

School of Basic Sciences : B.Sc. (Hons With Research) in General

Year 1					
Semester-I					
S. No.	Category	Name of the Course	L	T	P
1	Core Physics	Electricity and Magnetism	3	0	1
2	Core Maths	Calculus	3	0	1
3	Core Chem.	Atomic Structure and Chemical Bonding	3	0	1
4	AEC	English Proficiency I	0	0	2
5	VAC	IT Tools and Data Analytics	0	0	2
6	MDC-1	Foundation of Programming	2	0	2
Total Credits					

Semester-II					
S. No.	Category	Name of the Course	L	T	P
1	Core Physics	Newtonian Mechanics	3	0	1
2	Core Maths	Multivariable Calculus	3	1	0
3	Core Maths	Linear Algebra-I	3	0	1
4	Core Chem.	Halogen and Oxygen containing functional group	3	0	1
5	AEC	English Proficiency II	0	0	2
6	VAC	Choose Any one from Basket of VAC	2	0	0
Total Credits					

Year 2					
Semester-III					
S. No.	Category	Name of the Course	L	T	P
1	Core Physics	Relativity and Quantum Physics	3	1	0
2	Core Maths	Ordinary Differential equation	3	0	1
3	Core Chem.	Physical and Biophysical Chemistry-I	3	0	1
4	Core Chem.	Coordination Chemistry	3	0	1
5	AEC	Today's Science, Tomorrow's World I	2	0	0
6	Internship	Social Internship	-	-	-
7	SEC	Choose Any one from Basket of SEC	3	0	0
Total Credits					

Semester-IV					
S. No.	Category	Name of the Course	L	T	P
1	Core Physics	Condensed Matter Physics	3	0	1
2	Core Maths	Real Analysis	3	1	0
3	Core Chem.	Physical and Biophysical Chemistry-II	3	0	1
4	Core Physics	Optics, Vibration and Waves	3	0	1

5	AEC	Today's Science, Tomorrow's World II	2	0	0
6	SEC	Choose Any one from Basket of SEC	-	-	-
7	MDC-2	Choose Any one from Basket of MDC	-	-	-
Total Credits					

Year 3					
Semester-V					
S. No.	Category	Name of the Course	L	T	P
1	Core Physics	Analog and Digital Systems	3	0	1
2	Core Maths	Complex Analysis	3	1	0
3	Core Chem.	Organometallic Chemistry	3	1	0
4	Core Maths	Modern Algebra	3	1	0
5	SEC	Choose Any one from Basket of SEC	-	-	-
6	VAC	Choose Any one from Basket of VAC	-	-	-
7	Internship	Internship (Industrial/Academic/Research)	-	-	-
Total Credits					

Semester-VI					
S. No.	Category	Name of the Course	L	T	P
1	Core Physics	Electromagnetism	--	--	--
2	Core Maths	Partial Differential Equation	3	1	0
3	Core Chem.	Organic Spectroscopy	3	1	0
4	Elective-1	Electives from Chem & Physics	--	--	--
5	Elective-2	Electives from Maths, Chem & Physics	--	--	--
6	MDC-3	Research Methodology	3	0	0
Total Credits					

Semester-VII					
S. No.	Category	Name of the Course	L	T	P
1	Elective-3	electrives from bucket-3			
2	Elective-4	electrives from bucket-4	--	--	0
3	Elective-5	electrives from bucket-5	--	0	0
4	IDC-1	Data Analytics for Sustainability	3	1	0
5	IDC-2	Green Technology and Innovation	3	1	0
Total Credits					

Semester-VII					
S. No.	Category	Name of the Course	L	T	P
1	Project	Dissertation	0	0	0
Total Credits					

Multidisciplinary Courses (MDC)- Max. 9 credits

S. No.	Category	Name of the Course	L	T	P
1	MDC	Foundation of Programming	2	0	2
2	MDC	Indian legal systems for sciences	2	0	0
3	MDC	Stock exchange	2	0	0
4	MDC	Machine learning	3	0	0
5	MDC	Environmental Toxicology and Society	3	0	0
6	MDC	Research Methodology	3	0	0

Value Based Courses (VAC)- Max. 6 credits

S. No.	Category	Name of the Course	L	T	P
1	VAC	IT Tools and Data Analytics	0	0	2
2	VAC	Introduction of Value Based Education	2	-	-
3	VAC	Health and Nutrition	2	-	-
4	VAC	Art of Happiness	2	-	-
5	VAC	Vedic Mathematics	1	-	1
6	VAC	Digital Marketing	2	-	-

Skill Enhancement Courses (SEC)- Max. 9 credits

S. No.	Category	Name of the Course	L	T	P
1	SEC	Statistics with R	1	0	2
2	SEC	Electronic Product Testing	2	0	1
3	SEC	Introduction to Artificial Intelligence	2	0	1
4	SEC	Cyber Sphere & Security Global Concern	3	0	0
5	SEC	Testing of Cosmetics and Hygienic Products	2	0	1
6	SEC	Innovation and Entrepreneurship	3	0	0

Ability Enhancement Courses (AEC)- Max. 8 credits

S. No.	Category	Name of the Course	L	T	P
1	AEC	English Proficiency I	0	0	2
2	AEC	English Proficiency II	0	0	2
3	AEC	Today's Science, Tomorrow's World I	2	0	0
4	AEC	Today's Science, Tomorrow's World II	2	0	0

Elective-1 (Physics and Chemistry)

S. No.	Category	Name of the Course	L	T	P
1	Elective-1 (Physics)	Fundamental of astronomy and astrophysics	3	1	0
2	Elective-1 (Physics)	Thermal and Statistical Physics	3	1	0
3	Elective-1 (Physics)	Quantum Mechanics	3	1	0

4	Elective-1 (Chemistry)	Quantum Chemistry and Spectroscopy	3	0	1
5	Elective-1(Chemistry)	Green Chemistry	3	1	0
6	Elective-1 (Chemistry)	Industrial Chemistry	3	1	0

Elective-2 (Physics Chemistry and Mathematics)

S. No.	Category	Name of the Course	L	T	P
1	Elective-2 (Physics)	Atomic and Molecular Physics	3	1	0
2	Elective-2 (Physics)	Nuclear and Particle Physics	3	1	0
3	Elective-2 (Physics)	Fundamentals of Quantum Computing	3	1	0
4	Elective-2 (Math)	Commutative Algebra	3	1	0
5	Elective-2 (Math)	Modelling and Simulation	3	0	1
6	Elective-2 (Math)	Advanced Numerical Techniques	3	0	1
7	Elective-2 (Chemistry)	Solid State chemistry	3	1	0
8	Elective-2 (Chemistry)	Catalysis in Synthesis	3	1	0
9	Elective-2 (Chemistry)	Bio-organic Chemistry	3	1	0

Elective-3(Physics Chemistry and Mathematics)

S. No.	Category	Name of the Course	L	T	P
1	Elective-3 (Physics)	Nanostructured materials and Characterization Techniques	3	1	0
2	Elective-3 (Physics)	Planetary Science	3	1	0
3	Elective-3 (Physics)	Semiconducting devices and communication systems	3	1	0
4	Elective-3 (Math)	Probability and Inferential Statistics	3	1	0
5	Elective-3 (Math)	Operation Research	3	1	0
6	Elective-3 (Math)	Graph Theory	3	1	0
7	Elective-3 (Chemistry)	Principles of Reaction Mechanisms and Stereochemistry	3	1	0
8	Elective-3 (Chemistry)	Computational Chemistry	3	1	0
9	Elective-2 (Chemistry)	Analytical Methods in Chemistry	3	0	1

Elective-4 (Physics Chemistry and Mathematics)

S. No.	Category	Name of the Course	L	T	P
1	Elective-4 (Physics)	Observational Astronomy	3	1	0
2	Elective-4 (Physics)	Semiconductor Fabrication and Characterization Techniques	3	1	0
3	Elective-4 (Physics)	Soft Matter Physics	3	1	0
4	Elective-4 (Math)	Advanced Analysis	3	1	0
5	Elective-4 (Math)	Advanced Abstract Algebra	3	1	0
6	Elective-4 (Math)	General Topology	3	1	0
7	Elective-4 (Chemistry)	Polymer Chemistry	3	1	0
8	Elective-4 (Chemistry)	Battery Technology	3	1	0

9	Elective-4 (Chemistry)	Carbon Materials	3	1	0
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Elective-5 (Physics Chemistry and Mathematics)

S. No.	Category	Name of the Course	L	T	P
1	Elective-5(Physics)	Laser Physics and Applications	3	1	0
2	Elective-5(Physics)	Fiber Optics and Communications	3	1	0
3	Elective-5(Physics)	Materials and Technologies for Green Hydrogen	3	1	0
4	Elective-5(Math)	Theory of Ordinary Differential Equations	3	1	0
5	Elective-5(Math)	Linear Algebra and Matrix Theory	3	1	0
6	Elective-5(Math)	Functional Analysis	3	1	0
7	Elective-5(Chemistry)	Chemistry of Lanthanide and Actinide	3	1	0
8	Elective-5(Chemistry)	Radio chemistry	3	1	0
9	Elective-5(Chemistry)	Advanced Spectroscopic Techniques	3	1	0

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