University Foundation Studies – One Semester Program
Science/Engineering

Subject Descriptions

Academic English
This unit is designed to improve English proficiency across the four macro skills, of overseas and local students who wish to progress to university studies. In particular, the course aims to help students access the conventions of academic English by focusing on attitudes to knowledge, the ways in which ideas are structured and presented and surface language correctness. In addition, the course encourages students to develop strategies to maximize their learning and to reflect on their own learning styles.

Biology OR
The biology course focuses on human physiology from cell theory to basic anatomy, as required for further study in the health sciences. It also introduces the key concepts in evolutionary theory, genetics and biotechnology, as necessary for further study in general biological science.

Physics
This unit provides an introduction to physics for science and medical science students as well as providing a basis for further study of more advanced physics for students pursuing courses in nanotechnology, chemical, physical and mathematical sciences. It provides a foundation to understand the physical principles which underlay scientific instrumentation and analysis. Topics covered include systems of units; Introductory mechanics, Newton’s laws, work, conservation of energy and momentum; Electricity, electrostatics, DC and AC circuits and components, introductory electromagnetism; Waves and optics, electromagnetic radiation, reflection, refraction, image formation, polarisation, interference and diffraction.

Chemistry
Examining the conventional notation and terminology used in chemistry, The subject focuses on developing practical and problem-solving skills in the context of topics such as atomic structure, the periodic table, chemical bonding, reactions of substances, chemical energy and organic chemistry. It emphasises the value of careful observation, scientific method, measurement and experimental design.

Computer Competency
Provides an introduction to basic computing with an introduction to Windows (including file management), Word, Excel, PowerPoint, the web and email. Students learn tips on what to look for when buying a computer system - hardware and software – and how to interpret computer jargon.

Mathematics
The study of basic arithmetic and algebra involving surds, inequalities, absolute values and functions, calculus, trigonometry and the trigonometric functions is undertaken.

Mathematics Extension
Topics such as advanced algebraic techniques including inequalities and mathematical induction, permutations and combinations, polynomials, the binomial theorem and binomial probability are studied.