

Department: Computer Science & Engineering

Revised Curriculum Structure

(To be effective from 2018-19 admission batches)

1st to 8th Semester

Curriculum for B. Tech
Under Autonomy (GR A: ECE, EE, EIE, BME; GR B: CSE, IT, ME, CE, FT)
B.Tech(CSE) Curriculum
2018 Admission Batch Onwards

Curriculum Structure
(to be effective from 2018-19 admission batch)
Curriculum for B.Tech 1st Semester

Under Autonomy (GR A: ECE, EE, EIE, BME; GR B: CSE, IT, ME, CE, FT)

1 st Semester							
Sl No	Paper Code	Theory	Contact Hours /Week				Credit Points
			L	T	P	Total	
A. THEORY							
1	M 101	Mathematics -I	3	1	0	4	4
2	PH 101	Physics - I	3	0	0	3	3
3	EC 101	Basic Electronics Engineering	3	0	0	3	3
4	HU 101	English	2	0	0	2	2
Total of Theory						12	12
B. PRACTICAL							
5	PH191	Physics-I Lab	0	0	3	3	1.5
6	EC 191	Basic Electronics Engineering Lab	0	0	3	3	1.5
7	ME 192	Workshop/Manufacturing Practices	0	0	3	3	1.5
C. SESSIONAL							
8	XC181	Extra-Curricular Activity I	0	0	0	0	2 units
D. PROJECT*							

9	Project Code	Project Name	Contact Hours /Week	Credit Points
	M 151	Mathematics-I Project	1	0.5
	HU 151	English Project	1	0.5
	PH 151	Physics Project	1	0.5
	EC 151	Basic Electronics Project	1	0.5
Total of Theory, Practical, Sessional & Project			23	16.5+1

*** Student need to select any two projects (Total Credit: 0.5+0.5=1)**

**B.Tech(CSE) Curriculum
2018 Admission Batch Onwards**

2 nd Semester							
Sl No	Paper Code	Theory	Contact Hours /Week				Credit Points
			L	T	P	Total	
A. THEORY							
1	M 201	Mathematics -II	3	1	0	4	4
2	CH 201	Chemistry-I	3	0	0	3	3
3	EE 201	Basic Electrical Engineering	3	0	0	3	3
4	CS 201	Programming for Problem Solving	3	0	0	3	3
5	ME 201	Engineering Mechanics	3	0	0	3	3
Total of Theory						16	16
B. PRACTICAL							
6	CS291	Programming for Problem Solving Lab	0	0	3	3	1.5
7	CH 291	Chemistry I Lab	0	0	3	3	1.5
8	EC 291	Basic Electronics Engineering Lab	0	0	3	3	1.5
9	ME 191	Engineering Graphics & Design	0	0	3	3	1.5
10	HU 291	Language Lab and Seminar Presentation	0	0	2	2	1
C.SESSIONAL							
11	XC 281	Extra-Curricular Activity II	0	0	0	0	2 Units
D. PROJECT*							
12	Project Code	Project Name	Contact Hours /Week				Credit Points
	M 251	Mathematics-II Project	1				0.5
	CS 251	Programming for Problem Solving Project	1				0.5
	ME 251	Engineering Mechanics Project	1				0.5
	CH 251/	Chemistry Project	1				0.5

	EE 251	Basic Electrical Project	1	0.5
Total of Theory, Practical, Sessional & Project			32	23+1

*** Student need to select any two projects (Total Credit: $0.5+0.5=1$)**

**B.Tech(CSE) Curriculum
2018 Admission Batch Onwards**

3rd Semester								
<u>SL No</u>	<u>Type</u>	<u>Code</u>	<u>A. THEORY</u>	<u>Contact hours</u>			Total	Cr
				L	T	P		
1	BS	M(CSE)301	Mathematics-III	3	1	0	4	4
2	BS	PH301	Physics-II	3	0	0	3	3
3	ES	EE(CSE) 301	Circuit Theory and Network	2	0	0	2	2
4	PC	CS301	Digital Electronics and Computer Organization	3	0	0	3	3
5	PC	CS302	Data Structures	3	0	0	3	3
Total of Theory							15	15
<u>B. PRACTICAL</u>								
6	BS	PH391	Physics-II Lab	0	0	3	3	1.5
7	PC	CS391	Digital Electronics and Computer Organization Lab	0	0	3	3	1.5
8	PC	CS392	Data Structures Lab	0	0	3	3	1.5
9	PC	CS393	Programming with C++	1	0	2	3	1.5
Total of Practical							12	6
Total of Theory+ Practical+ Sessional							27	21
<u>D. PROJECT*</u>								
10		M(CSE)351	Project on Mathematics-III	0	0	1	1	0.5
11		PH351	Project on Physics-II	0	0	1	1	0.5
12		EE(CSE) 351	Project on Circuit Theory and Network	0	0	1	1	0.5
13		CS351	Project on Data Structures	0	0	1	1	0.5

14		CS352	Project on Digital Electronics and Computer Organization	0	0	1	1	0.5
* Student need to select any four Project (Total Credit: 0.5 x4=2)							2	2
Total of Theory+ Practical+ Sessional+ Project							29	21+2

**B.Tech(CSE) Curriculum
2018 Admission Batch Onwards**

4th Semester								
SL No	Type	Code	A. THEORY	Contact hours			Total	Cr.
				L	T	P		
1	ES	M(CSE)401	Numerical Methods and Statistics	3	0	0	3	3
2	HS	HU 403	Economics for Engineers	2	0	0	2	2
3	PC	CS401	Computer Architecture	3	0	0	3	3
4	PC	CS402	Design and Analysis of Algorithms	3	0	0	3	3
5	PC	CS403	Formal Language And Automata Theory	3	0	0	3	3
Total of Theory							14	14
<u>B. PRACTICAL</u>								
6	ES	M(CSE)491	Numerical Methods and Statistics Lab	0	0	3	3	1.5
7	PC	CS491	Computer Architecture Lab	0	0	3	3	1.5
8	PC	CS492	Algorithms Lab	0	0	3	3	1.5
9	PC	CS493	Programming with Python	1	0	2	3	1.5
Total of Practical							12	6
<u>C. SESSIONAL</u>								
10	HS	HU481	Technical Report writing and Language Practice Lab	0	0	2	2	1
11	MC	XC 482	Environment Studies	2	0	0	2	2 Units
Total of Theory+ Practical+ Mandatory Courses							30	21
<u>D.PROJECT*</u>								

12		M(CSE)451	Project on Numerical Methods and Statistics	0	0	1	1	0.5
13		CS451	Project on Computer Architecture	0	0	1	1	0.5
14		CS452	Project on Design and Analysis of Algorithms	0	0	1	1	0.5
15		CS 453	Project on Formal Language And Automata Theory	0	0	1	1	0.5
* Student need to select any four Project (Total Credit: 0.5 x4=2)							2	2
Total of Theory+ Practical+ Sessional+ Project							32	21+2

**B.Tech(CSE) Curriculum
2018 Admission Batch Onwards**

5TH SEMESTER								
<u>SL No</u>	<u>Type</u>	<u>Code</u>	<u>A. THEORY</u>	<u>Contact hours</u>			Total	Cr. Points
				L	T	P		
1	PC	CS501	Computer Graphics	3	0	0	3	3
2	PC	CS502	Operating System	3	0	0	3	3
3	PC	CS503	Data Base Management System	3	0	0	3	3
4	FE	IT(CSE)504A	Object Oriented Programming using Java	3	0	0	3	3
		IT(CSE)504B	Multimedia Technology					
		ECE(CSE)504C	Communication Engineering					
5	PE	CS505A	Operations Research	3	0	0	3	3
		CS505B	Computational Geometry					
		CS505C	Distributed Algorithms					
Total of Theory							15	15
<u>B. PRACTICAL</u>								
6	PC	CS591	Computer Graphics Lab	0	0	3	3	1.5
7	PC	CS592	Operating System Lab	0	0	3	3	1.5
8	PC	CS 593	Data Base Management System Lab	0	0	3	3	1.5
9	FE	IT(CSE)594A	Object Oriented Programming Lab	0	0	3	3	1.5
		IT(CSE)594B	Multimedia Technology Lab					

		ECE(CSE)594C	Communication Engineering Lab					
Total of Practical							12	6
<u>C. MANDATORY COURSES</u>								
10	MC	XC581	General Aptitude /Foreign Language	2	0	0	2	2 Units
Total of Theory+ Practical+ Mandatory Courses							29	21
<u>D.PROJECT*</u>								
11		CS551	Project on Computer Graphics	0	0	1	1	0.5
12		CS552	Project on Operating System	0	0	1	1	0.5
13		HU551	Project on Economics for Engineers	0	0	1	1	0.5
14		CS553	Project on Data Base Management System	0	0	1	1	0.5
15		IT(CSE)554A	Project on Object Oriented Programming using Java	0	0	1	1	0.5
16		IT(CSE)554B	Project on Multimedia Technology	0	0	1	1	0.5
17		ECE(CSE)554C	Project on Communication Engineering	0	0	1	1	0.5
18		CS555A	Project on Operations Research	0	0	1	1	0.5
19		CS555B	Project on Computational Geometry	0	0	1	1	0.5
20		CS555C	Project on Distributed Algorithms	0	0	1	1	0.5
* Student need to select any four Project (Total Credit: 0.5 x4=2)							2	2
Total of Theory+ Practical+ Sessional+ Project							31	21+2

**B.Tech(CSE) Curriculum
2018 Admission Batch Onwards**

6TH SEMESTER								
<u>SL No</u>	<u>Type</u>	<u>Code</u>	<u>A. THEORY</u>	<u>Contact hours</u>			Total	Cr. Points
				L	T	P		
1	PC	CS601	Computer Network	3	0	0	3	3
2	PC	CS602	Microprocessors and Microcontrollers	2	1	0	3	3
3	PC	CS603	Software Engineering	3	0	0	3	3
4	PE	CS604A	Compiler Design	3	0	0	3	3
		CS604B	Robotics					
		CS604C	Simulation and modeling					
5	FE	IT(CSE)605A	Pattern Recognition	3	0	0	3	3
		IT(CSE)605B	Distributed Operating System					
		IT(CSE)605C	Distributed Database					
		IT(CSE)605D	Computer Vision					
6	FE	IT(CSE)606A	Data Warehousing and Data Mining	3	0	0	3	3
		IT(CSE)606B	Digital Image Processing					
		IT(CSE)606C	E-commerce and ERP					
Total of Theory							18	18
<u>B. PRACTICAL</u>								
7	PC	CS691	Computer Network Lab	0	0	3	3	1.5
8	PC	CS692	Microprocessors and Microcontrollers Lab	0	0	3	3	1.5
9	PC	CS693	Software Engineering Lab	0	0	3	3	1.5
Total of Practical							9	4.5
<u>C. SESSIONAL</u>								

10	PW	CS681	Group Discussion and Seminar	0	0	2	2	1
Total of Theory+ Practical+ Sessional							29	23.5
<u>D.PROJECT*</u>								
11		CS651	Project on Computer Network	0	0	1	1	0.5
12		CS652	Project on Microprocessor and Microcontroller	0	0	1	1	0.5
13		CS653	Project on Software Engineering	0	0	1	1	0.5
14		CS654A	Project on Compiler Design	0	0	1	1	0.5
15		CS654B	Project on Robotics	0	0	1	1	0.5
16		CS654C	Project on Simulation and modeling	0	0	1	1	0.5
17		IT(CSE)655A	Project on Pattern Recognition	0	0	1	1	0.5
18		IT(CSE)655B	Project on Distributed Operating System	0	0	1	1	0.5
19		IT(CSE)655C	Project on Distributed Database	0	0	1	1	0.5
20		IT(CSE)655D	Project on Computer Vision	0	0	1	1	0.5
21		IT(CSE)656A	Project on Data Warehousing and Data Mining	0	0	1	1	0.5
22		IT(CSE)656B	Project on Digital Image Processing	0	0	1	1	0.5
23		IT(CSE)656C	Project on E-commerce and ERP	0	0	1	1	0.5
* Student need to select any four Project (Total Credit: 0.5 x4=2)							2	2
Total of Theory+ Practical+ Sessional+ Project							31	23.5+ 2

**B.Tech(CSE) Curriculum
2018 Admission Batch Onwards**

7TH SEMESTER								
<u>SL No</u>	<u>Type</u>	<u>Code</u>	<u>A. THEORY</u>	<u>Contact hours</u>			Total	Cr.
				L	T	P		
1	PC	CS701	Artificial Intelligence	3	0	0	3	3
2	HS	HU702	Values & Ethics in Profession	2	0	0	2	2
3	PE	CS702A	Soft Computing	3	0	0	3	3
		CS702B	Natural Language Processing					
		CS702C	Web Technology					
4	PE	CS703A	Cloud Computing	3	0	0	3	3
		CS703B	Data Analytics					
		CS703C	Sensor Network and IOT					
		CS703D	Cryptography and Network Security					
Total of Theory							11	11
<u>B. PRACTICAL</u>								
5	PC	CS791	Artificial Intelligence Lab	0	0	3	3	1.5
6	PE	CS792A	Soft Computing Lab	0	0	3	3	1.5
		CS792B	Natural Language Processing Lab					
		CS792C	Web Technology Lab					
7	PW	CS795	Project-1	0	0	6	6	3
Total of Practical							12	6
<u>C. SESSIONAL</u>								
8	PW	CS781	Industrial Training	0	0	0	0	2
Total of Sessional							0	2

<u>D. MANDATORY COURSES</u>								
9	MC	MC781	Technical Skill Development	0	0	3	3	2 Units
Total of Theory+ Practical+ Sessional+ Mandatory Courses							26	19

**B.Tech(CSE) Curriculum
2018 Admission Batch Onwards**

8TH SEMESTER								
<u>SL No</u>	<u>Type</u>	<u>Code</u>	<u>A. THEORY</u>	<u>Contact hours</u>			Total	Cr. Points
				L	T	P		
1	HS	HU804	Principles of Management	2	0	0	2	2
2	PE	CS801A	Mobile Computing	3	0	0	3	3
		CS801B	Bio-informatics					
		CS801C	Cyber Law and Security Policy					
		CS801D	VLSI Design					
3	PE	CS802A	Parallel Computing	3	0	0	3	3
		CS802B	Machine Learning					
		CS802C	Real Time Embedded System					
		CS802D	Advanced Computer Architecture					
Total of Theory							8	8
<u>B. PRACTICAL</u>								
4	PC	CS891	Design lab	0	0	3	3	1.5
5	PW	CS892	Project 2	0	0	12	12	6
6	PW	CS893	Seminar Presentation	0	0	3	3	1.5
Total of Practical							18	9
<u>C. SESSIONAL</u>								
7	PW	CS881	Grand Viva	0	0	0	0	3
Total of Sessional							0	3
Total of Theory+ Practical+ Sessional							26	20
Grand Total							230	165+10

(for
Project)

Distribution of Credit(Semester-wise)

SEM	BS	HS	ES	PC	PE	FE	PW	XC	Mandatory Project	Total Credit
SEM1	8.5	2	6					2units	1	16.5
SEM2	8.5	1	13.5					2units	1	23
SEM3	8.5	3	2	10.5				2units	2	24
SEM4			4.5	13.5				4units	2	18
SEM5				13.5	3	4.5		2units	2	21
SEM6				13.5	3	6	1	2units	2	23.5
SEM7		2		4.5	7.5		5		-	19
SEM8		2		1.5	6		10.5		-	20
Total	25.5	10	26	57	19.5	10.5	16.5		10	165
	15.45%	6.06%	15.76%	34.54%	11.82%	6.36%	10.00%			

Mandatory Credit Point=165 +10 (Project Based Learning)

For Honors additional 10 Credit Point is to be earned (1st Sem to 8th Sem) through MOOCs courses. All the Certificates received by the students across all semester for MOOCs Courses from approved organization (Listed by AICTE / MAKAUT) is to be submitted to CoE office prior to 8th Semester Examination and the Credit earned through MOOCs courses will be reflected in their DGPA.

Credit Distribution Ratio:

Category	Total Credit	Percentage of Proposed curriculum (wrt 165)	As per AICTE (160)
Basic Sciences(BS)	25.5	15.45%	15 to 20%
Humanities & Social Sciences(HS)	10	6.06%	5 to 10%
Engineering Sciences and Skills(ES)	27.5	15.76%	15 to 20%
Professional Core(PC)	55.5	34.54%	30 to 40%
Professional Electives(PE)	19.5	11.82%	10 to 15%
Free Elective(FE)	10.5	6.36%	5 to 10%
Project work, seminar, internship(PW)	16.5	10%	10 to 15%
Mandatory Course(MC)	0		
Total	165		
Mandatory Project Work(1 st to 6 th Semester)	10		
MOOCs	10	Additional 10 Credit Point for B.Tech(CSE) with Honours	

Implementation Scheme of Mandatory Project Work:

Semester	Credit	Number of papers to be assessed under mandatory project
1 st	1	Two (0.5 Credit per paper)
2 nd	1	Two (0.5 Credit per paper)

3 rd	2	Four (0.5 Credit per paper)
4 th	2	Four (0.5 Credit per paper)
5 th	2	Four (0.5 Credit per paper)
6 th	2	Four (0.5 Credit per paper)
Total	10	

**Mandatory Project Work
For B.Tech Students from AY 2018-19
(1st semester to 6th Semester)**

- a. Each Project Work will carry 0.5 Credit Point
- b. In the 1st and 2nd semester, students will do project work on any two subjects. The Choice of the subject on which a student wants to carry out his/her project work solely depends on the student. A Student can choose any 2 subjects of his/her own choice.
- c. In upper semesters like 3rd, 4th, 5th and 6th, the total credit allocation is 2 for each semester. Hence, a student will have to carry out 4 project works to score 2 credits
- d. In 7th and 8th Semester, there will be no separate project work like previous semesters, since they have Major Project Work with high credit point
- e. Each Project will have total 100 marks
- f. Below given Table shows the allocation of credit and marks:

Semester	Total Credit Point	No. of Project to be carried out (Choice Based)	Marks allocation in each project	Total Marks allocated in Project Works
1st Year				
1 st Semester	0.5+0.5=1.0	2	100	200
2 nd Semester	0.5+0.5=1.0	2	100	200
2nd Year				
3 rd Semester	1.0+1.0=2.0	4	100	400
4 th Semester	1.0+1.0=2.0	4	100	400
3rd Year				
5 th Semester	1.0+1.0=2.0	4	100	400
6 th Semester	1.0+1.0=2.0	4	100	400
Total Credit	10			

*Please abide strictly to the Notes at the end of the Notice of MAKAUT, WB regarding Mandatory Additional Requirement for earning UG Degree

*Annexure-I is to be retained in the Institute records with all documentary proofs of activities (*to be verified by the University as and when required*).

Format for Project Work Evaluation (B.Tech)

College Name:

Department :

Paper Name :

Paper Code :

STREAM :

Semester :

University Roll No.	Name of the Student	Title of the Project	Semester Examination								
			Project Report (10)	Development of Prototype/ Model (20)	Power point presentation (15)	Viva-Voce (15)	Usage of Modern Tool / Technology (10)	Innovative-ness (10)	Individual contribution (10)	Group activity (10)	Total (100)

(Signature of Project Supervisor(s))

(Signature of the HoD)

Guidelines for execution of Mandatory Project Work

1. Student will carry out project work on any two of the relevant papers in each semester of 1st year and any four of the relevant papers in each semester of 2nd and 3rd year.
2. Number of students under a given project would be decided by the Head of Dept. However, maximum number of students under a given project should not cross five.
3. Within one month of the commencement of the new semester, each student will identify and confirm the selection of subjects under which project works will be carried out and accordingly, continuous project work evaluation will be carried out by the respective supervisor.
4. Credit point allocation on each project is 0.5.
5. A 'Digital Repository' would be created about project work/presentation of a given student and same has to be maintained for all 4 years, so that the student can realize his/her gradual development with semesters.
6. In a semester, there would be at least two interim evaluation about the progress of project work (should be carried out along with Unit Tests I and II) followed by final assessment in the end semester examination.
7. 50% of the project will be evaluated by project guide and rest of 50% will be evaluated by external expert. (Average value will be taken)

Assessment Guideline of Power Point Presentation (15):

- i) Body language (5 marks) ii) Communication Skills (5 marks) iii) Content of the power point presentation (5 marks)

MOOCs Courses
For B.Tech Students for AY 2018-19
(1st Semester to 8th Semester)

Total Credit for MOOCs Subjects will be 10.

List of websites which offers online certification Courses

List of Websites which offers online certification courses:

1. Swayam- <https://swayam.gov.in/>
2. NPTEL- <https://onlinecourses.nptel.ac.in/>
3. Mooc- <http://mooc.org/>
4. Edx - <https://www.edx.org/>
5. Coursera- <https://www.coursera.org/>
6. Udacity - <https://in.udacity.com/>
7. Udemy - <https://www.udemy.com/>
8. Khanacademy - <https://www.khanacademy.org/>
9. Skillsahre - <https://www.skillshare.com/>
10. Harvard University - <https://online-learning.harvard.edu/>
11. Ted - <https://ed.ted.com/>
12. Alison - <https://alison.com/>
13. Futurelearn - <https://www.futurelearn.com/>
14. Web Development - <https://digitaldefynd.com/best-free-web-development-courses-tutorials-certification/>
15. Digital Marketing - <https://digitaldefynd.com/best-free-digital-marketing-certifications/>
16. ios app development - <https://digitaldefynd.com/best-ios-app-development-course-tutorial/>
17. Open Learn - <http://www.open.edu/openlearn/>
18. Future Learn - <https://www.futurelearn.com/>
19. Tuts Plus - <https://tutsplus.com/>
20. Open Culture - <http://www.openculture.com/>