KANNUR UNIVERSITY

(Abstract)

FYUGP - Scheme (All Semesters) and Syllabus (First and second semester only) of B.Sc. Cyber Security Programme - Approved & Implemented w. e. f. 2024 Admission- Orders Issued

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ACADEMIC C SECTION

FYUGPSC/FYSC-III/9089/2024   Dated: 26.03.2025

Read:-1. U.O. No. FYUGPSC/FYSC-I/5074/2024, dated: 18/04/2024

2. Letter No DBASC/Syllabus/2024/B.Sc Cyber Security dated 09/10/2024 from the Principal, Don Bosco Arts & Science College, Angadikkadavu

3. Minutes of the Meeting of the Board of Studies in Computer Science (UG) held on 04/11/2024

4. Minutes of the meeting of the Academic Council held on 21/12/2024

5. U.O No ACAD A/ ACACD A2/ 13731/ 2024 (II) dated 05/03/2025

ORDER

1. The Regulations of the Kannur University Four Year Under Graduate Programmes (KU-FYUGP Regulations. 2024) for Affiliated Colleges was implemented with effect from 2024 admission, vide the paper read (1) above.

2. As per paper read (2) above, the Principal, Don Bosco Arts & Science College, Angadikkadavu forwarded the Scheme (All Semesters) and Syllabus (first and second semester only) of FYUGP Cyber Security Programme (w. e. f 2024 admission) for approval.

3. Scheme (All Semesters) and Syllabus (First and Second semester only) of FYUGP Cyber Security Programme (w. e. f 2024 admission) was placed before the Board of Studies in Computer Science (UG) for consideration. As per paper read (3) above, the Board of Studies recommended to forward the Scheme (All Semesters) and Syllabus (First and second semester only) of FYUGP Cyber Security Programme, forwarded by the Principal, Don Bosco Arts & Science College, Angadikkadavu, to the Academic Council for further action.

4. XXIXth meeting of the Academic Council, vide paper read (5) above, approved the Scheme (All Semesters) and Syllabus (First and second semester only) of FYUGP Cyber Security Programme.

5. The Minutes of the Academic Council was approved and published.

6.. Meanwhile, vide paper read (5) above, Provisional Affiliation was granted to the B. Sc Cyber

Security Programme at Don Bosco Arts & Science College, Angadikkadavu for the Academic Year 2024-'25.

7. Therefore, the Scheme (All Semesters) and Syllabus (First and Second Semesters only) of FYUGP Cyber Security to be implemented in the Affiliated Colleges w.e.f. 2024 admission is appended with this U.O. and uploaded in the official website of the University.

Orders are issued accordingly.

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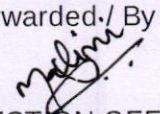
Sd/-

Bindu K P G

DEPUTY REGISTRAR (ACADEMIC)

For REGISTRAR

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To: 1. The Controller of Examinations (Through PA)

        2. The Principals of Affiliated colleges offering the FYUGP Cyber Security programme

        2. The Chairperson, Board of Studies in Computer Science (UG)

Copy To: 1. PA to CE (to circulate the same among the sections concerned under Examination Branch)

        2. PS to VC/PA to R

        3. JR II /EXC I/ EG I/ AR VII (Exam)

        4. DR/AR (Academic)

        5. Web Manager (to upload on the website)

        6. Computer Programmer

        7. SF/DF/FC

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Forwarded / By Order

SECTION OFFICER

</div>

Kannur University

CURRICULUM

SYLLABUS

OF

FOUR YEARS UNDER GRADUATE PROGRAMME (FYUGP)

BSc CYBER SECURITY

Under the Choice Based Credit and Semester System (CBCSS)

W.E.F 2024 Admission onwards

PROGRAMME OUTCOME

PO1: **Critical Thinking and Problem-Solving-Apply critical thinking skills toanalyse information and develop effective problem-solving strategies for tackling complex challenges.**

PO2: **Effective Communication and Social Interaction-Proficiently express ideas and engage in collaborative practices, fostering effective interpersonal connections.**

PO3: **Holistic Understanding-Demonstrate a multidisciplinary approach by integrating knowledge across various domains for a comprehensive understanding of complex issues.**

PO4: **Citizenship and Leadership-Exhibit a sense of responsibility, actively contribute to the community, and showcase leadership qualities to shape a just and inclusive society.**

PO5: **Global Perspective-Develop a broad awareness of global issues and an understanding of diverse perspectives, preparing for active participation in a globalized world.**

PO6: **Ethics, Integrity and Environmental Sustainability-Uphold high ethical standardsin academic and professional endeavours, demonstrating integrity and ethical decision-making. Also acquire an understanding of environmental issues and sustainable practices, promoting responsibility towards ecological well-being.**

PROGRAMME SPECIFIC OUTCOME

PSO1: Design, apply and implement computer science knowledge to implement robust software solutions using diverse programming languages and design tools.

PSO2: Utilize advanced techniques for data storage, retrieval, and manipulation across varied computing environments

PSO3: Critically evaluate and apply information technology tools and methodologies with ethical consideration

PSO4: Engage in team-based projects and interdisciplinary research to address complex computer science challenges

PSO5: Ability to analyse a problem, and identify and define the security related issues appropriate to its solution.

PSO6: Ability to design, implement, and evaluate a security system and IoT structures that capable of identify, prevent and protect from malware attack.

PSO7: Expose the students to learn the important of Cyber Security such as Websecurity, intrusion detection and biometric security so that they can have an opportunity to be a part of industry 5.0applications irrespective of domains.

Kannur University

B.Sc Cyber Security

Sl.No.	Categorization of Courses for all Programs	Minimum Number of Credit required	
		3Year UG	**4Year UG**
1	Major (Core)	68	88*
2	Minor	24	36
3	Multi-disciplinary	9	9
4	Skill Enhancement Courses(SEC)	9	9
5	Ability Enhancement Course(AEC)	12	12
6	Value Added Courses Common for all UG	9	9
7	Summer Internship, field based. Learning etc.	2	2
8	Research Project/Dissertation		12
	Total Credits	**133**	**177**

COURSES	CREDITS	SEMESTERS
Major / Minor Stream (DSC/DSE)	92 (4 credit courses)	Within all six semesters
Multidisciplinary Courses (MDC)	9 (3 credit three courses)	Semester 1 to 6
Skill Enhancement Courses (SEC)	9 (3 credits three courses)	Semester 1 to 6
Value Addition Courses (VAC)	9 (3 credits three courses)	Semester 1 to 6
Ability Enhancement Courses (AEC)	12 (3 Credits 4 courses)	Semester 1and 2
Internship / Field Visit	2 (2 credit courses)	Semester 1 to 6
Total credits for first six semesters	**133**	
COURSES	CREDITS	SEMESTERS
Major / Minor Stream (DSC/DSE)	24 (4 credit courses)	Semester 7
Additional DSC / DSE for Honours (in Major discipline)	12 Credits (2DSC and 1DSE in the Major)	Semester 8
Project	12 Credits	Semester 8
MOOC / ONLINE COURSES (Blended Mode)	8 (4 credits 2 courses)	Semester 7 and 8
Total credits for Semester 7 and 8	**44***	

*For Honours with Research 12 Credits Project in Semester 8 and for Honours additional 12 credits DSC / DSE in Semester 8 which should include Capstone level courses

*AEC- Ability Enhancement Course, DSC- Discipline Specific Course, SEC- Skill Enhancement Course, VAC- Value Added Course, DSE- Discipline Specific Elective

Syllabus Index Page Format

Semester: 1

Course Code	Title of the Course	Type of the Course DSC, MDC, SEC etc.	Credit	Hours / week	Hour Distribution /Week			
					L	T	P	O
KU1DSCCSY101	Fundamentals of Computers and Computer Security	DSC	4 (3T+1P)	5	3		2	
KU1DSCCSY102	Fundamentals of Programming with C	DSC	4 (3T+1P)	5	3		2	
KU1DSCCSY103	Office Automation Software	DSC	4 (3T+1P)	5	3		2	
KU1DSCCSY104	Linux Administration	DSC	4 (3T+1P)	5	3		2	
KU1DSCCSY105	Major Trends in Information Technology	DSC	4	4	4			
KU1MDCCSY101	Data Base Management System	MDC	3	3	3			
KU1MDCCSY102	Digital Marketing	MDC	3	3	3			

L — Lecture, T — Tutorial, P — Practical/Practicum , O — Others

AEC- Ability Enhancement Course, DSC- Discipline Specific Course, SEC- Skill Enhancement Course, VAC- Value Added Course, DSE- Discipline Specific Elective

Semester: 2

Course Code	Title of the Course	Type of the Course DSC, MDC, SEC etc.	Credit	Hours / week	Hour Distribution /Week			
					L	T	P	O
KU2DSCCSY106	Fundamentals of Cyber Security	DSC	4 (3T+1P)	5	3		2	
KU2DSCCSY107	Introduction to Cyber Forensics	DSC	4 (3T+1P)	5	3		2	
KU2DSCCSY108	Essentials of Computer Networks	DSC	4 (3T+1P)	5	3		2	
KU2DSCCSY109	Introduction to Python	DSC	4 (3T+1P)	5	3		2	

Course Code	Title of the Course	Type	Credit	Hours / week				
	Programming							
KU2DSCCSY110	Linear Algebra and Number Theory	DSC	4	4	4			
KU2MDCCSY103	Office Automation Tools	MDC	3	3	3			
KU2MDCCSY104	Introduction to Web Programming	MDC	3	3	3			

Semester: 3

Course Code	Title of the Course	Type of the Course DSC, MDC, SEC etc.	Credit	Hours / week	Hour Distribution /Week			
					L	T	P	O
KU3DSCCSY201	Python for Cyber Security	DSC	4 (3T+1P)	5	3		2	
KU3DSCCSY202	Computer Networks And Network Security	DSC	4	4	4			
KU3DSCCSY203	Ethical Hacking	DSC	4 (3T+1P)	5	3		2	
KU3DSCCSY204	Basics of Data Analytics	DSC	4 (3T+1P)	5	3		2	
KU3DSCCSY205	Linux Operating System	DSC	4 (3T+1P)	5	3		2	
KU3DSCCSY206	Social Media Analysis	DSC	4 (3T+1P)	5	3		2	
KU3VACCSY201	Cyber Laws and Rules	VAC	3	3	3			
KU3VACCSY202	Cyber Ethics	VAC	3	3	3			

Semester: 4

Course Code	Title of the Course	Type of the Course DSC, MDC, SEC etc.	Credit	Hours / week	Hour Distribution /Week			
					L	T	P	O
KU4DSCCSY207	Operating System and Operating System Security	DSC	4	4	4			
KU4DSCCSY208	Linux System And Network Administration	DSC	4 (3T+1P)	5	3		2	
KU4DSCCSY209	Mobile Application Security	DSC	4	4	4			
KU4SECCSY201	Data Analytics Using Excel	SEC	3	4	2		2	

Course Code	Title of the Course	Type of the Course DSC, MDC, SEC etc.	Credit	Hours / week	L	T	P	O
			(2T+1P)					
KU4SECCSY202	Data Base Administration	SEC	3 (2T+1P)	4	2		2	
KU4VACCSY203	Wireless Sensor Networks	VAC	3	3	3			
KU4VACCSY204	Ethical Hacking	VAC	3	3	3			
KU4VACCSY205	Firewall and Internet Security	VAC	3	3	3			
KU4VACCSY206	Information Security	VAC	3	3	3			

Semester: 5

Course Code	Title of the Course	Type of the Course DSC, MDC, SEC etc.	Credit	Hours / week	Hour Distribution /Week			
					L	T	P	O
KU5DSCCSY301	Cryptography	DSC	4	4	4			
KU5DSCCSY302	Database Management System	DSC	4 (3T+1P)	5	3		2	
KU5DSCCSY303	Programming in Java	DSC	4 (3T+1P)	5	3		2	
KU5DSECSY301	Social Media Security	DSE	4	5	5			
KU5DSECSY302	Digital Water Marking and Steganography	DSE	4	4	4			
KU5DSECSY303	Biometrics	DSE	4	4	4			
KU5DSECSY304	Cloud Computing	DSE	4	4	4			
KU5SECCSY303	Free and Open-Source Software (FOSS)	SEC	3	3	3			
KU5SECCSY304	Basics of Data Science	SEC	3	3	3			
	INTERNSHIP		2					

Semester: 6

Course Code	Title of the Course	Type of the Course DSC, MDC, SEC etc.	Credit	Hours / week	Hour Distribution /Week			
					L	T	P	O
KU6DSCCSY304	Ethical Hacking and Kali Linux	DSC	4	4	4			
KU6DSCCSY305	Vulnerability Assessment and Penetration Testing	DSC	4	4	4			
KU6DSCCSY306	Project	DSC	4	5	3		2	

			(3T+1P)					
KU6DSECSY307	Network Security	DSE	4 (3T+1P)	5	3		2	
KU6DSECSY308	Ethical Hacking and Kali Linux	DSE	4 (3T+1P)	5	3		2	
KU6DSECSY309	AI for Cyber Security	DSE	4	4	4			
KU6DSECSY311	IoT Security	DSE	4	4	4			
KU6SECCSY305	Digital Forensics	SEC	3	3	3			
KU6SECCSY306	Data Structures	SEC	3	3	3			

Semester: 7

Course Code	Title of the Course	Type of the Course DSC, MDC, SEC etc.	Credit	Hours / week	Hour Distribution /Week			
					L	T	P	O
KU7DSCCSY401	Tools and Techniques for Cyber Security	DSC	4 (3T+1P)	5	3		2	
KU7DSCCSY402	Cyber Crime & Digital Investigation	DSC	4 (3T+1P)	5	3		2	
KU7DSCCSY403	Seminar /Paper Presentation	DSC	4	5	5			
KU7DSECSY404	Intrusion Detection & Incident Response	DSC	4	4	4			
KU7DSECSY405	MOOC ONLINE COURSE	DSC	4	4	4			

SEMESTER 8
DEGREE WITH HONOUR

SI.No.	Course	Offering Departments	Practical	Credit
1	KU8DSECSY406	Seminar		4
2		RESEARCH PROJECT(OPTIONAL)		8
TOTAL CREDIT				12
AND				
Three courses from any discipline Major, Minor, DSC,DSE or any discipline of credit 4(capstone level courses)				12
Total Credit for semester 8				**24**
Total Credit for semester 1 to 6				**133**
Total Credit for semester 7& 8				**44**
Total Credit for semester1 to semester 8				**177**

SEMESTER 8
DEGREE WITH RESEARCH

SI.No	Course	Offering Departments	Practical	Credit
1	KU8DSECSY407	Research Methodology		4
2	KU8DSECSY408	Research Publication and Ethics		4
3	KU8DSECSY409	Paper Presentation in National or International Conference		4
TOTAL CREDIT				12
AND				
PROJECT				12
Total Credit for semester 8				**24**
Total Credit for semester 1 to 6				**133**
Total Credit for semester 7& 8				**44**
Total Credit for semester1 to semester 8				**177**

SEMESTER-1

SI.No.	Course	Offering Departments	Practical	Credit
1	AEC1	English Department	Yes	3(2T+1P)
2	AEC2	Languages		3
3	MDC1	Multi-Disciplinary Course1		3
4	Major1	Fundamentals of Computers and Computer Security	Yes	4(3T+1P)
5	Minor1	Optional Minor offered by any department.	Yes	4(3T+1P)
6	Minor2	Optional Minor offered by any department.	Yes	4(3T+1P)
Total Hours/Credits				**25/21**

Optional Minor 1 Courses for Other Departments (Level 100)

1. Fundamentals of Programming with C
2. Office Automation Software

Optional Minor 2 Courses for Other Departments (Level 100)

1. Linux Administration
2. Major Trends in Information Technology

Multi-Disciplinary Course1(Level 100)

1. Data Base Management System
2. Digital Marketing

SEMESTER-2

SI.No.	Course	Offering Departments	Practical	Credit
1	AEC3	English Department	Yes	3(2T+1P)
2	AEC4	Languages		3
3	MDC2	Multi-Disciplinary Course2		3
4	Major2	Fundamentals of Cyber Security	Yes	4(3T+1P)
5	Minor3	Optional Minor offered by any department.	Yes	4(3T+1P)
6	Minor4	Optional Minor offered by any department.	Yes	4(3T+1P)
Total Hours/Credits				25/21

Optional Minor 2 Courses for Other Departments (Level 100)

1. Introduction to Cyber Forensics

2. Essentials of Computer Networks

Optional Minor 2 Courses for Other Departments (Level 100)

1. Introduction to Python Programming
2. Linear Algebra and Number Theory

Multi-Disciplinary Course2(Level 100)

1. Office Automation Tools
2. Introduction to Web Programming

SEMESTER 3

SI.No.	Course	Offering Departments	Practical	Credit
1	Major3	Python for Cyber Security	Yes	4(3T+1P)
2	Major4	Computer Networks and Network Security		4
3	VAC1	Value Added Course 1		3
4	Minor5	Optional Minor offered by any department.	Yes	4(3T+1P)

5	Minor6	Optional Minor offered by any department.	Yes	4(3T+1P)
6	MDC3	Multi-Disciplinary Course3(KS) Offered by English and language department		3
Total Hours/Credits				**25/22**

Value Added Course 1

1. Cyber Laws and Rules
2. Cyber Ethics

Optional Minor 3 Courses for Other Departments (Level 200)

1. Operating System Essentials
2. Basics of Data Analytics

Optional Minor 3 Courses for Other Departments (Level 200)

1. Linux operating System
2. Social Media Analysis

SEMESTER 4

SI.No.	Course	Offering Departments	Practical	Credit
1	Major5	Operating System and Operating System Security		4
2	Major6	Linux System and Network Administration	Yes	4(3T+1P)
3	Major 7	Mobile Application Security		4
4	SEC1	Skill Enhancement Course 1	Yes	4(3T+1P)
5	VAC2	Value Added course 2		3
6	VAC3	Value Added course 3		3
Internship/Field Visit(Any Semester we can do the Internship-Semester 1 to 6)				2
Total Hours/Credits				**25/21**

Skill Enhancement Course1

1. Data Analytics Using Excel
2. Database Administration

Value Added Course 2

1. Wireless Sensor Networks
2. Ethical Hacking

Value Added Course 3

1. Firewall and Internet Security
2. Information Security

SEMESTER 5

SI.No.	Course	Offering Departments	Practical	Credit
1	Major8	Cryptography		4
2	Major9	Database Management System	Yes	4(3T+1P)
3	Major 10	Programming in Java	Yes	4(3T+1P)
4	Major11	Discipline Specific Elective		4
5	Major12	Discipline Specific Elective		4
6	SEC2	Skill Enhancement Course 2		3
Total Hours/Credits				**25/23**

Discipline Specific Elective

1. Social Media Security
2. Digital Water Marking and Steganography
3. Biometrics
4. Cloud Computing

Skill Enhancement Course 2

1. Free and Open-Source Software (FOSS)
2. Basics of Data Science

SEMESTER -6

SI.No.	Course	Offering Departments	Practical	Credit
1	Major13	Ethical Hacking and Kali Linux	Yes	4(3T+1P)
2	Major14	Vulnerability Assessment and Penetration Testing	Yes	4(3T+1P)
3	Major 15	Project	Yes	4(3T+1P)
4	Major16	Discipline Specific Elective	Yes	4(3T+1P)
5	Major17	Discipline Specific Elective		4
6	SEC3	Skill Enhancement Course 3		3
Total Hours/Credits				**25/23**

Discipline Specific Elective

1. Network Security
2. Cloud Security
3. AI for Cyber Security
4. IoT Security

Skill Enhancement Course 3

1. Digital Forensics
2. Data Structures

SEMESTER 7

SI.No	Course	Offering Departments	Practical	Credit
1	Major	Tools and Techniques for Cyber Security	Yes	4(3T+1P)
2	Major	Cyber Crime & Digital Investigation	Yes	4(3T+1P)
3	Major	Seminar /Paper Presentation		4
4	Major	Intrusion Detection & Incident Response		4(3T+1P)
5	Major	MOOC ONLINE COURSE		4
Total Hours/Credits				**20**

SEMESTER 8

DEGREE WITH HONOURS

SI.No.	Course	Offering Departments	Practical	Credit
1	Major	Seminar		4
2		RESEARCH PROJECT(OPTIONAL)		8
TOTAL CREDIT				12
AND				
Three courses from any discipline Major, Minor, DSC,DSE or any discipline of credit 4(capstone level courses)				12
Total Credit for semester 8				**24**
Total Credit for semester 1 to 6				**133**
Total Credit for semester 7& 8				**44**
Total Credit for semester1 to semester 8				**177**

SEMESTER 8
DEGREE WITH RESEARCH

SI.No.	Course	Offering Departments	Practical	Credit
1	Major/Minor	Research Methodology		4
2	Major/Minor	Research Publication and Ethics		4
3	Major/Minor	Paper Presentation in National or International Conference		4
TOTAL CREDIT				12
AND				
PROJECT				12
Total Credit for semester 8				**24**
Total Credit for semester 1 to 6				**133**
Total Credit for semester 7& 8				**44**
Total Credit for semester1 to semester 8				**177**

Semester-1: Major 1

KU1DSCCSY101: Fundamentals of Computers and Computer Security

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	100-199	**KU1DSCCSY101**	4(3T+1P)	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5hrs.

Course Description:

This is a lecture and laboratory course offered to introduce computer and computer security. Topics include information and data representation, hardware, operating systems and .

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Identify various components of computer system and understand their functions.	U
2	Demonstrate data representation in computer system and various.	U
3	Compare the performance of different types of software.	An
4	Understand the fundamental concepts of Computer Security.	U

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO	PSO	PSO	PSO	PSO	PSO	PSO

	1	2	3	4	5	6	7
CO1	3	2					
CO2	3						
CO3	2		2				
CO4	3		3				2

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**MODULE TITLE: Introduction to Computers**	
	1	Definition and Characteristics of Computers, Brief History and Evolution of Computers. Computer System Overview, Basic Components of a Computer System - Input, Output, Processing, and Storage.	15
	2	**Central Processing Unit (CPU):** Basic Concepts of CPU, Function and Components, Architecture of a CPU - ALU, Registers, and Control Unit.	
	3	Computer Memory: Memory Hierarchy - An Overview, Primary Memory - RAM (Random Access Memory) and ROM (Read-Only Memory), Secondary Memory.	

MODULE	UNIT	DESCRIPTION	HOURS
2		**MODULE TITLE: Introduction to Data Representation**	
	1	Decimal, Binary, Hexa-Decimal and Octal Number Systems, Conversion Between Number Systems.	15
	2	Binary Arithmetic and Complements: Binary addition, subtraction, Complements of Binary Numbers (1's Complement and 2's	

		Complement).	
	3	Binary Coding Scheme: EBCDIC, ASCII Code, Unicode.	
	4	Logic Gates: AND, OR, NOT, NAND, NOR, XOR, XNOR.	

	MODULE TITLE: Introduction to Software		
3	1	Types of Software - Application Software, System Software.	15
	2	Operating Systems – introduction, Objectives of Operating System, Types of Operating System, Examples.	
	3	Linux Operating System: Features of Linux. Basic Commands – useradd, passwd, ls, mkdir, rmdir, cd, cp, mv, rm, pwd,cat.	

	MODULE TITLE: Introduction to Computer Security		
4	1	Introduction, Security Threat and Security attack, Malicious Software: Virus- Worms –Trojan Horse.	15
	2	Hacking: Packet Sniffing-Password Cracking – E-mail Hacking, Security Services.	
	3	Users Identification and Authentication: User Name and Password-Smart card- Biometric Techniques. Security Policy.	

	Teacher Specific Module	15
5	*Directions*	
	Teacher can provide suitable teaching methodologies and evaluation metrics appropriate to the topics.	

Essential Readings:

1. Goel, Anita (2010). Computer fundamentals. Pearson Education India.
2. Floyd, Thomas L (2011). Digital fundamentals, 10/e. Pearson Education India.
3. Petzold, C. (2022). Code: The Hidden Language of Computer Hardware and Software. Pearson Education.
4. Unix Shell Programming, Yeshwanth Kanethkar

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50 (Theory)** **15 (Practical)**
Continuous Evaluation		**35**
CE (Theory)		**25**
a)	Test Paper- 1	5
b)	Model Exam	10
c)	Assignment(2 numbers)	5
d)	Seminar	
e)	Book/ Article Review	5
f)	Viva-Voce	
g)	Field Report	
CE (Practical)		**10**
Total		**100**

Semester-1: Optional Minor-1.1

KU1DSCCSY102: Fundamentals of Programming with C

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	100-199	**KU1DSCCSY102**	4 (3T+1P)	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5hrs.

Course Description:

Programming in C focuses on providing details of C programming language. Topics included are from basics to depth of the language. With the help of this program, students will be able to become an expert in C programming.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the basics of problem-solving methods, computer languages and translators.	U
2	Understand syntax and semantics of C programming language.	U, A
3	Construct C programs for a given logic.	U, A, C
4	Understand, apply and create programs using functions, arrays, structure, pointers and files.	U, A, C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3			2			
CO 2	3		2				

CO 3	3	3	3	2			
CO 4	3	2	2	2		2	2

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**MODULE 1: Introduction to Programming**	15
	1	Programming languages, compilers, compiling and executing a program. Representation of Algorithm - Algorithms for finding roots of a quadratic equations, finding minimumand maximum numbers of a given set, finding if a number is prime number. Flowchart/Pseudocode withexamples, Program design and structured programming	
	2	Introduction to C Programming Language: Character set, constants, variables (with data types and space requirements), printf(), scanf()	
	3	Syntax and Logical Errors in compilation, object and executable code, Operators, expressions andprecedence, Expression evaluation, Storage classes (auto, extern, static and register), type conversion. The main function and command line arguments. Bitwise operations: Bitwise AND, OR, XOR and NOToperators.	
	4	Conditional Branching and Loops: Writing and evaluation of conditionals and consequent branchingwith if, if-else, switch-case, ternary operator, goto, Iteration with for, while, do- while loops.	
2		**MODULE 2:Functions and Dynamic Memory Allocation**	15
	1	Functions: Designing structured programs, declaring a function,	

		structure of a function, Parameters and return type of a function.	
	2	Passing parameters to functions, call by value, passing arrays to functions, passing pointers to functions, idea of call by reference,	
	3	Library functions in C, Recursion: Simple programs, such as Finding Factorial, Fibonacci series etc., Limitations of Recursive functions	
	4	Dynamic memory allocation: Allocating and freeing memory, Allocating memory for arrays of different data types.	

	MODULE 3: Arrays, Structures and Pointers		
	1	Arrays: one and two-dimensional arrays, creating, accessing and manipulating elements of arrays	
3	2	Strings: Introduction to strings, handling strings as array of characters, basic string functions available in C (strlen, strcat, strcpy, strstr etc.), arrays of strings	15
	3	Structures: Defining structures, initializing structures, unions, Array of structures	
	4	Pointers: Idea of pointers, Defining pointers, Pointers to Arrays and Structures, Use of Pointers in self-referential structures, usage of self-referential structures in linked list (no implementation) Enumeration	

	MODULE 4: Preprocessor and File handling in C		
	1	Preprocessor: Commonly used Preprocessor commands like include, define, undef, if, ifdef, ifndef	
4	2	Files: Text and Binary files, Creating and Reading and writing text and binary files,	15
	3	Appending data to existing files, Writing and reading structures using binary files,	
	4	Random access using fseek, ftell and rewind functions.	

5	**Teacher Specific Module**	
	Directions	
	Provide appropriate methodologies and evaluation metrics according to the teachers perspective	15

Essential Readings:

1. Jeri R. Hanly and Elliot B.Koffman, Problem solving and Program Design in C 7th Edition, Pearson
2. B.A. Forouzan and R.F. Gilberg C Programming and Data Structures, Cengage Learning, (3rd Edition)
3. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India
4. E. Balagurusamy, Computer fundamentals and C, 2nd Edition, McGraw-Hill
5. Yashavant Kanetkar, Let Us C, 18th Edition, BPB
6. R.G. Dromey, How to solve it by Computer, Pearson (16th Impression)
7. Programming in C, Stephen G. Kochan, Fourth Edition, Pearson Education.
8. Herbert Schildt, C: The Complete Reference, Mc Graw Hill, 4th Edition
9. Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50 (Theory)** **15 (Practical)**
Continuous Evaluation		**35**
CE (Theory)		**25**
a)	Test Paper- 1	5
b)	Model Exam	10
c)	Assignment(2 numbers)	5
d)	Seminar	
e)	Book/ Article Review	5

f)	Viva-Voce		
g)	Field Report		
CE (Practical)		**10**	
Total		**100**	

Optional Minor 1.2

KU1DSCCSY103: Office Automation Software

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	100-199	**KU1DSCCSY103**	4 (3T+1P)	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5hrs.

Course Description:

Office Automation program focuses on providing basic training in computers and its most common software which is to be used in Office work. With the help of this program, students will be able to become an expert in Office Automation.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Demonstrate proficiency in using word processing software to	U

	create, edit, and format professional documents.	
2	Use essential spreadsheet functions and formulas to analyse and manage data.	U, A
3	Construct visually appealing charts and graphs to effectively communicate data insights.	U, A, C
4	use word processing and worksheet software to solve real world problems	U, A, C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	3	3	2			
CO 2	3	3	2	2			
CO 3	3	3	3	2			
CO 4	3	2	3	2			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**MODULE 1: Introduction to Word Processing**	
	1	Getting Started with the Interface	
	2	Creating and Saving Documents	
	3	Text Formatting and Editing Tools	15
	4	Styles and Templates	

		MODULE 2: Advanced Word Processing Techniques	
2	1	Working with Tables and Images	
	2	Creating Headers, Footers, and Page Numbers	
	3	Mail Merge and Creating Form Letters	15
	4	Document Security and Protection	

		MODULE 3: Introduction to Spreadsheets	
3	1	Understanding Spreadsheets - Cells, Rows, Columns	
	2	Entering and Editing Data - Data Types & Formatting	
	3	Basic Formulas and Functions	15
	4	Creating Charts and Graphs	
	5	Printing and Sharing Spreadsheets	

		MODULE 4: Advanced Spreadsheet Techniques	
4	1	Working with Large Datasets - Filtering & Sorting	
	2	Advanced Functions and Formulas	
	3	Data Analysis Tools (e.g., PivotTables)	15
	4	Creating Macros and Automation	

		Teacher Specific Module	
5		*Directions*	
		Provide appropriate methodologies and evaluation metrics according to the teacher's perspective	15

Essential Readings:

1. **Microsoft Word:**
   - "Getting Started with Microsoft Word: [Book Title about MS Word, Latest Edition]" by [Author(s)] ([Publisher Year]) - This book provides a foundational understanding of core functionalities in Microsoft Word.
   - "Microsoft Word Power Programming: [Book Title about Advanced MS Word, Latest Edition]" by [Author(s)] ([Publisher Year]) - For students interested in exploring advanced features and automation techniques in Word.

2. **Microsoft Excel:**
   - "Excel Formulas and Functions for Beginners: [Book Title about MS Excel Formulas, Latest Edition]" by [Author(s)] ([Publisher Year]) - A helpful guide to grasp essential formulas and functions in Microsoft Excel.
   - "Data Analysis with Microsoft Excel: [Book Title about MS Excel Data Analysis, Latest Edition]" by [Author(s)] ([Publisher Year]) - This book delves into data analysis techniques and tools within Microsoft Excel.

Google Workspace:

1. "The Complete Guide to Google Docs: [Book Title about Google Docs, Latest Edition]" by [Author(s)] ([Publisher Year]) - A comprehensive guide to using Google Docs and its functionalities.
2. "Mastering Google Sheets: [Book Title about Google Sheets, Latest Edition]" by [Author(s)] ([Publisher Year]) - An in-depth exploration of Google Sheets features and data analysis capabilities.

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50 (Theory)** **15 (Practical)**
Continuous Evaluation		**35**
CE (Theory)		**25**
a)	Test Paper- 1	5
b)	Model Exam	10

c)	Assignment(2 numbers)	5	
d)	Seminar	5	
e)	Book/ Article Review		
f)	Viva-Voce		
g)	Field Report		
CE (Practical)		**10**	
Total		**100**	

<u>Semester-: 1 Optional Minor- 2.1</u>

KU1DSCCSY104: Linux Administration

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	300-399	**KU1DSCCSY104**	4 (3T+1P)	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2	-	35	65	100	1.5 Hrs

Course Description:

Linux system administration is a process of setting up, configuring, and managing a computer system in a Linux environment. System administration involves creating a user account, taking reports, performing backup, updating configuration files, documentation, and performing recovery actions.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Discuss basic Linux commands and the file system structure	U
2	Judge the Boot loaders and the configuration files	E
3	Demonstrate different system services and maintenance	U, A
4	Implement Shell Scripting	U, A
5	Demonstrate the steps for Linux installation and System Configuration	U, A

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3			2	2		
CO 2	2	2			2		
CO 3	3				2	2	2
CO 4	2	3		2	2	2	2
CO 5	3	1		2	2	2	2

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
		MODULE1: Introduction to Linux Operating system	
1	1	Linux OS: History, Features and benefits of Linux, basic concepts of multi user system,open source, free Software concepts	15
	2	Types of users in Linux, Types of files. BASICS:login, password, creating an account	

	3	Shell and commands, logout, changing password, files and directories, relative and absolute pathnames, directory tree, current working directory, referring home directory, creating new directories	
	4	Copying files, moving files, deleting files and directories, wild cards, hidden files, cat command	

	MODULE 2: Vi editor and shell commands		
2	1	Vi editor: different modes-command mode, insert mode, last line mode, vi Editing commands – moving within a file, deleting, editing, Copy and Paste Commands, Saving and Closing the file	15
	2	redirecting input/output-filter, pipes. File permissions: user, group, ls command (long listing), changing file permission	
	3	Shell Scripting: Types of shell, Basic shell configuration for bourne and bash shell: /etc/profile, /etc/bashrc, ~/.bash_profile, ~/.bash_login, ~/. profile,~/.bashrc, ~/.bash_logout, ~/.bash_history	
	4	Bourne shell scripts, script execution, variables and parameters, Control structures - Shell if then else, Shell if then elif, Shell for loop, Shell while loop, Shell until loop, Shell case, Shell function.	

	MODULE 3: Linux Boot process and services		
3	1	LILO - boot process, /edc/lilo.conf file, GRUB - /etc/grub.conf file Runlevels, rc files, startup scripts.	**15**
	2	Mounting: mounting file systems, structure of /etc/fstab	
	3	Major services in Linux system - init, /etc/inittab file, login from terminal, syslog and its configuration file /etc/syslog.conf, periodic command execution: at and cron, crontab file	
	4	GUI, X windows. Starting and stopping different services – service command	

	MODULE 4: System Maintenance and Linux Installation		
4	1	System Maintenance: tmpwatch command, logrotate utility	15
	2	Backup and Restore: types of backups - full, differential, incremental, cp, tar commands	
	3	Linux Installation: Partitioning, MBR, SWAP	
	4	File system mount points, rpm utility - installation of packages.	

	Teacher Specific Module		
5	*Directions*		

	15
Teacher can adopt proper methodologies and evaluation methods related to the topics.	

Essential Readings:

1. Unix Shell Programming, Yeshwanth Kanethkar
2. Essential System Administration, O'reilly& Associates.
3. "The Linux Programming Interface: A Linux and UNIX System Programming Handbook" by

Michael Kerrisk.

4. Unix and shell Programming Behrouz A. Forouzan, Richard F. GilbergThomson

Suggested Readings:

1. Unix in a Nutshell, by Daniel Gilly, O'Reilly & Associates.
2. Linux Administration handbook, Nemeth, PHI.
3. Red Hat Linux Bible.
4. A user guide to the Unix system, Thomas, Yates Tata McGraw Hill

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50 (Theory)** **15 (Practical)**
Continuous Evaluation		**35**
CE (Theory)		**25**
a)	Test Paper- 1	5
b)	Model Exam	10
c)	Assignment(2 numbers)	5
d)	Seminar	5
e)	Book/ Article Review	
f)	Viva-Voce	
g)	Field Report	
CE (Practical)		**10**
Total		**100**

Semester-1: Optional Minor 2.2

KU1DSCCSY105: MAJOR TRENDS IN INFORMATION TECHNOLOGY

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	100-199	**KU1DSCCSY105**	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
4	0		30	70	100	2hrs.

Course Description:

This course explores the latest trends and innovations in information technology. Students will learn about emerging technologies, their impact on the industry, and how to leverage these technologies in real-world applications. Topics include artificial intelligence, blockchain, cloud computing, cybersecurity, the Internet of Things (IoT), big data analytics, and more.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Identify the impact of emerging technologies in the field of IT and real life	U
2	Judge the impact of these technologies on various industries.	An
3	Examine practical applications and case studies of emerging technologies.	A
4	Critically evaluate problem-solving skills in the context of new technological developments.	A/E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	1	2	2	3			
CO 2	1	2	2	3			
CO 3	1	2	2	3			
CO 4	1	2	2	3			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**MODULE TITLE:** Introduction to Emerging Technologies	15
	1	Overview of current trends in IT The importance of staying updated with technology	
	2	Edge Computing and 5G Technology-Fundamentals of edge computing.	
	3	The impact of 5G on IT infrastructure Examples of edge computing applications	
2		**MODULE TITLE:** Artificial Intelligence and Machine Learning*	15
	1	Fundamentals of AI and ML	
	2	Applications in various industries	
	3	Ethical considerations and challenges	
3		**MODULE TITLE :** Internet of Things (IoT) &Cloud Computing	15
	1	Overview of IoT and its components	

		Applications in smart homes, healthcare, and industrial automation	
	2	Security and privacy concerns	
	3	Cloud Computing- Introduction and Architecture	
	4	Types of cloud services (IaaS, PaaS, SaaS)	
	5	Benefits and challenges of cloud adoption	

	**MODULE TITLE:Cybersecurity Trends and Ethical and Social Implications of Emerging Technologies***	
	1	Current cyber security threats and vulnerabilities	
4	2	Emerging security technologies and practices- The role of AI in cybersecurity	**15**
	3	Ethical considerations in the development and deployment of new technologies - Social impact and the digital divide	
	4	Regulatory and policy issues	

	Teacher Specific Module	
5	*Directions*	
	Teacher can adopt appropriate strategies and methodologies to connect the topics with real life situations and evaluate it.	15

Essential Readings:

 1. "Artificial Intelligence: A Modern Approach" by Stuart Russell and Peter Norvig

2. "Cloud Computing: Concepts, Technology & Architecture" by Thomas Erl

3. "Cybersecurity and Cyberwar: What Everyone Needs to Know" by P.W. Singer and Allan Friedman

Assessment Rubrics:

Evaluation Type	Marks
End Semester Evaluation	**70**

Continuous Evaluation			**30**
	a)	Test Paper- 1	5
	b)	Model Exam	10
	c)	Assignment(2 numbers)	10
	d)	Seminar	
	e)	Book/ Article Review	5
	f)	Viva-Voce	
	g)	Field Report	
Grand Total			**100**

Semester-1: MDC-1.1

KU1MDCCSY101: Data Base Management System

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	MDC	100-199	**KU1MDCCSY101**	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	0	-	25	50	75	1.5hrs.

Course Description:

This course introduces students to the fundamental concepts of databases and their design. It covers various aspects of database management systems (DBMS), including relational database concepts, database design principles, and database management. Students will learn to design

and implement databases using SQL and ER modelling techniques. The course also explores advanced topics such as database administration, security, and emerging trends in databases.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Discuss the basics of databases and their importance.	U
2	Design and implement relational databases using SQL.	U, A, C
3	Use the concept of normalization and de-normalization techniques in database design.	U, A, An
4	Use security, backup, and recovery strategies to manage databases effectively.	U, E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	3	2	2			
CO 2	3	3	3	2			
CO 3	3	3	2	2	3		3
CO 4	3	3	2	2	3	3	3

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**MODULE 1: Introduction to Databases**	

	1	Overview of databases and their importance	
	2	Basic concepts: data, information, database management system (DBMS)	
	3	Data Models: Introduction to hierarchical, network, and relational data models.	9
	4	Examples of database applications in real life	

	MODULE 2: Relational Database concepts		
	1	Understanding tables, rows, columns, and keys	
2	2	Introduction to SQL (Structured Query Language)	
	3	Basic SQL queries: SELECT, INSERT, UPDATE, DELETE	9
	4	Relational database design principles: normalization and de-normalization	

	MODULE 3: Database Design		
	1	Entity-Relationship (ER) modelling	
3	2	Creating ER diagrams to represent relationships between entities	
	3	Converting ER diagrams to relational schemas	9
	4	Advanced SQL concepts: joins, subqueries	

	MODULE 4: Database Management and Application		
	1	Database administration and security	
4	2	Backup and recovery strategies	9
	3	Introduction to data warehousing and data mining	

	4	Recent trends in databases	

	Teacher Specific Module	
5	*Directions*	
	Teacher can select suitable methodologies and evaluation metrics appropriate to the topics.	9

Essential Readings:

1. Database System Concepts" by Abraham Silberschatz, Henry F. Korth, and S. Sudarshan, **McGraw-Hill**

2. Database Management Systems" by Raghu Ramakrishnan and Johannes Gehrke

3. A Guide to the SQL Standard, C. J. Date and Hugh Darwen, 1997, Addison- Wesley

4. https://www.w3schools.com/sql/

Suggested Readings:

1. An Introduction to Database Systems, C. J. Date, 8th edition.

2. Understanding the New SQL, Jim Melton and Alan R. Simon, Morgan Kaufmann

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50**
Continuous Evaluation		**25**
a)	Test Paper- 1	5
b)	Model exam	10
c)	Assignment	5
d)	Seminar	
e)	Book/ Article Review	5
f)	Viva-Voce	
g)	Field Report	
Total		**75**

Semester-1: MDC-1.2

KU1MDCCSY102: Digital Marketing

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	MDC	100-199	**KU1MDCCSY102**	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	0	-	25	50	75	1.5 hrs

Course Description:

In today's digital age, mastering the art of digital marketing is crucial for businesses to thrive. This course provides a comprehensive understanding of the core principles and strategies involved in promoting a brand or product online. Students will explore various digital channels, gain hands-on experience with essential tools, and develop the skills to create and manage effective digital marketing campaigns

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Locate the digital marketing landscape and its impact on consumer behaviour.	U, An
2	Implement a comprehensive digital marketing strategy aligned with business objectives.	U, A

3	Utilize various digital channels (SEO, SEM, Social Media, Email Marketing) to reach target audiences effectively.	U, E
4	Design engaging content that resonates with target audiences and drives conversions.	U, A, C
5	Discuss campaign performance using key metrics and data insights.	U, An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	3	2	2			
CO 2	2	3	2	2			
CO 3	3	3	2	3			
CO 4	2	3	2	3			
CO 5	2	3	2	2			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
		MODULE 1: Foundations of Digital Marketing	
1	1	Introduction to Digital Marketing - Terminology & Landscape Overview	9
	2	Understanding Customer Behaviour in the Digital Age	
	3	Developing a Buyer Persona and Targeting Strategies	
	4	Setting SMART Goals and Measuring Success in Digital Marketing	

		MODULE 2: Content Marketing & SEO	
2	1	Content Strategy & Development - Creating Engaging Content Across Channels	9
	2	Search Engine Optimization (SEO) Principles - Optimizing Websites for Search Visibility	
	3	Keyword Research & Content Planning for Improved Ranking	
	4	Content Marketing Platforms and Tools	

		MODULE 3: Social Media Marketing & Paid Advertising	
3	1	Social Media Marketing Strategies - Building Brand Communities on Key Platforms	9
	2	Engaging Content Creation for Social Media Channels	
	3	Paid Advertising Fundamentals - Introduction to PPC (Pay-Per-Click) Advertising	
	4	Social Media Advertising Platforms and Campaign Management	

		MODULE 4: Email Marketing & Analytics	
4	1	Effective Email Marketing Strategies - Building Email Lists and Segmentation	9
	2	Crafting Compelling Email Campaigns - Design & Copywriting Techniques	
	3	Email Marketing Automation Tools and Best Practices	
	4	Data Analysis for Digital Marketing - Key Performance Indicators	

		(KPIs) & Tracking Tools	

	Teacher Specific Module	
5	Directions	
	Provide appropriate learning strategies, methodologies and evaluation metrics	9

Essential Readings:

- Choose a recent edition textbook that covers the core concepts and strategies of digital marketing. Here are some examples:
    - "Digital Marketing: A Practical Approach" by Philip Kotler and Kevin Lane Keller ([Publisher Year])
    - "Social Media Marketing: The Complete Idiot's Guide" by Lisa Guernsey ([Publisher Year]) (This is a good option for beginners)
    - "Search Engine Optimization (SEO): The Complete Guide" by Eric Enge, Stephan Spencer, and Jessie Stricchiola ([Publisher Year]) (Focuses on SEO aspects)

E-Sources (Websites/Weblinks):
- **Industry Blogs and Articles:**
    - Search Engine Land (https://searchengineland.com/) - Provides news and insights on SEO and SEM.
    - Social media Today (https://www.socialmediatoday.com/) - Covers trends and best practices in social media marketing.\
    - Moz Blog (https://moz.com/blog) - Offers valuable resources on SEO and content marketing.

- **Official Resources:**
    - Google Digital Garage (https://learndigital.withgoogle.com/digitalgarage) - Free online courses from Google on various digital marketing topics.

- o Facebook Blueprint (https://www.facebook.com/business/learn) - Learning resources from Facebook for advertising and marketing on their platform.

Additional Considerations:
- Case studies: Include a selection of real-world case studies that showcase successful digital marketing campaigns. These can be found online or in industry publications.
- **Academic Journals:** While not always compulsory, scholarly articles from marketing journals can provide deeper insights into specific digital marketing topics. Your library might offer access to relevant databases.

Suggested Readings:

In addition to the core textbook required for your digital marketing course, here are some suggested readings to broaden your knowledge and stay updated on the ever-evolving digital marketing landscape:

Books:
- **General Digital Marketing:**
    - o "Marketing in the Digital Age" by Thomas C. Duncan ([Publisher Year]) - Explores the impact of digital technologies on marketing strategies.
    - o "Digital Marketing Strategy: An Integrated Approach" by Simon P. Wood ([Publisher Year]) - Provides a framework for developing and implementing a comprehensive digital marketing strategy.
- **Specific Areas of Digital Marketing:**
    - o "The Art of SEO: Mastering Search Engine Optimization" by Eric Enge, Stephan Spencer, and Jessie Stricchiola ([Publisher Year]) - An in-depth exploration of Search Engine Optimization (SEO) strategies.
    - o "Jab, Jab, Jab, Right Hook: How to Tell Your Story in a Noisy Social World" by Gary Vaynerchuk ([Publisher Year]) - Offers practical advice on content marketing and social media engagement.
    - o "Paid Advertising: Strategies for Search Engine Marketing, Display Advertising, Social Media Marketing and More" by Kenneth C. Laudon ([Publisher Year]) - Focuses on paid advertising strategies across various digital channels.

E-Sources (Websites/Weblinks):

- **Industry News and Reports:**
  - WordStream Blog (https://www.wordstream.com/blog) - Offers data-driven insights and marketing advice.
  - Marketing Land ([invalid URL removed]) - Covers a wide range of digital marketing topics with daily news updates.
  - eMarketer (https://www.emarketer.com/) - Provides in-depth market research reports on various aspects of digital marketing (subscription required).
  -

- **Social Media Marketing Resources:**
  - Hootsuite social media Blog (https://blog.hootsuite.com/) - Focused on social media management and marketing strategies.
  - Social Media Examiner (https://www.socialmediaexaminer.com/) - Provides social media marketing news, tips, and case studies.

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50**
Continuous Evaluation		**25**
a)	Test Paper- 1	5
b)	Model exam	10
c)	Assignment	5
d)	Seminar	5
e)	Book/ Article Review	
f)	Viva-Voce	
g)	Field Report	
Total		**75**

Semester-2: Major 2

KU2DSCCSY106: Fundamentals of Cyber Security

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	DSC	100-199	**KU2DSCCSY106**	4 (3T+1P)	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5hrs.

Course Description:

This course provides an overview of the principles and practices of cyber security. Students will learn about the fundamental concepts of Networks, common threats and vulnerabilities, and strategies for protecting systems and data.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand the fundamental concepts of cybersecurity.	U
2	Understand the fundamental concepts of Computer Networks.	U
3	Identify various types of cyber threats and vulnerabilities.	An
4	Implement security measures and best practices.	C

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	3	2					
CO2	3	3					
CO3	2	3			3		
CO4	3	3		3	3	3	3

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
		MODULE TITLE: Introduction to Cyber Security	
1	1	Introduction, Need for Cyber Security, Data and Information.	15
	2	Cyber Security terminology - Cyberspace ,Cybercrime, Cyberattack, Threat, Vulnerability ,Malware, Phishing, Botnets, Adware, Denial of Service , Ransomware , Key Logger.	
	3	The CIA Triads- Confidentiality, Integrity and Availability. Consequences of Weak Security, Challenges in Cyber Security.	

MODULE	UNIT	DESCRIPTION	HOURS
		MODULE TITLE : Network Fundamentals	
2	1	Understanding networks - LAN, WAN, VPN,MAN,PAN	15
	2	OSI Model, OSI Layer Security, TCP/IP model.	
	3	IP address: Types of IP addresses (private IP address, Public IP address), IP address classification. WWW, Internet.	

3	**MODULE TITLE: Network devices and Protocols**	

	1	Network Connectivity devices- Hub, Repeater, Switches, Routers, Gateways, Bridges, NIC.	
	2	Network topology – Types of Network topology.	15
	3	FTP, TELNET, DNS, SSH, HTTP, HTTPS, Ifconfig.	

	MODULE TITLE: Network Security Fundamentals		
	1	Need for Network Security, Hacking, stages of Hacking, Ethical hacking.	
4	2	Types of Network attacks- Spoofing, Sniffing, Mapping, Hijacking, Trojans, DoS and DDoS.	15
	3	Firewalls- Types of firewalls, intrusion detection/prevention systems (IDS/IPS)	

	Teacher Specific Module	**15**
5	*Directions*	
	Teacher can provide suitable teaching methodologies and evaluation metrics appropriate to the topics.	

Essential Readings:

1. Dr. Narmrata Agrawal ,"Cyber Security – A Complete Solution" ,Dreamtech Press.

2. Rajesh KumarGoutam," Cybersecurity Fundamentals", BPB Publications.

3. Cyber Security Essentials, 1st James Graham (Editor), Ryan Olson (Editor), Rick Howard (Editor) Auerbach Publications.

Assessment Rubrics:

Evaluation Type	Marks
End Semester Evaluation	**50 (Theory)** **15 (Practical)**
Continuous Evaluation	**35**

CE (Theory)			25
	a)	Test Paper- 1	5
	b)	Model Exam	10
	c)	Assignment(2 numbers)	5
	d)	Seminar	
	e)	Book/ Article Review	5
	f)	Viva-Voce	
	g)	Field Report	
CE (Practical)			10
Total			**100**

Semester-2: Optional Minor-3.1

KU2DSCCSY107: Introduction to Cyber Forensics

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC	100-199	**KU2DSCCSY107**	4 (3T+1P)	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5hrs.

Course Description:

This course introduces students to the fundamental concepts of cyber threats. It covers various aspects of cyber-crimes, cyber terrorism and national security strategy. Students will also learn cyber-crime investigation skills. The course also explores advanced topics of cyber forensics.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Discuss different types of cyber threats	U
2	Understand the national and international response to cyber crimes	U, An
3	Discuss the techniques to prevent cyber crimes	U, An
4	Understand the techniques of digital forensics	U, E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3		2	2	2	2	2
CO 2	3		2	2	2	2	2
CO 3	3		2	2	2	2	2
CO 4	3		2	2	2	2	2

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS

		MODULE 1: Understanding the Threat from Cyber Crime	
1	1	Introduction Cyber Threat – Definition of Cyber Crime	9
	2	Classification – Current Threats and Trends	
	3	Diversity of Cyber Crime – Cyber Hate Crimes	
	4	Cyber Terrorism.	

		MODULE 2: Responding to Cyber Crime	
2	1	Cyber Strategy – National Security Strategy – Cyber Security Strategy – Organized Crime Strategy	9
	2	Cyber Crime Strategy - Policy Cyber Crime	
	3	International Response, National Cyber Security Structure – Strategic Policy Requirements	
	4	Police and Crime Commissioners.	

		MODULE 3: Investigating Cyber Crime	
3	1	Preventing Cyber Crime – Password Protection – Get Safe Online – Cyber Security Guidance for Business	9
	2	Cyber Crime Investigation Skills – Criminal Investigation	
	3	Code of Ethics – Evidence – Hi-Tech Investigations	
	4	Capturing and Analyzing Digital Evidence.	

		MODULE 4: Digital Forensics	
4	1	Introduction to Digital Forensics - Forensic Software and Hardware - Analysis and Advanced Tools	9
	2	Forensic Technology and Practices - Forensic Ballistics and	

		Photography	
	3	Face, Iris and Fingerprint Recognition - Audio Video Analysis	
	4	Windows System Forensics - Linux System Forensics - Network Forensics.	

5	**Teacher Specific Module**	
	Directions	
	Teacher can select suitable methodologies and evaluation metrics appropriate to the topics.	9

Essential Readings:

1.Thomas Halt, Adam M. Bossler and Kathryn C.Seigfried Speller, ―Cybercrime and Digital

Forensics: An Introduction‖, Routledge Taylor and Francis Group 2017.

2.Bernadette H Schell, Clemens Martin, ―Cybercrime‖, ABC – CLIO Inc, California, 2004

E Book

https://books.google.co.in/books/about/Cybercrime_and_Digital_Forensics.html?id=7SA6DwA
AQBAJ&redir_esc=y

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50 (Theory)** **15 (Practical)**
Continuous Evaluation		**35**
CE (Theory)		**25**
a)	Test Paper- 1	5
b)	Model Exam	10
c)	Assignment(2 numbers)	5
d)	Seminar	
e)	Book/ Article Review	5
f)	Viva-Voce	

g)	Field Report	
CE (Practical)		**10**
Total		**100**

Semester-: 2 Optional Minor-3.2

KU2DSCCSY108: Essentials of Computer Networks

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	minor	100-199	**KU2DSCCSY108**	4 (3T+1P)	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5hrs.

Course Description:

Computer networking classes combine lectures and hands-on practice to provide skills in computer network system configuration. Courses may include discussions, lectures and projects that deal with basic networking principles and current developments in the field.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Identify the functions of each layer in OSI and TCP/IP model.	U

2	Appraise the routing and subnetting mechanisms.	U
3	Describe the features and functions of application layer	U/R
4	Identify the network services like DNS, DHCP and ways to connect to the internet	U, An
5	Select appropriate network devices and connections.	U

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	3		3		3	3
CO 2	3	3		3		3	3
CO 3	3	3		3		3	3
CO 4	3	3	3	3		3	3
CO 5	3	3	3	3		3	3

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		INTRODUCTION TO NETWORKING	15
	1	Introduction computer network a) OSI Model, TCP/IP Model b) Differences between TCP/IP and OSI, Advantages of TCP/IP	
	2	Networking Devices a) Cables and Types, Hub, Repeater, Bridge, Switch, Router, Gateways, Servers & Clients	
	3	Physical layer: line coding	

	4	Data link layer: Ethernet and MAC address, Unicast, multicast and broadcast, frames.	

	NETWORK LAYER		
	1	IP address, IP address classes.	
2	2	IP Datagram , various components of IP datagram	
	3	Subnet, subnet mask, Encapsulation in networking.	15
	4	Basics of routing, routing protocols: IGP,BGP, Routable address space	
	5	How internet works	

	TRANSPORT AND APPLICATION LAYERS		
	1	Transport layer, TCP segment, Dissecting a TCP segment, TCP control flags.	
3	2	Connection Establishment a) 3way handshake b) Connection oriented and connectionless protocols and c) Firewalls.	15
	3	Application layer: HTTP	

	INTRODUCTION TO NETWORK DEVICES		
	1	DNS, DHCP a) Importance of DNS, steps of name resolution, overview of DHCP, Basics of NAT, VPN and proxy services	
4	2	Introduction to connecting to the internet a) broadband and T-carrier tech, DSL , cable broadband and fibre connections. b) Wireless technology, wireless network configurations, WLAN,Mesh network, wireless channel and wireless security.	15
	3	Troubleshooting a) ICMP and ping, trace route name resolution tools, the cloud	

	Teacher Specific Module	
5	*Directions*	
	Provide appropriate methodologies and evaluation metrics suitable to the topics.	15

Essential Readings:

1. Computer Networks | By Pearson (5th Edition)
2. Networking fundamentals by Gordon Davies

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50 (Theory)** **15 (Practical)**
Continuous Evaluation		**35**
CE (Theory)		**25**
a)	Test Paper- 1	5
b)	Model Exam	10
c)	Assignment(2 numbers)	5
d)	Seminar	
e)	Book/ Article Review	5
f)	Viva-Voce	
g)	Field Report	
CE (Practical)		**10**
Total		**100**

KU2DSCCSY109: INTRODUCTION TO PYTHON PROGRAMMING

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC	100-199	**KU2DSCCSY109**	4 (3T+1P)	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	2		35	65	100	1.5hrs.

Course Description:

This course provides a comprehensive introduction to Python programming, covering basic syntax, control structures, data structures, functions, modules, exception handling, numerical computing with NumPy, and data visualization using Matplotlib.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Learn Python for expressing computation	U
2	Familiarize with functions and modules in python	A
3	Use Arrays and numpy module.	A/An
4	Implement Data Visualization tools.	A/An

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	3	3	3			
CO 2	3	3	3	3			
CO 3	3	3	3	3			
CO 4	3	3	3	3			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**BASIC ELEMENTS AND CONTROL STATEMENTS**	**15**
	1	a) Features of Python, Different Methods to Run Python,	
		b)Basic Elements (Objects, Expressions, Numerical Types, Strings, Variables and Keywords)	
		c) Comments, Indentation in Python	
		d) Input and Output in Python	
	2	Import function	
	3	a) Branching (if, else, elif)	
		b) Iteration (while, for)	
	4	a) Tuples, Lists, Sets, Dictionaries	
		b) Built-in methods of lists	
		c) Sets and dictionaries	
		d) Mutable and Immutable Objects	

		FUNCTIONS, MODULES AND EXCEPTION HANDLING	
	1	a) Functions Definition, Function Calling, Function Arguments (Required, Keyword, Default, Variable Length)	

		b)	Recursion	
	2	a)	Modules, Built-in Modules	
		b)	Creating Modules	
	3	a)	File Handling	15
		b)	Opening, Closing, Writing and Reading files	
2	4	a)	Exceptions	
		b)	Built-in Exceptions (IndexError, OverflowError, ZeroDivisionError, RuntimeError)	
		c)	Exception Handling	

	ARRAY AND NUMPY ARRAYS			
	1	a)	Arrays in Python	
3		b)	Numpy Module, ndarray, Creating Arrays (array, zeros, ones, empty, linspace, arrange, random)	15
	2	a)	Two-Dimensional Array, Indexing, Slicing, Iterating, Copying, Splitting	
		b)	Shape Manipulation (reshape, transpose, resize)	
		c)	Arithmetic Operations on Arrays	

	DATA VISUALIZATION IN PYTHON			
	1	a)	Data Visualization in Python matplotlib Module, pyplot, plot(),	
4	2	a)	Visualization Tools: scatter, bar charts, Formatting, figure(), subplot(), text(), xlabel(), ylabel(), title()	15
	3	a)	histograms, pie charts, 3D plots	
	4	a)	Plotting Simple Mathematical Functions (sin x, x^2)	

	Teacher Specific Module	
5	*Directions*	
	Use appropriate teaching methodologies and evaluation metrics related with the topics.	15

Essential Readings:

Books for Study:

1. Dr. Jeeva Jose, Taming Python By Programming, Khanna Publishing

2. John V. Guttag, Introduction to Computation and Programming Using Python with Application to Understanding Data, PHI (2016)

3. https://www.numpy.org/devdocs/user/quickstart.html

4. https://matplotlib.org/users/pyplot_tutorial.html

Books for Reference:

1. Charles Dierbach, Introduction to Computer Science using Python, Wiley (2015)

2. https://www.tutorialspoint.com/python/

3. Python for Education by Ajith Kumar B P

4. https://docs.python.org/3/tutorial/index.html

5. Introduction to Computer Science and Programming Using Python Provided by Massachusetts Institute of Technology (MITx) - Available at : (https://www.edx.org/course/introduction-to-computer-science-and-programming- using-python-2)

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50 (Theory)** **15 (Practical)**
Continuous Evaluation		**35**
CE (Theory)		**25**
a)	Test Paper- 1	5
b)	Model Exam	10
c)	Assignment(2 numbers)	5
d)	Seminar	
e)	Book/ Article Review	5

f)	Viva-Voce		
g)	Field Report		
CE (Practical)			**10**
Total			**100**

Semester-2: Optional Minor-4.2

KU2DSCCSY110: Linear Algebra and Number Theory

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	DSC	100-199	**KU2DSCCSY110**	4	75

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
4	0		30	70	100	2hrs.

Course Description:

This course covers fundamental topics in both Linear Algebra and Number Theory. Students will study vector spaces, matrices, linear transformations, eigenvalues, eigenvectors, as well as prime numbers, congruences, modular arithmetic, and applications in cryptography and computational algorithms. Emphasis is on developing problem-solving skills and understanding theoretical concepts with practical applications in various fields.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Understand Rank of a matrix, Elementary transformations of a matrix, Invariance of rank through elementary transformations	U
2	Understand the concept System of linear homogeneous equations, Systems of linear non homogeneous equations.	U
3	Understand Eigen values, Eigen vectors, Properties of Eigen values, Cayley-Hamilton theorem.	U
4	Understand Division algorithm, Greatest common Divisor, Euclidean Algorithm, Diophantine equation ax+by =c. Understand Primes and their distribution, fundamental theorem of arithmetic, the sieve of Eratosthenes	U
5	Understand Basic properties of congruence.Understand Picard's little theorem, Wilson's theorem and Euler's theorem	U

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	2	2		2			
CO 2	2	2		2			
CO 3	2	2		2			
CO 4	2	2		2			
CO 5	2	2		2			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		MODULE 1: Matrices	

		Addition and Scalar Multiplication, Matrix Multiplication (Excluding Motivation of Multiplication by Linear Transformations), Transposition, Special Matrices, Applications of Matrix Multiplication, Linear Systems of Equations, Gauss Elimination, Elementary Row Operations, Row equivalent Systems, Linear Independence, Rank of a Matrix	15
	1		

		MODULE 2: **System of linear and non-linear equations.**	
2		Solutions of Linear Systems - Existence, For Reference: Second and Third Order Determinants, Determinants – Cramer's Rule, Inverse of a Matrix: Gauss- Jordan Elimination, Uniqueness, Reduction formulae System of linear homogeneous equations, Systems of linear non homogeneous equations,	15

		MODULE 3: Number Theory I	
3		Number theory: Division algorithm (proof omitted), Greatest common Divisor, Euclidean Algorithm, Diophantine equation ax+by =c, primes and their distribution, fundamental theorem of arithmetic, the sieve of Eratosthenes	15

		MODULE 4: Number Theory II	
4		Basic properties of congruence, the little theorem and pseudo primes, Wilson's theorem, Euler's theorem (Proofs of Fermat's, Wilson's and Euler's theorems excluded)	
			15

		Teacher Specific Module	
5		*Directions*	
		Provide appropriate methodologies and evaluation metrics suitable to the topics.	15

Essential Readings:

1. E. Kreyszig, *Advanced Engineering Mathematics,* 9th Edition, John Wiley & Sons, Inc.

2. S. Narayan and Mittal, A Text Book of Matrices (Revised edition), S.
3. Chan
4. B.S. Grewal, Higher Engineering Mathematics (41st edition), Khanna
5. Publishers.
6. David M Burton, Elementary Number theory, 7th edition, Mc Graw Hill

Suggested Readings:

1. N. P. Bali, Dr. Manish Goyal, Engineering Mathematics, 8th Edition, Laxmi Publication.
2. S. S. Sastry, Engineering Mathematics, Volume II, 4th Edition, PHI.
3. Frank Ayres JR, Theory of and Problems of Matrices, Schaum's Outline Series, McGraw-Hill Book Company
4. T.M. Apostol, Introduction to Analytic Number Theory, Springer
5. N. Koblitz, A Course in Number theory and Cryptography (2nd edition), Springer

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**70**
Continuous Evaluation		**30**
a)	Test Paper- 1	5
b)	Model exam	10
c)	Assignment(2 numbers)	10
d)	Seminar	
e)	Book/ Article Review	5
f)	Viva-Voce	
g)	Field Report	
Total		**100**

Semester-2: MDC-2.1

KU2MDCCSY103: Office Automation Tools

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
2	MDC	100-199	**KU2MDCCSY103**	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	0	-	25	50	75	1.5 hrs.

Course Description:

Office Automation program focuses on providing basic training in computers and its most common software which is to be used in Office work. With the help of this program, students will be able to become an expert in Office Automation.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Demonstrate proficiency in using word processing software to create, edit, and format professional documents.	U
2	Use spreadsheet functions and formulas to analyze and manage data.	U, A
3	Designvisually appealing charts and graphs to effectively	U, A, C

	communicate data insights.	

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

Mapping of Course Outcomes to PSOs

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3	3	2	2			
CO 2	3	3	2	2			
CO 3	3	3	2	2			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS
1		**MODULE 1 : Introduction to Word Processing**	
	1	Getting Started with the Interface	
	2	Creating and Saving Documents	
	3	Text Formatting and Editing Tools	9
	4	Styles and Templates	
	5	Collaboration Features	

2		**MODULE 2: Advanced Word Processing Techniques**	
	1	Working with Tables and Images	
	2	Creating Headers, Footers, and Page Numbers	
	3	Mail Merge and Creating Form Letters	9
	4	Referencing and Citations	

	5	Document Security and Protection	

	MODULE 3: Introduction to Spreadsheets		
3	1	Understanding Spreadsheets - Cells, Rows, Columns	
	2	Entering and Editing Data - Data Types & Formatting	
	3	Basic Formulas and Functions	9
	4	Creating Charts and Graphs	
	5	Printing and Sharing Spreadsheets	

	MODULE 4: Advanced Spreadsheet Techniques		
4	1	Working with Large Datasets - Filtering & Sorting	
	2	Advanced Functions and Formulas	
	3	Data Analysis Tools (e.g., PivotTables)	9
	4	Creating Macros and Automation	
	5	Collaboration Features in Spreadsheets	

	Teacher Specific Module	
5	*Directions*	
	Space to fill the selected area/ activity	9

Essential Readings:

1. Microsoft Word:

- o "Getting Started with Microsoft Word: [Book Title about MS Word, Latest Edition]" by [Author(s)] ([Publisher Year]) - This book provides a foundational understanding of core functionalities in Microsoft Word.

- o "Microsoft Word Power Programming: [Book Title about Advanced MS Word, Latest Edition]" by [Author(s)] ([Publisher Year]) - For students interested in exploring advanced features and automation techniques in Word.

2. Microsoft Excel:

- o "Excel Formulas and Functions for Beginners: [Book Title about MS Excel Formulas, Latest Edition]" by [Author(s)] ([Publisher Year]) - A helpful guide to grasp essential formulas and functions in Microsoft Excel.

- o "Data Analysis with Microsoft Excel: [Book Title about MS Excel Data Analysis, Latest Edition]" by [Author(s)] ([Publisher Year]) - This book delves into data analysis techniques and tools within Microsoft Excel.

Additional Tips:

- Look for online resources that are compatible with your software version (e.g., Word 2021, Excel 2023, etc.).

- Consider your learning style - some resources offer video tutorials, while others focus on text-based explanations. Choose what works best for you.

Software:

- Access to a computer with word processing and spreadsheet software (e.g., Microsoft Word and Excel, Google Docs and Sheets) is required. .

Suggested Readings:

Google Workspace:

- o "The Complete Guide to Google Docs: [Book Title about Google Docs, Latest Edition]" by [Author(s)] ([Publisher Year]) - A comprehensive guide to using Google Docs and its functionalities.

- o "Mastering Google Sheets: [Book Title about Google Sheets, Latest Edition]" by [Author(s)] ([Publisher Year]) - An in-depth exploration of Google Sheets features and data analysis capabilities.

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50**
Continuous Evaluation		**25**
a)	Test Paper- 1	5
b)	Model exam	10
c)	Assignment	5
d)	Seminar	
e)	Book/ Article Review	
f)	Viva-Voce	5
g)	Field Report	
Total		**75**

Semester-2: MDC-2.2

KU2MDCCSY104: Introduction to Web Programming

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
1	MDC	100-199	**KU2MDCCSY104**	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
3	0	-	25	50	75	1.5hrs.

Course Description:

The course helps to design and practice real-world homepage programs and earn adequate experience with current web design techniques such as HTML5 and cascading style sheets.

Course Prerequisite: NIL

Course Outcomes:

CO No.	Expected Outcome	Learning Domains
1	Identify different components in web technology and WWW	U, A
2	Use HTML Forms and CSS Styling to design web pages.	U, A
3	Examine the HTML Frames and its applications	U, A
4	Design interactive Web pages	U, A, E

Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	3						
CO 2	3			3			
CO 3	3	3		3			
CO 4	3	3		3			

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS

		MODULE 1: Introduction to Internet and WWW	
1	1	Introduction to Internet a) Evolution of the Internet b) World Wide Web c) Web Browsers, URL, http	**15**
	2	Web Basics a) Static Vs Dynamic web pages *b)* Client-Side Scripting versus Server-Side Scripting	
	3	W3C & Web hosting a) World Wide Web Consortium (W3C) *b)*Web hosting, types of web hosting, Free hosting	
	4	Domain Name Registration	

		MODULE 2: HTML	
2	1	Introduction to HTML a) Creating HTML document b) Tags & attributes, syntax of tag *c)* Starting and ending tag, tag without end, building a webpage	**15**
	2	Text formatting a) Division b) Paragraphs & heading c) Physical style tags, text alignment, fonts	
	3	Hyperlink and loading images a) Linking to other web pages b) Images and <img> tag c) Line breaks, comments	
	4	List: types of list, nested list	

		MODULE 3: HTML Tables and Forms	
3		HTML Tables: creating a table, table tags and attributes, formatting the	15

	1	table: width, height, align, border, padding & spacing, colspan&rowspan	
	2	HTML Forms: Form elements (input, select, textarea, button, datalist), Input types (text, password, submit, radio, checkbox, date, email, number)	
	3	Input type attributes (value, readonly, disabled, maxlength, autocomplete, list, min, max, placeholder)	
	4	HTML5 form validation (required and pattern attribute of input type)	

	MODULE 4: HTML Frames and CSS		
4	1	Frames: <frame>tag, frame attributes: src, name, frameborder and scrolling	
	2	Frameset tag and its important attributes, <iframe>, <noframe>	*15*
	3	Applying style to HTML using CSS: Inline, internal and external CSS	
	4	CSS Colours, Fonts, Borders, padding, applying style using class and id attribute	

	Teacher Specific Module	
5	*Directions*	
	Provide appropriate methodologies and evaluation metrics according to the teachers perspective	15

Essential Readings:

1. Internet and World Wide Web How to program, P.J. Deitel & H.M. Deitel Pearson

2. An Introduction to WEB Design and Programming –Wang-Thomson **Technologies**, Black Book,Dream tech Press

3. Internet & World Wide Web How to Program, 5/e – Paul J Deitel, Harvey M Deital, AbbaeyDeital

4. Julie C. Meloni, HTML and CSS in 24 Hours, Sams Teach Yourself (Updated for HTML5 and CSS3), Ninth Edition

Suggested Readings:

1. Mastering HTML, CSS &Javascript Web Publishing Paperback,2016 - by Laura Lemay, Rafe Colburn & Jennifer Kyrnin , BPB Publications
2. HTML & CSS: The Complete Reference, Fifth Edition - Thomas a Powell, Tata McGraw Hill

Assessment Rubrics:

Evaluation Type		Marks
End Semester Evaluation		**50**
Continuous Evaluation		**25**
a)	Test Paper- 1	5
b)	Model exam	10
c)	Assignment	5
d)	Seminar	
e)	Book/ Article Review	5
f)	Viva-Voce	
g)	Field Report	
Total		**75**