

**Maulana Abul Kalam Azad University of Technology, West Bengal**  
**M.Sc. in Applied Chemistry**

**Duration:** 2 Years; **Level:** Post graduation; **Type:** Degree; **Eligibility:** Graduation in Chemistry

**SEMESTER I**

Sl. No.	Paper code	Course name	Course type	Marks	Hours/credit			
					L	T	P	C
1.	MSAC-I	Basics of Biochemistry & Bioinorganic Chemistry	CF	50	3	0	0	3
2.	MSAC -II	Organic Chemistry I and Bio macromolecules	CC	50	3	0	0	3
3.	MSAC -III	Statistical methods for Chemical and Biochemical Applications	DSE	25	2	0	0	2
4.	MSAC -IV	Advanced Physical Chemistry (Focused on Computer aided problem solvation)	CC	50	3	0	0	3
5.	MSAC -V	Analytical Lab Techniques	CC	50	2	0	0	2
6.	MSAC-VI (Lab)	Analytical Lab Techniques	CC	50	0	0	6	3
7.	MSAC -VII (Lab)	Introduction to C and MATLAB for simulation applications for Physical/Chemical Problems	CC	50	0	0	6	3
8.	MSAC-VIII (Lab)	Determination of Stereo-chemical outcome of complex chemical reaction (Computer aided)	CC	25	0	0	4	2
9.	MSAC-IX	Research Methodology (MOOC's / 8-12 weeks)	VAC	50	2	0	0	2
<b>Total</b>				<b>400</b>	<b>24</b>			

**SEMESTER II**

Sl. No.	Paper code	Course name	Course type	Marks	Credit			
					L	T	P	C
1.	MSAC –X	Quantum Chemistry	CC	50	3	0	0	3
2.	MSAC-XI	Statistical Mechanics	CC	50	3	0	0	3
3.	MSAC –XII	Organic Chemistry II	CC	50	3	0	0	3
4.	MSAC -XIII	Nanoscience and Technology	DSE	50	3	0	0	3
5.	MSAC-XIV	Computational Methods	CC	50	3	0	0	3
6.	MSAC -XV	Natural Products and Medicinal Chemistry	IDE	50	3	0	0	3
7.	MSAC -XVI(Lab)	Computational methods in Chemistry	CC	50	0	0	6	3
8.	AC -XVII (Lab)	Advanced Organic Chemistry Lab	CC	50	0	0	6	3
<b>Total</b>				<b>400</b>	<b>24</b>			

**SEMESTER-III**

Sl. No.	Paper code	Course name	Course type	Marks	Credit			
					L	T	P	C
1.	MSAC -XVIII	Bioorganic and Supramolecular Chemistry	CC	50	3	0	0	3
2.	MSAC –XIX	Industrial Chemistry	CF	50	3	0	0	3
3.	MSAC -XX	Elective I	EF	50	3	0	0	3
4.	MSAC -XXI	Elective II	EF	50	3	0	0	3
5.	MSAC-XXII(Lab)	Programming Lab (Introduction to Python)	SEC	50	0	0	4	2
6.	MSAC -XXIII(Lab)	Preparation of complex materials and their characterization by physiochemical techniques	CC	50	0	0	6	3
7.	MSAC -XXIV(Lab)	Lab Techniques for quantitative and qualitative analysis	CC	50	0	0	6	3
<b>Total</b>				<b>350</b>	<b>20</b>			

## SEMESTER IV

Sl. No.	Paper code	Course name	Marks	Hours	Credit
1.	MSAC -XXV	Project Stage-I (Term paper focus on project & Seminar )	20	8	4
2.	MSAC -XXVI	Project Stage-II (Dissertation & Viva voce)	80	--	20
<b>Total</b>			<b>100</b>		<b>24</b>

**CC:** Core Course, **VAC:** Value Added Course, **SEC:** Skill Enhancement Course, **IDE:** Interdisciplinary Course, **DSE:** Discipline Specific Course, **EF:** Elective Foundation, **CF:** Compulsory Foundation.

### Electives:

1. Water and Wastewater Treatment
2. Solid Waste Management and Air Pollution
3. Corrosion and Corrosion Control
4. Chemical Process Equipment and Instrumentation
5. Industrial Catalysis
6. Industrial & Environmental Pollution Management and Industrial Process Safety
7. Alternative and green energy, solar cell and perovskite
8. Food Technology
9. Biotechnology
10. Sensor Development
11. Semiconductor devices
12. Zeolite Chemistry

Semester	Course Hours/week	Marks	Course credit
I	31	400	24
II	30	400	24
III	28	350	20
IV	----	100	24
<b>Total</b>		<b>1250</b>	<b>92</b>