

Course Structure For B.Sc. Chemistry (Session 2017-2020)

ADAMAS UNIVERSITY								
FACULTY OF SCIENCE - DEPARTMENT OF CHEMISTRY								
BACHELOR OF SCIENCE (Honours)								
SEMESTER - I								
Type of the Paper	Paper Code	Theory / Practical	Brief Contents	Contact Hour Per Week	L	T	P	Credit
CORE	SCY31101	Theory (Physical I)	1.Kinetic Theory of Gases 2. Thermodynamics I 3. Chemical Kinetics I	4	3	1	0	4
CORE	SCY31201	Practical (Physical Lab I)	List of experiments will be provided separately	3	0	0	2	2
CORE	SCY31103	Theory (Inorganic I)	1. Atomic structure 2. Chemical Periodicity 3. Radioactivity and Nuclear Chemistry 4. Chemical Bonding and Structure-	4	3	1	0	4
CORE	SCY31203	Practical (Inorganic Lab I)	List of experiments will be provided separately	3	0	0	2	2
FOUNDATION	HEN31105	Theory	English (Language/Literature)	2	2	0	0	2
GENERIC ELECTIVE		Theory	Elective Mathematics I (SMA32107) (6 credit course, non-lab based) Or Elective Life science I (SBT31105 for Theory/SBT31205 for Lab) /	4	3	1	0	4
		Practical		3	0	0	2	2
Total				23				20

*Generic Elective : Elective Physics I (SPH31105 for Theory & SPH31205 for Lab) /

Elective Life science I (SBT31105 for Theory/SBT31205 for Lab) /

Elective Computer Science I (ECS31103 for Theory/ECS31203 for Lab)

Course Structure For B.Sc. Chemistry (Session 2017-2020)

Colloquium (Lecture series): Micro Credit Course (2 lectures per month): L – T – P: 4 – 0 – 0

N.B. For non- lab based Elective Course (e.g., Mathematics) total credit will be 6 for one paper.

** Science in Everyday Life (Foundation Paper for Liberal arts: **SPH31107**)

ADAM AS UNIVERSITY								
FACULTY OF SCIENCE - DEPARTMENT OF CHEMISTRY BACHELOR OF SCIENCE (Honours) SEMESTER - II								
Type of the Paper	Paper Code	Theory / Practical	Brief Contents	Contact Hour Per Week	L	T	P	Credit
CORE	SCY31102	Theory (Physical II)	1. Real gas and Liquid State 2. Thermodynamics-II 3. Chemical Kinetics-II	4	3	1	0	4
CORE	SCY31202	Practical (Physical Lab II)	List of experiments will be provided separately	3	0	0	2	2
CORE	SCY31104	Theory (Organic I)	1. General Introduction and Bonding Features in Organic Molecules 2. Stereochemistry and Conformation	4	3	1	0	4
CORE	SCY31204	Practical (Organic Lab I)	List of experiments will be provided separately	3	0	0	2	2
FOUNDATION	SGY31106	Theory	Environmental Science and Energy Resources	2	2	0	0	2
GENERIC ELECTIVE		Theory	Elective Mathematics I (SMA32107) (6 credit course, non-lab based) Or	4	3	1	0	4
		Practical	Elective Life science I (SBT31105 for Theory/SBT31205 for Lab) /	3	0	0	2	2
Total				23				20

*Generic Elective : Elective Physics II (SPH31106 for Theory &SPH31206 for Lab) /

Elective Life science II (SBT31106 for Theory/SBT31206 for Lab) /

Elective Computer Science II (ECS31104 for Theory/ECS31204 for Lab)

Colloquium (Lecture series): Micro Credit Course (2 lectures per month): L – T – P: 4 – 0 – 0

N.B. For non- lab based Elective Course (e.g., Mathematics) total credit will be 6 for one paper.

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FACULTY OF SCIENCE - DEPARTMENT OF CHEMISTRY								
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SEMESTER - III								
Type of the Paper	Paper Code	Theory / Practical	Brief Contents	Contact Hour Per Week	L	T	P	Credit
CORE	SCY32101	Theory (Physical III)	1. Chemical Equilibrium and Ionic equilibrium 2. Transport Phenomena 3. Colloid and Surface Sciences	4	3	1	0	4
CORE	SCY32201	Practical (Physical Lab III)	List of experiments will be provided separately	3	0	0	2	2
CORE	SCY32103	Theory (Inorganic II)	1. Theory of acid-bases 2. Precipitation and Red-ox reactions 3. Chemistry of s- and p- Block Elements	4	3	1	0	4
CORE	SCY32203	Practical (Inorganic Lab II)	List of experiments will be provided separately	3	0	0	2	2
CORE	SCY32105	Theory (Organic II)	Organic Reaction Mechanism –I : Mechanistic Classification Reaction Kinetics Nucleophilic Substitution at sp ³ center	4	3	1	0	4
CORE	SCY32205	Practical (Organic Lab II)	List of experiments will be provided separately	3	0	0	2	2
FOUNDATION (Skill Enhancement Course SEC)	SCY32109/SCY32111/ SCY32113	Choice Based (List of options will be provided separately)	Elective Physics II (SPH31105 for Theory & SPH31205 for Lab)	2	2	0	0	2
GENERIC ELECTIVE III		Theory		4	3	1	0	4
		Practical		3	0	0	2	2
Total				30				26

*Generic Elective – I: Elective Mathematics I (SMA32107) (6 credit course, non-lab based)

Elective Life science III[(SBT32107 for Theory, SBT32207 for Practical)]

Elective Economics (/) Elective Chemistry I (SCY32107 for Theory, SCY32207 for Practical)

Colloquium (Lecture series): Micro Credit Course (2 lectures per month): L – T – P: 4 – 0 – 0

N.B. For non- lab based Elective Course (e.g., Mathematics) total credit will be 6 for one paper.

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ADAM AS UNIVERSITY								
FACULTY OF SCIENCE - DEPARTMENT OF CHEMISTRY								
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SEMESTER - IV								
Type of the Paper	Paper Code	Theory / Practical	Brief Contents	Contact Hour Per Week	L	T	P	Credit
CORE	SCY32102	Theory (Physical IV)	1. Quantum Mechanics I and II 2. Colligative properties 3. Thermodynamics Application in Electrochemistry 4. Phase Rule	4	3	1	0	4
CORE	SCY32202	Practical (Physical Lab IV)	List of experiments will be provided separately	3	0	0	2	2
CORE	SCY32104	Theory (Inorganic III)	1. Analytical Chemistry: Statistical Methods in Chemical Analysis and Environmental Analysis 2. Analytical Chemistry: Analytical Separation	4	3	1	0	4
CORE	SCY32204	Practical (Inorganic Lab III)	List of experiments will be provided separately	3	0	0	2	2
CORE	SCY32106	Theory (Organic III)	Organic Reaction Mechanism –II Substitution at sp ² carbon (Carbonyl System) Aromatic Substitution (Nucleophilic and Electrophilic), Radical Substitution Addition Reaction	4	3	1	0	4
CORE	SCY32206	Practical (Organic Lab III)	List of experiments will be provided separately	3	0	0	2	2
FOUNDATION (Skill Enhancement Course SEC I)	SCY32110/SCY32112/ SCY32114	Choice Based (List of options will be provided separately)		2	2	0	0	2
GENERIC ELECTIVE IV		Theory	Elective Physics II (S PH31106 for Theory & S PH31206 for Lab	4	3	1	0	4
		Practical		3	0	0	2	2
Total				30				26

*Generic Elective– I: Elective Mathematics II (SMA32107) (6 credit course, non-lab based) ; Elective Life science IV [(SBT32108 for Theory, SBT32208 for Practical)]/
 Elective Economics () / Elective Chemistry II [(SCY32108 for Theory, SCY32208 for Practical)]
 Colloquium (Lecture series): Micro Credit Course (2 lectures per month): L – T – P: 4 – 0 – 0

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ADAM AS UNIVERSITY								
FACULTY OF SCIENCE - DEPARTMENT OF CHEMISTRY BACHELOR OF SCIENCE (Honours) SEMESTER - V								
Type of the Paper	Paper Code	Theory / Practical	Brief Contents	Contact Hour Per Week	L	T	P	Credit
CORE	SCY33101	Theory (Organic IV)	1. Spectroscopy including Fourier Transform methodology 2. Organic Reaction : Reaction to carbon-heteroatom multiple bonds 3. Organic Reaction: Elimination reaction, Rearrangements	4	3	1	0	4
CORE	SCY33201	Practical (Organic Lab IV)	List of experiments will be provided separately	3	0	0	2	2
CORE	SCY33103	Theory (Inorganic IV)	1. Chemistry of Coordination Compounds 2. Magnetism and Spectra of Coordination Complexes 3. Chemistry of d- and f- Block Elements 4. Organometallic	4	3	1	0	4
CORE	SCY33203	Practical (Inorganic Lab IV)	List of experiments will be provided separately	3	0	0	2	2
ELECTIVE (Discipline Specific)	SCY33105	Theory (Biomolecules)	1. Chemistry of Bio molecules : Structure and Function 2. Biochemistry: Bioenergetics	4	4	0	0	4
ELECTIVE (Discipline Specific)	SCY33205	Biomolecules Lab I	List of experiments will be provided separately	3	0	0	2	2
ELECTIVE (Discipline Specific)	SCY33107	Theory (Instrumentation)	Basic electronics and Instrumentation. Instrumental Methods of Analysis: Electrochemical and Spectral Methods, Instrumental Methods Analytical Chemistry: Chemical Methods and Analysis, Thermodynamics of Dissolution	4	4	0	0	4
ELECTIVE (Discipline Specific)	SCY33207	Instrumentation Lab I	List of experiments will be provided separately	3	0	0	2	2
	SCY33301	Industrial Interaction/Internship		6	0	0	6	2
Total				28				26

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FACULTY OF SCIENCE - DEPARTMENT OF CHEMISTRY								
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SEMESTER - VI								
Type of the Paper	Paper Code	Theory / Practical	Brief Contents	Contact Hour Per Week	L	T	P	Credit
CORE Theory	SCY33102	Theory (Physical V)	1.Molecular Properties Spectroscopy I : Magnetic resonance Spectroscopy II : Molecular & Electronic 2. Photochemistry 3. Statistical Thermodynamics	4	3	1	0	4
CORE Practical	SCY33202	Practical (Physical Lab V)	List of experiments will be provided separately	3	0	0	2	2
CORE Theory	SCY33104	Theory (Organic V)	1.Synthetic Strategy 2. Pericyclic Reactions 3.Organometallic Chemistry, Nitrogen Compounds	4	3	1	0	4
CORE Practical	SCY33204	Practical (Organic Lab V)	List of experiments will be provided separately	3	0	0	2	2
ELECTIVE (Discipline Specific)	SCY33104	Theory (Material Science)	1 . Solid state chemistry 2 . Nano Science 3.Polymer Chemistry	4	4	0	0	4
ELECTIVE (Discipline Specific)	SCY33206	Material Science Lab I	List of experiments will be provided separately	3	0	0	2	2
ELECTIVE (Discipline Specific)	SCY33702	Dissertation		9	6	0	0	6
	SCY33302	Seminar on Contemporary Chemistry		2	2	0	0	2
Total				30				26

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LIST OF 'GENERIC ELECTIVE' SUBJECTS OFFERED BY THE DEPT. OF CHEMISTRY:

1. Physics
2. Mathematics
3. Computer Science

LIST OF 'SKILL ENHANCEMENT' SUBJECTS OFFERED BY THE DEPT. OF CHEMISTRY*:

1. Pharmaceutical Chemistry
2. Chemistry of Cosmetics & Perfumes
3. Green Chemistry
4. Fuel Chemistry
5. Computational Chemistry
6. Advanced Level Environmental Chemistry

*Offering of subjects will vary from year to year

LIST OF 'Discipline Specific Elective Papers' OFFERED BY THE DEPT. OF CHEMISTRY*:

1. Instrumentation
2. Chemistry of Nano Materials
3. Bio-Chemistry: Bio energetic
4. Dissertation

*Offering of subjects will vary from year to year