Two-Year Full Time M. Tech Programme in Computer Science & Engineering

With specialization in

Artificial Intelligence (AI)

Internet of Things (IoT)

Department of Computer Science & Engineering

Indian Institute of Technology (BHU), Varanasi,

Uttar Pradesh-221005, India

2021-2022

M. Tech. (CSE)

Specialization: Artificial Intelligence and Internet of Things

1. **Objectives:**
   - To train students for advanced research in the field of AI and IoT
   - To promote interdisciplinary research activities as per current Industry demand and manpower development and societal requirements
   - To extend departmental academic activities
   - To strengthen academic and research activities
   - To empower students in technical leadership and entrepreneurship

2. **Number of seats: 40**

3. **Eligibility for Admission:** The applicant must have a bachelor's degree in engineering or a master's degree in Science with a valid GATE score in Computer Science.
   Minimum Marks: Minimum CPI of 6.0 in a 10-point scale or a minimum of 60% of total / aggregate marks in Qualifying Degree.

4. **Credit Proposed for M.Tech (CSE) Course:**

Programme	Total Credits proposed	Credits through coursework	Credits through Thesis work	Number of courses	Minimum Residence	Maximum Duration
M. Tech. (CSE) with specialization in AI and IoT	238	121	117	15	2 years	4 years

5. **Program Structure:**

Subjects	Semesters			
	1st	2nd	3rd	4th
Core subjects	2 (22 cr)	2 (22 cr)		
General elective	2 (18 cr)	1 (9 cr)		
Specialization elective	1 (9 cr)	1 (9 cr)		
Specialization core		1 (9 cr)		
Humanities/Language & Management Course	1 (9 cr)			
Laboratory	1 (4 cr)			
Comprehensive Viva Voce & Seminar		1 (3 cr)		
Technical Report Writing			1 (3 cr)	
M.Tech. Dissertation		1 (11 cr)	1 (55 cr)	1 (55 cr)

Semester Wise Courses

Semester I:

S. No.	Subject Code	Title of the course	L	T	P	Credits
1	CSE501	Advanced Algorithms	3	0	2	11
2	CSE502	Computer Systems	3	0	2	11
3	CSE5XX	General Elective-I	3	0	0	09
4	CSE5XX	General Elective-II	3	0	0	09
5	CSE5XX	Specialization Elective-I	3	0	0	09
6	HU/LM	Humanities/Language & Management Course	3	0	0	09
7	CSE595	Scientific Computing Lab	0	0	4	04
		Total	**18**	**0**	**8**	**62**

Semester I (General Elective-I):

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE511	Advanced Graph Theory	3-0-0	9
2	CSE512	Data Warehousing & Data Mining	3-0-0	9
3	CSE513	Optimization Theory	3-0-0	9
4	CSE514	Social Network Analysis	3-0-0	9
5	CSE516	Information Security	3-0-0	9

Semester I (General Elective-II):

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE517	Distributed Computing	3-0-0	9
2	CSE518	Advances in Compiler Construction	3-0-0	9
3	CSE519	Real-Time Systems	3-0-0	9
4	CSE520	Advanced Computer Communications	3-0-0	9
5	CSE521	Advanced Software Engineering	3-0-0	9
6	CSE522	Computer Vision	3-0-0	9

Semester I (Specialization Elective-I) for AI:

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE523	Intelligent Systems	3-0-0	9
2	CSE524	Natural Language Processing	3-0-0	9

Semester I (Specialization Elective-I) for IoT:

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE525	Affective Computing	3-0-0	9
2	CSE526	Advanced Topics in Wireless Networks	3-0-0	9

Semester II:

S. No.	Subject Code	Title of the course	L	T	P	Credits
1	CSE503	Selected Topics in Artificial Intelligence	3	0	2	11
2	CSE504	Mathematics for Computer Science	3	0	2	11
3	CSE51XX	General Elective-III	3	0	0	9
4	CSE51XX	Specialization Core	3	0	0	9
5	CSE51XX	Specialization Elective-II	3	0	0	9
6	CSE596	Comprehensive Viva Voce & Seminar	0	0	3	3
7	CSE597	M. Tech. Dissertation (Thesis)	0	0	11	11
		Total	**15**	**0**	**18**	**63**

Semester II (General Elective-III):

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE531	Advance Database Management Systems	3-0-0	9
2	CSE532	Computational Geometry	3-0-0	9
3	CSE533	Multimedia Systems	3-0-0	9
4	CSE534	High Performance Computing	3-0-0	9
5	CSE535	Network Security	3-0-0	9
6	CSE536	Reinforcement Learning	3-0-0	9

Semester II (Specialization Core) for AI:

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE540	Selected Topics in Machine Learning	3-0-0	9

Semester II (Specialization Elective-II) for AI:

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE541	Selected Topics in Information Retrieval	3-0-0	9
2	CSE542	Selected Topics in Bio-inspired Computation	3-0-0	9
3	CSE543	Introduction to Data Science	3-0-0	9

Semester II (Specialization Core) for IoT:

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE544	IoT Protocols and Standards	3-0-0	9

Semester II (Specialization Elective-II) for IoT:

S. No.	Subject Code	Title of the course	L-T-P	Credits
1	CSE547	Wireless Sensor Networks	3-0-0	9
2	CSE548	Cloud Computing	3-0-0	9
3	CSE549	IoT Security	3-0-0	9

Semester III:

S. No.	Subject Code	Title of the course	L-T-P			Credits
1	CSE611	Technical Report Writing	1	0	0	3
2	CSE695	M. Tech. Dissertation (Thesis)	0	0	55	55
		Total	**1**	**0**	**55**	**58**

Semester IV:

S. No.	Subject Code	Title of the course	L-T-P			Credits
1	CSE696	M. Tech. Dissertation (Thesis)	0	0	55	55
		Total	**0**	**0**	**55**	**55**