5 YEAR DUAL DEGREE PROGRAMME
(COMPUTER SCIENCE & ENGINEERING)

SEMESTER I

S. No.	Code	Course	L-T-P	Credits
		THEORY		
1	CY101/PH102	Engineering Chemistry/Engineering Physics	3-1-0	4
2	MA101	Mathematics – I	3-1-0	4
3	CE101	Engineering Mechanics	2-1-0	3
4	CS101	Computer Programming – I	2-0-0	2
5	EC101/EE102	Basic Electronics/Electrical Technology	2-0-0	2
6	HU 101	English Proficiency	2-0-0	2
7	SS101	Human Values & Buddhist Ethics	2-0-0	2
		PRACTICALS		
8	CY103/PH104	Chemistry Lab/ Physics Lab	0-0-2	1
9	CE103	Engineering Graphics	0-0-3	2
10	CS103	Computer Programming Lab –I	0-0-3	2
11	EC103/EE104	Basic Electronics Lab/ Electrical Technology Lab	0-0-2	1
12	GP101	General Proficiency	-	1
		Total	**16-3-10**	**26**
		Total Contact Hours	29	

SEMESTER II

S. No.	Code	Course	L-T-P	Credits
		THEORY		
1	PH102/CY101	Engineering Physics/ Engineering Chemistry	3-1-0	4
2	MA102	Mathematics – II	3-1-0	4
3	CE106	Ecology and Environment	2-1-0	3
4	CS102	Computer Programming – II	2-0-0	2
5	EE102/EC101	Electrical Technology/ Basic Electronics	2-0-0	2
6	HU102	Professional Communication	2-0-0	2
7	SS102	History of Science & Technology	2-0-0	2
		PRACTICALS		
8	PH104/CY103	Physics Lab/ Chemistry Lab	0-0-2	1
9	CS 104	Computer Programming Lab – II	0-0-3	2
10	EE104/EC103	Electrical Technology Lab/ Basic Electronics Lab	0-0-2	1
11	ME102	Workshop Practices	0-0-3	2
12	GP102	General Proficiency	-	1
		Total Contact	**16-3-10**	**26**
		Total Contact Hours	29	

SEMESTER III

S. No.	Code	Course	L-T-P	Credits
		THEORY		
1	MA201	Quantitative Techniques	3-1-0	4
2	EC201	Digital Electronics	3-0-0	3
3	EC205	Signals and Systems	3-1-0	4
4	CS 201	Internet Technology	2-0-0	2
5	CS 203	JAVA Programming	3-0-0	3
6	CS205	Data Structure & Algorithm	2-1-0	3
		PRACTICALS		
7	EC 203	Digital Electronics Lab	0-0-3	2
8	CS 207	JAVA Programming Lab	0-0-3	2
9	CS 209	Data Structure Lab	0-0-3	2
10	GP201	General Proficiency		1
		Total	**16-3-9**	**26**
		Total Contact Hours	**28**	

SEMESTER IV

Sr. No.	Subject Code	Courses	L-T-P	Credits
		THEORY		
1	MA 202	Numerical Methods of Analysis	3-1-0	4
2	EE 202	Measurements and Instrumentation-I	2-0-0	2
3	EC 202	Principles of Communication	3-0-0	3
5	EC 204	Microprocessor and Interfacing	3-0-0	3
4	CS202	Discrete Structure	3-1-0	4
5	CS204	Database Management System	3-1-0	4
		PRACTICALS		
7	EE216	Measurements and Instrumentation Lab-I	0-0-2	1
9	EC206	Microprocessor and Interfacing Lab	0-0-3	2
9	CS 206	Database Management System Lab	0-0-3	2
10	GP202	General Proficiency		1
		Total	**17-3-8**	**26**
		Total Contact Hours	**28**	

SEMESTER V

Sr. No.	Subject Code	Courses	L-T-P	Credits
		THEORY		
1	CS301	Theory of Automata	3-1-0	4
2	CS303	Operating System	3-1-0	4
3	CS305	Computer Graphics	3-1-0	4
4	EC305	Wireless Communication	3-0-0	3
5	CS307	Computer Organization & Architecture	3-1-0	4
6	ME311	Principles of Technology Management	2-0-0	2
		PRACTICALS		
7	CS311	Operating System Lab	0-0-3	2
8	CS313	Computer Graphics Lab	0-0-3	2
9	GP301	General Proficiency		1
		Total	**17-4-6**	**26**
		Total Contact Hours	**27**	

SEMESTER – VI

Sr. No.	Subject Code	Courses	L-T-P	Credits
		THEORY		
1	CS302	Compiler Design	3-1-0	4
2	CS304	Artificial Intelligence	3-1-0	4
3	CS306	Information Security	3-1-0	4
4	CS308	Software Engineering	3-0-0	3
5	CS310	Computer Networks	3-1-0	4
6	ME312	Entrepreneurship & Innovation	2-0-0	2
		PRACTICALS		
7	CS312	Artificial Intelligence Programming Lab	0-0-3	2
8	CS314	Computer Networks Lab	0-0-3	2
9	GP302	General Proficiency		1
		Total	**17-4-6**	**26**
		Total Contact Hours	27	

SEMESTER – VII

Sr. No.	Subject Code	Courses	L-T-P	Credits
		THEORY		
1	SS401	Social Aspects of Engineering	2-1-0	3
2	CS401	Analysis and Design of Algorithms	3-1-0	4
3	CS403	Object Oriented Analysis and Design	3-0-0	3
4	CS405	Principle of Programming Languages	2-0-0	2
5		Elective – I	3-0-0	3
6		Elective – II	3-0-0	3
		PRACTICALS		
7	CS407	Analysis and Design of Algorithms Lab	0-0-3	2
8	CS409	Object Oriented Analysis and Design Lab	0-0-3	2
9	CS419	Seminar	0-0-3	2
10	GP401	General Proficiency	-	1
		Total	**17-2-9**	**25**
		Total Contact Hours	28	

SEMESTER VIII

Sr. No.	Subject Code	Courses	L-T-P	Credits
		THEORY		
1	MA402	Simulation & Modeling	3-1-0	4
2	CS402	Advanced Computer Architecture	2-1-0	3
3	CS404	Multimedia & Open Source System	3-0-0	3
4		Specialization Elective-I	3-1-0	4
5		Specialization Elective-II	2-1-0	3
		Specialization Elective-II	3-0-0	3
		PRACTICALS		
5	CS412	Multimedia and Open Source System Lab	0-0-3	2
6	CS428	Seminar	0-0-3	2
7	GP402	General Proficiency		1
		Total	**16-4-6**	**25**
		Total Contact Hours	26	

Summer Semester (After 8th Semester)

Sr. No.	Subject Code	Courses	L-T-P	Credits
1	CS430	Project	0-0-20	10
		Total	0-0-20	**10**

SEMESTER IX

Sr. No.	Subject Code	Courses	L-T-P	Credits
		THEORY		
1		Main Specialization Electives I	3-0-0	3
		Main Specialization Electives II	2-1-0	3
		Main Specialization Electives III	2-1-0	3
		Main Specialization Electives IV	3-0-0	3
		Main Specialization Electives V	3-0-0	3
2		Open Elective (01 Course)	2-0-0	2
		PRACTICALS		
3		Laboratory-Elective	0-0-3	2
4		Laboratory-Elective	0-0-3	2
5	CS521	Research Project (Preliminary)	1**-0-4	3
6	GP501	General Proficiency	-	1
		Total	**16-2-8**	**25**
		Total contact Hours	26	

** *This will not be a usual lecture session, but this is one to one interaction of each individual student with the concerned faculty member.*

SEMESTER X

Sr. No.	Subject Code	Courses	L-T-P	Credits
1	CS504	Research Project	…….	24
2	GP502	General Proficiency	-	1
		Total	**…….**	**25**

Grand Total of Credits = 266

LIST OF OPEN ELECTIVES

S. No.	Subject Code	Courses	L	T	P	Credit
1	CS555	Distributed Database	**2**	**0**	**0**	**2**
2	CS557	Distributed System	**2**	**0**	**0**	**2**
3	CS559	Network Security and Cryptography	**2**	**0**	**0**	**2**
4	CS561	Data Compression	**2**	**0**	**0**	**2**

ELECTIVE I

S. No.	Subject Code	Courses	L	T	P	Credits
1	CS411	Real Time System	3	0	0	3
2	CS413	Enterprise Resource Planning	3	0	0	3
3	CS415	Advanced OS and System Software	3	0	0	3
4	CS417	Mobile Computing	3	0	0	3

ELECTIVE II

S. No.	Subject Code	Courses	L	T	P	Credits
1	CS419	Distributed Algorithm	3	0	0	3
2	CS421	Advance Database Management System	3	0	0	3
3	CS423	E- Commerce	3	0	0	3
4	CS425	Advanced Computer Networks	3	0	0	3

SOFTWARE ENGINEERING

LIST OF SPECIALIZATION

Sr. No.	Subject Code	Courses	L	T	P	Credits
1	CS416	Object-Oriented Software Engineering	2	1	0	3
2	CS418	Software Architecture and Design	2	1	0	3
3	CS420	Software Project Management	3	0	0	3
4	CS422	Software Testing	2	1	0	3
5	CS424	Software Quality Assurance and Engineering	2	1	0	3
6	CS426	Aspect-Oriented Software Engineering	3	0	0	3

LIST OF MAIN SPECIALIZATION

Sr. No.	Subject Code	Courses	L	T	P	Credits
1	CS501	Web Software Engineering	3	0	0	3
2	CS503	Software Reusability	3	0	0	3
3	CS505	Software Reliability and Fault Tolerant Systems	2	1	0	3
4	CS507	Software Agents	3	0	0	3
5	CS509	Requirement Engineering	3	0	0	3
6	CS511	Component-Based Software Engineering	3	0	0	3
7	CS513	Software Re-Engineering	3	0	0	3
8	CS515	Software Maintenance	3	0	0	3
9	CS517	Formal Methods	3	0	0	3
10	CS519	Software Measurement and Estimation	3	0	0	3

INTELLIGENT SYSTEM

LIST OF SPECIALIZATION

Sr. No.	Subject Code	Courses	L	T	P	Credits
1	CS432	Logic and AI Programming Languages	3	0	0	3
2	CS434	Neural Network	3	0	0	3
3	CS436	Data Mining in AI	3	0	0	3
4	CS438	Expert System	3	0	0	3
5	CS440	Speech Processing	3	0	0	3

LIST OF MAIN SPECIALIZATION

Sr. No.	Subject Code	Courses	L	T	P	Credits
1	CS521	Soft Computing	3	0	0	3
2	CS523	Machine Translation and Learning	3	0	0	3
3	CS525	Robotics	3	0	0	3
4	CS527	Pattern Matching	3	0	0	3
5	CS529	Discourse Analysis and Natural Language Generation	3	0	0	3
6	CS531	Intelligent Information Retrieval	3	0	0	3
7	CS533	Knowledge Engineering	3	0	0	3
8	CS535	Natural Language Processing	3	0	0	3

LABS for M.Tech.(Electives)		

SOFTWARE ENGINEERING		
Lab-I	CS537	SPM
Lab-II	CS539	Software Testing and Tools
Lab-III	CS541	OOSE Lab
Lab-IV	CS543	Software Design Lab
Lab-V	CS545	Software Quality Assurance Lab
INTELLIGENT SYSTEM		
Lab-I	CS547	Logic and AI Programming Languages Lab
Lab-II	CS549	Robotics Lab
Lab-III	CS551	NLP Lab
Lab-IV	CS553	Speech Processing Lab