SIR PADAMPAT SINGHANIA UNIVERSITY

UDAIPUR

School of Engineering

Department of Computer Science and Engineering

Vision

To be renowned itself as a reputed organization in engineering education and research aimed towards betterment of society.

Mission

To provide quality education to meet the need of profession and society. Provide a learning ambience to enhance innovations, problem solving skills, leadership qualities, team-spirit and ethical responsibilities. Establish Industry Institute Interaction program to enhance the entrepreneurship skills. Provide exposure of latest tools and technologies in the area of engineering and technology. Promote research-based projects/activities in the emerging areas of technology convergence

M. Tech. Degree Program
Computer Science & Engineering
(Specialization in Data Science)
Course Structure
(2021-2023)

OVERVIEW

The department syllabus is designed under CBCS framework. Students will have good number of choices of courses through electives to hone their skills in their specialization and interdisciplinary field. The courses in the structure are classified by their level of learning by using an extension of Bloom's taxonomy as given under

Level 0: Remember and understand level of course

Level 1: Apply level of course

Level 2: Analysis level of course

Level 3: Evaluate level of Course

Level 4: Create level of course

The first numerical digit of the subject code in the course structure shows the level of course. Some of the courses which falls on the higher level of Bloom's taxonomy are assigned a component of supervised learning (represented by 'S' component in the structure) by involving the student in the project work. A number of courses from other departments are offered to help the students to gain skills set to stay competitive in the multidisciplinary environment.

Value added courses are also offered in each semester to further enhance student skill set in order to produce engineers for tomorrow.

Objectives:

- To prepare students to excel in Computer Science and Engineering program through quality education enabling them to succeed in computing industry profession.
- To provide students with a solid foundation in mathematics, engineering, basic science fundamentals required to solve computing problems.
- To expose students to tools and techniques of Computer Science and Engineering so that they can comprehend, analyze, design and create innovative computing products and solutions for real life problems.
- To inculcate in students multidisciplinary approach, professional attitude and ethics, communication and teamwork skills, and ability to relate computer engineering issues with social awareness.

Program Educational Objectives (PEOs)

PEO1 – Accomplishment: Graduates will lead successful professional life by applying their domain specific knowledge demonstrating leadership skills with ethical attitudes in broad societal context while working in a multi/inter disciplinary setting.
PEO2 – Competence: Graduates will excel in providing ethical solutions as an individual or a member or a leader of a team by investigating, analysing, formulating and solving complex engineering problems for the sustainable development of society.

PEO3 – Expertise: Graduates will exhibit professionalism while communicating with local, national and foreign peers bound with regulations and leading life- long learning.

PROGRAM OUTCOMES (POs):

PO1: Core Knowledge: Graduates will demonstrate an ability to identify, formulate and solve complex engineering problems in the area of specialization and evaluate them to select optimal feasible solution considering safety, environment and other realistic constraints.

PO2: Modern and Advanced Tools: Graduates will demonstrate skills to use modern engineering tools, software and equipment to analyze and solve complex engineering problems using multidisciplinary approach.

PO3: Research Aptitude: Graduates will demonstrate skill of good researcher to work on a problem, starting from scratch, to research into literatures, methodologies, techniques, tools, and conduct experiments and interpret data to develop methodologies, techniques, modern tools and products for the betterment of society.

PO4: Report Writing: Graduates will be able to present their work unequivocally before scientific community through reports and presentations to give and take clear instructions.

PO5: Ethics and Sustainable Development: Graduates will exhibit the traits of professional integrity and ethics and demonstrate the responsibility to implement the research outcome for sustainable development of the society.

Program Specific Outcomes (PSOs):

PSO1: Professional Excellence (Mastery): Graduates will demonstrate research skills to critically analyse complex Data Science and Computer Network Engineering problems for designing new and existing information for their solutions

PSO2: Research problem solving skills: Graduates will be able to take up real life and/or research related problems in the field of Data Science, Data Mining and Computer Network and to create optimal solutions of these problems through comprehensive analysis and designing.

SIR PADAMPAT SINGHANIA UNIVERSITY

Udaipur

SCHOOL OF ENGINEERING

Course Curriculum of 2-Year M. Tech. Degree Program in Computer Science & Engineering (Specialization in Data Science) (Batch- 2021-23)

Credit Structure

Semester wise Credit Distribution

S. No.	Semester	Credits	Contact Hrs/Week
1	I	18	21
2	II	16	18
3	III	19	16
4	IV	12	--
	Total Credits	**65**	--

Category wise Credit Distribution

Sr. No	Category	Credit(s) (%)
1	Basic Science courses (BSC)	6 (9.23%)
2	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc. (ESC)	0 (0%)
3	Professional core courses (PCC)	36 (55.48%)
4	Professional Elective courses relevant to chosen specialization/branch (PEC)/APCC	6 (9.23%)
5	Project work, seminar and internship in industry or elsewhere (PROJ)	17 (26.16%)
	Total Credits	65

Course Structure: M. Tech. (Specialization in Data Science) (Batch- 2021-2023)

Semester - I

S. No.	Course Code	Category	Course Title	L	T	P	S	Credit(s)
1	CS-4701	PCC	Artificial Intelligence	3	0	0	0	3
2	CS-4702	PCC	Artificial Intelligence Lab	0	0	1	0	1
3	CS-3701	PCC	Database Management System(SQL & NoSQL)	3	0	0	0	3
4	CS-3702	PCC	Database Management System Lab	0	0	1	0	1
5	CS-3703	PCC	Computer Organization & System Software	3	0	0	0	3
6	CS-4703	PCC	Advanced Algorithms	3	0	0	0	3
7	CS-4704	PCC	Advanced Algorithms Lab	0	0	1	0	1
8	MA-3009	BSC	Probability & Statistics for Computer Science	3	0	0	0	3
							Total Credits	18
							Total Contact hours/week	21

Semester – II

S. No.	Course Code	Category	Course Title	L	T	P	S	Credit(s)
1	CS-4705	PCC	Applied Machine Learning	3	0	0	0	3
2	CS-4706	PCC	Applied Machine Learning Lab	0	0	1	1	2
3	CS-3704	PCC	Analytic Database & Data Mining	3	0	0	0	3
4	CS-3705	PCC	Analytic Database & Data Mining Lab	0	0	1	0	1
5	CS-4707	PCC	Natural Language Processing	3	0	0	0	3
6	CS-4708	PCC	Natural Language Processing Lab	0	0	1	0	1
7	MA-3010	BSC	Mathematical Foundation in Data Science	3	0	0	0	3
						Total Credits		16
						Total Contact hours/week		18

Semester - III

S. No.	Course Code	Category	Course Title	L	T	P	S	Credit(s)
1	CS-4709	PCC	Neural Networks	3	0	0	0	3
2	CS-4710	PCC	Deep Learning Lab	0	0	1	0	1
3	CS-4711	PCC	Informal Retrieval	3	0	0	0	3
4	CS-4712	PCC	Information Retrieval Lab	0	0	1	0	1
5	CS-XXXX	PEC	Departmental Elective – I	3	0	0	0	3
6	CS-XXXX	PEC	Departmental Elective – II	3	0	0	0	3
7	CS-4500	PROJ	Dissertation – I	0	0	0	5	5
							Total Credits	19
							Total Contact hours/week	16

Semester - IV

S. No.	Course Code	Category	Course Title	L	T	P	S	Credit(s)
1	CS-4600	PROJ	Dissertation – II	0	0	0	9	9
2	CS-3300	PROJ	Dissertation Viva Voce	-	-	-	3	3
							Total Credits	12
							Total Contact hours/week	--

List of Department Level Optional Course(s) – I, II

S. No.	Course Code	Category	Course Title	L	T	P	S	Credit(s)
1	CS-3751	PEC	Time Series Analysis and Forecasting	3	0	0	0	3
2	CS-3752	PEC	Distributed Computing	3	0	0	0	3
3	CS-3753	PEC	Pattern Recognition	3	0	0	0	3