



**UNIVERSITY OF ENGINEERING & MANAGEMENT, KOLKATA**  
**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY**  
**SYLLABUS FOR B.TECH**

Second Year - Third Semester

<b>A.THEORY</b>							
Sl No.	Subject Code	Theory	Contact Hours/Week				Credit Points
			L	T	P	Total	
1	HU301	Values & Ethics in Profession	3	0	0	3	3
2	M301	Mathematics-3	3	1	0	4	4
3	CH301	Basic Environmental Engineering & Disaster Management	3	1	0	4	4
4	CS301	Digital Logic Design	3	1	0	4	4
5	CS302	Data Structure & Algorithm	3	1	0	3	4
6	GS301	Essential Studies for Professionals – III	2	0	0	2	2
Total of Theory						21	21
<b>B. PRACTICAL</b>							
7	CS391	Digital Logic Design Lab	0	0	3	3	2
8	CS392	Data Structure & Algorithm Lab	0	0	3	3	2
9	HU381	Technical Report Writing & Language Lab	0	0	2	2	2
Total of Practical						8	6
<b>C. SESSIONAL</b>							
10	GS381	Skill Development for Professionals – III	2	0	0	2	1
Total of Sessional						2	1
Total of Semester						31	28



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Second Year - Fourth Semester

<b>A.THEORY</b>							
Sl No.	Subject Code	Theory	Contact Hours/Week				Credit Points
			L	T	P	Total	
1	M(CS)401	Numerical Methods	2	1	0	3	2
2	CS401	Data Communication	3	0	0	3	3
3	CS402	Formal Language & Automata Theory	3	1	0	4	4
4	CS403	Computer Organisation & Architecture	3	1	0	4	4
5	CS404	Discrete Mathematics	3	1	0	4	4
6	GS401	Essential Studies for Professionals – IV	2	0	0	2	2
Total of Theory						20	19
<b>B. PRACTICAL</b>							
7	M(CS)491	Numerical Methods Lab	0	0	3	3	2
8	CS491	Data Communication Lab	0	0	3	3	2
9	CS492	Software Tools	0	0	3	3	2
10	CS493	Computer Organisation & Architecture Lab	0	0	3	3	2
Total of Practical						12	8
<b>C. SESSIONAL</b>							
11	GS481	Skill Development for Professionals – IV	2	0	0	2	1
Total of Sessional						2	1
Total of Semester						34	28



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Third Year – Fifth Semester

<b>A.THEORY</b>							
Sl No.	Subject Code	Theory	Contact Hours/Week				Credit Points
			L	T	P	Total	
1	HU501	Economics for Engineers	3	0	0	3	3
2	CS501	Design & Analysis of Algorithm	3	1	0	4	4
3	CS502	Microprocessors & Microcontrollers	3	1	0	4	4
4	CS503	Data Base Management Systems	3	1	0	4	4
5	GS501	Essential Studies for Professionals – V	2	0	0	2	2
6	Free Elective		3	0	0	3	3
	CS504A	Circuit Theory & Network					
	CS504B	Data Communication					
	CS504C	Digital Signal Processing					
	CS504D	Object Oriented Programming using Java					
Total of Theory						20	20
<b>B. PRACTICAL</b>							
7	CS591	Design & Analysis of Algorithm Lab	0	0	3	3	2
8	CS592	Microprocessors & Microcontrollers Lab	0	0	3	3	2
9	CS593	Data Base Management Systems Lab	0	0	3	3	2
10	F.E.						
	CS594A	Circuit Theory & Network Lab					
	CS594B	Data Communication Lab	0	0	3	3	2
	CS594C	Digital Signal Processing Lab					
	CS594D	Object Oriented Programming using Java					
Total of Practical						12	8
<b>C. SESSIONAL</b>							
11	GS581	Skill Development for Professionals – V	2	0	0	2	1
Total of Sessional						2	1
Total of Semester						34	29



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Third Year – Sixth Semester

<b>A.THEORY</b>							
Sl No.	Subject Code	Theory	Contact Hours/Week				Credit Points
			L	T	P	Total	
1	HU601	Principles of Management	2	0	0	2	2
2	CS601	Software Engineering	3	0	0	3	3
3	CS602	Computer Networks	3	1	0	4	4
4	CS603	Operating System	3	0	0	3	3
5	GS601	Essential Studies for Professionals – VI	2	0	0	2	2
6	P.E CS604A CS604B CS604C	Human Resource Management Computer Graphics & Multimedia Information Theory & Coding	3	0	0	3	3
7	F. E. CS605A CS605B CS605C	Data Science & Data Analytics Operation Research Distributed DBMS	3	0	0	3	3
Total of Theory						20	20
<b>B. PRACTICAL</b>							
8	CS691	Software Engineering Lab using C++	0	0	3	3	2
9	CS692	Computer Networks Lab	0	0	3	3	2
10	CS693	Operating System Lab	0	0	3	3	2
11	CS695	A. Data Science & Data Analytics Lab B. Operation Research Lab C. Distributed DBMS Lab	0	0	3	3	2
12	CS681	Seminar	0	0	3	3	2
Total of Practical						15	10
<b>C. SESSIONAL</b>							
13	GS681	Skill Development for Professionals - VI	2	0	0	2	1
Total of Sessional						2	1
Total of Semester						37	31
Industrial Training to be done during 6 <sup>th</sup> - 7 <sup>th</sup> Semester break.							



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Fourth Year – Seventh Semester

<b>A. THEORY</b>							
Sl No.	Subject Code	Theory	Contact Hours/Week				Credit Points
			L	T	P	Total	
1	CS701	Artificial Intelligence	3	0	0	3	3
2	CS702	Cryptography & Network Security	2	0	0	2	2
3	CS703	Compiler Design	2	0	0	2	2
4	GS701	Essential Studies for Professionals – VII	2	0	0	2	2
5	CS704	A. Pattern Recognition B. Soft Computing C. Distributed Operating System D. Image Processing	3	0	0	3	3
6	CS705	A. Advanced Computer Architecture B. Data Warehousing and Data Mining C. Sensor Networks D. Internet Technology	3	0	0	3	3
7	CS706	A. Mobile Computing B. Microelectronics & VLSI Design C. Control System D. Modelling & Simulation	3	0	0	3	3
Total of Theory						18	18
<b>B. PRACTICAL</b>							
8	HU781	Group Discussion	0	0	3	3	2
9	CS791	Artificial Intelligence Lab	0	0	3	3	2
10	CS793	Compiler Design Lab	0	0	3	3	2
11	CS794	A. Pattern Recognition Lab B. Soft Computing Lab C. Distributed Operating System Lab D. Image Processing Lab	0	0	3	3	2
12	CS795	A. Advanced Computer Architecture Lab B. Data Warehousing and Data Mining Lab C. Sensor Networks Lab D. Internet Technology Lab	0	0	3	3	2
13	CS782	Industrial Training Evaluation					2
14	CS783	Project- 1				3	2
Total of Practical						18	14
<b>C. SESSIONAL</b>							
15	GS781	Skill Development for Professionals - VII	2	0	0	2	1
Total of Sessional						2	1
Total of Semester						38	32



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Fourth Year – Eighth Semester

<b>A.THEORY</b>							
Sl No.	Subject Code	Theory	Contact Hours/Week				Credit Points
			L	T	P	Total	
1	HU801	A. Organisational Behaviour B. Project Management	2	0	0	2	2
2	CS801	Deep Learning	2	0	0	2	2
3	CS802	Big Data Analytics	3	0	0	3	3
4	CS803	A. Cloud Computing & IOT B. Parallel Computing C. Natural Language Processing D. Business Analytics	3	0	0	3	3
5	CS804	A. Technology Management B. Optical Networking C. Low Power Circuits & Systems D. E-Commerce & Cyber Law E. Robotics	3	0	0	3	3
Total of Theory						13	13
<b>B. PRACTICAL</b>							
6	CS891	Design Lab / Industrial problem related practical training (Workshop needed)	0	0	6	6	4
7	CS892	Project-2	0	0	12	12	6
8	CS893	Grand Viva					3
Total of Practical						18	13
Total of Semester						31	26