Guru Nanak Dev Engineering College, Ludhiana

Department of Computer Science & Engineering

Scheme

M.Tech.
Computer Science and Engineering
(2019 Batch Onwards)

M.Tech. Computer Science and Engineering (Scheme-2019)

Total Credits=19+17+16+16=68

SEMESTER 1

Sr. No.	Category	Course Code	Subject Name	Subject Type	Load Per Week			Marks Distribution			Credits
					L	T	P	Int.	Ext.	Total	
1	Programme Core	MCS-101	Mathematical Foundations of Computer Science	Theory	3	0	0	50	100	150	3
2	Programme Core	MCS-102	Advanced Data Structures	Theory	3	0	0	50	100	150	3
3	Programme Core	MRM-101	Research Methodology and IPR	Theory	3	0	0	50	100	150	3
4	Programme Elective	MCS-11X	Elective -1	Theory	3	0	0	50	100	150	3
5	Programme Elective	MCS-12X	Elective -2	Theory	3	0	0	50	100	150	3
6	Programme Core	LMCS-102	Advanced Data Structures Laboratory	Practical	0	0	4	50	50	100	2
7	Programme Elective	LMCS-11X	Elective -1 Laboratory	Practical	0	0	2	50	50	100	1
8	Programme Elective	LMCS-12X	Elective -2 Laboratory	Practical	0	0	2	50	50	100	1
9	Audit Course*	MAC-XXX	Audit Course	Theory	2	0	0	50	0	50	S/US
					17	0	8	450	650	1100	19
TOTAL Contact Hours: 25											

SEMESTER 2

Sr. No.	Category	Course Code	Subject Name	Subject Type	Scheme of Studies Per Week			Marks Distribution			Credits
					L	T	P	Int.	Ext.	Total	
1	Programme Core	MCS-103	Advance Algorithms	Theory	3	0	0	50	100	150	3
2	Programme Core	MCS-104	Soft Computing	Theory	3	0	0	50	100	150	3
3	Programme Elective	MCS-13X	Elective-3	Theory	3	0	0	50	100	150	3
4	Programme Elective	MCS-14X	Elective-4	Theory	3	0	0	50	100	150	3
5	Programme Core	LMCS-103	Advance Algorithms Laboratory	Practical	0	0	2	50	50	100	1
6	Programme Core	LMCS-104	Soft Computing Laboratory	Practical	0	0	2	50	50	100	1
7	Programme Elective	LMCS-XXX	Based on Electives-3	Theory	0	0	2	50	50	100	1
8	Core	LMPCS-101	Project	Practical	0	0	4	50	50	100	2
9	Audit Course*	MAC-XXX	Audit Course	Theory	2	0	0	50	0	50	S/US
					16	0	6	450	600	1050	17
TOTAL Contact Hours: 26											

SEMESTER 3

Sr. No.	Category	Course Code	Subject Name	Subject Type	Load Per Week			Marks Distribution			Credits
					L	T	P	Int.	Ext.	Total	
1	Programme Elective	MCS-15X	Elective -5	Theory	3	0	0	50	100	150	3
2	Open Elective	MOCS-XXX	Open Elective	Theory	3	0	0	50	100	150	3
3	Pre Thesis	MPTCS-101	Formulation of Research Problem	Practical	0	0	20 $(2^{\#}+18^*)$	100	100	200	10
					6	**0**	**20**	**200**	**300**	**500**	**16**
TOTAL Contact Hours: 8											

#Maximum hours for Teacher
*Independent study Hours

SEMESTER 4

Sr. No.	Category	Course Code	Subject Name	Subject Type	Load Per Week			Marks Distribution			Credits
					L	T	P	Int.	Ext.	Total	
1	Programme Core	MTCS-101	Thesis	Practical	0	0	32 $(4\#+28^*)$	100	200	300	16
					0	**0**	**20**	**100**	**200**	**300**	**16**
TOTAL Contact Hours: 4											

#Maximum hours for Teacher
*Independent study Hours

LIST OF ELECTIVES

List of Elective-1

Sr. No.	Course Code	Subject Name
1	MCS-111	Machine Learning
2	MCS-112	Advances in Artificial Intelligence
3	MCS-113	Wireless and Mobile Networks
4	MCS-114	Advances in Computer Networks
5	MCS-115	Advanced Operating Systems
6	LMCS-111	Machine Learning Laboratory
7	LMCS-112	Advances in Artificial Intellige nnce Laboratory
8	LMCS-113	Wireless and Mobile Networks Laboratory
9	LMCS-114	Advances in Computer Networks Laboratory
10	LMCS-115	Advanced Operating Systems Laboratory

List of Elective-2

Sr. No.	Course Code	Subject Name
1	MCS-121	Data Ware House & Data Mining
2	MCS-122	Advance Data Base System Concepts
3	MCS-123	Software Engineering Methodologies
4	MCS-124	Cloud Computing and Security
5	MCS-125	Digital Image Processing
6	LMCS-121	Data Ware House and Data Mining Laboratory
7	LMCS-122	Advance Data Base System Concepts Laboratory
8	LMCS-123	Software Engineering Methodologies Laboratory
9	LMCS-124	Cloud Computing and Security Laboratory
10	LMCS-125	Digital Image Processing Laboratory

List of Elective-3

Sr. No.	Course Code	Subject Name
1	MCS-131	Cryptography
2	MCS-132	Wireless Sensor Networks
3	MCS-133	Network Security
4	MCS-134	Data Science
5	MCS-135	Web Crawler and Search Engines
6	MCS-136	Software Testing and Quality Assurance
7	LMCS-131	Cryptography Laboratory
8	LMCS-132	Wireless Sensor Networks Laboratory
9	LMCS-133	Network Security Laboratory
10	LMCS-134	Data Science Laboratory
11	LMCS-135	Web Crawler and Search Engines Laboratory
12	LMCS-136	Software Testing and Quality Assurance Laboratory

List of Elective-4

Sr. No.	Course Code	Subject Name
1	MCS-141	Agile Software Development Approaches
2	MCS-142	Human and Computer Interaction
3	MCS-143	Natural Language Processing
4	MCS-144	Information Storage and Management
5	MCS-145	Introduction to Intelligent System
6	MCS-146	Computer Vision

List of Elective-5

Sr. No.	Course Code	Subject Name
1	MCS-151	Optimization Techniques
2	MCS-152	Social Network Analysis
3	MCS-153	Distributed Systems
4	MCS-154	Neural Networks and Fuzzy Logic
5	MCS-155	Data Preparation and Analysis
6	MCS-156	Smart Sensors and Internet of Things

List of Open Electives offered to other Departments

Sr. No.	Course Code	Subject Name
1	MOCS-101	Simulation and Modeling
2	MOCS-102	Project Management
3	MOCS-103	Business Information System
4	MOCS-104	Human Resources Development and Training Methods
5	MOCS-105	Multimedia Communications

LIST OF AUDIT COURSES

Sr. No.	Course Code	Subject Name
1.	MAC-101	English for Research Paper Writing
2.	MAC-102	Disaster Management
3.	MAC-103	Sanskrit for Technical Knowledge
4.	MAC-104	Value Education
5.	MAC-105	Constitution of India
6.	MAC-106	Pedagogy Studies
7.	MAC-107	Stress Management
8.	MAC-108	Personality Development through Life Enlightenment Skills

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