

Devi Ahilya University, Indore, India Institute of Engineering & Technology				IV Year B.E. (Electronics & Telecommunication Engg.)			
Subject Code & Name	Instructions Hours per Week			Credits			
	L	T	P	L	T	P	Total
8ETRP2 PROJECT PHASE-II	0	0	14	0	0	7	7

Course Learning Objective: To provide a comprehensive hands on experience to the students about the development of a complete project starting from analysis to testing. The students can also take a research project for innovating a new idea and its implementation.

Prerequisites: Electronics and Computer related subjects till III year.

COURSE CONTENTS

The major emphasis (but not limited to) shall be given on Microcontroller, Microprocessors, Analog and Digital Electronics/Communication ,VLSI and VHDL etc these are practice oriented areas of interest. The students shall be making the system, application or simulation packages depending upon the idea, technology chosen and expertise available. The architectural issues shall be important while the exposure to the technology needs to be gained by the students through thorough practice.

The students (in a batch) shall be required to be continuous interaction with the guide for the advice, guidance and facilities periodically and show the progress. They shall also be taking a certificate in the diary for satisfactory remarks or comments. Batch size shall be decided as per need and the quantum of the project.

The students shall make presentation and submit an originally drafted project reports periodically and at the end of the semester.

Course Outcomes:

Upon completing the course, Student would be able to:

- Work in a team
- Develop small working projects through designing, analysis and testing of model
- Able to give presentation on the project developed

BOOKS RECOMMENDED:

[1] Reference books and web links of the relevant material the must be consulted as advised by the guide.

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Subject Code & Name	Instructions Hours per Week			Credits			
8ETRC2 TELECOM NETWORK	L	T	P	L	T	P	Total
Duration of Theory Paper: 3 Hours	3	1	0	3	1	0	4

Course Learning Objective:

- To learn the taxonomy of different types of telecommunication networks.
- To study the role of PSTN and ISDN in broad band access.
- To understand the underlying technology to provide broadband internet.
- Go through the evolution of various ways of broadband access.
- To learn suitability of broadband access technique as per need and traffic environment type.
- To get knowledge of traffic engineering so that a telecommunication network can be deployed.

COURSE CONTENTS

UNIT-I Introduction : Classification of different wireless and wired telecommunication networks, their comparison, Broadband access, Classification of Legacy broadband technologies, Fixed wired broadband technologies, Fixed wireless broadband technologies, Mobile wireless broadband technologies, Overview of 2G, 3G, 4G, 5G & 6G networks, Telecommunication Traffic- unit of traffic, network traffic load and parameters, grade of service and blocking probability.

UNIT-II Public switched telephone networks (PSTN): Various subsystems of PSTN - subscriber end instruments, subscriber loop systems, transmission system, signalling system, trunk networks. speech digitization, line coding, frame formats used in PSTN, switching.

UNIT-III Integrated Services Digital Networks (ISDN): Evolution from PSTN, basic principles, architecture and reference points, various frame formats, protocol stack, ISDN services. Broadband ISDN architecture, protocol stack, cell format, BISDN services.

UNIT-IV Digital subscriber line (DSL): Dial up internet connection, its shortcomings, wired broadband technologies : (DSL), its types ADSL, SDSL, VSDL etc. working principle of DSL, Discrete multi tone modulation, Cable modem & its working principle.

UNIT-V Optical Access Network: comparison of optical access networks, DSL and cable modem, PON, EPON, GPON and WDM PON: overview, principal of operation, architecture, standards; Hybrid Wireless-Optical Broadband Access.

Course Outcomes:

Students earned credits will develop understanding about

CO No	CO	PO
CO1	Classify all types of telecommunication networks on some suitable basis such that area covered by the networks, Medium used, Multiple access used etc.	PO-2
CO2	Apply traffic engineering for deployment and maintenance of various telecomm networks	PO-1, PO-2
CO3	Compare traditional and current technologies for internet access on the basis of technical merits and demerits.	PO-4, PO-6
CO4	Learn the complete end to end working of different access networks.	PO-1, PO-2
CO5	Integrate and correlated the concepts of basic communication and networking while studying different telecommunication networks	PO-4, PO-3

CO	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO1		3										
CO2	2	2										
CO3				2		2						
CO4	3	2										
CO5			3	2								

BOOKS RECOMMENDED:

- [1]. I S Misra, Wireless Communications and Networks: 3G and Beyond, Second Edition, Mc Graw Hill, 2013.
- [2] Thiagrajan Viswanathan, Telecommunications Switching Systems and Networks, PHI, 1998.
- [3] W. Stallings, ISDN and Broad band ISDN with Frame Relay and ATM, Pearson Education, 2005.
- [4]. Shami, Abdallah, Maier, Martin, Assi, Chadi (Eds.), “Broadband Access Networks - Technologies and Deployments”, Springer, 2009.
- [5]. Steven Gorshe, Arvind Raghavan, Thomas Starr, Stefano Galli, “Broadband Access: Wireline and Wireless - Alternatives for Internet Services, Wiley, 2014.