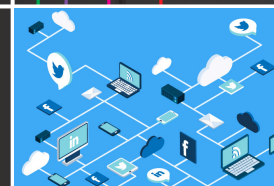
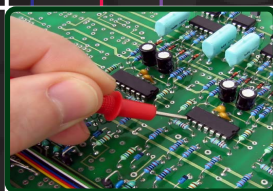


SANGAI INTERNATIONAL UNIVERSITY



Syllabus B. Sc. Honours With Chemistry

Syllabus B. Sc. Honours With Chemistry



CHOICE BASED CREDIT SYSTEM

B. SC. HONOURS WITH CHEMISTRY

Course Structure (Chemistry-Major)

Details of courses under B.Sc. (Honours)

Course	*Credits	
	Theory+ Practical	Theory + Tutorial
I. Core Course		
(14 Papers)	14×4= 56	14×5=70
Core Course Practical / Tutorial*		
(14 Papers)	14×2=28	14×1=14
II. Elective Course		
(8 Papers)		
A.1. Discipline Specific Elective	4×4=16	4×5=20
(4 Papers)		
A.2. Discipline Specific Elective		
Practical/Tutorial*	4×2=8	4×1=4
(4 Papers)		
B.1. Generic Elective/		
Interdisciplinary	4×4=16	4×5=20
(4 Papers)		
B.2. Generic Elective		
Practical/ Tutorial*	4×2=8	4×1=4
(4 Papers)		
• Optional Dissertation or project work in place of one Discipline Specific Elective paper (6 credits) in 6th Semester		
III. Ability Enhancement Courses		
1. Ability Enhancement Compulsory		
(2 Papers of 2 credit each)	2×2=4	2×2=4
Environmental Science		
English/MIL Communication		
2. Ability Enhancement Elective (Skill Based)		
(Minimum 2)	2×2=4	2×2=4
(2 Papers of 2 credit each)		

Total credit	140	140
---------------------	------------	------------

Institute should evolve a system/policy about ECA/ General Interest/Hobby/Sports/NCC/NSS/related courses on its own.

*** wherever there is a practical there will be no tutorial and vice-versa**

PROPOSED SCHEME FOR CHOICE BASED CREDIT SYSTEM IN

B. Sc. Honours (Chemistry)

	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+4) Physical I: States of Matter & Ionic Equilibrium (4+2)	(English Communication/MIL) /Environmental Science			GE-1
II	Organic I: Basics & Hydrocarbons (4+4) Physical II: Chemical Thermodynamics & its Applications (4+4)	Environmental Science/ (English/MIL Communication)			GE-2
III	Inorganic II: s- and p-Block Elements (4+4) Organic II: Oxygen Containing Functional Groups (4+4) Physical III: Phase Equilibria & Chemical Kinetics (4+4)		SEC -1		GE-3
IV	Inorganic III: Coordination Chemistry (4+4) Organic III: Heterocyclic Chemistry (4+4)		SEC -2		GE-4

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

SEMESTER	COURSE OPTED	COURSE NAME	Credits
I	Ability Enhancement Compulsory Course-I	English Communications/ Environmental Science	2
	Core Course-I	Inorganic Chemistry-I	4
	Core Course-I Practical	Inorganic Chemistry-I Lab	2
	Core Course-II	Physical Chemistry-I	4
	Core Course-II Practical	Physical Chemistry-I Lab	2
	Generic Elective -1	GE-1	4/5
	Generic Elective -1 Practical/Tutorial		2/1
II	Ability Enhancement Compulsory Course-II	English Communications/ Environmental Science	2
	Core Course-III	Organic Chemistry-I	4
	Core Course-III Practical/Tutorial	Organic Chemistry-I Lab	2
	Core Course-IV	Physical Chemistry-II	4
	Core Course-IV Practical/Tutorial	Physical Chemistry-II Lab	2
	Generic Elective -2	GE-2	4/5
	Generic Elective -2 Practical/Tutorial		2/1
III	Core Course-V	Inorganic Chemistry-II	4
	Core Course-V Practical/Tutorial	Inorganic Chemistry-II Lab	2
	Core Course-VI	Organic Chemistry-II	4
	Core Course-VI Practical/Tutorial	Organic Chemistry-II Lab	2
	Core Course-VII	Physical Chemistry-III	4
	Core Course-VII Practical/Tutorial	Physical Chemistry-III Lab	2
	Skill Enhancement Course -1	SEC-1	2

	Generic Elective -3	GE-3	4/5
	Generic Elective -3 Practical/Tutorial		2/1
IV	Core Course-VIII	Inorganic Chemistry-III	4
	Course-VIII Practical/Tutorial	Inorganic Chemistry-III Lab	2
	Core Course-IX	Organic Chemistry-III	4
	Course-IX Practical/Tutorial	Organic Chemistry-III Lab	2
	Core Course-X	Physical Chemistry-IV	4
	Course-X Practical/Tutorial	Physical Chemistry-IV Lab	2
	Skill Enhancement Course -2	SEC -2	2
	Generic Elective -4	GE-4	4/5
	Generic Elective -4 Practical		2/1
V	Core Course-XI	Organic Chemistry-IV	4
	Core Course-XI Practical/Tutorial	Organic Chemistry-IV Lab	2
	Core Course-XII	Physical Chemistry-V	4
	Core Course-XII Practical/Tutorial	Physical Chemistry-V Lab	2
	Discipline Specific Elective -1	DSE-1	4
	Discipline Specific Elective -1 Practical/Tutorial	DSE-1 Lab	2
	Discipline Specific Elective -2	DSE-2	4
	Discipline Specific Elective- 2 Practical/Tutorial	DSE-2 Lab	2
VI	Core Course-XIII	Inorganic Chemistry-IV	4
	Core Course-XIII Practical/Tutorial	Inorganic Chemistry-IV Lab	2
	Core Course-XIV	Organic Chemistry-V	4
	Core Course-XIV Practical/Tutorial	Organic Chemistry-V Lab	2
	Discipline Specific Elective -3	DSE-3	4
	Discipline Specific Elective -3 Practical/Tutorial	DSE-3 Lab	2
	Discipline Specific Elective-4	DSE-4	4
	Discipline Specific Elective -4 Practical/Tutorial	DSE-4 Lab	2
Total Credits			140

Core Papers (C): (Credit: 06 each) (1 period/week for tutorials or 4 periods/week for practical)

1. Inorganic Chemistry I: Atomic Structure & Chemical Bonding (4 + 4)
2. Physical Chemistry I: States of Matter & Ionic Equilibrium (4 + 4)
3. Organic Chemistry I: Basics and Hydrocarbons (4 + 4)
4. Physical Chemistry II: Chemical Thermodynamics and its Applications (4 + 4)
5. Inorganic Chemistry II: s- and p-block Elements (4 + 4)
6. Organic Chemistry II: Oxygen Containing Functional Groups (4 + 4)
7. Physical Chemistry III: Phase Equilibria and Chemical Kinetics (4 + 4)
8. Inorganic Chemistry III: Coordination Chemistry (4 + 4)
9. Organic Chemistry III: Heterocyclic Chemistry (4 + 4)

10. Physical Chemistry IV: Electrochemistry (4 + 4)
11. Organic Chemistry IV: Biomolecules (4 + 4)
12. Physical Chemistry V: Quantum Chemistry & Spectroscopy (4 + 4)
13. Inorganic Chemistry IV: Organometallic Chemistry (4 + 4)
14. Organic Chemistry V: Spectroscopy (4 + 4)

Discipline Specific Elective Papers: (Credit: 06 each) (4 papers to be selected)- DSE 1-4

1. Applications of Computers in Chemistry (4) + Lab (4)
2. Analytical Methods in Chemistry (4) + Lab (4)
3. Molecular Modelling & Drug Design (4) + Lab (4)
4. Novel Inorganic Solids (4) + Lab (4)
5. Polymer Chemistry (4) + Lab (4)
6. Research Methodology for Chemistry (5) + Tutorials (1)
7. Green Chemistry (4) + Lab (4)
8. Industrial Chemicals & Environment (4) + Lab (4)
9. Inorganic Materials of Industrial Importance (4) + Lab (4)
10. Instrumental Methods of Analysis (4) + Lab (4)
11. Dissertation

Note: Universities may include more options or delete some from this list

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

1. Mathematics (5) + Tut (1)
 2. Physics (4) + Lab (4)
 3. Economics (5) + Tut (1)
 4. Computer Science (4) + Lab (4)
- Any other discipline of importance

Skill Enhancement Courses (02 to 04 papers) (Credit: 02 each)- SEC1 to SEC4

1. IT Skills for Chemists
2. Basic Analytical Chemistry
3. Chemical Technology & Society
4. Chemoinformatics
5. Business Skills for Chemists
6. Intellectual Property Rights
7. Analytical Clinical Biochemistry
8. Green Methods in Chemistry
9. Pharmaceutical Chemistry
10. Chemistry of Cosmetics & Perfumes
11. Pesticide Chemistry
12. Fuel Chemistry

Note: Universities may include more options or delete some from this list

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

1. Atomic Structure, Bonding, General Organic Chemistry, Aliphatic Hydrocarbons (4 + 4)
2. Chemical Energetics, Equilibria and Functional Organic Chemistry - I (4 + 4)
3. Solutions, Phase Equilibria, Conductance, Electrochemistry, & Functional Group Organic Chemistry - I (4 + 4)

4. Transition Metal & Coordination Chemistry, States of Matter & Chemical Kinetics (4 + 4)
5. Organometallics, Bio-inorganic Chemistry, Polynuclear Hydrocarbons & UV, IR Spectra (4 + 4)
6. Quantum Chemistry, Spectroscopy & Photochemistry (4 + 4)
7. Molecules of Life (4 + 4)
8. Chemistry of Main Group Elements, Theories of Acids & Bases (4 + 4)

Note: Universities may include more options or delete some from this list

Important:

1. Each University/ Institute should provide a brief write-up about each paper outlining the salient features, utility, learning objectives and prerequisites.
2. University can add/ delete some experiments of similar nature in the Laboratory papers.
3. University can add to the list of reference books given at the end of each paper.