

The Curriculum

FIRST YEAR (Take a minimum of 14 units)					
Core Units (Take ALL)					
CODE	COURSE TITLE	Theory Hrs	Practical Hrs	TOTAL Hrs	Semester
SPA 101	Introduction to Astrophysics	45	15	60	1
SPA 102	Gravitation and the Solar System	45	15	60	1
SPH 101	Mechanics I	45	15	60	1
SPH 102	Electricity and Magnetism	45	15	60	2
SPH 103	Waves, Optics and Acoustics	45	15	60	2
SMA 101	Basic Mathematics	45		45	1
SMA 103	Calculus I	45		45	1
SMA 104	Calculus II	45		45	1
SMA 105	Geometry I	45		45	2
SMA 140	Introduction to Probability and Statistics	45		45	2
Computing Courses (Choose ONE)					
SPM 100	Computing Laboratory I (N)	45	15	60	1
SPM 103	Introduction to Operating Systems	45	15	60	1
Common Courses (These are COMPULSORY)					
CCS 001	Communication Skills	45		45	1
CCS 009	Elements of Economics	45		45	2
CCS 010	HIV and AIDS	45		45	2
SECOND YEAR (Take a minimum of 14 Units)					
Core Units (Take ALL)					
SPA 201	Light and Astronomical Optics (R)	45	15	60	1
SPA 202	Solar System Physics (R)	45	15	60	1
SPA 203	Physics of The Sun (RR)	45	15	60	2
SPH 201	Mechanics II (R)	45	15	60	1
SPH 202	Electricity & Magnetism II (R)	45	15	60	2
SPH 203	Structure & Properties of Matter (R)	45	15	60	2
SPH 204	Mathematical Physics I (R)	45		45	1
SMA 201	Advanced Calculus	45		45	1
SMA 203	Linear Algebra I	45		45	1
SMA 204	Linear Algebra II	45		45	2
SMH 208	Ordinary Differential Equations	45		45	1
SMA 221	Vector Analysis	45		45	2
SMA 240	Probability & Statistics I	45		45	2

SPM 201	Mathematical and Geometric Modeling	45		45	2
Elective					
SPH 216	Philosophy of Physics (N)	45		45	1
THIRD YEAR (Take a minimum of 12 Units)					
Core Units (Take ALL)					
SPA 301	Introduction to Stars and Stellar Evolution	45	15	60	1
SPA 302	Introduction to Magnetohydrodynamics	45	15	60	2
SPA 303	Galaxies and The Universe	45	15	60	2
SPA 304	Space Flight Mechanics	45	15	60	1
SPA 305	Introduction to Remote Sensing	45	15	60	1
SPA 306	Astrophysics Practicals& Fieldwork		135	135	1&2
SPH 302	Thermodynamics (R)	45		45	2
SPH 304	Electrodynamics I (R)	45		45	2
SPH 305	Classical Mechanics (R)	45		45	1
SPH 306	Mathematical Physics II (R)	45		45	1
SPH 309	Quantum Mechanics I	45		45	1
Elective Units (Choose At Least ONE)					
SPM 304	Microwave Theory and Circuits	45		45	1
SPA 300	Structured Programming	45	45	90	2
SPH 361	Introduction to Programming and Numerical Methods in Physics	45		45	2
SPH 307	Atomic Physics	45		45	2
SPH 308	Physical Optics	45		45	1
FOURTH YEAR (Take a minimum of 12 Units)					
CORE COURSES					
SPA 401	Stellar Evolution Theory	45		45	1
SPA 403	Introduction to General Relativity and Cosmology (R)	45		45	1
SPA 405	Computational Astrophysics & Data Analytics Lab (N)	45	45	90	1
SPA 406	Astrophysics Research Project		135	135	1&2
SPH 404	Statistical Physics (R)	45		45	1
SPH 405	Electrodynamics II (R)	45		45	2
SPH 406	Nuclear and Particle Physics (N)	45		45	1
SPH 409	Quantum Mechanics II (R)	45		45	1

CHOOSE ATLEAST FOUR (According to Area of Specialization)

- Students required to choose between SPA 421 or SPA 422 and CANNOT register for BOTH.

SPA 402	Astrodynamics	45	15	60	2
SPA 404	Fundamentals of Space Flight	45	15	60	1
SPA 411	Observational Astrophysics	45	15	60	2
SPA 412	Radio Astrophysics	45	15	60	2
SPA 421	Introduction to Modern Cosmology	45		45	2
SPA 422	Advanced General Relativity	45		45	2
SPA 431	Advanced Remote Sensing: Digital Image Processing	45	15	60	1
SPA 442	Space Mission Planning & Design	45	15	60	2
SPH 454	Aeronomy	45		45	1
SPH 461	Mathematical Physics III	45		45	1
SPH 462	Plasma Physics	45		45	1
SPH 463	Plasma Fusion	45		45	2