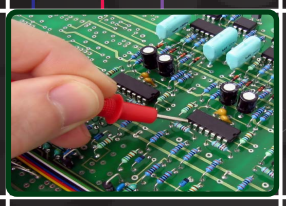
SANGAI INTERNATIONAL UNIVERSITY

Syllabus B. Sc. With Chemistry



Syllabus B. Sc. With Chemistry

CHOICE BASED CREDIT SYSTEM

B. Sc. WITH CHEMISTRY

Details of Courses Under Undergraduate Program (B.Sc.)

Course	***Credits**	
	Theory+ Practical	Theory+Tutorials
I. Core Course	12×4= 48	12×5=60
(12 Papers)		
04 Courses from each of the		
03 disciplines of choice		
Core Course Practical / Tutorial*	12×2=24	12×1=12
(12 Practical/ Tutorials*)		
04 Courses from each of the		
03 Disciplines of choice		
II. Elective Course	6×4=24	6×5=30
(6 Papers)		
Two papers from each discipline of choice		
including paper of interdisciplinary nature.		
Elective Course Practical / Tutorials*	6×2=12	6×1=6
(6 Practical / Tutorials*)		

Two Papers from each discipline of choice including paper of interdisciplinary nature

- **Optional Dissertation or project work in place of one Discipline elective paper (6 credits) in 6th Semester**

III. Ability Enhancement Courses

1**. Ability Enhancement Compulsory**	2×2=4	2×2=4
(2 Papers of 2 credits each)		
Environmental Science		
English/MIL Communication		
2**. Skill Enhancement Course**	4×2=8	4×2=8
(Skill Based)		
(4 Papers of 2 credits each)		
	Total credit= 120	**Total credit= 120**

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

***Wherever there is practical there will be no tutorials and vice-versa**

Proposed scheme for choice based credit system in B. Sc. Program

	CORE COURSE (12)	**Ability Enhancement Compulsory Course (AECC) (2)**	**Skill Enhancement Course (SEC)** (2)	**Discipline Specific Elective DSE (6)**
I	DSC- 1 A Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons DSC- 3 A	(English /MIL Communication)/ Environmental Science		
II	DSC- 1 B Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I DSC- 3 B	Environmental Science /(English/MIL Communication)		
III	DSC- 1 C Solutions, Phase equilibrium, Conductance, Electrochemistry &		SEC-1	

	Functional Group Organic Chemistry-II DSC- 3 C			
IV	DSC- 1 D Coordination chemistry, States of Matter & Chemical Kinetics DSC- 3 D		SEC -2	
V			SEC -3	DSE-1 A DSE-2 A DSE-3 A
VI			SEC -4	DSE-1 B DSE-2 B DSE-3 B

SEMESTER	COURSE OPTED	COURSE NAME	Credits
I	Ability Enhancement Compulsory Course-I	English/MIL communications/ Environmental Science	2
	Core Course-I	DSC 1A	6
	Core Course-II	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons	4
	Core Course-II Practical/ Tutorial	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons Lab	2
	Core Course-III	DSC 3A	6
II	Ability Enhancement Compulsory Course-II	English/MIL communications/ Environmental Science	2
	Core Course-IV	DSC 1B	6
	Core Course-V	Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I	4
	Core Course-V Practical/ Tutorial	Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I Lab	2
	Core Course-VI	DSC 3B	6
III	Core Course-VII	DSC 1C	6
	Core Course-VIII	Solutions, Phase Equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	4
	Core Course-VIII Practical/ Tutorial	Solutions, Phase Equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab.	2
	Core Course-IX	DSC 3C	6
	Skill Enhancement Course -1	SEC-1	2
IV	Core Course-X	DSC 1D	6
	Core Course-XI	Coordination chemistry, States of matter & Chemical kinetics	4
	Course-XI Practical/Tutorial	Coordination chemistry, States of matter & Chemical kinetics Lab	2
	Core Course-XII	DSC 3D	6
	Skill Enhancement Course -2	SEC-2	2
V	Skill Enhancement Course -3	SEC-3	2
	Discipline Specific Elective -1	DSE-1A	6
	Discipline Specific Elective -2	DSE-2A	6
	Discipline Specific Elective -3	DSE-3A	6

VI	**Skill Enhancement Course -4**	**SEC-4**	**2**
	Discipline Specific Elective -4	**DSE-1B**	**6**
	Discipline Specific Elective -5	**DSE-2B**	**6**
	Discipline Specific Elective-6	**DSE-3B**	**6**
Total Credits			**120**

B.Sc. Program with Chemistry

Core papers Chemistry (Credit: 06 each) (CP 1-4):

1. Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons (4) + Lab (4)
2. Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I (4) + Lab (4)
3. Conductance, Electrochemistry & Functional Group Organic Chemistry-II (4) + Lab (4)
4. Coordination chemistry, States of Matter and Chemical Kinetics (4) + Lab (4)

Discipline Specific Elective papers (Credit: 06 each) (DSE 1, DSE 2): Choose 2

Chemistry

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. Quantum Chemistry, Spectroscopy & Photochemistry (4) + Lab (4)
12. Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy
13. Molecules of Life
14. Dissertation

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

Skill Enhancement Course (any four) (Credit: 02 each) - SEC 1 to SEC 4

Chemistry

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

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.**