Curriculum for Undergraduate Degree (B.Tech.) in Information Technology (w.e.f. AY: 2020-21)

Part I: Introduction, Theme & Category wise Credit Distribution

A. Definition of Credit:

Sl. No.	Description	Credit
1	1 Hr. Lecture (L) Per Week	1.0
2	1 Hr. Tutorial (T) Per Week	1.0
3	1 Hr. Practical/ Lab (P) Per Week	0.5
4	2 Hrs. Practical/ Lab (P) Per Week	1.0

B. Range of Credits:

As per AICTE, a student covering 160 credits during 4 years of studies as per curriculum of the Institute will be eligible to get Under Graduate B.Tech. degree. A student will be eligible to get B.Tech. degree with Honours, if he/ she completes an additional 20 credits. These could be acquired through MOOCs prescribed by the Institute. Every student admitted to the 4 years B.Tech. programme is required to earn a minimum of 100 Activity Points under Mandatory Additional Requirement (MAR), in addition to the required academic grades, for getting B.Tech./ B.Tech. (Honours) degree.

C. Category wise Credit Distribution:

Sl. No.	Category	Credit Allotted	Credit as per AICTE
1	Humanities and Social Sciences including Management Courses	12	12
2	Basic Science Courses	27	25
3	Engineering Science Courses including Workshop, Drawing, Basics of Electrical/ Mechanical/ Computer etc.	24.5	24
4	Professional Core Courses	50	48
5	Professional Elective Courses relevant to chosen specialization/ branch	19.5	18
6	Open Elective Courses from other technical and /or emerging subjects	12	18
7	Project Work, Seminar and Internship in Industry or elsewhere	15	15
8	Mandatory Courses [Environmental Sciences, Induction Training, Indian Constitution, Essence of Indian Traditional Knowledge, Aptitude Skill]	Non-Credit	Non-Credit
Total		160	160

D. Course Code and Definition:

Sl. No.	Course Code	Definitions
1	L	Lecture
2	T	Tutorial
3	P	Practical
4	BS	Basic Science Courses
5	ES	Engineering Science Courses
6	HM	Humanities and Social Sciences including Management Courses
7	PC	Professional Core Courses
8	PE	Professional Elective Courses
9	OE	Open Elective Courses
10	MC	Mandatory Courses
11	PW	Project/ Internships/ Sessional

E. Courses in different Category:

Humanities and Social Sciences including Management Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	I	HM-HU101	English	2	0	0	2
2	III	HM-HU301	Introduction to Industrial Management	2	0	0	2
3	V	HM-HU501	Economics for Engineers	3	0	0	3
4	VII	HM-HU702	Project Management and Entrepreneurship	3	0	0	3
Total Theory				**10**	**0**	**0**	**10**
Practical/ Sessional							
1	II	HM-HU291	Language Laboratory	0	0	2	1
2	V	HM-HU591	Soft Skill Development Lab	0	0	2	1
Total Practical/ Sessional				**0**	**0**	**4**	**2**
Total				**10**	**0**	**4**	**12**

Basic Science Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	I	BS-PH101	Physics	3	1	0	4
2	I	BS-M101	Mathematics-I	3	1	0	4
3	II	BS-CH201	Chemistry	3	1	0	4
4	II	BS-M201	Mathematics-II	3	1	0	4

5	III	BS-M301	Mathematics-III	3	0	0	3
6	IV	BS-M404	Numerical Methods	2	0	0	2
7	IV	BS-BIO401	Biology	2	0	0	2
Total Theory				**19**	**4**	**0**	**23**
Practical/ Sessional							
1	I	BS-PH191	Physics Laboratory	0	0	3	1.5
2	II	BS-CH291	Chemistry Laboratory	0	0	3	1.5
3	IV	BS-M494	Numerical Methods Lab	0	0	2	1
Total Practical/ Sessional				**0**	**0**	**8**	**4**
Total				**19**	**4**	**8**	**27**

Engineering Science Courses including Workshop, Drawing, Basics of Electrical/ Mechanical/ Computer etc.							
Sl No.	**Semester**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
1	I	ES-EE101	Basic Electrical & Electronics Engineering	4	0	0	4
2	II	ES-CS201	Programming for Problem Solving	3	0	0	3
3	III	ES-EC303	Analog and Digital Electronics	3	0	0	3
4	IV	ES-IT401	Discrete Mathematics	3	0	0	3
Total Theory				**13**	**0**	**0**	**13**
Practical/ Sessional							
1	I	ES-EE191	Basic Electrical & Electronics Engineering Lab	0	0	4	2
2	I	ES-ME191	Engineering Graphics & Design Lab	1	0	4	3
3	II	ES-CS291	Programming for Problem Solving Lab	0	0	4	2
4	II	ES-ME292	Workshop/ Manufacturing Practices Lab	1	0	4	3
5	III	ES-EC393	Analog and Digital Electronics Lab	0	0	3	1.5
Total Practical/ Sessional				**2**	**0**	**19**	**11.5**
Total				**15**	**0**	**19**	**24.5**

Professional Core Courses							
Sl No.	Semester	Course Code	Course Name	Contact Hours			Credits
				L	T	P	
Theory							
1	III	PC-IT301	Data Structure & Algorithms	3	1	0	4
2	III	PC-IT302	Computer Organization and Architecture	3	0	0	3
3	IV	PC-IT401	Database Management System	3	0	0	3
4	IV	PC-IT402	Design & Analysis of Algorithms	3	1	0	4
5	IV	PC-IT403	Formal Language & Automata Theory	3	0	0	3
6	V	PC-IT501	Compiler Design	2	0	0	2
7	V	PC-IT502	Operating Systems	3	0	0	3
8	V	PC- IT503	Object Oriented Programming	3	0	0	3
9	VI	PC-IT601	Software Engineering	3	0	0	3
10	VI	PC-IT602	Computer Networks	3	0	0	3
Total Theory				**29**	**2**	**0**	**31**
Practical/ Sessional							
1	III	PC-IT393	IT Workshop (Sci. Lab/MATLAB/Python/R)	0	0	4	2
2	III	PC-IT391	Data Structure & Algorithms Lab	0	0	4	2
3	III	PC-IT392	Computer Organization and Architecture Lab	0	0	4	2
4	IV	PC-IT491	Database Management System Lab	0	0	4	2
5	IV	PC-IT492	Design & Analysis of Algorithms Lab	0	0	4	2
6	V	PC-IT591	Compiler Design Lab	0	0	3	1.5
7	V	PC-IT592	Operating Systems Lab	0	0	4	2
8	V	PC-IT593	Object Oriented Programming Lab	0	0	4	2
9	VI	PC-IT691	Software Engineering Lab	0	0	3	1.5
10	VI	PC-IT692	Computer Networks Lab	0	0	4	2
Total Practical/ Sessional				**0**	**0**	**38**	**19**
Total				**29**	**2**	**38**	**50**

Professional Elective Courses relevant to chosen specialization/ branch							
Sl No.	**Semester**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
1	V	PE-IT501	Professional Elective-I	3	0	0	3
2	VI	PE-IT601	Professional Elective-II	3	0	0	3
3	VI	PE-IT602	Professional Elective-III	3	0	0	3
4	VII	PE-IT701	Professional Elective-IV	3	0	0	3
5	VII	PE-IT702	Professional Elective-V	3	0	0	3
6	VIII	PE- IT801	Professional Elective-VI	3	0	0	3
Total Theory				**18**	**0**	**0**	**18**
Practical/ Sessional							
1	VI	PE-IT691	Professional Elective-II Lab	0	0	3	1.5
Total Practical/ Sessional				**0**	**0**	**3**	**1.5**
Total				**18**	**0**	**3**	**19.5**

Open Elective Courses from other technical and / or emerging Subjects							
Sl No.	**Semester**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
1	VI	OE-IT601	Open Elective-I	3	0	0	3
2	VII	OE-IT701	Open Elective-II	3	0	0	3
3	VIII	OE-IT801	Open Elective-III	3	0	0	3
4	VIII	OE-IT802	Open Elective-IV	3	0	0	3
Total Theory				**12**	**0**	**0**	**12**
Practical/ Sessional							
1							
Total Practical/Sessional							
Total				**12**	**0**	**0**	**12**

Project Work, Seminar and Internship in Industry or elsewhere							
Sl No.	**Semester**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
1							
Total Theory							
Practical/ Sessional							
1	V	PW-IT581	Project-I	0	0	2	**1**
2	VI	PW-IT681	Project-II	0	0	2	**1**
3	VII	PW-IT781	Project-III	0	0	12	6
4	VII	PW-IT782	Practical Training Evaluation	0	0	0	1
5	VIII	PW-IT881	Project-IV	0	0	12	6
Total Practical/ Sessional				**0**	**0**	**28**	**15**
Total				**0**	**0**	**28**	**15**

Mandatory Courses [Environmental Sciences, Induction Training, Indian Constitution, Essence of Indian Traditional Knowledge, Aptitude Skill]							
Sl No.	**Semester**	**Course Code**	**Course Name**	**Contact Hours**			**Credits**
				L	**T**	**P**	
Theory							
Total Theory							
Practical/ Sessional							
1	IV	MC471	Environmental Sciences	2	0	0	0
2	V	MC571	Aptitude Skill Development-I	2	0	0	0
3	V	MC572	Constitution of India	2	0	0	0
4	VI	MC671	Aptitude Skill Development -II	2	0	0	0
Total Practical/ Sessional				**8**	**0**	**0**	**0**
Total				**8**	**0**	**0**	**0**