॥ 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.
२) मा. संचालक, परीक्षा व मुंल्यमापन मंडळ, प्रस्तुत विद्यापीठ.
३) मा. प्राचार्य, सर्व संबधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
४) मा. संचालक, सर्व संकुले परिसर व उपपरिसर, प्रस्तुत विद्यापीठ
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. Data Science (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** (Data Science)

Under the Faculty of Science & Technology

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

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: DTS (Major) /DSM (Minor 1 and Minor 2)

B.Sc. Data Science (DTS) (Single Major) First Year

Eligibility: 12th Arts/Commerce/Science/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	SDTSCT1101 (T 2Cr) SDTSCP1101 (P 2Cr) 4 Credits	SDTSMT1101 (T 2Cr) SDTSMP1101 (P 2Cr) 4 Credits	SDTSMT1102 (T 2Cr) SDTSMP1102 (P 2Cr) 4 Credits	SDTSGE1101 2 Credits	SDTSSC1101 2 Credits	AECENG1101 (2Cr) ACEMIL1101 (2Cr) IKSXXX1101 (2Cr) 6 Credits		22	44
	II	SDTSCT1151 (T 2Cr) SDTSCP1151 (P 2Cr) 4 Credits	SDTSMT1151 (T 2Cr) SDTSMP1151 (P 2Cr) 4 Credits	SDTSMT1152 (T 2Cr) SDTSMP1152 (P 2Cr) 4 Credits	SDTSGE1151 2 Credits	SDTSSC1151 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. **DTS Data Science**

B. Sc. Data Science 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	SDTSCT1101	Data Analysis With Excel	02	--	**04**	02	--
	SDTSCP1101	Data Analysis With Excel (P)	-	02			04
Optional 2	SDTSMT1101	Web Technology	02	--	**04**	02	--
	SDTSMP1101	Web Technology (P)	-	02			04
Optional 3	SDTSMT1102	Programming with Python	02	--	**04**	02	--
	SDTSMP1102	Programming with Python (P)	-	02			04
Generic Electives *(from other Faculty)*	SDTSGE1101	Basics of Mathematics / Intellectual Property Rights **(Basket 3)**	02	--	**02**	02	--
Skill Based Course (related to Major)	SDTSSC1101	Basics of Info. Tech.	--	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. Data Science 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	SDTSCT1101	Data Analysis With Excel	10	10	10	40	--	--	50
	SDTSCP1101	Data Analysis With Excel (P)	--	--	--	--	20	30	50
Optional 2	SDTSMT1101	Web Technology	10	10	10	40	--	--	50
	SDTSMP1101	Web Technology (P)	--	--	--	--	20	30	50
Optional 3	SDTSMT1102	Programming with Python	10	10	10	40	--	--	50
	SDTSMP1102	Programming with Python (P)	--	--	--	--	20	30	50
Generic Elective	SDTSGE1101	Basics of Mathematics / Intellectual Property Rights **(Basket 3)**	10	10	10	40	--	--	50
Skill Based Course	SDTSSC1101	Basics of Info. Tech.	--	--	--	--	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. Data Science 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	SDTSCT1151	Data Analysis with Power BI- I	02	--	**04**	02	--
	SDTSCP1151	Data Analysis with Power BI - I (P)	-	02			04
Optional 2	SDTSMT1151	Introduction to RDBMS	02	--	**04**	02	--
	SDTSMP1151	Introduction to RDBMS (P)	-	02			04
Optional 3	SDTSMT1152	Operating System	02	--	**04**	02	--
	SDTSMP1152	Operating System (P)	-	02			04
Generic Electives *(from other Faculty)*	SDTSGE1151	Computational Statistics / Digital Marketing / Numerical Ability **(Basket 3 of respective Faculty)**	02	--	**02**	02	--
Skill Based Course (related to Major)	SDTSSC1151	CSS	--	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**	**14**	**08**	**22**

B. Sc. Data Science 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	SDTSCT1151	Data Analysis with Power BI-I	10	10	10	40	--	--	50
	SDTSCP1151	Data Analysis with Power BI- I (P)	--	--	--	--	20	30	50
Optional 2	SDTSMT1151	Introduction to RDBMS	10	10	10	40	--	--	50
	SDTSMP1151	Introduction to RDBMS (P)	--	--	--	--	20	30	50
Optional 3	SDTSMT1152	Operating System	10	10	10	40	--	--	50
	SDTSMP1152	Operating System (P)	--	--	--	--	20	30	50
Generic Elective	SDTSGE1151	Computational Statistics / Digital Marketing **(Basket 3)**	10	10	10	40	--	--	50
Skill Based Course	SDTSSC1151	CSS	--	--	--	--	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	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSCT1101	Data Analysis With Excel	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)	
SDTSCT1101	Data Analysis With Excel	10	10	10	40	--	--	50

SDTSCT1101: *Data Analysis With Excel (Major 1) Curriculum Details*

Course pre-requisite:

1. Basic knowledge about DBMS

Course Objectives:

- Student will Gain a comprehensive understanding of Microsoft Excel and become proficient in using its various data analysis features and functions.
- Student will learn how to import, clean, and preprocess data in Excel, ensuring data accuracy and quality.
- Students are able to create effective data visualizations and charts in Excel to communicate data insights clearly and concisely.

Course Outcomes:

- Students are able to develop proficiency in using Microsoft Excel for data analysis tasks.
- Students are able to import, clean, and preprocess data in Excel.
- Students are able to apply statistical methods and hypothesis testing for data-driven decision-making.
- Student can able to Create effective data visualizations and charts to communicate insights.

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 Data Analysis and Excel**	**5**
	1.1	What is Data Analysis?	
	1.2	Introduction to Microsoft Excel	
	1.3	Navigating the Excel Interface	
	1.4	Importing and Formatting Data in Excel	
2.0		**Data Cleaning and Pre-processing**	**8**
	2.1	Identifying and Handling Missing Data	
	2.2	Removing Duplicates	
	2.3	Data Validation and Sorting	
	2.4	Data Cleaning Best Practices	
3.0		**Data Visualization in Excel & Statistical Analysis Excel**	**7**
	3.1	Creating Charts and Graphs	
	3.2	Customizing Chart Elements	
	3.3	Using PivotTables for Data Summarization	
	3.4	Data Visualization Best Practices	
	3.5	Descriptive Statistics	
	3.6	Hypothesis Testing Using Excel	
	3.7	Correlation and Regression Analysis	
	3.8	Analysis Tool Pak and Excel Functions for Statistical Analysis	
4.0		**Advanced Excel Functions for Data Analysis & Advanced Data Analysis Techniques with Excel**	**10**
	4.1	VLOOKUP and HLOOKUP	
	4.2	INDEX and MATCH	

	4.3	Advanced PivotTables	
	4.4	Scenario Manager and Goal Seek	
	4.5	Power Query for Data Transformation	
	4.6	Advanced Data Modelling	
	4.7	Solver for Optimization	
	4.8	Time Series Analysis	
	4.9	Advanced Charting Techniques	
	4.10	Statistical Data Analysis with Real-World Examples	
	4.11	Advanced PivotTables and Pivot Charts	
		Total	**30**

Text Books:

1. "Data Analysis Using Microsoft Excel: Updated for Office 365" by Michael Alexander and Richard Kusleika

Reference Books:

1. "Excel 2019 All-in-One for Dummies" by Michael Alexander and Richard Kusleika
2. "Excel Data Analysis: Modelling and Simulation" by Hector Guerrero.

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSCP1101	Data Analysis With Excel	--	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)	
SDTSCP1101	Data Analysis With Excel	--	--	--	--	20	30	50

SDTSCP1101: *Data Analysis With Excel (Major 1) Curriculum Details*

Note: Conduct 15 practical on given contents.

Course Structure: *Minor 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSMT1101	Web Technology	02	--	02	--	02

Minor 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)	
SDTSMT1101	Web Technology	10	10	10	40	--	--	50

SDTSMT1101: *Web Technology (Minor 1) Curriculum Details*

Course pre-requisite:

1. Should have knowledge about computer.
2. Should known internet.

Course Objectives:

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

Course Outcomes:

- Able to design and implement dynamic websites
- Able to 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**	**8**
	3.1	Creating Ordered & Unordered List	
	3.2	Creating Anchor Tag	
	3.3	Using frame 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**

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: *Minor 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSMP1101	Web Technology	--	02	--	02	02

Minor 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)	
SDTSMP1101	Web Technology	--	--	--	--	20	30	50

SDTSMP1101: *Web Technology (Minor 1) Curriculum Details*

Note: Conduct 15 practical on given contents.

Course Structure: *Minor 2 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSMT1102	Programming with Python	02	--	02	--	02

Minor 2 -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)	
SDTSMT1102	Programming with Python	10	10	10	40	--	--	50

SDTSMT1102: *Programming with Python (Minor 2) Curriculum Details*

Course pre-requisite:

1. Basic Computer Skills

Course Objectives:

1. To define the structure and components of a Python program.
2. To understand programming constructs in Python.
3. To acquire Object Oriented Skills in Python.

Course Outcomes:

1. Write programs using Python programming constructs.
2. Design and Develop applications using Python programming.
3. Design object oriented programs with Python classes.

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

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1		**Introduction to Python Language**	**7**
	1.1	History of Python Language	
	1.2	Origin of Python Programming Language	
	1.3	Features of Python	
	1.4	Major Applications of Python	
	1.5	Getting Python	
	1.6	Installing Python	
	1.7	Python Environment Variables	
	1.8	Running Python- Interactive Interpreter, Script from the Command Line, Integrated Development Environment	
	1.9	Python Differences from other Languages like C, C++, Java etc.,	
2		**Python Data Types and Input Output**	**7**
	2.1	Keywords	
	2.2	Identifiers	
	2.3	Python Statements	
	2.4	Indentation, Python Documentation	
	2.5	Python Variables, Multiple Assignment	
	2.6	Understanding Data Type- Numbers, strings, Lists, Tuples, Sets, Dictionaries, Files	
	2.7	Data Type Conversion	

	2.8	Python Input and Output- Input, Output Formatting	
	2.9	Import statement	
3		**Operators, Expressions and Control Structures**	**8**
	3.1	Operators- Arithmetic, Comparison, Assignment, Logical, Bitwise, Special, Identity, Membership Operators.	
	3.2	Expressions- Python Operator Precedence, Associativity, Non Associative Operators.	
	3.3	Control Structures- Decision Making, Python Loops, Control Statements.	
4		**Python Native Data Types, Functions and Modules**	**8**
	4.1	Python Native Data Types- Numbers, Strings, Lists, Tuples, Sets, Dictionaries.	
	4.2	Python Functions	
	4.3	Types of Functions- Built-in and user Defined Functions	
	4.4	Types of Function Arguments (Parameters)- Functions with No arguments, Required arguments, Arbitrary Length Arguments, Keyword Based Arguments and Default Arguments.	
	4.5	Python Anonymous Functions	
	4.6	Pass by Value vs. Pass by Reference	
	4.7	Python Modules and Packages- Importing Modules, dir() function, Standard Modules.	
		Total	**30**

Text Books:

1. Learning Python Mark Lutz O'Reilly 5th edition

Reference Books:

1. Starting Out with Python plus MyProgramming Lab Tony Gaddis Pearson eText --Access Card Package 3rd edition
2. Programming in Python By Dr. Pooja Sharma · 2017

Course Structure: *Minor 2 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSMP1102	Programming with Python	--	02	--	02	02

Minor 2 -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)	
SDTSMP1102	Programming with Python	--	--	--	--	20	30	50

SDTSMP1102: *Programming with Python (Minor 2) Curriculum Details*

Note: Conduct 15 practical on given contents.

Course Structure: *Generic Electives -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSGE1101	Basics of Mathematics	02	--	02	--	02

Generic Electives -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)	
SDTSGE1101	Basics of Mathematics	10	10	10	40	--	--	50

SDTSCT1101: *Basics of Mathematics (GE)Curriculum Details*

Course pre-requisite:

1. To clear Basic concept of Mathematics.
2. Calculate and interact various Mathematical calculations.

Course Objectives:

- To recognize type of relation, formulate and solve problem with relation and function.
- Students will develop problem-solving & critical thinking skills & use these skills to solve complex computational problems

Course Outcomes:

- Apply mathematical foundation to the discipline.
- Able to use standard mathematical techniques to solve elementary problem.

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

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Set Theory**	
	1.1	Definition of set	
	1.2	Types of Set	
	1.3	Venn-diagram	**8**
	1.4	Operation on Sets,	
	1.5	Properties of Set	
	1.6	Examples on Sets	
2.0		**Matrices & Determinant**	
	2.1	Definition	
	2.2	Types of matrices	
	2.3	Algebra of matrices	**7**
	2.4	Determinant of a Matrix	
	2.5	Ad-joint of matrices & Inverse of matrices	
	2.6	Numerical Examples	
3.0		**Co-ordinate Geometry**	
	3.1	Introduction	
	3.2	Co-ordinates of a point and quadrants	
	3.3	Distance between two points	**8**
	3.4	Equations of straight line	
	3.7	Numerical examples	
4.0		**Relation & function**	
	4.1	Cartesian products	
	4.2	Function and Types	**7**
	4.3	Relation and Types	
	4.4	Domain,Co-domain,Range	
		Total	**30**

Text Books:

1. Elements of discrete mathematics, C. L. Liu

2. Discrete mathematics, Olympia Nicodemi

Reference Books:

1. Basic mathematics, Mittal & Agrawal

2. A text book of discrete mathematics Dr.swapankumar Sarkar

Course Structure: *Generic Electives -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSGE1101	Intellectual Property Rights	02	--	02	--	02

Generic Electives -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)	
SDTSGE1101	Intellectual Property Rights	10	10	10	40	--	--	50

SDTSGE1101: *Intellectual Property Rights (GE) Curriculum Details*

Course pre-requisite:

1. Basic understanding of Intellectual Properties, Patents, Trademarks, Copyrights and designs

Course Objectives:

- To make the students aware of their rights for the protection of their invention done in their project work.
- To get registration in our country and foreign countries of their invention, designs and thesis or theory
- to identify the different types of IPR's.

Course Outcomes:

- Get awareness of acquiring the patent
- Learn to have copyright for their innovative works.
- Get the knowledge of plagiarism in their innovations which can be questioned legally

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 IPR**	**8**
	1.1	Meaning of property	
	1.2	Origin, Nature, Meaning of Intellectual Property Rights	
	1.3	Kinds of Intellectual property rights	
2.0		**Patent Rights and Copy Rights**	**7**
	2.1	Origin, Meaning of Patent	
	2.2	Types, Inventions which are not patentable	
	2.3	Registration Procedure	
	2.4	Rights and Duties of Patentee	
3.0		**Copy Rights and Trade Mark**	**8**
	3.1	Definition &Types of Copy Right	
	3.2	Registration procedure	
	3.3	Meaning & Nature of Trade Marks	
	3.4	Types, Registration of Trade Marks	
4.0		**Design**	**7**
	4.1	Definition, Object, Registration of Design	
	4.2	Cancellation of Registration	
	4.3	International convention on design	
	4.4	Functions of Design	
		Total	**30**

ReferenceBooks:

1. Intellectual Property Rights and the Law, Gogia Law Agency, by Dr. G.B. Reddy
2. Law relating to Intellectual Property, Universal Law Publishing Co, by Dr. B.L.Wadehra
3. IPR by P. Narayanan
4. Law of Intellectual Property, Asian Law House, Dr.S.R. Myneni.

Course Structure: *Skill Based Course -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSSC1101	Basics of Info. Tech	--	02	--	02	02

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)	
SDTSSC1101	Basics of Info. Tech	--	--	--	--	20	30	50

Course pre-requisite:

1. Basic things related to computer

Course Objectives:

- Through this paper Student should learn basic principles of computer. The paper is designed to aim at importing basic level of Computer.

Course Outcomes:

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

SDTSSC1101: *Basics of Info. Tech (Skill Based Course) Curriculum Details*

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

Exp No.		Topic	
1.		Study of Input devices**.**	
2.		Study of Output devices.	
3.		Internal And External DOS Commands	
4.		Study of Memory devices	
5.		External DOS commands	
6.		Create E-mail	
7.		Web Browser	
8.		Printer sharing	
9.		Identify computer hardware and software	
10.		Windows Operating System	

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
SDTSCT1151	Data Analysis with Power BI- I	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)	
SDTSCT1151	Data Analysis with Power BI- I	10	10	10	40	--	--	50

SDTSCT1151: *Data Analysis with Power BI- I (Major 1) Curriculum Details*

Course pre-requisite:

1. Basic Computer Skills
2. Familiarity with Microsoft Excel

Course Objectives:

- Identify the primary components of the Power BI interface: reports, data, and model views
- Import Excel data and build basic visuals
- Publish a desktop report to the Power BI Service

Course Outcomes:

- To study the basic concepts and terminology of Power BI
- To Understand the use of Power BI for Importing, transforming, and cleansing data
- Building a data model for reporting.

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

Module No.	Unit No.	Topic	Hrs. Required to cover the contents
1.0		**Introducing Power BI**	**7**
	1.1	Why Use Power BI?	
	1.2	The xVelocity In-Memory Analytics Engine	
	1.3	Setting Up the Power BI Environment	
	1.4	Exploring the Power BI Desktop Interface	
2.0		**Importing Data into Power BI Desktop**	**7**
	2.1	Importing Data from Relational Databases	
	2.2	Importing Data from Text Files	
	2.3	Importing Data from a Data Feed	
	2.4	Importing Data from Analysis Services	
3.0		**Data Mugging with Power Query**	**8**
	3.1	Discovering and Importing Data	
	3.2	Transforming, Cleansing, and Filtering Data	
	3.3	Merging Data	
	3.4	Appending Data	
	3.5	Splitting Data	
	3.6	Unpivoting Data	
	3.7	Inserting Calculated Columns	
4.0		**Creating the Data Model**	**8**
	4.1	What Is a Data Model?	
	4.2	Creating Table Relations	
	4.3	Creating a Star Schema	
	4.4	Understanding When to De-normalize the Data	

	4.5	Making a User-Friendly Model	
	4.6	Creating the Data Model	
		Total	**30**

Text Books:

1. Microsoft Power BI Quick Start Guide
   Author Name: Devin Knight

Reference Books:

3. "Microsoft Power BI Cookbook" By Brett Powell 2nd Edition, Publisher: Packt publishing, ISBN-13: 978-1788297233
4. "Learn Power BI" By Greg Deckler, Publisher: Packt, ISBN-13: 9781801811958

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSCP1151	Data Analysis with Power BI- I	--	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)	CA (8)	ESA (9)	
		Test I (4)	Test II (5)	Avg. of T1 & T2 (6)				
SDTSCP1151	Data Analysis with Power BI- I	--	--	--	--	20	30	50

SDTSCP1151: *Data Analysis with Power BI- I (Major 1) Curriculum Details*

Note: Conduct 15 practical on given contents.

Course Structure: *Major 1 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSMP1151	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)	
SDTSMP1151	Introduction to RDBMS	10	10	10	40	--	--	50

SDTSMT1151: *Introduction to RDBMS (Major 1) Curriculum Details*

Course pre-requisite:

2. Basic knowledge about DBMS

Course Objectives:

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

Course Outcomes:

Students will be able to:

- Design and implement a database schema for a given problem-domain using data model
- Understand the 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
SDTSMP1151	Introduction to RDBMS	--	04	--	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)	
SDTSMP1151	Introduction to RDBMS	--	--	--	--	20	30	50

SDTSMP1151: ***Introduction to RDBMS (Major 1) Curriculum Details***

Note: - Conduct 15 practical on given contents.

Course Structure: *Minor 2 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSMT1152	Operating System	02	--	02	--	02

Minor 2 -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)	
SDTSMT1152	Operating System	10	10	10	40	--	--	50

SDTSMT1152: *Operating System (Minor 2) Curriculum Details*

Course pre-requisite:

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

Course Objectives:

- Core Knowledge about Operating System
- Operating System working

Course Outcomes:

- Built up base about Operating System
- Aware about Operating System Model
- Information about Process Management of Process Operating System
- Knowledge about 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 1	
	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: *Minor 2 -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSMP1152	Operating System	--	02	--	02	02

Minor 2 -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)	
SDTSMP1152	Operating System	--	--	--	--	20	30	50

SDTSMP1152: *Operating System (Minor 2) Curriculum Details*

Note: Conduct 15 practical on given contents.

Course Structure: *Generic Electives -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSGE1151	Computational Statistics	02	--	02	--	02

Generic Electives -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)	
SDTSGE1151	Computational Statistics	10	10	10	40	--	--	50

SDTSCT1101: *Computational Statistical (GE) Curriculum Details*

Course pre-requisite:

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

Course Objectives:

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

Course Outcomes:

- Explain the 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**

Text Books:

1. "STATISTICAL METHODS" III Edition (2001) S P Gupta & Kapoor
2. "Business Statistics" II Edition (2005) Gupta and Kapoor

Reference Books:

1. Foundation of Mathematics statistics – S. C. Gupta & V. K. Kapoor
2. Statistical methods – S. C. Gupta.

Course Structure: *Generic Electives -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSGE1151	Digital Marketing	02	--	02	--	02

Generic Electives -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)	
SDTSGE1151	Digital Marketing	10	10	10	40	--	--	50

SDTSGE1151: *Digital Marketing (GE) Curriculum Details*

Course pre-requisite:

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

Course Objectives:

- To understand the basic Concepts of Digital marketing
- To understanding different tools of Digital marketing.

Course Outcomes:

- Get knowledge of local and global market.
- Get knowledge of POEM Framework.
- Get knowledge different ad formats

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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: *Skill Based Course -Teaching Scheme*

Course Code	Course Name (Paper Title)	Teaching Scheme(Hrs.)		Credits Assigned		
		Theory	Practical	Theory	Practical	Total
SDTSSC1151	CSS	--	02	--	02	02

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)	
SDTSSC1151	CSS	--	-	--	--	20	30	50

SDTSSC1151: *CSS (Skill Based Course) Curriculum Details*

Course pre-requisite:

1. Basic knowledge about web technology.
2. Basics about Computer Applications.

Course Objectives:

- Introduction fundamental concepts of web technology.
- Introduce students with various concepts of designing web page
- Introduce CSS technology of front end development.
- Allow the student to gain expertise in areas of front end development

Course Outcomes:

- After completing this course the student get the knowledge and ability to:
- Understand basic concept of CSS.
- Students can identify the different types of CSS implementation.
- Able to implement bootstrap in webpage.

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

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

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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