

Course Structure

B.Tech. (Information Technology)

Batch-2024

B.Tech. (Information Technology) 2024

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	Algorithm	CS241	3	0	0	9	
DC	Algorithm Laboratory	CS241L	0	0	2	2	
DC	Introduction to Machine Learning	MA351	2	0	0	6	
DC	Introduction to Machine Learning Laboratory	MA351L	0	0	2	2	
IS	Numerical Methods	MA221	2	1	0	8	
IS	Statistical Methods & Data Analysis	MA231	2	1	0	8	
		Total Credits					55

Summer Internship							
Course Category	Course Name	Course Code	L	T	P	Credit	
DP	Summer Internship/Industrial Visit (II)		0	0	11*	3	

*3 credits are equivalent to 10.5 hours (around 11 hours) (P) per week if summer internship/project will be completed in 4 weeks only.

5th Semester						
Course Category	Course Name	Course Code	L	T	P	Credit
DC	Data Compression	CS485	3	0	0	9
DC	Mobile Computing	CS411	3	0	0	9
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
DE-1	Data Analytics	CS457	3	0	0	9
DE-2	AI/ML/DL Applications	CS365	3	0	0	9
	AI/ML/DL Applications Laboratory	CS365L	0	0	2	2
Total Credits						58

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	Web Technology	CS222	3	0	0	9
DC	Web Technology Laboratory	CS222L	0	0	2	2
DC	Data Mining	CS458	3	0	0	9
DC	Data Mining Laboratory	CS458L	0	0	2	2
DE-3	Natural Language Processing	CS566	3	0	2	11
	Information Retrieval	CS567				
		Total Credits				64

Summer Internship

Course Category	Course Name	Course Code	L	T	P	Credit
DP	Summer Internship/Industrial Visit (III)		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	13
LM	Language & Management	18	24	20
DC	Departmental Core	145	190	178
DE	Departmental Elective	30	75	40
OE	Open Elective	15	20	18
DP	Project/Industrial Visit	20	50	48
Total		440	490	475

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-1)	HU313	2	0	0	6
Organizational Psychology (HSS-2)	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
CDC: Employability Skill and Industry Readiness		0	0	2	2
Total Credits					13

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
Database Management System	CS212	3	0	0	9
Database Management System Laboratory	CS212L	0	0	2	2
Web Technology	CS222	3	0	0	9
Web Technology Laboratory	CS222L	0	0	2	2
Algorithm	CS241	3	0	0	9
Algorithm Laboratory	CS241L	0	0	2	2
Computer Organization and Architecture	CS232	3	0	0	9
Principle of Programming Languages	CS223	3	0	0	9
Introduction to Machine Learning	MA351	2	0	0	6
Introduction to Machine Learning Laboratory	MA351L	0	0	2	2
Object Oriented Methodologies	CS224	3	0	0	9
Object Oriented Methodologies Laboratory	CS224L	0	0	2	2
Operating Systems	CS311	3	0	0	9
Operating Systems Laboratory	CS311L	0	0	2	2
Theory of Computation	CS321	3	0	0	9
Computer Networks	CS351	3	0	0	9
Computer Networks Laboratory	CS351L	0	0	2	2
Devops & Cloud	CS333	3	0	0	9
Mobile Computing	CS411	3	0	0	9
Data Compression	CS485	3	0	0	9
Data Mining	CS458	3	0	0	9
Data Mining Laboratory	CS458L	0	0	2	2

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					178

Department Elective Courses (DE)					
Course Name	Course Code	L	T	P	Credit
Data Analytics (DE-1)	CS457	3	0	0	9
AI/ML/DL Applications (DE-2)	CS365	3	0	0	9
AI/ML/DL Applications Laboratory (DE-2)	CS365L	0	0	2	2
Information Retrieval (DE-3)	CS567	3	0	2	11
Natural Language Processing (DE-3)	CS566	3	0	2	
Computer Vision and Pattern Recognition (DE-4)	CS454	3	0	0	9
Total Credits					40

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 (II)		0	0	11**	3
Summer Internship/Industrial Visit (III)		0	0	12*	5
Internship/BTP		0	0	40	40
Total Credits					48

*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.

**3 credits are equivalent to 10.5 hours (around 11 hours) (P) per week if summer internship/project will be completed in 4 weeks only.