

**Maulana Abul Kalam Azad University of Technology, West Bengal***(Formerly West Bengal University of Technology)***Syllabus for B. Tech in Computer Science & Design**

(Applicable from the academic session 2021-2022)

First Year First Semester							
Mandatory Induction Program- 3 weeks duration							
Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
Theory							
1	Basic Science course	BS-PH101/ BS-CH101	Physics-I (Gr-A)/ Chemistry-I(Gr-B)	3	1	0	4
2	Basic Science course	BS-M101/ BS- M102	Mathematics –IA*/ Mathematics –IB *	3	1	0	4
3	Engineering Science Courses	ES-EE101	Basic Electrical Engineering	3	1	0	4
Total Theory				9	3	0	12
Practical							
1	Basic Science course	BS-PH191/ BS-CH191	Physics-I Laboratory (Gr-A)/ Chemistry-I Laboratory (Gr-B)	0	0	3	1.5
2	Engineering Science Courses	ES-EE191	Basic Electrical Engineering Laboratory	0	0	2	1
3	Engineering Science Courses	ES-ME191/ ES-ME192	Engineering Graphics & Design(Gr-B)/ Workshop/Manufacturing Practices(Gr-A)	1	0	4	3
Total Practical				1		9	5.5
Total of First Semester				10	3	9	17.5
* Mathematics –IA (BS-M101) – CSE, CSD & IT , Mathematics –IB (BS-M102) - All stream except CSE, CSD & IT							

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First Year Second Semester							
Sl No.	Category	Subject Code	Subject Name	Total Number of contact hours			Credits
				L	T	P	
<b>Theory</b>							
1	Basic Science courses	BS-PH201/ BS-CH201	Physics-I (Gr-B)/ Chemistry-I (Gr-A)	3	1	0	4
2	Basic Science courses	BS-M201/ BS-M202	Mathematics –IIA <sup>#</sup> / Mathematics –IIB <sup>#</sup>	3	1	0	4
3	Engineering Science Courses	ES-CS201	Programming for Problem Solving	3	0	0	3
4	Humanities and Social Sciences including Management courses	HM-HU201	English	2	0	0	2
Total Theory				11	2	0	13
<b>Practical</b>							
1	Basic Science courses	BS-PH291/ BS-CH291	Physics-I Laboratory (Gr-B)/ Chemistry-I Laboratory (Gr-A)	0	0	3	1.5
2	Engineering Science Courses	ES-CS291	Programming for Problem Solving	0	0	4	2
3	Engineering Science Courses	ES-ME291/ ES-ME292	Engineering Graphics & Design(Gr-A)/ Workshop/Manufacturing Practices(Gr-B)	1	0	4	3
4	Humanities and Social Sciences including Management courses	HM-HU291	Language Laboratory	0	0	2	1
Total Practical				1	0	13	7.5
Total of Second Semester				12	2	13	20.5
# Mathematics –II (BS-M201) – CSE, CSD & T Mathematics –II (BS-M202) - All stream except CSE, CSD & IT							

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	Group-A	Group-B
1 <sup>st</sup> Year 1 <sup>st</sup> Semester	Physics-I (BS-PH101); Workshop/Manufacturing Practices (ES-ME192)	Chemistry-I (BS-CH101); Engineering Graphics & Design (ES-ME191)
1 <sup>st</sup> Year 2 <sup>nd</sup> Semester	Chemistry-I (BS-CH201); Engineering Graphics & Design (ES-ME291)	Physics-I (BS-PH201); Workshop/Manufacturing Practices (ES-ME292)

Semester III (Second year)							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
<b>Theory</b>							
1	Engineering Science Course	ESC 301	Analog and Digital Electronics	3	0	0	3
2	Professional Core Courses	PCC-CS301	Data Structure & Algorithms	3	0	0	3
3	Professional Core Courses	PCC-CS302	Computer Organisation	3	0	0	3
4	Basic Science course	BSC 301	Mathematics-III (Differential Calculus)	2	0	0	2
5	Humanities & Social Sciences including Management courses	HSMC 301	Economics for Engineers (Humanities-II)	3	0	0	3
<b>Practical</b>							
6	Professional Core Courses	PCC-CS393	IT Workshop (Sci Lab/MATLAB/Python/R)	0	0	4	2
7	Engineering Science Course	ESC 391	Analog and Digital Electronics	0	0	4	2
8	Professional Core Courses	PCC-CS391	Data Structure & Algorithms	0	0	4	2
9	Professional Core Courses	PCC-CS392	Computer Organisation	0	0	4	2
<b>Total credits</b>							<b>22</b>

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<b>Semester IV (Second year)</b>							
<b>Sl. No.</b>	<b>Type of course</b>	<b>Code</b>	<b>Course Title</b>	<b>Hours per week</b>			<b>Credits</b>
				<b>L</b>	<b>T</b>	<b>P</b>	
<b>Theory</b>							
1	Professional Core Courses	PCC-CS401	Discrete Mathematics	3	1	0	4
2	Professional Core Courses	PCC-CS402	Computer Architecture	3	0	0	3
3	Professional Core Courses	PCC-CS403	Formal Language & Automata Theory	3	0	0	3
4	Professional Core Courses	PCC-CS404	Design & Analysis of Algorithms	3	0	0	3
5	Basic Science courses	BSC 401	Biology	2	1	0	3
6	Mandatory Courses	MC401	Environmental Sciences	1	-	-	0
<b>Practical</b>							
7	Engineering Science Course	PCC-CS492	Computer Architecture	0	0	4	2
8	Professional Core Courses	PCC-CS494	Design & Analysis of Algorithms	0	0	4	2
						<b>Total credits</b>	<b>20</b>

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<b>Semester V (Third year)</b>							
<b>Sl. No.</b>	<b>Type of course</b>	<b>Code</b>	<b>Course Title</b>	<b>Hours per week</b>			<b>Credits</b>
				<b>L</b>	<b>T</b>	<b>P</b>	
1	Engineering Science Course	ESC501	Software Engineering	3	0	0	3
2	Professional Core Courses	PCC-CS501	Compiler Design	3	0	0	3
3	Professional Core Courses	PCC-CS502	Operating Systems	3	0	0	3
4	Professional Core Courses	PCC-CS503	Object Oriented Programming	3	0	0	3
5	Humanities & Social Sciences including Management courses	HSMC-501	Introduction to Industrial Management (Humanities III)	3	0	0	3
6	Professional Elective courses	PEC-CSD 501A/B/C	(Elective-I) Computer Graphics/ Aesthetics and Art/ Computer Vision	3	0	0	3
7	Mandatory Courses	MC- CS501	Constitution of India/ Essence of Indian Knowledge Tradition	-	-	-	0
<b>Practical</b>							
8	Professional Core Courses	PCC-CSD591	Computer Added Design		0	4	2
9	Professional Core Courses	PCC-CS592	Operating Systems		0	4	2
10	Professional Core Courses	PCC-CS593	Object Oriented Programming		0	4	2
<b>Total credits</b>							<b>24</b>

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<b>Semester VI (Third year)</b>							
Sl. No.	Type of course	Code	Course Title	Hours per week			Credits
				L	T	P	
1	Professional Core Courses	PCC-CS601	Database Management Systems	3	0	0	3
2	Professional Core Courses	PCC-CS602	Computer Networks	3	0	0	3
3	Professional Elective courses	PEC-CSD601A/B/C	(Elective-II) Image Processing/ Game design and development/ /Augmented & Virtual Reality	3	0	0	3
4	Professional Elective courses	PEC-CSD602A/B/C	(Elective-III) Artificial Intelligence/ Soft Computing/ Data Warehousing and Data Mining	3	0	0	3
5	Open Elective courses	OEC-CSD601A/B	(Open Elective-) Animation & Graphics / Organizational Behavior	3	0	0	3
6	Project	PROJ-IT 601	Research Methodology	3	0	0	3
<b>Practical</b>							
7	Professional Core Courses	PCC-CS691	Computer Network and Data Base Management System	0	0	4	2
8	Professional Core Courses	PCC-CSD692	Animation and Game Design	0	0	4	2
<b>Total credits</b>							<b>22</b>

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<b>Semester VII (Fourth year]</b>							
<b>Sl. No.</b>	<b>Type of course</b>	<b>Code</b>	<b>Course Title</b>	<b>Hours per week</b>			<b>Credits</b>
				<b>L</b>	<b>T</b>	<b>P</b>	
1	Professional Elective courses	PEC- CS701A/B/C/D/E	(Elective-IV) Machine learning / Cloud Computing/ Digital Signal Processing/Multi-agent Intelligent Systems/ Quantum Computing	3	0	0	3
2	Professional Elective courses	PEC- CS702A/B/C/D	(Elective-V) Cyber Security/ Blockchain / Ad-Hoc and Sensor Networks/ Information Theory and Coding	3	0	0	3
3	Open Elective courses	OEC- CSD701A/B/C	(Open Elective-II) Prototyping Interactive Systems /Human Computer Interaction/ Multimedia Systems	3	0	0	3
4	Humanities & Social Sciences including Management courses	HSM CS 701	Project Management Entrepreneurship	2	1	0	3
5	Project	PROJ- CSD781	Project-II	0	0	12	6
			<b>Total credits</b>				<b>18</b>

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<b>Semester VIII (Fourth year)</b>							
<b>[Summer Industry Internship]</b>							
<b>Sl. No.</b>	<b>Type of course</b>	<b>Code</b>	<b>Course Title</b>	<b>Hours per week</b>			<b>Credits</b>
				<b>L</b>	<b>T</b>	<b>P</b>	
1	Professional Elective courses	PEC-CSD801A/B/C	(Elective-VI) Big Data Analysis / Natural Language Processing / Mobile Computing	3	0	0	3
2	Open Elective courses	OEC-CSD801A/B/C	Open Elective-III Internet of Things / Wearable Devices, Interactions, Applications / Steganography	3	0	0	3
3	Open Elective courses	OEC-CSD802A/B/C/D	(Open Elective-IV) Neural Networks and Deep Learning / E-Commerce and ERP / Micro-electronics and VLSI Design / Computer Vision	3	0	0	3
4	Project	PROJ-CSD881	Project-III	0	0	12	6
<b>Total credits</b>							<b>15</b>

Course is designed with reference to the same course at IIT Delhi: <https://www.iitd.ac.in>