

DEPARTMENT OF MATHEMATICAL SCIENCES

B.Tech. in Mathematics & Computing

Semester-wise Course Structure (2025-29 Batch)

(w.e.f. AY 2025-26)

Semester I (1 Year: Odd Sem)

Course/Subject	L	T	P	Credit
Classical Physics (IS) (PY111)	3	1	0	11
Inorganic and Physical Chemistry (IS) (CY111)	3	1	0	11
Real Analysis and Calculus (IS) (MA 111)	3	1	0	11
Computer Programming (IE) (CS101)	3	1	2	13
Chemistry Lab (IS) (CY111L)	0	0	1	1
Physics Lab (IS) (PY111L)	0	0	1	1
Engineering Visualization (EP) (ME121)	0	1	3	5
Total Credits				53
Basic English (HU)* (LM101)	1	2	0	7

Semester II (1 Year: Even Sem)

Course/Subject	L	T	P	Credit
Modern Physics (IS) (PY112)	2	1	0	8
Differential Equations (IS) (MA121)	3	1	0	11
Engineering Thermodynamics (IE) (CH161)	3	1	0	11
Fundamentals of Electronics Engineering (IE) (EC111)	3	1	2	13
Engineering Practices in Mathematics and Computing (EP) (MA122)	1	0	2	5
Physics Lab (IS) (PY121L)	0	0	1	1
Workshop Practices (EP) (ME131)	0	0	3	3
Total Credits				52
Community Internship (HU)	0	0	5	5

After Semester II

Course/Subject	L	T	P	Credit
Summer Internship - I (2 weeks)	0	0	14	2

Semester III (2 Year: Odd Sem)

Course/Subject	L	T	P	Credit
Linear Algebra & Complex Analysis (IS) (MA 211)	2	1	0	8
Discrete Mathematics (DC/CSE) (CS201)	3	0	0	9
Data Structures (IE/CSE) (CS211)	3	0	2	11
Object Oriented Methodologies (DC/CSE) (CS224)	3	0	2	11
Elementary Number Theory and Algebra (DC) (MA 212)	3	1	0	11
Professional Communications (L) (PC101)	2	1	0	8
Total Credits				58

Semester IV (2 Year: Even Sem)

Course/Subject	L	T	P	Credit
Database Management Systems (DC/CSE) (CS212)	3	0	2	11
Computer Organization and Architecture (DC/CSE) (CS232)	3	0	0	9
Numerical Methods (IS) (MA 221)	2	1	0	8
Statistical Methods and Data Analysis (IS) (MA 231)	2	1	0	8
Web Technology (DC/CSE) (CS 222)	3	0	2	11
Financial Engineering-I (DC) (MA 241)	3	0	0	9
Total Credits				56

After Semester IV

Course/Subject	L	T	P	Credit
Summer Internship - II (4 weeks)	0	0	11	3

Semester V (3 Year: Odd Sem)

Course/Subject	L	T	P	Credit
Operating Systems (DC/CSE) (CS311)	3	0	2	11
Computational PDE (DC) (MA 321)	3	0	0	9
Introduction to Machine Learning (DC) (MA351)	2	0	2	8
Advanced Algorithms (DC/CSE) (CS341)	3	0	2	11
DE-1 (DE)	3	0	0	9
Theory of Computation (DC/CSE) (CS321)	3	0	0	9
Total Credits				57

Semester VI (3 Year: Even Sem)

Course/Subject	L	T	P	Credit
Graph Theory (DC) (MA311)	2	0	0	6
Computer Networks (DC/CSE) (CS351)	3	0	2	11
Data Mining (DC/CSE) (CS458)	2	0	3	9
Stochastic Processes (DC) (MA331)	3	0	0	9
DE-2 (DE)	3	0	0	9
Optimization Methods & Applications (DC) (MA323)	2	0	0	6
Total Credits				50

After Semester VI

Course/Subject	L	T	P	Credit
Summer Internship - III (6 weeks)	0	0	12	5

Semester VII (4 Year: Odd Sem)

Course/Subject	L	T	P	Credit
DE-3 (DE/CSE)	3	0	0	9
OE-1 (OE)	3	0	0	9
DE-4 (DE/CSE)	3	0	0	9
OE-2 (OE)	3	0	0	9
Principles of Economics (MT5100) / Leadership and People Management	2	0	0	6
Organizational Psychology (HU331)	2	0	0	6
Ethics and Corporate Governance (HU)	2	0	0	6
Foundations of Management (MT5405)	2	0	0	6
Sociology of Industry and Work Culture (HU313)	2	0	0	6
Employability Skills and Industry Readiness	0	0	2	2
Total Credits				68

Semester VIII (4 Year: Even Sem)

Course/Subject	L	T	P	Credit
BTP (Internal/External)	0	0	40	40

References:

IIT Delhi, IIT Guwahati, IIT Kanpur, IIT Ropar, IIT BHU, IIT Patna and Delhi Technological University.

Streams in Mathematics and Computing:

[L-T-P]	Mathematical Modeling & Simulation	Artificial Intelligence	Financial Mathematics
DE-1 [3-0-0]	Mathematical Modeling of Dynamical System (MA 322)	Artificial Intelligence (CS360)	Mathematical Finance (MA 341)
DE-2 [3-0-0]	Computational Fluid Dynamics (MA 324)	Deep Learning (CS365) Or Genetic Algorithm (CS361)	Financial Engineering-II (MA 342)
DE-3 [3-0-0]	Data Analytics (CS457)	Data Analytics (CS457)	Computational Finance (MA 441)
DE-4 [3-0-0]	Reservoir Simulation (MA 421)	Computational Intelligence (MA451)	Financial Management (MA 454)