

SUNWAY
FOUNDATION PROGRAMME
FOUNDATION IN SCIENCE AND TECHNOLOGY
(FIST)





YOU'RE SUITABLE FOR SUNWAY FOUNDATION IN SCIENCE AND TECHNOLOGY WHEN YOU:

- Have a love of sciences and the environment around you
- Have an inquiring mind and the desire to pursue science related fields in university
- Have Year 11 or equivalent qualifications in the last two years of school either in pure science or biological science

CHOICE OF SUBJECTS

Students are to complete 15 units of subjects / units offered. They are required to take all core units and are advised to take minimum 6 Academic Elective subjects / units and the Enrichment subjects.

Core Units (4 Credits)

Academic Writing Skills	ICT Application Skills
English Language for Scientists	Statistics for Scientists

Academic Electives (4 Credits)

TECHNICAL SCIENCES

Basic Computer Concepts	Principles of Electrical Science
Introduction to Programming	Principles of Mechanical Science
Mathematics for Scientists (Compulsory)	Technical Mathematics

LIFE SCIENCES

Basic Chemistry	Principles of Cell Biology
Introduction to Biology	Principles of Chemistry
Principles of Biology	Safety Health and Environment

Enrichment Subjects (2 Credits)

Critical Thinking Skills	Science and Ethics
Introduction to Psychology	Scientific Revolutions
Professional Development	

ACADEMIC ELECTIVES - REQUIRED

ENGINEERING

- 2 units of Mathematics
- 2 units of Physics
- 2 units of Chemistry OR
2 units of Computer Science



PATHWAYS

Monash University
(must meet University requirements in Mathematics and English)

Asia Pacific University (APU)

UCSI University

... and others

MEDICINE

- 2 units of Chemistry
- 3 units of Biological Sciences
- 1 unit of Mathematics

PATHWAYS

International Medical University (IMU)

Melaka-Manipal Medical College

... and others



LIFE SCIENCES

- 2 units of Chemistry
- 3 units of Biological Sciences
- 1 unit of Mathematics

PATHWAYS

Sunway University

Monash University

International Medical University (IMU)

UCSI University

... and others

IT & RELATED DEGREES

- 2 units of IT subjects
- 2 units of Mathematics
- 2 units of other Sciences

PATHWAYS

Sunway University

Monash University

Asia Pacific University (APU)

UCSI University

... and others

PROGRAMME STRUCTURE



ASSESSMENT AND EXAMINATIONS

Students are evaluated through 50% coursework (quizzes, projects, topic reviews, investigations, assignments and presentations) and 50% examination at the end of each subject / unit. The completion certificate awarded will show a combined mark and grade for all subjects / units.

STUDENT SUPPORT SYSTEM

Teacher Advisors and Counsellors for academic matters and placements guide and support students' needs. Students are encouraged to partake in academic and extracurricular activities.

STRUCTURE

- 3 semesters of 14-week duration each
- Core units and Enrichment subjects are compulsory
- 6 Academic Electives are compulsory

ENRICHMENT SUBJECTS

Broadens students' general knowledge, develops their critical thinking skills through understanding the impact of scientific discoveries on society, environment, and the world around them.

ENTRY REQUIREMENTS

Minimum five (5) credits in the Science Stream in SPM or equivalent (A credit is required in two Science subjects and Mathematics subject)

DURATION 1 year

INTAKES January / March / July / August

COMPLETION March / July / August



* Upon meeting entry requirements of the degree

SUBJECTS SYNOPSIS



CORE SUBJECTS

ACADEMIC WRITING (FSTM 3034)

This subject teaches how to conduct a research and to write an academic paper that comes with the research. It exposes students to many topics and allows them to be creative when conducting an actual research. Students also learn how to cite and reference, avoiding plagiarism in their work. Overall, this is a set of knowledge that is crucial for any young scientist to have.

ENGLISH LANGUAGE FOR SCIENTIST (FSTM 3024)

Science is logic, and logic is Science. Here, students will be exposed to various topics, be it about dreams, space, atoms, right up to superstition, music, and personalities. They will be looking at the logic and reason behind them, and along the way, learn to improve their reading, writing, speaking, and as well as listening skills. The various topics will keep the students engaged in the learning of improving their language, which is important for young scientists to deduce and communicate with their fellow scientists.

ICT APPLICATION SKILLS (FSTM 3014)

This subject aims to provide students with an introduction to the key IT skills that will be required in their studies. Students will learn basic skills in using word processors, spreadsheets database and presentation software. The subject will focus on the Microsoft Office suite.

STATISTICS FOR SCIENTISTS (FSTM 3044)

This course develops statistics for scientist and mathematicians, emphasizing both its underlying mathematical structure and its application to the logical interpretation of scientific data. Advances in theoretical statistics are generally driven by the need to analyze new and interesting data which come from all walks of life. Students will study in great details on random samples, concept of a statistic and its distribution, sample mean as a measure of location and sample variance as a measure of spread. Students will have an understanding of the use of probability plots to investigate plausible probability models for a set of data; hypothesis tests and confidence intervals (and the relationship between them). The course also exposed students to the concept of estimation, hypothesis testing; simple and composite hypotheses, size, power and p-values, distribution theory for testing means and variances in the normal model, statement of its large sample distribution under the null hypothesis and confidence intervals using large sample theory.

ACADEMIC ELECTIVES

BASIC CHEMISTRY (FSTM 3114)

In the chemical industry, science employees need to have knowledge of atomic structure, elements in the periodic table and chemical compounds and need to be able to use and apply this knowledge to chemical reactions involved in the manufacture of useful products. Knowledge of acids, alkalis and pH is essential for people working in soil science, environmental science and cosmetic science. This subject gives the students an understanding of concepts and practical techniques in basic chemistry especially on the atomic structure, the periodic table, substances and chemical reactions.

BASIC COMPUTER CONCEPTS (FSTM 3054)

This subject provides a basic introduction to a range of Computing and IT fundamental. The subject is focused on the applicability of computer systems and developments to stimulate interest in the discipline. The subject covers components and organisation of a computer system, the relationship between hardware and software, applications of computers, databases, networking (with a focus on the Internet), graphics and multimedia. With these rationales in view, the syllabus is developed. As the fundamentals from the module are required to appreciate content in higher levels of academic advancement.

INTRODUCTION TO BIOLOGY (FSTM 3144)

This subject introduces basic study of structure, function and interactions of living organisms including cell theory, genetics, energetics, evolution and ecology. Students will understand and explore the basic structure, function and interaction of living organisms as well as explore the concept of the cell theory, genetics, energetics, evolution and ecology.

INTRODUCTION TO PROGRAMMING (FSTM 3064)

This subject makes extensive practical use of the modern programming language Visual Basic to illustrate the classic programming principles of sequencing; selection and iteration in the context of object oriented computer programming.

MATHEMATICS FOR SCIENTISTS (FSTM 3074)

This course mainly offers algebra, with the factor theorem, logarithm and exponential functions, numerical methods, matrix, determinant and vector. The aims are to enable candidates to consolidate and extend their elementary mathematical skills, and use these in the context of more advanced techniques to

problem solving. We develop student's confidence, creativity and perseverance to apply their mathematical skills and knowledge in appropriate situations. We hope to derive enjoyment and satisfaction from engaging in mathematical pursuits, and gain an appreciation of the beauty, power and usefulness of mathematics. Students should be able to interpret and use mathematical data, formulate problems into mathematical terms, select and apply appropriate techniques of solution.

PRINCIPLES OF BIOLOGY (FSTM 3154)

This subject explores the concept of the cells, organs and genes and apply this knowledge and understanding in vocational contexts. It also explores the roles of the nervous and endocrine systems in homeostasis and communication as well as explore the factors that affect human health.

PRINCIPLES OF CELL BIOLOGY (FSTM 3164)

Cell biology is the study of the structure and function of prokaryotic and eukaryotic cells. In this subject, students will examine many different areas of cellular biology including: the synthesis and function of macromolecules such as DNA, RNA, and proteins; control of gene expression; membrane and organelle structure and function; bioenergetics; and cellular communication. Laboratories work will focus both on exercises that help illustrate cellular phenomena, as well as on the introduction of techniques and procedures commonly utilized in modern cell and molecular biology research.

PRINCIPLES OF CHEMISTRY (FSTM 3124)

This course emphasises on the topics and areas necessary for an understanding of Physical Sciences, Biological Sciences and Food Chemistry relevant to the chemistry of living systems. Areas covered include: introductory organic chemistry; inorganic chemistry; physical chemistry; and a laboratory program designed to extend aspects of theory and chemical laboratory techniques. This subject provides the students deep understanding of chemical principles and a laboratory program designed to illustrate aspects of theory as well as appropriate chemical laboratory skills.

PRINCIPLES OF ELECTRICAL SCIENCE (FSTM 3104)

Electrical science in this context of subject is concerned to enable students' to develop knowledge and skills related to important fundamental physical concepts. By exploring some aspects of energy, waves in the electromagnetic spectrum, ionising radiations, electrical circuits and the solar system, students' should be capable of relating these concepts to its related and relevant industry.

PRINCIPLES OF MECHANICAL SCIENCE (FSTM 3094)

This subject aims to develop students' understanding of an extended range of mechanical principles that underpin the mechanical systems. It will help students to adopt a method of systematic thinking and also the theories necessary to allow them to understand how things we rely on actually work.

SAFETY, HEALTH AND ENVIRONMENT (FSTM 3134)

This subject develops awareness of the principles of health and safety planning and implementation in an industrial environment in Malaysia. Health and safety legislation together with the concepts of risk assessment and its evaluation when applied to any potential hazard is also discussed in this subject. This is followed by the application of risk management techniques in the context of risks to life, property and general engineering activities.

TECHNICAL MATHEMATICS (FSTM 3084)

Technical Mathematics is primarily concerned with developing the student's understanding of the concepts of calculus and providing experience with its methods and applications. The course emphasize a multi-representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally. Broad concepts and widely applicable methods are emphasized. The focus of the course is neither manipulation nor memorization of an extensive taxonomy of functions, curves, theorems, or problem types. Through the use of the unifying themes of derivatives, integrals, limits, approximation, and applications and modelling, the course becomes a cohesive whole rather than a collection of unrelated topics.

The topics covered in this course includes differential calculus, integral calculus, calculus of variations, differential equations, calculus of finite differences and solid coordinate geometry. After this course, students should be very comfortable with the concepts of the derivative and the definite integral and how they are applied to a variety of daily life application problem types and have an intuitive feel for continuous mathematics. Students should be able to compute simple derivatives and integrals, but they need not need to be an expert at calculus computations.

SUBJECTS SYNOPSIS



ENRICHMENT SUBJECTS

CRITICAL THINKING (FSTE 3012)

This subject teaches Higher Order of Thinking (HOTs). Students' thinking will be challenged on various issues, from artificial intelligence, to plastic surgery, right down to the various issues that people face every day. This is where proof is taught to be used to support one's own opinion or statement. Debates ensure that students have a chance to profess what they want to say, based on the topics given. It is a great enrichment skill that students can bring into their everyday life, improving conversations as well as relationships.

INTRODUCTION TO PSYCHOLOGY (FSTE 3042)

This introductory subject will provide students with an overview of the current body of knowledge and methods of the science of psychology. This subject aims to introduce students to common themes, concepts and theories in psychology that have potential interest and relevance to science and technology.

PROFESSIONAL DEVELOPMENT (FSTE 3052)

Students will learn lifelong skills needed for when they start working after they graduate. They will be able to assess themselves professionally, and develop their own skills and their own capabilities for their future career paths. This will enable

them to land on the ground running once they embark on their journey in develop new careers of their own.

SCIENCE AND ETHICS (FSTE 3022)

This subject addresses some of the moral concerns and attempts to enrich the understanding of ethics and social responsibility in science, technology, and medicine. It links up to present standards and practices and offers multi-faceted training and experiences, which would be indispensable to the young scientist throughout his/her career. With these rationales in view, the syllabus is developed. This enrichment subject is able to strengthen and enhance the academic program.

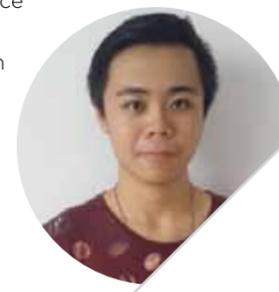
SCIENTIFIC REVOLUTIONS (FSTE 3032)

This subject helps students gain a critical understanding of key arguments and issues in the philosophy of science, combining historical awareness of influential writings and perspectives from the late 19th century onwards. It imparts factual information and encourages students to develop their own critical perspective on the issues. It will awaken students from any dogmatic complacency in what students believe both in respect to scientific knowledge and the relativistic philosophical views which attack it.



TESTIMONIALS

When I reflect on a year spent in Foundation In Science & Technology (FIST) programme in Sunway College, I conclude that the experience has not only made me a better student, but also prepared me in unpredictable ways for my career. Through assignment with incredibly supportive classmates and lecturers who were nothing short of champions, I was challenged to discover a voice I didn't know I had. That voice has played a central role in my everyday life. After my foundation year, I will pursue my 4 years degree studies in BEng (Hons) Mechatronic Engineering at UCSI. Exciting year, sociable classmates, awesome lecturers and a satisfying environment.



Christopher Ho Jie Hem
BEng (Hons) Mechatronic Engineering,
UCSI University

My experience during my one year with the FIST programme has been full of challenges and surprises. With our lecturers who are ever ready to help and guide us, this programme has prepared me well for the degree I'm currently pursuing.

Elaine Tey
BSc (Hons) Psychology,
Sunway University

I would like to express in writing my experience throughout the course by appreciating how it made me a better student today. I wrapped a real life experience around the assignments and exams which have been greatly beneficial to me. Not only did this experience teach me the proper techniques of studying and presenting, but it also taught me how to learn independently, and how to stick with a problem and find ways of solving it and perhaps most significantly, the experience taught me the skills that will enable me to pursue my degree successfully. Besides that, the lecturers were excellent; they used methods that are dynamic and entertaining.

Tanessri Muni Peragas
BSc (Hons) Medical Biotechnology,
Sunway University



Every aspect of my college life has been a memorable learning experience for me. Meeting people from diverse backgrounds, participating in extracurricular activities, and learning how to balance a social life with academics taught me to be a better person and what life actually means. The FIST programme has the best facilities and lecturers that have helped me to score with flying colours. I am proud to be the first batch of FIST students. I am currently pursuing my Biomedical Science degree in Singapore.



Prashnah A/P Kanasin
BSc (Hons)
Biomedical Science,
Management Development
Institute of Singapore

Joining the FIST programme was actually an impromptu decision and I was skeptical before whether am I in the right course. However, throughout the year I've learnt a lot, met new friends and selfless lecturers who work equally hard to ensure good grades for their students. I'm proud to say that I'm one of the first who graduated from the programme and is currently continuing my Medical Biotechnology degree in Sunway University with a continuing scholarship under the Jeffrey Cheah Foundation by Sunway.

Goh Ken Yang (Justin)
BSc (Hons) Medical Biotechnology,
Sunway University

Since the first moment I came to Sunway, I was met with nothing but enthusiasm and friends. The lecturers in this institution are the best. They give students the best and make sure they do well in assignments and exams. The fun part are the assignments; you won't believe what you have accomplished during the FIST programme until after you have graduated. I'm currently studying Conventions and Events Management in Sunway University. Join FIST and define your dream.

Yee Kai Mun (Dallas)
BSc (Hons) Conventions
and Events Management,
Sunway University



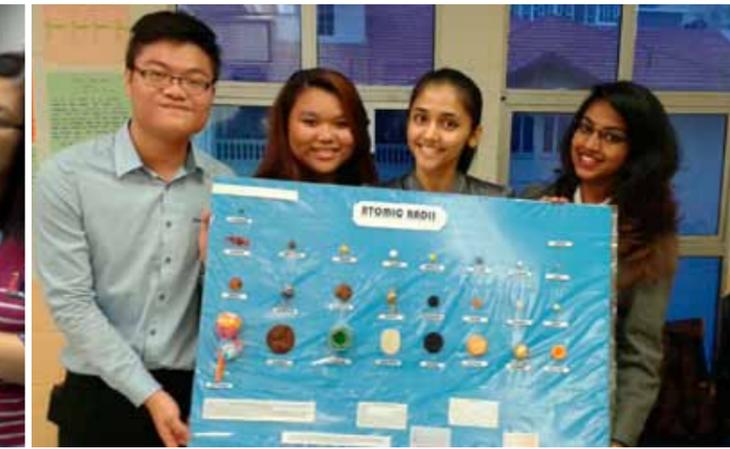
STUDENT ACTIVITIES



IMU Science Discovery Challenge



Chemistry Poster Presentation Exhibition



Northport Field Trip



Wildlife Park Field Trip



Cyrocord Field Trip



QUALITY POLICY

Sunway College (KL), the beacon of higher education, is committed to imparting quality education to our students through efficient management practices by complying with all statutory and regulatory requirements including the requirements of our external partners. We are committed to continual improvement of our scholastic ability and effectiveness by enhancing the awareness of quality and competency of our faculty and management staff; continually reviewing our key processes to ensure compliance to ISO 9001:2008, and respond to customers' concerns in a timely manner.

QUALITY OBJECTIVES

- Promote and establish a culture of quality at all levels of the college community
- Conform to all statutory and regulatory requirements including the requirements of our external partners
- Provide a learning environment conducive for quality teaching and learning, via:
 - Provision of staff development to enhance customer satisfaction
 - Continuous improvement from feedbacks

SUNWAY COLLEGE DK265-01 (W)

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 SunwayCollegeKL

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This brochure is valid for our 2017 intakes.

All information is correct at the time of printing (Jan 2017)

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