



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 2023-24 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	-	

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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	-

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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	-

*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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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-6		VSD201: Software Engineering		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.	Understand software life cycle models and have knowledge of different phases of software life cycle.				
2.	Develop project plan and control it during the software development cycle.				
3.	Understand Analysis and Design Management principles.				
Unit	Course Content				Hours
Unit 1	Software Software Characteristics, Components & Applications, Software Engineering - A Layered Technology, Software Process Models - Linear Sequential Model, Prototype & Rad Model. Evolutionary Software Process Model – Incremental Model and Spiral Model.				06
Unit 2	Software Project Management Project Management Concepts – People Problem and Process S/W process and Project Metrics: Metrics in The Process and Project Domains. Software Measurement fundamental concepts –Size Oriented, Function Oriented Metrics, Extended Function.				06
Unit 3	Software Project Planning Objectives, Scope, Project Estimation, Project Decompositions, and Empirical Estimation Models. Software Project Estimation: Work Breakdown structure (WBS), steps in WBS, Measuring efforts for a project, techniques for estimation – SLOC, FP, COCOMO and Delphi methods.				06
Unit 4	Analysis Concept And Principles Requirement Analysis, Communication Techniques, Analysis Principles, Software Prototyping, Specifications. Analysis Modelling: Elements of the Analysis Modelling, Data Modelling, Functional Modelling and Information Flow, Behavioral Modeling, Data Dictionary.				06
Unit 5	Design Concepts And Principles Design Process, Design Concepts, Design Principles, Effective Modular Design. Design Methods: Architectural Design Process, Transform Mapping and Transaction Mapping, Interface Design, - Internal and External Design, Human Computer Interface Design, Interface Design Guidelines, Procedural Design.				06
Text/Reference Books					
Sr. No.	Book	Author	Publisher		
1	Software Engineering: A Practitioner's Approach	Rogger S. Pressman	McGraw Hill Publication		
2.	Software Engineering	N.S. Gill	Khanna Publishing House		
3.	Software Engineering	R.P. Mahapatra	Khanna Publishing House		

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B.Voc. (Software Development)

NSQF Level-6		VSD202- Relational Database Management System		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.	Understand the basic principles of database management systems				
2.	Understand Data model and Query optimization.				
3.	Create solutions using SQL				
Unit	Course Content				Hours
Unit 1	Database System Concept An Introduction to database - Data, DBMS , Application of database. Introduction to RDBMS, Characteristics of RDBMS , DBMS Vs. File System Advantages and Disadvantages of RDBMS, Data abstraction, Database languages, Introduction to client server architecture, Two/Three tier Architecture, Database Users, Functions of Database Administrator				06
Unit 2	Relational Data Model , Security And Integrity Specification Data Model- Network Model, Hierarchical Model and Relational Model. Relational Model: - Basic Concepts Attributes and Domains. Key Concepts: - Candidate key, Primary key, Foreign key and Super key. E-R model, Types of attributes. Integrity Constraints-Domain Integrity Constraints, Entity integrity Constraints, Referential Integrity Constraints. Database Security. Database Design: Relational database, Normal forms: 1NF, 2NF, 3NF, BCNF.				06
Unit 3	Query Processing and Optimization Query Processing and Optimization: Evaluation of Relational Algebra Expressions, Query Equivalence, Join strategies, Query Optimization Algorithms.				06
Unit 4	Introduction to SQL Introduction to SQL, Data Types in SQL, DDL Commands, DML Commands. SQL Operators, Aggregate Functions , DCL Commands: GRANT and REVOKE, TCL Commands: COMMIT, SAVEPOINT and ROLLBACK, Sub queries and Joins, Concept of Views and Indexes, Triggers				06
Unit 5	Transaction Management The concept of Transaction, ACID properties, States of Transaction, Concurrency Control Concepts, Concept of Deadlocks				06
Text/Reference Books					
Sr. No.	Book	Author		Publisher	
1	Database System Concepts	Silberschatz, Sudershan	Korth,	McGraw-Hill Education	
2.	Fundamentals of Database System	Elmasari & Navathe		Pearson Education	
3.	An introduction to Database System	Bipin Desai		Galgotia Publications	

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B.Voc. (Software Development)

NSQF Level-6		VSD203 : Advanced Java Programming		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.	Learn to create AWT Controls, Components and Event Handling.				
2.	Understand the concept of File handling and Database Connectivity.				
3.	Design Dynamic Web Pages using JSP & Servlet.				
Unit	Course Content				Hours
Unit 1	Introduction To Abstract Windowing Toolkit (AWT) & Swing Component, container, window, frame, panel. AWT controls & layout managers:- Understanding the use of AWT controls. Introduction to swing :- Swing features, MVC Architecture				06
Unit 2	Event Handling The delegation Event Model, Event sources, Event listeners, Event classes. The Action Event class, The Component Event class, the Container Event class. Event listener interfaces , The Action Listener Interface, the Component Listener Interface, the Container Listener Interface, the Focus Listener Interface.				06
Unit 3	Serialization and Collection Object Serialization Basics, Deserialization of the Java object, transient Keyword, Collection framework, Collection interfaces and classes.				06
Unit 4	Java Database Connectivity JDBC introduction, JDBC architecture, JDBC drivers, JDBC interfaces with examples, Connection Class, JDBC connectivity steps with example. Security with Java: Package, Permission class and Policy class				06
Unit 5	Servlets & JSP Servlets: Web terminologies, Web Application Basics, Brief HTML review, Servlet Overview, Servlet Life Cycle, Handling GET and POST requests, RequestDispatcher interface, Session Management JSP : JSP expression, directives& declarations, Life cycle of a JSP page TLD & JSTL, Java beans				06
Reference Book					
Sr. No.	Book	Author	Publisher		
1	Java 2 (JDK 5 Edition)	Steven Holzner et	DreamTech		
2.	Java™: The Complete Reference	Herbert Schildt	Tata McGraw Hill		
3.	Java EE	Ravi Majithia	Himalaya Publishing House		

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B.Voc. (Software Development)

NSQF Level-6		VSD204: Window Configuration and Server Administration		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.	Learn Windows services and windows application.				
2.	Understand the concept of network basics and working with disk storage.				
3.	Understand the concept of DNS and DHCP server.				
Unit	Course Content				Hours
Unit 1	Windows Application Windows 10: Installing, upgrading and migrating to Window 10, Deploying Windows 10, Configuring disk and device drivers, Configuring, file access and printers on Window 10 client.				03
Unit 2	Network basics Transmission media, Install UTP(Straight, Cross, Rollover Cables), IP Addressing, Subletting, Wireless Network, Network Devices, Server Installation Drivers, Working with windows server Devices, Troubleshooting Devices & Drivers, Managing system updates.				06
Unit 3	Working With Disk Storage Type of Disk Storage, Type of volumes, Implementing fault tolerance, Use disk management tools, Disk Quota, Troubleshooting disk management, Shadow copy, Domain Controller: Install Active Directory , Manage Active Directory Component , Working with OU Structure, Working				07
Unit 4	DNS & DHCP Define Name resolution, Install DNS, Configure DNS Client , Manage and Troubleshoot DNS , Configure DNS Server , Working With Super Scope, Configure DHCP Client , Manage and Troubleshoot DHCP Server.				06
Unit 5	Backup and Restore Requirement for Backup and Recovery AD, Issue for AD Backup and Recovery, Steps for Backup and Recovery AD.				08
Reference Book					
Sr. No.	Book	Author	Publisher		
1.	Windows 10 Troubleshooting	Mike Halsey	Apress		
2.	Installing and Configuring Windows	Andrew Bettany, Andrew Warren	Pearson Education		
3.	Windows 10 Step by Step	Joan Lambert, Steve Lambert	Pearson Education		

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B.Voc. (Software Development)

NSQF Level -6		VSD221 Relational Database Management System Lab		Semester-I	
Teaching Scheme		Examination Scheme			
Practical	2 Hours/week	TA		25 Marks	
Credits	1.5	ESE/PE		25 Marks	
List of Experiments					
Sr.No.					
1	Create minimum set of six tables using following constraints: a) Primary key b) Foreign key c) Not Null d) Check e) Unique f) On delete/update cascade g) Default				
2	Use Alter, drop and truncate command on above created table				
3	Insert minimum ten records in each of the above created tables and comment on the constraints specified. Use delete, update and select commands on created records.				
4	Execute Grant and Revoke commands on created tables.				
5	Execute SQL queries using Aggregate functions on above tables a) count b) sum c) min d) max e) avg . Use group by and having clause				
6	SQL Queries based on joins (on above created tables):a) Natural Join b) Left Outer Join c) Right Outer Join d) Full Outer Join				
7	SQL Queries based on Nested Queries				
8	SQL Queries based on Views				
9	Indexing : a. Insert large number of records in the above created schema. Then record the time taken by the Query to insert the data. b. Find the Query plan for any two queries which have where clause. c. Now create index on un-indexed attribute.				
10	Assignment based on Triggers				

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B.Voc. (Software Development)

NSQF Level -6		VSD222: Advanced Java Programming Lab		Semester-I	
Teaching Scheme				Examination Scheme	
Practical	2 Hours/week			TA	25 Marks
Credits	1.5			ESE/PE	25 Marks
List of Experiments					
Sr.No.					
1	Develop a program to create resizable frame with the label "Login ID " and a frame with title, Login Page.				
2	Develop a program to create three Radio button once user click on button background color will change such as "red", "green", "blue".				
3	Develop a program of Event Handling .				
4	Develop a program to serialize and deserialize the object				
5	Write program to implement ArrayList and LinkedList by implementing Collection framework.				
6	Write program to insert, delete, update and fetch records from database using JDBC (CRUD Operations).				
7	Write program to create own servlet by implementing Servlet interface.				
8	Write program to create servlet by inheriting HttpServlet class.				
9	Write program to create login and logout form by using JSP.				
10	Mini Project Work				

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NSQF Level -6		On Job Training/Qualification Packs*		Semester-I	
Teaching Scheme				Examination Scheme	
Practical	7-8 weeks			TA	50 Marks
Credits	15			ESE/PE	150 Marks
VSD231	Allied skill Sector Council Qualification Pack /Job role - NSQF level 6				
*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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B.Voc. (Software Development)

NSQF Level-6		VSD251: Software Testing and Project Management		Semester-II	
Teaching Scheme			Examination Scheme		
Lectures	03 hrs/Week	MSE	10 Marks	TA	15 Marks
Practical	-	ESE	25 Marks	Duration of ESE	1.5 hours
Total Credits	03				
Course Outcomes (CO)					
Students will be able to					
1.	Learn testing basics and types of Testing.				
2.	Understand the Testing techniques and tools.				
3.	Understand Software Project Management.				
Unit	Course Content				Hours
Unit 1	Testing basics and Development Models Principals and context of testing in software production, Usability and Accessibility Testing, Phases of Software Project, Process models to represents different phases, Software Quality Control and its relation with testing, validating and verification.				06
Unit 2	White and Black Box Testing White Box Testing: White Box Testing - Static Testing, Structural Testing-Unit code functional testing, Code coverage testing, code complexity testing, Black Box Testing- What? Why and when to do Black box testing, Requirements based testing, Positive and Negative Testing, Boundary value testing, Decision Tables, Equivalence Partitioning, State Based or Graph Based Testing, Compatibility Testing				06
Unit 3	Integration, System and Acceptance Testing Integration Testing: Introduction and types of integration testing, Scenario testing, defect bash. System and Acceptance Testing- Overview, functional and non-functional testing, Acceptance testing. Overview of some software testing tools: WinRunner, LoadRunner, Test Director. (Some practical should be conducted using these tools)				06
Unit 4	Performance and Adhoc Testing Performance Testing- Introduction, factors related to performance testing, methodology for performing testing, Regression Testing, Ad hoc Testing- Overview, Buddy & pair testing, Exploratory testing, Interactive testing, Agile and extreme testing. Testing of Object OrientedTesting – Introduction, Differences in OO testing.				07
Unit 5	Software Project Management Software Project Management: Overview, Software Project Management Framework, Software Development life cycle, Organization Issues and Project Management, Managing Processes, Project Execution, Problems in Software Projects, Project Management Myths and its clarifications. Project Scheduling: Scheduling and its need, scheduling basics, Gant Chart, Network scheduling techniques, PERT and CPM				05
Reference Book					
Sr. No	Book	Author	Publisher		
1.	Software testing tools	Boris Bezier	Dreamtech Publication		
2.	Software testing	Ron Patton	Tech Publications		
3.	Software Engineering: Practitioner's Approach	Rogger S. Pressman	McGraw Hill Publication.		
4.	Testing Computer Software	CemKener	Van Nostrand Publications		

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G. S. Mandal's Maharashtra Institute of Technology, Aurangabad. (An Autonomous Institute) B.Voc. (Software Development)					
NSQF Level-6		VSD252: Android Application Development		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 basic of Android Application Development.				
2.	Learn Android Interface and Controls.				
3.	Learn Android Components, Location and Maps.				
Unit	Course Content				Hours
Unit 1	Introduction to Android Introduction to Android, Smartphone's features, Preparing the Environment, Installing the SDK, Creating Android Emulator, Installing Android Development Tools, Android versions, Android Architecture, Android Stack, Android applications structure.				06
Unit 2	Android Interface Creating a project, working with the AndroidManifest.xml, Using the log system Activities. Introduction to UI – Layouts, Fragments, Adapters, Action bar, Dialogs, Notifications, UI best practices UI Architecture, Application context, Intents, Activity life cycle, supporting multiple screen sizes.				06
Unit 3	Android Controls Designing User Interface Using Views – Basic Views- Text View, Button, Image Button, Check Box, Toggle Button, Radio Button etc., Progress Bar View and Auto Complete Text View, Time Picker and Date Picker View, List View, Image View, Image Switcher and Grid View, Digital Clock & Analog Clock Views Notification and Toast, Parameters, on Intents, Pending intents, Status bar notifications, Toast notifications.				06
Unit 4	Android Components Menus, Localization, Options menu, Context menu Dialogs-Alert dialog, Custom dialog, Dialog as Activity Orientation and Movement- Pitch, roll and yaw, Natural device orientation, working with Media –Playing audio and video, Recording audio and video				06
Unit 5	Android Location & Maps Location and Maps - Google maps, Using GPS to find current location Working with data storage - Shared preferences, Preferences activity, Files access, Using External storage, SQLite database.				06
Reference Book					
Sr. No.	Book	Author	Publisher		
1	Android Programming for Beginners	John Horton	Packt Publishing		
2.	Android App Development for Dummies	Michael Burton	Wiley Publication		
3.	Learning Android	Ramesh Bangia	Khanna Publishing House		

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B.Voc. (Software Development)

NSQF Level-6		VSD253: Web Development Using PHP		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.	Familiarizes with the WWW, Client – Server Roles, XAM PP Installation, PHP Fundamentals.				
2.	Gain the knowledge of PHP Arrays, PHP Functions.				
3.	Learn about the Database Basics, Connectivity of PHP with MY-SQL.				
4.	Learn about PHP Forms, PHP Cookies, PHP Sessions, PHP String Handling.				
Unit	Course Content				Hours
Unit 1	Introduction to PHP Overview of PHP, Advantages of PHP, Evaluation of PHP, Basic Syntax, Defining variable and constant, PHP Data types, Operators and Expressions.				06
Unit 2	Handling HTML Form With PHP Working with forms, form elements (Text Box, Text Area, Password, Radio Button, Checkbox, The Combo Box, Hidden Field and image etc.), Capturing Form Data, Dealing with Multi-value filed, Generating File uploaded form, Redirecting a form after submission.				06
Unit 3	Decisions and loop Decision Making, Repetitive task with looping, Combining Decision making and looping with HTML.				06
Unit 4	Function and Array What is a function, Define a function, Call by value and Call by reference, Recursive function. Introduction to Array, Creating index based and Associative array, Accessing array Element, Looping with Index based array, Looping with associative array using each() and foreach()				06
Unit 5	Database Connectivity with MySql Introduction to RDBMS, Connection with MySql Database, Performing basic database operation(DML) (Insert, Delete, Update, Select), Setting query parameter, Executing query, JOIN(Cross joins, Inner joins, Outer Joins, Self joins.)				06
Reference Book					
Sr. No.	Book	Author	Publisher		
1	Mastering PHP	Web Tech Solutions	Khanna Publishing House		
2.	Learning PHP	Ramesh Bangia	Khanna Publishing House		

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G. S. Mandal's Maharashtra Institute of Technology, Aurangabad. (An Autonomous Institute) B.Voc. (Software Development)					
NSQF Level-6		VSD254: Cyber Security		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.	Understand basic concept of cyber security.				
2.	Understand the various tools and methods used in cybercrime.				
3.	Analyze the cyber security needs of an organization.				
Unit	Course Content				Hours
Unit 1	Basics of Network Internet, Web, Types of web - Surface web, deep web and dark web, OSI Model and TCP/IP Model, Network Devices - Router, Brouter, Switch, Hub, Bridge, Repeater, Gateway and NIC, Network terminologies - IP IPv4 and IPv6, MAC address, Address mapping (ARP, RARP), DNS and DHCP				06
Unit 2	Introduction to Cyber Security Cyber Security- Introduction, Importance, Types - Network security, Application security, Information security, Mobile Security and Cloud Security, CIA Model				06
Unit 3	Cyber Threats Cyber Threats - Social engineering, Password Cracking, Malware - Virus, Worm, Spyware, Adware, Key logger; Ransomware, Botnet, DoS attack, DDoS attack, spoofing, Phishing, Pharming attack, SQL Injection, Buffer Over Flow, Man-in-the-middle attack, format string attacks, Cross site Scripting(XSS) and Identity Theft				06
Unit 4	Cyber Security Tools Cyber Security Tools - Firewall, Antivirus, VPN, Routine Updates PKI Services, Managed Detection and Response Service, Penetration Testing and Awareness				06
Unit 5	Ethical Hacking Hacking, Ethical Hacking, Phases of Ethical Hacking - Reconnaissance, Scanning, Gaining Access, Maintaining Access and Clearing Track, Hacker, Types of hacker - white hat hacker, gray hat hacker and black hat hacker, Skills Required to Become an Ethical Hacker Ethical hacking tools - NMAP, Metasploit, Burp Suit, Angry IP Scanner, Cain & Abel, Ettercap, EtherPeek, SuperScan, QualysGuard, WebInspect, LC4, LANguard Network Security Scanner and Network Stumbler				06
Text/Reference Books					
Sr. No.	Book	Author	Publisher		
1	9 Steps to Cyber Security The Manager's Information Security Strategy Manual	Dejan Kosutic	Advisera Expert Solutions		
2.	Introduction to Cyber Security	Anil Shinde	Notion Press		
3.	Fundamentals of Cyber Security	Mayank Bhushan, Rajkumar Singh Rathode, Aatif Jamshed	BPB Publications		

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G. S. Mandal's

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

NSQF Level-6		VSD271: Android Application Development 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	Write an application which will print "Hello World!"				
2	Write an application that uses UI Layout and Control.				
3	Write an application that makes use of Style & Themes.				
4	Write an application that uses Event Handling.				
5	Write an application that uses Alarm, Notification.				
6	Write an application that uses Menu.				
7	Write an application that shows the use animation.				
8	Write an application that shows the use of Image Effects.				
9	Write an application that shows the use Image Switcher.				
10	Write an application that shows the use of database.				

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Chairman Board of Studies
Vocational Education
MIT, Chh. Sambhajinagar-431010
(An Autonomous Institute)

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

NSQF Level -6		VSD272: Web Development using PHP Lab		Semester-II	
Teaching Scheme		Examination Scheme			
Practical	2 Hours/week	TA	25 Marks		
Credits	1.5	ESE/PE	25 Marks		
List of Experiments					
1	Write a PHP program to input and output value or text.				
2	Write a PHP program to demonstrate the use of conditions.				
3	Write a PHP program to demonstrate the use of loop control structures.				
4	Write a PHP program to demonstrate the use of switch statement.				
5	Write a PHP program to demonstrate the use of arrays.				
6	Write a PHP program to demonstrate the use of date and time functions.				
7	Write a PHP program to demonstrate the use of mathematical and string functions.				
8	Write a PHP program to demonstrate the use of session and cookies.				
9	Create the database using MYSQL or others and Write a PHP program to connect to database.				
10	Write a PHP program to insert, delete, update and query to the database table.				
11	Based on above program demonstrations create a Mini Project: To Design the web pages use bootstrap or similar technologies. To make web page interactive and transactional use PHP and MySql or any other database. Each student must do his/her own project independently.				

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G. S. Mandal's

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

NSQF Level -6		On Job Training/Qualification Packs*		Semester-II	
Teaching Scheme				Examination Scheme	
Practical	7-8 weeks			TA	50 Marks
Credits	15			ESE/PE	150 Marks
VSD281	Allied skill Sector Council Qualification Pack /Job role - NSQF level 6				
*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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