

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI, CHHATTISGARH

DIPLOMA PROGRAMME IN INFORMATION TECHNOLOGY

Semester – IV

COURSE OF STUDY AND SCHEME OF EXAMINATION

S. No	Board of Study	Subject Code	Subject	Periods/Week (In Hours)			Scheme of Examination						Credit L+ (T+P)/2
				L	T	P	Theory			Practical		Total Marks	
							ESE	CT	TA	ESE	TA		
1.	Computer Science Engg	233411 (22)	Computer Troubleshooting and Maintenance	3	1	-	100	10	20	-	-	130	4
2.	Computer Science Engg	233412 (22)	System Analysis and Design	3	2	-	100	30	20	-	-	150	4
3.	Computer Science Engg	222413 (22)	Programming with Visual Basic	3	1	-	100	20	20	-	-	140	4
4.	Computer Science Engg	233413 (22)	LINUX	3	1	-	100	10	20	-	-	130	4
5.	Info. Tech.	233414 (33)	Graphics and Multimedia	3	1	-	100	20	20	-	-	140	4
6.	Computer Science Engg	233421 (22)	Computer Troubleshooting and Maintenance Lab	-	-	3	-	-	-	50	20	70	2
7.	Computer Science Engg	222422 (22)	Programming with Visual Basic Lab	-	-	4	-	-	-	70	30	100	2
8.	Computer Science Engg	233423 (22)	LINUX Lab	-	-	4	-	-	-	50	20	70	2
9.	Info. Tech.	233424 (22)	Graphics and Multimedia Lab	-	-	4	-	-	-	50	20	70	2
TOTAL				15	6	15	500	90	100	220	90	1000	28

L : Lecture hours ; T : Tutorial hours, P : Practical hours

ESE – End of Semester Exam.; CT – Class Test; TA- Teacher’s Assessment ;

Note : One month Industrial training will be organised after 4th semester, evaluation will be done in 5th semester.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI**

- A) SEMESTER : IV
 B) COURSE : COMPUTER TROUBLE SHOOTING AND MAINTENANCE
 C) CODE : 233411 (22)
 D) BRANCH/DISCIPLINE : INFORMATION TECHNOLOGY
 E) RATIONALE :

PCs are peculiar type of modular electronic machine. They have some moving parts and some parts functioning electronically. The development of computer technology is very fast and the shelf value is not more than six months. Today, large number of students, people in the industry, government sectors etc are purchasing computers for different purposes. But there are only few entrepreneurs in the market who are capable to maintain computer systems like the way TV sets are repaired.

Keeping this scenario in mind, if the size of the industry where the student gets employed is small or the student himself is an entrepreneur who has just started a business, then he should be aware of the different parts of computer system and their functions such as motherboard, floppy disk, hard disk drive, display units etc. It is also expected that after undergoing this subject the students will be able to understand some of the basic symptoms of trouble and to troubleshoot it.

This subject will help the students to develop basic trouble shooting skills. Apart from being a professional in the area of computer application, he would also be able to troubleshoot minor problems of computer systems of its own.

F) TEACHING AND EXAMINATION SCHEME

Course Code	Periods/Week (In Hours) (Teaching Scheme)			Scheme of Examination						Credit L+ (T+P)/2
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
233411(22)	3	1	-	100	10	20	-	-	130	4
233421(22)	-	-	3	-	-	-	50	20	70	2

L : Lecture hours ; T : Tutorial hours; P : Practical hours

ESE – End of Semester Exam.; CT – Class Test; TA- Teacher’s Assessment

G) DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Chapter Name	Hours	Marks
1.	Fundamentals	8	12
2.	General Trouble Shooting	6	10
3.	Motherboard Troubleshooting	8	12
4.	Floppy Disk Drive (Controller, Hardware And Maintenance)	10	16
5.	Hard Disk Drives (HDD)	10	16
6.	Display Adapter	6	10
7.	Keyboard	6	10
8.	Viruses	10	14
	Total	64	100

H) DETAILED CONTENT

CHAPTER - 1 FUNDAMENTALS

?? Definition: Troubleshooting, Diagnosis

- Classification Of Faults
- Hardware Faults : Static Faults, Dynamic Faults
- Software Faults: System Software Fault, Application Software Faults.

CHAPTER-2 GENERAL TROUBLESHOOTING

?? General Troubleshooting Rules

- Study Of Abnormal Behavior Of PC System For Fault Finding
 - ~~✍~~ Write Everything Down
 - ~~✍~~ Do The Easy Step First
 - ~~✍~~ Reboot And Try Again
 - ~~✍~~ Refer System Manuals Documentation
 - ~~✍~~ Observe Facts (Ref. : Mark Minasi)

?? Steps of Troubleshooting Success

- Check for operator error
- Check everything plugged in.
- Check the software
- Check external signs
- Run diagnostic programs (Ref.: Mark Minasi)

CHAPTER – 3 MOTHERBOARD TROUBLESHOOTING

?? Motherboard Troubleshooting (Rectification in case of following probable symptoms)

- RAM error
 - ~~✍~~ Not enough memory or out of memory
 - ~~✍~~ Expanded memory unavailable
 - ~~✍~~ This program has performed an illegal operation and will be shut down
 - ~~✍~~ Fatal exception error

~~///~~ CMOS checksum error

~~///~~ A motherboard failure is reported but goes away when the PC's outer cover is removed.

CHAPTER-4 FLOPPY DISK DRIVE (Controller, Hardware And Maintenance)

?? Introduction

?? FDC system interface

?? Disk Drive block diagram

?? Troubleshooting floppy disk system

- Drive cleaning
- Track - 00 - test
- Error code and beep code
- Symptoms of failure
 - ~~///~~ The floppy drive is completely dead
 - ~~///~~ The floppy drive will not read from or write to diskette
 - ~~///~~ O.S. reports an error, such as "can't read from drive A:"
 - ~~///~~ When a new diskette is inserted in the drive the directory from a previous diskette appears
- The floppy drive activity LED stays on as soon as computer is powered up.

CHAPTER – 5 HARD DISK DRIVES (HDD)

?? Introduction to HDD

?? HDC device interface

?? Drive concepts

- Latency
- Track, sector, and cylinders
- Landing zone
- Write pre-compensation

?? Concepts of drive formatting

- Low level formatting
- Partitioning
- High level formatting

?? Drive testing and troubleshooting

- Error codes and beep codes
- Rectification in case of following symptoms:
- Symptoms and solutions of
 - You see drive activity, but the computer does not boot from the hard drive
 - Error occurs during drive reads or writes
 - The hard drive was formatted accidentally
 - The hard drives root directory is damaged
 - A "sector not found" error message appears on the monitor
 - A "17xx error" appears on the monitor
 - An "Error reading drive c:" error message appears
 - A "track zero (0) not found" error message appears
 - A "hard disk controller failure" message appears on a monitor

- "Disk Boot Failure", "Non-System-Disk" or "Non ROM Basic - SYSTEM HALTED" error message appears
- A "File allocation table bad" error appears

CHAPTER-6

DISPLAY ADAPTER

- ?? Introduction
- ?? CRT controller principle
- ?? Video cards
- ?? MDA, CGA, EGA, VGA, SVGA, XGA, AGP
- ?? Video memory and video RAM
- ?? Troubleshooting a monitor
 - Error codes and beep codes
 - Symptoms and rectification
 - A single horizontal/vertical line appears in the middle of the display
 - Raster is present but there is no image
 - There is no image and no raster
 - The displayed characters appear to be distorted
 - The image appears to flip or scroll horizontally/vertically.

CHAPTER-7

KEYBOARD

- ?? Introduction
- ?? Different types of key switches
- ?? Keyboard interfacing
- ?? Keyboard cleaning
- ?? Keyboard troubleshooting
 - Error codes and beep codes
 - Symptoms and rectification
 - ~~///~~ During initialization an error message indicates that no keyboard is connected
 - ~~///~~ The keyboard is completely dead
 - ~~///~~ The keyboard is acting erratically
 - ~~///~~ The Num lock feature might not activate when the Num lock key is pressed

CHAPTER – 8

VIRUSES

- ?? Introduction
- ?? Types of viruses
 - Command processor infection
 - Boot sector infection
 - Executable file infection
 - File-specific infection
 - Memory resident infection
 - Macro viruses
- ?? Virus Myths
- ?? Protecting the PC from viruses
- ?? Recognizing an infection
- ?? Dealing with an infection

I) SUGGESTED IMPLEMENTATION STRATEGIES

This subject should be taught by taking help of different visual aids. (It may be actual part of PC). The students should be demonstrated the possible faults that are encountered where ever possible and he should be explained the process of rectification (e.g. observing beep sound).

J) SUGGESTED LEARNING RESOURCES

a) Reference Books

S. No.	Title	Author, Publisher & Address, Edition, Year of Publication,
1.	IBM PC and Clones	B. Govindrajalu Tata Mc-Graw Hill Publications Pvt. Ltd., New Delhi, Seventh 2000
2.	Troubleshooting, Maintaining & Repairing PC's	Stephen J. Bigelow Tata Mc-Graw Hill Publications Pvt. Ltd., New Delhi
3.	PC Upgrading and Maintenance	Smart Computing, BPB Publications. Second
4.	The Complete PC Upgrade & Maintenance Guide	Mark Minasi, BPB Publications, Tenth
5.	Upgrading and Repairing PC's	Scott Mudler QUE Publications

Course: Computer Troubleshooting and Maintenance Lab

Code : 233421 (22)

Hours: 48

LIST OF PRACTICALS

- ?? Installation of hard ware elements
 - beep codes and error codes
 - different symptoms of motherboard
 - beep, error and symptoms failure of FDD
 - keyboard interface
 - beep, error and symptoms of failure of keyboard.
 - Study of different anti-virus software e.g. Norton
 - Give assignment to be completed.
- ?? Assign Approval Tutorial
- ?? Assembling computer machines
- ?? Formating disk drives
- ?? Creation of logical disk drives
- ?? Installation of device drivers
- ?? Installation of new hard ware

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY BHILAI

- A) **SEMESTER** : IV
 B) **COURSE** : **SYSTEM ANALYSIS AND DESIGN**
 C) **CODE** : 233412 (22)
 D) **BRANCH / DISCIPLINE** : **INFORMATION TECHNOLOGY**
 E) **RATIONALE**

In this age of information technology computer system, is playing an important role for automation. Computers systems are used as an effective communication and decision-making tool for process and product automation in a business, industrial and educational environment. The technician in the industry an expected to develop software systems.

To develop software systems, Systems Analysis and Design is the first and foremost step. This subject envisages to develop competence in the pass outs to analyze, design, and address issues related to system development and implementation apart from issues they are well versed with tool to be used for system development in its different stages.

F) **TEACHING AND EXAMINATION SCHEME**

Course Code	Periods/Week (In Hours) (Teaching Scheme)			Scheme of Examination					Credit L+ (T+P)/2	
	L	T	P	Theory			Practical			Total Marks
				ESE	CT	TA	ESE	TA		
233412(22)	3	2	-	100	30	20	-	-	150	4

L : Lecture hours ; T : Tutorial hours; P : Practical hours

ESE – End of Semester Exam.; CT – Class Test; TA- Teacher’s Assessment

G) **DISTRIBUTION OF MARKS AND HOURS**

Chapter No.	Chapter Name	Hours	Marks
1.	Introduction	6	8
2.	System Development Life-Cycle	6	8
3.	Recognition Of Need	4	8
4.	Feasibility Study	8	8
5.	Systems Analysis	14	12
6.	System Design	14	14
7.	File-Design	6	10

8.	Testing & Installation	6	12
9.	Implementation	10	10
10	Documentation & Feedback	6	10
Total		80	100

H) DETAILED COURSE CONTENT

CHAPTER - 1 INTRODUCTION

- ?? System concept: Definition.
- ?? Characteristics of a system
- ?? Elements of a system
- ?? Types of system: Physical or Abstract systems open or closed systems.
- ?? Information system.

CHAPTER – 2 SYSTEM DEVELOPMENT LIFE-CYCLE

- ?? Introduction
 - The system's life cycle
 - Recognition of need
 - Consideration for candidate system
- ?? Role of the system's Analyst:
 - Academic personal qualifications
 - The multifaceted role of the system analyst
 - The analyst/user interface.

CHAPTER – 3 RECOGNITION OF NEED

- ?? Introduction
- ?? Problem definition, Initial investigation, Preliminary survey for finding problem & opportunity
- ?? Project Management: Tools & Techniques

CHAPTER – 4 FEASIBILITY STUDY

- ?? Introduction & Tests for project Feasibility.
- ?? Types of Feasibility: Economic, Technical and behavioral
- ?? Steps in Feasibility Analysis
- ?? Cost Benefit Analysis

CHAPTER – 5 SYSTEMS ANALYSIS

- ~~??~~ Information gathering
 - Kinds of Information
 - Information gathering tools: Review of list procedures & forms onsite observation, interviews & Questinnaires. Brain storming.
- ~~??~~ Tools of Analysis: Data flow diagram, Data dictionary, decision tree &

structured English, Decision tables

CHAPTER – 6 SYSTEM DESIGN

- ~~///~~ Introduction: The process of design: Logical and Physical design.
- ~~///~~ Design Methodologies: Procedure Modular, Top-down & Bottom up approaches.
- ~~///~~ Input Output Design
- ~~///~~ Methods & Issues for data capture & I/P
 - Data capture, Data Entry, Data Input
 - Input methods & Media
 - End-user considerations for Input design
 - Internal controls for Input, implement & requirements
- ~~///~~ Output design principles & Guidelines.
- ~~///~~ Choices for media & formats of computer generated outputs.
- ~~///~~ Internal controls for outputs.
 - Steps involved to prototype & Design computer outputs

CHAPTER – 7 FILE-DESIGN

- ~~///~~ Technical concepts of file design
- ~~///~~ Designing & documentation of conversion files: Structures & formats
- ~~///~~ Types of files & File accessing

CHAPTER- 8 TESTING & INSTALLATION

- ~~///~~ Types of tests
- ~~///~~ Aftermath
- ~~///~~ Analyst role review
- ~~///~~ Requirements for installation

CHAPTER-9 IMPLEMENTATION & MAINTENANCE

- ~~///~~ Introduction
- ~~///~~ Types of Implementation: Parallel system, Direct Cutover Pilot Approach phase-in-method

CHAPTER-10 DOCUMENTATION & FEEDBACK

- ~~///~~ Types of Documentation
- ~~///~~ Design documentation
- ~~///~~ User Documentation for Training
- ~~///~~ Operations documentation
- ~~///~~ User reference documentation

D) SUGGESTED IMPLEMENTATION STRATEGIES

System analysis & design is theoretical subject and it is little bit different to understand in the classroom environment, because classroom environment it all together a different environment in which applications are generally developed. System Analysis & design depends on tools, experience, and situations, therefore, frequently consist of a heavy emphasis as theory and some attention to be given to application.

It is practice oriented with examples, application and proven techniques that demonstrate systems analysis and design. In addition, actual organization and business settings are used in the example. While discussing the different stages of system development. Life cycle, it is helpful for the student that any application can be taken as an example & can be analyzed designed by applying different tools and technique. And if possible show them some standard format and specimen of well developed application diagram of its different stages.

It also suggested take the students to bigger computerized organization or an industry so that they can feel Automated Commercial Application.

K) SUGGESTED LEARNING RESOURCES

a)Reference Books

S. No.	Title	Author, Publisher & Address, Edition,Year of Publication,
1	System Analysis & Design Methods	Whitten, Bentley, Barlow, 2001,
2	System Analysis & Design	John W.Satzinger, Robert B. Jackson, Stephen D.Burd, Thomson Learning
3	Software Engineering	Pressman TMH

LIST OF DEMONSTRATION

- 1 Tutorial cum assignment can be given to analyze and design an identified software system.
- 2 Case Study of a Project-Work.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI**

- A) **SEMESTER** : **IV**
 B) **SUBJECT TITLE** : **Programming in Visual Basic**
 C) **CODE** : 222413 (22)
 D) **BRANCH/DISCIPLINE** : **Information Technology**
 E) **RATIONALE** :

This subject helps to understand 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.

F) TEACHING AND EXAMINATION SCHEME

Course Code	Periods/Week (In Hours) (Teaching Scheme)			Scheme of Examination						Credit L+ (T+P)/2
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
222413(22)	3	1	-	100	20	20	-	-	140	4
222422(22)	-	-	4	-	-	-	70	30	100	2

L : Lecture hours ; T : Tutorial hours; P : Practical hours

ESE – End of Semester Exam.; CT – Class Test; TA- Teacher’s Assessment

G) DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Chapter Name	Hours	Marks
1	Introduction to visual environment	6	8
2	Introduction to visual basic	6	10
3	Controls and events	8	15
4	Advance controls & events	8	13
5	Module, class module MDI, menu editor and graphics	12	18
6	Database and report generation	12	15
7	Introduction to ACTIVE - X controls	12	21
Total :		64	100

H) 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

D) 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 activeX 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.

J) SUGGESTED LEARNING RESOURCES

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

a)
Reference
Books

SUB
JEC
TITLE

:
Pro

gramming in Visual Basic Lab

Practical Code: 222422(22)
Hours: 64

LIST OF PRACTICALS

- ?? 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.

**CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY
BHILAI**

- A) **SEMESTER** : V
 B) **SUBJECT TITLE** : LINUX
 C) **CODE** : 233413 (22)
 D) **BRANCH/DISCIPLINE** : INFORMATION TECHNOLOGY
 E) **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.

F) TEACHING AND EXAMINATION SCHEME

Course Code	Periods/Week (In Hours) (Teaching Scheme)			Scheme of Examination						Credit L+(T+P)/2
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
233413(22)	3	1	-	100	10	20	-	-	130	4
233423(22)	-	-	4	-	-	-	50	20	70	2

L : Lecture hours ; T : Tutorial hours; P : Practical hours

ESE – End of Semester Exam.; CT – Class Test; TA- Teacher's Assessment

G) DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Chapter Name	Hours	Marks
1	Linux – operating system	6	14
2	Essential Linux Commands	12	18
3	Linux processes and other utilities	12	16
4	vi and Other Editors	10	16
5	Shell programming	14	20
6	Installation and system administration	10	16
Total		64	100

G) DETAILED COURSE CONTENT

CHAPTER - 1 LINUX – AN 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
 - Command language, Command structure, Shell
 - Windows, Icons , slide bars, title bars

CHAPTER – 2 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 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 file and directory
chmod, chown, chgrp
- ?? File processing commands
 - wc, head, tail, cut, paste join, split, sort, grep, egrep, tr, comm, cmp, diff, more, less
- ?? File formatting and printing commands
 - pr with all options, lp commands

CHAPTER – 3 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
- ?? 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 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

CHAPTER – 5 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

- Awk program structure
- use of \$0, \$1, \$2, etc . in Awk, if, for and while statement
- Relational operators
- built in functions
- use of arrays in Awk.

CHAPTER – 6 INSTALLATION AND SYSTEM ADMINISTRATION

?? Installation, Requirement

?? Linux file system

- Boot block, super block, inode table, data blocks
- Partitioning the hard disk for LINUX
- Installing 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
- ?? X-configuration , changing X settings
- ?? KDE and Gnome graphical interfaces

D) SUGGESTED IMPENTATION 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.

J) LEARNING RESOURCES SUGGESTED TO BE USED

a) Reference Books

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

K) LIST OF EXPERIMENTS

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

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

- A) **SEMESTER** : **IV**
 B) **COURSE** : **Graphics and Multimedia**
 C) **CODE** : **233414 (33)**
 D) **BRANCH/DISCIPLINE** : **Information Technology**
 E) **RATIONALE**

With the advent of personal computers, multimedia technology has become a powerful technology for instruction and communications. Today multimedia technology is used to develop computer-based presentation, training packages and e-commerce. This subject therefore aims to provide the required knowledge and skill in students that are required to develop this form of digital media.

F) TEACHING AND EXAMINATION SCHEME

Course Code	Periods/Week (In Hours) (Teaching Scheme)			Scheme of Examination						Credit $L+(T+P)/2$
	L	T	P	Theory			Practical		Total Marks	
				ESE	CT	TA	ESE	TA		
233414(33)	3	1	-	100	20	20	-	-	140	4
233424(22)	-	-	4	-	-	-	50	20	70	2

L : Lecture hours ; T : Tutorial hours; P : Practical hours

ESE – End of Semester Exam.; CT – Class Test; TA- Teacher’s Assessment

G) DISTRIBUTION OF MARKS AND HOURS

Chapter No.	Chapter Name	Hours	Marks
1.	Multimedia Technology and its Applications	8	10
2.	Text and its Processing Tools	8	12
3.	Images And Its Processing Tools	10	18
4.	Digital Sound, Its Capturing And Editing Tool	10	16
5.	Computer Animation, its basics and Developing Tools	10	18
6.	Digital Video, its Video Making Tool	10	16
7.	Multimedia Authoring	8	10
	Total	64	100

DETAILED CONTENT

CHAPTER - 1 MULTIMEDIA TECHNOLOGY AND ITS APPLICATIONS

?? Computer Technology and application of multimedia technology, Multimedia Technology and its different forms, Hardware, Software and manpower their skills required.

?? Stages of Multimedia:-Design, Plan, Content analysis, database design, Preparation of media elements, authoring & evaluation.

CHAPTER – 2 TEXT AND ITS PROCESSING TOOLS

?? Plain text and formatted text, Hyper Text Mark-up Language (html), conversion of text formats, object linking and embedding concept and Text preparation tools.

CHAPTER – 3 IMAGES AND ITS PROCESSING TOOLS

?? Types of Graphics- Vector and Raster

?? Attributes of Images - Resolutions, Images sizes, Pixel Depth, Colour, Compression of images and its affect to quality and storage size.

?? Image File Format, file formats conversions, Importance of compression techniques – RLW, LZW, & JPEG compression techniques. Processing Tools - Techniques of capturing images and converting images, Software tools for processing Images - such as ACAD, Paint Short Pro, Adobe PhotoShop.

?? Adobe Photoshop s/w - Create, Process and Print Graphics

CHAPTER – 4 DIGITAL SOUND ITS CAPTURING AND EDITING TOOLS

?? Digital sound and its Attributes - Sampling of Sound, Frequency, Sound Depth, Channels in sound and their effects on quality and storage size estimation of space of a sound file.

?? Format of Sound: Midi and MP3 files, WAV,CDA,

?? Method to Capture and edit sound – Capture sound using microphone, and process using Wave for Windows or Wave Studio.

CHAPTER-5 COMPUTER ANIMATION ITS BASICS AND DEVELOPING TOOLS

?? Animation & its basics, Its Principles of animation & its use in multimedia.

?? Use of Animation, Software for Animations, Effect of resolution, pixel depth, image size on quality and storage size, Types of Animations 2D&3D , Steps to create generic animations, Animation Techniques, Concept of key frame, tracing and path.

?? Basic Features of Animation Tools - Animator Pro, 3-D studio/Max.

CHAPTER-6 DIGITAL VIDEO AND VIDEO MAKING TOOLS

?? Basic of Video - Analog and Digital Video, Importance of Video Compressions, Computer System Configuration, Peripheral Required.

	?? Basic features of video editing and movie making tools - Video for window/Adobe premier
	?? Various Video File Format-MPEG,DAT
CHAPTER-7	MULTIMEDIA AUTHORIZING
	?? Studying and using authoring tools such as multimedia tool book, Authorware etc. distribution inn CD format.

II) SUGGESTED IMPLEMENTATION STRATEGIES

Teacher should explain multimedia technology and its application in IT industry. They should make the student work with some of the media processing tools in particular extensive practice may be given to create and process graphics using Adobe Photoshop 5.0, COREL Draw, and other video and audio editing tools.

L) SUGGESTED LEARNING RESOURCES

a) Reference Books

S. No.	Title	Author, Publisher & Address, Edition, Year of Publication,
1.	Multimedia- Making It Work	Tay Vaughan, Tata McaGraw-Hill, Fourth Edition, 1999
2.	Adobe Photoshop 7.0 classroom book	BPB Publication, Latest Edition
3.	Micromedia Flash MX- Visual, Quickstart Guide	Olrich BPL Publication, Latest Edition

Course: Graphics and Multimedia, Lab

Code :
233424 (22)
Hours: 64

LIST OF PRACTICALS/ DEMONSTRATIONS

- ??Work with Text Processing Tools like note-pad, MS- Word, MS-FrontPage
- ??Create, Process and Print Graphics using adobe Photoshop s/w.
- ?? Capture sound using microphone, and process using Wave for Windows or Wave Studio.
- ??Study basic features of animation tools like Animator Pro, 3-D studio/Max.
- ??Study basic features of video editing and movie making tools like Video for window/Adobe premier
- ??Work VCD cutter and VCD clipper.