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| **Course Code** | CSU4303 | | | | | | |
| **Level** | 4 | | | | | | |
| **Course Title** | Computer Networks | | | | | | |
| **Credit value** | 3 credits | | | | | | |
| **Core/Optional** | Core | | | | | | |
| **Prerequisites** | (CSU3200+CSU3301+CSU3302) (EL/CR) | | | | | | |
| **Hourly breakdown** | **Theory** | | **Practical**  **hours** | **Independent Learning** | | **Assessments** | **Total**  **hrs.** |
| 20 Sessions X 2 =**40hrs.** | 5 DS x 3 hrs. = **15 hrs.** | 4 Lab x 4 hrs. =  **16 hrs.** | * Sessions (20 x 3)   = 60 hrs.   * Online = 10 hrs. * Lab (16 x 0.5) = 8 hrs. * Total = **78hrs.** | | * Continuous   Assessments  (CA) : **01 hr.**   * Practical   assessment  (PA) : **03 hrs.** | **153 hrs.** |
| **Course Aim/s.** | To provide theory and practical knowledge of computer networks | | | | | | |
| **PLOs addressed by course** | **PLO1: Knowledge:** Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the degree.  **PLO2: Practical Knowledge and Application**. Demonstrate the competency to use the knowledge and practical skills appropriately.  **PLO5: Creativity and Problem Solving:** Identify and analyze problems using quantitative and/or qualitative approaches using scientific methodology to provide valid conclusions.  **PLO8**: **Vision for Life:** Develop the capacity to project for future through identifying self-directed goals and continuously targeting towards them for self-improvement by undertaking further studies.  **PLO9: Lifelong Learning**: Develop the capacity to foresee new trends and their impacts and continuously update knowledge and develop skills willingly to meet those future challenges. | | | | | | |
| **Course Learning Outcomes (CLO)** | At the completion of course, student will be able to:  CLO1: Provide introduction to computer networks and interconnected devices. (PLO 1, 8,9)  CLO2: Explain OSI and TCP/IP reference model functionality (PLO 1, 8,9)  CLO3: Provide theoretical knowledge up to transport layer in the OSI model (PLO 1, 8,9)  CLO4: Plan of IP networks using traditional and classless routing (CIDR) methods (PLO 1, 2,5, 8,9)  CLO5: Configure Network routers and switches (PLO 1, 2,5, 8,9)  CLO6: Comprehend the functionality of different kinds of servers and their services (PLO 1, 2,5, 8,9) | | | | | | |
| **Content**  **(Main topics, sub topics)** | Introduction, What is Computer Network? Active Network Components in a Network, Network Standards, Basic Concepts of Communications, Models of Computer Networks, Physical Layer and Transmission media, Network Cabling - Ethernet Standard, Data Link Layer – Design & Error Handling, Data Link Layer – Protocols, Network Layer – Routing, Network Layer – IP and IP Addressing (IPv4), Switching Basics & Configuring a Switch, Routing, Network Layer – Congestion Control, Transport Layer – Functions and protocols, Network without a Centralized Administration, Central Administration - Active Directory, Linux Systems and Commands, Web & E-mail Servers, Computer and Network Security, Firewalls, Network Monitoring Tools, Cryptography, Symmetric Key Algorithms | | | | | | |
| **Teaching Learning methods (TL)** | Self-learning/independent learning of self - study (IL)   * Learning the course contents in course materials in print and web-based materials (SS) * Learning through practical exercises (PR) * Additional reading materials/ recommended reading (RE)   Contact sessions   * Day schools (discussion sessions) (Non-compulsory) * Laboratory practical exercises (PR) (compulsory) | | | | | | |
| **Assessment strategy** | Overall Continuous Assessment Mark (OCAM): 40% | | | | Final Assessment: 60 % | | |
| Details: Continuous Assessment (CA) : **01 hr**.  Practical Assessment (PA) : **03 hrs**.    OCAM computation:  OCAM= 60% of best CA/PA + 40% of other CA/PA | | | | Final Evaluation  Theory: **02 hrs**. | | |
| **Recommended**  **Readings:** | 1. Tanenbaum, A.S & Wetherall, D.J, (2011). *Computer Networks* 5th Edition, Prentice Hall. | | | | | | |

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