॥ 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

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

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 पदवीस्तरावरील अभ्यासक्रम (Syllabus) शैक्षणिक वर्ष २०२४–२५ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, या विद्यापीठा अंतर्गत येणा–या सर्व संलग्नित महाविद्यालये, विद्यापीठ संचलित महाविद्यालय, विद्यापीठ परिसर संकुले व उपपरिसर संकुलामध्ये शैक्षणिक वर्ष २०२४–२५ पासून पदवीस्तरावर राष्ट्रीय शैक्षणिक धोरण –२०२० लागू करण्यात आले आहे. त्यानुसार विज्ञान व तंत्रज्ञान विद्याशाखेतील खालील अभ्यासक्रम लागू करण्याच्या दृष्टीने मा. कुलगुरू महोदयांनी मा. विद्यापरिषदेच्या मान्यतेच्या अधीन राहून मान्यता प्रदान केली आहे. त्यानुसार खालील अभ्यासक्रम शैक्षणिक वर्ष २०२४–२५ पासून लागू करण्यात येत आहे.

1. B. Sc. I year Software Development (Single major)
2. B. Sc. I year Data Science (Single major)

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/युजीअभ्यासक्रम/२०२४–२५/२०६
दिनांक ०८.०८.२०२४

डॉ. सरिता लोसरवार
सहा.कुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

प्रत : १) मा. आधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.
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५) मा. प्राचार्य, न्यू मॉडल डिग्री कॉलेज हिंगोली.
६) सिस्टीम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ. याना देवून कळविण्यात येते की, सदर परिपत्रक संकेतस्थळावर प्रसिध्द करण्यात यावे.

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

(Credit Framework and Structure of

B.Sc. Software Development (Single Major)

First Year

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

UNDERGRADUATE PROGRAMME OF

SCIENCE & TECHNOLOGY

Major in **DSC** and Minor in **DSM** (Software Development)

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 Four Year Multidisciplinary Degree Program with Multiple Entry and Exit

Subject: SFD (Major) /DSM (Minor 1 and Minor 2)

B.Sc. Software Development (Single Major) First Year

(Eligibility: 12th Arts, Commerce, Science and MCVC)

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
1 (4.5)	I	SSFDCT1101 (T 2Cr) SSFDCP1101 (P 2Cr) 4 Credits	SSFDMT1101 (T 2Cr) SSFDMP1101 (P 2Cr) 4 Credits	SSFDMT1102 (T 2Cr) SSFDMP1102 (P 2Cr) 4 Credits	SSFDGE1101 2 Credits	SSFSFD1101 2 Credits	AECENG1101 (2Cr) ACEMIL1101 (2Cr) IKSXXX1101 (2Cr) 6 Credits		22	44
	II	SSFDCT1151 (T 2Cr) SSFDCP1151 (P 2Cr) 4 Credits	SSFDMT1151 (T 2Cr) SSFDMP1151 (P 2Cr) 4 Credits	SSFDMT1152 (T 2Cr) SSFDMP1152 (P 2Cr) 4 Credits	SSFDGE1151 2 Credits	SSFSFD1151 2 Credits	AECENG1151 (2Cr) ACEMIL1151 (2Cr) VECCOI1151 (2Cr) *Constitution of India* 6 Credits		22	
	Cum. Cr.	08	08	08	04	04	08	04	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. **SDF: Software Development**

B. Sc. Software Development First Year Semester I *(Level 4.5)*

Teaching Scheme

	Course Code	Course Name	Credits Assigned			Teaching Scheme (Hrs./ week)	
			Theory	Practical	Total	Theory	Practical
Optional 1	SSFDCT1101	Programming in C	02	--	**04**	02	--
	SSFDCP1101	Programming in C (P)	-	02			04
Optional 2	SSFDMT1101	Web Technology	02	--	**04**	02	--
	SSFDMP1101	Web Technology (P)	-	02			04
Optional 3	SSFDMT1102	Introduction to RDBMS	02	--	**04**	02	--
	SSFDMP1102	Introduction to RDBMS (P)	-	02			04
Generic Electives *(from other Faculty)*	SSFDGE1101	Basics of Info. Tech./ Digital Electronic **(Basket 3 of respective Faculty)**	02	--	**02**	02	--
Skill Based Course (related to Major)	SSFDSC1101	Office Automation	--	02	**02**	--	04
Ability Enhancement Course	AECENG1101	L1 – Compulsory English	02	--	**02**	02	--
Indian Knowledge System (IKS)	IKSXXX1101	Select from **Basket 5**	02	--	**02**	02	--
Ability Enhancement Course (MIL)	**ACEMIL1101**		02	--	**02**	02	--
Total Credits			**14**	**08**	**22**	**14**	**16**

B. Sc. Software Development First Year Semester I *(Level 4.5)*

Examination Scheme

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

(For illustration we have considered a paper of 02 credits, 50 marks, need to be modified depending on credits assigned to individual paper)

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	SSFDCT1101	Programming in C	10	10	10	40	--	--	50
	SSFDCP1101	Programming in C (P)	--	--	--	--	20	30	50
Optional 2	SSFDMT1101	Web Technology	10	10	10	40	--	--	50
	SSFDMP1101	Web Technology (P)	--	--	--	--	20	30	50
Optional 3	SSFDMT1102	Introduction to RDBMS	10	10	10	40	--	--	50
	SSFDMP1102	Introduction to RDBMS (P)	--	--	--	--	20	30	50
Generic Elective	SSFDGE1101	Basics of Info. Tech./ Digital Electronic **(Basket 3)**	10	10	10	40	--	--	50
Skill Based Course	SSFDSC1101	Office Automation	--	--	--	--	20	30	50
Ability Enhancement Course	AECENG1101	**L1 – Compulsory English**	10	10	10	40	--	--	50
Indian Knowledge System	IKSXXX1101	Title **(Basket 5)**	10	10	10	40	--	--	50
Ability Enhancement Course (MIL)	**ACEMIL1101**		10	10	10	40	--	--	50

B. Sc. Software Development First Year Semester II *(Level 4.5)*

Teaching Scheme

	Course Code	Course Name	Credits Assigned			Teaching Scheme (Hrs/ week)	
			Theory	Practical	Total	Theory	Practical
Optional 1	SSFDCT1151	OOP's with C++	02	--	**04**	02	--
	SSFDCP1151	OOP's with C++	-	02			04
Optional 2	SSFDMT1151	PHP and MYSQL	02	--	**04**	02	--
	SSFDMP1151	PHP and MYSQL (P)	-	02			04
Optional 3	SSFDMT1152	Operating System	02	--	**04**	02	--
	SSFDMP1152	Operating System (P)	-	02			04
Generic Electives *(from other Faculty)*	SSFDGE1151	Digital Marketing / Statistical Methods **(Basket 3 of respective Faculty)**	02	--	**02**	02	--
Skill Based Course (related to Major)	SSFDSC1151	Cascading Style Sheet and Boot Strap	--	02	**02**	--	04
Ability Enhancement Course	AECENG1151	L1 – Compulsory English	02	--	**02**	02	--
Value Education Courses (VEC)	VECCOI1151	Constitution of India **Basket 5**	02	--	**02**	02	--
Ability Enhancement Course (MIL)	**ACEMIL1151**		02	--	**02**	02	--
Total Credits			**14**	**08**	**22**	**14**	**16**

B. Sc. Software Development First Year Semester II *(Level 4.5)*

Examination Scheme

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

(For illustration we have considered a paper of 02 credits, 50 marks, need to be modified depending on credits assigned to individual paper)

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	SSFDCT1151	OOP's with C++	10	10	10	40	--	--	50
	SSFDCP1151	OOP's with C++	--	--	--	--	20	30	50
Optional 2	SSFDMT1151	PHP and MYSQL	10	10	10	40	--	--	50
	SSFDMP1151	PHP and MYSQL (P)	--	--	--	--	20	30	50
Optional 3	SSFDMT1152	Operating System	10	10	10	40	--	--	50
	SSFDMP1152	Operating System (P)	--	--	--	--	20	30	50
Generic Elective	SSFDGE1151	Digital Marketing/ Statistical Methods **(Basket 3)**	10	10	10	40	--	--	50
Skill Based Course	SSFDSC1151	Cascading Style Sheet and Boot Strap	--	--	--	--	20	30	50
Ability Enhancement Course	AECENG1151	**L1 – Compulsory English**	10	10	10	40	--	--	50
Value Education Courses (VEC)	VECCOI1151	Constitution of India **Basket 5**	10	10	10	40	--	--	50
Ability Enhancement Course (MIL)	**ACEMIL1151**		10	10	10	40	--	--	50

Course Structure: *Major 1 -Teaching 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)	
SSFDCT1101	Programming in C	10	10	10	40	--	--	50

Major 1 -Assessment Scheme

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDCT1101	Programming in C	02	--	02	--	02

SSFDCT1101: *Programming in C (Major 1) Curriculum Details*

Course pre-requisite:

1. Basic knowledge of programming concepts.

Course Objectives:

To Learn:

- To develop a programming logic
- To develop competency for the design, coding and debugging
- To acquire the fundamental principles, concepts and constructs of computer programming

Course Outcomes:

Students will be able to:

- Write, debug and execute simple programs in 'C'
- Apply programming logic to solve real world problems
- Implements the structure and pointers
- Perform operations on Array and String

SSFDCT1101: ***Programming in C (Major 1) Curriculum Details***

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		Basics of C Programming	**7**
	1.1	Application areas of C Language.	
	1.2	Algorithm	
	1.3	Structure of a 'C' program.	
	1.4	Variables, Data Types	
	1.5	Operators	
	1.6	Formatted input and output	
2.0		Control Structures & Functions	**8**
	2.1	Decision making statement: - if, if-else, switch.	
	2.2	Loops: - while, do while, for.	
	2.3	Use of break, continue and goto.	
	2.4	Function and Types of function, Recursion.	
3.0		Arrays & String	**8**

	3.1	Arrays Operations - declaration, initialization, accessing array elements.	
	3.2	Types of Arrays	
	3.3	Standard library functions	
	3.4	Storage Classes	
4.0		Pointer And Structure	**7**
	4.1	What is Pointer, declaration and initialization	
	4.2	Creating structure	
	4.3	Accessing Structure member using (dot operator)	
	4.4	Pointer and array, function, structure	
		Total	**30**

Text books:

1. Complete C Reference – Herbert Schildt
2. Pointer in C – YeshwantKanetkar.

Reference Books:

1. Structured Programming approach using C – Forouzan and Gilberg, Thomson learning publications
2. The C Programming language – Kernighan and Ritchie

Course Structure:*Major 1 -Teaching 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)	
SSFDCP1101	Programming in C	-	--	--	--	20	30	50

Major 1 -Assessment Scheme

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDCP1101	Programming in C	--	04	--	04	04

SSFDCP1101: *Programming in C (Major 1) Curriculum Details*

Conduct at least 15 practicals on the above syllabus

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMT1101	Web Technology	02	--	02	--	02

Major 1 -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)	
SSFDMT1101	Web Technology	10	10	10	40	--	--	50

SSFDMT1101: *Web Technology (Major 1) Curriculum Details*

Course pre-requisite:

1. Should have basic knowledge about information technology.
2. Should have basic knowledge of internet.

Course Objectives:

To Learn:

- The static web page.
- The dynamic web pages.
- The graphic within a web page.
- Create, validate and publish a web page.

Course Outcomes:

Students will be able to:

- Design and implement dynamic websites.
- Implement new HTML 5 tags.

Curriculum Details: *(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Introduction of Web**	**7**
	1.1	History of WWW.	
	1.2	Role of Web browser and web Server.	
	1.3	Client side Programming	
	1.4	IDE applications of HTML.	
	1.5	Web Protocols HTTP, FTP	
2.0		**Introduction of HTML**	**8**
	2.1	Structure of HTML	
	2.2	What is Tags & attributes of HTML	
	2.3	Create web page using Headings ,Paragraph, BR & HR	

	2.4	Image Tag	
	2.5	Marquee Tag	
3.0		**Core Concepts of HTML**	
	3.1	Creating Ordered & Unordered List	
	3.2	Creating Anchor Tag	
	3.3	Using frames in HTML	
	3.4	Creating Table in HTML	
	3.5	Creating Form Input and validation	
4.0		**HTML 5**	**7**
	4.1	Introduction to HTML 5	
	4.2	Advantage and Disadvantages	
	4.3	Elements in HTML 5	
		Total	**30**

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMP1101	Web Technology	--	04	-	04	04

Reference Books:

1. HTML The complete Reference -2nd Edition Thomas A. Powel Tata McGraw Hill publication

2. The complete Reference (HTML & XHTML)- 5th Edition Thomas A. Powel Tata McGraw Hill publication

Course Structure: *Major 1 -Teaching Scheme*

Major 1 -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)	
SSFDMP1101	Web Technology	--	--	--	--	20	30	50

SSFDMP1101: *Web Technology (Major 1) Curriculum Details*

Conduct at least 15 practicals on the syllabus

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMT1102	Introduction to RDBMS	02	--	02	--	02

Major 1 -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)	
SSFDMT1102	Introduction to RDBMS	10	10	10	40	--	--	50

SSFDMT1102: ***Introduction to RDBMS (Major 1) Curriculum Details***

Course pre-requisite:

1. Basic knowledge about DBMS

Course Objectives:

To Learn:

- The features of Relational database.
- The use SQL- the standard language of relational databases for database operations.
- The functional dependencies and design of the databases.

Course Outcomes:

Students will be able to:

- The basic concepts of relational databases
- Use of Structured Query Language (SQL) and learn SQL syntax for writing queries.
- Apply normalization techniques to normalize the databases.

Curriculum Details: *(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Introduction to DBMS**	**7**
	1.1	Introduction to DBMS and Purpose of Database Systems,	
	1.2	Database-System Applications, Data Abstraction and Database System Structure	
	1.3	Structure of relational databases, Domains, Relations	
	1.4	Keys – Super key, Candidate key, Primary key, Foreign key	
	1.5	Relational algebra	
	1.6	Basic Concepts of ER model	
	1.7	Entity Set, Relationship Sets and Weak Entity Sets	
	1.8	Mapping Cardinalities, E-R diagrams, Extended E-R Features	
2.0		**Relational Database Design**	**8**
	2.1	CODD's Rules	
	2.2	Relational Integrity: Domain, Referential Integrities, Enterprise Constraints	
	2.3	Features of Good Relational Designs	
	2.4	Normalization, Atomic Domains and First Normal Form	

	2.5	Decomposition using Functional Dependencies	
	2.6	2NF, 3NF, and BCNF	
3.0		**Basics of SQL**	**10**
	3.1	DDL, DML, DCL, Structure: Creation, Alteration	
	3.2	Defining constraints – Primary key, Foreign key, Unique key, Not null, Check	
	3.3	IN operator,	
	3.4	Functions - Aggregate Functions, Built-in Functions –Numeric, Date, String Functions	
	3.5	Set operations, sub-queries, correlated sub queries	
	3.6	Use of group by, having, order by	
	3.7	Join and its types	
	3.8	Exist, Any, All	
	3.9	View and its types	
4.0		**Transaction control commands and PL/SQL Concepts**	**5**
	4.1	Commit, Rollback, Save-point	
	4.2	Cursors	
	4.3	Stored Procedures	
	4.4	Stored Function	
	4.5	Database Triggers	
		Total	**30**

Reference Books:

1. A. Silberschatz, H.F. Korth and S. Sudarshan , ―Database System Concepts‖, McGraw Hill, 6th Edition.
2. C.J. Date, A. Kannan, S. Swamynathan ―An introduction to Database Systems‖, Pearson, 8th Edition
3. "Oracle Database 10g PL/SQL Programming" by Scott Urman , Ron Hardman, MichaleMc Laughlin, Oracle Press, TMH, ISBN-0-07-059779-0.
4. "Oracle Database 10g The Complete Reference" By Kevin Loney, Bob Bryla
5. Oracle SQL, PL/SQL the programming language of ORACLE 4th Edition by Ivan Bayross.

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMP1102	Introduction to RDBMS	--	04	--	04	04

Major 1 -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)	
SSFDMP1102	Introduction to RDBMS	--	--	--	--	20	30	50

SSFDMT1102: ***Introduction to RDBMS (Major 1) Curriculum Details***

Conduct at least 15 practical's on the syllabus

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDGE1101	Basics of Info. Tech	02	--	02	--	02

Major 1 -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)	
SSFDGE1101	Basics of Info. Tech	10	10	10	40	--	--	50

SSFDGE1101: ***Basics of Info. Tech. (Major 1) Curriculum Details***

Course pre-requisite:

1. Basic things related to computer

Course Objectives:

To Learn:

- The basic principles of computer.
- The input output devices.

Course Outcomes:

Student will able to:

- Understand the Basic Function of Devices like I/O, HDD etc.
- Understand the Fundamental of Software and Hardware.
- Understand the Concept of Operating System and Network.

Curriculum Details: *(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Introduction to Computer and History**	**8**
	1.1	Definition of Computer	
	1.2	Characteristics of Computer	
	1.3	Basic Computer Organization	
	1.4	Generations of Computer	
2.0		**Computer Peripherals & Memory**	**7**
	2.1	Input Devices :- Keyboard, Mouse, Trackball, Joystick	
	2.2	Output Devices :- Monitor, Printer, Projector, Biometric Devices	
	2.3	Computer Memory :- RAM, ROM, Cache Memory	
	2.4	Storage Devices	
3.0		**Compact Disk, Digital Versatile Disk**	**8**
	3.1	Hard Disk Drive	
	3.2	USB Flash Drive	
	3.3	Memory Card	
	3.4	Introduction to Computer Network & Internet	
4.0		**Definition of Network**	**7**

	4.1	Types of Network :- LAN,MAN,WAN	
	4.2	E-Mail	
	4.3	Web Browser	
	4.4	Types of Web Browser	
		Total	**30**

Reference Books:

1 Fundamental of Computer –5th& 6th Edition, P.K. Sinha, BPB Publication

2 Fundamental of Computer - V. Raja Raman, PHI Publication

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDGE1101	Digital Electronics	02	--	02	--	02

Major 1 -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)	
SSFDGE1101	Digital Electronics	10	10	10	40	--	--	50

SSFDCT1101: ***Digital Electronics (Major 1) Curriculum Details***

Course pre-requisite:

- 12th science.
- Basic Electronics

Course Objectives:

To Learn:

- The basic knowledge of digital logic levels and application of knowledge to understand digital electronic circuits.
- And prepare students to perform the analysis and design of various digital electronic circuits.

Course Outcomes:

Student will able to:

- Understanding of the fundamental concepts and techniques used in digital electronics.
- Understand and examine the structure of various number systems and its applications in digital design.
- Understand, analyze and design various combinational and sequential circuits.
- Develop skill to build and troubleshoot digital circuits.

Curriculum Details:*(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Number System and Codes**	**7**
	1.1	Decimal	
	1.2	Octal	
	1.3	Binary	
	1.4	Hexadecimal	
	1.5	Conversions from one number system to other number system	
2.0		**Logic Gates and Logic equation Simplification with K-MAP**	**8**
	2.1	Basic gates: AND gate, OR gate and NOT gate	
	2.2	Universal gates: NAND gate and NOR gate	
	2.3	Special purpose gates: EX-OR gate and EX-NOR gate	
	2.4	Standard representation of logical functions in SOP and POS form	
3.0		**Combinational Circuits and Converters**	**7**
	3.1	Half Adder and Full Adder	

	3.2	Multiplexer and its types					
	3.3	De-Multiplexers and its types					
	3.4	Encoder and Decoder (only one example)					
	4.0	Sequential Circuits					
	4.1	SR-FF					
	4.2	JK-FF					
	4.3	D-Type FF					
	4.4	T-Type FF					
SSFDSC1101	4.5	Asynchronous Counter	04	--	04	04	
	4.6	Synchronous Counter					
		Total				**30**	

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDSC1101	Office Automation	04	--	04	04	04

Reference Books:

1. "Modern Digital Electronics": -by R. P. Jain Tata McGraw -Hill Publication 3rfd Edition ISBN: 978-0-07-049492-3
2. MICROPROCESSOR -by B. Ram publication 5th Edition
3. Fundamentals of Computer by P.K. Sinha BPB publication 6th Edition ISBN:81-7656-752-3.

Course Structure: *Skill Based Course -Teaching Scheme*

Skill Based Course -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)	
SSFDSC1101	Office Automation	--	--	--	--	20	30	50

Skill Based Course-SSFDSC1101 - Office Automation- Curriculum Details-

Practical List

1. MS-Word

Opening screen of MS-Word 10, Formatting using different tools (font, paragraph, borders and shading, page setup, find and replace), working with tables, custom dictionary, mail-merge

2) MS-Excel

Opening screen of MS – Excel, working with formulas and functions, creating and formatting charts.

3) MS-PowerPoint

Opening screen of MS-PowerPoint, designing and applying animation effects.

4) MS-Access.

Creating tables in MS-Access, applying query, database connectivity

LIST FOR PRACTICALS

1. Study opening screen of MS-Word (title bar, menu-bar, tool box, status bar, standard tool bar, task bar)
2. Study of Font tool box.
3. Study of paragraph dialog box.
4. Study of basic Editing tools (cut, copy, paste, undo, redo).
5. Study of page setup (how to take the printouts).
6. Study of find and replace dialog box.
7. Study of creating custom dictionary.
8. Study of border and shading dialog box.
9. Study of Working with different styles in MS-Word.
10. Study of Working with tables.
11. Study of creating time table by the help of tables.
12. Study of Opening screen of MS-Excel.
13. Study of Data validation in MS-Excel.
14. Study of data sorting and data filtering in MS-Excel.
15. Study of goal seek and scenario manager in MS-Excel.
16. Working with formulas in MS-Excel (how to build formula, difference between function and formulas).
17. Study of different basic functions MS-Excel.
18. Study of string Functions.
19. Study of logical functions.
20. Creating mark sheet by using different functions.
21. Study of mathematical functions.
22. Study with financial functions
23. Study with date and time functions.
24. Creating charts in MS-Excel.
25. Study of exploring charts in MS-Excel.
26. Study of opening screen of MS-PowerPoint.
27. Study of design and animation effects in MS-PowerPoint
28. Study of making PowerPoint presentation (with different effects).

29. Study of opening screen of MS-Access.

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDCT1151	OOPS with C++	02	--	02	--	02

30. Study of creating tables and Queries in MS-Access.

Reference Books

1. Microsoft office 2010 Complete by BPB Publication

2. Mastering Word 2010 Complete by BPB Publication

3. MS-Access by Varsha Varma Shekhar

Course Structure: *Major 1 -Teaching Scheme*

Major 1 -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)	
SSFDCT1151	OOPS with C++	10	10	10	40	--	--	50

SSFDCT1151: *OOPS with C++ (Major 1) Curriculum Details*

Course pre-requisite:

1. Basic knowledge of C programming language
2. Basic knowledge of File Handling in C

Course Objectives:

To Learn:

- The basic concepts and fundamentals of object oriented language.
- The skills in writing programs using OOPS features.
- The streams and efficient user interface design techniques.

Course Outcomes:

Student will able to:

- Use the syntax and semantics of C++ programming language and basic concepts of OOP.
- Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages
- Apply the concepts file handling to store and retrieve data in text files.

Curriculum Details: *(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Introduction to OOPs and Basics of C++**	**8**
	1.1	Basic concepts of OOPs	
	1.2	Benefits of OOPs	
	1.3	C++ Tokens, Variables, Constants and data types	
	1.4	Basic Input / Output Statements	
	1.5	Structure of a C ++ program	
	1.6	Scope Resolution Operator	
	1.7	Control Structure : Conditional Statements, Looping Statements, Jumping Statements	
	1.8	Arrays	
2.0		**Function, Class & Object**	**8**

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDCP1151	OOPS with C++	04	--		04	04

	2.1	Function: Call by value, Call by reference , Default arguments	
	2.2	Inline function	
	2.3	Function Overloading	
	2.4	Defining Class, Members, Object	
	2.5	Visibility modes	
	2.6	Constructors & Destructors	
	2.7	Friend Function	
3.0		**Operator Overloading, Inheritance & Polymorphism**	
	3.1	Concept of Operator Overloading	**8**
	3.2	Rules for Operator Overloading	
	3.3	Unary & Binary operator overloading	
	3.4	Concept of Inheritance	
	3.5	Types of Inheritance	
	3.6	Concept of Polymorphism	
	3.7	Virtual Base Classes	
	3.8	Pure Virtual functions	
4.0		**C++ I/O System and File Handling**	
	4.1	C++ Streams	**6**
	4.2	Unformatted I/O operations	
	4.3	Formatted I/O operations	
	4.4	Manipulators	
	4.4	Opening and closing file	
	4.5	file modes	
		Total	**30**

Text books:

1. The C++ Programming Language,Fouth Edition,by Bjarne Stroustrup.
2. Programming with C++ by Hubbard John.
3. C++: Programming Basics for Absolute Beginners by Nathan Clark CreateSpace Independent Publishing Platform, 2017.

Course Structure: *Major 1 -Teaching Scheme*

Major 1 -Assessment Scheme

Course Code (2)	Course Name (3)	Theory				Practical		Total [Col (6+7) or Col (8+9)]
		CA			ESA (7)			
		Test I (4)	Test II (5)	Avg. of T1 & T2 (6)		CA (8)	ESA (9)	

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMT1151	PHP and MySQL	04	--	04	--	04

								(10)
SSFDCP1151	OOPS with C++	--	--	--	--	20	30	50

SSFDCP1151: *OOPS with C++ (Major 1) Curriculum Details*

Conduct at least 15 practical's on the above contents

Course Structure: *Major 1 -Teaching Scheme*

Major 1 -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)	
SSFDMT1151	PHP and MySQL	10	10	10	40	--	--	50

SSFDMT1151: *PHP and MySQL (Major 1) Curriculum Details*

Course pre-requisite:

1. Basic knowledge about computer
2. Basic knowledge about Web Technology like html, css, etc.

Course Objectives:

To Learn:

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

Course Outcomes:

Student will able to:

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

Curriculum Details:*(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Introduction to PHP**	**8**
	1.1	Introduction to PHP	
	1.2	basic syntax of PHP	
	1.3	Understanding PHP, HTML, and White Space.	
	1.4	Writing Comments in PHP	
	1.5	Sending Data to the Web Browser	
	1.6	Using Variables	
	1.7	Constants in PHP	
	1.8	Data types in PHP	
	1.9	Operators in PHP	

2.0		**Programming with PHP**	**6**
	2.1	Creating an HTML Form	
	2.2	Handling an HTML Form	
	2.3	Validating Form Data	
	2.4	Conditional statements	
	2.5	Looping statements	
	2.6	Arrays, Types of Array	
3.0		**Using Functions**	**8**
	3.1	Functions in PHP : Defining and calling a function, Returning Value from function	
	3.2	Date and Time Functions	
	3.3	Creating and accessing	
	3.4	String Searching & Replacing	
	3.5	String Formatting String	
	3.6	String Related Library function	
	3.7	Include() Require()	
	3.8	Variable Scope	
4.0		**Using PHP with MySQL**	**8**
	4.1	Connecting to MySQL with PHP	
	4.2	Creating records with PHP	
	4.3	Retrieving Query Results	
	4.4	Counting Returned Records	
	4.4	Updating Records with PHP	
	4.5	Deleting records with PHP	
		Total	**30**

Text books:

1. Learning PHP, MySQL, books by ‘ O’ riley Press.
2. PHP and MySQL Web Development, Fifth Edition.
3. PHP and MySQL, Luke Welling, Laura Thomson, Sams Publishing, 2003.

Course Structure: *Major 1 -Teaching Scheme*

Major 1 -Assessment Scheme

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMP1151	PHP and MySQL		04	--	04	04

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)	
SSFDMP1151	PHP and MySQL	--	--	--	--	20	30	50

SSFDMP1151: *PHP and MySQL (Major 1) Curriculum Details*

Conduct at least 15 practical on the syllabus

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMT1152	Operating System	02	--	02	--	02

Major 1 -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)	
SSFDMT1152	Operating System	10	10	10	40	--	--	50

SSFDMT1152: *Operating System (Major 1) Curriculum Details*

Course pre-requisite:

1. Basics of Computer
2. Computer Generations
3. I/O System of Computer

Course Objectives:

To Learn:

- The Core Knowledge about Operating System
- The Operating System working

Course Outcomes:

Student will able to:

- Built up base about Operating System
- Understand Operating System Model
- Understand about Process Management of Process Operating System
- Understand the File System Concept

Curriculum Details:*(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the

			contents
1.0		**Operating System and System Structure**	**9**
	1.1	Operating System Concept : User View, System View, Defining OS	
	1.2	Computer System Organization and Architecture : Single Processor System and Multiprocessor System	
	1.3	Extended Machine Concept and Operating System Structure	
	1.4	An Operating System Resource Manager	
	1.5	Operating System Services	
	1.6	User Operating System Interface: 1) Command Interpreter 2) GUI	
	1.7	System Calls and Types of System Calls	
2.0		**Process Management and Multithreaded Programming**	**8**
	2.1	Process Concept and Process Scheduling	
	2.2	Scheduling Criteria	
	2.3	Scheduling Algorithms	
	2.4	Multithreading Models, Thread Libraries – threads	
3.0		**Memory Management**	**7**
	3.1	Introduction to Memory Management	
	3.2	Contiguous Memory Allocation 1) Memory Allocation 2) Fragmentation	
	3.3	Paging 1) Basic Method 2) Hardware Support	
	3.4	Segmentation 1) Basic Method 2) Hardware Support	
4.0		**File System**	**6**
	4.1	File System Concept	
	4.2	Access Methods 1) Sequential 2) Direct	
	4.3	Directory and Disk Structure	
	4.4	Allocation Methods	
	4.5	Free Space Management	
		Total	**30**

Reference Books:

1. Abraham Silberschatz, Peter Galvin, Greg Gagne", Operating System Concepts" WILEY India Edition 8 th Edition
2. Achyut Godbole, Atul Kahate "Operating Systems" , McGraw Hill Education Third Edition

Course Structure: *Major 1 -Teaching Scheme*

Major 1 -Assessment Scheme

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMP1152	Operating System	--	04	--	04	04

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)	
SSFDMP1152	Operating System	--	--	--	--	20	30	50

SSFDMT1152: ***Operating System (Major 1) Curriculum Details***

Conduct at least 15 practical's on the syllabus

Course Structure: ***Major 1 -Teaching Scheme***

Major 1 -Assessment Scheme

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDMP1151	Digital Marketing	02	--	02	--	02

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)	
SSFDGE1151	Digital Marketing	10	10	10	40	--	--	50

SSFDGE1151: *Digital Marketing (Major 1) Curriculum Details*

Course pre-requisite:

1. Basic knowledge of computer.
2. Basic knowledge of internet

Course Objectives:

To Learn:

- The basic Concepts of Digital marketing
- The different tools of Digital marketing.

Course Outcomes:

Student will able to:

- Understand the local and global market.
- Handle POEM Framework.
- Understand the different ad formats.

Curriculum Details:*(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Introduction to Digital Marketing**	**6**
	1.1	Fundamentals of Digital marketing & Its Significance	
	1.2	Traditional marketing Vs Digital Marketing	
	1.3	Evolution of Digital Marketing	
	1.4	Key Drivers, Netizen's expectation	
2.0		**Digital marketing Strategy**	**8**
	2.1	The Digital users in India	
	2.2	Consumer Decision journey	
	2.3	POEM Framework	
	2.4	Segmenting & Customizing messages	
3.0		**Digital Marketing Terminology**	**8**
	3.1	PPC and online marketing through social media	
	3.2	SEO techniques	
	3.3	Social Media Marketing	
	3.4	Email Marketing,	
	3.5	Mobile Marketing	
4.0		**Study of Tools**	**8**
	4.1	Display adverting	
	4.2	Different type of ad tools	
	4.3	Types of display ads	
	4.4	Different ad formats	
		Total	**30**

Reference Books:

1. Digital Marketing, S.Gupta, McGraw-Hill
2. Quick win Digital Marketing, H. Annmarie , A. Joanna, Paperback edition
3. Digital Marketing –Kamat and Kamat-Himalaya
4. Marketing Strategies for Engaging the Digital Generation, D. Ryan,
5. Digital Marketing, V. Ahuja, Oxford University Press

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDGE1151	Statistical Methods	02	--	02	--	02

Major 1 -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)	
SSFDGE1151	Statistical Methods	10	10	10	40	--	--	50

SSFDGE1151: *Statistical Method (Major 1) Curriculum Details*

Course pre-requisite:

1. Basic concept of statistics.
2. Calculate and Interact various measures of statistics.

Course Objectives:

To Learn:

- Interact ideas of random variable, frequency distribution, calculate and interact various measures in statistics

Course Outcomes:

Student will able to:

- Use of data collection & statistics.
- Recognize, examine & interact the basic principles of describing and presenting data.

Curriculum Details:*(There shall be FOUR Modules in each course)*

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		Introduction	**7**
	1.1	Definition of Statistic	
	1.2	Importance & Limitation of Statistics	
	1.3	Scope of Statistics (Computer Science, Industry, Economics)	
	1.4	Collection of data	
	1.5	Frequency Distribution	
	1.6	Discrete & Continues variable	
2.0		**Measures of central Tendency**	**8**
	2.1	Concept	
	2.2	Mean Definition ,formulae, Numerical example	
	2.3	Median Definition ,formulae, Numerical example	
	2.4	Mode Definition ,formulae, Numerical example	
	2.5	Quartile Definition ,formulae, Numerical example	
	2.6	Merits and demerits of Mean median and mode	
3.0		**Correlation & Regression**	**7**
	3.1	Concept	
	3.2	Types of correlation	
	3.3	Karl Pearson's coefficient of correlation	
	3.4	Numerical examples	
	3.5	Regression	
	3.6	Regression equations/line	
	3.7	Numerical examples	
4.0		**Probability**	**8**
	4.1	Definition	
	4.2	Sample space, Event, Types of event	
	4.3	Permutation & Combination	
	4.4	Theorems of probability a. $P(A)=1-P(A')$ b. $0 \leq P(A) \leq 1$ c. $P(A \cup B)=P(A)+P(B)-P(A \cap B)$	
	4.5	Examples	
		Total	**30**

Reference Books:

1. "STATISTICAL METHODS" III Edition (2001) S P Gupta & Kapoor
2. "Business Statistics" II Edition (2005) Gupta and Kapoor
3. Foundation of Mathematics statistics – S. C. Gupta & V. K. Kapoor
4. Statistical methods – S. C. Gupta.

Course Structure: *Skill Based Course -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SSFDSC1151	Cascading Style Sheet and Bootstrap	--	04	--	04	04

Major 1 -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)	
SSFDSC1151	Cascading Style Sheet and Bootstrap	--	--	--	--	02	30	50

SSFDSC1151: *Cascading Style Sheet and Bootstrap (Major 1)*

Curriculum Details

Course pre-requisite:

- Basic concept of web designing.
- Basics understanding of HTML tags.

Course Objectives:

To Learn:

- How to use Cascading Style Sheets (CSS) to style web pages.
- The basic to advanced styling techniques and prepare students for careers in web design and front-end development.
- Structuring text and image content for the web using HTML5, Learning semantic markup, creating hyperlinks, Learning the box model for basic layout, and Making web pages accessible and well-formed.

Course Outcomes:

Student will able to:

- Use the Cascading Style Sheet (CSS) and Web designing.
- Present data using CSS

Curriculum Details:

SR No.	Practical List
1.	WAP on inline CSS
2.	WAP on embedded CSS
3.	WAP on External CSS
4.	WAP on Applying CSS Properties
5.	WAP on Working with Lists using CSS
6.	WAP on Working with Tables using CSS
7.	WAP on CSS Selectors: Class and ID
8.	WAP on Applying Style with border-radius, text-shadow and box-shadow
9.	WAP on Applying CSS Display and Floating
10.	WAP on Creating table with bootstrap classes

Conduct 10 Practical using the above contents

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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