



SUNWAY FOUNDATION PROGRAMME

**Foundation in Science and Technology
(FIST)**

Student Guide 2020

Pathway to a Brighter Future

MESSAGE FROM THE DIRECTOR



Welcome to the Sunway Foundation Programme at Sunway College. This programme believes in holistic education. This means that, coupled with academic knowledge you will be exposed to experiential learning as an integral part of your well-rounded education. We are committed to moulding and shaping students who have a balanced world view and an understanding of social issues and world affairs outside of just text books. Our emphasis is not confined to your doing well in examinations and moving on to tertiary studies but in developing your love for life-long learning, your confidence in your own ability and finding your own talents. Enjoy this journey where you chart your own success. Good luck!

Suzana Ahmad Ramli

Director of Programme
Sunway Foundation Programme

PROGRAMME OUTLINE

Core Units

COMPULSORY

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

Academic Electives

Choose 6 units ONLY

TECHNICAL SCIENCES

Mathematics for Scientists**
Principles of Mechanical Science
Principles of Electrical Science*
Technical Mathematics
Basic Computer Concepts
Introduction to Programming
Introduction to Renewable Energy

LIFE SCIENCES

Basic Chemistry
Principles of Chemistry*
Introduction to Biology
Principles of Cell Biology*
Introduction to Psychology
Introduction to Food Science
Safety, Health and Environment

Enrichment Subjects

COMPULSORY

Critical Thinking Skills
Science and Ethics
Scientific Revolutions

*Note: Completion of prerequisite is needed before pursuing this unit. Please consult programme advisors.

This subject is **highly recommended for all stream of studies.



FOUNDATION IN SCIENCE AND TECHNOLOGY

- Developing Learning Strategies
- Developing Technical & Soft Skills
- Setting Personal & Academic Goals
- Finding Individual Talents
- Becoming Confident Learners and Leaders
- Honing Communication Skills
- Involvement in the Community
- Engaging in Extra-Curricular Activities

Programme Structure:

- 3 semesters of 14-week duration each
- 4 Core and 3 Enrichment Units are COMPULSORY
- 6 Academic Electives are COMPULSORY

Entry Requirements:

Passed SPM, O-Level or equivalent with minimum five (5) credits including Mathematics and two (2) Science subjects

Duration:

1 year

Intakes:

January / March / July / September

Completion:

December / March / July / August

PROGRAMME INFORMATION

STUDENT SUPPORT SYSTEM

We have special programme advisors who provide academic guidance and support.

- Programme mentors
- Peer support
- We Care

ATTENDANCE POLICY

- 80% attendance is expected for all lessons.
- Parental confirmation and/or medical certificate is necessary for any absence. Other reasons are based on acceptance by DOP/DDOP.

ASSESSMENT AND EVALUATION POLICY

- All progress reviews and examinations are set by academic staff of the Pre-University department to assess the student's understanding of a particular unit.
- Examination papers are moderated at random by university faculty members to ensure that necessary standards and learning outcomes are achieved by the students.
- The coursework component allows students to monitor, improve and set personal goals.
- The examinations evaluate the final learning objectives and the standards required for the student to progress to tertiary studies.
- Students are responsible for complying with the assessment requirements of individual units according to the unit outline provided.

- Stipulated dates for submission of assignments are to be followed. Disciplinary action may be taken if students fail to submit their assignments on time.
- In the event a student misses an examination/assessment with a valid and acceptable reason (eg: hospitalisation) the student will write the paper at the earliest possible date with permission from the Director of Programme.
- Progress Report will be sent to parents every semester.

ASSESSMENT AND EXAMINATION

- Evaluation is based on 50% coursework (quizzes, projects, investigations, assignments and presentations) and 50% examination at the end of each unit.
- The final transcript will show a combined mark and grade for all units. Successful students will be awarded the Certificate of Completion.

GRADUATION REQUIREMENTS

- Students must successfully complete minimum 50 credits.
- Students must pass all Core and Enrichment Units and 6 Academic Electives.
- CGPA calculation is based on all units attempted.

UNIVERSITY APPLICATION

- Students must attain the entry requirements of the undergraduate programmes they wish to pursue at their university of choice.

UNITS SYNOPSIS

Core Units

English Language for Scientist (FSTM 3024)

Science is logic, and logic is Science. Here, students will be exposed to various topics under the Sun, 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 scientist to deduce and communicate with their fellow scientists.

Statistics for Scientists (FSTM3044)

This subject cover topic from three basic areas of statistics namely descriptive statistics, probability and statistical inference and forecasting technique. Descriptive statistics covers organizing, presenting and summarizing data. Probability includes the use of the probability laws and conditional probability of events, while probability distributions covers the study of discrete and continuous random variables. Statistical inferences emphasize on estimation, hypothesis testing of one sample. In addition, students are introduced to the widely used SPSS software in research where they learn how to present the data collected, and analysis.

ICT Application Skills (FSTM3014)

The objective of this subject is to create understanding of the main functions of the software tools for word processing, spreadsheet and presentation, to accommodate to the current business needs. This subject also equips students with the basic understanding of computer skills, internet and its safety, and knowledge to solve common technological issues in order to tackle the challenges in the ever-growing digital era.

Academic Writing (FSTM 3034)

This subject teaches how to conduct a research and to write the 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. On the overall, this is a set of knowledge that is crucial for any young scientist to have.

AVAILABLE PATHWAYS: UNDERGRADUATE PROGRAMMES AT SUNWAY UNIVERSITY

- BSc (Hons) Biology with Psychology
- BSc (Hons) Biomedicine
- BSc (Hons) Medical Biotechnology

CGPA 2.5

FOUNDATION IN SCIENCE AND TECHNOLOGY (FIST)

CGPA 2.3

- BSc (Hons) in Computer Science
- BSc (Hons) Information Systems (Business Analytics)
- Bachelor of Information Systems (Hons) in Mobile Computing with Entrepreneurship
- BSc (Hons) Information Technology
- BSc (Hons) Information Technology (Computer Networking and Security)
- Bachelor of Software Engineering (Hons)
- BSc (Hons) Psychology



Note: Please check with Admissions Office for more information

Mathematics for Scientists (FSTM3074)

The subject provides a further development of mathematical skills including the use of applications of mathematics in the context of the ability to analyse problems logically, recognising when and how a situation may be represented mathematically. It covers, solving of polynomial, logarithmic and exponential equations which relates to daily life situations. Students are also required to solve problems relating to limits and continuity, matrices and vectors.

Principles of Mechanical Science (FSTM3094)

This subject emphasizes on applications and the broad field of mechanical science will be narrowed to the essential concepts that underlies all technical knowledge. Mechanical science is basically concerned with the position (statics) and motion (dynamics) of matters. Statics represents the study of physics associated with bodies at rest whereas dynamics is concerned with a description of motion and its causes.

Principles of Electrical Science (FSTM3104)

Electrical science is basically concerned with the importance of energy and properties and applications of waves in the electromagnetic spectrum, ionizing radiation and the solar system. It will help students to adopt a method of systematic thinking and the theories necessary to allow them to understand how things we rely on work. Students will be also able to strengthen their qualitative reasoning and problem-solving skills that are valuable in areas beyond mechanical science.

Technical Mathematics (FSTM3084)

This subject cover topic such as circular measurements, measurements of surface area and volume of various solids, triangular measurements and elementary calculus techniques which includes differentiation, differential equations and integration. These topics are applicable to practical engineering problems. It also enables students to gain confidence in the various mathematical techniques used in the science field.

Basic Computer Concept (FSTM3054)

This unit equips students with the fundamental knowledge about computer systems and IT. It also provides exposure about the latest technology development in various industries and the contribution of technology in day-to-day life. It aims to stimulate the interest in the Computing discipline. It focuses on topics such as information systems, computer hardware and software, designing and building of database, networking and human computer interaction. The technical concepts learnt will be then applied practically. By doing so, it will enable the appreciation of contents in higher level of academic advancement.

Introduction to Programming (FSTM3064)

With the rise of technology, new applications are utilised to automate our jobs and find solutions to everyday problems. Therefore, coding knowledge has become one of the most valuable skills in the 21st century. The syllabus focuses on the fundamentals of Java programming which equips students with the understanding on programming concepts. From this, students will be able to build basic programs and explore innovation from a technological perspective. The unit is taught in a hands-on manner and is essential for students intending to pursue any degree in the field of Computing.

Introduction to Renewable Energy (FSTM3095)

This is an introductory course which provides a brief overview of renewable energy and its significance in sustaining a better environment. The course aims to communicate a theoretical basis of understanding of the different types of renewable energy and its nature and its conversion into useful energy services. With this context, students will learn and apprehend contemporary issues pertaining to renewable energy, environment and society from global perspectives.

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.

Principles of Chemistry (FSTM 3124)

This course is an emphasis 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.

Introduction to Biology (FSTM 3144)

Students will understand and explore the basic structure, function and interactions of living organisms as well as explore the concept of the cell theory, metabolism, genetics, energetics, evolution and ecology.

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.

Introduction to Psychology (FSTE3042)

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.

Introduction to Food Science (FSTE3125)

Intending to diversify students tertiary study options, this unit covers the fundamental concepts of food science, human nutrition, food safety and the industry. Through this unit, students get to learn the properties and applications of different food components; the requirement of different food components to human body, the roles of different processes involved in food processing, packaging, storage and production; as well as the importance of safe, sustainable practices when developing and using food-related technologies.

Safety, Health and Environment (FSTM3134)

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.

UNITS SYNOPSIS

Enrichment Subjects

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 encourage students to develop their own critical perspective on the issues.

SCIENCE AND ETHICS (FSTE3022)

This unit 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 scientists throughout his/her career.

CRITICAL THINKING SKILLS (FSTE 3012)

This subject explores issues about the nature and techniques of critical thought, which is viewed as a way to establish a reliable basis for our claims, beliefs, and attitudes about the world. The subject explores multiple perspectives, placing established facts, theories, and practices in tension with alternatives to see how things could be otherwise. Various views on the production of knowledge and thought processing in social context are also taken into consideration. Special attention is given to translating what is learned into strategies, materials, and interventions for use in students' own educational and professional settings.

ALUMNI

AJNISH GHIMIRE

Final year of BSc (Honours)
Medical Biotechnology degree
| Sunway University



Achievement and Contribution

- His research "Invertebrates living in polluted environment are potential source of anti-tumor molecules (2019)" target to find novel anticancer molecules for the benefit of society.
- Working as a Pioneer of "Project - HOPE: One Child, One Donor" sponsorship program of Solidarity International, NGO from Nepal.
- Project Coordinator of "Project BAG (Jhola)" - A bag for every child in Nepal through Solidarity Nepal, An NGO recognized by the Government of Nepal from 2019.
- Circulating the flow of information of projects carried out by INGO to members and partner organizations since December 2018.
- TheirWorld is a global children's charity committed to ending the global education crisis and unleashing the potential of the next generation. Our mission is to ensure that every child has the best start in life, a safe place to learn, and skills for the future.
- The group is designed to mobilize young people and to increase interaction among youth globally with the aim to advocate for and enable meaningful youth participation in democratic processes.

KOH MEI QUEN

Bachelor of Software Engineering
(Hons) | Sunway University



Achievement and Contribution

- Combat Robot Malaysia 2019 - Top 14
- #codeathon 2017: Technopreneurship for Gender Equality
- Lancaster Summer Programme July 2018 - August 2018
- Peer Assisted Learning Programme (PALP) March 2018 - March 2019
- Peer Leader
- Sunway University Ensemble 2016 -2017
- Certifications - Certified Professional in Requirements Engineering (CPRE) Foundations Level 2019

RAENUGA INDRAN

BSc (Hons) Psychology |
Sunway University



Achievement and Contribution

- Strong advocate for Sustainable Goals which mainly includes Quality Education and Climate Action
- Jeffrey Cheah Foundation Scholarship (Pre-University & Degree)
- Sunway Extracurricular Achiever Award
- President of Sunway Student Ambassadors
- Event Organising Chairperson for Sunway's Got Talent Season 3
- Operations Associate for the Harvard Project for Asian and Internationals Relations (HPAIR)
- Offline Marketing Associate for Glimpse of Malaysia

KAARTIHK A/L VIJAYAN

BSc (Hons) in Computer Science |
Sunway University



Achievement and Contribution

- AVOWS Algo League 2019
- BMW Shorties 2017 competition
- Lancaster Summer Programme 2018

NG ZI WEI

Bachelor of Chemical Engineering
(Honours) | Monash University
Malaysia



Achievement and Contribution

- Runner-up in Glow-stick Design Process
- Active member of Engineers Australia Monash University Sunway Student Section (EAMSSS)
- Participated in Engineering Mathematics Competition
- Participated in Undergraduate Research Opportunity Program (UROP)

HANNAH TAN

Bachelor in Physiotherapy |
Mahsa University



Achievement and Contribution

- Student conference committee for the physiotherapy faculty

GRADUATION DAY



OUR GRADUATES PURSUE

- BSc (Hons) Medical Biotechnology
- Bachelor of Medical Bioscience
- BSc (Hons) Biomedical Science
- BSc (Hons) Biology with Psychology
- BSc (Hons) Psychology
- Bachelor of Veterinary
- Bachelor of Physiotherapy
- BSc (Hons) Optometry
- BSc (Hons) Information Technology (Computer Networking & Security)
- BSc (Hons) Mechatronics Engineering
- BSc (Hons) in Computer Science
- Bachelor of Software Engineering (Hons)
- BSc (Hons) Information Technology
- BSc (Hons) Information Systems (Business Analytics)
- Bachelor of Engineering (Honours)
- Bachelor of Science (Hons) in Actuarial Studies

STUDENT ACTIVITIES

Field Trip to Monash University Food Science Lab



Sunway Lagoon Theme Park Trip



IMU Science Discovery Challenge



3D Periodic Table Model Presentation



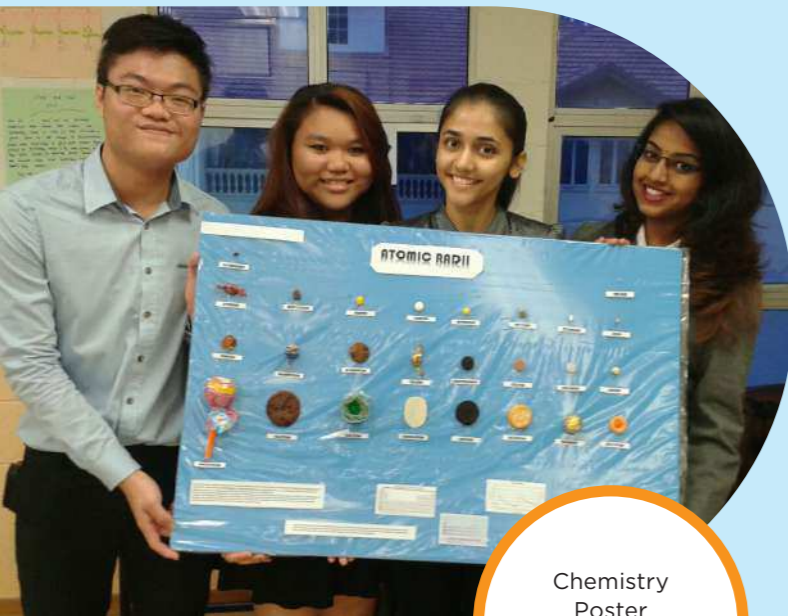
Science Exhibition



Sport Carnival



Chemistry Poster Presentation Exhibition



Cryocord Field Trip



Owned and governed by the

**Jeffrey Cheah
Foundation** 
Nurturing the Seeds of Wisdom

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 9001:2015, 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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This brochure is valid for our 2020 intakes.
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