



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: M. Sc., Programme: Chemistry, Duration: 2 years (Four Semesters)

Abbreviation used:

| | | | | | |
|-----|-----------------------|------|-----------------------------|----|-----------|
| PC: | Professional Core | IA*: | Internal Assessment | L: | Lecture |
| PE: | Professional Elective | EA: | End-Semester Assessment | T: | Tutorial |
| OE: | Open Elective | PA: | Practical Assessment | P: | Practical |
| MC: | Mandatory Course | PR: | Project/ Seminar/ Practical | | |
| LC: | Lab Course | AC: | Audit course | | |

*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 M.Sc.

| Subject Type | Subject Code | Subject Name | Teaching Hours | | | Credit | Maximum Marks | | | |
|----------------------|--------------|---|----------------|----------|----------|-----------|---------------|------------|------------|------------|
| | | | L | T | P | | IA | EA | PA | Total |
| PC-1 | BH6101 | INORGANIC CHEMISTRY-I | 4 | 0 | 0 | 4 | 30 | 70 | - | 100 |
| PC-2 | BH6103 | ORGANIC CHEMISTRY-I | 4 | 0 | 0 | 4 | 30 | 70 | - | 100 |
| PE-1 | BH6201 | QUANTUM CHEMISTRY | 3 | 0 | 0 | 3 | 30 | 70 | - | 100 |
| PE-2 | BH6203 | GROUP THEORY AND MOLECULAR SPECTROSCOPY | 3 | 0 | 0 | 3 | 30 | 70 | - | 100 |
| PC Lab-1 | BH6501 | INORGANIC CHEMISTRY LABORATORY-I | 0 | 0 | 3 | 2 | - | - | 100 | 100 |
| AECC Lab-1 | | COMPUTATIONAL CHEMISTRY LABORATORY-I | 0 | 0 | 2 | 1 | - | - | 100 | 100 |
| PC Lab-2 | BH6503 | ORGANIC CHEMISTRY LABORATORY-I | 0 | 0 | 3 | 2 | - | - | 100 | 100 |
| Total credit= | | | 16 | 0 | 9 | 19 | 120 | 280 | 300 | 700 |



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2nd Semester M.Sc.

| Subject Type | Subject Code | Subject Name | Teaching Hours | | | Credit | Maximum Marks | | | |
|----------------------|--------------|-----------------------------------|----------------|----------|----------|-----------|---------------|------------|------------|------------|
| | | | L | T | P | | IA | EA | PA | Total |
| PC-3 | BH6102 | INORGANIC CHEMISTRY-II | 4 | 0 | 0 | 4 | 30 | 70 | - | 100 |
| PC-4 | BH6104 | ORGANIC CHEMISTRY-II | 4 | 0 | 0 | 4 | 30 | 70 | - | 100 |
| PC-5 | BH6106 | PHYSICAL CHEMISTRY-I | 4 | 0 | 0 | 4 | 30 | 70 | - | 100 |
| PE-3 | BH6202 | BIOCHEMISTRY | 3 | 0 | 0 | 3 | 30 | 70 | - | 100 |
| PC Lab-3 | BH6502 | INORGANIC CHEMISTRY LABORATORY-II | 0 | 0 | 3 | 2 | - | - | 100 | 100 |
| PC Lab-4 | BH6504 | PHYSICAL CHEMISTRY LABORATORY-I | 0 | 0 | 3 | 2 | - | - | 100 | 100 |
| PC Lab-5 | BH6506 | ORGANIC CHEMISTRY LABORATORY-II | 0 | 0 | 3 | 2 | - | - | 100 | 100 |
| Total credit= | | | 20 | 0 | 6 | 21 | 120 | 280 | 300 | 700 |

3rd Semester M.Sc.

| Subject Type | Subject Code | Subject Name | Teaching Hours | | | Credit | Maximum Marks | | | |
|----------------------|--------------|---------------------------------------|----------------|----------|-----------|-----------|---------------|------------|------------|------------|
| | | | L | T | P | | IA | EA | PA | Total |
| PE-4 | BH7201 | ORGANIC SPECTROSCOPY | 3 | 0 | 0 | 3 | 30 | 70 | - | 100 |
| PE-5 | BH7203 | ELECTIVE-I | 3 | 0 | 0 | 3 | 30 | 70 | - | 100 |
| PE-6 | BH7205 | ELECTIVE-II | 0 | 0 | 3 | 3 | 30 | 70 | - | 100 |
| PC-6 | BH7101 | PHYSICAL CHEMISTRY-II | 4 | 0 | 0 | 4 | 30 | 70 | - | 100 |
| Seminar | BH7701 | LITERATURE REVIEW & SEMINAR | 0 | 0 | 4 | 2 | - | - | 100 | 100 |
| PC Lab-6 | BH7501 | PHYSICAL CHEMISTRY LABORATORY-II | 0 | 0 | 3 | 2 | - | - | 100 | 100 |
| PE Lab-1 | BH7503 | BIOCHEMISTRY LABORATORY | 0 | 0 | 3 | 2 | - | - | 100 | 100 |
| PE Lab-2 | BH7505 | COMPUTATIONAL CHEMISTRY LABORATORY-II | 0 | 0 | 3 | 2 | - | - | 100 | 100 |
| Total credit= | | | 20 | 0 | 10 | 21 | 120 | 280 | 400 | 800 |

4th Semester M.Sc.

| Subject Type | Subject Code | Subject Name | Teaching Hours | | | Credit | Maximum Marks | | | |
|----------------------|--------------|---|----------------|----------|-----------|-----------|---------------|------------|------------|------------|
| | | | L | T | P | | IA | EA | PA | Total |
| PC-7 | BH7102 | INORGANIC CHEMISTRY-III | 4 | 0 | 0 | 4 | 30 | 70 | - | 100 |
| PC-8 | BH7104 | BIOINORGANIC AND SUPRAMOLECULAR CHEMISTRY | 4 | 0 | 0 | 3 | 30 | 70 | - | 100 |
| PC-9 | BH7106 | ORGANIC CHEMISTRY-III | 4 | 0 | 0 | 3 | 30 | 70 | - | 100 |
| PE-7 | BH7202 | ELECTIVE-III | 4 | 0 | 0 | 3 | 30 | 70 | - | 100 |
| Project | BH7601 | PROJECT | 0 | 0 | 6 | 6 | - | - | 100 | 100 |
| Total credit= | | | 12 | 0 | 14 | 19 | 120 | 280 | 100 | 500 |



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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 |

Credits and Maximum Marks

| Semester | Max. Credits | Max. Marks |
|-----------------|--------------|-------------|
| 1 st | 19 | 700 |
| 2 nd | 21 | 700 |
| 3 rd | 21 | 800 |
| 4 th | 19 | 500 |
| Total | 80 | 2700 |