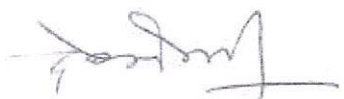



<b>Part- A: Introduction</b>			
<b>Program: Degree</b>		<b>Class:</b>	<b>Year: III</b>
<b>session:2023-2024</b>			
<b>Subject : Computer Application</b>			
1.	Course Code	S3-COAP1G	
2.	Course Title	<b>Networking – A practical approach (theory)</b>	
3.	Course Type(Core Course/Elective/Generi c Elective/Vocational/...)	Generic Elective	
4.	Pre-requisite(If any)		
5.	Course Learning Outcomes (CLO)	<p><b>On successful completion of this course, the students will be able to:</b></p> <ul style="list-style-type: none"> <li>• To understand and explain Data Communications System and its components.</li> <li>• To understand Computer Network basics and OSI and TCP/IP model.</li> <li>• To identify the different types of network devices and their functions.</li> <li>• To gain deep insight of networking protocols.</li> <li>• To study about Routing and Internetworking.</li> <li>• To gain practical knowledge of Transport and Application Layer Protocols.</li> <li>• To apply the acquired knowledge of networking practically.</li> </ul>	
6.	Credit Value	Theory 4	
7.	Total Marks	Max. Marks: 30+70	Min. Passing Marks: 35
<b>Part- B: Content Of the Course</b>			
<b>Networking – A practical approach</b>			
Total No. of Lectures =60 (in hours per week) :2-0-0			
Unit	Topics		No. of Lectures

  
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I	<b>Networking and Internet:</b> Overview, Communication model, Communication Tasks, Data Communication Networking: WAN, LAN, Wireless Networks Foundation of Networking Protocols: 5-layer TCP/IP Model, 7-Layer OSI Model, Internet Protocols. Switching techniques and their comparison, Modems and Internet Access Devices, Routing Devices, Router Structure.	12
II	<b>LAN Technology:</b> - Introduction and Services, LAN architecture, IEEE 802 standards, Ethernet (CSMA/CD): Medium Access Control, 10Mbps, 100Mbps, Gigabit Ethernet. Error- Detection and Error-Correction techniques, Link Layer Addressing, Ethernet, Interconnections: Hubs and Switches. _Brief survey of other LAN systems (Token ring, FDDI, ATM, Fiber channel). Wireless LANS, Bridges, Latest trends in LAN technologies.	12
III	<b>Routing and Internetworking:</b> Network-Layer Routing, Least-Cost-Path algorithms, Non-Least-Cost-Path algorithms, Intra-domain Routing Protocols, Inter-domain Routing Protocols, Congestion Control at Network Layer. Logical Addressing: IPv4 Addresses, IPv6 Addresses - Internet Protocol: Internetworking, IPv4, IPv6, Transition from IPv4 to IPv6.	12
IV	<b>Transport and Application Layer Protocols:</b> Client-Server and Peer-To-Peer Application Communication, Protocols on the transport layer. Transport Layer, Transmission Control Protocol (TCP), User Datagram Protocol (UDP), Mobile Transport Protocols, TCP Congestion Control. Principles of Network Applications, The Web and HTTP, File Transfer: FTP, Electronic Mail in the Internet, SNMP, Domain Name System (DNS), Socket Programming with TCP and UDP, Building a Simple Web Server.	12
V	<b>Laboratory Work:</b> consists of creating simulated networks and passing packets through them using different routing techniques. It has different Lab Practical related to advanced computer networks.	12
	<b>Part C: Learning Resources</b> <b>Text Books, Reference Books, Other resources</b>	
	<b>Suggested Readings:</b> <ol style="list-style-type: none"> <li>1. Computer Networks, Tanenbaum A. S. PHI.</li> <li>2. William Stallings: Data &amp; Communications, Sixth Edition.</li> <li>3. Computer Networking: A Top-Down Approach, James F. Kurosu and Keith W. Ross, Pearson, 6th Edition, 2012</li> <li>4. A Practical Guide to Advanced Networking , Jeffrey S. Beasley and Piyasat Nilkaew, Pearson, 3rd Edition, 2012</li> </ol>	

  
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	<p>5. Computer Networks by Bhushan Trivedi, Oxford University Press.</p> <p>6. मध्य प्रदेश हिन्दी ग्रंथ अकादमी की पुस्तकें।</p> <p><b>Suggested Digital Platforms, Web links</b></p> <ol style="list-style-type: none"> <li>1. <a href="https://onlinecourses.swayam2.ac.in/cec19_cs07/preview">https://onlinecourses.swayam2.ac.in/cec19_cs07/preview</a></li> <li>2. <a href="https://nptel.ac.in/courses/106/105/106105081/">https://nptel.ac.in/courses/106/105/106105081/</a></li> <li>3. <a href="https://freevideolectures.com/course/2278/data-communication">https://freevideolectures.com/course/2278/data-communication</a></li> <li>4. <a href="https://nptel.ac.in/courses/106/105/106105183/">https://nptel.ac.in/courses/106/105/106105183/</a></li> <li>5. <a href="https://nptel.ac.in/courses/106/105/106105080/">https://nptel.ac.in/courses/106/105/106105080/</a></li> </ol>	
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**Part –D: Assessment And Evaluation**

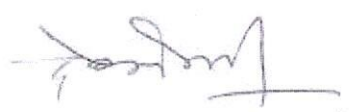
**Suggested Continuous Evaluation Methods:**

Maximum Marks : 100

Continuous Comprehensive Evaluation (CCE) : 30 Marks University Exam (UE): 70 Marks

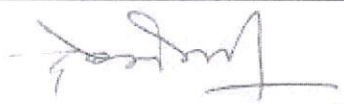
<b>Internal Assessment :</b> Continuous Comprehensive Evaluation (CCE)	Class Test Assignment/Presentation	30	
<b>External Assessment :</b> University Exam Section Time : 03.00 Hours	<b>Section(A) :</b> Very Short Questions <b>Section (B) :</b> Short Questions <b>Section (C) :</b> Long Questions	70	

**Any:**

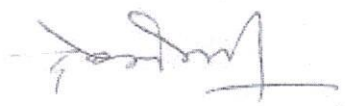
  
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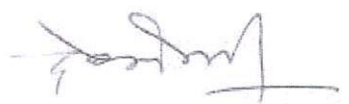
<b>Part-A Introduction</b>			
<b>Program: Degree</b>		<b>Class:</b>	<b>Year: III</b>
<b>session:2023-2024</b>			
<b>Subject : Computer Application</b>			
1.	<b>Course Code</b>	S3-COAP1R	
2.	<b>Course Title</b>	<b>Networking – A practical approach (Practical)</b>	
3.	<b>Course Type</b>	<b>Generic Elective</b>	
4.	<b>Pre-requisite(If any)</b>		
5.	<b>Course Learning Outcomes (CLO)</b>	<p><b>On the completion of this course students will be able –</b></p> <ul style="list-style-type: none"> <li>• To understand the structure and organization of computer networks.</li> <li>• To recognize the technological trends of Computer Networking.</li> <li>• To make students aware about various types of cables.</li> <li>• To discuss the key technological components of the Network.</li> <li>• To evaluate the challenges in building networks and solutions to those.</li> </ul>	
6.	<b>Credit Value</b>	<b>2</b>	
7.	<b>Total Marks</b>	<b>Max.Marks:100</b>	<b>Min.PassingMarks:35</b>
<b>Part- B Content Of the Course(Practical)</b>			
<b>Practical Lab will be conducted based on the theory Syllabus</b>			<b>Lectures</b>
<p><b>List of Practical</b></p> <p><b>Networking (Practical oriented) Practicals:</b></p> <ol style="list-style-type: none"> <li>1. Study of Network devices in detail.</li> <li>2. Study of different types of Network cables.</li> <li>3. Establish and verify connectivity to the Internet.</li> <li>4. Study of Network Devices in Detail.</li> <li>5. Study of network IP.</li> <li>6. Study of basic network command and Network configuration commands.</li> <li>7. Study LAN using bus topology.</li> </ol>			<b>30</b>

  
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	8. Study LAN using star topology. 9. Study LAN using tree topology. 10. Connect the computers in Local Area Network. 11. Study interconnections of cables for data communication. 12. Study fiber optic communication. 13. Configure hub/switch. 14. Study configures modem of computer. 15. Design TCP client and server application to transfer file.		
	<b>Part C: Learning Resources</b> <b>Text Books, Reference Books, Other resource</b>		
	<p><b>Suggested Readings:</b></p> <ol style="list-style-type: none"> <li>1. Computer Networks, Tanenbaum A. S. PHI.</li> <li>2. William Stallings: Data &amp; Communications, Sixth Edition.</li> <li>3. Computer Networking: A Top-Down Approach, James F. Kurosu and Keith W. Ross, Pearson, 6th Edition, 2012</li> <li>4. A Practical Guide to Advanced Networking, Jeffrey S. Beasley and Piyasat Nilkaew, Pearson, 3rd Edition, 2012</li> <li>5. Computer Networks by Bhushan Trivedi, Oxford University Press.</li> <li>6. मध्य प्रदेश हिन्दी ग्रंथ अकादमी की पुस्तकें।</li> </ol> <p><b>Suggested Digital Platforms, Web links</b></p> <ol style="list-style-type: none"> <li>1. <a href="https://onlinecourses.swayam2.ac.in/cec19_cs07/preview">https://onlinecourses.swayam2.ac.in/cec19_cs07/preview</a></li> <li>2. <a href="https://nptel.ac.in/courses/106/105/106105081/">https://nptel.ac.in/courses/106/105/106105081/</a></li> <li>3. <a href="https://freevideolectures.com/course/2278/data-communication">https://freevideolectures.com/course/2278/data-communication</a></li> <li>4. <a href="https://nptel.ac.in/courses/106/105/106105183/">https://nptel.ac.in/courses/106/105/106105183/</a></li> <li>5. <a href="https://nptel.ac.in/courses/106/105/106105080/">https://nptel.ac.in/courses/106/105/106105080/</a></li> </ol>		
<b>Part D: Assessment and Evaluation(Practical)</b>			
<b>Suggested Continuous Evaluation Methods:</b>			
<b>Internal Assessment</b>	<b>Marks</b>	<b>External Assessment</b>	<b>Marks</b>
Class Interaction /Quiz	<b>30</b>	Viva Voce on Practical	<b>70</b>
Attendance		Practical Record File	

  
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Assignments (Charts/ Model Seminar / Rural Service/ Technology Dissemination/ Report of Excursion/ Lab Visits/ Survey / Industrial visit)		Table work / Experiments	
	<b>Total Marks : 100</b>		
<b>Any remarks/ suggestions:</b>			

  
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