**UNIT I**

**SESSION I**

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| **Activity** | **Board Activity** |
| **Topic** | Introduction to computer networks |
|  | Definition, Types of Networks |
| **Weblink** | <http://en.wikipedia.org/wiki/Computer_network>  <http://www.functionx.com/networking/Lesson01.htm> |
| **Activity** | Analogy |
| **Topic** | Requirements for building a Network applications |
|  | Social Network: Facebook |
| **Weblink** | <http://www.debian.org/doc/manuals/debian-reference/ch06.en.html> |
| **Activity** | Board Activity |
| **Topic** | **Network Architecture,** Layering and Protocols, OSI Architecture |
|  | Definition, Layering and Protocols, Example of layered network system, Layering Features, Protocols, Service and Peer Interfaces |
| **Weblink** | <http://en.kioskea.net/faq/2761-what-is-network-architecture>  <http://publib.boulder.ibm.com/infocenter/zos/basics/index.jsp?topic=/>  com.ibm.zos.znetwork/znetwork\_21.htm |
| **Activity** | Questions and Answers |
| **Topic** | Conclusion |
|  | 1. Define Network. 2. What are the types of networks? 3. Define LAN. 4. Example for WAN 5. Define Protocol. 6. What is meant by Protocol graph? 7. Define Service interface. 8. Define Peer interface. 9. Define network architecture. 10. What are the layering features? |

**SESSION II**

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| **Activity** | Animated Video |
| **Topic** | OSI Architecture |
|  | Definition, 7 Layers of OSI |
| **WebLink** | <https://www.youtube.com/watch?v=DqOvu-wAAM0> |
| **Activity** | Writing Board |
| **Topic** | **Internet Architecture** |
|  | Definition, Concept, Example of Internet Architecture. |
| **WebLink** | <http://cyber.law.harvard.edu/digitaldemocracy/internetarchitecture.html>  <http://www.livinginternet.com/i/iw_arch.htm> |
| **Activity** | Show and tell activity |
| **Topic** | Conclusion |
|  | https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcRBXDZdHaGc7V5_VTFXdCMKvw0HLDJjrIBXXuoEtDzAqAxJwlRJCA |
|  | https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcQFYzd6Bp1aP21G86kykcRUWtBRcQpCuTs6Ft3rfil9A42mEGqokA  https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcShCIBALWkzktDn1dcJvzteetVgGlGvzxiAoJ6urgPyGP0WJDuC |

**SESSION III**

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| **Activity** | Brainstorming |
| **Topic** | Recap: Internet Architecture |
|  | Recalling the previous topic OSI architecture, continued the session  4 Layers of Internet Architecture |
| **Activity** | Presentation |
| **Topic** | Physical Links , Channel access on Links |
|  | Definition, Concepts of physical link, Example |
| **WebLink** | <http://www.scribd.com/doc/16629327/Computer-Networks-Lecture-Notes> |
| **Activity** | Presentation |
| **Topic** | **Tracing routes in the Internet** |
|  | Steps for tracing routes in the Internet |
| **WebLink** | [**http://www.justbajan.com/computer/tips/tracert/**](http://www.justbajan.com/computer/tips/tracert/) |
| **Activity** | Quiz |
| **Topic** | Conclusion |
|  | Divides the students into 4 teams and asked the following questions to the students.   1. Define Protocol Specification. 2. What are the features of layering? 3. Define Protocol Graph. 4. What is the function of Network layer? 5. Define physical link. 6. Define service interface. 7. Define protocol. 8. Define Internet Protocol. 9. Expand ARPANET. 10. Example for packet switched network. |

**SESSION IV**

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| **Activity** | Writing Board |
| **Topic** | Recap : Physical Links |
|  | Types of links with example. |
| **Activity** | Presentation |
| **Topic** | **Hybrid Multiple Channel Access Techniques-** Frequency division multiple access |
|  | Definition, Features, example |
| **WebLink** | <http://etd.lib.fsu.edu/theses/available/etd-04092004-143712/unrestricted/Ch_2MultipleAccess.pdf>  <http://www.answers.com/topic/frequency-division-multiple-access> |
| **Activity** | Presentation |
| **Topic** | Time division multiple access |
|  | Definition, Features, example |
| **WebLink** | [**http://www.answers.com/topic/time-division-multiple-access**](http://www.answers.com/topic/time-division-multiple-access)  [**http://www.tutorialspoint.com/gsm/tdma\_and\_cdma.htm**](http://www.tutorialspoint.com/gsm/tdma_and_cdma.htm) |
| **Activity** | Crossword puzzle |
| **Topic** | Conclusion |

**SESSION V**

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| **Activity** | Board activity |
| **Topic** | Time frequency multiple access, Random access |
|  | Definition, features |
| **WebLink** | <http://www.answers.com/topic/frequency-division-multiple-access> |
| **Activity** | Presentation |
| **Topic** | Code division multiple access |
|  | Definition, features, example |
| **WebLink** | <http://www.techterms.com/definition/cdma>  http://www.princeton.edu/~achaney/tmve/wiki100k/docs/Code\_division\_multiple\_access.html |
| **Activity** | Word Scramble |
| **Topic** | Conclusion |
|  | |  |  | | --- | --- | | ared uspctsmpre |  | | widthbdna |  | | trclal nlhoelepeue |  | | gtmilixnlpue |  | | nhncela |  |   Bottom of Form |
|  | Spread spectrum  Bandwidth  Cellular telephone  Multiplexing  Channel |

**SESSION VI**

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| **Activity** | Board activity |
| **Topic** | **Issues in data link layer** |
|  | Definition, services |
| **WebLink** | <http://www.cse.wustl.edu/~jain/cis677-97/ftp/e_3dlc2.pdf> |
| **Activity** | Board activity |
| **Topic** | Error control  Flow control |
|  | Definition, Concept, Example |
| **WebLink** | <http://dns2.asia.edu.tw/~wzyang/slides/info_net/info_A/Ch3.pdf> |
| **Activity** | Quiz |
| **Topic** | Conclusion |
|  | 1. Define datalink service. 2. Define framing. 3. Define character stuffing. 4. What is meant by bit stuffing? 5. Define error control. 6. Define flow control. 7. What are the error control mechanisms? 8. Define single bit error. 9. Define burst error. 10. What is meant by hamming distance? |

**SESSION VII**

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| **Activity** | Presentation |
| **Topic** | **Framing** Byte oriented protocols |
|  | Definition, 7 Layers of OSI |
| **WebLink** | <http://www.cs.hunter.cuny.edu/~saad/courses/networks/notes/note3.pdf> |
| **Activity** | Presentation |
| **Topic** | Bit oriented protocols (HDLC) & Clock based framing (SONET) |
|  | Definition, Concept, Example of Internet Architecture. |
| **WebLink** | <http://uva.ulb.ac.be/cit_courseware/datacomm/dc_013.htm> |
| **Activity** | Recall by keywords |
| **Topic** | Conclusion |
|  | 1. HDLC 2. SDLC 3. CCITT 4. SONET 5. Information frame 6. Virtual circuit 7. Synchronous 8. STS-1 9. Character oriented protocol 10. Control codes |

**SESSION VIII**

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| **Activity** | Presentation |
| **Topic** | **Error correction and detection** |
|  | Definition, different methods |
| **WebLink** | <http://www.princeton.edu/~achaney/tmve/wiki100k/docs/Error_>  detection\_and\_correction.html |
| **Activity** | Presentation |
| **Topic** | Two dimensional Parity |
|  | Definition, Concept and example. |
| **WebLink** | <http://www.iu.hio.no/data/QIC/info2/node10.html> |
| **Activity** | Presentation |
| **Topic** | Internet checksum algorithm |
| **WebLink** | **http://www.ecse.rpi.edu/Homepages/koushik/shivkuma-teaching/fall99/ccn\_2datalink/sld026.htm** |
| **Activity** | Learner led presentation |
| **Topic** | Conclusion |
|  | Students summarize the concept error detection and correction methods. |

**SESSION IX**

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| **Activity** | Board activity |
| **Topic** | **Link-level flow control** |
|  | Definition, different methods |
| **WebLink** | <http://www.cisco.com/en/US/docs/switches/datacenter/nexus3548/>  sw/qos/602\_A1\_1/b\_N3548\_QoS\_Config\_602\_A11\_chapter\_0100.pdf |
| **Activity** | Board activity |
| **Topic** | High-Level Data Link Control |
|  | Definition, Concept and example. |
| **WebLink** | <http://www.erg.abdn.ac.uk/~gorry/course/dl-pages/hdlc.html> |
| **Activity** | Show and tell |
| **Topic** | Conclusion |
|  | http://www.lirmm.fr/%7Eajm/Cours/01-02/DESS_TNI/TER3/Documentation%20utilis%82e/HDLC_%20BON/hdlc_1.gif |