

National Institute of Technology Meghalaya

An Institute of National Importance

CURRICULUM

| T Se T | nt Cor Fo introduce Fo analyse the Fo describe | the compo he Analog a the structu | Cience ar Co Data (Donents of D and Digital re of Physi | Transmission | ering ne cation nication on a Link Laye | | | L 3 | T 0 CO1 | Structure P 0 Able to le | ear of Re Seme C 3 arn the fun | INT 50 | Marks Dis MID 50 of data com | END 100 | / Total 200 |
|--|--|--|---|---|--|--|--|---|--|--|--|--|--|--|---|
| Se e)6 1 T T Se Ves T COs CO1 CO2 | Fo introduce Fo analyse th Fo describe Fo describe | the composite the Analog a the structu the functio | Contraction Data Contraction Digital re of Physi | ourse Nam Communic Data Commu Transmissio Ical and Data | ne cation nication on a Link Laye | | | L 3 | T 0 CO1 | P 0 Able to le | C 3 | INT 50 | MID 50 | stribution END 100 municatio | Total 200 |
| e | Fo analyse the Fo describe Fo describe PO1 | the Analog a the structu | Data (onents of D and Digital re of Physi | Communic Data Commu Transmissic Ical and Data | cation nication on a Link Laye | | | 3 | CO1 | 0 Able to le | 3 | 50 | 50 | 100 nmunicatio | 200 |
| COs CO1 CO2 | Fo analyse the Fo describe Fo describe PO1 | the Analog a the structu | onents of D and Digital re of Physi | Data Commu Transmission cal and Data | nication on a Link Laye | r | | 3 | CO1 | Able to le | _ | | | nmunicatio | |
| COs CO1 CO2 | Fo analyse the Fo describe Fo describe PO1 | the Analog a the structu | and Digital re of Physi | Transmission | on a Link Laye | r | | - | | | arn the fun | damentals | of data com | | า |
| COs CO1 CO2 | To describe | the structu | re of Physi | cal and Data | a Link Laye | r | | | | | Able to learn the fundamentals of data communication | | | | |
| COs CO1 CO2 | Fo describe | the functio | - | | - | r | | | CO2 | Able to Understand the digital signal and analog signal transmission over different types of transmission media. | | | | | |
| Ves T COs CO1 CO2 | PO1 | | n of wireles | ss networks | | | COURSE To describe the structure of Physical and Data Link Layer | | | | | lifferent teo | hniques of | | |
| COs CO1 CO2 | PO1 | | | | | Dbjectives To describe the function of wireless networks | | | | | correction and medium access control. Able to acquire knowledge about the generations of wireless networks. | | | | |
| CO1 CO2 | | PO2 | | | | | | - | | networks | | | | | |
| CO1 CO2 | | P∩2 | | | Manning | with Progr | am Out | comes (POs) | | | | | Man | ping with | PSOs |
| CO2 | | FUZ | PO3 | PO4 | PO5 | PO6 | PO7 | | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSC |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| CO3 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| CO4 | 1 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| | | | | | | <u> </u> | SYLLA | ABUS | | | | | | | |
| | Content | | | | | | | | | | | | Hours CC | | COs |
| Objectives and Applications of Computer Communication. Computer Communication Network Architecture: ISO - OSI reference model, design philosophy, layer, protocol, interface, and service concepts. Layer - wise functionality | | | | | | | | | | 06 | | 01, CO4 | | | |
| Physical Layer Concepts of Data and Signals, Analog and Digital Data Transmission, Bandwidth utilization: Multiplexing techniques, Transmission Media, Switching Techniques and Telephone and Cable Networks for Data transmission. | | | | | | | | | | - | 12 CO | | CO2 | | |
| Data Link Layer Framing and Coding techniques, Error Detecting and Correcting Codes, data link control protocols and their performances. Medium Access Control in broadcast networks : ALOHA, CSMA, CSMA/CD, token ring, token bus. | | | | | | | | | | | | 12 | 2 CO3 | | |
| Wired and Wireless LANs / Ethernet, Connecting Devices, Backbone Networks, Standard LAN Protocols (IEEE 802.X). Wireless LANs and WANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks. SONET/SDH, Frame Relay and ATM. | | | | | | | | | | s and | 06 CO4 | | CO4 | | |
| Total Hours | | | | | | | | | | | 36 | | | | |
| ial Rea | adings | | | | | | | | | | | . | | | |
| | | | | | | - | | | | | | | | | |
| | | | | | • | | | | Hall. 201 | 1. | | | | | |
| William | n Stallings, | "Data an | d Comput | ter Commu | inication", | 10 th Editi | on, Pea | irson, 2017. | | | | | | | |
| menta | ry Readin | gs | | | | | | | | | | | | | |
| James | F Kurose, | Kaith W | Ross, "Co | mputer Ne | etworking | A Top-D | own Ap | proach", 6 th E | Edition, F | Pearson, 20 | 017. | | | | |
| | bjecti OSI nctio nysica oncep chniq ansm ata Li camin erforn ired a cherne ANs : al Rea Behrou Andrev Willian menta | OSI reference nctionality hysical Layer oncepts of Dat chniques, Trai ansmission. ata Link Layer raming and Coo erformances. Ma ired and Wirele chernet, Connec ANs : IEEE 802 al Readings Behrouz A Forou Andrew S Tanen Villiam Stallings, mentary Readin lames F Kurose, | bjectives and Applicatio OSI reference model, nctionality hysical Layer oncepts of Data and S chniques, Transmissio ansmission. Ata Link Layer raming and Coding tech erformances. Medium Action ired and Wireless LANs thernet, Connecting Dev ANs : IEEE 802.11, Blue al Readings Behrouz A Forouzan, "Data Andrew S Tanenbaum, Data Villiam Stallings, "Data an mentary Readings lames F Kurose, Kaith W | bjectives and Applications of Co OSI reference model, design p nctionality hysical Layer oncepts of Data and Signals, f chniques, Transmission Media ansmission. ata Link Layer raming and Coding techniques, erformances. Medium Access Co fired and Wireless LANs thernet, Connecting Devices, Ba ANs : IEEE 802.11, Bluetooth, Ce al Readings Behrouz A Forouzan, "Data Commu Andrew S Tanenbaum, David J. We William Stallings, "Data and Comput mentary Readings lames F Kurose, Kaith W Ross, "Co | bjectives and Applications of Computer Co OSI reference model, design philosophy nctionality hysical Layer oncepts of Data and Signals, Analog and chniques, Transmission Media, Switchi ansmission. Ata Link Layer raming and Coding techniques, Error Det erformances. Medium Access Control in br fired and Wireless LANs thernet, Connecting Devices, Backbone N ANs : IEEE 802.11, Bluetooth, Cellular tele al Readings Behrouz A Forouzan, "Data Communication ar Andrew S Tanenbaum, David J. Wetherall "Co William Stallings, "Data and Computer Commu mentary Readings lames F Kurose, Kaith W Ross, "Computer Ne | verview bjectives and Applications of Computer Communic OSI reference model, design philosophy, layer, nctionality hysical Layer oncepts of Data and Signals, Analog and Digita chniques, Transmission Media, Switching Tech ansmission. ata Link Layer raming and Coding techniques, Error Detecting ar erformances. Medium Access Control in broadcast ired and Wireless LANs thernet, Connecting Devices, Backbone Networks, ANs : IEEE 802.11, Bluetooth, Cellular telephony, sa Total al Readings Behrouz A Forouzan, "Data Communication and Network Andrew S Tanenbaum, David J. Wetherall "Computer N William Stallings, "Data and Computer Communication", mentary Readings lames F Kurose, Kaith W Ross, "Computer Networking | bjectives and Applications of Computer Communication. Co OSI reference model, design philosophy, layer, protocol nctionality hysical Layer oncepts of Data and Signals, Analog and Digital Data T chniques, Transmission Media, Switching Techniques ansmission. ata Link Layer raming and Coding techniques, Error Detecting and Correct erformances. Medium Access Control in broadcast networks ired and Wireless LANs thernet, Connecting Devices, Backbone Networks, Standard ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite ne Total Hours al Readings Behrouz A Forouzan, "Data Communication and Networking", 5 th Andrew S Tanenbaum, David J. Wetherall "Computer Networks", William Stallings, "Data and Computer Communication", 10 th Editi mentary Readings lames F Kurose, Kaith W Ross, "Computer Networking A Top-D | Content verview bjectives and Applications of Computer Communication. Computer OSI reference model, design philosophy, layer, protocol, inter nctionality nysical Layer oncepts of Data and Signals, Analog and Digital Data Transm chniques, Transmission Media, Switching Techniques and Tr ansmission. ata Link Layer aming and Coding techniques, Error Detecting and Correcting C erformances. Medium Access Control in broadcast networks : ALOF irred and Wireless LANs thernet, Connecting Devices, Backbone Networks, Standard LAN ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks Total Hours al Readings Behrouz A Forouzan, "Data Communication and Networking", 5 th Edition, Andrew S Tanenbaum, David J. Wetherall "Computer Networks", 5 th Edition, Andrew S Tanenbaum, David J. Wetherall "Computer Networks", 5 th Edition, Pearmentary Readings lames F Kurose, Kaith W Ross, "Computer Networking A Top-Down Ap- | verview bjectives and Applications of Computer Communication. Computer Communica OSI reference model, design philosophy, layer, protocol, interface, and so nctionality mysical Layer oncepts of Data and Signals, Analog and Digital Data Transmission, Band chniques, Transmission Media, Switching Techniques and Telephone at ansmission. ata Link Layer aming and Coding techniques, Error Detecting and Correcting Codes, data I erformances. Medium Access Control in broadcast networks : ALOHA, CSMA, C ired and Wireless LANs thernet, Connecting Devices, Backbone Networks, Standard LAN Protocols (II ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks. SONET/SD Total Hours al Readings 3ehrouz A Forouzan, "Data Communication and Networking", 5 th Edition, McGraw-Hill Andrew S Tanenbaum, David J. Wetherall "Computer Networks", 5 th Edition, Prentice H Villiam Stallings, "Data and Computer Communication", 10 th Edition, Pearson, 2017. mentary Readings lames F Kurose, Kaith W Ross, "Computer Networking A Top-Down Approach", 6 th E | Content Verview bjectives and Applications of Computer Communication. Computer Communication Ne OSI reference model, design philosophy, layer, protocol, interface, and service of nctionality nysical Layer oncepts of Data and Signals, Analog and Digital Data Transmission, Bandwidth of chniques, Transmission Media, Switching Techniques and Telephone and Cab ansmission. ata Link Layer raming and Coding techniques, Error Detecting and Correcting Codes, data link com erformances. Medium Access Control in broadcast networks : ALOHA, CSMA, CSMA/CE ired and Wireless LANs thernet, Connecting Devices, Backbone Networks, Standard LAN Protocols (IEEE 802 ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks. SONET/SDH, Fram Total Hours al Readings Behrouz A Forouzan, "Data Communication and Networking", 5 th Edition, McGraw-Hill Educatio Andrew S Tanenbaum, David J. Wetherall "Computer Networks", 5 th Edition, Prentice Hall. 201 William Stallings, "Data and Computer Communication", 10 th Edition, Pearson, 2017. nentary Readings lames F Kurose, Kaith W Ross, "Computer Networking A Top-Down Approach", 6 th Edition, F | Content verview bjectives and Applications of Computer Communication. Computer Communication Network Arc OSI reference model, design philosophy, layer, protocol, interface, and service concepts. nctionality nysical Layer oncepts of Data and Signals, Analog and Digital Data Transmission, Bandwidth utilization chniques, Transmission Media, Switching Techniques and Telephone and Cable Netwo ansmission. ata Link Layer aming and Coding techniques, Error Detecting and Correcting Codes, data link control proto prformances. Medium Access Control in broadcast networks : ALOHA, CSMA, CSMA/CD, token ri ired and Wireless LANs thernet, Connecting Devices, Backbone Networks, Standard LAN Protocols (IEEE 802.X). Wirel ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks. SONET/SDH, Frame Relay ar Total Hours al Readings Behrouz A Forouzan, "Data Communication and Networking", 5 th Edition, McGraw-Hill Education, 2018. Andrew S Tanenbaum, David J. Wetherall "Computer Networks", 5 th Edition, Prentice Hall. 2011. William Stallings, "Data and Computer Communication", 10 th Edition, Pearson, 2017. | Content verview bjectives and Applications of Computer Communication. Computer Communication Network Architecture OSI reference model, design philosophy, layer, protocol, interface, and service concepts. Layer - nctionality nysical Layer oncepts of Data and Signals, Analog and Digital Data Transmission, Bandwidth utilization: Multipl chniques, Transmission Media, Switching Techniques and Telephone and Cable Networks for ansmission. ata Link Layer aming and Coding techniques, Error Detecting and Correcting Codes, data link control protocols and erformances. Medium Access Control in broadcast networks : ALOHA, CSMA, CSMA/CD, token ring, toker ired and Wireless LANs hernet, Connecting Devices, Backbone Networks, Standard LAN Protocols (IEEE 802.X). Wireless LAN ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks. SONET/SDH, Frame Relay and ATM. Total Hours al Readings Behrouz A Forouzan, "Data Communication and Networking", 5 th Edition, McGraw-Hill Education, 2018. undrew S Tanenbaum, David J. Wetherall "Computer Networks", 5 th Edition, Prentice Hall. 2011. William Stallings, "Data and Computer Communication", 10 th Edition, Pearson, 2017. | Content verview bjectives and Applications of Computer Communication. Computer Communication Network Architecture: ISO OSI reference model, design philosophy, layer, protocol, interface, and service concepts. Layer - wise nctionality hysical Layer oncepts of Data and Signals, Analog and Digital Data Transmission, Bandwidth utilization: Multiplexing chniques, Transmission Media, Switching Techniques and Telephone and Cable Networks for Data ansmission. ata Link Layer aming and Coding techniques, Error Detecting and Correcting Codes, data link control protocols and their erformances. Medium Access Control in broadcast networks : ALOHA, CSMA, CSMA/CD, token ring, token bus. ired and Wireless LANs hermet, Connecting Devices, Backbone Networks, Standard LAN Protocols (IEEE 802.X). Wireless LANs and ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks. SONET/SDH, Frame Relay and ATM. Total Hours al Readings Babrouz A Forouzan, "Data Communication and Networking", 5 th Edition, McGraw-Hill Education, 2018. Andrew S Tanenbaum, David J. Wetherall "Computer Networks", 5 th Edition, Prentice Hall. 2011. William Stallings, "Data and Computer Communication", 10 th Edition, Pearson, 2017. mentary Readings Iames F Kurose, Kaith W Ross, "Computer Networking A Top-Down Approach", 6 th Edition, Pearson, 2017. | Content Hours verview bjectives and Applications of Computer Communication. Computer Communication Network Architecture: ISO 06 OSI reference model, design philosophy, layer, protocol, interface, and service concepts. Layer - wise 06 nctionality 06 vysical Layer 01 oncepts of Data and Signals, Analog and Digital Data Transmission, Bandwidth utilization: Multiplexing 12 chniques, Transmission Media, Switching Techniques and Telephone and Cable Networks for Data 12 ata Link Layer ansmission. 12 ata Link Layer 12 12 arming and Coding techniques, Error Detecting and Correcting Codes, data link control protocols and their 12 erformances. Medium Access Control in broadcast networks : ALOHA, CSMA, CSMA/CD, token ring, token bus. 14 ired and Wireless LANs 06 hernet, Connecting Devices, Backbone Networks, Standard LAN Protocols (IEEE 802.X). Wireless LANs and ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks. SONET/SDH, Frame Relay and ATM. 36 al Readings 36 36 al Readings 36 36 Behrouz A Forouzan, "Data Communication", 10 th Edition, Pearson, 2017. 36 William Stallings, "Data and Computer Communication", 10 th Edition, Pearso | Content Hours verview bjectives and Applications of Computer Communication. Computer Communication Network Architecture: ISO 06 CO OSI reference model, design philosophy, layer, protocol, interface, and service concepts. Layer - wise 06 CO nuclionality nuclionality 12 12 nysical Layer noncepts of Data and Signals, Analog and Digital Data Transmission, Bandwidth utilization: Multiplexing chniques, Transmission Media, Switching Techniques and Telephone and Cable Networks for Data ansmission. 12 ata Link Layer arming and Coding techniques, Error Detecting and Correcting Codes, data link control protocols and their promances. Medium Access Control in broadcast networks : ALOHA, CSMA, CSMA/CD, token ring, token bus. 12 ired and Wireless LANs hernet, Connecting Devices, Backbone Networks, Standard LAN Protocols (IEEE 802.X). Wireless LANs and ANs : IEEE 802.11, Bluetooth, Cellular telephony, satellite networks. SONET/SDH, Frame Relay and ATM. 06 Total Hours 36 36 al Readings 36 36 al Readings 36 36 william Stallings, "Data and Computer Communication", 10 th Edition, Prentice Hall. 2011. William Stallings, "Data and Computer Communication", 10 th Edition, Pearson, 2017. |

3. B. Buchanan, "The Handbook of Data Communications and Networks", 1st Edition, Springer, 2004.

4. James F Kurose, Kaith W Ross, "Computer Networking | A Top-Down Approach", 6th Edition, Pearson, 2017.