

Outline of the Syllabus

Semester I (Undergraduate level courses/core)	
Course No	Course Name
IMS 101	Origin of Universe
IMS 102	Community, Formation and History of Science
IMS 103	Energy, Particles, Materials and Functional Properties
IMS 104	Elements, Periodic- Table and Properties
IMS 105	Concepts of Life and the Biological Organization
IMS 106	Basic Mathematics and Computational Methods
IMS 107	English Language Arts
IMS 108	Introductory Laboratory Techniques
IMS 109	Seminar
IMS 110	Mini Project/Off-campus Visit (Report)
IMS 111	Academic Participation
Semester II (Undergraduate level courses/core)	
Course No	Course Name
IMS 201	Principles in Chemical Sciences
IMS 202	Principles of Physics
IMS 203	Biological Diversity I
IMS 204	Mathematics for Physics, Chemistry and Biology
IMS 205	Computer Applications and Programming
IMS 206	English Language Arts
IMS 207	Seminar and Review
IMS 208	Experimental Tasks
IMS 209	Academic Participation
Semester III (Undergraduate level courses/core)	
Course No	Course Name
IMS 301	Classical Mechanics and Introduction to Quantum Mechanics
IMS 302	Topics in Chemical sciences
IMS 303	Topics in Physics
IMS 304	Cell and Molecular Biology
IMS 305	Introduction to Cheminformatics and Bioinformatics
IMS 306	Computer Aided Learning and Skill Generation

IMS 307	Seminar and Review
IMS 308	Experimental Tasks Involving Major Instruments
IMS 309	Academic Participation
Semester IV (Undergraduate level courses/core)	
Course No	Course Name
IMS 401	Instrumental Techniques I
IMS 402	Structure, Dynamics and Reactivity of Molecules
IMS 403	Biochemistry
IMS 404	Physics and Chemistry of Solid State
IMS 405	Structural and Functional Biology
IMS 406	Computer Aided Learning and Skill Generation
IMS 407	Seminar and Review
IMS 408	Creativity Lab
IMS 409	Academic Participation
Semester V (Undergraduate level courses/core)	
Course No	Course Name
IMS 501	Instrumental Techniques II
IMS 502	Quantum Mechanics
IMS 503	Photochemistry, Photobiology and Photophysics
IMS 504	Macromolecular Structure and Function
IMS 505	Genetics and Genetic Improvement
IMS 506	Scientific Writing and Documentation
IMS 507	Seminar
IMS 508	Creativity Lab (for major project)
IMS 509	Academic Participation
IMS 510 C/P/B	Major - 1
Semester VI (Undergraduate level courses/core)	
Course No.	Course Name
IMS 601	Advanced Instrumentation Techniques
IMS 602	Ecology and Evolution
IMS 603	Electronic Properties of Materials
IMS 604	Thematic Teaching and Question Paper Designing
IMS 605	Seminar and Review Documentation
IMS 606	Creativity lab (for major project)
IMS 607	Academic Participation

IMS 608 C/P/B	Major - 2
IMS 609 C/P/B	Major - 3
Semester VII (Master's level courses)	
Course No	Course Name
IMS 701	Philosophy, History, Aesthetics and Ethics of Science
IMS 702	Chemical Physics Including Statistical Mechanics
IMS 703	Group Theory and Molecular Spectroscopy
IMS 704	Computational Chemistry and Biology
IMS 705	Seminar and Review Documentation
IMS 706	Creativity lab (for major project)
IMS 707	Academic Participation
IMS 708 C/P/B	Major - 4
IMS 709 C/P/B	Major - 5
Semester VIII (Master's level courses)	
Course No	Course Name
IMS 801	Trends in Separation Sciences
IMS 802	Enzymatic Reaction Mechanisms and Kinetics
IMS 803	Microbial Technology and Biocatalysts
IMS 804	Structural Determination of Organic and Biomolecules Using Physical Methods
IMS 805	Purposeful Learning and Theme Generation
IMS 806	Progress Monitoring Seminar and Review Documentation
IMS 807	Creativity lab (for major project)
IMS 808	Academic Participation
IMS 809 (C - E) IMS 809 (P - E) IMS 809 (B - E)	Major(elective) - 6
IMS 810 (C - E) IMS 810 (P - E) IMS 810 (B - E)	Major(elective) - 7
Semester IX (Master's level courses)	
Course No	Course Name
IMS 901	Major Project (Chemistry/Physics/Biology)
IMS 902	Progress Monitoring Seminar and Review Documentation
IMS 903	Academic Participation

Semester X (Master's level courses)	
Course No	Course Name
IMS 1001	Major Project (Chemistry/Physics/Biology)
IMS 1002	Review Documentation/Publication in Referred Journals
IMS 1003	Final Seminar
IMS 1004	Academic Participation

List of Core Courses under Chemistry Major

Course No	Course Name
IMS 510 C	Major - 1 Stereochemistry and Organic Reaction Mechanisms
IMS 608 C	Major - 2 Reagents and Survey of Reactions in Chemical Synthesis
IMS 609 C	Major - 3 Structural Inorganic Chemistry
IMS 708 C	Major - 4 Organometallic Chemistry and Organic Synthesis Involving Metals
IMS 709 C	Major - 5 Organic Synthesis
IMS 809 C - E1	Bioinorganic and Organometallic Chemistry
IMS 809 C - E2	Synthetic Methodology and Multi-step Organic Synthesis
IMS 809 C - E3	Chirotechnology and Asymmetric Synthesis
IMS 810 C - E1	Applied Electrochemistry
IMS 810 C - E2	Complex Natural Product Synthesis
IMS 810 C - E3	Combinatorial Chemistry
IMS 810 C - E4	Chemical and Physical Properties beyond Molecules

List of Core Courses under Physics Major

Course No	Course Name
IMS 510 P	Major- 1 Condensed Matter Physics I

IMS 608 P	Major- 2 Condensed Matter Physics II
IMS 609 P	Major- 3 Electronics I
IMS 708 P	Major - 4 Mathematical Methods in Physics
IMS 709 P	Major - 5 Thermal and Statistical Physics
IMS 809 P - E1	Non Linear Optics & Laser physics
IMS 809 P - E2	High Energy Physics
IMS 809 P – E3	Electrodynamics
IMS 810 P – E1	Smart Materials and Soft Matter
IMS 810 P – E2	Materials Science and Engineering
IMS 810 P – E3	Electronics II

List of Core Courses under Biology Major

Course No.	<i>Course Name</i>
IMS 510B	Major- 1 Biodiversity II
IMS 608B	Major- 2 Enzymology
IMS 609B	Major- 3 Developmental Biology
IMS 708B	Major -4 Immunology
IMS 709B	Major- 5 Biotechnology
IMS 809 B – E1	Phytochemistry
IMS 809 B – E2	Entomology
IMS 809 B – E3	Mycology
IMS 809 B – E4	Neurobiology
IMS 809 B – E5	Virology
IMS 809 B – E6	Phycology
IMS 810 B – E1	Bacteriology
IMS 810 B – E2	Horticulture

IMS 810 B – E3	Soil Science
IMS 810 B – E4	Genetic engineering
IMS 810 B – E5	Plant breeding
IMS 810 B – E6	Cytogenetics