॥ 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

Fax : (02462) 215572

Phone: (02462)215542

Academic-1 (BOS) Section

website: srtmun.ac.in

E-mail: bos@srtmun.ac.in

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. Information Technology (Single Major)

Second Year

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

UNDERGRADUATE PROGRAMME OF

SCIENCE & TECHNOLOGY

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

Under the Faculty of Science & Technology

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: INT (Major) /DSM (Minor 1)

B.Sc. Information Technology (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	SINTCT1201 (T 2Cr) SINTCT1202 (T 2Cr) SINTCP1203 (P 2Cr) SINTCP1204 (P 2Cr) 8 Credits	SINTMT1201 (T 2Cr) SINTMP1201 (P 2Cr) 4 Credits	--	SINTGE1201 2 Credits	SINTSC1201 2 Credits	AECENG1201 (2cr) AECMIL1201 (2Cr) (MAR/HIN/URD /KAN/PAL) 4 Credits	CCCXXX1201 (2Cr) *(NCC/NSS/SPT(sports)/ CLS(Cultural Studies)/HWS(Health Wellness)/ YGE(Yoga Education) / FIT(Fitness)* 2 Credits	22	44
	IV	SINTCT1251 (T 2Cr) SINTCT1252 (T 2Cr) SINTCP1253 (P 2Cr) SINTCP1254 (P 2Cr) 8 Credits	SINTMT1251 (T 2Cr) SINTMP1251 (P 2Cr) 4 Credits	--	SINTGE1251 2 Credits	SINTVC1251 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. **INT:** Information Technology
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

B. Sc. IT 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	SINTCT1201	Web Development using J2EE	02	--	**08**	03	--
	SINTCT1202	Data Structure and Algorithms	02	--		03	--
	SINTCP1203	Web Development using J2EE (P)	--	02		--	04
	SINTCP1204	Data Structure and Algorithms (P)	--	02		--	04
Optional 2	SINTMT1201	Software Engineering	02	--	**04**	03	--
	SINTMP1201	Software Engineering (P)	-	02		--	04
Generic Electives *(from other Faculty)*	SINTGE1201	Cyber Security	02	--	**02**	02	--
Skill Based Course (related to Major)	SINTSC1201	Analyzing data with SQL(P)	--	02	**02**	--	04
Ability Enhancement Course	AECENG1201	Select from **(Basket 4)**	02	--	**02**	02	--
Ability Enhancement Course	AECMIL1201	Select from **(Basket 4)**	02	--	**02**	02	--
Community Engagement Services (CES)	CCCXXX1201	Select from **(Basket 6)**	--	02	**02**	--	02
Total Credits			**12**	**10**	**22**	**15**	**18**

B. Sc. IT 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	SINTCT1201	Web Development using J2EE	10	10	10	40	--	--	50
	SINTCT1202	Data Structure and Algorithms	10	10	10	40	--	--	50
	SINTCP1203	Web Development using J2EE (P)	--	--	--	--	20	30	50
	SINTCP1204	Data Structure and Algorithms (P)	--	--	--	--	20	30	50
Optional 2	SINTMT1201	Software Engineering	10	10	10	40	--	--	50
	SINTMP1201	Software Engineering (P)	--	--	--	--	20	30	50
Generic Elective	SINTGE1201	Cyber Security	10	10	10	40	--	--	50
Skill Based Course	SINTSC1201	Analyzing data with SQL(P)	--	--	--	--	20	30	50
Ability Enhancement Course	AECENG1201	Select from **(Basket 4)**	10	10	10	40	--	--	50
Ability Enhancement Course	ACEMIL1201	Select from **(Basket 4)**	10	10	10	40	--	--	50
Community Engagement Services (CES)	CCCXXX1201	Select from **(Basket 6)**	--	--	--	--	20	30	50

B. Sc. IT 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	SINTCT1251	Programming in C#	02	--	**08**	03	--
	SINTCT1252	Python Programming	02	--		03	--
	SINTCP1253	Programming in C# (P)	--	02		--	04
	SINTCP1254	Python Programming (P)	--	02		--	04
Optional 2	SINTMT1251	Software Testing	02	--	**04**	03	--
	SINTMP1251	Software Testing (P)	-	02		--	04
Generic Electives *(from other Faculty)*	SINTGE1251	Web Designing	02	--	**02**	02	--
Vocational Course *(related to Major)*	SINTVC1251	PHP and MySQL (P)	--	02	**02**	--	04
Ability Enhancement Course	AECENG1251	Select from **(Basket 4)**	02	--	**02**	02	--
Ability Enhancement Course	AECMIL1251	Select from **(Basket 4)**	02	--	**02**	02	--
Value Education Courses	VECEVS1251	Select from **(Basket 5)**	02	--	**02**	02	--
Total Credits			**14**	**08**	**22**	**17**	**16**

B. Sc. IT 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	SINTCT1251	Programming in C#	10	10	10	40	--	--	50
	SINTCT1252	Python Programming	10	10	10	40	--	--	50
	SINTCP1253	Programming in C# (P)	--	--	--	--	20	30	50
	SINTCP1254	Python Programming (P)	--	--	--	--	20	30	50
Optional 2	SINTMT1251	Software Testing	10	10	10	40	--	--	50
	SINTMP1251	Software Testing (P)	--	--	--	--	20	30	50
Generic Elective	SINTGE1251	Web Designing	10	10	10	40	--	--	50
Vocational Course	SINTVC1251	PHP and MySQL (P)	--	--	--	--	20	30	50
Ability Enhancement Course	AECENG1251	Select from **(Basket 4)**	10	10	10	40	--	--	50
Ability Enhancement Course	AECMIL1251	Select from **(Basket 4)**	10	10	10	40	--	--	50
Value Education Courses	VECEVS1251	Select from **(Basket 5)**	10	10	10	40	--	--	50

Detailed Curriculum

Course Structure:

Major 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTCT1201	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)	
SINTCT1201	Web Development Using J2EE	10	10	10	40	--	--	**50**

SINTCT1201: 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		**Multithreading**	
	1.1	Introduction to multithreading	**5**
	1.2	Creating Multiple Threads	
	1.3	Thread Life Cycle	
	1.4	Thread Priority	
	1.5	Thread Synchronization	
2.0		**Java Database Connectivity**	
	2.1	JDBC Architecture and JDBC Drivers	**10**
	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 2 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTCT1202	Data Structure and Algorithms	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)	
SINTCT1202	Data Structure and Algorithms	10	10	10	40	--	--	**50**

SINTCT1202: Data Structure and Algorithms (Major 2) Curriculum Details

Course pre-requisite:

1. Basic knowledge of computers
2. Basic knowledge of algorithms and problem solving.
3. Knowledge of C Programming Language

Course Objectives:

1. Implement Data Structures using C programming language
2. Develop problem-solving skills using Data Structures
3. Understand the fundamental concepts of Data Structures and their applications

Course Outcomes:

Students will be able to:

1. Learn the fundamentals of Algorithms.
2. Develop algorithm for problem-solving skills
3. Implement algorithm into a program.
4. How to work with algorithms and programs.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Introduction and Overview**	
	1.1	Definition	**5**
	1.2	Types of Data Structures	
	1.3	Data Structure operations	
	1.4	Space and time complexity	
	1.5	Best, Worst, Average case analysis, Asymptotic notations (Big O, Omega Ω, Theta θ)	
2.0		**Arrays and Linked List**	
	2.1	Linear array	**10**
	2.2	Memory representation of linear array.	
	2.3	Array operations: Traversing, Inserting, Deleting, Searching.	
	2.4	Searching Methods: linear and binary.	
	2.5	Sorting Methods: Bubble Sort, Selection Sort, insertion sort, Quick Sort, Merge Sort.	
	2.6	Linked list and memory representation of linked list.	
	2.7	Types of linked list: singly, doubly, Circular and doubly linked list.	
3.0		**Stack and Queue**	
	3.1	Stack, Memory representation of stack.	**10**
	3.2	Stack operations (push and pop)	
	3.3	Arithmetic expression: Conversion of Infix Expression to Postfix Expression	
	3.4	Evaluation of postfix expression	
	3.5	Recursion: Factorial of Number.	
	3.6	Queue, Memory representation of Queue	
	3.7	Operations on Queue	
	3.8	Types of Queue: circular, priority, De-queue.	
4.0		**Tree and Graph**	
	4.1	Definition, Terminology, Binary tree.	**5**
	4.2	Traversal of binary tree.	
	4.3	Graph: definition, Terminology, Representation, Traversal	

Reference Books:

1. Seymour Lipschutz, “Data Structures with C”, Schaum’s Outlines, Tata McGraw-Hill, 2011.
2. Ashok Kamthane, “Introduction to Data Structures in C”, Pearson Education
3. Yashavant Kanetkar, "Data Structures Through C", 4th Edition, BPB Publications, 2022.

Course Structure:

Major 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTCP1203	Web Development Using J2EE	--	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)	
SINTCP1203	Web Development Using J2EE	--	--	--	--	20	30	**50**

SINTCP1203: Web Development Using J2EE (Major 1) Practical List

Practical No.	Title of Practical
1	Write a program to create multiple threads using Thread class.
2	Write a program to create multiple threads using Runnable interface.
3	Write a program to demonstrate Thread Priority.
4	Write a program to demonstrate Thread Synchronization.
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
SINTCP1204	Data Structure and Algorithms	--	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)	
SINTCP1204	Data Structure and Algorithms	--	--	--	--	20	30	**50**

SINTCP1204: Data Structure and Algorithms (Major 2) Practical List

Practical No.	Title of Practical
1	Write a program for traversing linear array.
2	Write a program to insert operation of an array.
3	Write a program to delete operation of a array.
4	Write a program to search element from a liner array by using linear search.
5	Write a program to search element from a liner array by using binary search.
6	Write a program to sort the given array elements in ascending order by using bubble sort.
7	Write a program to sort the given array elements in ascending order by using selection sort.
8	Write a program to sort the given array elements in ascending order by using insertion sort.
9	Write a program to insert an element into a Singly Linked List.
10	Write a program to delete an element into a Singly Linked List.
11	Write a program to implement push operation on to a stack by using an array.
12	Write a program to implement pop operation on to a stack by using an array.
13	Write a program for evaluation of postfix expression.
14	Write a program to implement queue operation by using an array.
15	Write a program to implement binary tree.

Course Structure:

Minor 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTMT1201	Software Engineering	03	--	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)	
SINTMT1201	Software Engineering	10	10	10	40	--	--	**50**

SINTMT1201: Software Engineering (Minor 1) Curriculum Details

Course pre-requisite:

1. Basic knowledge of Programming.
2. ER Modelling.
3. Familiarity with Database Management Concepts.

Course Objectives:

1. To get knowledge and understanding of software engineering discipline.
2. To learn analysis and design principles for software project development.

Course Outcomes:

Students will be able to:

1. Compare and chose a process model for a software project development.
2. Identify requirements analyse and prepare models.
3. Prepare the SRS, Design document, Project plan of a given software system.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Software Engineering Fundamentals**	
	1.1	Introduction to Software Engineering	**5**
	1.2	Software Process Models: Waterfall, Iterative, Agile, Spiral	
	1.3	Software Development Life Cycle (SDLC)	
	1.4	Software Crisis and Challenges in SE	
	1.5	Role of Software Engineer	
2.0		**Requirements & Design Engineering**	
	2.1	Requirement Engineering Process	**10**
	2.2	Types of Requirements: Functional & Non-Functional	
	2.3	Feasibility Study and SRS Document	
	2.4	Design Concepts: Abstraction, Modularity, Coupling & Cohesion	
	2.5	Structured Design and Object-Oriented Design Basics	
	2.6	UML Diagrams (Use Case, Class Diagram)	
3.0		**Software Quality, Testing & Maintenance**	
	3.1	Software Quality Factors (McCall's, ISO)	**5**
	3.2	Verification vs Validation	
	3.3	Levels of Testing: Unit, Integration, System, Acceptance	
	3.4	Testing Techniques: White-box, Black-box, Automation tools	
	3.5	Maintenance Types and Challenges	
	3.6	Software Configuration Management	
4.0		**Software Project Management & Modern Trends**	
	4.1	Project Estimation: LOC, FP, COCOMO	**5**
	4.2	Project Scheduling: Gantt Charts, PERT & CPM	
	4.3	Risk Management	
	4.4	Software Documentation & Metrics	
	4.5	DevOps, Agile and CI/CD	

Reference Books:

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

Course Structure:

Minor 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTMP1201	Software Engineering	--	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)	
SINTMP1201	Software Engineering	--	--	--	--	20	30	**50**

SINTMP1201: Software Engineering (Minor 1) Practical List

Practical No.	Title of Practical
1	Draw Waterfall and Spiral Model diagrams.
2	Create a Software Development Life Cycle (SDLC) chart.
3	Prepare a list of roles and responsibilities of a Software Engineer.
4	Prepare a Software Requirement Specification (SRS) for a Library Management System.
5	Perform a Feasibility Study Report for an Online Food Delivery System.
6	Draw a Use Case Diagram for a Hospital Management System.
7	Draw a Class Diagram for an Online Banking System.
8	Design a Data Flow Diagram (DFD) – Level 0 and 1 for a Student Management System.
9	Write test cases for Login Module of a Web Application.
10	Differentiate White Box vs Black Box Testing with examples.
11	Create a Software Quality Checklist for a project.
12	Simulate a Bug Tracking Sheet using Excel or Google Sheets.
13	Estimate project cost using COCOMO Model (Basic).
14	Draw a Gantt Chart for your mini project timeline using any tool (Excel/online).
15	Use GitHub to upload your mini project – demonstrate version control basics.

Course Structure:

Generic Electives – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTGE1201	Cyber Security	02	--	02	--	02

Generic Electives – 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)	
SINTGE1201	Cyber Security	10	10	10	40	--	--	**50**

SINTGE1201: Cyber Security (Generic Electives) Curriculum Details

Course pre-requisite:

1. Basic Computer Skills.
2. Basics of networking.

Course Objectives:

1. To prepare students with the technical knowledge and skills needed to protect and defend computer systems and networks.
2. To develop students can identify the current Computer security and breaches.

Course Outcomes:

Students will be able to:

1. Analyze and evaluate the cyber security needs of an organization.
2. Measure the performance and troubleshoot cyber security systems.
3. To introduce the current cyber related activities.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Introduction to Cyber Security**	
	1.1	Overview of Cybersecurity	**7**
	1.2	Cyber Threat Landscape	
	1.3	Key Principles of Cybersecurity	
	1.4	Risk Management in Cybersecurity	
	1.5	Legal and Ethical Considerations	
2.0		**Basics of Networking and Security**	
	2.1	Networking Fundamentals	**8**
	2.2	Common Network Attack	
	2.3	Network Security Technologies	
	2.4	Wireless Network Security	
	2.5	Securing Network Devices	
3.0		**Operating System and Web Security**	
	3.1	Basics of Operating System Security	**7**
	3.2	Patch Management	
	3.3	Antivirus and Anti-malware Protection	
	3.4	Encryption and Secure Boo	
	3.5	Secure Web Browsing	
	3.6	HTTPS and SSL/TLS	
	3.7	Web Security Policies and Compliance	
4.0		**Security Best Practices and Emerging Trends**	
	4.1	Security Awareness and Training	**8**
	4.2	Incident Response and Management	
	4.3	Threat Intelligence and Information Sharing	
	4.4	Future Trends in Cybersecurity	

Reference Books:

1. Computer Security Basics by by Rick Lehtinen , Publisher : O'Reilly Media; 2nd edition
2. Fundamentals of Computer Security by Josef Pieprzyk ,Thomas Hardjono, Jennifer Seberry

Course Structure:

Skill Based – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTSC1201	Analyzing data with SQL	--	04	--	02	02

Skill Based – 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)	
SINTSC1201	Analyzing data with SQL	--	--	--	--	20	30	**50**

Course pre-requisite:

1. Basic knowledge of computers and Familiarity with Databases.

Course Objectives:

1. To understand and Apply Core SQL Syntax
2. To learn Data Aggregation and Grouping
3. To study Join and Relate Data Across Multiple Tables.

Course Outcomes:

Students will be able to:

1. Write basic to intermediate SQL queries to retrieve and filter data.
2. Use aggregate functions and grouping to summarize large datasets effectively.
3. Combine data from multiple tables using various join operations.
4. Apply conditional logic and date functions to solve real-world data problems.
5. Construct subqueries and views to simplify and modularize complex data analysis.
6. Perform basic data analysis using SQL to support data-driven decision-making.

SINTSC1201: Analyzing data with SQL (Skill Based) Practical List

Practical No.	Title of Practical
1	Retrieving Data Using the SQL SELECT Statement
2	Restricting and Sorting Data using operators
3	Using Conversion Functions and Conditional Expressions
4	Using Single-Row Functions to Customize Output
5	Alter date formats for display using functions
6	Convert column data types using functions
7	Use NVL functions
8	Use IF-THEN-ELSE logic and other conditional expressions in a SELECT statement
9	Writing queries that use the group functions
10	Grouping by rows to achieve more than one result
11	Restricting groups by using the HAVING clause
12	Displaying Data from Multiple Tables Using Inner Join & outer Join
13	Displaying Data from Tables Using Self Join & Cross Join
14	Retrieving Data by Using Subqueries
15	Using the Set Operators (Union ,Union all, Intersect, Minus)

Reference Books:

1. Alan Beaulieu, “Learning SQL”.
2. Anthony DeBarros, “Practical SQL”.
3. Cathy Tanimura , “SQL for Data Analysis”

Course Structure:

Major 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTCT1251	Programming in C#	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)	
SINTCT1251	Programming in C#	10	10	10	40	--	--	**50**

SINTCT1251: Programming in C# (Major 1) Curriculum Details

Course pre-requisite:

1. Basic knowledge of object-oriented programming (OOP's).

Course Objectives:

1. To learn and understand basic concepts of Windows Programming.
2. To understand MVC design pattern.
3. To learn Design pattern of MVC.

Course Outcomes:

Students will be able to:

1. Implement the .NET core concept and Design pattern of MVC.
2. Develop desktop, Console and Web Based Application.
3. Develop database connectivity application.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
1.0		**Introduction to .NET Framework**	
	1.1	Introduction to .NET Framework and its components	**10**
	1.2	Overview of Visual Studio IDE	
	1.3	Common Language Runtime(CLR)	
	1.4	C# Introduction and C# Syntax	
	1.5	Variables, Datatypes and Operators in C#	
2.0		**Working with Console Application and OOPs**	
	2.1	Control flow statements	**10**
	2.2	Functions in C#	
	2.3	.NET Collections: Array and ArrayList	
	2.4	Creating classes, methods and object	
	2.5	Using Namespace (DLL)	
	2.6	creating and using interfaces,	
	2.7	Exception Handling	
3.0		**Windows Applications and Windows Controls**	
	3.1	Creating and Customizing Windows Form	**5**
	3.2	TextBox and Label Control	
	3.3	Button, CheckBox and RadioButton	
	3.4	Menus, ListBox and ComboBox control	
	3.5	Handling Database using ADO.Net	
	3.6	CURD Operations	
4.0		**Introduction to .NET Core and MVC**	
	4.1	Introduction to .NET Core	**5**
	4.2	MVC Architecture	
	4.3	Creating Controllers and Actions	
	4.4	Parameters in Action methods	
	4.5	Creating View	
	4.6	Introduction to Models	
	4.7	Creating models using ‘CodeFirst approach’	

Reference Books:

1. E Balagurusamy , “Programming in C#”, Mc Graw Hill Publication

2. C Muthu, “Visual C#.Net”, Mc Graw Hill Publication

3. Mugilan T. S. Ragupathi, “Learning ASP.NET Core MVC Programming 1st Edition

4. Adam Freeman, “Pro ASP.NET Core MVC Develop cloud-ready web applications using Microsoft’s latest framework, ASP.NET Core MVC”, Sixth Edition

Course Structure:

Major 2 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTCT1252	Python Programming	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)	
SINTCT1252	Python Programming	10	10	10	40	--	--	**50**

SINTCT1252: Python Programming (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 & 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 1 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTCP1251	Programming in C#	--	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)	
SINTCP1251	Programming in C#	--	--	--	--	20	30	**50**

SINTCP1251: Programming in C# (Major 1) Practical List

Practical No.	Title of Practical
1	Write program in c# to display "Welcome to C#".
2	Create console Application to demonstrate if else statement.
3	Create Console Application to demonstrate looping statements.
4	Create Console Application to perform creating user define function.
5	Create Console Application to demonstrate ArrayList class in C#.
6	Creating class, methods and object in c#.
7	Creating and Using Namespace (DLL) in c#.
8	creating and using interfaces.
9	Write code to demonstrate Exception Handling in C#.
10	Create Windows Applications to customizing form properties.
11	Create Windows Applications demonstrate adding control to form and setting properties of control.
12	Create windows application to Performing crud operations ado.net c#.
13	Creating Controller and Actions methods in MVC.
14	Creating ActionResult and ViewResult, Returning a view in MVC.
15	Creating models using 'CodeFirst approach' in MVC.

Course Structure:

Major 2 – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTCP1252	Python Programming	--	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)	
SINTCP1252	Python Programming	--	--	--	--	20	30	**50**

SINTCP1252: Python Programming (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
SINTMT1251	Software Testing	03	--	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)	
SINTMT1251	Software Testing	10	10	10	40	--	--	**50**

SINTMT1251: 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
SINTMP1251	Software Testing	--	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)	
SINTMP1251	Software Testing	--	--	--	--	20	30	**50**

SINTMP1251: 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 Electives – Teaching Scheme

Course Code	Course Name	Teaching Scheme (Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SINTGE1251	Web Designing	03	--	02	--	02

Generic Electives – 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)	
SINTGE1251	Web Designing	10	10	10	40	--	--	**50**

SINTGE1251: Web Designing (Generic Electives) Curriculum Details

Course pre-requisite:

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

Course Objectives:

1. To learn the skills to create the static web page.
2. To understand creating the dynamic web pages.
3. To study inserting a graphics within a web page.
4. To learn the skills to Create, validate and publish a web page

Course Outcomes:

Students will be able to:

1. Design and implement dynamic websites
2. Implement new html 5 tags.

Curriculum Details:

Module No.	Unit No.	Topic	Hrs. Required
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	Headings, Paragraph and 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	

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
SINTVC1251	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)	
SINTVC1251	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. To Learn Core-PHP, Server Side Scripting Language.
2. To Understand creating a dynamic and interactive Web page.
3. To study 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.

SINTVC1251: PHP and MySQL (Vocational Course) Practical List

Practical No.	Title of Practical
1	Create an HTML form (User Registration Form)
2	Write a PHP code for sending input from HTML to PHP.
3	Write a PHP Code to demonstrate variables.
4	Write a PHP code for implementation of Operators.
5	Write a PHP code to demonstrate Indexed Array.
6	Write a PHP code to demonstrate Associated Array in PHP.
7	Write a PHP code to demonstrate String Manipulation Functions
8	Write a PHP code to include multiple files with include() and required() function
9	Write a PHP code to demonstrate concept of Forms with PHP Redux
10	Write a PHP code to demonstrate different date format.
11	Write a PHP code for Creating and Calling Your Own Functions
12	Write a PHP code to demonstrate Session and Cookies
13	Write a program for Connecting to MySQL Database and insert records in to table.
14	Write a PHP code to Update and Delete records from MySQL Table
15	Write a PHP code to Select all records from MySQL table and displaying in to HTML table.

Reference Books:

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

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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