APPENDIX – (i)27(R)
UNIVERSITY OF MADRAS
M.Sc. COMPUTER SCIENCE
CHOICE BASED CREDIT SYSTEM

REGULATIONS

With effect from 2022-2023

Programme Outcomes:

- To possess advanced knowledge of Computing, Mathematical basics for contemporary Computing Specialization and Knowledge of defined problem domain
- To identify a prospective domain, review research literature and analyze the problems using mathematical methods and suggest
- To have the Ability to use design tools, design software as per needs and specifications
- To apply acquired knowledge of the domain in investigating the software design, from design of experiments, analysis of data to provision of valid conclusions.
- To possess the skills to use modern software and hardware tools to analyze problems.
- To possess the knowledge of ethical and legal principles and cyber regulations
- To Possess ability for self-education and attitude for life-long learning in the broadest context of technological change
- To possess the skill and acumen for innovative research and be aware of publishing their work in reputed journals
- To possess the ability to communicate scientific facts effectively in both verbal and written form to the society
- To possess the ability to understand the impact of IT solutions in a global and societal context
- To possess the skill to find out the right opportunity for entrepreneurship for the betterment of an individual and society at large

Programme Specific Outcomes:

- Implement the concept of theory and technology with classical and modern techniques for solving the complex problems in Computer Science.
- Be more curious towards learning new and emerging technologies that adapt quickly to changes.
- Design, execute and evaluate computing projects in academia and industries using appropriate technologies.
- Know the contextual knowledge in computing science research and communicate effectively with stakeholders with the society at large for enhancing the quality of life.
- Be honest in upholding the ethical principles and social responsibilities along with socio-economic innovations.

Scheme of Examinations

S.NO	Course	SUBJECT NAME	Ins. Hours	Credits	MAXIMUM MARKS		
					Int.	Ext.	Total
SEMESTER I							
1	Core - 1	Advanced Data Structure and Algorithms	5	4	25	75	100
2	Core - 2	Advanced PYTHON Programming	5	4	25	75	100
3	Core - 3	Artificial Intelligence	5	4	25	75	100
4	Core - 4	Practical - 1: Data Structure and Algorithms Lab	4	2	40	60	100
5	Core - 5	Practical - 2 : Advanced PYTHON Programming Lab	4	2	40	60	100
6	Extra Disciplinary	Theory of Computations	5	3	25	75	100
7	Soft Skill-1	Choose from the List Given at the end	2	2	40	60	100
		Total Credits		**21**			
SEMESTER II							
8	Core - 6	Machine Learning	5	4	25	75	100
9	Core - 7	Advanced Networks	5	4	25	75	100
10	Core - 8	Practical - 3: Machine Learning Lab	4	2	40	60	100
11	Core - 9	Practical - 4 : Elective II based Lab	4	2	40	60	100
	Core- 9A	Practical - 4: Full stack web development Lab (Elective II based Lab)					
	Core- 9B	Practical - 4: Natural Language Processing Lab (Elective II based Lab)					
	Core- 9C	Practical - 4: Digital Image Processing Lab (Elective II based Lab)					
12	Extra Disciplinary	Principles of Compiler Design	4	3	25	75	100
13	Elective-1	List given below	3	3	25	75	100
	Elective-2	List given below	3	3	25	75	100

14	Soft Skill-2	Choose from the List Given at the end	2	2	40	60	100
	Internship	4 to 5 weeks of internship during summer vacation of I year					
		Total Credits		**23**			
SEMESTER III							
16	Core - 10	Parallel And Distributed Computing	5	4	25	75	100
17	Core - 11	Deep Learning and Neural Networks	5	4	25	75	100
18	Core - 12	Cryptography	5	4	25	75	100
19	Core - 13	Practical - 5: Deep learning Lab	5	2	40	60	100
20	Elective-3	List given below	3	3	25	75	100
21	Elective-4	List given below	3	3	25	75	100
15	Soft Skill-3	Choose from the List Given at the end	2	2	40	60	100
22	Soft Skill-4	Choose from the List Given at the end	2	2	40	60	100
23	Internship	Evaluation of 4 to 5 weeks of internship during summer vacation of I year		2			
		Total Credits		**26**			
SEMESTER IV							
24	Core - 14	Project and Viva-Voce		20	20	60 +20	100

ELECTIVE 1
Cloud Computing
Internet of things
Data Analytics

ELECTIVE 2
Full stack web development
Natural Language Processing
Digital Image Processing

ELECTIVE 3
Cyber Security
Advanced Computer Architecture
Distributed Database Systems

ELECTIVE 4
Human Computer Interaction
Agile Software Engineering
Computer vision

List of Soft Skill Courses

1. Communication Skills for Software Engineers – I
2. Communication Skills for Software Engineers – II
3. Personality Development and other Soft Skills for Software Engineers
4. Document Preparation and Interview skills for Software Engineers
5. Team Project

Learning Outcome Index: Mapping of program outcome with courses

Table 1														
Program Outcomes	Core Courses													
	CO 1	CO 2	CO 3	CO 4	CO 5	CO 6	CO 7	CO 8	CO 9	CO10	CO11	CO12	CO13	CO14
Outcomes 1	X		X			X					X			X
Outcomes 2	X	X			X	X		X	X			X		X
Outcomes3		X	X	X			X			X	X		X	
Outcomes 4		X			X	X		X	X			X		X
Outcomes 5	X		X	X			X				X		X	
Outcomes 6		X		X	X			X		X		X		X
Outcomes 7	X					X	X		X		X		X	X
Outcomes 8	X			X		X	X			X		X		
Outcomes 9		X	X	X	X			X	X		X		X	X

CO i – ith Core Course

Table 2		
Program Outcomes	Extra-Disciplinary Courses	
	Course 1	Course 2
Outcomes 1	X	
Outcomes 2		X
Outcomes3	X	
Outcomes 4		X
Outcomes 5		X
Outcomes 6	X	
Outcomes 7	X	
Outcomes 8		X
Outcomes 9	X	X

Table 3												
Program Outcomes	Elective Courses											
	CO 1	CO 2	CO 3	CO 4	CO 5	CO 6	CO 7	CO 8	CO 9	CO10	CO11	CO12
Outcomes 1	X		X			X					X	
Outcomes 2		X			X			X	X		X	X
Outcomes3	X		X	X			X			X	X	
Outcomes 4		X	X		X			X	X			
Outcomes 5	X		X			X	X			X	X	
Outcomes 6		X		X	X			X		X		X
Outcomes 7	X					X	X		X	X		X
Outcomes 8				X		X	X					X
Outcomes 9		X	X	X	X			X	X		X	

CO i – ith Elective Course

Program Outcomes	Soft Skill Courses				
	Course 1	Course 2	Course 3	Course 4	Course 5
Outcomes 1	X		X	X	
Outcomes 2		X		X	X
Outcomes3		X			
Outcomes 4	X				X
Outcomes 5		X	X		
Outcomes 6	X			X	X
Outcomes 7	X		X		
Outcomes 8		X		X	X
Outcomes 9	X	X	X		

(Table 4)

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