Department of Information Technology
Curriculum of B.Tech in Information Technology
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Sl No	Paper Category	Paper Code	Theory	Contact Hours /Week				Credit Points
1st Semester								
				L	T	P	Total	
A. THEORY								
1	BS	M101	Mathematics -I	3	1	0	4	4
2	BS	PH101	Physics - I	3	0	0	3	3
3	ES	EC101	Basic Electronics Engineering	3	0	0	3	3
4	HS	HU101	English	2	0	0	2	2
Total of Theory							12	12
B. PRACTICAL								
5	BS	PH191	Physics-I Lab	0	0	3	3	1.5
6	ES	EC191	Basic Electronics Engineering Lab	0	0	3	3	1.5
7	ES	ME192	Workshop/Manufacturing Practices	0	0	3	3	1.5
Total of Practical							9	4.5
C. SESSIONAL								
8	MC	XC181	Extra Curricular Activity (NCC/NSS)	0	0	0	0	2 units

D. PROJECT*				
9	**Project Code**	**Project Name**	**Contact Hours /Week**	**Credit Points**
	M151	Mathematics –I Project	1	0.5
	PH151	Physics – I Project	1	0.5
	EC151	Basic Electronics Engineering Project	1	0.5
	HU151	English Project	1	0.5
***Total of Project** (Student would select any two projects (Total Credit: 0.5*2=1))			**2**	**1**
Total of Theory, Practical, Sessional and Project			**23**	**17.5**

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Sl No	Paper Category	Paper Code	Theory	L	T	P	Total	Credit Points
			2nd Semester					

Sl No	Paper Category	Paper Code	Theory	Contact Hours /Week				Credit Points
				L	T	P	Total	
A. THEORY								
1	BS	M201	Mathematics -II	3	1	0	4	4
2	BS	CH201	Chemistry-I	3	0	0	3	3
3	ES	EE201	Basic Electrical Engineering	3	0	0	3	3
4	ES	CS201	Programming for Problem Solving	3	0	0	3	3
5	ES	ME201	Engineering Mechanics	3	0	0	3	3
Total of Theory							**16**	**16**
B. PRACTICAL								
6	ES	CS291	Programming for Problem Solving Lab	0	0	3	3	1.5
7	BS	CH291	Chemistry-I Lab	0	0	3	3	1.5
8	ES	EE291	Basic Electrical Engineering Lab	0	0	3	3	1.5
9	ES	ME191	Engineering Graphics & Design	0	0	3	3	1.5
10	HS	HU 291	Language Lab and Seminar Presentation	0	0	2	2	1
Total of Practical							**14**	**7**
C. SESSIONAL								
11	MC	XC281	Extra Curricular Activity	0	0	0	0	2 units
D. PROJECT*								

12	Project Code	Project Name	Contact Hours /Week	Credit Points
	M251	Mathematics –II Project	1	0.5
	CH251	Chemistry-I Project	1	0.5
	EE251	Basic Electrical Engineering Project	1	0.5
	CS251	Programming for Problem Solving Project	1	0.5
	ME251	Engineering Mechanics Project	1	0.5
*Total of Project (Student would select any two projects (Total Credit: 0.5*2=1))			**2**	**1**
Total of Theory, Practical, Sessional and Project			**32**	**24**

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Sl No	Paper Category	Paper Code	Theory	L	T	P	Total	Credit Points

3rd Semester

Sl No	Paper Category	Paper Code	Theory	L	T	P	Total	Credit Points
A. THEORY								
1	PC	IT301	Data Structure and Algorithm	3	0	0	3	3
2	BS	M(IT)301	Mathematics -III	3	0	0	3	3
3	BS	M(IT)302	Numerical Methods and Statistics	3	0	0	3	3
4	BS	PH301	Physics-II	3	0	0	3	3
5	ES	EC(IT)303	Analog and Digital Electronics	3	0	0	3	3
Total no. of Theory							**15**	**15**
B. PRACTICAL								
6	PC	IT391	Data Structure Lab	0	0	3	3	1.5
7	BS	M(IT)392	Numerical Methods and Statistics Lab	0	0	3	3	1.5
8	BS	PH391	Physics-II Lab	0	0	3	3	1.5
9	ES	EC(IT)393	Analog and Digital Electronics Lab	0	0	3	3	1.5
Total no. of Theory							**12**	**6**
C. SESSIONAL								
10	HS	HU381	Technical Report Writing & Language Practice	0	0	3	3	1.5

D. PROJECT*

11	Project Code	Project Name	Contact Hours /Week	Credit Points
	IT351	Data Structure and Algorithm Project	1	0.5
	M(IT)351	Mathematics –III Project	1	0.5
	M(IT)352	Numerical Methods and Statistics Project	1	0.5
	PH351	Physics-II Project	1	0.5
	EC(IT)353	Analog and Digital Electronics Project	1	0.5
*Total of Project (Student would select any four projects (Total Credit: 0.5*4=2))			**4**	**2**
Total no. of Theory Practical, Sessional and Project			**34**	**24.5**

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Sl No	Paper Category	Paper Code	Theory	L	T	P	Total	Credit Points
4th Semester								
				Contact Hours /Week				**Credit Points**
A. THEORY								
1	PC	IT401	Computer Organization & Architecture	3	0	0	3	3
2	ES	IT402	Communication Engineering & Coding Theory	3	0	0	3	3
3	PC	IT403	Formal Language And Automata Theory	3	0	0	3	3
4	PC	IT404	Object Oriented Programming using Java	3	0	0	3	3
Total no. of Theory							**12**	**12**
B.PRACTICAL								
5	PC	IT491	Computer Organization & Architecture Lab	0	0	3	3	1.5
6	ES	IT492	Communication Engineering & Coding Theory Lab	0	0	3	3	1.5
7	PC	IT494	Object Oriented Programming Lab	0	0	3	3	1.5
Total no. of Practical							**9**	**4.5**
C.SESSIONAL								
8	MC	XC401	Environmental Science	0	0	3	3	2 units
9	MC	MC481	Technical Skill Development	0	0	3	3	2 units
D. PROJECT*								

10	Project Code		Project Name	Contact Hours /Week		Credit Points
	IT451		Computer Organization & Architecture Project	1		0.5
	IT452		Communication Engineering & Coding Theory Project	1		0.5
	IT453		Formal Language And Automata Theory Project	1		0.5
	IT454		Object Oriented Programming using Java Project	1		0.5
***Total of Project** (Student would select four projects (Total Credit: 0.5*4=2))				**4**		**2**
Total no. of Theory Practical, Sessional and Project				**31**		**18.5**

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Sl No	Paper Category	Paper Code	Theory	Contact Hours /Week				Credit Points
				L	T	P	Total	
5th Semester								
A. THEORY								
1	PC	IT501	Design & Analysis of Algorithm	3	0	0	3	3
2	PC	IT502	Software Engineering	3	0	0	3	3
3	PC	IT503	Operating System	3	0	0	3	3
4	PE	IT504A IT504B IT504C	Programming practice with C++ Artificial Intelligence Operations Research	3	0	0	3	3
5	HS	HU505	Industrial & Financial Management	3	0	0	3	3
Total no. of Theory							**15**	**15**
B. PRACTICAL								
6	PC	IT591	Algorithm Lab	0	0	3	3	1.5
7	PC	IT592	Software Engineering Lab	0	0	3	3	1.5
8	PC	IT593	Operating System Lab	0	0	3	3	1.5
9	PE	IT594A IT 594B IT 594C	Programming practice with C++ Lab Artificial Intelligence Lab Operations Research Lab	0	0	3	3	1.5
Total no. of Practical							**12**	**6**
C. SESSIONAL								
10	PW	IT581	Mini Project - I	0	0	3	3	**2**

D. PROJECT*				
11	Project Code	Project Name	Contact Hours /Week	Credit Points
	IT551	Design & Analysis of Algorithm Project	1	0.5
	IT552	Software Engineering Project	1	0.5
	IT553	Operating System Project	1	0.5
	IT554A IT554B IT554C	Programming practice with C++ Project Artificial Intelligence Project Operations Research Project	1	0.5
	HU555	Industrial & Financial Management Project	1	0.5
*Total of Project (Student would select any four projects (Total Credit: 0.5*4=2))			**4**	**2**
Total no. of Theory Practical, Sessional and Project			**34**	**25**

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Sl No	Paper Category	Paper Code	Theory	L	T	P	Total	Credit Points
6th Semester									
A. THEORY								
1	PC	IT601	Database Management System	3	0	0	3	3
2	PC	IT602	Web Technology	3	0	0	3	3
3	PC	IT603	Computer Networking	3	0	0	3	3
4	PE	IT604A IT604B IT604C IT604D	ERP Compiler Design Digital Image Processing Soft Computing	3	0	0	3	3
5	OE	ECE(IT)605A CSE(IT)605B ECE(IT)605C HS(IT)605D EE(IT)605E	Digital Signal Processing Microprocessor Microcontroller Information and Coding Theory Project Management Control System	3	0	0	3	3
Total no. of Theory							**15**	**15**
B. PRACTICAL								
6	PC	IT691	Database System Lab	0	0	3	3	1.5
7	PC	IT692	Web Technology Lab	0	0	3	3	1.5
8	PC	IT693	Computer Networking Lab	0	0	3	3	1.5
Total no. of Practical							**9**	**4.5**
C. SESSIONAL								
9	PW	IT682	Mini Project - II	0	0	3	3	2
10	MC	MC681	Seminar/GD/ Presentation Skill/ Foreign Language	0	0	3	3	2 units

D. PROJECT*

11	Project Code	Project Name	Contact Hours /Week	Credit Points
	IT651	Database Management System Project	1	0.5
	IT652	Web Technology Project	1	0.5
	IT653	Computer Networking Project	1	0.5
	IT654A IT654B IT654C IT654D	ERP Project Compiler Design Project Digital Image Processing Project Soft Computing Project	1	0.5
	ECE(IT)655A CSE(IT)655B ECE(IT)655C HS(IT)655D EE(IT)655E	Digital Signal Processing Project Microprocessor Microcontroller Project Information and Coding Theory Project Project Management Project Control System Project	1	0.5

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Total of Project (Student would select any four projects (Total Credit: 0.5*4=2))				4	2
Total no. of Theory Practical, Sessional and Project				34	23.5

7th   Semester

Sl No	Paper Category	Paper Code	Theory	Contact Hours /Week				Credit Points
				L	T	P	Total	
A. **THEORY**								
1	PC	IT701	E-Commerce	3	0	0	3	3
2	PE	IT702A IT702B IT702C IT702D	Computer Graphics and Multimedia Pattern Recognition Internet Technology Wireless Networking	3	0	0	3	3
3	PE	IT703A IT703B IT703C IT703D	Cloud Computing Distributed System Data Warehousing and Data Mining Advanced Computer Architecture	3	0	0	3	3
4	OE	CSE(IT)704A ECE(IT)704B CSE(IT)704C ECE(IT)704D	Modeling and Simulation Microelectronics and VLSI Design Natural Language Processing Mobile Communication	3	0	0	3	3
Total no. of Theory							12	12
B. **PRACTICAL**								
5	PC	IT791	E-Commerce Lab	0	0	3	3	1.5
6	PC	IT792	System Engineering Lab	0	0	3	3	1.5
Total no. of Practical							6	3
C. **SESSIONAL**								
7	PW	IT781	Industrial Training	0	0	0	4 weeks	2
8	PW	IT782	Project I	0	0	6	6	4
9	MC	IT783	Seminar/GD/ Presentation Skill/ Foreign Language	0	0	3	3	2 units
Total no. of Theory Practical and Sessional							27	21

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Sl No	Paper Category	Paper Code	Theory	Contact Hours /Week				Credit Points
				L	T	P	Total	
8th Semester								
A. **THEORY**								
1	PE	IT801A IT801B IT801C IT801D	Cryptography and Network Security Business Analytics Internet of Things Data Science	3	0	0	3	3
2	OE	BME(IT)802A ECE(IT)802B HS(IT)802C CSE(IT)802D	Bio-Informatics Embedded System Cyber Law and Security Policy Cluster and Grid Computing	3	0	0	3	3
3	HS	HU802	Value and Ethics in Professions	2	0	0	2	2
Total no. of Theory							8	8
B. PRACTICAL								
C. SESSIONAL								
4	PW	IT881	Design Lab/ Industrial problem related practical training	0	0	3	3	2
5	PW	IT882	Project II	0	0	12	12	6
6	PW	IT883	Grand Viva	0	0	0	0	3
Total no. of Theory Practical and Sessional							23	19

Total Credit: 19

Mandatory Total Credit: 163 (4 years UG) +10 (Project Based Learning)

[** For B.Tech. With Honours Degree, additional 10 Credit Point is to be earned (1st Sem to 8th Sem) through MOOCs courses.]

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Distribution of Credit (Semester-wise)

SEM	BS	HS	ES	PC	PE	OE	PW	MC (Unit)	Mandatory Project	Total
SEM1	8.5	2	6	-	-	-	-	2	1	17.5
SEM2	8.5	1	13.5	-	-	-	-	2	1	24
SEM3	12	1.5	4.5	4.5	-	-	-	-	2	24.5
SEM4	-		4.5	12	-	-	-	4	2	18.5
SEM5	-	3	-	13.5	4.5	-	2	-	2	25
SEM6	-	-	-	13.5	3	3	2	2	2	23.5
SEM7	-		-	6	6	3	6	2	-	21
SEM8	-	2	-	-	3	3	11	-	-	19
Total	29	9.5	28.5	49.5	16.5	9	21	12	10	173
SEM	BS	HU	ES	PC	PE	OE	PW	MC	Mandatory Project	Total

Credit Distribution Ratio

		Total Credit	Percentage (%)	Range of Total Credits (%) as per AICTE	
				Minimum	Maximum
BS	Basic Sciences	29	17.8	15	20
HS	Humanities and Social Sciences	9.5	5.8	5	10
ES	Engineering Sciences	28.5	17.5	15	20
PC	Professional -Core	49.5	30.36	30	40
PE	Professional - Electives	16.5	10.12	10	15
OE	Open Electives	9	5.52	5	10
PW	Project Work/ Seminar/ Industrial Training etc.	21	12.8	10	15
MC	Mandatory Course	0	10Unit		
Mandatory Additional Requirement for earning under Graduate Professional Degree		0	100 units		
Total:		**163**			
Mandatory Project Work(1st to 6th Semester)		10			
MOOCs		10	Additional 10 Credit Point for B.Tech.(IT) with Honours		
Total:		**183**			

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Mandatory Project Work (Project Based Learning)
For B.Tech Students from Academic Year 2018-19
(1st semester to 6th Semester)

- Each Project Work will carry 0.5 Credit Point
- 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.
- In 3rd to 6th semesters, the total credit allocation is 2 for each semester. Hence, a student will have to carry out 4 project works to score 2 credits
- 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
- Each Project will have total 100 marks
- 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				
1st Semester	0.5*2=1.0	2	100	200
2nd Semester	0.5*2=1.0	2	100	200
2nd Year				
3rd Semester	0.5*4=2.0	4	100	400
4th Semester	0.5*4=2.0	4	100	400
3rd Year				
5th Semester	0.5*4=2.0	4	100	400
6th Semester	0.5*4=2.0	4	100	400
Total Credit	**10**			

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)

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(Signature of the Project Supervisor(s))   (Signature of the HoD)

MOOCs Courses
For B.Tech Students from Academic Year 2018-19
(1st semester to 8th Semester)

[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.]

List of websites which offers online certification Courses (Not Limited to..)

List of web portals which offer online certification courses:
- Swayam- https://swayam.gov.in/
- NPTEL- https://onlinecourses.nptel.ac.in/
- IIT Bombay Spoken Tutorial-   https://spoken-tutorial.org/
- Mooc- http://mooc.org/
- Edx - https://www.edx.org/
- Coursera- https://www.coursera.org/
- Udacity - https://in.udacity.com/
- Udemy - https://www.udemy.com/
- Khanacademy - https://www.khanacademy.org/
- Skillsahre - https://www.skillshare.com/
- Harvard University - https://online-learning.harvard.edu/
- Ted - https://ed.ted.com/
- Alison - https://alison.com/
- Futurelearn - https://www.futurelearn.com/
- Web Development - https://digitaldefynd.com/best-free-web-development-courses-tutorials-certification/
- Digital Marketing - https://digitaldefynd.com/best-free-digital-marketing-certifications/
- ios app development - https://digitaldefynd.com/best-ios-app-development-course-tutorial/
- Open Learn - http://www.open.edu/openlearn/
- Future Learn - https://www.futurelearn.com/
- Tuts Plus - https://tutsplus.com/
- Open Culture - http://www.openculture.com/