

Course Structure

B.Tech. (Information Technology)

Batch-2023

B.Tech. (Information Technology) 2023

1st Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
EP	Engineering Graphics	ME121	0	0	3	3
IE	Computer Programming	CS101	3	1	0	11
IE	Computer Programming Laboratory	CS101L	0	0	2	2
IS	Biology	BY101	2	1	0	8
IS	Classical Physics	PY111	3	1	0	11
IS	Inorganic and Physical Chemistry	CY111	3	1	0	11
IS	Real Analysis & Calculus	MA111	3	1	0	11
IS	Chemistry Laboratory	CY111L	0	0	2/2	1
IS	Physics Laboratory	PY111L	0	0	2/2	1
		Total Credits				59
LM	Basic English*	LM101	1	2	0	7
HU	Universal Human Values	HU101	1	1	0	5

*It is not a compulsory course

2nd Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
EP	Workshop Practices	ME131	0	0	3	3
IE	Engineering Thermodynamics	CH161	3	1	0	11
IE	Fundamentals of Electronics Engineering	ECE102	3	1	0	11
IE	Fundamentals of Electronics Engineering Laboratory	ECE102L	0	0	2	2
EP	Computer Science Engineering Practices	CS102	1	0	2	5
IS	Differential Equations	MA121	3	1	0	11
IS	Modern Physics	PY121	2	1	0	8
IS	Chemistry Laboratory	CY121L	0	0	2/2	1
IS	Physics Laboratory	PY121L	0	0	2/2	1
		Total Credits				53
HU	Community Internship	HU102	0	0	5	5

3rd Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
DC	Object Oriented Methodologies	CS224	3	0	0	9
DC	Object Oriented Methodologies Laboratory	CS224L	0	0	2	2
DC	Principle of Programming Languages	CS223	3	0	0	9
IE	Data Structure and Algorithm	CS211	3	0	0	9
IE	Data Structure and Algorithm Laboratory	CS211L	0	0	2	2
DC	Discrete Mathematics	CS201	3	0	0	9
DC	Graphics and Visual Computing	CS231	3	0	0	9
DC	Graphics and Visual Computing Laboratory	CS231L	0	0	2	2
IS	Linear Algebra & Complex Analysis	MA211	2	1	0	8
LM	Professional Communications	PC101	2	1	0	8
		Total Credits				67

4th Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
DC	Computer Organization and Architecture	CS232	3	0	0	9
DC	Database Management System	CS212	3	0	0	9
DC	Database Management System Laboratory	CS212L	0	0	2	2
DC	Design and Analysis of Algorithms	CS241	3	0	0	9
DC	Design and Analysis of Algorithms Laboratory	CS241L	0	0	2	2
DC	Web Technology	CS222	3	0	0	9
DC	Web Technology Laboratory	CS222L	0	0	2	2
IS	Numerical Methods	MA221	2	1	0	8
IS	Statistical Methods & Data Analysis	MA231	2	1	0	8
		Total Credits				58
EP	Group Discussion	GD111	0	0	2	2

5th Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
DC	Operating Systems	CS311	3	0	0	9
DC	Operating Systems Laboratory	CS311L	0	0	2	2
DC	Theory of Computation	CS321	3	0	0	9
DC	Advanced Algorithms	CS341	3	0	0	9
DC	Advanced Algorithms Laboratory	CS341L	0	0	2	2
DE-1	Artificial Intelligence	CS360	3	0	0	9
		Total Credits				40

6th Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
DC	Compiler Design	CS312	3	0	0	9
DC	Compiler Design Laboratory	CS312L	0	0	2	2
DC	Computer Networks	CS351	3	0	0	9
DC	Computer Networks Laboratory	CS351L	0	0	2	2
DC	Devops & Cloud	CS333	3	0	0	9
DC	Data Mining	CS458	2	0	0	6
DC	Data Mining Laboratory	CS458L	0	0	3	3
DE-2	Data Analytics	CS457	3	0	0	9
DE-3	Natural Language Processing	CS566	3	0	2	11
	Information Retrieval	CS567				
		Total Credits				60

Summer Internship						
Course Category	Course Name	Course Code	L	T	P	Credit
DP	Summer Internship/Industrial Visit	DP	0	0	12*	5

*5 credits are equivalent to 11.67 hours (around 12 hours) (P) per week if summer internship/project will be completed in 6 weeks only.

7th Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
DC	Generative AI	CS441	2	0	0	6
DC	Generative AI Laboratory	CS441L	0	0	2	2
DE-4	Computer Vision and Pattern Recognition	CS454	3	0	0	9
EP	CDC: Employability Skill and Industry Readiness		0	0	2	2
HSS-1	Organizational Psychology	HU331	2	0	0	6
HSS-2	Sociology of Industry and Work Culture	HU313	2	0	0	6
LM-1	Principles of Economics	MT5100	2	0	0	6
	CDC Leadership and People management					
LM-2	Foundations of Management	MT5405	2	0	0	6
OE-1			3	0	0	9
OE-2			3	0	0	9
Total Credits						61

8th Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
DP	Internship/BTP		0	0	40	40
Total Credits						40

Course Summary				
Category Code	Course Category	Min	Max	Offered
HU	Humanities and Social Science	22	22	22
IS	Institute Science	70	90	88
IE	Institute Engineering	40	70	48
EP	Engineering Practices	18	24	15
LM	Language & Management	18	24	20
DC	Departmental Core	145	190	161
DE	Departmental Elective	30	75	38
OE	Open Elective	15	20	18
DP	Project/Industrial Visit	20	50	45
Total		440	490	455

HU Courses					
Course Name	Course Code	L	T	P	Credit
Universal Human values	HU101	1	1	0	5
Community Internship	HU102	0	0	5	5
Sociology of Industry and Work Culture (HSS-2)	HU313	2	0	0	6
Organizational Psychology (HSS-1)	HU331	2	0	0	6
Total Credits					22

Institute Science Course (IS)					
Course Name	Course Code	L	T	P	Credit
Classical Physics	PY111	3	1	0	11
Inorganic and Physical Chemistry	CY111	3	1	0	11
Real Analysis & Calculus	MA111	3	1	0	11
Biology	BY101	2	1	0	8
Physics Laboratory	PY111L	0	0	2/2	1
Chemistry Laboratory	CY111L	0	0	2/2	1
Modern Physics	PY121	2	1	0	8
Differential Equations	MA121	3	1	0	11
Physics Laboratory	PY121L	0	0	2/2	1
Chemistry Laboratory	CY121L	0	0	2/2	1
Linear Algebra & Complex Analysis	MA211	2	1	0	8
Numerical Methods	MA221	2	1	0	8
Statistical Methods & Data Analysis	MA231	2	1	0	8
Total Credits					88

Institute Engineering Course (IE)						
Course Name	Course Code	L	T	P	Credit	
Computer Programming	CS101	3	1	0	11	
Computer Programming Laboratory	CS101L	0	0	2	2	
Fundamentals of Electronics Engineering	ECE102	3	1	0	11	
Fundamentals of Electronics Engineering Laboratory	ECE102L	0	0	2	2	
Engineering Thermodynamics	CH161	3	1	0	11	
Data Structure and Algorithm	CS211	3	0	0	9	
Data Structure and Algorithm Laboratory	CS211L	0	0	2	2	
Total Credits					48	

EP Courses						
Course Name	Course Code	L	T	P	Credit	
Engineering Graphics	ME121	0	0	3	3	
Computer Science Engineering Practices	CS102	1	0	2	5	
Workshop Practices	ME131	0	0	3	3	
Group Discussion	GD111	0	0	2	2	
CDC: Employability Skill and Industry Readiness		0	0	2	2	
Total Credits					15	

LM Courses						
Course Name	Course Code	L	T	P	Credit	
Principles of Economics (LM-1)	MT5100	2	0	0	6	
CDC Leadership and People management (LM-1)						
Foundations of Management (LM-2)	MT5405	2	0	0	6	
Professional Communications	PC101	2	1	0	8	
Total Credits					20	

Department Core Courses (DC)						
Course Name	Course Code	L	T	P	Credit	
Discrete Mathematics	CS201	3	0	0	9	
Graphics and Visual Computing	CS231	3	0	0	9	
Graphics and Visual Computing Laboratory	CS231L	0	0	2	2	
Principle of Programming Languages	CS223	3	0	0	9	
Object Oriented Methodologies	CS224	3	0	0	9	
Object Oriented Methodologies Laboratory	CS224L	0	0	2	2	
Database Management System	CS212	3	0	0	9	
Database Management System Laboratory	CS212L	0	0	2	2	
Design and Analysis of Algorithms	CS241	3	0	0	9	
Design and Analysis of Algorithms Laboratory	CS241L	0	0	2	2	
Web Technology	CS222	3	0	0	9	

Web Technology Laboratory	CS222L	0	0	2	2
Computer Organization and Architecture	CS232	3	0	0	9
Operating Systems	CS311	3	0	0	9
Operating Systems Laboratory	CS311L	0	0	2	2
Theory of Computation	CS321	3	0	0	9
Advanced Algorithms	CS341	3	0	0	9
Advanced Algorithms Laboratory	CS341L	0	0	2	2
Computer Networks	CS351	3	0	0	9
Computer Networks Laboratory	CS351L	0	0	2	2
Devops & Cloud	CS333	3	0	0	9
Data Mining	CS458	2	0	0	6
Data Mining Laboratory	CS458L	0	0	3	3
Compiler Design	CS312	3	0	0	9
Compiler Design Laboratory	CS312L	0	0	2	2
Generative AI	CS441	2	0	0	6
Generative AI Laboratory	CS441L	0	0	2	2
Total					161

Department Elective Courses					
Course Name	Course Code	L	T	P	Credit
Artificial Intelligence (DE-1)	CS360	3	0	0	9
Data Analytics (DE-2)	CS457	3	0	0	9
Natural Language Processing (DE-3)	CS566	3	0	2	11
Information Retrieval (DE-3)	CS567				
Computer Vision and Pattern Recognition (DE-4)	CS454	3	0	0	9
Total Credits					38

OE Courses					
Course Name	Course Code	L	T	P	Credit
OE-1		3	0	0	9
OE-2		3	0	0	9
Total Credits					18

Project/Industry Visit (DP)					
Course Name	Course Code	L	T	P	Credit
Summer Internship/Industrial Visit		0	0	12*	5
Internship/BTP		0	0	40	40
Total Credits					45

*5 credits are equivalent to 11.67 hours (around 12 hours) (P) per week if summer internship/project will be completed in 6 weeks only.