i^2 Physical Sciences (Semesters 5 – 10)

Core - Physics
Mathematical Methods in Physics
Classical Mechanics
Quantum Mechanics
Electronics
Statistical Mechanics
Condensed Matter Physics I
Condensed Matter Physics II

Thematic - Materials, Energy, Devices
Electrochemical Energy Systems
Soft Matter & Polymers
Experimental Methods
Semiconductor Physics & Technology
Fluid Mechanics & Transport Phenomena
Optoelectronic Devices
Thermal Transport & Thermo-electrics
Device Technology

Thematic - Analysis, Modelling
Applied Statistics
Numerical Methods
Modelling Materials
Finite Element Modelling
Machine Learning for Physical Sciences

Electives – Physics
Electrodynamics and STR
Quantum Information Theory
Nonlinear Dynamics
Numerical Simulation Techniques in Physics
Introduction to Cosmology
Theory of Open Quantum Systems
Nonlinear Optics and Photonics

Astrophysics
Probes in Condensed Matter Physics
Quantum Transport
Lasers and Fibre Optic Communications
Physics at Low Temperatures
Nanoscale Physics

Electives - i^2 Sciences
Computer Interfacing
Digital Image Processing
Principles of Digital Imaging
Cryo-Electron microscopy and 3D image processing for Life sciences

Battery & Fuel Cell Laboratory
Organic Photovoltaic Devices Laboratory
Energy Materials Laboratory
Nanoscale Devices Laboratory
Electronic Devices and Computer Interfacing
Organic Semiconductors: Fundamentals and Applications
Chemical Kinetics and Dynamics
Renewable Energy Systems
Sensor Technology

Statistical Modelling
Data Science for Physical Sciences
Applied Mathematical Methods
Machine Learning I
Data Science Lab I
Machine Learning II
Data Science Lab II
Artificial Intelligence
Humans and Data

General Courses
Communication Skills + Technical Writing
Intellectual Property Rights
Languages
Economics
Psychology
Music

Research Projects + Internships
Independent research projects + project management, presentation and entrepreneurial skills.