

Syllabus and Scheme of Examination

for

B.Sc. (Honors) Chemistry

Vinoba Bhave University, Hazaribag

Under

**Choice Based Credit
System**

(2015-18)

Course Structure (Chemistry-Major)

Details of courses under B.Sc. (Honours)

Course	*Credits
	Theory+ Practical

I. Core Course

(14 Papers)	$14 \times 4 = 56$
Core Course Practical (07 Papers)	$04 \times 4 + 02 \times 06 = 28$

I. Elective Course

(8 Papers)	
A.1. Discipline Specific Elective (4 Papers)	$4 \times 4 = 16$
A.2. Discipline Specific Elective Practical/Tutorial* (4 Papers)	$2 \times 4 = 8$
3.1. Generic Elective/ Interdisciplinary (4 Papers)	$4 \times 4 = 16$
3.2. Generic Elective Practical/ Tutorial* (4 Papers)	$4 \times 2 = 8$

□ Optional Dissertation or project work in place of one Discipline Specific Elective paper th

(6 credits) in 6 Semester □

□

II. Ability Enhancement Courses

1. Ability Enhancement Compulsory

(2 Papers of 2 credit each) $2 \times 2 = 4$

Environmental Science

English Communication

2. Ability Enhancement Elective (Skill Based)

(Minimum 2) $2 \times 2 = 4$

(2 Papers of 2 credit each)

Total credit

 140

Semester	CORE COURSE (14)	Ability Enhancement Compulsory Course (AECC) (2)	Ability Enhancement Elective Course (AEEC) (2) (Skill Based)	Elective: Discipline Specific DSE (4)	Elective: Generic (GE) (4)
I	Inorganic I: Atomic Structure & Chemical Bonding-I (4) Physical I: States of Matter & Ionic Equilibrium (4) Practica I-1(4(4))	English Communication			GE-1
II	Organic I: Basics & Hydrocarbons (4) Physical II: Chemical Thermodynamics & its Applications (4) Practic al-II (4)	Environmental Science			GE-2
III	Inorganic II: s- and p-Block Elements (4) Organic II: Oxygen Containing Functional Groups (4) Physical III: Phase Equilibria & Chemical Kinetics (4) Practical-III (6)		SEC -1		GE-3
IV	Inorganic III: Coordination Chemistry (4)		SEC -2		GE-4

	Organic Heterocyclic Chemistry (4)	III:				
	Physical Electrochemistry (4) Practical-IV(6)	IV:				
V	Organic Biomolecules (4)	IV:			DSE-1	
	Physical Quantum Chemistry Spectroscopy (4) Practical-V(4)	V: &			DSE -2	
VI	Inorganic Organometallic Chemistry (4)	IV:			DSE -3	
	Organic Chemistry Spectroscopy (4) Practical VI (4)	V:			DSE -4	

SEMESTER	COURSE OPTED	COURSE NAME	Credits
I	Ability Enhancement Compulsory Course-I	English Communications	2
	Core Course-I	Inorganic Chemistry-I	4
	Core Course-II	Physical Chemistry-I	4
	Core Course- Practical-I		4
	Generic Elective -1	GE-1	4
	Generic Elective -1 Practical		2
	II	Ability Enhancement Compulsory Course-II	Environmental Science
Core Course-III		Organic Chemistry-I	4
Core Course-IV		Physical Chemistry-II	4
Core Course Practical-II			4
Generic Elective -2		GE-2	4
Generic Elective -2 Practical			2
III		Core Course-V	Inorganic Chemistry-II
	Core Course-VI	Organic Chemistry-II	4
	Core Course –VII	Physical Chemistry-III	4
	Core Course Practical-III		6
	Skill Enhancement Course -1	SEC-1	2

	Generic Elective -3	GE-3	4
	Generic Elective -3 Practical		2
IV	Core Course-VIII	Inorganic Chemistry-III	4
	Core Course-IX	Organic Chemistry-III	4
	Core Course-X	Physical Chemistry-IV	4
	Core Practical-IV		6
	Skill Enhancement Course -2	SEC -2	4
	Generic Elective -4	GE-4	4
	Generic Elective -4 Practical		2
V	Core Course-XI	Organic Chemistry-IV	4
	Core Course-XII	Physical Chemistry-V	4
	Core Course Practical-V		4
	Discipline Specific Elective -1	DSE-1	4
	Discipline Specific Elective -2	DSE-2	4
	Discipline Specific Elective Practical-I		4
VI	Core Course-XIII	Inorganic Chemistry-IV	4
	Core Course-XIV	Organic Chemistry-V	4
	Core Course Practical-VI		4
	Discipline Specific Elective -3	DSE-3	4

	Discipline Specific Elective-4	DSE-4	4
	Discipline Specific Elective Practical-II		4
Total Credits			140

Core Papers (C): (Credit: 04 each) (1 period/week for tutorials or 4 periods/week for practical)

1. Inorganic Chemistry I: Atomic Structure & Chemical Bonding (4)
2. Physical Chemistry I: States of Matter & Ionic Equilibrium (4)
3. Practical -I (4)
4. Organic Chemistry I: Basics and Hydrocarbons (4)
5. Physical Chemistry II: Chemical Thermodynamics and its Applications (4)
6. Practical-II (4)
7. Inorganic Chemistry II: s- and p-Block Elements (4)
8. Organic Chemistry II: Oxygen Containing Functional Groups (4)
9. Physical Chemistry III: Phase Equilibria and Chemical Kinetics (4)
10. Practical-III (6)
11. Inorganic Chemistry III: Coordination Chemistry (4)
12. Organic Chemistry III: Heterocyclic Chemistry (4)
13. Physical Chemistry IV: Electrochemistry (4)
14. Practical-IV (6)
15. Organic Chemistry IV: Biomolecules (4)
16. Physical Chemistry V: Quantum Chemistry & Spectroscopy (4)
17. Practical-V (4)
18. Inorganic Chemistry IV: Organometallic Chemistry (4)
19. Organic Chemistry V: Spectroscopy (4)
20. Practical-VI (4)

Discipline Specific Elective Papers: (4 papers) - DSE 1-4

1. Applications of Computers in Chemistry (4) + Lab (4)
2. Analytical Methods in Chemistry (4) + Lab (4)
3. Green Chemistry (4) + Lab (4)
4. Industrial Chemicals & Environment (4) + Lab (4)

Other Discipline (Four papers of any one discipline) - GE 1 to GE 4

1. Mathematics (5) + Tut (1)
2. Physics (4) + Lab (2)
3. Economics (5) + Tut (1)
4. Computer Science (4) + Lab (2)

5. Zoology (4) + Lab (2)
6. Botany (4) + (2)
7. Geology (4) +(2)
8. Anthropology (4) +(2)

Skill Enhancement Courses (0 2 papers) (Credit: 02 each)- SEC1 to SEC-2

1. Business Skills for Chemists
2. Intellectual Property Rights -----

Generic Elective Papers (GE) (Minor-Chemistry) (four papers) for other Departments/Disciplines: (Credit: 06 each)

1. Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons
(4) + Lab (2)
2. Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I (4) + Lab (2)
3. Solutions, Phase Equilibrium, Conductance, Electrochemistry & Functional Group Organic Chemistry-II (4) + Lab (2)
4. Chemistry of s- and p-block elements, States of matter and Chemical Kinetics (4) + Lab (2).