SHIVAJI UNIVERSITY, KOLHAPUR - 416004,
MAHARASHTRA
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शिवाजी विद्यापीठ, कोल्हापूर -४१६००४,महाराष्ट्र
दूरध्वनी-ईपीएबीएक्स -२६०९०००, अभ्यासमंडळे विभाग दुरध्वनी ०२३१—२६०९०९४

Estd. 1962
"A++" Accredited by NAAC (2021)
With CGPA 3.52

Ref./SU/BOS/Com & Mgt./ 213 **Date : 10/04/2024**

To,

The Principal
All Affiliated (Commerce & Management) Colleges/ Institutions,
Shivaji University, Kolhapur

Subject : Regarding syllabi of B. Com. Part-I (CBCS) Information Technology (IT) (Sem. I & II) degree programme under the Faculty of Commerce & Management as per National Education Policy, 2020

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the University authorities have accepted and granted approval to the revised syllabi of **B. Com. Part-I Information Technology (IT) (Sem. I & II)** (CBCS) under the Faculty of Commerce & Management as per National Education Policy, 2020

This syllabi shall be implemented from the academic **year 2024-2025** onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in (Online Syllabus).

You are therefore, requested to bring this to the notice of all Students and Teachers concerned.

Thanking you,

Yours faithfully,

(Dr. S. M. Kubal)
Dy. Registrar

Encl : As above

Copy to,

1. Dean, Faculty of Commerce & Management
2. Chairman, BOS under Faculty of Commerce & Management

} for information

3. Director, BOEE
4. Appointment Section
5. P. G. Admission Section
6. B. Com. Section
7. Affiliation Section (U.G./P.G.)
8. Computer Center/I.T.
9. Eligibility Section
10. Distance Education
11. P.G. Seminer Section

} for information and necessary action.

SHIVAJI UNIVERSITY, KOLHAPUR.

Estd. 1962

NAAC "A++" Grade

Faculty of Commerce and Management

Syllabus For

B. Com. Part I (CBCS)

Information Technology (IT) (Sem I & II) NEP 2020

(To be implemented from June 2024 onwards)

(Subject to the modifications that will be made from time to time)

Faculty of Commerce and Management: Business Management

Structure: Four Year Multidisciplinary **Under Graduate B. Com. IT** Degree Programme (Honors and Research)

Credit Distribution Structure with Multiple Entry and Exit Options

Year and Level	**Semester**	**Major**		**Minor DSM** *(Choose any One from pool of courses from same Discipline)*	**OE (There are Two Baskets of GE)** *(Select One course from each Basket of other Disciplines or Faculty)*	**VSC, SEC, VSEC** *(Choose any One from pool of Major)*	**AEC, VEC, IKS**	**OJT, FP, CEP, CC, RP**	**Cumulative Credit Per Semester**	**Degree Per Cumulative Credit**
		Mandatory **DSC**	Elective **DSE** *(Choose any one from Pool of Courses)*							
1 4.5	I	DSC1(2) Programming in C Part-I DSC2:(2) Fundamentals of Information Technology DSC3(2) Lab on DSC1 and VSC1	--	--	OE1: (2) Micro Economics/ Marathi/ Hindi/ OE2: (2) Mathematics/ Statistics	VSC1: (2) Office Automation-I SEC1: (2) Computer Assembly and Troubleshooting Part- I	AEC1: (2) English for Business Communication P-I VEC1: (2) (Democracy, Good Governance IKS1(2)Ancient Indian Management:	CC 1: (2) (NSS/NCC/Sports/Culture/Health Wellness/Fitness/Yoga./Etc.	22	UG Certificate 44
	II	DSC4(2) Programming in C Part-II DSC5:(2) Operating System DSC6:(2) Lab on DSC4 and VSC2	--	DSM1:(2) Insurance	OE3: (2) Macro Economics/ Marathi/ Hindi OE4: (2) Mathematics/ Statistics	VSC2: (2) Office Automation-II SEC2: (2) Computer Assembly and Troubleshooting Part- II	AEC 2: (2) English for Business communication P-II VEC2: (2) (Env. Studies)	CC 2: (2) (NSS/NCC/Sports/Culture/Health Wellness/Fitness/Yoga Edu./Etc.	22	
	Cum. Cr	12	--	2	8	4 + 4 = 8	6+4 = 10	4	44	

Exit Option : Award of UG Certificate in Major with 44 credits and an additional 4 credits core NSQF course/Internship or Continue with Major and Minor										
2 5.0	III	DSC7: (2)Programming with C++ DSC8: (4) Accounting with Tally DSC9:(2) Lab on DSC7	--	DSM2: (4) Fundamental of Entrepreneurship	OE5: (2) Statistics P-I/ Rural Development P-I / Agricultural Economics P-I	VSC3: (2) Web Technology-I	AEC3: (2) Communication and Soft Skills P-I	FP1: (2) Field Project CC3: (2) (NSS/NCC/Sports/ Culture/Health Wellness/Fitness/Yoga Edu./Etc.	22	UG Diploma 88
	IV	DSC10: (2) DBMS DSC11: (4) Computer Networking DSC12:(2) Lab on DSC10	--	DSM3: (4) Money and financial system	OE6: (2) Statistics P-II/ Rural Development P-II /Agricultural Economics P-II	SEC3: (2) Web Technology-II	AEC4: (2) Communication and Soft Skills P-II	CEP1: (2) Community Engagement Project CC4: (2) (NSS/NCC/Sports/ Culture/Health Wellness/Fitness/Yoga./Etc.	22	
	Cum. Cr	28	--	10	12	12	14	12	88	
Exit Option : Award of UG Diploma in Major with 88 credits and an additional 4 credits core NSQF course/Internship or Continue with Major and Minor										
3 5.5	V	DSC13: (2) RDBMS DSC14: (4) System Analysis and Design DSC15:(2) Lab on DSC16 (2) Lab on DSC13	DSE1: (4) 1. Block Chain Technology 2.Web Application Security 4.Network Security	DSM4:(4) Co-operative Development DSM5: (2) Income tax	--	VSC4: (2) Web Technology-III	--	FP2/CEP2: (2) Field Project	22	UG Degree 132
	VI	DSC17: (4) Java Programming DSC18: (2) Foundations of Linux	DSE2: (4) 1. Data Centre Management 2. Data Warehousing 3. Design	DSM6: (4) Business Law	--	--	--	OJT1: (4) On Job Training	22	

		DSC19: (2) Lab on DSC17	Thinking and Innovation							
	Cum. Cr	46	8	20	12	14	14	18	132	
Exit Option : Award of UG Diploma in Major with 132 credits or Continue with Major and Minor										
4 6.0	VII	DSC20: (4) Web Technology using PHP DSC21: (4) Software Engineering and Project Management DSC22: (4) Emerging Trends in Information Technology DSC23: (2) Lab Work on DSC20	DSE3: (4) DSE1: Information Technology for Management (4) DSE2: Management Information System (4) DSE1: Strategic IT Management (4)	RM1: Research Methodology (4)	--	--	--	--	22	UG Honors Degree 176
	VIII	DSC24: (4) Introduction to Python Programming (4) DSC25: (4) Emerging trends in Web Technology(4) DSC26: (2) Lab Work based on DSC27 (2) Lab Work on DSC24	DSE4.1 Digital Marketing (4) DSE4.2: Financial Technologies (4) DSE4.3: Enterprise Resource Planning (4)	--	--	-	--	OJT2: (4) On Job Training	22	
	Cum. Cr	74	16	24	12	14	14	22	176	

Four Year UG Honours Degree in Major and Minor with 176 Credits										
4 6.0	VII	DSC20: (4) Web Technology using PHP DSC21: (4) Software Engineering and Project Management DSC22: (4) Emerging Trends in Information Technology DSC23: (2) Lab Work on DSC20	DSE3: (4) DSE1: Information Technology for Management (4) DSE2: Management Information System (4) DSE1: Strategic IT Management (4)	RM 1: (4) Research Methodology	--	--	--	RP1: (4) Research Project	22	UG Honors with Research Degree 176
	VIII	DSC24: (4) Introduction to Python Programming (4) DSC25: (4) Emerging trends in Web Technology(4) DSC26: (2) Lab Work based on DSC27 (2) Lab Work on DSC24	DSE4.1 Digital Marketing (4) DSE4.2: Financial Technologies (4) DSE4.3: Enterprise Resource Planning (4)	--	--	-	--	RP2: (8) Research Project	22	
	Cum. Cr	74	16	24	12	14	14	22	176	
Four Year UG Honours with Research Degree in Major and Minor with 176 Credits										

Abbreviations:

DEC - Discipline Specific Core (Major).DSE - Discipline Specific Elective (Major).DSM - Discipline Specific Minor (Minor). GE/OE- Generic/Other Elective. VSC- Vocational Skill Course.SEC - SkillEnhancement Course.VSEC - Vocational Skill and Skill Enhancement Course.AEC - Ability Enhancement Course.MIL - Modern Indian Languages.ISK - Indian Knowledge System.VEC- Value Education Course.CEP - Community Engagement and Service.CC - Co-Curricular Course.FP - Field Project.OJT - On the Job Training (Internship/Apprenticeship).RP- Research Project/Dissertation.RM - Research Methodology.

B.Com IT Part- I(Sem.-I)

Course Code:DSC1	Programming in C- Part I	Credits:02	Marks: 50
Course Outcomes	After completion of this course students will be able to – 1. Write, compile and debug C Programs. 2. Design programs involving decision structures, loops and functions.		
Unit No.	Descriptions		No. of Periods
1	**C Programming Basics:** Header and body, Use of comments. Interpreter vs compiler, Python vs C. Compilation of a program. Formatted I/O: printf(), scanf(). Data: Variables, Constants, data types like: int, float char, double and void, short and long size qualifiers, signed and unsigned qualifiers Variables: Declaring variables, scope of the variables according to block, hierarchy of data types. **Types of operators:** Arithmetic, relational, logical, compound assignment, increment and decrement, conditional or ternary, bitwise and comma operators. Precedence and order of evaluation, statements and Expressions.		15
2	**Control statements and Arrays:** (i) Branching: if statement, else.. if statement, (does the writer mean if-else or nested if, switch statement. (ii) Looping: while loop, do.. while, for loop. (iii) Jump statements: break, continue and goto. **Arrays:** (One and two dimensional), declaring array variables, initialization of arrays, accessing array elements. **Data Input and Output functions**: Character I/O format: getch(), getche(), getchar(), getc(), gets(), putchar(), putc(),puts(). Manipulating Strings: Declaring and initializing String variables, Character and string handling functions.		15
	Books Recommended: 1. Programming in ANSI C (Third Edition) : E Balagurusamy, TMH 2. Yashavant P. Kanetkar. " Let Us C", BPB Publications 3. Pradip Dey, Manas Ghosh, "Programming in C", second edition, Oxford University Press		

B.Com IT Part- I(Sem.-I)

Course Code: DSC2	**Fundamentals of Information Technology**	**Credits: 02**	**Marks : 50**
Course Outcomes	After completion of this course, the students will be able to- 1. Understand basic concepts of Information Technology and Computers 2. Understand Number systems and logic gates.		
UnitNo.	**Descriptions**		**No. of Periods**
1	**Introduction to Information Technology-** • Definition and meaning of Information Technology • Characteristics of Computer • Generation of computers • Types of computer • Block diagram • Input- output devices • Memory, types of memory • Storage devices		15
2	**Number Systems and Logic Gates**- Number System – • Definition • Types of Number System o Decimal number system (Base- 10) o Binary number system (Base- 2) o Octal number system (Base-8) o Hexadecimal number system (Base- 16) • Number System Conversion • Computer Codes - : BCD, EBCDIC, ASCII. • Logic gates & its types- ▪ OR Gate ▪ AND Gate ▪ NOT Gate ▪ XOR Gate		15
	Books Recommended: 1. Computer fundamentals by P.K.Sinha and Priti Sinha 2. Computer fundamentals by Rajaraman 3. Computer fundamentals, Architecture and Organization by B. Ram		

B.Com IT Part- I(Sem.-I)

Course Code: DSC 3	Lab Course –Based on DSC1 and VSC1	Credits: 02	Marks : 50
Course Outcomes	After completion of this course students will be able to - 1. Design and implement programs on C programming concepts. 2. Implement the Document creation and Presentation		
	List of Practical's:		
Sr. No.	**Description**		
1	Write a program to accept 5 subject marks and calculate total marks, percentageand grade of student.		
2	Write a program to input a number and find the given number is Odd or Even.		
3	Write a program to input the day number and display day of week.		
4	Write a program to find the sum of first n natural numbers.		
5	Write a program which display following output- A B C D E A B C D A B C A B A		
6	Write a program to accept the range and generate Fibonacci Series.		
7	Write a program to find given number is Armstrong or not.		
8	Write a program to find prime numbers between given range		
9	Write a program to sort the numbers in ascending and descending order using array.		
10	Write a program to add two Matrices; Use two Dimensional arrays		
11	**MS-Word** Creating & Editing Document		
12	Formatting Document :Use of Auto-text, Autocorrect, Spelling and Grammar Tool, Page Formatting, Page Border, Background,		
13	Creation of MS-Word-Mail Merge, Macros, Tables.		
14	Practice of Printing, page setup etc.		
15	Create file, folder, save and save as file in different format. Compress folder and file,search file on computer		
16	**MS_POWER POINT**: Preparing slide show with animation		
17	Creating a new Presentation based on a template – using Auto content wizard, design template and Plain blank presentation and applies Transition – Automatic and Manual with different effects.		
18	Creating a Presentation applying Custom Animation effects – Applying multiple effects to the same object and changing to a different effect and removing effects.		
19	Creating and Printing handouts.		
20	Creating, Manipulating & Enhancing Slides,		

B.Com IT Part- I(Sem.-I)

Course Code: VSC1	Office Automation-I	Credits: 02	Marks : 50
Course Outcomes	After completion of this course students will be able to – 1) Understand the office automation and formatting tools in Office automation. 2) Prepare presentation using Power point application.		
Unit No	**Descriptions**		No. of Periods
1	**INTRODUCTION TO OFFICE AUTOMATION**: Elements of Office Suit & Area of Use. Benefits of Office Suites, Types of Users that Use Office Suites, Features Offered by Office Suite Software. **INTRODUCTION TO MS WORD :** Introduction to MS Word, Opening & Saving files, Editing text documents, Inserting, Deleting, Cut, Copy, Paste, Undo, Redo, Find, Search, Replace, Formatting page & setting Margins, Importing & Exporting documents, Sending files to others, Using Tool bars, Ruler, Using Icons, using help, Formatting Documents, Type face, Line Space, Margins, Bullets & Numbering. Setting Page style, Shortcut Keys, Setting Document styles, Table of Contents, Index, Page Numbering, date & Time, Author etc., Creating Tables- Table settings, Borders, Alignments, Insertion, deletion, Merging, Splitting, Sorting, and Formula, Drawing - Inserting ClipArts, Pictures/Files etc., Tools – Word Completion, Spell Checks, Mail merge, Templates, Creating Letter/Faxes.		15
2	**INTRODUCTION TO MS POWER POINT:** Introduction to presentation – Opening new presentation, Different presentation templates, Setting backgrounds, Selecting presentation layouts. Creating a presentation - Setting Presentation style, Formatting a Presentation - Adding style, Color, gradient fills, Arranging objects, Adding Header & Footer, Slide Background, Slide layout. Adding Graphics to the Presentation Inserting pictures, movies, tables etc. Adding Effects to the Presentation- Setting Animation & transition effect. Printing Handouts.		15
	BOOKS RECOMMENDED: 1. Microsoft Office Step by Step Beth Melton, Mark Dodge , Published with the authorization of Microsoft Corporation by: O"Reilly Media. 2. Office 2013 Bible: The Comprehensive Tutorial Resource Paperback – by Lisa A. Bucki (Author), John Walkenbach (Author), Michael Alexander. 3. Learning Microsoft Office 2013 by Ramesh Bangia, Khanna Publishers. 4. Microsoft Office 2010 Bible - John 5. Introduction to Information Technology - Alexis Leon, Mathews Leon, and Leena Leon, Vijay Nicole Imprints Pvt. Ltd., 2013. **6. Websites:** http://windows.microsoft.com/en-in/windows/msoffice-basics-alltopics		

B.Com IT Part- I(Sem.-I)

Course Code: SEC1	Computer Assembly & Troubleshooting-I	Credits: 02	Marks : 50
Course Outcomes	After completion of this course, the students will be able to- 1) Understand the assembly of Personal Computers. 2) Identify the basic techniques of troubleshooting of Personal Computers.		
UnitNo.	**Descriptions**		**No. of Periods**
1	**Motherboard and Processor**: Study of different types of Motherboards, Motherboard Configuration, Identifying Internal and External connectors, Types of data cables, **Types of Processor.**		15
2	**Diagnostic and troubleshooting of PC**: POST (Power on Self Test), Identifying problems by Beep codes errors. BIOS Configuration: Study of BIOS Set-up, Boot configuration, Boot Men, **Types of Memories**: Troubleshooting problems.		15
	Books Recommended: 1. PC Assembly and Installation, Dr. Tariq Hussain Sheikh, Naresh Kumar, Booksclinic Publishing. 2. PC Repair and Troubleshooting Guide, Mark Edward Soper, BPB Publications 3. Book Of PC Assembling by VISHNU P. SINGH 4. Computer Hardware: Installation, Interfacing, Troubleshooting and Maintenance, James, K. L. PHI Learning		

B.Com IT Part- I(Sem.-II)

Course Code: DSC4	Programming in C- Part II	Credits:02	Marks:50
Course Outcomes	After completion of this course students will be able to – 1. Understand the use of pointers and functions. 2. Design and develop different data structures and create/update basic data files.		
Unit No.	**Descriptions**		**No. of Periods**
1	**Functions and Pointers:** Function declaration, function definition, Global and local variables, return statement, Calling a function by passing values. Recursion: Definition, Recursive functions. **Pointers:** Fundamentals, Pointer variables, Referencing and de-referencing, Pointer Arithmetic, Using Pointers with Arrays, Using Pointers with Strings, Array of Pointers		**15**
2	**Structures and File Handling:** Declaration of structure, reading and assignment of structure variables, Array of structures, arrays within structures, structures within structures. union, differentiate between structure & union. **File handling:** Different types of files like text and binary, Different types of functions: fopen(), fclose(), fgetc(), fputc(), fgets(), fputs(), fscanf(), fprintf(), getw(), putw(), fread(), fwrite(), fseek().		**15**
	Books Recommended: 1. Programming in ANSI C (Third Edition) : E Balagurusamy, TMH 2. Yashavant P. Kanetkar. " Let Us C", BPB Publications 3. Pradip Dey, Manas Ghosh, "Programming in C", second edition, Oxford University Press		

B.Com IT Part- I(Sem.-II)

Course Code: **DSC-5**	**Operating System**	Credits: **2**	Marks:**50**
Course Outcomes	After completion of this course students will be able to – 1. Understand the fundamental concepts and functions of operating systems. 2. Implement and manage file systems, understand security principles, and perform system maintenance tasks.		
Unit No	**Descriptions**		**No. of Lecture**
1	**Introduction to Operating System:** Definition and functions of an operating system, Evolution of operating systems, Types of operating systems: Batch, Time-Sharing, Real-Time, Distributed, Operating System Structure, Monolithic Kernel vs. Microkernel, Layered Architecture, Hybrid Systems. **Process Management:** Processes and threads, Process states and life cycle, Process scheduling algorithms, Inter-process communication (IPC) **Memory Management:** Memory hierarchy, Virtual memory concepts, Page replacement algorithms, Memory allocation strategies		15
2	**File Systems and Security:** File system concepts and organization, File operations: Create, Read, Write, Delete, File attributes and permissions, Directory structures **File System Implementation** File allocation methods, Directory implementation, Disk management and optimization, File system recovery and consistency **Security and Protection** Security threats and vulnerabilities, Authentication and authorization Access control mechanisms, Encryption and decryption, Backup and recovery procedures.		15
	Books Recommended: 1. "Operating System Concepts" by Abraham Silberschatz, Peter B. Galvin, and Greg Gagne 2. "Modern Operating Systems" by Andrew S. Tanenbaum and Herbert Bos 3. "Operating Systems: Internals and Design Principles" by William Stallings 4. "Operating System Principles" by Gary Nutt		

B.Com IT Part- I(Sem.-II)

Course Code: DSC 6	Lab Course –Based on DSC 4 and VSC2	Credits: 02	Marks : 50
Course Outcomes	After completion of this course students will be able to – 1. Design and implement programs on arrays and functions. 2. Implement MS-Excel worksheets and MS-Access database concepts.		
	List of Practical's:		
Sr. No.	**Description**		
1	Write a program to find the product of given two matrices.		
2	Write a function which adds three number and display output on the screen.		
3	Write a function which calculate cube of given number.		
4	Write a program which swap two number using a) call by value and b)call by reference.t		
5	Write a program which create student structure which accept stud rollno ,student name, address ,subject marks ,percentage and display same on screen.		
6	Write a program to separate even and odd numbers available in file.		
7	Write a program to count the no. of words in a given text file.		
8	Write a program to remove blank lines from a file.		
9	Write a program to copy content of one file into another file.		
10	Write a file handling program which accept student information store it into disk file using binary mode.		
11	**MS-Excel** Creating & Editing Worksheet, Fill Handle		
12	Use Formulas and Functions		
13	Preparing Charts		
14	Use of different Formulae's and function		
15	Sorting, Filtering, Graphs		
16	**MS Access** Write procedure for creating database in MS-Access.		
17	Establish relationship between tables and write steps for it.		
18	Generate form in MS-Access and write steps in detail.		
19	Create reports using different queries based on multiple tables and write steps in detail for it.		
20	Lab assignment based on Case Studies a) Library system: b) HR Management System c) Inventory Management System Design normalized data structures with appropriate constraints. (at least 5 tables for each system), Design forms, Create different query using query wizard, Create at least 3 reports using report wizard (at least 5 records)		

B.Com IT Part- I(Sem.-II)

Course Code: VSC2	**Office Automation-II**	Credits: 02	Marks : 50
Course Outcomes	After completion of this course students will be able to – 1) Understand the MS-Excel and working with Spreadsheet. 2) Understand the MS-Access and working with tables and forms.		
Unit No	**Descriptions**		No. of Periods
1	**INTRODUCTION TO MS EXCEL:** Introduction to MS Excel, Features, Creating a New Worksheet, Entering and Editing Text & Numbers, Entering and Editing Formulas, Referencing Cells, Moving Cells, Copying Cells, Sorting Cell Data, Inserting Rows, Columns, Inserting Cells, Deleting Parts of a Worksheet, Auto Format, Changing Font Sizes and Attributes, Using Border Buttons and Commands, Changing Colors and Shading, Hiding Rows and Columns. Function in Spreadsheet, Date and Time, Statistical, Text. Spread sheet Charts, Creating, Printing & Deleting Charts, Linking in Spreadsheet. Spreadsheet Graphics: Creating and Placing Graphic Objects, Resizing Graphics,		15
2	**INTRODUCTION TO MS ACCESS:** Introduction to Access**,** **Getting Started with Access:** Introduction to Database Templates, Creating, Saving, Opening and Closing Databases. **Working with Tables :** Data types, Creating a Table and Adding Fields, Indexing, Primary Keys and Adding Records, Using the Lookup Wizard to Create a Drop-down List, Adding Numeric Fields and Setting Data Validation Rules. **Datasheet View:** Working in Datasheet View, Sorting and Filtering in Datasheet View, Entering and Modifying Data in Datasheet View. **Creating Relationships:** Relationships, Creating a Link Table, Setting Up Relationships, Editing the Link Table. **Working with Forms:** Creating a Form with Wizard, **Queries:** Creating a Query - Query Design, Understanding Joins, Creating a Query. **Reports:** Basic Reports, Report Design.		15
	BOOKS RECOMMENDED: 1. Excel 2016 for Dummies - Greg Harvey 2. Excel 2016 Bible - John Walkenbach 3. Building financial models with Microsoft Excel - K. Scott Proctor 4. Mary Anne Poatsy; Eric Cameron; Robert Grauer Exploring Microsoft Office Access 2016 Comprehensive Pearson 1st/E 5. KEVIN KELLY, CO-FOUNDER OF "Access2013 the missing manual®" WIRED Matthew MacDonald OREILLY.		

B.Com IT Part- I(Sem.-II)

Course Code: SEC2	**Computer Assembly & Troubleshooting-II**	**Credits: 02**	**Marks : 50**
Course Outcomes	After completion of this course, the students will be able to- 1. Understand the Hard disk set-up and Installation process. 2. Identify the configuration and troubleshooting of external devices.		
UnitNo.	**Descriptions**		**No. of Periods**
1	**Hard Disk Set-up and Installation:** Formatting of Hard disk, Partitioning of Hard disk in different logical drives, Installation of different operating systems. **Troubleshooting of Hard Disk**: Disk defragmentation, Disk clean up, Scan disk utility.		15
2	**Unit 2: Configuration of External devices**: Physical set-up of different types of Printers, Performing test print out, Printing of document, Scanner set-up, Webcam set-up, Bluetooth device set-up, **Troubleshooting of External devices:** Troubleshooting printer and scanner problems.		15
	Books Recommended: 1. PC Assembly and Installation, Dr. Tariq Hussain Sheikh, Naresh Kumar, Books clinic Publishing. 2. PC Repair and Troubleshooting Guide, Mark Edward Soper, BPB Publications 3. Book Of PC Assembling by VISHNU P. SINGH 4. Computer Hardware: Installation, Interfacing, Troubleshooting and Maintenance, James, K. L. PHI Learning		