

Bsc. (Hon's) In Chemistry - Degree Content

Semester -1 (Year – 1)

1. Fundamentals of electronics
2. Mathematics for biological science students
3. Mechanics and properties of matter
4. Electricity and magnetism
5. Waves and Vibrations
6. Practical (Elementary – Physics) -1
7. Structure and properties of matter (Chemistry)
8. Organic Chemistry - 1
9. Concepts in inorganic chemistry
10. Main group and transition elements
11. Chemistry Practical - 1
12. Fundamentals of Polymer Physics
13. Fundamentals of Polymer Chemistry

Semester – 2 (Year – 1)

14. Applied Electricity & Basic Electronics
15. Thermodynamics
16. Practicals (Elementary – Physics) - 2
17. Chemical Thermodynamics
18. Organic Chemistry - 2
19. Introduction to Analytical Chemistry & Nuclear Chemistry
20. Chemistry Practical - 2
21. Polymer Degradation
22. Polymer Materials

Semester - 1 (Year 2)

- 23. Optics – 1
- 24. Analog and digital electronics
- 25. Optics Practicals - 1
- 26. Electronics Practicals - 1
- 27. Chemistry of Heterocyclic and Bioorganic Compounds
- 28. Phase equilibria and surface chemistry
- 29. Quantum Chemistry - 1
- 30. Concepts in Inorganic Chemistry - 2
- 31. Chemistry Practicals - 3
- 32. Polymer Thermodynamics
- 33. Polymer Characterization
- 34. Polymer Technology

Semester – 2 (Year – 2)

- 35. Statistical Physics - 1
- 36. Mathematical Physics - 1
- 37. Special Theory of Relativity
- 38. Atomic & Nuclear Physics - 1
- 39. Optics Practicals - 2
- 40. Electronics Practicals - 2
- 41. Chemistry of coordination compounds
- 42. Organic Spectroscopy
- 43. Electrochemistry
- 44. Chemical Kinetics
- 45. Chemistry Practicals 4

46. Polymer Viscoelasticity & Rheology

47. Polymer Kinetics

48. Polymer Processing & Product Testing

Green Colour – Physics Courses

Blue Colour – Chemistry courses

Pink colour – Polymer science and technology courses

B.Sc. Honours Degree Course Units

THIRD YEAR

Semester I

CHE 359 1.0	Symmetry and Group Theory	c
CHE 360 1.0	Advanced Electrochemistry	c
CHE 363 1.0	Statistical Thermodynamics	c
CHE 365 1.0	Diffraction Methods in Chemistry	c
CHE 366 1.0	Organotransition Metal Chemistry	c
CHE 368 1.0	Bio-inorganic Chemistry	c
CHE 377 1.0	Modern Chromatographic Techniques	c
CHE 378 1.0	Advanced Analytical Chemistry	c
CHE 379 1.0	Chemistry of Biological compounds	c
CHE 381 2.0	Synthetic Organic Chemistry	c
CHE 382 1.0	Polynuclear Aromatic Hydrocarbons and Heterocyclic Compounds	c
CHE 383 1.0	Organic Reaction Mechanisms	c
CHE 375 2.0	Organic Chemistry Practicals (Semester I and II)	a
CHE 374 2.0	Inorganic Chemistry Practicals (Semester I and II)	a
CHE 376 2.0	Physical Chemistry Practicals (Semester I and II)	a

Semester II

CHE 352 1.0	Spectroscopic Methods in Inorganic Chemistry	c
CHE 353 1.0	Structural Chemistry	c
CHE 354 1.0	Inorganic Reaction Mechanisms	c
CHE 358 1.0	Advanced Organic Spectroscopy	c
CHE 361 1.0	Advanced Chemical Kinetics	c
CHE 362 1.0	Advanced Quantum Chemistry	c
CHE 367 1.0	Advanced Coordination Chemistry	c
CHE 369 1.0	Molecular Photochemistry	c
CHE 371 1.0	Biochemistry	c
CHE 384 1.0	Natural Product Chemistry	c
CHE 385 1.0	Asymmetric Organic Synthesis	c
CHE 375 2.0	Organic Chemistry Practicals (Semester I and II)	a
CHE 374 2.0	Inorganic Chemistry Practicals (Semester I and II)	a
CHE 376 2.0	Physical Chemistry Practicals (Semester I and II)	a

Course Type

-a-
Compulsory

-c-
Core

-o-
Optional

Course Type

-a-
Compulsory

-c-
Core

-o-
Optional

-#-
Students who have followed Polymer science and technology as a subject in the first two years are not allowed to follow this course.

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Students who have followed Food Science as a subject in the first two years are not allowed to follow this course.

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Students who have followed Environmental Management and Forestry as a subject in the first two years are not allowed to follow this course

FOURTH YEAR

Semester I

CHE 451 1.0	Inorganic Materials	o
CHE 457 1.0	Molecular Spectroscopy	c
CHE 459 1.0	Advanced Chemical Thermodynamics	c
CHE 462 2.0	Food Chemistry and Technology ^{**}	c
CHE 465 1.0	Biophysical Chemistry	o
CHE 474 1.0	Physical Chemistry of Polymers [#]	o
CHE 481 1.0	Surface Techniques and Dynamic Surfaces	c
CHE 484 1.0	Polymer Coating and Paint Industry	o
CHE 486 1.0	Nanochemistry	o
CHE 492 1.0	Molecular Modeling and Computational Chemistry	c
CHE 493 1.0	Technological aspects in modern research	o
CHE 499 2.0	Advanced Physical Organic Chemistry	c
CHE 490 8.0	Research Projects (Semester I and II)	a
CHE 452 1.0	Chemistry of Natural Waters	o

Semester II

CHE 401 1.0	New Trends in Organic Synthesis	o
CHE 454 1.0	Medicinal Chemistry	o
CHE 458 1.0	Advanced Surface Chemistry	c
CHE 460 1.0	Industrial Management	c
CHE 461 1.0	Basic Chemical Engineering	o
CHE 464 1.0	Polymer Technology [#]	o
CHE 466 1.0	Chemistry of plant products and their applications in industry	o
CHE 470 1.0	Environmental Chemistry~	c
CHE 476 1.0	Solid State Chemistry	c
CHE 485 1.0	Quality Control and Assurance	o
CHE 491 1.0	Supramolecular Chemistry	o
CHE 495 1.0	Principles and Practices of Optical and Electron Microscopy	o
CHE 498 1.0	Atmospheric Chemistry	o
CHE 490 8.0	Research Projects (Semester I and II)	a