॥ सा विद्या या विमुक्तये ॥

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

'ज्ञानतीर्थ', विष्णुपुरी, नांदेड – ४३१ ६०६ (महाराष्ट्र राज्य) भारत

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

'Dnyanteerth', Vishnupuri, Nanded - 431 606 (Maharashtra State) INDIA

Established on 17th September, 1994, Recognized By the UGC U/s 2(f) and 12(B), NAAC Re-accredited with'B++' grade

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विज्ञान व तंत्रज्ञान विद्याशाखे अंतर्गत राष्ट्रीय शैक्षणिक धोरण २०२० नुसार पदवी द्वितीय वर्षाचे अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२५–२६ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, दिनांक २७ मे २०२५ रोजी संपन्न झालेल्या मा. विद्यापरिषद बैठकीतील विषय क्रमांक १६/६१–२०२५ च्या ठरावानुसार विज्ञान व तंत्रज्ञान विद्याशाखेतील राष्ट्रीय शैक्षणिक धोरण–२०२० नुसारचे पदवी द्वितीय वर्षाचे अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२५–२६ पासून लागू करण्यास मा. विद्यापरिषदेने मान्यता प्रदान केली आहे. त्यानुसार विज्ञान व तंत्रज्ञान विद्याशाखेतील बी. एस्सी द्वितीय वर्षाचे खालील विषयाचे अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२५–२६ पासून लागू करण्यात येत आहेत.

01	B.Sc. Computer Management (Single Major)
02	B.Sc. Information Technology (Single Major)
03	B.Sc. Software Engineering (Single Major)
04	B.Sc. Computer Network Technology (Single Major)
05	B.Sc. Computer Science (Single Major)
06	B.Sc. Artificial Intelligence & Machine Learning (Single Major)
07	B.Sc. BCA (Single Major)
08	B.Sc. Computer Maintenance
09	B.Sc. Computer Science
10	B.Sc. Information Technology
11	B. Sc. Computer Application
12	B. Sc. Software Development
13	B. Sc. Data Science
14	B. Sc. Computer Science (with data Science specialization)

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या **www.srtmun.ac.in** या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी, ही विनंती.

'ज्ञानतीर्थ' परिसर,
विष्णुपुरी, नांदेड – ४३१ ६०६.
जा.क्र.:शै–१/एनइपी/विवत्रंविपदवी/२०२५–२६/126
दिनांक १२.०६.२०२५

सहाय्यक कुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

प्रत : माहितीस्तव तथा कार्यवाहीस्तव.

१) मा. कुलगुरू महोदयांचे कार्यलय, प्रस्तुत विद्यापीठ.
२) मा. प्र. कुलगुरू महोदयांचे कार्यलय, प्रस्तुत विद्यापीठ.
३) मा. आधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.
४) मा. संचालक, परीक्षा व मुंल्यमापन मंडळ, प्रस्तुत विद्यापीठ.
५) मा. प्राचार्य, सर्व संबधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
६) सिस्टीम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ. याना देवून कळविण्यात येते की, परिपत्रक अभ्यासक्रम संकेतस्थळावर प्रसिध्द करण्यात यावेत.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED - 431 606 (MS)

(Credit Framework and Structure of

B. Sc. Computer Science (Single Major)

Second Year

with Multiple Entry and Exit Options as per NEP-2020)

UNDERGRADUATE PROGRAMME OF SCIENCE & TECHNOLOGY

Major in **CSC** and Minor in **DSM** (Subject)

Under the Faculty of Science & Technology

(Revised as per the Govt. Of Maharashtra circular dt. 13th March 2024)

(As per NEP-2020)

Swami Ramanand Teerth Marathwada University, Nanded

Faculty of Science and Technology (Three Optional in the First Year)

Credit Framework for Second Year with Multiple Entry and Exit

Subject: CSC (Major) /DSM (Minor 1)

B.Sc. Computer Science (Single Major) Second Year

Year & Level	Semester	Optional 1 (Major) *(From the same Faculty)*	Optional 2 (Minor 1) *(From the same Faculty)*	Optional 3 (Minor 2) *(From the same Faculty)*	Generic Elective (GE) (select from Basket 3 of *Faculties other than Science and Technology*)	Vocational & Skill Enhancement Course	Ability Enhancement Course (AEC) (Basket 4) Value Education Courses (VEC) / Indian Knowledge System (IKS) (Basket 5) *(Common across all faculties)*	Field Work / Project/Internship/ OJT/ Apprenticeship / Case Study Or Co-curricular Courses (CCC) (Basket 6 for CCC) *(Common across all faculties)*	Credits	Total Credits
1	2	3	4	5	6	7	8	9	10	11
2 (5.0)	III	SCSCCT1201 (T 2Cr) SCSCCT1202 (T 2Cr) SCSCCP1203 (P 2Cr) SCSCCP1204 (P 2Cr) 8 Credits	SCSCMT1201 (T 2Cr) SCSCMP1201 (P 2Cr) 4 Credits	--	SCSCGE1201 2 Credits	SCSCSC1201 2 Credits	AECENG1201 (2cr) AECMIL1201 (2Cr) (MAR/HIN/URD /KAN/PAL) 4 Credits	CCC(2Cr) (NCC/NSS/SPT/ CLS/ HWS/YGE/FIT) 2Credits	22	44
	IV	SCSCCT1251 (T 2Cr) SCSCCT1252 (T 2Cr) SCSCCP1253 (P 2Cr) SCSCCP1254 (P 2Cr) 8 Credits	SCSCMT1251 (T 2Cr) SCSCMP1251 (P 2Cr) 4 Credits	--	SCSCGE1251 2 Credits	SCSCVC1251 2 Credits	AECENG1251 (2cr) AECMIL1251 (2Cr) (MAR/HIN/URD /KAN/PAL) VECEVS1251 (2Cr) 6 Credits	----	22	
	Cum. Cr.	16	08	00	04	04	10	02	44	

Abbreviations:

1. **DSC:** Department/Discipline Specific Core (Major)
2. **DSE:** Department/Discipline Specific Elective (Major)
3. **DSM:** Discipline Specific Minor
4. **GE/OE:** Generic/Open Elective
5. **VSEC:** Vocational Skill and Skill Enhancement Course
6. **VSC:** Vocational Skill Courses
7. **SEC:** Skill Enhancement Courses
8. **AEC:** Ability Enhancement courses
9. **MIL:** Modern Indian languages
10. **IKS:** Indian Knowledge System
11. **VEC:** Value Education Courses
12. **OJT:** On Job Training: (Internship/Apprenticeship)
13. **FP:** Field Projects
14. **CEP:** Community Engagement and Service
15. **CC:** Co-Curricular Courses
16. **RM:** Research Methodology
17. **RP:** Research Project/Dissertation
18. **CSC:** Computer Science

B. Sc. Computer Science Second Year Semester III *(Level 5.0)*

Teaching Scheme

	Course Code	Course Name	Credits Assigned			Teaching Scheme (Hrs./ week)	
			Theory	Practical	Total	Theory	Practical
Optional 1	SCSCCT1201	Java Programming	02	--	**08**	03	--
	SCSCCT1202	Programming with Python	02	--		03	--
	SCSCCP1203	Java Programming (P)	--	02		--	04
	SCSCCP1204	Programming with Python (P)	--	02		--	04
Optional 2	SCSCMT1201	Software Engineering	02	--	**04**	03	--
	SCSCMP1201	Software Engineering (P)	-	02		--	04
Generic Electives *(from other Faculty)*	SCSCGE1201	Cyber Security	02	--	**02**	02	--
Skill Based Course (related to Major)	SCSCSC1201	CSS and JavaScript (P)	--	02	**02**	--	04
Ability Enhancement Course	AECENG1201	Select from **(Basket 4)**	02	--	**02**	02	--
	AECMIL1201	Select from **(Basket 4)**	02	--	**02**	02	--
Field Work / Project/Internship	--	--	--	--	**--**	--	---
Community Engagement Services (CES)	CCCXXX1201	Select from **(Basket 6)**	--	02	**02**	--	02
Total Credits			**12**	**10**	**22**	**15**	**18**

B. Sc. Computer Science Second Year Semester III *(Level 5.0)*

Examination Scheme

[20% Continuous Assessment (CA) and 80% End Semester Assessment (ESA)]

Subject (1)	Course Code (2)	Course Name (3)	Theory				Practical		Total Col (6+7) / Col (8+9) (10)
			Continuous Assessment (CA)			ESA			
			Test I (4)	Test II (5)	Average of T1 & T2 (6)	Total (7)	CA (8)	ESA (9)	
Optional 1	SCSCCT1201	Java Programming	10	10	10	40	--	--	50
	SCSCCT1202	Programming with Python	10	10	10	40	--	--	50
	SCSCCP1203	Java Programming (P)	--	--	--	--	20	30	50
	SCSCCP1204	Programming with Python (P)	--	--	--	--	20	30	50
Optional 2	SCSCMT1201	Software Engineering	10	10	10	40	--	--	50
	SCSCMP1201	Software Engineering (P)	--	--	--	--	20	30	50
Generic Elective	SCSCGE1201	Cyber Security	10	10	10	40	--	--	50
Skill Based Course	SCSCSC1201	CSS and JavaScript (P)	--	--	--	--	20	30	50
Ability Enhancement Course	AECENG1201	Select from **(Basket 4)**	10	10	10	40	--	--	50
	AECMIL1201	Select from **(Basket 4)**	10	10	10	40	--	--	50
Field Work / Project/Internship	SCSCFP1201	Mini Project	--	--	--	--	20	30	50
Community Engagement Services (CES)	CCCXXX1201	Select from **(Basket 6)**	--	--	--	--	20	30	50

B. Sc. Computer Science Second Year Semester IV *(Level 5.0)*

Teaching Scheme

	Course Code	Course Name	Credits Assigned			Teaching Scheme (Hrs./ week)	
			Theory	Practical	Total	Theory	Practical
Optional 1	SCSCCT1251	Web Development using J2EE	02	--	**08**	03	--
	SCSCCT1252	Operating System	02	--		03	--
	SCSCCP1253	Web Development using J2EE (P)	--	02		--	04
	SCSCCP1254	Operating System (P)	--	02		--	04
Optional 2	SCSCMT1251	Software Testing	02	--	**04**	03	--
	SCSCMP1251	Software Testing (P)	-	02		--	04
Generic Electives *(from other Faculty)*	SCSCGE1251	Web Designing	02	--	**02**	02	--
Vocational Course *(related to Major)*	SCSCVC1251	PHP and MySQL (P)	--	02	**02**	--	04
Ability Enhancement Course	AECENG1251	Select from **(Basket 4)**	02	--	**02**	02	--
	AECMIL1251	Select from **(Basket 4)**	02	--	**02**	02	--
Value Education Courses	VECEVS1251	Select from **(Basket 5)**	02	--	**02**	02	--
Community Engagement Services (CES)	---	--	--	--	--	--	--
Total Credits			**14**	**08**	**22**	**17**	**16**

B. Sc. Computer Science Second Year Semester IV *(Level 5.0)*

Examination Scheme

[20% Continuous Assessment (CA) and 80% End Semester Assessment (ESA)]

Subject (1)	Course Code (2)	Course Name (3)	Theory				Practical		Total Col (6+7) / Col (8+9) (10)
			Continuous Assessment (CA)			ESA			
			Test I (4)	Test II (5)	Average of T1 & T2 (6)	Total (7)	CA (8)	ESA (9)	
Optional 1	SCSCCT1251	Web Development using J2EE	10	10	10	40	--	--	50
	SCSCCT1252	Operating System	10	10	10	40	--	--	50
	SCSCCP1253	Web Development using J2EE (P)	--	--	--	--	20	30	50
	SCSCCP1254	Operating System (P)	--	--	--	--	20	30	50
Optional 2	SCSCMT1251	Software Testing	10	10	10	40	--	--	50
	SCSCMP1251	Software Testing (P)	--	--	--	--	20	30	50
Generic Elective	SCSCGE1251	Web Designing	10	10	10	40	--	--	50
Vocational Course	SCSCVC1251	PHP and MySQL (P)	--	--	--	--	20	30	50
Ability Enhancement Course	AECENG1251	Select from **(Basket 4)**	10	10	10	40	--	--	50
	AECMIL1251	Select from **(Basket 4)**	10	10	10	40	--	--	50
Value Education Courses	VECEVS1251	Select from **(Basket 5)**	10	10	10	40	--	--	50
Community Engagement Services (CES)	CCCXXX1251	Select from **(Basket 6)**	--	--	--	--	20	30	50

Detailed Curriculum

Course Structure:

Major 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCCT1201	Java Programming	03	--	02	--	02

Major 1 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCCT1201	Java Programming	10	10	10	40	--	--	**50**

SCSCCT1201: Java Programming ***(Major 1) Curriculum Details***

Course pre-requisite:

1. Basic knowledge of Programming.
2. Basic knowledge of RDBMS.

Course Objectives:

1. To understand architecture of JVM.
2. To study concept of Object oriented programming.
3. To understand concept of package and exception handling.
5. To study Java 8 features.

Course Outcomes:

Students will be able to:

1. Use the syntax and semantics of java programming language and basic concepts of OOP.
2. Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
3. Apply the concepts of Exception handling to develop efficient and error free codes.
4. Use java standard API library to write complex programs.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Java Fundamentals**	
	1.1	Java History and Java Architecture	**7**
	1.2	Java Program Structure	
	1.3	Command Line Arguments	
	1.4	Data Types and Variables	
	1.5	Flow Control Statements	
	1.6	Arrays	
2.0		**OOPS**	
	2.1	Classes and Objects	**8**
	2.2	Constructors and Static members	
	2.3	Encapsulation, Inheritance, this and super keyword	
	2.4	Polymorphism	
	2.5	Garbage Collection	
3.0		**Abstraction, Packages and Exception Handling**	
	3.1	Final Keyword, Abstract class & Abstract Methods	**7**
	3.2	Interfaces	
	3.3	System Packages and User defined Packages	
	3.4	Try, catch block and finally clause	
	3.5	User defined exceptions	
4.0		**String Handling and Java 8 Features**	
	4.1	String and StringBuffer class	**8**
	4.2	IO stream classes and Object Serialization	
	4.3	Default and Static methods in Interface	
	4.4	Functional Interfaces and Lambda Expressions	
	4.5	Method References and Stream API	

Reference Books:

1. Herbert Schildt, “Java The Complete Reference 9th Edition”, McGraw Hill Education (India) Private Limited, New Delhi.
2. Balaguruswamy E., “Programming with JAVA: A Primer. 7th edition”, McGraw Hill Education (India) Private Limited, New Delhi.
3. Arunesh Goyal, The Essentials of JAVA, Khanna Book Publishing Company Private Limited

Course Structure:

Major 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCCP1203	Java Programming (Practical)	--	04	--	02	02

Major 1 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCCP1203	Java Programming (Practical)	--	--	--	--	20	30	**50**

SCSCCP1203: Java Programming ***(Major 1) Practical List***

Practical No.	Title of Practical
1	Write a program to read two numbers from user and print their product.
2	Write a program to print the square of a number passed through command line arguments.
3	Write a java program to find the Factorial of a number using recursive and non-recursive functions.
4	Write a Java program for sorting a given list of marks in descending order.
5	Write a program to demonstrate constructor overloading.
6	Write a Java program to create a class Employee with a method called calculateSalary(). Create two subclasses Manager and Programmer. In each subclass, override the calculateSalary() method to calculate and return the salary based on their specific roles.
7	Write a program to demonstrate encapsulation.
8	Write a program to demonstrate final keyword.
9	Write a program to demonstrate abstract class and abstract methods.
10	Write a program to create and import a custom package.
11	Write a Java program using an interface called 'Bank' having function 'rate_of_interest()'. Implement this interface to create two separate bank classes 'SBI' and 'PNB' to print different rates of interest. Include additional member variables, constructors also in classes 'SBI' and 'PNB'.

12	Write a Java program for demonstrating the divide by zero exception handling.
13	Write a Java program that reads a list of integers from the user and throws an exception if any numbers are duplicates.
14	Write a program to demonstrate String and StringBuffer class.
15	Write a program to serialize and de-serialize object.

Course Structure:

Major 2 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCCT1202	Programming with Python	03	--	02	--	02

Major 2 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCCT1202	Programming with Python	10	10	10	40	--	--	**50**

SCSCCT1202: Programming with Python ***(Major 2) Curriculum Details***

Course pre-requisite:

1. Basic Computer Skills.
2. Fundamental Programming Concepts.
3. Basic Knowledge of Object-Oriented concepts

Course Objectives:

1. To learn how to design and program Python applications.
2. To learn how to use lists, tuples, and dictionaries in Python programs.
3. To do database operations in Python.
5. To construct Python programs as a set of objects.
6. To understand web page desiging.

Course Outcomes:

Students will be able to:

1. Develop and execute simple Python programs
2. Develop simple Python programs for solving problems.
3. Represent compound data using Python lists, tuples, and dictionaries.
4. Develop an application to handle database.
5. Develop a web application using Django.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Python Fundamentals**	
	1.1	Features of Python, Python Interpreter and Structure of Python Program	**7**
	1.2	Variables, Operators, Data Types and I/O Statements	
	1.3	Control Structures: Decision and Loops	
	1.4	String and String Operation	
	1.5	Set, Dictionary, List and Tuple	
	1.6	Functions and Arguments	
2.0		**Exceptions, Object Oriented Design and Functional Programming**	
	2.1	Errors and Exceptions	**8**
	2.2	Handling Exceptions	
	2.3	Classes and Objects and Constructor Method	
	2.4	Classes with Multiple Objects	
	2.5	Class Attributes versus Data Attributes	
	2.6	Encapsulation, Inheritance and Polymorphism	
	2.7	Lambda, Iterators, Generators, List Comprehensions	
3.0		**Database Connectivity with MySQL**	
	3.1	Architecture	**7**
	3.2	Connecting with database	
	3.3	Database Operations[CRUD]	
	3.4	GUI using Tkinter Module	
	3.5	Creating Label, Text, Button, Info Dialog Boxes, Radio button, Check button	
4.0		**Web Development using Python**	
	4.1	Django Installation, Creating Project, Creating Application,	**8**
	4.2	Views, URLs, Templates and Models	
	4.3	Data Manipulation, Django Admin,	

	4.4	Django Syntax- variables, tags, if-else, loops	
	4.5	Django : Insert, Update and Delete Data	

Reference Books:

1. Mark Lutz, “Learning Python”, 5th Ed. O’REILLY.
2. Albert Lukaszcwskc, “MySQL for Python”, Packet publication.
3. Antonio Mele, “Django 2 by Example (Build powerful and reliable Python web applications from scratch)”.
4. John Paul Mueller, “Beginning Programming with Python for Dummies”.

Course Structure:

Major 2 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCCP1204	Programming with Python (Practical)	--	04	--	02	02

Major 2 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCCP1204	Programming with Python (Practical)	--	--	--	--	20	30	**50**

SCSCCP1204: Programming with Python (Major 2) Practical List

Practical No.	Title of Practical
1	Program to demonstrate different data types.
2	Program to demonstrate decision making statement.
3	Program to demonstrate Looping statement..
4	Program to demonstrate different string methods.
5	Program to demonstrate function declaration and passing arguments.
6	Program to demonstrate inheritance and its Types
7	Program to demonstrate polymorphism.
8	Program to demonstrate exception handling.
9	Program to demonstrate different collections.
10	Program to demonstrate database connectivity.
11	Program to demonstrate Different Pattern Program.
12	Program to demonstrate String operation.
13	Write a Python program to perform following operations on List: a) Create b) Access c) Update d) Delete elements from list.
14	Develop a Python program to demonstrate use of Lambda.
15	Write a program to develop a simple web application in Python.

Course Structure:

Minor 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCMT1201	Software Engineering	02	--	02	--	02

Minor 1 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&T2) (5)		CA (7)	ESA (8)	
SCSCMT1201	Software Engineering	10	10	10	40	--	--	**50**

SCSCMT1201: Software Engineering ***(Minor 1) Curriculum Details***

Course pre-requisite:

1. Basic knowledge of Programming Language
2. Understanding of Data Structures and Algorithms
3. Familiarity with Database Management Concepts

Course Objectives:

1. To introduce the fundamental concepts of software engineering and various software process models.
2. To develop an understanding of software requirements engineering, risk analysis, and project planning techniques.
3. To expose students to design principles, modeling techniques, software testing strategies, and quality management practices.

Course Outcomes:

Students will be able to:

1. Describe the role and nature of software
2. Analyse and document software requirements
3. Apply software design principles and use UML diagrams for modeling software systems.
4. Demonstrate various software testing strategies
5. Implement software quality assurance techniques

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Software Process and Agile Development**	
	1.1	Understand the evolving role and changing nature of software in modern computing systems.	**8**
	1.2	Explain layered software technology and a generic software process framework.	
	1.3	Describe and compare software process models including the Waterfall, Incremental, Evolutionary, and Unified Process models.	
	1.4	Explore the principles and practices of Agile software development, including Agile methods and the contrast between plan-driven and agile development.	
	1.5	Apply Agile practices such as Extreme Programming (XP), Scrum, and recognize toolsets used in Agile processes.	
2.0		**Software Requirements and Project Planning**	
	2.1	**Introduction to Software Requirements Engineering**: Functional and non-functional requirements, Software Requirements Specification (SRS), and requirements documentation.	**10**
	2.2	**Requirements Engineering Process**: Activities involved in requirements specification, elicitation, analysis, validation, and management.	
	2.3	**Risk Management in Software Projects**: Proactive vs. reactive strategies, identification and analysis of software risks, risk projection and refinement, and the RMMM (Risk Mitigation, Monitoring, and Management) plan.	
	2.4	**Software Project Planning Fundamentals**: Principles of software pricing, plan-driven development approach, and basics of project scheduling.	
	2.5	**Agile Planning and Estimation Techniques**: Agile planning methods and techniques for effort and cost estimation in software projects.	

3.0		**Software Design, Testing Strategies, and Product Metrics**	
	3.1	**Software Design Process and Quality** • Overview of the design process, design quality, and key design concepts. • Introduction to the design model and principles of software architecture.	**6**
	3.2	**Data and Architectural Design** • Data design and architectural design approaches. • Emphasis on modularity, separation of concerns, and scalable architecture.	
	3.3	**UML and Structural Modeling Techniques** • Basic structural modeling using UML diagrams: Class, Sequence, Collaboration, Use Case, and Component Diagrams.	
	3.4	**Software Testing Strategies** • Strategic approach to software testing. • Conventional, black-box, and white-box testing. • Validation testing, system testing, and debugging techniques.	
	3.5	**Software Product Metrics** • Understanding software quality and reliability. • Metrics for analysis, design, source code, testing, and maintenance.	
4.0		**Quality Management, Release Management, and Product Sustenance**	
	4.1	**Introduction to Software Quality** – Overview of quality concepts and the importance of software quality in modern development.	**6**
	4.2	**Software Quality Assurance (SQA)** – Processes and practices, including formal technical reviews and statistical quality control.	

	4.3	**Software Reliability and Reviews** – Understanding reliability, software reviews, and techniques for ensuring dependable software.	
	4.4	**Release Management Practices** – Planning for software releases, build strategies, risk assessment, and post-deployment monitoring.	
	4.5	**Product Sustenance and Maintenance** – Software maintenance, handling updates, managing end-of-life, and strategies for migration.	

Reference Books:

1. Stephen Schach, Software Engineering 7th ed, McGraw-Hill, 2007
2. Software Engineering: Principles and Practice Hans van Vliet

Course Structure:

Minor 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCMP1201	Software Engineering (Practical)	--	04	--	02	02

Minor 1 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&T2) (5)		CA (7)	ESA (8)	
SCSCMP1201	Software Engineering (Practical)	--	--	--	--	20	30	**50**

SCSCMP1201: Software Engineering ***(Minor 1) Practical List***

Practical No.	Title of Practical
1	Create a Simple Software Development Life Cycle (SDLC) Model.
2	Agile Methodology Simulation.
3	Design a Software Process Framework.
4	Comparing Waterfall and Agile Models.
5	Case Study on Extreme Programming (XP).
6	Requirement Elicitation from Stakeholders.
7	Create a Software Requirements Specification (SRS).
8	Risk Identification and Mitigation Plan.
9	Software Project Estimation Exercise.
10	Agile Planning and Scheduling.
11	Design Class and Sequence Diagrams.
12	Black-box and White-box Testing for a Simple Application.
13	System Testing and Debugging.
14	Metrics Collection for Source Code.
15	Software Reliability Testing.

Course Structure:

Generic Elective – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCGE1201	Cyber Security	03	--	02	--	02

Generic Elective – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCGE1201	Cyber Security	10	10	10	40	--	--	**50**

SCSCGE1201 : Cyber Security ***(Generic Elective) Curriculum Details***

Course pre-requisite:

1. Basic Computer Skills like how to use operating systems (Windows/Linux/mac OS), install software, and navigate file systems.
2. Familiarity with Networking Concepts like IP addresses, DNS, firewalls, and ports.
3. Interest in Technology & Problem Solving

Course Objectives:

1. Understand key terms and concepts in Cryptography, Governance and Compliance.
2. Develop cyber security strategies and policies.
3. Practice with an expertise in academics to design and implement security solutions.

Course Outcomes:

Students will be able to:

1. Measure the performance and troubleshoot cyber security systems.
2. Analyze and evaluate the cyber security needs of an organization.
3. Implement cyber security solutions and use of cyber security, information and cyber/computer forensics software/tools.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**IT Act and Encryption**	
	1.1	Object and Scope of the Act	**5**
	1.2	Symmetric Cryptography	
	1.3	Asymmetric Cryptography	
	1.4	RSA Algorithm	
	1.5	Public Key Encryption	
2.0		**Authentication of Electronic records & E-Governance**	
	2.1	Authentication of Electronic records	**10**
	2.2	Digital Signature	
	2.3	RSA Digital Signature	
	2.4	Hash Function	
	2.5	Working of Digital Signature	
3.0		**Certifying Authorities**	
	3.1	Need of Certifying Authorities	**5**
	3.2	Functioning of Certifying Authorities	
	3.3	Types of Certificates ,	
	3.4	Identification, Authorizing, Transactional certificate	
	3.5	Appointment and Functions of Controller	
4.0		**Domain Name Disputes and Cyber Crimes**	
	4.1	Background of Domain	**10**
	4.2	Insertion of Internet Domain Names and the trademark Law	
	4.3	Classification of Cyber Crime	
	4.4	Damage to computer System: Unauthorized Access, Packet Sniffing, Tempest attack, Password Cracking, Butter overflow	
	4.5	Computer virus: Viruses, Logic Bomb, Worms	

Reference Books:

1. Cyber Law in India by Farooq Ahmad – Pioneer Books
2. Hand book of Cyber & E-commerce Laws by P.M. Bakshi & R.K.Suri – Bharat Law house New Delhi
3. The Indian Cyber Law by Suresh T Vishwanathan – Bharat Law house New Delhi.

Course Structure:

Skill Based – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCSC1201	CSS and JavaScript	03	--	--	02	02

Skill Based – Assessment Scheme

Course Code (2)	Course Name (3)	Theory				Practical		Total [Col (6+7) or Col (8+9)] (10)
		CA			ESA (7)			
		Test I (4)	Test II (5)	Avg. of T1 & T2 (6)		CA (8)	ESA (9)	
SCSCSC1201	CSS and JavaScript	--	--	--	--	20	30	**50**

SCSCSC1201: *CSS and JavaScript* ***(Skill Based) Practical List***

Course pre-requisite:

1. Basic knowledge of html5

Course Objectives:

- To learn the usage of CSS for styling web pages.
- To use JavaScript for creating dynamic and interactive web content like applications and browsers

Course Outcomes:

Students will be able to:

- Apply CSS for styling web pages
- Demonstrate the usage of JavaScript for creating dynamic and interactive web content
- Develop an interactive website using, HTML, CSS, JavaScript.

Curriculum Details

Sr. No.	Practical List
1.	WAP to demonstrate use of inline CSS
2.	WAP to demonstrate use of inline CSS
3.	WAP on Working with Links using CSS
4.	WAP on Working with Lists using CSS
5.	WAP on Working with Tables using CSS
6.	WAP on Horizontal Dropdown menu inside Navigation bar by using CSS.
7.	WAP to demonstrate use of opacity, box shadow and text align using CSS.
8.	Write a JavaScript program that accept two integers and display the larger
9.	Write a JavaScript program to calculate multiplication and division of two Numbers.
10.	Write a JavaScript program to print sum of n natural numbers.
11.	Write a JavaScript program to get the current date.
12.	Write JavaScript to demonstrate loops: while, for, do-while
13.	Write a JavaScript program to demonstrate Event Handling.
14.	WAP to validate Email Address in JavaScript.
15.	Write a JavaScript for loop that will iterate from 0 to 15. For each iteration, it will check if the current number is odd or even, and display a message to the screen

Course Structure:

Major 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCCT1251	Web Development Using J2EE	03	--	02	--	02

Major 1 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCCT1251	Web Development Using J2EE	10	10	10	40	--	--	**50**

SCSCCT1251: Web Development Using J2EE (Major 1) Curriculum Details

Course pre-requisite:

1. Basic knowledge of programming
2. Basic knowledge of Core Java
3. Basic knowledge of HTML, CSS and JavaScript
4. Basic knowledge of SQL

Course Objectives:

1. To manage java objects using collection framework
2. To maintain database using JDBC
3. To create dynamic web pages using Servlet
4. To handle web form data
5. To create and design web page using JSP

Course Outcomes:

Students will be able to:

1. Design and build servlet web page
2. Build robust and maintainable web applications
3. Design web app for handling database
4. Do server side programming with java Servlets and JSP.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Collection Framework**	
	1.1	Collection interface	**7**
	1.2	ArrayList and Vector	
	1.3	Generics and Iterator	
	1.4	HashSet, TreeSet and Comparable	
	1.5	HashMap, HashTable and TreeMap	
2.0		**Java Database Connectivity**	
	2.1	JDBC Architecture and JDBC Drivers	**8**
	2.2	Establishing Connection, Executing Query and Processing Results	
	2.3	Prepared Statement	
	2.4	Callable Statement	
	2.5	Metadata	
3.0		**Servlets**	
	3.1	Introduction to Servlets & Deploying Servlet	**8**
	3.2	Servlet Life Cycle	
	3.3	Request and Response Object	
	3.4	Accessing Data from HTML Form	
	3.5	Using JDBC in Servlet	
	3.6	Servlet Chaining	
	3.7	Cookies and Sessions	
4.0		**JSP**	
	4.1	Introduction to JSP	**7**
	4.2	JSP Scripting Elements- Expression and Scriptlets	
	4.3	JSP Scripting Elements- Directives	
	4.4	Sessions in JSP	
	4.5	JavaBeans in JSP	

Reference Books:

1. Santosh Kumar K, “JDBC, Servlet, and JSP: Black Book”, Kogent Solutions Inc., 2008
2. Herbert Schildt, “Java The Complete Reference 9th Edition”, McGraw Hill Education (India) Private Limited, New Delhi.
3. Bruce W. Perry, “Java Servlet & JSP Cookbook”, O'Reilly Publication

Course Structure:

Major 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCCP1253	Web Development Using J2EE (Practical)	--	04	--	02	02

Major 1 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCCP1253	Web Development Using J2EE (Practical)	--	--	--	--	20	30	**50**

SCSCCP1253: Web Development Using J2EE ***(Major 1) Practical List***

Practical No.	Title of Practical
1	Write a program to demonstrate ArrayList class for storing different type of objects.
2	Write a program to demonstrate Generics and Iterator for storing and accessing specific type of objects.
3	Write a program to demonstrate TreeSet class for storing Employee Data.
4	Write a program to demonstrate HashMap class for storing Customer Data.
5	Write a program to implement CURD operations using JDBC.
6	Write a program to demonstrate PreparedStatment interface.
7	Write a program to demonstrate CallableStatment interface.
8	Write a program to demonstrate DatabaseMetaData and ResultSetMetaData interface.
9	Write a program to create simple web page using Servlet.
10	Write a program to demonstrate Request and Response Object.
11	Write a program to handle HTML form data using Servlet.
12	Write a program to demonstrate servlet chaining.
13	Write a program to demonstrate using Session in Servlet.
14	Write a program to demonstrate JSP scripting elements.
15	Write a program to demonstrate JSP useBean.

Course Structure:

Major 2 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCCT1252	Operating System	03	--	02	--	02

Major 2 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCCT1252	Operating System	10	10	10	40	--	--	**50**

SCSCCT1252: Operating System ***(Major 2) Curriculum Details***

Course pre-requisite:

1. Essential for understanding computer architecture, how hardware and software interact.
2. OS concepts are often implemented in low-level code
3. Crucial for grasping OS internals like scheduling, memory management, and file systems

Course Objectives:

1. Understand the fundamental concepts of Operating System.
2. Understanding Resource Management, Learning Process, Memory Control and Gaining System-Level Insight
3. Implement the scheduling algorithms using C programming language

Course Outcomes:

Students will be able to:

1. Explain the fundamentals of the operating system
2. CPU scheduling, process management, memory, deadlocks, and storage management.
3. Compare the performance of CPU scheduling algorithms

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Operating System Overview**	
	1.1	Definition, Components of OS, Types of Operating Systems	**5**
	1.2	Operating systems generations	
	1.3	An Operating system Resource manager	
	1.4	Operating system– Hierarchical And Extended machine view	
	1.5	Operating-System Services	
2.0		**Memory Management**	
	2.1	Define Memory, Types of Memory	**10**
	2.2	Single contiguous allocation technique	
	2.3	Multiprogramming concept	
	2.4	Internal and External fragmentation	
	2.5	Memory allocation strategies First fit, Best fit, and worse-fit	
	2.6	Partitioned, Paging, Segmentation. Demand paging techniques.	
3.0		**Process Management**	
	3.1	Process Definition, Process states	**8**
	3.2	Process Control Block	
	3.3	Scheduling Criteria	
	3.4	Process Scheduling: Definition, Scheduling objectives	
	3.5	Scheduling algorithms(FCFS, SJF, Priority Scheduling, Round-Robin Scheduling)	
4.0		**Deadlocks, Device Management and file system**	
	4.1	Deadlock characterization	**7**
	4.2	Deadlock prevention, avoidance	
	4.3	Banker's algorithm	
	4.4	Deadlock detection and recovery from deadlocks	
	4.5	Techniques for device management, Channels and Control Units	
	4.6	A simple file system, General Model of File System	

Reference Books:

1. Ekta Walia, Operating Systems Concepts, Khanna Publishing House, 2022 (AICTE Recommended Textbook)
2. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne (2006), Operating System Principles, 7th edition OR Later edition, Wiley India Private Limited, New Delhi
3. Stallings (2006), Operating Systems, Internals and Design Principles, 5th edition, Pearson Education, India
4. Dr.S.B.Kishor , Operating System, Dsganu Prakashan , Nagpur
5. Andrew S Tanenbaum, Modern Operating Systems, Third Edition, Prentice Hall India.
6. Sumitabha Das, UNIX Concepts and Applications, 4th Edition, Tata McGraw-Hill

Course Structure:

Major 2 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCCP1254	Operating System (Practical)	--	04	--	02	02

Major 2 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCCP1254	Operating System (Practical)	--	--	--	--	20	30	**50**

SCSCCP1254: Operating System ***(Major 2) Practical List***

Practical No.	Title of Practical
1	**Windows Operating System Practical's:**
	a. Install/uninstall programs, manage files/folders, use File Explorer, format USBs, take screenshots.
	b. Change desktop themes, adjust resolution, set date/time, customize Start menu, manage user accounts.
	c. Run antivirus, set up firewall, use System Restore, Task Manager, check for Windows updates.
	d. Connect to Wi-Fi, manage IP/DNS, share files, use Remote Desktop, troubleshoot connectivity.
2	**Linux Operating System Practical's:**
	a. Create, move, copy, rename, and delete files/folders using terminal commands.
	b. Navigate directories (cd, ls, pwd), use wildcards/filters (find, locate, grep).
	c. View/edit file contents (cat, less, nano, vim, gedit), check system info.
	d. View disk usage (df -h, du -sh, lsblk), monitor system (top, htop, vmstat).
	e. List hardware (lscpu, lspci, lsusb), manage users and permissions (adduser, chmod, sudo).
3	**Study of CPU Scheduling Algorithms – FCFS and Round Robin:**
	Simulate First Come First Serve and Round Robin scheduling with process burst times.

4	**Study of Shortest Job First (SJF) CPU Scheduling Algorithm:**
	Demonstrate SJF scheduling with and without preemption, calculate waiting/turnaround time.
5	**Study of Priority CPU Scheduling Algorithm:**
	Demonstrate priority-based scheduling, handle processes with equal/different priorities.
6	**Demonstrate Paging Memory Management Technique:**
	Demonstrate page table creation, logical to physical address translation.
7	**Study of Segmentation Memory Management Technique:**
	Demonstrate segment table, and perform logical to physical address mapping.
8	**Study of First Fit, Best Fit, and Worst Fit Allocation:**
	Demonstrate contiguous memory allocation techniques and compare fragmentation.
9	**Study of FIFO Page Replacement Algorithm:**
	Demonstrate FIFO for page replacement and calculate page faults.
10	**Study of Sequential File Allocation Method:**
	Demonstrate sequential file allocation and calculate file space usage.
11	**Demonstrate LRU Page Replacement Algorithm:**
	Implement Least Recently Used page replacement and analyze performance.
12	**Demonstrate Optimal Page Replacement Algorithm:**
	Calculate and compare number of page faults using optimal strategy.
13	**Demonstrate Linked File Allocation Method:**
	Implement linked file allocation and simulate reading file blocks.
14	**Demonstrate Indexed File Allocation Method:**
	Create index blocks and simulate file access in indexed allocation.
15	**Demonstrate Disk Scheduling Algorithms (FCFS, SSTF, SCAN):**
	Compare disk access sequences and calculate total head movements.

Course Structure:

Minor 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCMT1251	Software Testing	02	--	02	--	02

Minor 1 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCMT1251	Software Testing	10	10	10	40	--	--	**40**

SCSCMT1251: Software Testing ***(Minor 1) Curriculum Details***

Course pre-requisite:

1. Basic knowledge of computers.
2. Basic knowledge of SDLC.
3. Basic knowledge of programming languages like C/C++/Java .

Course Objectives:

1. To provide knowledge of latest testing tools.
2. To understand the development and testing plans.
3. To learn various testing tools for quick detection of bugs and errors.
4. To work with various software testing methods.
5. To provide skills to design test case plan for testing software

Course Outcomes:

Students will be able to:

1. Determine the correctness, completeness and quality of software being developed.
2. Understand the technical documentation of software.
3. To understand various software testing methods and strategies.
4. To understand latest testing tools used in the software industries.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Introduction and Approaches to Testing**	
	1.1	Introduction to Software testing and Testing Objectives	**5**
	1.2	Testing principles and Testing fundamentals	
	1.3	V Model	
	1.4	White Box Testing and it's types	
	1.5	Black Box Testing and it's types	
2.0		**Software Testing Strategies and STLC**	
	2.1	Software Testing Process	**10**
	2.2	Unit Testing and Integration Testing	
	2.3	System Testing and Acceptance Testing	
	2.4	Big Bang Approach and Sandwich approach	
	2.5	Performance, Regression, Smoke and Load Testing	
	2.6	Overview of the stages of STLC	
	2.7	Test Case Design	
	2.8	Test Cases for Entry and Exit Criteria	
3.0		**Agile testing and Defect Management**	
	3.1	Agile Testing and Agile principles and values	**8**
	3.2	Agile Testing Quadrants	
	3.3	Defect Life Cycle and Defect Classification	
	3.4	Defect Report and Defect management	
	3.5	Test scenario and Test case template	
	3.6	Design test case for given application and Design test cases in excel	
4.0		**Automation Testing**	
	4.1	Introduction Of Selenium	**7**
	4.2	Components Of Selenium	
	4.3	Selenium Webdriver and its Commands	
	4.4	Locators Of Selenium (Webdriver)	
	4.5	TestNG Framework	

Reference Books:

1. Software Engineering -A Practitioner's approach, Sixth Edition, Roger S. Pressman, McGraw-Hill Higher Education.
2. Software Testing Concepts and Tools, Nageswara Roo, Dreamtech Publication
3. Srinivasan Desikan and Gopalaswami Ramesh – Software Testing Principles and practices – Pearson Education India
4. Effective Methods of Software Testing – William E Perry, 3rd Edition, Wiley Publishing Inc
5. Managing the Testing Process: Practical Tools and Techniques for Managing Hardware and Software Testing, Rex Black, Microsoft Press

Web References:

1. http://www.selenium.dev
2. http://www.toolsqa.com
3. https://www.guru99.com/selenium-tutorial.html
4. https://www.tutorialspoint.com/selenium

Course Structure:

Minor 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCMP1251	Software Testing (Practical)	--	02	--	02	02

Minor 1 – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCMP1251	Software Testing (Practical)	--	--	--	--	20	30	**50**

SCSCMP1251: Software Testing ***(Minor 1) Practical List***

Practical No.	Title of Practical
1	Write test case for entry and exit criteria.
2	Write test plan for a given application.
3	Write test case in excel.
4	Write test cases for applying statement, decision, loop, branch coverage criteria.
5	Write test cases for applying ECP and BVA.
6	Find defect from a any given scenario.
7	Write a detailed defect report for a sample defect.
8	Design test cases for Simple Calculator Application.
9	Design test cases for application for Online Air Ticket Booking / Railway Reservation Form.
10	Design test cases for E-Commerce shopping portal's Login form (like Flipkart, Amazon).
11	Design test cases for Web pages of any website / College / University website
12	Define Test cases and Test Plan for simple applications like A. Mobile app like calculator B. Notepad desktop app
13	Prepare a defect report after executing Test cases for Withdraw Amount from ATM machine.
14	Prepare a defect report after executing Test cases for Login form.

15	Design and run Test cases using automated testing Tools for A. Text Editor like Word / WordPad

Course Structure:

Generic Elective – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCGE1251	Web Designing	03	--	02	--	02

Generic Elective – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCGE1251	Web Designing	10	10	10	40	--	--	**50**

SCSCGE1251: Web Designing ***(Generic Elective) Curriculum Details***

Course pre-requisite:

1. Should have basic knowledge about computer.
2. Should have basic knowledge of internet.

Course Objectives:

1. To improve the skill to create the static web page.
2. To develop the ability to create the dynamic web pages.
3. To enhance the ability of Insert a graphic within a web page.
4. To improve the skills to Create, validate and publish a web page

Course Outcomes:

Students will be able to:

1. Able to design and implement dynamic websites
2. Able to implement new html 5 tags.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Introduction of Web**	**7**
	1.1	History of WWW.	
	1.2	Web browser and web Server.	
	1.3	Web Protocols HTTP & FTP	
	1.4	What is Tags & attributes of HTML	
	1.5	Structure of HTML	
	1.6	Create web page using Headings, Paragraph, BR & HR	
2.0		**Implementing of HTML**	**7**
	2.1	Text level elements	
	2.2	Creating Ordered & Unordered List	
	2.3	Marquee Tag	
	2.4	Using Images in HTML	
	2.5	Client-Server Model	
	5.6	Creating hyperlink with Anchor Tag	
3.0		**HTML Advance and HTML5**	**8**
	3.1	Using frames in HTML	
	3.2	Creating Table in HTML	
	3.3	Creating Forms in HTML	
	3.4	Introduction to HTML 5	
	3.5	Structure of HTML 5	
4.0		**Designing to HTML with CSS**	**8**
	4.1	Introduction to CSS with Advantage and Disadvantages	
	4.2	Internal CSS: Inline and Embedded	
	4.3	External CSS	
	4.4	Framework of CSS: Bootstrap	
	4.5	Introduction to Tailwind CSS	
	4.6	CSS Selectors	
		Total	**30**

Reference Books:

1. "HTML & CSS: The Complete Reference", 5th Edition By Thomas A. Powel, Publisher(s): Tata McGraw Hill publication. ISBN-13978-0070701946
2. "HTML & XHTML: The complete Reference", 4th Edition By Thomas A. Powel, Publisher(s):Tata McGraw Hill publication, ISBN-13978-0072229424

Course Structure:

Vocational Course – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SCSCVC1251	PHP and MySQL	--	04	--	02	02

Vocational Course – Assessment Scheme

Course Code (1)	Course Name (2)	Theory				Practical		Total [col (5+6) Or Col(7+8)]
		CA			ESA (6)			
		Test I (3)	Test II (4)	Avg. (T1&t2) (5)		CA (7)	ESA (8)	
SCSCVC1251	PHP and MySQL	--	--	--	--	20	30	**50**

Course pre-requisite:

1. Basic knowledge about Web Technology like html, css and Javascript.
2. Basic knowledge about Object Oriented Programming like C++.
3. Introductory knowledge about RDBMS like SQL.

Course Objectives:

1. The Core-PHP, Server Side Scripting Language.
2. Design a dynamic and interactive Web page.
3. The PHP-Database handling.

Course Outcomes:

Students will be able to:

1. Design dynamic and interactive web pages and websites.
2. Run PHP scripts on server and retrieve results.
3. Handle databases like MySQL using PHP in websites.

SCSCVC1251: PHP and MySQL *(Vocational Course) Practical List*

Practical No.	Title of Practical
1	Creating HTML FORM (User Registration Form)

2	Write php code to sending input from HTML to PHP.
3	Write PHP Code to demonstrate variables.
4	Write php code to implementation of Operators.
5	Write php code to demonstrate Indexed Array.
6	Write php code to demonstrate Associated Array in PHP.
7	Write php code to demonstrate String Manipulation Functions
8	Write php code to include multiple files with include() and required() function
9	Write php code to demonstrate concept of Forms with PHP Redux
10	Write php code to demonstrate different date format.
11	Write php code to Creating and Calling Your Own Functions
12	Write php code to demonstrate Session and Cookies
13	Write a program to Connecting to MySQL Database and insert records in to table.
14	Write php code to Update and Delete records from MySQL Table
15	Write php code to Select all records from MySQL table and displaying in to HTML table.

Reference Books:

3. "Learning PHP, MySQL & JavaScript", 7th Edition Author by Robin Nixon, Publisher(s): O'Reilly Media, Inc. ISBN: 9781098152352
4. "PHP and MYSQL Web Development", 5th Edition Author by Luke Welling and Laura Thomson, Publisher(s):Pearson Education, ISBN-13978-9332582736
5. "PHP: The Complete Reference", 5th Edition Author by by Steven Holzner, Publisher(s):McGraw Hill Education, ISBN-13978-0070223622.

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Guidelines for the Course Assessment:

A. Continuous Assessment (CA) (20% of the Maximum Marks) of theory and practical courses:

i. **For Theory Course:** CA shall form 20% of the Maximum Marks and shall be carried out over the entire semester. It shall be done by conducting **Two Tests** (Test I on 40% curriculum) and **Test II** (on remaining 40% syllabus) and average of the marks scored by a student in these two tests of a particular paper shall be taken as the **CA** score.

ii. **For Practical Course:** CA score of the practical course shall be marks scored by a student in the internal practical examination conducted by the concerned teacher.

B. End Semester Assessment (80% of the Maximum Marks) of theory and practical courses:

(For illustration a paper of 02 credits, 50 marks has been considered and shall be modified appropriately depending upon credits of the individual paper)

Question Paper Pattern of the ESA:

i. **ESA Question paper shall consist 6 questions, each of 10 marks**
ii. **Question No.1 shall be compulsory and shall be based on the entire syllabus**
iii. Students shall have to solve ***ANY THREE*** of the remaining Five Questions (i.e. from question 2 to 6)
iv. **Students shall have to solve a TOTAL of 4 Questions.**

C. Assessment of On Job Training (OJT) Course (for 04 credits):

a. Continuous assessment part (**40%, 40 marks out of 100**) of this course shall be done by the mentor of the student, where he /she is supposed to complete his On Job Training. This shall be based on the regularity, participation and performance of the students at the place of OJT.

b. Semester End Assessment (ESA) (**60% of the total marks, 60 marks out of 100**) of this course shall be done by a panel of examiners in two parts

i. based on the work report submitted by the student (**50% i.e. 30 marks)** and

ii. **Remaining 50%** (30 marks) shall be based on his presentation and viva-voce on the work carried to be assessed by the panel of examiners. This assessment shall be done along with practical examinations of respective courses / subjects.

D. Assessment of Field Project (FP) and Research Project (RP) (e.g. for 02 credits)

a. Continuous assessment part (**40%, 20 marks out of 50**) of this course shall be done by the mentor of the student and shall be based on regularity, experimental work and performance of the student.

b. Semester End Assessment (ESA) (**60% of the total marks, 30 marks out of 50**) of this course shall be done shall be done by a panel of examiners in two parts

i. based on the work report submitted by the student (**50% i.e. 30 marks)** and

ii. **Remaining 50%** (30 marks) shall be based on his presentation and viva-voce on the work carried out by the student. This assessment shall be done along with practical examinations of the respective courses / subjects.

E. Assessment of Co-Curricular courses (CCC):

a. Assessment of the CCC course shall be done by the respective course coordinator as a part of CA and be based on the regularity, performance of a student and his participation in various activities as prescribed in the regulations prepared in this regard.

b. The End Semester Assessment (ESA) of the CCC courses shall be done as per the regulations prepared in this regard and shall be done on the basis of the write-up, presentation by the student on the activities that he has carried out in a semester.

c. Students shall have freedom to opt for more than one CCC courses. However, score of the best performing CC shall be considered for preparing his result.

F. Syllabi, Teaching and Examination Scheme for the courses in Column 7 and Column 8 (AEC, VEC, IKS, CI, EVS, CCCs, etc.) shall be common for all the students from different faculties.

Note: Number of lectures required to cover syllabus of a course depends on the number of credits assigned to a particular course. One credit of theory corresponds to 15 Hours lecturing and for practical course one credit corresponds to 30 Hours. For example, for a course of two credits 30 lectures of one-hour duration are assigned, while that for a three credit course45 lectures.

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