ST. ALOYSIUS COLLEGE(AUTONOMOUS), JABALPUR

Reaccredited 'A+ 'Grade by NAAC(CGPA:3.68/4.00)
College with Potential for Excellence by UGC
DST-FIST Supported & STAR College Scheme by DBT

Faculty of Science

Bachelor of Computer Application

BCA III Sem

Paper: -Major

Data Communication and Computer Networks

Course Outcomes

CO. No.	Course Outcomes
CO 1	Demonstrate the Basic Concepts of Networking, Networking Principles, Routing Algorithms, IP Addressing and working of Networking Devices.
CO 2	Demonstrate the significance, purpose and application of Networking protocols and Standards.
CO 3	Describe, compare and contrast LAN, WAN, MAN, Intranet, Internet, AM, FM, PM and Various Switching Techniques.
CO 4	Explain the working of Layers and apply the various protocols of OSI & TCP/IP model.
CO 5	Analyze the Requirement for a given Organizational structure and select the most appropriate Networking Architecture and Technologies.
CO 6	Design the Network Diagram and solve the Networking problems of the Organization with consideration of Human and Environment install and configure the networking device.

Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
Theory	6	40	60	**100**
Total		**100**		

Evaluation Scheme

	Marks	
	Internal	External
Theory	3 Internal Exams of 40 Marks (During the Semester) (Best 2 will be taken)	1 External Exams of 60 Marks (At the End of Semester)

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BCA III Sem **Paper: -Major**

Data Communication and Computer Networks

Theory

No. of Lectures (in hours per week): 3 Hrs. per week

Total No. of Lectures: 60 Hrs. **Maximum Marks: 60**

Units	Topics	No. of Lectures
I	Network goals and application, Network structure, Network services, Example of network and Network Standardization, Networking models: centralized, distributed and collaborative. Network Topologies: Bus, Star, Ring, Tree, Hybrid: Selection and Evaluation factors.	12
II	Theoretical basis for Data communication, Transmission media, Twisted pair, Coaxial Cable, Fiber optics: Selection and Evaluation factors Line of Sight Transmission, Communication Satellites. Analog and Digital transmission. Transmission and switching, frequency division and time division multiplexing, Circuit switching, packet. Switching and message switching.	12
III	Brief overview of LAN (local area network) Classification, Brief overview of Wide Area Network (WAN). Salient features and Terminal Handling, Polling, Token passing, Contention IEEE Standards their need and developments. difference of LAN with emphasis on Media, Speed of Transmission,	12
IV	Open System: What is an Open System? Network Architectures is OSI Reference Model, Layers: Application, Presentation, Session, Transport, Network, Data Link & Physical Layer - Transmission, Bandwidth, Signaling devices used, media type. Data Link Layer - : Addressing, Media Access Methods, Logical link Control.	12
V	Routing: Fewest-Hops routing, Type of Service routing, Bridges and Routers, Gateway protocols, routing daemons. OSI and TCP/IP model. TCP/IP and Ethernet. The Internet: The structure of the Internet, the internet layers, Internetwork problems. Internet Standards.	12

Textbooks, Reference Books, Other Resources

- Tannanbaum, A.S.: Computer Networks, Prentice Hall, 1985.processing, Prentice Hall,1983.
- Black : Computer Networks : Protocols, standards and Interfaces, Prentice Hall
- International I. Tannanbaum, A.S.: Computer Networks, Prentice Hall, 1985.processing, Prentice Hall, 1983.
- Fourauzan B., "Data Communications and Networking", 3rd edition, TataMcGraw- Hill Publications,
- Comer· D., "Computer Networks and Internet", 2ND Edition, PearsonEducation
- S.K.Basandra& s. Jaiswal, "Local Area Networks", Galgotia Publication.