Approved in 42nd Senate

ANNEXURE-C

Sl. No.	Semester	Type	Course Code	Course Name	L	T	P	C	L - T - P - C	Remarks	Semesterwise Credits	Credits Completed
				First Semester								
1	I	IC	ICxxx	Calculus	1.5	0.5	0	2	1.5-0.5-0-2			
2	I	IC	ICxxx	Complex and Vector Calculus	1.5	0.5	0	2	1.5-0.5-0-2			
3	I	IC	IC140	Engineering Graphics for Design	2	0	3	4	2-0-3-4			
4	I	IC	IC152	Introduction to Python and Data Science	3	0	2	4	3-0-2-4			
5	I	IC	ICXXX	IC Core basket – I	2.5/3	0.5/0	0	3	2.5-0.5-0-3	https://cloud.iitmandi.ac.in/f/f7a485930ece4b0fbaa0/		
6	I	HSS	HSXXX	HSS Course	3	0	0	3	3-0-0-3	Preferably EnglishCourse for weak students; Other courses may also run		
7	I	IKS	IKS181	Ikshana Course	3	0	0	3	3-0-0-3			
8			ICXXX	FoundationsofDesignPracticum	1	0	6	4	1-0-6-4	Only onecourse (FDP/IKS) needs to be taken by students. They may take theothercourse in the 2nd semester		
										The total credits may be 18 if HSS courses not takenby the student. Accordingly the subsequent number would changed.The compulsory 12credits from HSS need to be completed by Sem VI. HSS and FDP may run in both semesters.Half of the batch does one course while the other half of the students do the other course. In the second semester they will be swapped. Accordingly students may do 18-22credits	21	21
				Second Semester								
1	II	IC	ICxxx	Linear Algebra	1.5	0.5	0	2	1.5-0.5-0-2			
2	II	IC	ICxxx	ODE & Integral Transforms	2.5	0.5	0	3	2.5-0.5-0-2			
3	II	IC	IC161	Applied Electronics	3	0	0	3	3-0-0-3			
4	II	IC	IC161P	Applied Electronics Lab	0	0	3	2	0-0-3-2			
5	II	IC	IC252	Probability and Statistics	3	0	2	4	3-0-2-4			
6	II	IC	ICXXX	Programming and Data Structures	2.5/3	0.5/0	0	3	2.5-0.5-0-3			
7	II	IC	ICXXX	Foundations of Design Practicum	1	0	6	4	1-0-6-4			
8	II	IC	IC221P	Physics Practicum	3	0	0	3	0-0-3-2			
9	II	IC	IKS	Ikshanacourses						IKSEDMA courseand FDP may swap their batches from 1st year. Total credits may be 20-23 based on thecourses	24	45
				Third Semester								
1	III	IC	IC272	Machine Learning	3	0	0	3	3-0-0-3			
2	III	DC	CS213	Reverse Engineering	0	0	3	1	0-0-2-1			
3	III	DC	CS208	Mathematical Foundations of Computer Science	3	1	0	4	3-1-0-4			
4	III	DC	CS212	Design of Algorithms	3	0	2	4	3-0-2-4			
5	III	DC	CS214	Computer Organization	3	0	2	4	3-0-2-4			
6	III	HSS	HSXXX	HSS Course	x	x	x	3	x-x-x-3			
										DisciplineCore and elective courses may be included as per requirement; please fill the details of the courses here. Machine learning may be offered in 3rd semester, and design practicum may be offeredin 4th semester	18	63

				Fourth Semester									
1	IV	IC	IC201P	Design Practicum	0	0	6	3	0-0-6-3				
2	IV	DC	CS304	Formal Languages and Automata Theory	3	0	0	3	3-0-0-3				
3	IV	DC	CS309	Information Systems and Databases	3	0	2	4	3-0-2-4				
4	IV	DC	CSXXX	Software Engineering	3	0	2	4	3-0-2-4				
5	IV	DE	DE-1	Discipline Elective-1	3	0	0	3	3-0-0-3		17	81	
				Fifth Semester									
1	V	DC	CS312	Operating Systems	3	0	2	0	3-0-2-4				
2	V	DC	CS313	Computer Networks	3	0	2	0	3-0-2-4				
3	V	DC	CSXXX	Artificial Intelligence	3	0	0	3	3-0-0-3				
4	V	DE	DE-2	Discipline Elective-2	x	x	x	4	x-x-x-4				
5	V	FE	FE-1	Free Elective-1	x	x	x	4	x-x-x-3		19	100	
				Sixth Semester									
1	VI	DC	CS302	Paradigms of Programming	3	0	2	0	3-0-2-4				
2	VI	DE	DE-3	Discipline Elective-3	x	x	x	4	x-x-x-4				
3	VI	DE	DE-4	Discipline Elective-4	x	x	x	4	x-x-x-4				
4	VI	FE	FE-2	Free Elective-2	x	x	x	3	x-x-x-3				
5	VI	FE	FE-3	Free Elective-3	x	x	x	3	x-x-x-3				
	VI	ISTP	ISTP	ISTP/Free elective	x	x	x	4	x-x-x-4	All core courses need to be completed by 6th semester. If the discipline core courses are completed by 5th semester, the students can go for semester internship, without much issues of completing the core courses	22	123	
				Seventh Semester									
1	VII/VII	IC	IC400	Internship	x	x	x	2	x-x-x-2	Internship needs to be completed before start of 8th semester. The grades for the internship may be added to 8th semester grades.			
1	VII	DE	DE-5	Discipline Elective-5	x	x	x	4	x-x-x-4				
2	VII	DE	DE-6	Discipline Elective-6	x	x	x	4	x-x-x-4				
3	VII	FE	FE-4	Free Elective-4	x	x	x	4	x-x-x-4				
4	VII	FE	FE-5	Free Elective-5	x	x	x	4	x-x-x-4				
5	VII	MTP-1	MTP-1	MTP-1	x	x	x	5	x-x-x-3		21	143	
				Eighth Semester									
1	VIII	DE	DE-7	Discipline Elective-7	x	x	x	4	x-x-x-4				
2	VIII	DE	DE-8	Discipline Elective-8	x	x	x	4	x-x-x-4				
3	VIII	FE	FE-6	Free Elective-6	x	x	x	4	x-x-x-4				
5	VIII	MTP2	MTP-2	MTP- 2	x	x	x	5	x-x-x-5		17	160	
										1/3 credits HSS is done in Sem I then only one 3 credits needs to be done in either Se V or Sem VI. Hence the total HSS credits would be 12 and Overall Credits would be 160.			

Program:

List of Discipline ElectivesElectives

Sl. No	Course Code	Course Name	L	T	P	Cr	L-T-P-C	Remarks
1	CS303	Software Engineering	2	0	2	3	2-0-2-3	
2	CS451	Computer Graphics and Game Design	2	0	2	3	2-0-2-3	
3	CS456	Distributed Databases	3	0	0	3	3-0-0-3	
4	CS507	Computer Architecture	3	0	2	4	3-0-2-4	
5	CS508	Introduction to Heterogeneous Computing	2	0	0	2	2-0-0-2	
6	CS514	Data Structures and Algorithms-II	3	0	2	4	3-0-2-4	
7	CS522	Distributed Algorithms	3	0	0	3	3-0-0-3	
8	CS523	Verification of Reactive Systems	3	0	0	3	3-0-0-3	
9	CS541P	IoT Systems and the Cloud	3	0	2	4	3-0-2-4	
10	CS542	Design patterns for scalable systems						
11	CS544	Formal Concept Analysis: Theory and Practice	2	0	2	3	2-0-2-3	
12	CS545	Software Design Pattern	3	0	0	3	3-0-0-3	
13	CS546	Design of Concurrent Software	3	0	0	3	3-0-0-3	
14	CS549	Performance analysis of computer networks	3	0	0	3	3-0-0-3	
15	CS550	Computer Graphics and Geometric Design	2	0	2	3	2-0-2-3	
16	CS561	Map Reduce and Big Data	3	0	0	3	3-0-0-3	
17	CS563	Scalable Data Science	3	1	0	4	3-1-0-4	
18	CS606	Computational Modeling of Social Systems	3	0	0	3	3-0-0-3	
19	CS609	Speech Processing	3	0	2	4	3-0-2-4	
20	CS611	Program Analysis	3	1	0	4	3-1-0-4	
21	CS660	Data Mining for Decision Making	3	0	0	3	3-0-0-3	
22	CS662	Mobile Virtual Reality and Artificial Intelligence	3	0	0	3	3-0-0-3	
23	CS669	Pattern Recognition	3	1	0	4	3-1-0-4	
24	CS670	Kernel Methods for Pattern Recognition	4	0	0	4	4-0-0-4	
25	CS671	Deep Learning and Applications	3	0	1	4	3-0-1-4	
26	DS201	Data handling and visualization	2	0	2	3	2-0-2-3	
27	DS301	Mathematical Foundation of Data Science	3	1	0	4	3-1-0-4	
28	DS303	Statistical Foundations of Data Science	3	0	0	3	3-0-0-3	
29	DS401	Optimization for Data Science	3	0	0	3	3-0-0-3	
30	DS403	Introduction to Statistical Learning	3	0	2	3	3-0-2-3	

This Discipline Electives list will be maintained by Academics Office. Elective courses are not allowed to delete. The addition of courses is permitted. This list may be modified during the time of next curriculum revision. UG students may preferably be allowed to take upto 5 level courses as Discipline Courses. 6 level courses may be offered as free electives.

Semester	DC	DE	DC + DE
III	13	0	13
IV	11	3	14
V	11	4	15
VI	4	8	12
VII	0	8	8
VIII	0	8	8
Total	39	31	70

Symbol	Course Type	Credits
DC	Discipline core	39
DE	Discipline elective	31
FE	Free elective	16
HSS	Humanities and Social Science Course	12
IC	InstituteC ore	45
IKS	Indian knowledge system	3
ISTP	Interactive Socio-Technical Practicum	4
MTP 1	Major Technical project 1	3
MTP 2	Major Technical project 2	3
		160

Including the baskets