



## Maulana Abul Kalam Azad University of Technology, West Bengal

Syllabus of M.Sc. in Applied Chemistry (In-house)  
(Effective from academic session 2019-20)

Duration: 2 Years; Level: Post graduation; Type: Degree

### Curriculum Structure

#### SEMESTER I

Sl. No.	Paper code	Course name	Course type	Marks	Hours/credit			
					L	T	P	C
1.	MSAC-101	Biochemistry & Bioinorganic Chemistry	CF	100	3	0	0	3
2.	MSAC -102	Organic Chemistry I	CC	100	3	0	0	3
3.	MSAC -103	Statistical methods for Chemical and Biochemical Applications	DSE	50	2	0	0	2
4.	MSAC -104	Computer Aided Advanced Physical Chemistry	CC	100	3	0	0	3
5.	MSAC -105	Analytical Lab Techniques	CC	100	3	0	0	3
6.	MSAC-106	Research Methodology (MOOC's / 8-12 weeks)	VAC	100	2	0	0	2
7.	MSAC-191(Lab)	Lab Techniques for quantitative and qualitative analysis	CC	100	0	0	6	3
8.	MSAC -192(Lab)	Introduction to programming and simulation applications for Physical/Chemical/Biological Problems	CC	100	0	0	6	3
9.	MSAC-193(Lab)	Computer Aided Determination of Stereo-chemical outcome of complex chemical reaction	CC	50	0	0	4	2
<b>Total</b>				<b>800</b>	<b>24</b>			



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#### SEMESTER II

Sl. No.	Paper code	Course name	Course type	Marks	Credit			
					L	T	P	C
1.	MSAC -201	Quantum Chemistry	CC	100	3	0	0	3
2.	MSAC-202	Statistical Mechanics	CC	100	3	0	0	3
3.	MSAC -203	Organic Chemistry II	CC	100	3	0	0	3
4.	MSAC -204	Nanoscience and Technology	DSE	100	3	0	0	3
5.	MSAC-205	Computational Methods	CC	100	3	0	0	3
6.	MSAC -206	Natural Products and Medicinal Chemistry	IDE	100	3	0	0	3
7.	MSAC -291 (Lab)	Computational methods in Chemistry	CC	100	0	0	6	3
8.	MSAC -292 (Lab)	Advanced Organic Chemistry Lab	CC	100	0	0	6	3
<b>Total</b>				<b>800</b>	<b>24</b>			

#### SEMESTER-III

Sl. No.	Paper code	Course name	Course type	Marks	Credit			
					L	T	P	C
1.	MSAC -301	Bioorganic and Supramolecular Chemistry	CC	100	3	0	0	3
2.	MSAC -302	Industrial Chemistry	CF	100	3	0	0	3
3.	MSAC -303	Elective I	EF	100	3	0	0	3
4.	MSAC -304	Elective II	EF	100	3	0	0	3
5.	MSAC-391	Industrial Exposure	VAC	50	0	0	2	2
6.	MSAC-392	Mini Project and Seminar Presentation	SEC	50	0	0	2	2
7.	MSAC-393 (Lab)	Programming Lab - Python	SEC	100	0	0	4	2
8.	MSAC -394 (Lab)	Preparation of complex materials and their characterization by physiochemical techniques	CC	100	0	0	6	3
9.	MSAC -395 (Lab)	Analytical Lab Techniques	CC	100	0	0	6	3
<b>Total</b>				<b>800</b>	<b>24</b>			



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#### SEMESTER IV

Sl. No.	Paper code	Course name	Course type	Marks	Credit			
					L	T	P	C
1.	MSAC -401	Elective III	EF	100	3	0	0	3
2.	MSAC -491 (Lab)	Project Stage-I (Term paper focus on project & Seminar)	--	20	5			
3.	MSAC -492 (Lab)	Project Stage-II (Dissertation & Viva voce)	--	80	16			
<b>Total</b>				<b>200</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. Industrial Catalysis
4. Industrial & Environmental Pollution Management and Industrial Process Safety
5. Alternative and green energy, solar cell and perovskite
6. Food Technology
7. Sensor Development
8. Semiconductor devices
9. Pharmaceutical Chemistry

Semester	Course Hours/week	Marks	Course credit
I	31	800	24
II	30	800	24
III	28	800	24
IV	----	200	24
<b>Total</b>		<b>2600</b>	<b>96</b>