assignm ent - 2 |  |
| 22 | <b>9/2</b>  | 9-03-16  | Cross point Technology                       | „     |                 |  |
| 23 | <b>10/2</b> | 9-03-16  | Crossbar Exchange Organization               | „     |                 |  |
| 24 | <b>11/2</b> | 11-03-16 | Revision on unit - I                         |       |                 |  |
| 25 | <b>1/3</b>  | 18-03-16 | <b>MODULE III Electronic Space Division</b>  | „     | Test for unit 2 |  |
| 26 | <b>2/3</b>  | 19-03-16 | <b>Switching</b><br>Stored Program Control,  | „     |                 |  |
| 27 | <b>3/3</b>  | 21-03-16 | Centralized SPC, Distributed SPC             | „     |                 |  |
| 28 | <b>4/3</b>  | 21-03-16 | Software Architecture,                       | „     |                 |  |
| 29 | <b>5/3</b>  | 23-03-16 | Application Software                         | „     |                 |  |
| 30 | <b>6/3</b>  | 28-03-16 | Enhanced Services,                           | „     |                 |  |
| 31 | <b>7/3</b>  | 29-03-16 | Two-stage, Three-stage and n-stage Networks. | „     |                 |  |

|    |             |          |                                                                                         |   |                   |  |
|----|-------------|----------|-----------------------------------------------------------------------------------------|---|-------------------|--|
| 32 | <b>8/3</b>  | 30-03-16 | <b>Digital Transmission and Multiplexing:</b> Sampling, Quantization and Binary Coding, | „ |                   |  |
| 33 | <b>9/3</b>  | 30-03-16 | Quantization Noise,                                                                     | „ |                   |  |
| 34 | <b>10/3</b> | 1-04-16  | Companding, Differential Coding,                                                        | „ | Assignment – 3    |  |
| 35 | <b>11/3</b> | 4-04-16  | Vocoders, Pulse Transmission,                                                           | „ |                   |  |
| 36 | <b>12/3</b> | 5-04-16  | Line Coding,                                                                            | „ |                   |  |
| 37 | <b>13/3</b> | 6-04-16  | Time Division Multiplexing.                                                             | „ |                   |  |
| 38 | <b>14/3</b> | 6-04-16  | Revision on unit - I                                                                    |   |                   |  |
| 39 | <b>1/4</b>  | 11-04-16 | <b>MODULE IV Time Division Switching</b>                                                | „ | Test for unit – 3 |  |
| 40 | <b>2/4</b>  | 13-04-16 | Basic Division – space switching                                                        | „ |                   |  |
| 41 | <b>3/4</b>  | 15-04-16 | Time Switching                                                                          | „ |                   |  |
| 42 | <b>4/4</b>  | 16-04-16 | Time Switching                                                                          | „ |                   |  |
| 43 | <b>5/4</b>  | 16-04-16 | Time Multiplexed Space switching                                                        | „ |                   |  |
| 44 | <b>6/4</b>  | 20-04-16 | Time Multiplexed Space switching                                                        | „ |                   |  |
| 45 | <b>7/4</b>  | 22-04-16 | Time multiplexed Time Switching                                                         | „ | Assignment – 4    |  |
| 46 | <b>8/4</b>  | 23-04-16 | Combination Switching                                                                   | „ |                   |  |
| 47 | <b>9/4</b>  | 28-04-16 | Three-stage and n-stage                                                                 | „ |                   |  |
| 48 | <b>10/4</b> | 28-04-16 | Combination Switching                                                                   | „ |                   |  |
| 49 |             | 30-04-16 | Revision on unit - I                                                                    |   |                   |  |
| 50 | <b>1/5</b>  | 3-05-16  | <b>MODULE V Traffic Engineering</b>                                                     | „ | Test for unit – 4 |  |

|    |             |          |                                      |   |                      |  |
|----|-------------|----------|--------------------------------------|---|----------------------|--|
| 51 | <b>2/5</b>  | 4-05-16  | Network Traffic Load and Parameters, | „ |                      |  |
| 52 | <b>3/5</b>  | 5-05-16  | Grade of Service                     | „ |                      |  |
| 53 | <b>4/5</b>  | 5-05-16  | Blocking Probability                 | „ |                      |  |
| 54 | <b>5/5</b>  | 7-05-16  | Modeling Switching Systems           | „ |                      |  |
| 55 | <b>6/5</b>  | 11-05-16 | Modeling Switching Systems           | „ |                      |  |
| 56 | <b>7/5</b>  | 11-05-16 | Incoming Traffic                     | „ |                      |  |
| 57 | <b>8/5</b>  | 11-05-16 | Service Time Characterization        | „ |                      |  |
| 58 | <b>9/5</b>  | 12-05-16 | Blocking Models and Loss Estimates   | „ | Assignm<br>ent – 5   |  |
| 59 | <b>10/5</b> | 13-05-16 | Blocking Models and Loss Estimates   | „ |                      |  |
| 60 | <b>11/5</b> | 14-05-16 | Delay Systems                        | „ |                      |  |
| 61 | <b>12/5</b> | 16-05-16 | Delay Systems                        | „ |                      |  |
| 62 | <b>13/5</b> | 17-5-16  | Revision & Test                      | „ | Test for<br>unit - 5 |  |

### Syllabus for Internal Assessment Tests (IAT) \*

| Sessional # | Syllabus  |
|-------------|-----------|
| T1          | #1 - #22  |
| T2          | #23 - #45 |
| T3          | #46 - #57 |

\*: See calendar of events for the schedules of IATs.

### Literature:

| Book Type | Code | Author & Title | Publication info    |        |
|-----------|------|----------------|---------------------|--------|
|           |      |                | Edition & Publisher | ISBN # |

|           |     |                                                                                 |                                                   |                            |
|-----------|-----|---------------------------------------------------------------------------------|---------------------------------------------------|----------------------------|
| Text Book | TB1 | Thiagarajan Viswanathan:<br>Telecommunication Switching<br>Systems and Networks | PHI,1992.                                         | ISBN-978-81-<br>203-0713-1 |
| Text Book | TB2 | John.C.Bellamy: Digital Telephony                                               | 3rd Edition,<br>John Wiley and<br>Sons Inc., 2002 | ISBN-81-265-<br>0929-5     |