



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: Chemistry, 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-1 Lab		PROGRAMMING IN C LABORATORY	0	0	2	1	-	-	100	100
GE-1	BH1361	PHYSICS-I	3	0	0	3	30	70	-	100
GE-1 Lab	BH1571	PHYSICS LABORATORY-I	0	0	2	1	-	-	100	100
GE-2	BH1341	MATHEMATICS-I	2	1	0	3	30	70	-	100
PC-1	BH1101	INORGANIC CHEMISTRY-I	4	0	0	4	30	70	-	100
PC Lab-1	BH1501	INORGANIC CHEMISTRY LABORATORY-I	0	0	3	2	-	-	100	100
PC-2	BH1103	ORGANIC CHEMISTRY-I	4	0	0	4	30	70	-	100
PC Lab-2	BH1503	ORGANIC CHEMISTRY LABORATORY-I	0	0	3	2	-	-	100	100
Total credit=			18	1	12	26	180	420	500	1100



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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
SEC-2		OOPS USING C++	3	0	0	3	30	70	-	100
SEC-2 Lab		OOPS USING C++ LABORATORY	0	0	2	1	-	-	100	100
GE-3	BH1362	PHYSICS-II	3	0	0	3	30	70	-	100
GE-3 Lab	BH1572	PHYSICS LABORATORY-II	0	0	2	1	-	-	100	100
GE-4	BH1342	MATHEMATICS-II	2	1	0	3	30	70	-	100
PC-3	BH1102	PHYSICAL CHEMISTRY-I	4	0	0	4	30	70	-	100
PC Lab-3	BH1502	PHYSICAL CHEMISTRY LABORATORY-I	0	0	3	2	-	-	100	100
PC-4	BH1104	ORGANIC CHEMISTRY-II	4	0	0	4	30	70	-	100
PC Lab-4	BH1504	ORGANIC CHEMISTRY LABORATORY-II	0	0	3	2	-	-	100	100
Total credit=			18	1	12	26	180	420	500	1100

3rd SEMESTER

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
GE-5	BH2361	PHYSICS-III	3	0	0	3	30	70	-	100
GE-5 Lab	BH2571	PHYSICS LABORATORY-III	0	0	2	1	-	-	100	100
GE-6	BH2341	MATHEMATICS-III	2	1	0	3	30	70	-	100
PC-5	BH2101	PHYSICAL CHEMISTRY-II	4	0	0	4	30	70	-	100
PC Lab-5	BH2501	PHYSICAL CHEMISTRY LABORATORY-II	0	0	3	2	-	-	100	100
PC-6	BH2103	ORGANIC CHEMISTRY-III	4	0	0	4	30	70	-	100
PC Lab-6	BH2503	ORGANIC CHEMISTRY LABORATORY-III	0	0	3	2	-	-	100	100
PC-7	BH2105	MOLECULAR SPECTROSCOPY AND PHOTOCHEMISTRY	4	0	0	4	30	70	-	100
PC Lab-7	BH2505	SPECTROSCOPY LABORATORY	0	0	3	2	-	-	100	100
Total credit=			17	1	11	25	150	350	400	900



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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-7	BH2342	MATHEMATICS-IV	2	1	0	3	30	70	-	100
PC-8	BH2102	PHYSICAL CHEMISTRY-III	4	0	0	4	30	70	-	100
PC Lab-8	BH2502	PHYSICAL CHEMISTRY LABORATORY-III	0	0	3	2	-	-	100	100
PC-9	BH2104	INORGANIC CHEMISTRY-II	4	0	0	4	30	70	-	100
PC Lab-9	BH2504	INORGANIC CHEMISTRY LABORATORY-II	0	0	3	2	-	-	100	100
PC-10	BH2106	INTRODUCTION TO QUANTUM CHEMISTRY	4	0	0	4	30	70	-	100
PC Lab-10	BH2506	COMPUTATIONAL CHEMISTRY LABORATORY-I	0	0	3	2	-	-	100	100
Total credit=			18	1	9	25	180	420	300	900

5th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-11	BH3101	INORGANIC CHEMISTRY-III	4	0	0	4	30	70	-	100
PC Lab-11	BH3501	INORGANIC CHEMISTRY LABORATORY-III	0	0	3	2	-	-	100	100
PC-12	BH3103	ANALYTICAL CHEMISTRY	4	0	0	4	30	70	-	100
PC Lab-12	BH3503	ANALYTICAL CHEMISTRY LABORATORY	0	0	3	2	-	-	100	100
DSE-1	BH3201	ELECTROCHEMISTRY	4	0	0	4	30	70	-	100
DSE Lab-1	BH3505	ELECTROCHEMISTRY LABORATORY	0	0	3	2	-	-	100	100
DSE-2	BH3203	POLYMER CHEMISTRY	4	0	0	4	30	70	-	100
DSE Lab-2	BH3507	POLYMER CHEMISTRY LABORATORY	0	0	3	2	-	-	100	100
Total credit=			16	0	12	24	120	280	400	800



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6th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-13	BH3102	GREEN CHEMISTRY	4	0	0	4	30	70	-	100
PC Lab-13	BH3502	GREEN CHEMISTRY LABORATORY	0	0	3	2	-	-	100	100
PC-14	BH3104	MATERIALS CHEMISTRY	4	0	0	4	30	70	-	100
PC Lab-14	BH3504	MATERIALS CHEMISTRY LABORATORY	0	0	3	2	-	-	100	100
DSE-3	BH3202	HETEROCYCLIC CHEMISTRY	4	0	0	4	30	70	-	100
DSE Lab-3	BH3506	HETEROCYCLIC CHEMISTRY LABORATORY	0	0	3	2	-	-	100	100
DSE-4	BH3204	ADVANCED ANALYTICAL CHEMISTRY	4	0	0	4	30	70	-	100
DSE Lab-4	BH3508	ADVANCED ANALYTICAL CHEMISTRY LABORATORY	0	0	3	2	-	-	100	100
Total credit=			16	0	12	24	120	280	400	800

7th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-15	BH4101	INORGANIC CHEMISTRY-IV	4	0	0	4	30	70	-	100
PC-16	BH4103	ORGANIC CHEMISTRY-IV	4	0	0	4	30	70	-	100
PE-1	BH4201	QUANTUM CHEMISTRY	3	0	0	3	30	70	-	100
PE-2	BH4203	GROUP THEORY AND MOLECULAR SPECTROSCOPY	3	0	0	3	30	70	-	100
PC Lab-15	BH4501	INORGANIC CHEMISTRY LABORATORY-IV	0	0	3	2	-	-	100	100
PC Lab-16	BH4503	ORGANIC CHEMISTRY LABORATORY-IV	0	0	3	2	-	-	100	100
PE Lab-1	BH4505	MEDICINAL CHEMISTRY LABORATORY	0	0	2	1	-	-	100	100
Total credit=			16	0	9	19	120	280	300	700

8th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-17	BH4102	INORGANIC CHEMISTRY-V	4	0	0	4	30	70	-	100
PC-18	BH4104	ORGANIC CHEMISTRY-V	4	0	0	4	30	70	-	100
PC-19	BH4106	PHYSICAL CHEMISTRY-IV	4	0	0	4	30	70	-	100
PE-3	BH4202	BIOCHEMISTRY	3	0	0	3	30	70	-	100
PC Lab-17	BH4502	INORGANIC CHEMISTRY LABORATORY-V	0	0	3	2	-	-	100	100
PC Lab-18	BH4504	PHYSICAL CHEMISTRY LABORATORY-IV	0	0	3	2	-	-	100	100
PC Lab-19	BH4506	ORGANIC CHEMISTRY LABORATORY-V	0	0	3	2	-	-	100	100
Total credit=			20	0	6	21	120	280	300	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
PE-4	BH5201	ORGANIC SPECTROSCOPY	3	0	0	3	30	70	-	100
PE-5	BH5203	ELECTIVE-I	3	0	0	3	30	70	-	100
PE-6	BH5205	ELECTIVE -II	0	0	3	3	30	70	-	100
PC-20	BH5101	PHYSICAL CHEMISTRY-V	4	0	0	4	30	70	-	100
Seminar	BH5701	LITERATURE REVIEW AND SEMINAR	0	0	4	2	-	-	100	100
PC Lab-20	BH5501	PHYSICAL CHEMISTRY LABORATORY-V	0	0	3	2	-	-	100	100
PE Lab-2	BH5503	CHEMICAL BIOLOGY LABORATORY	0	0	3	2	-	-	100	100
PE Lab-3	BH5505	COMPUTATIONAL CHEMISTRY LABORATORY-II	0	0	3	2	-	-	100	100
Total credit=			20	0	10	21	120	280	400	800

10th Semester

Subject Type	Subject Code	Subject Name	Teaching Hours			Credit	Maximum Marks			
			L	T	P		IA	EA	PA	Total
PC-21	BH5102	INORGANIC CHEMISTRY-VI	4	0	0	4	30	70	-	100
PC-22	BH5104	BIOINORGANIC AND SUPRAMOLECULAR CHEMISTRY	3	0	0	3	30	70	-	100
PC-23	BH5106	ORGANIC CHEMISTRY-VI	3	0	0	3	30	70	-	100
PE-7	BH5202	ELECTIVE-III	3	0	0	3	30	70	-	100
Project	BH5601	PROJECT	0	0	6	6	-	-	100	100
Total credit=			12	0	14	19	120	280	100	500

Students have to opt electives either from group-A or B or C

ELECTIVE	Group-A	Group-B	Group-C
I	Spectral Techniques in Inorganic Chemistry	Natural Product Chemistry	Advanced Chemical Kinetics
II	Chemistry of Materials	Pharmaceutical Chemistry	Biophysical Chemistry
III	Nuclear And Radiochemistry	Newer Synthetic Reactions and Reagents	Advanced Electrochemistry



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Int. M.Sc. Abstract of credit and marks distribution

Semester	Max. Credits	Max. Marks
1st	26	1100
2nd	26	1100
3rd	25	900
4th	25	900
5th	24	800
6th	24	800
Total=	150	5600

7th	19	700
8th	21	700
9th	21	800
10th	19	500
Total=	80	2700
G. Total=	230	8300