



MAHARASHTRA INSTITUTE OF TECHNOLOGY, AURANGABD
An Autonomous Institute Affiliated to Dr. Babasaheb
Ambedkar Marathwada University, Aurangabad,
Maharashtra (India)

Syllabus of Bachelor of Vocation

In

Software Development

Under Choice Based Credit System (CBCS)

Under Faculty of Science and Technology

(Effective from 2022-23 and onwards)

Curriculum for B. Voc Software Development

NSQF Level -5				Semester -I						
Sr. No.	Course Code	Course Title	Credit	Contact Hr/Wk		Evaluation Scheme				ESE hour
				L	P	MSE	TA	ESE	Total	
Theory										
1.	VSD101	IT Foundation and Programming Concepts	3	3	-	10	15	25	50	1.5
2.	VSD102	Professional Communication	3	3	-	10	15	25	50	1.5
3.	VSD103	Programming in C++	3	3	-	10	15	25	50	1.5
4.	VSD104	Operating System (OS)	3	3	-	10	15	25	50	1.5
Lab/Practical										
5.	VSD121	Professional Communication Lab	1.5	-	2	-	25	25	50	-
6.	VSD122	C++ Programming Lab	1.5	-	2	-	25	25	50	-
On Job Training (OJT)/Qualification Packs*										
7.	VSD131	Allied skill Sector Council Qualification Pack /Job role - NSQF level 5	15	-	7-8 weeks	--	50	150	200	-

*Any one On-Job-Training as per guidelines of AICTE & SSC for the given skill sets for 150 Marks External Assessment by NSDC/SSC

NSQF Level -5				Semester -II						
Sr. No.	Course Code	Course Title	Credit	Contact Hr/Wk		Evaluation Scheme				ESE hour
				L	P	MSE	TA	ESE	Total	
Theory										
1.	VSD151	Web Designing	3	3	-	10	15	25	50	1.5
2.	VSD152	Object Oriented Modelling and Design	3	3	-	10	15	25	50	1.5
3.	VSD153	Core Java	3	3	-	10	15	25	50	1.5
4.	VSD154	Linux Operating System – Operations and Management	3	3	-	10	15	25	50	1.5
Lab/Practical										
5.	VSD171	Web Designing Lab	1.5	-	2	-	25	25	50	-
6.	VSD172	Core Java Lab	1.5	-	2	-	25	25	50	-
On Job Training (OJT)/Qualification Packs*										
7.	VSD181	Allied skill Sector Council Qualification Pack /Job role - NSQF level 5	15	-	7-8 weeks	--	50	150	200	-

*Any one On-Job-Training as per guidelines of AICTE & SSC for the given skill sets for 150 Marks External Assessment by NSDC/SSC

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Curriculum for B. Voc Software Development

NSQF Level -6										Semester -I
Sr. No.	Course Code	Course Title	Credit	Contact Hr/Wk		Evaluation Scheme				ESE hour
				L	P	MSE	TA	ESE	Total	
Theory										
1.	VSD201	Software Engineering	3	3	-	10	15	25	50	1.5
2.	VSD202	Relational Database Management System	3	3	-	10	15	25	50	1.5
3.	VSD203	Advanced Java Programming	3	3	-	10	15	25	50	1.5
4.	VSD204	Window Configuration and Server Administration	3	3	-	10	15	25	50	1.5
Lab/Practical										
5.	VSD221	Relational Database Management System Lab	1.5	-	2		25	25	50	-
6.	VSD222	Advanced Java Programming Lab	1.5	-	2		25	25	50	-
On Job Training (OJT)/Qualification Packs*										
7.	VSD231	Allied skill Sector Council Qualification Pack /Job role - NSQF level 6	15	-	7-8 weeks	--	50	150	200	-

*Any one On-Job-Training as per guidelines of AICTE & SSC for the given skill sets for 150 Marks External Assessment by NSDC/SSC

NSQF Level -6										Semester -II
Sr. No.	Course Code	Course Title	Credit	Contact Hr/Wk		Evaluation Scheme				ESE hour
				L	P	MSE	TA	ESE	Total	
Theory										
1.	VSD251	Software Testing and Project Management	3	3	-	10	15	25	50	1.5
2.	VSD252	Android Application Development	3	3	-	10	15	25	50	1.5
3.	VSD253	Web Development using PHP	3	3	-	10	15	25	50	1.5
4.	VSD254	Cyber Security	3	3	-	10	15	25	50	1.5
Lab/Practical										
5.	VSD271	Android Application Development Lab	1.5	-	2	-	25	25	50	-
6.	VSD272	Web Development using PHP Lab	1.5	-	2	-	25	25	50	-
On Job Training (OJT)/Qualification Packs*										
7.	VSD281	Allied skill Sector Council Qualification Pack /Job role - NSQF level 6	15	-	7-8 weeks	--	50	150	200	-

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Curriculum for B. Voc Software Development

NSQF Level -7										Semester -I
Sr. No.	Course Code	Course Title	Credit	Contact Hr/Wk		Evaluation Scheme				ESE hour
				L	P	MSE	TA	ESE	Total	
Theory										
1.	VSD301	Introduction to AI & Data Mining	3	3	-	10	15	25	50	1.5
2.	VSD302	Advanced PHP	3	3	-	10	15	25	50	1.5
3.	VSD303	Management Information Systems	3	3	-	10	15	25	50	1.5
4.	VSD304	Introduction to Python Programming	3	3	-	10	15	25	50	1.5
Lab/Practical										
5.	VSD321	Advanced PHP Lab	1.5	-	2 *	-	25	25	50	-
6.	VSD322	Introduction to Python Programming Lab	1.5	-	2	-	25	25	50	-
On Job Training (OJT)/Qualification Packs*										
7.	VSD331	Allied skill Sector Council Qualification Pack /Job role - NSQF level 7	15	-	7-8 weeks	--	50	150	200	-

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NSQF Level -7										Semester -II
Sr. No.	Course Code	Course Title	Credit	Contact Hr/Wk		Evaluation Scheme				ESE hour
				L	P	MSE	TA	ESE	Total	
Theory										
1.	VSD351	Current Computing Trends	3	3	-	10	15	25	50	1.5
2.	VSD352	Cloud Computing	3	3	-	10	15	25	50	1.5
Lab/Practical										
3.	VSD371	Project	9	-	4	-	100	100	200	-
On Job Training (OJT)/Qualification Packs*										
4.	VSD381	Allied skill Sector Council Qualification Pack /Job role - NSQF level 7	15	-	7-8 weeks	--	50	150	200	-

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B. Voc. (Software Development)

NSQF Level-5		VSD101: IT Foundation and Programming Concepts		Semester-I	
Teaching Scheme		Examination Scheme			
Lectures	03 hrs/Week	MSE	10 Marks		
Practical	-	TA	15 Marks		
Credits	03	ESE	25 Marks		
		Duration of ESE	1.5 hours		
Course Outcomes (CO)					
Students will be able to					
1.	Learn functional units; classify types of computers, data representation and coding systems.				
2.	Understand the concept of input, output and memory devices of computers.				
3.	Design an algorithm and flowcharts.				
Unit	Course Content				Hours
Unit 1	Computer System Characteristics And Capability Basic structure, ALU, memory, CPU, I/O devices. Development of computers. Classification of computers:(Micro, mini frame, super computer, pc, server, workstations)				06
Unit 2	Data Representation With in Computer BIT, BYTE, WORD, ASCII, EBCDIC, BCD Code. Introduction to Number system: Binary, Octal, Decimal and Hexadecimal. Conversation from one number system to another number system. Introduction to Basic Gates.				06
Unit 3	Input Devices and Output Devices Keyboard, Direct Entry: Card readers, scanning devices (BAR CODE, OMR, MICR), Voice input devices, Light pen, Mouse, Touch Screen, Digitizer, scanner. CRT, LCD/TFT, Dot matrix printer, Inkjet printer, Drum plotter, Flatbed plotter				06
Unit 4	Memory Devices RAM, ROM, PROM, EPROM, EEPROM. - Base memory, extended memory, expanded memory, Cache memory - Storage devices Tape, FDD, HDD, CDROM, Pen Drive.				06
Unit 5	Algorithm & Flowcharts Definition and properties, Principles of flowcharting, Flowcharting symbols, Converting algorithms to flowchart				06
Text/Reference Books					
Sr. No.	Book	Author	Publisher		
1	Computers And Commonsense	R. Hunt And Shell Y.	Prentice Hall, Third Edition,2018		
2.	Fundamentals of Computers	V.Rajaraman	PHI Learning, Sixth Edition 2015		
3.	Fundamentals of Computer Systems	Ashok Arora	Vikas Publication 2015		

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NSQF Level-5		VSD102-Professional Communication		Semester-I	
Teaching Scheme			Examination Scheme		
Lectures	03 hrs/Week		MSE	10 Marks	
Practical	-		TA	15 Marks	
Credits	03		ESE	25 Marks	
			Duration of ESE	1.5 hours	
Course Outcomes (CO)					
Students will be able to					
1.	To develop vital communication skills of students, integral to their personal, social and professional interactions.				
2.	To prepare students to use language effectively to face interviews, group discussions, public speaking.				
3.	To apply Verbal and Non-Verbal Communication Techniques in the Professional Environment				
Unit	Course Content				Hours
Unit 1	Remedial English Grammar and Usage Parts of Speech, Articles, Tenses, Modals, Prepositions, Concord (Agreement of the Verb with the Subject), Error Analysis (Correction of Errors in each sentence - errors in the use of words-errors in punctuation)				06
Unit 2	Communication skills and its importance for professionals. Definition, Nature, Importance and Scope of Communication, Elements of the Communication Process, Types of Communication Kinesics, Proxemics, Haptics, Artifacts, Timelanguage, Silence, Tips for Improving Non-Verbal Communication				06
Unit 3	Listening Skills & Reading Skills Purpose of Listening, Listening to Conversation (Formal and Informal), Active Listening- an Effective Listening Skill, Barriers to Listening, Benefits of Effective Listening, Reading Skills Purpose, Process, Methodologies, Skimming and Scanning, Levels of Reading, Reading Comprehension, Academic Reading Tips				06
Unit 4	Effective Writing Skills Elements of Effective Writing (What is writing?), The Sentence, Phrases and Clauses, Types of Sentences, Paragraph Writing (Linkage and Cohesion), Letter Writing (formal and informal), Notices, Drafting an E-mail, Preparing a CV/Resume				06
Unit 5	Presentation Skills Preparing & presenting a presentation, Greeting and introducing, Group Discussions, Preparing for and Facing a Job Interview				06
Text/Reference Books					
Sr. No.	Book	Author	Publisher		
1	A University Grammar of English	Randolph Quirk & Sidney Greenbaun			
2.	Technical Communication	Meenakshi Raman and Sangeetha Sharma,	Oxford University Press, New Delhi. 2008.		
3.	Effective Technical Communication,	M. Ashraf Rizvi	Tata McGraw-Hill, New Delhi, 2005.		

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G. S. Mandal's Maharashtra Institute of Technology, Aurangabad. (An Autonomous Institute) B.Voc. (Software Development)			
NSQF Level-5	VSD103 : Programming in C++		Semester-I
Teaching Scheme		Examination Scheme	
Lectures	03 hrs/Week	MSE	10 Marks
Practical	-	TA	15 Marks
Total Credits	03	ESE	25 Marks
		Duration of ESE	1.5 hours
Course Outcomes (CO) Students will be able to			
1.	Design computer programs that implements programming skills		
2.	Design, write and test programs that make appropriate use of advanced techniques of C++ (such as encapsulation, inheritance, polymorphism, exception handling etc.)		
Unit	Course Content		Hours
Unit 1	Introduction to C++: Characteristics of Object Oriented Programming. C++ basics: History, Keywords, Constant, Variables, Data types, Operators, Output with cout, Input with cin, Preprocessor directives, Cascading and Manipulators. Decisions and Loops Statements: Decision making statements - if, if-else, nested if-else and switch. Looping statements - while, for, do-while and nested loops. Loop control statements - break, continue.		06
Unit 2	Array and Function : Array - Definition, Declaration, Initialization, Accessing array elements .One dimensional and Two dimensional arrays, Character array, Pointer, Function - Defining function, Declaring function, Function calling Function arguments - Pass by value and Pass by reference, Recursion		06
Unit 3	Classes and Objects: Class, Object, Array of objects, Static class members, Object as function argument and returning object, Static class members, Friend function, Inline function, Function overloading, Constructor and Destructor.		06
Unit 4	Inheritance and Polymorphism: Concept of Inheritance, Derived class and Base class, Inheritance types, Virtual base class, Containership. Polymorphism –Introduction, Types of polymorphism, Virtual function, Pure virtual function, Abstract class		06
Unit 5	Exception Handling and File I/O: Simple exceptions, Multiple exceptions, File I/O – Streams, Stream class hierarchy, Character I/O, Object I/O, Command Line arguments		06
Reference Book			
Sr. No.	Book	Author	Publisher
1	Let Us C++	Yashavant Kanetkar	BPB publications
2.	ObjectOrientedProgrammingInC++	Robert Lafore	Galgotia
3.	Mastering C++	K.R. Venugopal	Tata McGraw Hill
Digital Reference			
1. https://nptel.ac.in/courses/106105151			
2. https://spoken-tutorial.org(C and CPP, Advance CPP)			

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NSQF Level-5		VSD104: Operating System		Semester-I	
Teaching Scheme			Examination Scheme		
Lectures	03 hrs/Week	MSE		10 Marks	
Practical	-	TA		15 Marks	
Total Credits	03	ESE		25 Marks	
		Duration of ESE		1.5 hours	
Course Outcomes (CO)					
Students will be able to					
1.	Understand the Fundamental operating system.				
2.	Understand the concept of critical section problem and classical problem.				
3.	Understand the concept of memory management and file system.				
Unit	Course Content				Hours
Unit 1	Introduction: What is an operating system? History of operating system, Different types of operating systems, Systems Calls and Theirs types.				03
Unit 2	Process & Thread: Processes, PCB, Process States, Threads & TCB, difference and Similarities in Threads and Process. Inter-process communication, CPU scheduling.				06
Unit 3	Process Synchronization & deadlocks: Critical Section Problems & Semaphores, Classical Problems of process Synchronization, Introduction to deadlocks, Deadlock detection and recovery, Deadlock avoidance, Deadlock prevention, issues.				07
Unit 4	Memory Management: Address Spaces and Address Translation, Swapping & memory allocation, Paging & Segmentation, Virtual Memory & Demand Paging, Page Replacement Algorithm.				06
Unit 5	File & Disk Management: File Systems: Files, directories, file system & Directories implementation, file-system management and optimization, File Allocation Methods Disk Structure, Disk Scheduling Algorithm (FCFS, RAID, Network Operating System, Real Time Operating System, Distributed Operating System.)				08
Reference Book					
Sr. No.	Book	Author	Publisher		
1	Operating System	Dhamdhare	McGraw Hill education 2006, 2nd Edition		
2.	Operating system principle	Silberschatz, Galvin Gagne	Wiley & sons 2006, 7 th Edition		

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NSQF Level -5		VSD121 Professional Communication Lab		Semester-I	
Teaching Scheme		Examination Scheme			
Practical	2 Hours/week	TA	25 Marks		
Credits	1.5	ESE/PE	25 Marks		
Sr.No.	List of Experiments				
1	Revision of various English tenses and practice of construction of sentences in tenses				
2	Introduction to phonemic symbols for practice of good pronunciation.				
3	Introduction of oneself in formal situations.				
4	Story writing & delivering it by using appropriate expressions.				
5	Listening activities and exercises.				
6	Book Review (a review on any book in the form of PPT slides)				
7	Group discussion practice for formal interview process				
8	Formal presentation preparation and delivery techniques.				
9	Personal Interview etiquettes and techniques.				
10	Preparation of resume & cover letter and email communication manners.				

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NSQF Level -5		VSD122: C++ Programming Lab		Semester-I	
Teaching Scheme				Examination Scheme	
Practical	2 Hours/week			TA	25 Marks
Credits	1.5			ESE/PE	25 Marks
Sr.No.	List of Experiments				
1	Introduction to Linux C++ environment & basic C++ programs using cin&cout.				
2	Program to demonstrate the use of decision making statements				
3	Program to demonstrate the use of looping statements				
4	Program to demonstrate the use of arrays				
5	Program based on Function (Friend function, Function overloading, Inline function)				
6	Program based on class and objects, Program based on Constructor and Destructor				
7	Program based on Inheritance (Different types of inheritance, Virtual base class, Containership)				
8	Program based on Polymorphism (Virtual function, Abstract class etc.)				
9	Program based on Exception handling				
10	Program based on File I/O and Command Line Arguments				

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NSQF Level -5	On Job Training/Qualification Packs*		Semester-I
Teaching Scheme		Examination Scheme	
Practical	7-8 weeks	TA	50 Marks
Credits	15	ESE/PE	150 Marks
VSD131	Allied skill Sector Council Qualification Pack /Job role - NSQF level 5		
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NSQF Level-5		VSD151: Web Designing		Semester-II	
Teaching Scheme			Examination Scheme		
Lectures	03 hrs/Week	MSE	10 Marks		
Practical	-	TA	15 Marks		
Total Credits	03	ESE	25 Marks		
		Duration of ESE	1.5 hours		

Course Outcomes (CO)

Students will be able to

1. Understand, analyse and apply HTML, CSS, JavaScript, Bootstrap and protocols in working of web applications.
2. Build static web pages and validate using JavaScript.
3. Conceptualize, design and implement a working, medium sized project individually or in a team

Unit	Course Content	Hours
Unit 1	Introduction: Brief History of Internet, World Wide Web, What is HTML, HTML Documents, Basic structure of an HTML document, Creating anHTML document, Markup Tags, Heading-Paragraphs, Line Breaks, Introduction toelements of HTML, Working with Text, Working with Lists, Tables and Frames, Working with Hyperlinks, Images and Multimedia, Working with Forms and controls.	06
Unit 2	Introduction to Cascading Style Sheets : Concept of CSS, CSS Selectors,CSS types, Creating Style Sheet, CSS Properties, CSS Styling-Background, TextFormat ,Controlling Fonts, Shapes, Border, Position, z-index, overflow etc., Working with block elements and objects, Working withLists and TablesCSS Color	06
Unit 3	Java Script: Java script Basics, Java script Events, Java script conditions and loop control structures, Alert, Prompt and Confirm statements, Java script validation	06
Unit 4	Introduction to Bootstrap: History, Fundamentals of Bootstrap, Bootstrap Grid System, Bootstrap Form and Form Components, Introduction Jquery, Element Selector, document.ready function, Events, Event handling with Html or Bootstrap components.	07
Unit 5	Introduction to Web Publishing or Hosting: Creating the Web Site, Saving the site, Working on the website, Creating web sitestructure, Themes-Publishing web sites.	05

Reference Book

Sr. No	Book	Author	Publisher
1.	HTML 5 in simple steps	Kogent Learning Solutions Inc.	Dreamtech Press
2.	Creating a Web Page and Web Site	Murray, Tom/Lynchburg	College,2002
3.	Web Designing & Architecture- Educational Technology Centre	R.S.Khurmi	University of Buffalo
4.	HTML, XHTML, and CSS Bible, 5ed	Steven M. Schafer	Wiley India
5.	Beginning HTML, XHTML, CSS, and JavaScript	John Duckett	Wiley India
6.	Beginning CSS: Cascading Style Sheets for Web Design	Ian Pouncey, Richard York	Wiley India

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NSQF Level-5		VSD152: Object Oriented Modeling and Design		Semester-II	
Teaching Scheme		Examination Scheme			
Lectures	03 hrs/Week	MSE	10 Marks		
Practical	-	TA	15 Marks		
Total Credits	03	ESE	25 Marks		
		Duration of ESE	1.5 hours		
Course Outcomes (CO)					
Students will be able to					
1.	Understand importance of modelling using principles.				
2.	Understand object, class, object modeling and class modeling.				
3.	Understand advanced behaviour modeling and Architectural modeling				
Unit	Course Content				Hours
Unit 1	Importance of Modeling Object Orientation, Object Oriented Development and Themes - OO methodology, Three Models Modeling as Design techniques - Brief overview of OMT by Rumbaugh, Importance of Modeling, Four principles of Modeling Introducing the UML – overview, conceptual model, architecture, software development lifecycle				06
Unit 2	Class Modeling Object and Class Concepts, Objects, Classes, Class Diagrams, Values and Attributes, Operations and Methods, Link and Association concepts -Links and Associations, Multiplicity , Aggregation and Object Modeling, Multiplicity, Aggregation, Propagation of operations, Metadata and Constraints-Metadata, Constraints on objects and links, Object modeling , Object instances				06
Unit 3	Basic Behavioral Modeling Use case Diagram, Notations for Use case diagram – use cases, Actors, Communication lines, System boundaries, Use case relationships - Include and extend, Sample use case diagrams, Sequence Diagrams, Notations for Sequence diagram – Objects / Participants, Time, events, Activation Bars , signals , message arrows, synchronous and asynchronous messages, return message, create and destroy message				06
Unit 4	Advanced Behavioral Modeling Activity Diagram, Notations for Activity Diagram - Actions and Activity nodes, initialization and completion, Decisions. Sample Activity Diagram, State Diagram, Notations for State diagram - initial state, final state, transitions and conditions, activity, event, Nested state diagram, concurrent / composite state diagram ,Sample state diagram				06
Unit 5	Architectural modeling Component Diagram, Notations for component Diagram - component and interfaces, ports, connectors, Sample Component Diagram, Deployment Diagram Notations for Deployment diagram - nodes, artifacts , node, instances, communication between nodes, Sample Deployment diagram				06
Reference Book					
Sr. No.	Book	Author	Publisher		

1	Object oriented modeling and design with UML 2.0 (second edition)	Blaha and Rumbaugh	Pearson
2.	Learning UML 2.0	Miles and Hamilton	SPD O'REILLY
3.	The unified modeling language user guide (second edition)	Booch, Rumbaugh, Jacobson	Pearson education

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B.Voc. (Software Development)

NSQF Level-5		VSD153: Core Java		Semester-II	
Teaching Scheme		Examination Scheme			
Lectures	03 hrs/Week	MSE	10 Marks		
Practical	-	TA	15 Marks		
Total Credits	03	ESE	25 Marks		
		Duration of ESE	1.5 hours		
Course Outcomes (CO)					
Students will be able to					
1.	Analyse basics of Java and also implements object oriented concepts				
2.	Implement well designed applications in AWT, Swing and Applet using event handling				
Unit	Course Content				Hours
Unit 1	Basics of Java: History of java, Characteristics of java, JVM, JDK, Programming Structure and naming conventions, Variables and Data types, Operators, Decision and Looping Statements, Arrays and Strings				06
Unit 2	Object Oriented Programming with Java: Class and Object, Access modifiers, Methods, Static variables and static methods, Overloading methods, Passing and returning object as argument, Constructors. Inheritance: Use of inheritance, IS-A, HAS-A, USES-A relationship, Method overriding, Super keyword and Final keyword, Abstract classes and methods, Packages, Interfaces				06
Unit 3	Exception handling and Multithreading: Exceptions and their types, Handling exceptions, Use of Multithread programming, Thread class and Runnable interface, Thread priority, Thread synchronization				06
Unit 4	File handling and JDBC: Stream classes, Class hierarchy, Creation of text file, Reading and writing text files, JDBC Architecture, JDBC Drivers, Java Database Connectivity using JDBC				06
Unit 5	GUI Applications: Applets and its life cycle, Graphics Class, AWT, Layout managers, Event handling classes and interfaces, SWING and Its Components				06
Reference Book					
Sr. No.	Book	Author	Publisher		
1	Let Us Java	Yashavant Kanetkar	BPB publications		
2.	Java™: The Complete Reference	Herbert Schildt	Tata McGraw Hill		
3.	Core Java Vol I	Cay S Horstmann, Fary Cornell	Sun Microsystems Press		
Digital Reference					
1. https://nptel.ac.in/courses/106/105/106105191/					
2. www.spoken-tutorial.org (NMEICT IIT Bombay Java videos)					

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B.Voc. (Software Development)			
NSQF Level-5		VSD154: Linux Operating System – Operations and Management	
Semester-II			
Teaching Scheme		Examination Scheme	
Lectures	03 hrs/Week	MSE	10 Marks
Practical	-	TA	15 Marks
Credits	03	ESE	25 Marks
		Duration of ESE	1.5 hours
Course Outcomes (CO)			
Students will be able to			
1.	Explain the structure of the Linux operating system and establish user accounts and permissions.		
2.	Use Linux commands to manage files and file systems and create and execute shell scripts.		
3.	Configure basic Linux network services.		
Unit	Course Content		Hours
Unit 1	Linux Introduction: Linux introduction and file system - Basic Features, Advantages, Installing requirement, Basic Architecture of Unix/Linux system, Kernel, Shell. How Linux access files, storage files, Linux standard directories, Commands for files and directories cd, ls, cp, md, rm, mkdir, rmdir, more, less, creating and viewing files, using cat, file comparisons, View files, Disk related commands, checking disk free spaces.		06
Unit 2	Partitioning the Hard drive for Linux, Installing the Linux system, System startup and shut-down. Essential Linux commands Understanding shells, Processes in Linux process fundamentals, connecting processes with pipes, redirecting input output, manual help, Background processing, managing multiple processes, batch commands, kill, ps, who, sleep, Printing commands,		06
Unit 3	grep, fgrep, find, sort, Cal, banner, touch, file, file related commands-ws, sat, cut, grep, dd, etc. Mathematical commands- bc, expr, factor, units. vi, joe, vim editor. Shell programming Basic of shell programming, Various types of shell, shell programming in bash, conditional and looping statements, case statements, parameter passing and arguments, Shell variables, shell keywords.		06
Unit 4	System administration Common administrative tasks, identifying administrative files – configuration and log files, Role of system administrator, Managing user accounts-adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, becoming super user using su. Getting system information - host name, disk partitions & sizes, users, kernel. Backup and restore files, linux conf.		06
Unit 5	Basic networking administration Setting up a LAN using Linux, choosing peer to peer vs client/server model, setting up an Ethernet LAN, configuring host computers, checking Ethernet connecting, connecting to internet, administration in a networked environment, common networking administrative tasks, the network file system, configuring Ethernet, initializing Ethernet Interface, ifconfig, netstat and netconfig commands a TCP/IP networks.		06
Text/Reference Books			

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Sr. No.	Book	Author	Publisher
1	Linux Complete command reference	Dean Henrichsme ye	Sams Publishing
2.	The Linux Command line	William E. Shotts	Second Internet Edition

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Maharashtra Institute of Technology, Aurangabad.

(An Autonomous Institute)

B.Voc. (Software Development)

NSQF Level-5		VSD171: Web Designing Lab		Semester-II	
Teaching Scheme		Examination Scheme			
Practical	2 Hours/week	TA	25 Marks		
Credits	1.5	ESE/PE	25 Marks		
Sr.No.	List of Experiments				
1	Introduction to HTML Tags :- Working of Web browser, Introduction to static Web pages and dynamic web pages, HTML body structure, HTML Tags:- Elements, Attribute, Heading tag, Paragraph tag, Formatting tags (Bold text, Underline text, Italic text, Strikthrough text Subscripts, Superscripts), Background color, image, font color, effects, Table tag List.				
2	Advance HTML tags :- Frames iframes, anchor tag, Multimedia				
3	Create Static Website by using all HTML Tags.				
4	Introduction to Internal CSS				
5	Introduction to External CSS				
6	HTML Form tags(Elements, Attributes, properties, etc)				
7	Introduction to JAVA Script(Programming basics)				
8	Advance JAVA Script programming basics(Alert,Confirm,prompt) and Validations.				
9	Create 3 Web page using Bootstrap framework use bootstrap table, image and form elements etc.				
10	Create the web page using JQuery effects, events on different elements				

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G. S. Mandal's
Maharashtra Institute of Technology, Aurangabad.
 (An Autonomous Institute)
B.Voc. (Software Development)

NSQF Level -5		VSD172: Core Java Lab		Semester-II	
Teaching Scheme		Examination Scheme			
Practical	2 Hours/week	TA	25 Marks		
Credits	1.5	ESE/PE	25 Marks		
Sr.No.	List of Experiments				
1	Program to demonstrate conditional and looping statements				
2	Program to demonstrate class, object and methods with various access modifiers				
3	Program to demonstrate constructor and its types				
4	Program to demonstrate the use of arrays				
5	Program based on Inheritance and types of inheritance				
6	Program based on Packages and Interfaces				
7	Program to implement Exception Handling using try, catch				
8	Program to demonstrate creating threads using Thread class and Runnable Interface				
9	Program to perform CRUD operations using JDBC				
10	Design a GUI interface using Applet/AWT/Swing and implement event handling.				

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G. S. Mandal's

Maharashtra Institute of Technology, Aurangabad.
(An Autonomous Institute)
B.Voc. (Software Development)

NSQF Level -5		On Job Training/Qualification Packs*		Semester-II	
Teaching Scheme				Examination Scheme	
Practical	7-8 weeks			TA	50 Marks
Credits	15			ESE/PE	150 Marks
VSD181	Allied skill Sector Council Qualification Pack /Job role - NSQF level 5				
*Any one On-Job-Training as per guidelines of AICTE & SSC for the given skill sets for 150 Marks External Assessment by NSDC/SSC					

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