NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL

SCHEME OF INSTRUCTION AND SYLLABI

Masters of Computer Applications

Effective from 2021-22

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL

VISION

Towards a Global Knowledge Hub, striving continuously in pursuit of excellence in Education, Research, Entrepreneurship and Technological services to the society

MISSION

- Imparting total quality education to develop innovative, entrepreneurial and ethical future professionals fit for a globally competitive environment.
- Allowing stakeholders to share our reservoir of experience in education and knowledge for mutual enrichment in the field of technical education.
- Fostering product-oriented research for establishing a self-sustaining and wealth-creating centre to serve societal needs.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

VISION

Attaining global recognition in Computer Science & Engineering education, research and training to meet the growing needs of the industry and society

MISSION

- Imparting quality education through a well-designed curriculum in tune with the challenging software needs of the industry.
- Providing state-of-art research facilities to generate knowledge and develop technologies in the thrust areas of Computer Science and Engineering.
- Developing linkages with world-class organizations to strengthen industry-academia relationships for mutual benefit.

Department of Computer Science and Engineering:

Brief about the Department:

The Department of Computer Science and Engineering was established in the year 1991. The department offers high quality undergraduate, postgraduate and doctoral programs. The B. Tech. (Computer Science and Engineering) program was started in the year 1983 with an intake of 20 students. The intake was subsequently increased to 120 in 2008. M. Tech (Computer Science and Engineering) program was started in 1987 with an intake of 18 and subsequently increased to 20 in 2008. M. Tech (Information Security) was introduced in the year 2008 Under ISEAP sanctioned by Ministry of Communication and Information Technology (MCIT), DOE, GOI, New Delhi with intake of 20. Later, it was renamed as Computer Science and Information Security. The Master of Computer Applications (MCA) program was started in 1986 with an intake of 30 and increased to 46 from 2008. B. Tech, M. Tech. (CSE) and M. Tech. (CSIS) programs were accredited in 2014 by NBA as per Washington Accord.

List of Programs offered by the Department:

Program	Title of the Program
B.Tech.	Computer Science and Engineering
M. Tech.	Computer Science and Engineering
	Computer Science and Information Security
MCA	Master in Computer Applications
Ph. D.	Computer Science and Engineering

Note: Refer to the following weblink for Rules and Regulations of PG programs:
https://nitw.ac.in/main/%20RulesandRegulations/PGProgrammes/

Masters of Computer Applications

Program Educational Objectives (PEOs)

PEO1	Design applications for real-world problems and analyze their Complexities by testing.
PEO2	Design and develop user interface frameworks among the subsystems to enhance portability.
PEO3	Discover knowledge from large data sets to analyze technical solutions for complex applications.
PEO4	Work in teams to learn and assess security, privacy, cost and quality assurance in developing software systems.
PEO5	Engage in lifelong learning to keep pace with changing landscape of technologies for professional advancement.

Program Articulation Matrix

Mission Statement	PEO1	PEO2	PEO3	PEO4	PEO5
Imparting quality education through a well-designed curriculum in tune with the challenging software needs of the industry	3	2	2	1	2
Providing state-of-art research facilities to generate knowledge and develop technologies in the thrust areas of computer science and engineering.	2	2	3	1	2
Developing linkages with world-class organizations to strengthen industry-academia relationships for mutual benefit.	2	2	2	3	1

1 - Slightly; 2 - Moderately; 3 – Substantially

Program Outcomes (POs)

At the end of the program, the student will be able to:

PO1	Apply mathematical foundation and domain knowledge for conceptualizing the computing models for real-life problems.
PO2	Design solutions for complex business scenarios or processes that meet the specific needs of societal problems.
PO3	Infer and predict the knowledge from data and provide synthesis to derive valid conclusions.
PO4	Create, select, and apply appropriate techniques, resources, modern computing tools, and skills required for innovative software solutions.
PO5	Ability to design, develop, deploy and manage robust and reliable software projects by satisfying the realistic, economic, social, safety and security constraints.
PO6	Demonstrate a higher level of professional skills to communicate with the peer fraternity by effectively presenting the reports on complex activities.

MAPPING OF PROGRAM OUTCOMES WITH PROGRAME EDUCATIONAL OBJECTIVES

PO	PEO1	PEO2	PEO3	PEO4	PEO5
1	2	3	2	1	1
2	3	3	2	2	2
3	2	1	3	2	2
4	2	2	2	2	2
5	3	2	2	3	2
6	1	2	2	1	2

1 - Slightly; 2 - Moderately; 3 – Substantially

CURRICULAR COMPONENTS

Degree Requirements for MCA

Category Description	Credits
Basic Science and Humanities (BSH)	9
Professional Core Courses (PCC)	78
Professional Elective Courses(PEC)	18
Seminar	1
Comprehensive Viva- Voce	2
Dissertation Work	12
Total	**120**

SCHEME OF INSTRUCTION

MCA-I Course Structure

I – Year: I – Semester

S.No.	Course Code	Course Title	L	T	P	Credits	Cat. Code
1	MA4037	Statistics and Queuing Theory	3	0	0	3	BSH
2	SM4331	Managerial Economics	3	0	0	3	BSH
3	CS4301	Mathematical Foundations of Computer Science	3	0	0	3	PCC
4	CS4302	Computer Organization	3	0	0	3	PCC
5	CS4303	Problem Solving and Programming	3	0	0	3	PCC
6	CS4304	Computer Game Development and Animation	0	1	2	2	PCC
7	CS4305	R Programming Lab	0	1	2	2	PCC
8	CS4306	Problem Solving and Programming Lab	0	0	3	1.5	PCC
		Total	**15**	**2**	**7**	**20.5**	

I – Year: II – Semester

S.No.	Course Code	Course Title	L	T	P	Credits	Cat. Code
1	CS4351	Database Systems	3	0	0	3	PCC
2	CS4352	Data Structures	3	0	0	3	PCC
3	CS4353	Web Technologies	3	0	0	3	PCC
4	CS4354	Object Oriented Programming	3	0	0	3	PCC
5	SM4381	Management Theory and Practice	3	0	0	3	BSH
6	CS4355	Database Systems Lab	0	0	2	1	PCC
7	CS4356	Data Structures Lab	0	0	3	1.5	PCC
8	CS4357	Web Technologies Lab	0	0	3	1.5	PCC
9	CS4358	Object Oriented Programming Lab	0	0	3	1.5	PCC
		Total	**15**	**0**	**11**	**20.5**	

II– Year: I – Semester

S.No.	Course Code	Course Title	L	T	P	Credits	Cat. Code
1	CS5301	Advanced Data Structures	2	0	0	2	PCC
2	CS5302	Operating System Concepts	3	0	0	3	PCC
3	CS5303	Software Engineering Principles	3	0	0	3	PCC
4	CS5304	Computer Communications and Network	3	0	0	3	PCC
5	CS5305	Advanced Databases	3	0	0	3	PCC
6		Elective - 1	3	0	0	3	PEC
7	CS5306	Operating System Concepts Lab	0	0	2	1	PCC
8	CS5307	Software Engineering Lab	0	0	2	1	PCC
9	CS5308	Computer Communications and Network Lab	0	0	2	1	PCC
10	CS5309	Advanced Databases Lab	0	0	2	1	PCC
		Total	**17**	**0**	**8**	**21**	