

**SP** | SCHOOL OF  
CHEMICAL &  
LIFE SCIENCES

Sciences for  
B e t t e r  
Living

- Applied Chemistry with Pharmaceutical Science (S64)
- Biomedical Science (S98)
- Biotechnology (S72)
- Chemical Engineering (S70)
- Food Science & Technology (S47)
- Materials Science (S37)
- Nutrition, Health & Wellness (S44)
- Optometry (S67)
- Perfumery and Cosmetic Science (S38)



# Sciences for B e t t e r Living

The chemical and life science industry is experiencing exceptional growth year after year. The School of Chemical & Life Sciences (CLS) is committed to train you to be work-ready for this sector which is made up of materials, food, cosmetics, chemical, petrochemicals, pharmaceutical, biotechnology, agrotechnology, biomedical, optometry and healthcare industries.



# Why CLS?

We have very strong links with industry and educational institutions from both local and overseas. SP is the only polytechnic that sends students for research internships at world-class universities such as Harvard, Yale, Oxford, Imperial College and Massachusetts Institute of Technology.

Our graduates have done extremely well. We have graduates who are now award-winning scientists and several others who are now doing their PhDs. Our recent graduates have also been admitted to study chemical engineering, chemistry, dentistry, life sciences, medicine and pharmacy at various universities, both local and overseas.

In addition, some graduates have gone on to become successful entrepreneurs, having been exposed to numerous industry related projects during their studies.



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Diploma in

# Applied Chemistry with Pharmaceutical Science (DACP – S64)

Chemistry will reveal the secrets behind how medicine works and open the door to new discoveries. It also makes our world greener by transforming hazardous substances into biodegradable materials to save the environment. These are just some of the things that a chemical technologist does - using knowledge of chemistry to solve problems.

The Applied Chemistry with Pharmaceutical Science (DACP) course provides the learning environment for you to conduct research, test and synthesise new chemicals and drugs. By the end of the course, you will be able to solve problems analytically and independently. Upon graduation, you will be ready to contribute to the chemical and pharmaceutical industry or further your studies in tertiary institutions.





## Our uSPs

DACP is the only diploma course in Singapore that combines applied chemistry with pharmaceutical science, providing the right balance of theoretical and practical components. Forensics, an exciting field in science, is offered as part of the curriculum. You get to choose an area of specialisation in either Medicinal Chemistry Research option or Industrial Chemistry option. For Medicinal Chemistry Research option, you will perform dedicated research work with industry partners or university professors for your final year project. For the Industrial Chemistry option, you will select three elective modules of your choice in applied chemistry for further advancement in your future studies and careers.

There are abundant opportunities for work attachment or research experience with local and foreign institutions in China, Ireland, Australia and the United Kingdom. As a student of this diploma, you are a member of the International Society for Pharmaceutical Engineering (ISPE) student chapter.

## Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6

- Chemistry
- Science (Chemistry, Biology)
- Science (Physics, Chemistry)

Applicants must not suffer from colour appreciation deficiency.

# M Course Modules

DACP is a three-year full-time programme.

## FIRST YEAR

- Analytical Chemistry
- Basic Biochemistry
- Basic Mathematics
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Engineering Mathematics I
- Environmental Studies
- Inorganic Chemistry
- Materials In Practice
- Organic Chemistry
- Pharmaceutical Microbiology
- Physical Chemistry
- Report Writing & Presentation

## SECOND YEAR

- Basic Instrumental Analysis
- Bioprocess Engineering Principles
- cGMP and Validation
- Corrosion Science
- Engineering Mathematics II
- Environmental Systems and Management
- Forensic Chemistry
- Independent Study Project and Presentation
- Industrial Training Programme
- Laboratory Management
- Organic Chemistry - Reaction Mechanism
- Pharmaceutical Manufacturing
- Quality Assurance and Statistics
- Social Innovation Project

## THIRD YEAR

### Medicinal Chemistry Research Option

- Advanced Instrumental & Lab Techniques
- Advanced Organic Chemistry
- Advanced Physical Chemistry
- Basic Pharmacology & Pharmaceutical Chemistry
- Bioinorganic and Medicinal Chemistry
- Communication skills for Interpersonal and Work Effectiveness
- Drug Discovery, Design & Development

- Industrial Chemical & Processes
- Project

### Industrial Chemistry Option

- Advanced Instrumental & Lab Techniques
- Advanced Organic Chemistry
- Advanced Physical Chemistry
- Basic Pharmacology & Pharmaceutical Chemistry
- Communication skills for Interpersonal and work effectiveness

- Industrial Chemical & Processes
- Project

### Elective Modules

- Biochemical Techniques
- Drug Discovery, Design & Development
- Food Chemistry
- Fragrance & Flavour Chemistry
- Materials Science
- Nanotechnology
- Specialty Chemicals and Biodevices



# Bright Future

Exciting career opportunities await you when you graduate. Your career options include Analyst; Chemist; Research Assistant; Assistant Engineer; Chemical Technologist; Production Chemist; Quality Control / Quality Assurance Personnel; Regulatory & Compliance Officer; Environmental, Safety & Health Officer.

## Further Studies

You can gain direct entry into the second or third year of a degree programme in local and overseas universities.

# Believe

“This diploma course provides students with a comprehensive coverage of fundamental chemistry as the main course and a basket of applied chemistry modules as electives. Students are equipped with a strong foundation in chemistry and a good appreciation of its application, particularly in the pharmaceutical field, which better prepare them for university education.”

*– Associate Prof Yao Shao Qin, Deputy Head, Department of Chemistry, National University of Singapore.*



# Diploma in Biomedical Science (DBS – S98)

Step into the dynamic world of biomedical science and be challenged to save lives.

Learn all about testing, diagnosis, management and prevention of diseases in the Diploma in Biomedical Science. Learn from a curriculum recognised on both sides of the Atlantic Ocean; the American Society of Clinical Pathology and the Institute of Biomedical Science, UK.

In this diploma, you have a choice of specialisation: Medical Technology, Cardiac Technology or Biomedical Research.



The Diploma in Biomedical Science is an SP APEX Programme specially designed to inspire and help you reach the peak of your ability. For details, visit [www.sp.edu.sg](http://www.sp.edu.sg) and click on the APEX banner.



## Our uSPs

We offer a choice of clinical laboratories or premier research laboratories for internship placements. Our students have been to A\*STAR Institutes, National Heart Centre, Harvard Medical School, Yale University, Imperial College, and University California San Diego.

We offer selected students an opportunity to graduate with an additional Certificate in Phlebotomy.

Our extensive network and contacts have provided opportunities for students to work with research scientists and clinicians on current research projects.

# Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6

- Biology
- Chemistry
- Science (Chemistry, Biology)
- Science (Physics, Biology)
- Science (Physics, Chemistry)

Applicants must not suffer from colour appreciation deficiency.

# MM Course Modules

DBS is a three-year full-time programme.

## FIRST YEAR

- Analytical & Physical Chemistry
- Anatomy & Physiology
- Basic Biochemistry
- Basic Immunology
- Basic Microbiology
- Cell Biology
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Inorganic & Organic Chemistry
- Mathematics A
- Mathematics B
- Report Writing & Presentation

## SECOND YEAR

### Medical Technology Option

- Basic Pathology
- Clinical Chemistry 1
- Clinical Instrumentation & Automation
- Communication Skills for Health Professionals
- Flow Cytometry & Proteomics
- Genetics and Molecular Biology
- Haematology 1
- Industrial Training Programme
- Laboratory Management & Biosafety
- Medical Microbiology A
- Organic Chemistry - Reaction Mechanism
- Social Innovation Project

### Cardiac Technology Option

- Applied Cardiac Anatomy & Physiology
- Biostatistics
- Clinical Attachment
- Clinical Chemistry 1
- Communication Skills for Health Professionals
- ECG & Rhythm Disorders
- General Cardiology & Cardiac Disorders 1
- Genetics and Molecular Biology
- Introductory Pharmacology
- Laboratory Management & Biosafety
- Medical Microbiology A
- Social Innovation Project

### Biomedical Research Option

- Advanced Immunology
- Biochemistry
- Biostatistics
- Clinical Biochemistry
- Fundamentals in Instrumentation Analysis
- Genetics and Molecular Biology
- Haematology
- Integrated Pathology & Case Analysis
- Introductory Pharmacology
- Laboratory & Biorisk Management
- Medical Microbiology
- Organic Chemistry - Reaction Mechanism
- Social Innovation Project

## THIRD YEAR

### Medical Technology Option

- Applied Immunology
- Biochemistry
- Biostatistics
- Blood Banking
- Clinical Chemistry 2
- Haematology 2
- Histological Techniques
- Medical Microbiology B
- Project
- Techniques in Clinical Molecular Diagnostics

### Elective Modules

- Cytogenetics
- Introductory Pharmacology

### Cardiac Technology Option

- Basic Pathology
- Biochemistry
- Cardiac Drugs and Calculation
- Clinical Attachment
- Clinical Chemistry 2
- Diagnostic & Interventional Cardiac Catheterisation
- Echocardiography

- Electrophysiology & Pacemakers
- General Cardiology & Cardiac Disorders 2
- Immunohaematology

### Biomedical Research Option

- Advanced Cell Biology
- Current Topics in Scientific Research
- Project
- Research Internship 1
- Research Internship 2

# Bright Future

Exciting career opportunities await you when you graduate. Your career options include Cardiac Technologist in cardiac laboratories or clinical measurement units; Medical Technologist in clinical laboratories; Research Assistant in institutions conducting disease surveillance, forensics, regulatory testing, pharmaceutical research and production; Sales and Marketing personnel for the medical diagnostics, pharmaceutical and healthcare sectors.

## Further Studies

A high percentage of our graduates is offered admission to local universities. You will also be granted direct entry into second or third year of degree programmes in Australian and British universities. You also have the flexibility to pursue other disciplines such as Medicine, Dentistry and Pharmacy at the National University of Singapore or Biomedical Sciences and Chinese Medicine at the Nanyang Technological University.

“SP lecturers and staff are a remarkable group of people whose efforts deserve our gratitude and admiration. Their guidance and dedication have been hugely instrumental in moulding me into who I am today. I am most grateful and privileged to have learned from them – the true value of which I will fully comprehend in the years to come.”

**– Desmond Thiam Wei, Class of 2010 from DBS, first SP graduate admitted to the Yong Loo Lin School of Medicine, NUS. He is also the recipient of the inaugural Lee Hsien Loong Award for Outstanding All-Round Achievement in 2010.**



# Diploma In Biotechnology (DBT – S72)



Manipulation may have a negative meaning. But in Biotechnology, that's what you do best. You manipulate biological systems, whether living cells or cell components, in a controlled environment to create or process useful products such as food, fuel or medicine.

Biotechnology is the science for this century and SP is the pioneer in offering the Diploma in Biotechnology (DBT). With Singapore's positioning as a Bio-Hub, the rapidly expanding biotechnology and biomedical industries will open the door to many career possibilities.



## Our uSPs

We place a strong emphasis on hands-on training in specialised laboratories on campus and through internship and final year project. During your internship, you will work with prominent scientists and researchers in universities and research institutions both local and abroad. Our students have performed internships at East China University of Science and Technology, Shanghai, Harvard Medical School, Cornell University and Massachusetts Institute of Technology.

Our diploma course covers a range of subjects suitable for laboratory-based careers with universities, government or private research institutions. We offer selected students an opportunity to graduate with an additional Certificate in Biorisk Management. Our graduates are also sought after in life sciences-related careers in the biomedical, bio-pharmaceutical, commerce, food or teaching industries and as biosafety coordinators.

# Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6

- Biology
- Chemistry
- Science (Chemistry, Biology)
- Science (Physics, Biology)
- Science (Physics, Chemistry)

Applicants must not suffer from colour appreciation deficiency.

# M Course Modules

DBT is a three-year full-time programme.

## FIRST YEAR

- Analytical & Physical Chemistry
- Basic Biochemistry
- Basic Microbiology
- Biophysics
- Cell Biology
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Inorganic & Organic Chemistry
- Mathematics A
- Mathematics B
- Report Writing & Presentation

## SECOND YEAR

- Biochemistry
- Biosafety & Biorisk Management
- Biostatistics
- Human Anatomy & Physiology
- Industrial Training Programme
- Molecular Biology & Genetics
- Organic Chemistry – Reaction Mechanism
- Plant Biotechnology
- Proteomics & Flow Cytometry
- Social Innovation Project
- Techniques in Molecular Biology & Human Genetics

## THIRD YEAR

- Advanced Cell Biology & Cancer Biology
- Bioprocess & Biologics Technology
- Case Studies in Biological Science
- Cell & Tissue Engineering
- Communication Skills for Interpersonal & Work Effectiveness
- Computational Biology & Drug Discovery
- Immunology
- Molecular Pathology of Human Diseases
- Project
- Techniques in Medical Laboratory Diagnostics
- **Elective Modules**
- Aquaculture Technology
- Cytogenetics
- Good Laboratory & Manufacturing Practice
- Introductory Pharmacology

# Bright Future

Exciting career opportunities await you when you graduate. Your career options include Laboratory Technologist / Officer in R&D in biological and life sciences and translational medicine; Teacher / Lecturer in local schools, junior colleges, polytechnics and universities; Technical Specialist in companies involved in clinical trials, biotechnology, bio-pharmaceutical, and healthcare products and services.

## Further Studies

Many of our graduates continue their studies in the universities. You can gain direct entry into second or third year degree programmes in local and overseas universities. You also have the flexibility to pursue other courses such as biomedical and life sciences, biomedicine, pharmacy, medicine, dentistry, teaching, tissue engineering and Biomedical Sciences and Chinese Medicine at the National University of Singapore and Nanyang Technological University.

# Believe

“The DBT course was very well structured, with excellent study materials provided. It inspired me to pursue further studies in the same field. The ‘open’ lecture-tutorial system with emphasis on self-initiative to learn is very similar to the universities, which I find to be a great advantage. SP prepared me well for University studies.”

**– Lim Yok Zuan, Class of 2006 from DBT, who graduated with First Class Honours from Biological Science, Nanyang Technological University. He is currently pursuing a doctoral degree at Oxford University under an A\*STAR Scholarship.**



## Diploma in **chemical** Engineering (DCHE – S70)

If you see yourself developing products and processes to improve the quality of life, this is the diploma course for you. Chemical engineering is the most important discipline in the chemical processing industry. It applies the principles of chemistry, mathematics, and physics to the design and operation of large-scale chemical manufacturing processes for industry sectors that include petrochemicals, specialty chemicals, pharmaceuticals, semi conductors, clean energy, food and healthcare.

The Diploma in Chemical Engineering (DCHE) course trains you to apply chemical engineering principles in the production of chemical products, systems or services. The course will mould you to be self-motivated, quick learners and technically-competent. Your goal is to translate discoveries originated from the laboratory and make them into real products. That's as close as you can get to realising ideas!

## Our uSPs

DCHE course is internationally recognised and is the first diploma in Singapore to be accredited by the Institute of Chemical Engineers (IChemE) in United Kingdom.

Our programme is based on the proven CDIO (Conceive-Design-Implement-Operate) approach originally developed by the Massachusetts Institute of Technology and partners. DCHE course is the world's first Chemical Engineering diploma to adopt CDIO. You will undergo a customised internship programme at the Chemical Process Technology Centre on Jurong Island, which offers you the real-life experience of working at a live chemical plant.

## Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6

- Biology
- Chemistry
- Design & Technology
- Physics
- Science (Chemistry, Biology)
- Science (Physics, Biology)
- Science (Physics, Chemistry)

Applicants must not suffer from colour appreciation deficiency.



# M Course Modules

DCHE is a three-year full-time programme.

## FIRST YEAR

- Analytical & Physical Chemistry
- Basic Mathematics & Engineering Mathematics I
- Chemical Engineering Principles & Simulation
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Inorganic & Organic Chemistry
- Introduction to Chemical Engineering
- Introduction to Chemical Product Design
- Introduction to Chemical Thermodynamics
- Materials in Practice
- Pharmaceutical Microbiology
- Team Work & Communication Toolbox

## SECOND YEAR

- Bioanalytics
- Chemical Reaction Engineering
- Engineering Mathematics IIA & IIB
- Environmental Engineering
- Fluid Mechanics
- Heat Transfer & Equipment
- Independent Study Project and Presentation
- Industrial Training Programme
- Plant Safety & Loss Prevention
- Process Instrumentation
- Product Design & Development
- Rotating Equipment
- Social Innovation Project

## THIRD YEAR

- Bioprocess Engineering Principles
- Plant Design, Economics & Sustainable Development
- Process Control & Optimization
- Professional & Personal Development in Chemical Engineering
- Project
- Quality Management & Statistics
- Separation Processes
- Thermodynamics
- **Elective Modules**
- Basic Instrumental Analysis
- Biopharmaceutical Manufacturing
- Chemical Plant Layout & Modelling
- Corrosion & Materials Selection
- Current Good Manufacturing Practice (cGMP)
- Fuel Cells and Biomass Energy
- Higher Engineering Mathematics
- Industrial Waste Management
- Membrane Science & Technology
- Numerical Computing for Chemical Engineers
- Organic Chemistry - Reaction Mechanism
- Petroleum & Petrochemicals
- Pharmaceutical Manufacturing
- Specialty Chemicals & Biodevices
- WSH for Chemical Engineers

# Bright Future

Exciting career opportunities await you when you graduate. Your career options include Assistant Engineer; Environmental Engineer; Facilities Engineer; Process Technologist; Project Supervisor; Research Assistant; Safety Officer; Sales Engineer.

## Further Studies

You can gain direct entry into second or third year degree programmes in local and overseas universities. You can also apply for the Bachelor of Science (Chemical Engineering) programme offered by the Technical University of Munich, Germany and the Singapore Institute of Technology. The degree programme is conducted in SP Campus.

“I’m glad to have chosen the right diploma which gave me abundant opportunities in the diverse field of Chemical Engineering. Although it’s a demanding course, DCHE has prepared me well for university. The curriculum is constantly revamped so as to better equip its students with the latest knowledge and skills.”

*– P. Mukkesh Kumar, SP Scholar, Class of 2010 from DCHE, now pursuing a degree in Chemical and Biomolecular Engineering in Nanyang Technology University under the NTU College Scholarship.*





# Diploma in Food Science & Technology (DFST - S47)

We all love food, don't we? Otherwise, why are more and more people now getting into the food business? Isn't it awesome to be able to develop your own food products that are safer, healthier and tastier?

Our Diploma in Food Science & Technology (DFST) will sit well with you, the food lover. Since the inception of this food technology programme in 1972, SP has been providing the food industry with quality graduates.



# Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6

- Biology
- Chemistry
- Physics
- Science (Chemistry, Biology)
- Science (Physics, Biology)
- Science (Physics, Chemistry)

Applicants must not suffer from colour appreciation deficiency.

## Our uSPs

You will experiment and explore food products in well-equipped facilities such as the Food Creation Lab, Consumer Insight Suite, Food Analysis Lab, Food Processing Lab and Food Packaging Lab. There will be opportunities for you to work closely with the Food Innovation & Resource Centre (FIRC) at SP, a one-stop centre that provides integrated consultancy, advisory and training for food companies. Product innovation is a top priority for you. Our staff and students have commercialised a portfolio of food products including the Lemon & Kalamansi drink, Two-Ply Noodles, XO Kaya, Yamie Rice, Rainbow Rice and Elderflower Tea.

# M Course Modules

DFST is a three-year full-time programme.

## FIRST YEAR

- Analytical and Physical Chemistry
- Basic Mathematics
- Cell Biology
- Chemical Process Principles
- Engineering Mathematics I
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Inorganic & Organic Chemistry
- Introductory Food Science
- Materials in Practice
- Physics
- Report Writing & Presentation

## SECOND YEAR

- Applied Statistics
- Basic Instrumental Analysis
- Chemical Engineering Principles
- Engineering Mathematics II
- Food Chemistry
- Food Ingredients
- Food Marketing
- Food Microbiology
- Food Product Design & Development
- Independent Study Project and Presentation
- Industrial Training Programme
- Introduction to Biochemistry
- Nutrition
- Social Innovation Project

## THIRD YEAR

- Communications Skills for Interpersonal and Work Effectiveness
- Food Analysis & Legislation
- Food Biotechnology
- Food Business Management
- Food Engineering Operations
- Food Packaging & Design
- Food Preservation
- Food Safety & Quality Management
- Overseas Immersion Programme
- Project
- Elective Modules**
- Alternative & Complementary Health & Nutrition
- Nutrition & Diseases
- Organic Chemistry – Reaction Mechanism

# Bright Future

Exciting career opportunities await you when you graduate. Your career options include Food Technologist; R&D Technologist; Assistant Manager in Product Development; Food Safety Officer; Laboratory Technologist; Packaging Technologist; Production Superintendent; Quality Assurance Executive; Teacher / Educator.

## Further Studies

You can apply for related degree programmes at local or overseas universities such as the degree in Food Science & Technology at the National University Singapore; or the Degree in Chemistry (Honours) with concentration in Food Science & Technology at the Nanyang Technological University. You can also apply for admission to the Bachelor in Food & Human Nutrition (Honours) programme offered by the Singapore Institute of Technology.



# Believe

“The DFST diploma has prepared me well for the Bachelor of Food Technology (Honours) course offered by Massey University. Without a doubt, SP is definitely an excellent training ground for me to become a Food Technologist.”

– **Chris Goh, Class of 2002, now pursuing the Bachelor of Food Technology (Honours) programme offered by Massey University (New Zealand).**



# Diploma in aterials Science (DMLS – S37)

Practically everything big or small that we touch is made up of different materials. The science of understanding materials is intriguing – you will discover what goes behind the composite of say, a plastic bottle or a plastic spectacle frame.

The Diploma in Materials Science (DMLS) will teach you how to develop new products and technologies to enhance our living standards. It will also teach you to make the best use of the materials we already have, and develop new materials for the future.

This industry is set to grow as several world-scale manufacturing facilities will set their bases in Singapore in the next few years. DMLS aims to equip our next generation graduates with the essential skills and knowledge relevant to this rapidly evolving industry.



## Our uSPs

This diploma is built on the solid heritage of our renowned Diploma in Chemical Process Technology (previously called Polymer Technology). You will learn to use modern and sophisticated equipment in the Polymer Characterisation Centre, Polymer Chemistry Laboratory, Materials Science Laboratory and the Advanced Materials Technology Centre. A distinctive feature of the diploma is the inclusion of management skills training. There will be a wide range of local and overseas industrial attachment opportunities as well as challenging final year projects that will expose you to real research and work experience.

# Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6
<ul style="list-style-type: none"><li>• Biology</li><li>• Chemistry</li><li>• Design &amp; Technology</li><li>• Physics</li><li>• Science (Chemistry, Biology)</li><li>• Science (Physics, Biology)</li><li>• Science (Physics, Chemistry)</li></ul>	

# M Course Modules

DMLS is a three-year full-time programme.

## FIRST YEAR

- Analytical and Physical Chemistry
- Basic Mathematics
- Cell Biology
- Chemical Process Principles
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Engineering Mathematics I
- Inorganic & Organic Chemistry
- Materials in Practice
- Organisational Management
- Physics
- Report Writing & Presentation

## SECOND YEAR

- Basic Instrumental Analysis
- Engineering Mathematics II
- Environmental Safety & Health
- Independent Study Project and Presentation
- Industrial Training Programme
- Materials Science
- Mechanics of Materials
- Organic Chemistry - Reaction Mechanism
- Plastics Materials and Additives
- Polymer Fabrication Processes
- Polymer Science
- Principles of Marketing
- Product Design & Development
- Social Innovation Project
- Statistics for Engineering & Business

## THIRD YEAR

- Biomaterials
  - Coatings and Adhesives Technology
  - Communication Skills for Interpersonal and Work Effectiveness
  - Composites & Aerospace Materials
  - Essentials of Financial Management
  - Green Technology
  - Materials Characterisation and Failure Analysis
  - Microdevices & Materials
  - Nanotechnology
  - Project
  - Customer Relationship Management
  - Elastomers
  - Fundamentals of Electronic Business
- Elective Modules**
- Basic Mould Design
  - Business Planning for New Ventures

# Bright Future

Exciting career opportunities await you when you graduate. Your career options include Materials / Process Developer; Materials Characterisation / Analyst; Process Designer; Purchaser; Research Assistant.

## Further Studies

You can gain direct entry into the second or third year degree programmes in local and overseas universities. You are also eligible to apply for a two-year part-time Advanced Diploma in Polymer Technology programme which qualifies you for direct entry to a one-year Masters programme at several overseas universities.

# Believe

“This diploma course has helped me to understand the fundamentals of polymer-related modules in university easily. The practical and hands-on skills acquired were a plus point when it came to laboratory work as well as the final year project.”

– **William Yap, Class of 2003 from DCP (Polymer Option), (now renamed DMLS), graduated with First Class Honours in Materials Science and Engineering from Nanyang Technological University.**

# Diploma In Nutrition, Health & Wellness (DNHW – S44)

You are a people person. You care about health and want to make a positive impact on the lives of people you meet. If you believe that good health comes from the inside, the Diploma in Nutrition, Health & Wellness (DNHW) is tailored just for you.

This course is the only full-time diploma course in Singapore that combines nutrition, health and wellness. The science-based curriculum will let you explore the factors that contribute to disease prevention and control; as well as the promotion and maintenance of good health.



## Our uSPs

Learning is conducted in advanced facilities such as the **Nutrition, Health and Wellness Centre** which houses the nutrition and metabolic laboratory, alternative health laboratory, human anatomy laboratory, exercise physiology and physical fitness laboratory and the health food preparation and demonstration laboratory. You will participate in health and wellness outreach programmes as well as undergo a 15-week local or overseas internship programme.

# Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6

- Biology
- Chemistry
- Food & Nutrition
- Physics
- Science (Chemistry, Biology)
- Science (Physics, Biology)
- Science (Physics, Chemistry)

# M Course Modules

DNHW is a three-year full-time programme.

## FIRST YEAR

- Analytical & Physical Chemistry
- Anatomy and Physiology
- Cell Biology, Microbiology and Immunology
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Fitness and Wellness throughout the Lifespan
- Fundamentals of Food Science
- Inorganic & Organic Chemistry
- Introduction to Health & Wellness
- Introduction to Psychology
- Mathematics A
- Mathematics B
- Nutrition
- Stress Management for Wellness

## SECOND YEAR

- Applied Nutrition
- Biostatistics
- Diet and Nutrition Assessment
- Exercise Physiology
- Food Chemistry
- Health Education and Health Promotion
- Independent Study Project and Presentation
- Introduction to Biochemistry
- Nutrition and Disease
- Organic Chemistry – Reaction Mechanism
- Organisational Management & Marketing Communications
- Physics for the Biomedical Sciences
- Social Innovation Project
- Speaking Skills for Wellness Professionals

## THIRD YEAR

- Health and Ageing
- Internship
- Project
- Writing Skills for Wellness Professionals

### Option 1: Nutrition and Dietetics

- Alternative and Complementary Health and Nutrition
- Clinical Nutrition
- Public Health and Community Nutrition

### Option 2: Health & Fitness

- Sports and Exercise Nutrition
- Health Practices & Delivery
- Physical Fitness Assessment



# Bright Future

Exciting career opportunities await you when you graduate. Your career options include Nutrition, Health and Wellness Technologist; Assistant Nutritionist; Wellness Co-ordinator; Public Health Co-ordinator; Healthy Lifestyle Promotion Co-ordinator; Marketing and Sales Executive in health-related industries.

## Further Studies

You can pursue further education at local and overseas universities offering courses in nutrition and dietetics, health promotion, sports science, education, as well as in other disciplines. Graduates can gain direct entry into the second or third year of degree programmes in Australian and British universities.

# Believe

“The Diploma in Nutrition, Health and Wellness has been an eye opener for me. It teaches me a diverse range of subjects from nutrition to exercise, which I apply to my everyday life, thus enhancing my learning journey in SP. I totally enjoy what I am studying.”

**- Bryan Cheah, Second year DNHW student**



## Diploma in Optometry (DOPT – S67)

Take a moment to consider the importance of eyesight and the impact it can cause once it is lost. Indeed, caring for the health of others is a noble calling, especially when it comes to something as important as eye care.

The scope of Optometry includes the detection of common eye diseases and problems. It also covers the prescription of spectacles and contact lenses.

Our three-year Diploma in Optometry (DOPT) course aims to produce professionally competent optometrists who are in good demand. Due to high prevalence of myopia in children and a rapidly ageing population, quality optometrists are highly sought after.



## Our uSPs

SP is the first tertiary institution in Singapore since 1994 to offer this popular course. When you graduate, you can register as a qualified optometrist with the Optometrists and Opticians Board. In fact, SP is the only institution here that can offer you both a Diploma and Degree in Optometry, with the latter being offered by the University of Manchester, UK. We have excellent clinical and laboratory facilities and two Optometry Centres to provide you with hands-on experience using state-of-the-art precision instruments and equipment. Your industry attachment at hospitals, contact lens or ophthalmic lens companies will widen your scope and experience in optometry. There are also opportunities for overseas exposure via community service projects or attachments to optometry schools and research institutions abroad.

# Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6

- Biology
- Chemistry
- Science (Chemistry, Biology)
- Science (Physics, Biology)
- Science (Physics, Chemistry)

# M Course Modules

DOPT is a three-year full-time programme.

## FIRST YEAR

- Analytical & Physical Chemistry
- Anatomy & Physiology
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Geometrical and Physical Optics
- Human Biochemistry
- Introductory Ocular Microbiology
- Mathematics
- Ocular Anatomy & Physiology
- Ocular Pathology 1
- Ophthalmic Optics
- Physiological & Visual Optics
- Report Writing & Presentation

## SECOND YEAR

- Binocular Vision & Paediatric Optometry
- Biostatistics
- Clinical Optometry 1
- Clinical Optometry 2
- Contact Lens Complications
- Contact Lens Fitting
- Independent Study Project and Presentation
- Industrial Training Programme
- Introduction to Contact Lenses
- Ocular Pathology 2
- Ocular Pharmacology
- Ophthalmic Dispensing
- Social Innovation Project

## THIRD YEAR

- Business Management for Optometry Practice
- Clinical Practice 1
- Clinical Practice 2
- Communication Skills for Work
- Contact Lens Practice 1
- Contact Lens Practice 2
- Environmental & Community Health Optometry Project

# Bright Future

Exciting career opportunities await you when you graduate. You can be an Optometrist in private or public practice. You can also do research with institutions such as the Singapore Eye Research Institute and the Defence Science Organisation.

## Further Studies

You can pursue a two-year degree programme (with Honours) in Optometry offered by the University of Manchester. Conducted at SP campus, it is equivalent to the full-time programme conducted in the UK. This degree programme is approved and subsidised by the Ministry of Education.



# Believe

“The opportunity to combine theoretical knowledge with clinical practice of optometry sparked my interest in this course. With patient guidance from the lecturers using state-of-the-art equipment, they made my learning journey an insightful and meaningful experience.”

**– Ms Marilyn Puah, Class of 2007 from DOPT, who completed her degree in Optometry at Cardiff University, UK.**



## Diploma in Perfumery and Cosmetic Science (DPCS – S38)

Ever wondered what goes into a bottle of Chanel No. 5 perfume? Or that expensive SKII moisturiser? What about Dove shampoo or Dettol shower gel? Fancy creating a product that caters to almost everyone, young and old?

The Diploma in Perfumery and Cosmetic Science (DPCS) is the only local diploma programme that provides training in the areas of chemistry, perfumery and cosmetic science.

As a graduate of DPCS, you will be most sought after in the fast growing and lucrative personal care, cosmetics, fragrance and chemical industries. You will have a unique integrated learning experience where you will use your practical oriented training and your senses on real life applications. Training in Perfumery and Cosmetic Science that are very well sought after and high in demand in countries such as France, UK, US, Japan, Korea and most ASEAN countries will be taught in the curriculum. DPCS is the only local diploma course to support the growing manpower demand for these industries in Singapore.

# Our uSPs

DPCS offers specialisation in Chemistry, Perfumery and Cosmetic Science. You will learn in the state-of-the-art Cosmetics and Fragrance Centre where you will be inspired to create new products. SP's past collaborations with our industry partners have successfully commercialised a room scent and the Romance Singapore series of perfumes. You will gain real and exciting experiences in the making of perfumery and cosmetic products and organic synthesis of chemicals to be used as raw materials. You could be placed with chemical and/or cosmetic companies, flavour and fragrance houses and even prestigious universities such as Oxford University, London and Tokyo University of Technology, Japan during your internship.

## Entry Requirements

Aggregate Type: ELR2B2-C

Subject	Grade
a) English Language	1 - 7
b) Mathematics (Elementary/Additional)	1 - 6
c) One of the following 3 <sup>rd</sup> relevant subjects:	1 - 6
<ul style="list-style-type: none"><li>• Biology</li><li>• Chemistry</li><li>• Physics</li><li>• Science (Chemistry, Biology)</li><li>• Science (Physics, Biology)</li><li>• Science (Physics, Chemistry)</li></ul>	



# M Course Modules

DPCS is a three-year full-time programme.

## FIRST YEAR

- Analytical Chemistry
- Basic Mathematics
- Cell Biology
- Colloid Chemistry
- Critical Reasoning and Argumentation
- Critical Reasoning and Persuasion
- Engineering Mathematics I
- Inorganic Chemistry
- Introduction to Fragrances and Flavours
- Organic Chemistry
- Physical Chemistry
- Report Writing & Presentation
- Skin Care Raw Materials and Products

## SECOND YEAR

- Basic Instrumental Analysis
- Consumer Psychology
- Engineering Mathematics II
- Environmental, Health and Safety
- Fragrance and Flavour Chemistry
- Hair Care Raw Materials and Products
- Independent Study Project and Presentation
- Industrial Training Programme
- Organic Chemistry – Reaction Mechanism
- Quality Assurance & Statistics
- Retail Communication
- Social Innovation Project

### Elective Modules

- Basic Biochemistry
- Forensic Chemistry
- Nutrition
- Advanced Instrumental and Laboratory Techniques
- Advanced Organic Chemistry
- Advanced Physical Chemistry
- GMP
- Communication Skills for Interpersonal and Work Effectiveness
- Formulation Science of Cosmetics
- Laboratory Management
- Marketing Communication
- Project
- Safety Assessment and Cosmetic Regulations
- The Art of Perfumery

## THIRD YEAR

# Bright Future

Exciting career opportunities await you when you graduate. You career options include Chemist; Product Development Specialist; Product Application Chemist; Quality Control Chemist; Regulatory and Product Safety Personnel; Perfumery Assistant; Sales / Business / Marketing Executive; and Product Formulator.

## Further Studies

You can pursue further studies at local or overseas universities in the areas of cosmetic science, perfumery and chemistry.



# Believe

“Choosing to come to SP to do this course was a daunting decision as it meant forsaking the well-trodden path. But it was one of the best decisions I’ve made in life. I chose to do DPCS because it is a love I’ve harboured since young and I know it’s something I’d like to spend the rest of my life doing.”

*– Alethea Joy Han Hui En, Second year DPCS student, perfumery enthusiast who completed her recent internship at Oxford University, UK.*

For further information regarding entry requirements, courses and careers please contact:

**School of Chemical and Life Sciences**

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**WITH SP, IT'S SO POSSIBLE.**

*Produced by*

**Department of Corporate Communications**

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