



ODISHA UNIVERSITY OF TECHNOLOGY AND RESEARCH

Techno Campus, Mahalaxmi Vihar, Ghatikia, Bhubaneswar-751029.

Syllabus Structure (Effective from 2023-24)

School/ Department: School of Basic Sciences & Humanities

Course: Integrated M. Sc., Programme: Mathematics & Computing,

Duration: 5 years (Ten Semesters)

Abbreviation used:

I:	Integrated Program	PC:	Professional Core	SE:	Seminar
P:	Postgraduate Program	PE:	Professional Elective	L:	Lecture
GE:	Generic Elective/ Interdisciplinary	CC:	Core Course	T:	Tutorial
AECC:	Ability Enhancement Compulsory Course	CE:	Core Elective	P:	Practical
SEC:	Skill Enhancement Course	OE:	Open Elective	PH:	Physics
DSE:	Discipline Specific Elective	MC:	Mandatory Course	CY:	Chemistry
IA*:	Internal Assessment	LC:	Lab Course	MH:	Mathematics
EA:	End-Semester Assessment	AC:	Audit course	HS:	Humanities
PA:	Practical Assessment	PR:	Project	CS:	Computer Science

*Internal Assessment Mark (30 marks) consists of (i) Mid Semester (20 marks), (ii) Quiz/ Assignment (10 marks)

Subject Code Format:

A	A	B	C	C	C
School/ Dept. (Offering)		Level	Serial Number		
BH: Basic Sciences and Humanities CS: Computer Sciences EE: Electrical Sciences EI: Electronic Sciences IP: Infrastructure and Planning ME: Mechanical Sciences BT: Biotechnology TE: Textile Engineering		1: UG/ Int. Msc. (1 st Year) 2: UG/ Int. Msc. (2 nd Year) 3: UG/ Int. Msc. (3 rd Year) 4: UG/ Int. Msc. (4 th Year) 5: UG/ Int. Msc. (5 th Year) 6: PG (1 st Year) 7: PG (2 nd Year) 8: Ph.D.	001 to 999		

1st SEMESTER

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
AECC-1	BH1431	ENGLISH FOR COMMUNICATION	2	0	0	2	30	70	-	100
AECC-1 Lab	BH1531	ENGLISH FOR COMMUNICATION LABORATORY	0	0	2	1	-	-	100	100
SEC-1		FUNDAMENTALS OF COMPUTERS & PROGRAMMING IN C	3	0	0	3	30	70	-	100
SEC Lab-1		PROGRAMMING IN C LABORATORY	0	0	2	1	-	-	100	100
GE-1	BH1361	PHYSICS-I	3	0	0	3	30	70	-	100
GE Lab-1	BH1571	PHYSICS LABORATORY-I	0	0	3	2	-	-	100	100
CC-1	BH1141	DISCRETE MATHEMATICAL STRUCTURES	3	1	0	4	30	70	-	100
CC-2	BH1143	CALCULUS AND ANALYTIC GEOMETRY	3	1	0	4	30	70	-	100
CC-3	BH1145	LINEAR ALGEBRA	3	1	0	4	30	70	-	100
Total credit=			17	3	7	24	180	420	300	900



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2nd SEMESTER

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
AECC-2	BH1432	COMMUNICATION IN PRACTICE	2	0	0	2	30	70	-	100
AECC Lab-2	BH1532	COMMUNICATION IN PRACTICE LABORATORY	0	0	2	1	-	-	100	100
GE-2	BH1362	PHYSICS-II	3	0	0	3	30	70	-	100
GE Lab-2	BH1572	PHYSICS LABORATORY-II	0	0	2	1	-	-	100	100
CC-4	BH1142	ALGEBRA-I	3	1	0	4	30	70	-	100
CC-5	BH1144	ANALYSIS-I	3	1	0	4	30	70	-	100
CC-6	BH1146	PROBABILITY THEORY	3	1	0	4	30	70	-	100
GE-3		DATA STRUCTURE USING C	3	1	0	4	30	70	-	100
GE Lab-3		DATA STRUCTURE USING C LABORATORY	0	0	3	2	-	-	100	100
Total credit=			17	4	7	25	180	420	300	900

3rd SEMESTER

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
GE-4	BH2361	PHYSICS-III	3	0	0	3	30	70	-	100
GE Lab-4	BH2571	PHYSICS LABORATORY-III	0	0	2	1	-	-	100	100
GE-5	BH2331	ECONOMICS	3	0	0	3	30	70	-	100
CC-7	BH2141	ORDINARY DIFFERENTIAL EQUATION	3	1	0	4	30	70	-	100
CC-8	BH2143	STATISTICS	3	1	0	4	30	70	-	100
CC-9	BH2145	ANALYSIS-II	3	1	0	4	30	70	-	100
DSE-1	BH2241	DESIGN & ANALYSIS OF ALGORITHMS	3	1	0	4	30	70	-	100
DSE Lab-1	BH2541	DESIGN & ANALYSIS OF ALGORITHMS LABORATORY	0	0	3	2	-	-	100	100
Total credit=			18	4	5	25	180	420	200	800



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4th SEMESTER

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
AECC-3	BH2402	ENVIRONMENTAL SCIENCE	2	0	0	2	30	70	-	100
SEC-3	BH2432	ORGANIZATIONAL BEHAVIOR	2	0	0	2	30	70	-	100
GE-6	BH2362	PHYSICS-IV	3	0	0	3	30	70	-	100
GE Lab-6	BH2572	PHYSICS LABORATORY-IV	0	0	2	1	-	-	100	100
CC-10	BH2142	GEOMETRY OF CURVES & SURFACES	3	1	0	4	30	70	-	100
CC-11	BH2144	NUMERICAL METHODS	3	0	0	3	30	70	-	100
CC-12	BH2146	MATHEMATICAL METHODS	3	1	0	3	30	70	-	100
CC Lab-1	BH2542	NUMERICAL ANALYSIS LABORATORY	0	0	3	2	-	-	100	100
DSE-2	BH2242	OPERATING SYSTEM	3	1	0	4	30	70	-	100
DSE Lab-2	BH2544	OPERATING SYSTEM LABORATORY	0	0	3	2	-	-	100	100
Total credit=			19	3	8	26	210	490	200	1000

5th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
SEC-4	BH3321	INDIAN SOCIETY, ETHICS & CULTURE	3	0	0	2	30	70	-	100
CC-13	BH3141	ADVANCED CALCULUS	3	1	0	3	30	70	-	100
CC-14	BH3143	MATHEMATICAL MODELING & SIMULATION	3	0	0	3	30	70	-	100
CC-15	BH3145	FUZZY AND ROUGH SET THEORY	3	1	0	4	30	70	-	100
CC Lab-2	BH3541	MATLAB LAB	0	0	3	2	-	-	100	100
DSE-3	BH3241	RELATIONAL DATABASE MANAGEMENT SYSTEM	3	1	0	4	30	70	-	100
DSE Lab-3	BH3543	RELATIONAL DATABASE MANAGEMENT SYSTEM LABORATORY	0	0	3	2	-	-	100	100
DSE-4	BH3243	JAVA PROGRAMMING	3	1	0	4	30	70	-	100
DSE Lab-4	BH3545	JAVA PROGRAMMING LABORATORY	0	0	3	2	-	-	100	100
Total credit=			18	4	9	26	180	420	300	900



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6th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
CC-16	BH3142	OPERATIONS RESEARCH	3	1	0	4	30	70	-	100
CC-17	BH3144	COMPLEX ANALYSIS	3	1	0	4	30	70	-	100
CC-18	BH3146	DIFFERENTIAL EQUATION-II	3	1	0	4	30	70	-	100
CC-19	BH3148	COMPUTER NETWORK	3	1	0	4	30	70	-	100
CC-20	BH3150	CODING THEORY	3	1	0	4	30	70	-	100
CC Lab-3	BH3542	OPERATIONS RESEARCH LABORATORY	0	0	3	2	-	-	100	100
CC Lab-4	BH3544	STATISTICS LABORATORY USING STATISTICA / PYTHON	0	0	3	2	-	-	100	100
Total credit=			15	5	6	24	150	350	200	700

7th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-1	BH4141	ADVANCED ANALYSIS	3	1	0	4	30	70	-	100
PC-2	BH4143	ADVANCED LINEAR ALGEBRA	3	1	0	4	30	70	-	100
PC-3	BH4145	ADVANCED DIFFERENTIAL EQUATION	3	1	0	3	30	70	-	100
PE-1	BH4241	ALGEBRAIC GRAPH THEORY / COMPUTATIONAL FINANCE	3	0	0	3	30	70	-	100
PE-2	BH4243	SOFT COMPUTING / MOBILE COMPUTING	3	0	0	3	30	70	-	100
OE-1		SOFTWARE ENGINEERING	3	0	0	3	30	70	-	100
SEMINAR	BH4741	SEMINAR-I	0	0	3	1	-	-	100	100
Total credit=			18	3	3	21	180	420	100	700

8th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-4	BH4142	TOPOLOGY	3	1	0	3	30	70	-	100
PC-5	BH4144	PROBABILITY AND STOCHASTIC PROCESSES	3	1	0	4	30	70	-	100
PC-6	BH4146	ADVANCED NUMERICAL ANALYSIS	3	1	0	3	30	70	-	100
PC-7	BH4148	ABSTRACT ALGEBRA	3	1	0	3	30	70	-	100
OE-2		COMPUTER GRAPHICS	3	0	0	3	30	70	-	100
OE-3		DATA MINING	3	0	0	3	30	70	-	100
OE-4		DATA MINING LABORATORY USING MATLAB	0	0	3	2	-	-	100	100
Total credit=			18	4	3	21	180	420	100	700



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9th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-8	BH5141	FUNCTIONAL ANALYSIS	3	1	0	4	30	70	-	100
PC-9	BH5143	THEORY OF COMPUTATION	3	0	0	3	30	70	-	100
PC-10	BH5145	MATRIX COMPUTATION	3	0	0	3	30	70	-	100
PE-3	BH5241/ BH5243/ BH5245	MULTI VARIATE ANALYSIS / NUMERICAL OPTIMIZATION / NUMERICAL SOLUTION OF DIFFERENTIAL EQUATION	3	0	0	3	30	70	-	100
PE-4	BH5247 / BH5249	IMAGE PROCESSING / FRACTAL AND CHAOS THEORY	3	0	0	2	30	70	-	100
SEMINAR-2	BH5741	SEMINAR-II	0	0	2	1	-	-	100	100
PROJECT	BH5641	PROJECT	0	0	6	6	-	-	100	100
Total credit=			15	1	8	22	150	350	200	700

10th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-11	BH5142	NUMBER THEORY AND CRYPTOGRAPHY	3	0	0	3	30	70	-	100
PC-12	BH5144	COMPUTATIONAL STATISTICS	3	1	0	3	30	70	-	100
PC-13	BH5146	OPTIMIZATION THEORY	3	1	0	3	30	70	-	100
PE-5	BH5242/ BH5244/ BH5246	FINITE ELEMENT METHOD / MACHINE LEARNING / DIFFERENTIAL GEOMETRY	3	1	0	3	30	70	-	100
PC Lab-1	BH5542	OPTIMIZATION LAB	0	0	3	2	-	-	100	100
PC Lab-2	BH5544	MATRIX COMPUTATION & COMPUTATIONAL STATISTICS LAB USING R PROGRAMMING	0	0	3	2	-	-	100	100
Total credit=			12	3	6	16	120	280	200	600



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Credits and Maximum Marks

Semester	Max. Credits	Max. Marks
1st	24	900
2nd	25	900
3rd	25	800
4th	26	1000
5th	26	900
6th	24	700
Total	150	5200
7th	21	700
8th	21	700
9th	22	700
10th	16	600
Total	80	2700
Grand Total	230	7900