

- (A) **COURSE TITLE AND CODE** : **MARKETING MANAGEMENT, G – 304**
- (B) **LEVEL** : **THREE**
- (C) **BRANCH / DISCIPLINE** : **INFORMATION TECHNOLOGY**
- (D) **RATIONALE** :

In the era of global, consumer-focused, quality-driven business philosophies, the discipline of marketing plays important role in the formulation and implementation of corporate strategies. This has placed great demands on the disciplines primary functions of a) learning about customers and their needs b) designing and implementing responsive marketing strategies for goods and services, and c) communicating these efforts to customers.

The purpose of this course is to introduce students to the basic concepts of marketing management. The students are expected to develop and learn to apply the knowledge and analytical skills useful for marketing decision-making

(E) TEACHING AND EXAMINATION SCHEME:

Sl. No.	Course Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
			Pre-requisite	L	T	P	C	Theory		Practical		
								ET	PA	ET	PA	
1.	G- 304	Marketing Management		3	2	-	5	75	25	--	--	100

(F) DETAILED COURSE CONTENTS

CHAPTER 1.0 Understanding Marketing Management

- Definition of marketing
- Definition of marketing management
- P's of marketing
- Marketing environment
- Consumer behaviour
- Marketing in a changing world
- Market segmentation

CHAPTER – 2.0 MARKETING INFORMATION AND RESEARCH

- Need of marketing information system
- Marketing research and market research
- Functions of marketing research
- Process of marketing research
- Sampling
- Data sources and collection
- Data analysis

CHAPTER – 3.0 PRODUCT POLICY

- Definition of product
- Product mix
- Brand
- Product positioning
- Pricing (Pricing considerations and Approaches)

CHAPTER - 4.0 MANAGING DISTRIBUTION

- Definition of channels
- Channels of distribution
- Factors considered in selection of channels

CHAPTER – 5.0 PROMOTION

- Advertising - Media selection
- Personal selling
- Sales promotion
- Publicity
- Promotion budget - i. Affordable Method, ii. Competitive- parity method, iii. Percentage of sales method, iv. Objective – task method

CHAPTER- 6.0 Marketing: Product Approach

- Marketing of industrial products
- Marketing of consumer products
- Marketing of services.

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Sl. No.	Chapter No.	Chapter Title	Hours	Marks			
				K	C	A	Total Mark
1.	1.0	UNDERSTANDING MARKETING MANAGEMENT	12	2	6	2	10
2.	2.0	MARKETING INFORMATION AND RESEARCH	12	6	6	3	15
3.	3.0	PRODUCT POLICY	12	2	6	2	10
4.	4.0	MANAGING DISTRIBUTION	12	4	3	3	10

Sl. No.	Chapter No.	Chapter Title	Hours	Marks			
				K	C	A	Total Mark
5.	5.0	PROMOTION	16	2	6	7	15
6.	6.0	MARKETING: PRODUCT APPROACH	16	4	6	5	15
Total			80				75

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) SUGGESTED IMPLEMENTATION STRATEGIES:

This course will be taught in an application-oriented fashion. Various marketing management concepts and principles will be taught through brief lectures, case analyses, class exercises, and using marketing simulation games.

(I) SUGGESTED LEARNING RESOURCES :

(a) Reference Books:

S. No.	Title	Author, Publisher, Edition & Year
1.	Marketing Management – Hall	Kotler, Philip 8 th Edition, 1994
2.	Marketing Management	Dickson, Peter R. Dryden Press, 2 nd Edition, 1997
3.	Principles of Marketing; Prenetice – Hall	Kotler and Amstrong 9 th Edition, 2001
4.	Marketing Management Implementation and Control; The Indian Context	V.S. Ramaswamy and S. Nama Kumar Mac Millan Publication
5.	Marketing Services	Bidhi Chand Rawat Publications
6.	Marketing Management – A strategic Approach	Boyd, Harper W and Orville C. Walker Richard D. Irwin, 1990
7.	Marketing Management	S.A. Sherlekar Himalaya Publishing House, New Delhi, 4 th Edition
8.	Marketing	N. Rajan Nair Sultan Chand & Sons Publishers, New Delhi, 6 th Edition

HOURS: -- MARKS: --

(J) SUGGESTED LIST OF PRACTICALS:

Not Applicable

(K) SUGGESTED LIST OF TUTORIALS:

-
- Discuss Modern concept of marketing.
 - “Advertising is wasteful” do you agree?
 - Consumerism
 - Steps in New product development
 - “There are no fundamental differences between the marketing of industrial and consumer goods”
 - Social marketing

(A) COURSE TITLE AND CODE : COMPUTER ARCHITECTURE (IT 406)

(B) LEVEL : FOUR

(C) **BRANCH/DISCIPLINE** : **INFORMATION TECHNOLOGY**

(D) **RATIONALE** :

The students after studying this subject will be able to understand the architecture and maintenance of computer system. They will understand hardware developmental, processor and control design of computer systems. This will develop the basic insight in student about the change in the hardware technology, technology design and thereby develop better knowledge for the maintenance and repairing of the computer system. They will also be able to learn how to plan for establishing a computer set-up for any given requirement.

(A) **TEACHING AND EXAMINATION SCHEME :**

Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-req.	L	T	P	C	Theory		Practical		
							T	PA	ET	PA	
IT 406	Computer Architecture	G-202	3	1	2	6	100	25	50	-	175

(F) **DETAILED COURSE CONTENT**

CHAPTER – 1.0 LOGIC GATES

- Basic Logic Gates: Logic symbols and truth table of all gates: AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR.
- Realization of all other gates using universal gate.

CHAPTER – 2.0 BOOLEAN ALGEBRA

- Rules and laws of Boolean algebra, Demorgan's theorem.
- Evaluation of logic expression, algebraic reduction of Boolean expressions

CHAPTER – 3.0 COMBINATIONAL LOGIC DESIGN

- Introduction to logic design
- Karnaugh map representation of logical functions, Simplification of logical function using K-map, (2, 3, 4 variable) Sum of products (SOP) Product of Sum (POS) .
- Don't care conditions.
- Design example: half adder, full adder, Half subtractor, full subtractor, BCD to seven-segment decoder (using K-map)
- Gray to binary code converter (using K-map)

CHAPTER – 4 MICROPROCESSOR ARCHITECTURE

-
- Introduction-
 - Evolution of microprocessors
 - Organization of microcomputer
 - Applications of microprocessor.

The 8085 Microprocessor architecture

- The 8085 microprocessor architecture
 - Buses, Registers, Flags, Pin Configuration, Function of all pins.
- SSI and MSI devices
 - Tri-state devices, buffers, tractates buffers (74LS244), Bi-directional buffer (74LS245), Decoders (74LS138), Latches (74LS373), Use of these devices in microprocessor based systems for memory addressing and I/O decoding.

CHAPTER – 5.0 INSTRUCTION SET

Theory

- Instruction format
- Instruction types
 - single byte, two byte, three byte
- Classification of instructions
 - - Data transfer, Arithmetic group, Logical group, Branch control group, I/O and Machine control group instructions.
- Addressing modes.

CHAPTER – 6.0 INSTRUCTION CYCLE

Theory

- Microprocessor operations
 - Fetch, Decode and Execute operation.
- Timing diagrams
 - Instruction cycle, Machine cycle, T-state. Opcode-Fetch cycle, Memory and I/O Read cycle, Memory and I/O Write cycle, Wait state. Interrupt acknowledge machine cycle.

CHAPTER – 7 ARCHITECTURE

- **Motherboard Logic**
- **RAM details design consideration**
- **Motherboard Hardware**
- **Clock generation**
- **Bus controls and I/O stat details**
- **Various types of motherboards :**
 - 80286
 - 80186
 - SXIDX
 - 486 Motherboards
 - Pentium family
- **Different types of IC modules , SIP package,**
DIP Package, SMD package, SIM MODULES, speaker interface to motherboard

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

S. No.	Chapter No.	Name of Chapter	Hours	Marks			
				K	C	A	Total Mark
1.	1.0	Logic gates	6	2	4	4	10
2.	2.0	Boolean algebra	10	2	6	6	14
3.	3.0	Combinational logic design	10	4	4	8	16
4.	4.0	Microprocessor architecture	10	4	6	6	16
5.	5.0	Instruction set	8	4	6	4	14
6.	6.0	Instruction cycle	8	4	6	4	14
7.	7.0	Architecture	12	4	8	4	16
Total			64	24	40	36	100

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) SUGGESTED IMPLEMENTATION STRATEGIES

According to the theory and practical schedules the subject teacher will complete the session. The student themselves would be able to plan and submit a proposal for establishing a computer setup for industry.

(I) LEARNING RESOURCES SUGGESTED TO BE USED

1. Lab manuals if available
2. CAI packages
3. OHP transparencies

(J) SUGGESTED LIST OF PRACTICALS: HOURS: 32 MARKS: 50

- Lab. Experiments
 - Study and Verify the truth table of logic gates (74xx series).
 - Realization of AND, OR, NOT and Ex-OR logic gates using NAND and NOR gate.
- Lab. Experiments
 - Verification of Demorgan's theorem.
- Lab. Experiments
 - Implementation of full adder, subtractor using gates
 - Study of gray to binary code convertor using gates
 - To more contents of flag register to any general purpose register
 - To design a counter using time delay subroutine.
- Basic assembly language Programming in 8085

(K) REFERENCE BOOKS/ MANUALS:

S.No.	Title	Edition Year of Publication	Author Publisher & Address
1.	Computer Architecture and Organization	Latest	J.P.Hayes Tata McGraw Hills Publishing Co.l Ltd. N. Delhi
2.	IBM PC and Clones	Latest	B.Govindrajulu Tata McGraw Hill Publications New Delhi
3.	Inside IBM PC	IV th - Edition 1999	Peter Norton Prentice Hall of India Pvt.Ltd , N.Delhi
4.	Structured computer Organization	III rd- Edition 1997	Andrews Tanenbaum Prentice Hall of India Pvt.Ltd, N.Delhi

5.	Electronic fault diagnosis	Third	G.C.Loveday Longman Scientific & Technical
6.	Upgrading and repairing PCs	Latest	Scott Mueller QUE Publication

- (A) COURSE TITLE AND CODE : TELEMATICS (IT 203)
(B) LEVEL : TWO
(C) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY

(D) RATIONALE :

Telematics is the blending of computers and wireless telecommunications technologies, apparently with the goal of efficiently conveying information over vast networks to improve a host of business functions or government-related public services. It is becoming increasingly obvious that telematics in one form or another will become a powerful working tool. Vehicle tracking, Trailer tracking, Satellite navigation, Mobile data and mobile television, Wireless vehicle safety communications, integrate telematics applications into government, business and education.

This subject intends to give an insight in to technological concepts of telematics The students will learn combined use of state-of-the-art telecommunications technologies and information and dissemination related technologies or activities.

(B) TEACHING AND EXAMINATION SCHEME:

Code	Name of Course	Teaching Scheme					Examination Scheme				Total Marks
		Pre-req.	L	T	P	C	Theory		Practical		
							T	PA	ET	PA	
IT-203	Telematics	G-202	4	2	-	6	100	50	-	-	150

(F) DETAILED COURSE CONTENT

CHAPTER – 1.0 INTRODUCTION TO TELEMATICS

- Technology overview
 - Features and Applications of Telematics, Technological overview of Internet and telecommunication
 - Analog and digital switching, Functional structure of Physical exchange, digital and analog trunk lines and terminals, line coding, digital private branch exchange

CHAPTER – 2.0 ELEMENTS OF ISDN AND BROADBAND

- Basic elements of ISDN, construction of ISDN, ISDN architecture, ISDN services, Transmission Techniques, Interface between PABX and computer equipment
- Fiber channel overview, ADSL, VDSL, Hand shake procedures, Modulation schemes

CHAPTER – 3.0 DIGITAL TELEGRAPHY

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- Introduction to digital telegraph transmission
 - Switch and forward telegraphy
 - Dumb and intelligent teleprinter
 - FAX transmission and reception
 - E-mail system.

CHAPTER – 4.0 MODULATION TECHNIQUES

- Spread spectrum modulation
- Direct sequence spread spectrum
- Spread spectrum with code division multiple access
- Frequency hopping spread spectrum
- Acquisition and tracking of FH signal and DS signals

CHAPTER – 5.0 DIGITAL TELEVISION

- Elements of digital television
- HDTV, SDTV
- Video text
- Teletext
- Standards: MPEG2, Dolby digital
- Set top box

CHAPTER – 6.0 WIRELESS COMMUNICATION

- Voice data, cordless, paging
- Fixed and mobile broadband wireless systems
- Wireless systems design fundamentals
- New wireless LAN technologies: IEEE 802.11a/b, HIPERLAN, and BRAN;

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter	Name of Chapter	Hours	Marks
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No.			K	C	A	Total Marks
8.0	Introduction To Telematics	10	5	4	3	12
9.0	Elements Of Isdn And Broadband	15	6	6	6	18
10.0	Digital Telegraphy	14	8	4	6	18
11.0	Modulation Techniques	14	8	6	4	18
12.0	Digital Television	12	6	6	4	16
13.0	Wireless Communication	15	6	8	4	18
Total		80				100

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) IMPLEMENTATION STRATEGIES

The subject will be taught as per the given teaching scheme for theory .Tutorials will be conducted along with theory section.

The subject teacher will prepare & provide learning material to students.

A CBT (Computer Based Training) may be more useful to learn the topics particularly ADSL, ISDN, Digital TV etc.

(I) LEARNING RESOURCES SUGGESTED TO BE USED

4. Lab manuals if available
5. CAI packages
6. OHP transparencies

(J) SUGGESTED LIST OF DEMONSTRATIONS/

Subject teacher is expected to follow the teaching scheme for theory and tutorials by covering the examples of problem solving (analysis and design exercises) to make student understand the underlying technologies. Teachers are expected to conduct visit to Telephone exchanges to demonstrate the setup used for ISDN and Broadband technology and for mobile communication.

(K) REFERENCE BOOKS

S. No.	Title	Edition Year of Publication	Author Publisher & Address
1.	Isdn And Broadband Isdn With Frame Relay And Atm - Fourth Edition		William Stallings, Prentice Hall Of India Ltd.
2.	Telecommunication Switching Systems And Networks		Thiagarajan Viswanathan, Prentice Hall Of India Ltd.
3.	Digital Communication Techniques: Signal Design And Detection		Marvin K. Simon Sami Hinedi William C. Lindsey, Prentice Hall Of India Ltd.
4.	Fundamentals Of Multimedia		Ze-Nian Li O Mark S. Drew, Prentice Hall Of India Ltd
5.	Wireless Communications: Principles And Practice, 2nd Ed.		Rappaport Theodore S.. Prentice Hall Of India Ltd

- (A) **COURSE TITLE AND CODE** : **LINUX OPERATING SYSTEM (IT- 503)**
- (B) **LEVEL** : **FIVE**
- (C) **BRANCH/DISCIPLINE** : **INFORMATION TECHNOLOGY**
- (D) **RATIONALE** :

The subject on 'Linux Operating System' intends to teach the students various services of an Linux operating system, its installation, file system, shell programming, networking. It will enable the student to understand the concept of multi-user operating system, Process management and file security in a network Operating system. These basic concepts will help the students to properly understand single user and multi-user operating systems.

The students will also familiarize themselves with LINUX O.S., its design architecture, commands structures and utilities.

(E) TEACHING AND EXAMINATION SCHEME:

Course Code	Name of Course	Teaching Scheme				Examination Scheme				Total Marks	
		Pre-requisite	L	T	P	C	Theory		Practical		
							ET	PA	ET		PA
IT-503	LINUX O.S.	IT-402	3	-	2	5	100	-	50	25	175

(F) DETAILED COURSE CONTENT

CHAPTER – 1.0 LINUX – OPERATING SYSTEM

- History and development of LINUX O.S.
 - Features, Structures of LINUX O.S.
 - Kernel, Shell, Applications Utilities.
 - Installation requirements
- LINUX User Interface
 - Classes of user
 - Operational users, Programmers, End users
 - Types of Interface
 - General
 - Command language, Command structure, Shell
 - Windows, Icons , slide bars, title bars

CHAPTER – 2.0 ESSENTIAL LINUX COMMANDS

- Startup & shutdown Process
 - Booting Procedure with different stages, Login process, Password concept, who, who am i , tty, date and cal commands, System shutdown
- File concept
 - File types in LINUX, Hierarchical directory structure, File system structure
- File creating, displaying, concatenating and copying
- Creating and changing directories, removing files and directories
 - **Cd, cp, md, rm, mkdir, rmdir, cat**
- Various users and access rights
- File attributes and permissions
 - **Setting permissions, Changing permissions, Changing group & group ownership of a file chmod, chown, chgrp**
- File processing commands
 - wc, head, tail, cut, paste join, split, sort, grep, egrep, tr, comm, cmp, diff, more, less commands
- File formatting and printing commands
 - pr with all options, lp commands

CHAPTER – 3.0 LINUX PROCESSES AND OTHER UTILITIES

- On line help facilities in LINUX
 - Man and help command
- Mathematical commands
 - bc, expr, factor, units
- Linking files and directories
 - Removing files and directories
- Inter-process communication
 - Pipes and filters
 - tee command
- Other process facilities
 - Background processing, Listing all active and background processes, ps command with all options, Terminating processes, Kill command, Process scheduling, Nice command, Wait command, Sleep command
- Communication commands
 - user to user communication using write, Mailing using mail, **Broadcasting messages using wall**

CHAPTER – 4.0 vi AND OTHER EDITORS

- vi editor
 - Features of vi, modes of vi, creating, editing & saving text, cursor movement commands, text scrolling commands
 - text deletion commands, find and replace
 - copying and yanking text, cut and paste in vi , set commands, abbreviations and map commands, saving files & quitting vi
- joe and vim editors

CHAPTER – 5.0 SHELL PROGRAMMING AND AWK

-
- Various LINUX shells
 - bash, csh, ksh
 - Shell scripts
 - writing and executing, Parameter substitution, Shell variables, Standard shell variables
 - User define variables
- Command substitution, Expressions, arithmetic operators, logical, Operators, test expressions, read statement, test command, control structures – for, while and until statements, if structure, nested if structure, if.. then.. elif statement, case structure
- Awk programming

CHAPTER – 6.0 INSTALLATION AND SYSTEM ADMINISTRATION

- Installation
 - Requirement
 - Linux file system

Boot block, super block, inode table, data blocks

Partitioning the hard disk for LINUX, Inastalling the LINUX system
- System administration
 - Common administrative tasks, Role of system administrator
 - Managing user accounts – adding and deleting users, changing permissions and ownerships
 - Creating and managing groups
 - Creating and mounting files system
 - Backup and restoring files
 - Linuxconf utility
- X-configuration , changing X settings
- KDE and Gnome graphical interfaces

(G) SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Name of Chapter	Hours	Marks			
			K	C	A	Total Mark
14.0	Linux – operating system	4	4	6	4	14
15.0	Essential Linux Commands	9	6	6	6	18
16.0	Linux processes and other utilities	9	6	6	4	16
17.0	vi and Other Editors	8	4	8	4	16
18.0	Shell programming	10	6	8	6	20
19.0	Installation and system administration	8	6	4	6	16
Total:		48				100

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H) IMPLEMENTATION STRATEGIES

The subject operating systems starts with the basic features of LINUX operating system and their subsequent developments. It includes the various types of users in LINUX OS.

The chapters 2 to 5 take up LINUX OS commands and Programming. They also deal with various LINUX Processes and editors and utilities. Most of the commands can be covered during practical hours. Students are expected to write the shell scripts specified during practical sessions and if possible develop own utility routines.

Chapter 6 deals with Installation of LINUX and System Administrations. Demonstration of installation and X-configuration is required here.

(I) LEARNING RESOURCES SUGGESTED TO BE USED (if available)

7. Lab manuals if available
8. CAI packages
9. OHP transparencies

(J) SUGGESTED LIST OF PRACTICALS/ DEMONSTRATIONS

Hours:32 Marks:50

• **List of Practical**

- Practice on stty command
- Study of password command
- Study of who, who am i, tty,date and cal commands

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- Executing commands in background
 - Study of ps , kill commands
 - Listing the files in a directory using all options to ls.
 - Creating sub-directories.
 - Changing the mode of a file/directory.
 - Changing the owner of a file/directory.
 - Study of file processing commands
 - Commands using pipes and I/O redirectors
 - Display date using various formats
- **User to user communication using communication commands.**
 - Study of vi editor
 - Modes of vi
 - Creating and saving files using vi
 - Cursor movement commands
 - Cut and paste commands
 - Find and replace commands
 - Ex mode commands
- Write a shell script for the following
- The shell script should check whether every argument supplied is a file or a directory and list it accordingly.
 - The shell script should check every argument and carry out the following
 - . if the argument is a directory, then display the number of files or directories present in that directory.
 - . If the argument is a file, then display the size of the file
 - . If the argument does not exist , then create the directory.
 - The shell script should accept the username as argument and find out at how many terminals has this user logged on.
 - The shell script must display a list of all files in the current directory to which you have read, write and execute permissions.
 - The shell script should delete all lines containing the word “ UNIX ‘ in the files supplied as arguments to this shell script.
- Awk Programming examples with queries for report writing
 - Demonstration of Installation of LINUX OS
 - Mounting of filesystem – using floppy and CDROM
 - Configuring X-environment
 - Switching between KDE and Gnome
 - Adding Group and Users logins

(K) REFERENCE BOOKS

S. No.	Title	Edition, Year of Publication	Author, Publisher & Address
1.	Red hat Linux unleashed	Latest	Techmedia (BPB publication)
2.	UNIX concept and Applications	Latest	Sumitabha Das Tata McGraw Hill Publication, N.Delhi
3.	Redhat LINUX 7.x Bible	Latest	Cristopher negus, IDG books India
4.	Using LINUX	Latest	Jack Tackett, David Gunter, PIII, EEE Edition
5.	Linux Installation and Administration	Latest	Nicholas Wells, Course technology, (Vikas Publishing, New Delhi)
6.	Unix Operating System	Latest	Peter Nortorn BPP Publications

(A) COURSE TITLE AND CODE : PRINCIPLES OF TELECOMMUNICATION (IT-408)

- (B) LEVEL : FIVE
- (C) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY
- (D) TEACHING AND EXAMINATION SCHEME:

Course Code	Name of Course	Teaching Scheme				Examination Scheme				Total Marks	
		Pre-requisite	L	T	P	Theory		Practical			
						ET	PA	ET	PA		
IT408	Principles Of Telecommunication (IT408)	-	4	-	2	6	75	25	50	25	175

(E) RATIONALE

As a Core Technology subject, this will clear the concepts & principles used in electronic telecommunications. Concepts such as modulation, side band transmission, radiation and propagation, reception and demodulation that are widely used in the field of analog & digital communication are dealt in this subject.

(F) DETAILED COURSE CONTENT

CHAPTER – 1

AMPLITUDE MODULATION

- Concept & Need of Modulation.
- Types of RF signal Modulation techniques.
- Definition, Representation, Modulation Index, Frequency Spectrum and mathematical expression of Amplitude Modulated wave.
- Power relation in Amplitude Modulation.
- Generation of Amplitude Modulation.
- High level and Low level Modulation.
- Transistorised Amplitude Modulation circuit (Collector Modulated class C amplifier only)
- Block diagram of Amplitude Modulation transmitter.
- Methods of SSB generation.

CHAPTER – 2

PHASE MODULATION

- **Definition, waveform, mathematical representation of frequency modulation.**
- **Frequency spectrum of Frequency Modulation wave.**
- **Effect of noise on carrier.**
- **Pre-emphasis De-emphasis – concept, need, circuit.**
- **Methods of FM generation: Direct Method - Basic Reactance Modulator,**
- **Varactor diode modulator; Indirect Method - Block diagram of Frequency Modulation Transmitter.**
- **Definition and mathematical Expression of Phase modulation**
- Comparison between AM, FM & PM

CHAPTER – 3 TRANSMISSION LINE

- Types of Transmission line.
- Losses in Transmission line.
- Concept of Standing Wave; VSWR.
- Half and Quarter wavelength lines.
- Reactance properties of Transmission line.

CHAPTER – 4 RADIATION & PROPAGATION OF WAVES

- **Electromagnetic radiation; Wave-guides.**
- **Effect of environment wave-guide terminators.**
- **Propagation of waves - Ground waves, Sky waves, Space waves.**
- Troposphere & Ionosphere propagation.

CHAPTER – 5 ANTENNAS

- **Basic considerations of Antenna.**
- Radiation mechanism.
- Elementary doublet.
- Wire radiator's in space.
- Resonant and Non resonant Antennas.
- Antenna gain & directivity.
- Antenna resistance.
- Bandwidth, Beam width and Polarization.
- Effect of ground on Antennas.
- Effect of Antenna Heights.
- Antennas required for radio reception.
- Loop Antenna.

CHAPTER – 6 AM RADIO RECEIVERS

- **Tuned radio frequency (TRF) receiver. Block diagram.**
- Block diagram and circuit of AM Super heterodyne radio receiver.
- Transistor RF amplifier circuit diagram.
- Parameters of AM radio receiver.
- Image frequency and its rejection, double spotting.
- Self excited and separately excited converter.
- Super heterodyne tracing and tuning I.F. and choice of I. F.
- Two stage IF amplifier.
- Adjacent channel selectivity.
- Diode detector circuit.
- The IF filter
- AGC and various AGC methods
- Volume control

CHAPTER – 7 FM Radio Receiver

- **Block diagram of FM receiver.**
- RF amplifier, converter and IF amplifier.
- Amplitude limiter circuit.
- FM demodulators.

- The AFC.

CHAPTER – 8 ALIGNMENT OF AM/FM RADIO RECEIVERS

- **Necessity of alignment.**
- **Specification & ratings of Radio receiver. Sensitivity, Selectivity, Fidelity, Frequency Response & Wattage**
- **RF (Band) alignment.**
- IF alignment.

CHAPTER – 9 TROUBLESHOOTING RADIO RECEIVERS

- Trouble shooting methods of typical faults of AM & FM receiver: Preliminary Tests – Mains chord test, Power supply test, current drain test; observation test; Signal Substitution test; Voltage Analysis test; Resistance Analysis method; Waveform Analysis method.
- Study of commercial receiver circuit diagram.

(G) SPECIFICATION TABLE OF DISTRIBUTION OF MARKS & HOURS

Chapter No.	Name of Chapter	Hours	Marks			
			K	C	A	Total Marks
1	Amplitude Modulation	10	5	3	4	12
2	Phase Modulation	10	5	3	4	12
3	Transmission line	6	4	3	-	7
4	Radiation & Propagation of waves	6	3	2	2	7
5	Antennas	8	4	3	2	9
6	AM Radio Receivers	8	4	3	2	9
7	FM Radio Receiver	6	3	2	2	7
8	Alignment of AM/FM Radio Receivers	6	2	2	3	7
9	Troubleshooting Radio Receivers	4	-	2	3	5
	Total	64				75

(H) SUGGESTED IMPLEMENTATION STRATEGIES

The subject will be taught as per the given teaching scheme for theory as well as practical.

The identified practical sections will be conducted along with theory section.

The subject teacher will prepare & provide learning material to students.

A CBT (Computer Based Training) may be more useful to learn these topics of digital techniques.

(I) SUGGESTED LEARNING RESOURCES

10. Textbooks mentioned in the references

11. Laboratory manuals
12. TV programmes
13. Newspaper clippings
14. Periodicals like, news magazines, journals etc.
15. OHP transparencies

(J) SUGGESTED LIST OF PRACTICALS

Hours: 32 Marks :25

Practical Experiences

- a) Performance of Transistorised AM modulator
- b) Performance of Balanced modulator.
- c) Performance of Frequency Modulation circuit
- d) Performance of AM receiver
- e) Performance of FM receiver
- f) Band alignment in AM receiver.
- g) IF alignment in AM receiver.
- h) Trouble shooting in different stages of AM & FM receiver.

(K) REFERENCE BOOKS

S.No.	Title	Edition, Year of Publication	Author/ Publisher & Address
1.	Electronic communication systems.	3rd, 1984	George Kenedy/ McGraw-Hill, Book Co. Ltd. Singapore.
2.	Electronic communication	4 th , 1995	Dennis Roddy & Jhon Coolen/ Prentice Hall of India Pvt. Ltd. New Delhi
3.	Communication Systems	1 st , 1998	D. D. Ahirrao & N. S. Jadhav/ EVEREST Publication Pune
4.	Principles of Communication Systems	3 rd , 1986	Taub and Schilling/ McGraw-Hill International, New York
5.	Principles of Communication	1 st , 1984	Biswas, N.M./ Media Promoters
6.	Telecommunication Principles Circuit & Systems.	3 rd , 1986	Bhaskar, C., & Rama, S./ Khanna Publication, New Delhi
7.	Digital Communication.	2 nd , 1984	Haykin, Simon/ Mc-Graw Hill International, New-York
8.	Telecommunications Principles circuits and systems	5 th , 1986	S.Rambhadran/ Khanna Publishers New Delhi

(A) COURSE TITLE AND CODE : PROGRAMMING IN VISUAL BASIC (IT-506)

(B) LEVEL : FIVE

(C) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY

(D) RATIONALE :

This subject helps to understanding of the principles and techniques involved in developing applications with Visual Basic. The course content is designed to understand & implement the Event Driven Architecture of Visual Programming. The student would be able to identify and use of different categories of controls, learn working with forms and different data access techniques, establish a data base connection and identify the categories of ActiveX controls and creating them.

It is expected that, students will be able to develop Graphical User Interface Applications (GUI) by using Visual Basic.

(E). TEACHING AND EXAMINATION SCHEME:

Course Code	Name of Course	Teaching Scheme				Examination Scheme				Total Marks	
		Pre-requisite	L	T	P	Theory		Practical			
						ET	PA	ET	PA		
IT-506	Programming in Visual Basic	IT-502	3	1	2	6	75	25	50	25	175

(F)

DETAILED COURSE CONTENT

CHAPTER - 1

INTRODUCTION TO VISUAL ENVIRONMENT

- Concepts of visual programming, object, features
- Environment of VB – Menu bar, toolbar, project explorer, toolbox, properties window, form designer, form layout, immediate window. Concept of project, elements of projects, form etc.

CHAPTER – 2 INTRODUCTION TO VISUAL BASIC

- Data types, variables, constants, arrays, collections, procedures, Arguments, function return values, control flow statements, loop statements, Nested control structures, The exit statement, math operators & formulas, logical operators, string functions, special functions available in VB like Input Box (), Message Box (), Format ().

CHAPTER – 3 CONTROLS AND EVENTS.

- Text box, listBox, ComboBox, ScrollBar and slider
- Control.
- Container – picturebox, frame.
- Option button, checkbox, command button, images.
- OLE controls,
- File controls.
- Designing a form using controls, concepts of event & properties, changing properties (runtime & design time) Important events of each control & creating applications using controls.
- Timer.

CHAPTER – 4

ADVANCE CONTROLS & EVENTS

- Common Dialog Box controls, The Tree view and List
- View controls, the rich textbox controls.
- Windows common controls – status Bar, Tab control, image list control, ms chart control.
- Important properties, changing properties at design or run time event handling.

CHAPTER – 5 MODULE, CLASS MODULE MDI, MENU EDITOR AND GRAPHICS

- Concept of module, class module, MDI, how to use them.
- Creating own menu using menu editor, popup menu.
- Graphics :-
- Basic controls – Line & shape control , line method, circle method, Pset method, RGB () Functions, Paint picture () method, Load picture () function.

CHAPTER – 6 DATABASE AND REPORT GENERATION

- Concept of database, Record, Record set, Data control & its important properties, structure of BIBLIO database, validating data, entering data, visual data manager, data bound grid control, DB List, DB combo.
- Programming with ADO (Active data objects) ADO Objects, connection, command, record set , parameter, Creating & closing a connection; executing a command, Object, executing a stored procedure from a command
- Object, creating record sets objects, cursor Location, Cursor types, lock types.

CHAPTER – 7 INTRODUCTION TO ACTIVE X CONTROLS

- The user control object – initialise Event, Terminate Event, Init properties Event, Read properties Event, Write Properties Event, Paint/Raise Event, Observing the events In the Date controls,
- Exploring the properties of ActiveX controls – Debugging the properties, extend properties, Ambient Properties, creating design time only properties, creating Clock control, events in ActiveX controls,
- Using the ActiveX control Interface wizard-Adding the Wizard to visual Basic.
- Property pages – using the property page Wizard, creating property pages without the wizard.
- Creating a simple ActiveX control

(G). SPECIFICATION TABLE SHOWING DISTRIBUTION OF MARKS AND HOURS

S. No.	Chapt er No.	Name of Chapter	Hours	Marks			
				K	C	A	Total Mark
8.	20.0	Introduction to visual environment	6	2	2	2	6
9.	21.0	Introduction to visual basic	6	2	3	2	7
10.	22.0	Controls and events	8	2	2	4	8
11.	23.0	Advance controls & events	10	2	3	5	10
12.	24.0	Module, class module MDI, menu editor and graphics	12	4	4	8	16
13.	25.0	Database and report generation	10	3	3	6	12
14.	26.0	Introduction to ACTIVE - X controls	12	3	3	6	16
Total			64				75

Abbreviations: K=Knowledge level, C= Comprehension Level, A=Application level

(H). IMPLEMENTATION STRATEGIES

The students should be given maximum hands on practice to develop skills in Visual Basic programming by using various Basic Controls and Advance Controls statements. Also the students will set new active X controls and property of the pages through assignments.

The concept of database & active data objects will help the students to use Visual Basic as a front-end tool and database software as backend to develop software systems.

A mini project can be done by the end of term.

(I). LEARNING RESOURCES SUGGESTED TO BE USED

16. Lab manuals if available
17. CAI packages
18. OHP transparencies
19. Internet based Tutorials

(J). SUGGESTED LIST OF PRACTICALS/ DEMONSTRATIONS

Hours:32

Marks :50

- Design a form for arithmetic operations using textbox, label, command button.
- Design a form for speed control program using scroll bars.
- Design a form to display a picture using image box/picture box selected from a file in file list box directory list box, drive list box.
- Design a form using shape control to display signal and change it timely using timer control.
- Design form to create a font dialog box using combo/ list, text, option buttons, and check box control.
- Design a simple application using OLE control.
- Design a form using Tab control, image list, status bar, tool bar which facilitates different arithmetic operations.
- Design a form using menu editor, MDI, common dialog box which has standard format like Notepad. (eg. File , Edit , format) open copy, font, save and cut.
- Design a simple database application which covers all database concepts.(Data control, DAO ,RDO,ADO, DB-list , DB combo), Create property pages without using the property page wizard.

(K). REFERENCE BOOKS

S.No.	Title	Edition Year of Publication	Author Publisher & Address
1.	Visual Basic 6	2006	Sanjeev Sharma, Nandan Tripathi Image Publication, Indore
2.	Mastering VB6	1 st Indian edition 1998	Evangelos Petront Sos. BPB publications, B-14 connaught place New Delhi
3.	Visual Basic	5 th Reprint Edition 2000	Nel Jerka Tata Mcgraw Hill publishing company Ltd., New Delhi

