Chemical & Life Sciences

Applied Chemistry
Biomedical Science
Biotechnology
Chemical Engineering
Food Science & Technology
Nutrition, Health & Wellness
Optometry
Perfumery & Cosmetic Science
At the School of Chemical & Life Sciences (CLS), you can unlock the mysteries of science and create wonders to better life.

The robust curriculum, coupled with strong links to industries, gives you an edge in your future workplace. You acquire lifelong skills that empower you to take on and excel in various fields, like applied chemistry, energy and chemicals, food and nutrition, healthcare, medical technology, as well as cosmetics and perfumery!

When you graduate, you can contribute to discoveries that enhance the quality of life.

In CLS, we pride ourselves on optimising the human factor.

Our lecturers are well trained in teaching pedagogies and richly experienced in their respective fields. Most importantly, they are passionate in their shared purpose to mold you into competent adults ready for the world.

We have alumni who are now award winning scientists. Our graduates have also been admitted to study chemical engineering, chemistry, dentistry, life sciences, medicine and pharmacy at various local and overseas universities.

Our graduates do not just excel in the academic field. Some have gone on to become successful entrepreneurs, having benefitted from being exposed to numerous industry-related projects and collaborations during their studies.

Do not simply take our word for it. Go through this brochure to find out exactly what our graduates think of our courses and lecturers.
DIPLOMA IN
APPLICATION CHEMISTRY

Discover the mysterious and captivating properties of chemicals, drugs, and materials through an exciting applications-based journey with us. The Diploma in Applied Chemistry (DAPC) is the first diploma in Singapore to focus on building a strong foundation in chemistry which provides you the versatility to work in various chemistry-related sectors.

The DAPC course provides the learning environment for you to conduct research on, synthesise and test new chemicals, drugs, and materials. By the end of the course, you will be able to solve problems independently and experience what it is like to work at the forefront of investigative chemistry.

Through a specially developed progressive learning strategy, you will be imparted with knowledge acquisition skills on fundamental chemistry principles during your first year. In the second year, you are equipped with the skills to perform chemical investigations and interpretation of results using real-life situations. During your third year, you will be able to develop and optimise new products or methods to improve lives, hence igniting your creativity skills.

Upon graduation, you will be ready to contribute to the chemical, pharmaceutical and materials-related industries or further your studies in tertiary institutions.

SCHOLARSHIPS AVAILABLE
- Singapore Polytechnic Scholarships
- A*STAR Science Award
- Mitsui Chemicals Scholarships
- MOH Holdings Scholarships

ENTRY REQUIREMENTS
2019 JAE ELR2B2: 10
Aggregate Type: ELR2B2-C

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COURSE HIGHLIGHTS
- Only course in Singapore on Applied Chemistry
- Specialise in one of the three options: Pharmaceutical Science, Industrial Chemistry, or Materials Science
- Course is recognised by the UK Royal Society of Chemistry (RSC) and the UK Institute of Materials, Minerals and Mining (IOM3)
- Work with state-of-the-art equipment in well-designed laboratory suites: Analytical & Forensic Chemistry, Pharmaceutical Chemistry and Materials Science
- Internship or dedicated research experience with local and overseas institutions

DAPC – S64
The Diploma in Applied Chemistry is a three-year full-time programme.

**FIRST YEAR**

- **Common**
  - Analytical Chemistry
  - Basic Mathematics
  - Communicating for Project Effectiveness (Proposal)
  - Critical and Analytical Thinking

- **Industrial Chemistry Option**
  - Advanced Instrumental and Lab Techniques
  - Advanced Organic Chemistry
  - Elective 1
  - CoMP and Validation
  - Internship Programme
  - Petrochemicals and its Applications
  - Specialty Chemicals

- **Pharmaceutical Science Option**
  - Advanced Instrumental and Lab Techniques
  - Advanced Organic Chemistry
  - Bioprocess Engineering Principles
  - Elective 2
  - CoMP and Validation
  - Internship Programme
  - Pharmaceutical Manufacturing

- **Materials Science Option**
  - Advanced Materials
  - Capstone Project
  - Coating, Adhesives and Elastomers
  - Elective 3
  - Internship Programme
  - Laboratory Management
  - Materials Innovation and Design

**SECOND YEAR**

- **Common for Industrial Chemistry and Pharmaceutical Science Options**
  - Advanced Physical Chemistry
  - Biochemistry
  - Communicating for Professional Effectiveness
  - Design Thinking for Social Innovation
  - Education and Career Guidance 1
  - Elective 1
  - Elective 2
  - Engineering Mathematics II
  - Environmental Studies
  - Inorganic Chemistry
  - Laboratory Skills in Analytical and Physical Chemistry
  - Laboratory Skills in Inorganic and Organic Chemistry
  - Instrumental Analysis
  - Laboratory Management
  - Organic Chemistry - Reaction Mechanism
  - Pharmacology and Pharmaceutical Chemistry
  - Quality Assurance and Statistics

- **Materials Science Option**
  - Elective 2
  - Engineering Mathematics II
  - Instrumental Analysis
  - Mechanics of Materials
  - Materials Characterisation and Failure Analysis
  - Materials Laboratory Skills
  - Materials Processing
  - Materials Processing Skills
  - Organic Chemistry - Reaction Mechanism
  - Polymeric Materials
  - Quality Assurance and Statistics

**THIRD YEAR**

- **Industrial Chemistry Option**
  - Advanced Physical Chemistry
  - Biochemistry
  - Communicating for Professional Effectiveness
  - Design Thinking for Social Innovation
  - Education and Career Guidance 2
  - Elective 1
  - Elective 2
  - Engineering Mathematics II
  - Forensic Chemistry
  - Instrumental Analysis
  - Laboratory Management
  - Lab Techniques
  - Organic Chemistry - Reaction Mechanism
  - Pharmacology and Pharmaceutical Chemistry
  - Quality Assurance and Statistics

- **Pharmaceutical Science Option**
  - Advanced Instrumental and Lab Techniques
  - Advanced Organic Chemistry
  - Bioprocess Engineering Principles
  - Elective 3
  - CoMP and Validation
  - Internship Programme
  - Pharmaceutical Manufacturing

- **Materials Science Option**
  - Advanced Materials
  - Capstone Project
  - Coating, Adhesives and Elastomers
  - Elective 3
  - Internship Programme
  - Laboratory Management
  - Materials Innovation and Design

**COURSE MODULES**

The Diploma in Applied Chemistry is a three-year full-time programme. All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year. In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

**CAREER OPTIONS**

- Application Chemist
- Assistant Engineer
- Chemical Technologist
- Chemist
- Environmental, Safety & Health Officer
- Materials Characterisation / Failure Analysis Specialist
- Process Designer
- Purchaser / Procurement Engineer
- Quality Assurance / Quality Control Laboratory Analyst
- Regulatory & Compliance Officer
- Research Assistant
- Sales & Marketing Executive
- Technical Specialist

**FURTHER STUDIES**

Many of our graduates gain direct entry into the second or third year of degree programmes at local or overseas institutions. Related degree programmes include Chemistry, Pharmaceutical Science, Materials Science and Engineering.

**Huang Jiemin**

SMCD Gold Medallist, Class of 2015, who is now pursuing a Materials Engineering degree at Nanyang Technological University.

I have always been intrigued by the mysterious and captivating properties of materials. This course has benefited me a lot and provided the answers to the mysteries behind the different materials and how they are applied to improve lives. The interesting learning journey has helped to develop both my technical competency and my outlook for the future. We owe a lot to our lecturers who have made their lessons engaging and easy to understand by bringing in real-life examples and applications. I will always cherish the care and concern shown by my lecturers and course mates.

Huang Jiemin

DACM Gold Medallist, Class of 2015, who is now pursuing a Materials Engineering degree at Nanyang Technological University.

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DIPLOMA IN

BIOMEDICAL SCIENCE

(DBS – S98)

Biomedical Science is all about science that ‘saves lives’ – from the science of human functionality to research activities for knowledge and development of diagnostic tools and frpm to medical testing for diagnosis, management and prevention of diseases.

Our students can choose from three exciting specialisation options:
- Medical Technology
- Cardiac Technology
- Biomedical Research

The only curriculum in Singapore recognised by international accreditations:
- American Society for Clinical Pathology (ASCP) USA
- Institute of Biomedical Science, (IBMS) UK

SCHOLARSHIPS AVAILABLE
- Singapore Polytechnic Scholarships
- A*STAR Science Award
- MOH Holdings Scholarships

COURSE HIGHLIGHTS
- Internships at top-notch clinical laboratories or premier research laboratories including A*STAR Institutes and top-ranked universities in the USA
- Training partnership with National Heart Centre Singapore for Cardiac Technology option provides an authentic learning experience
- Opportunities to work with prominent local and international research scientists and clinicians on current research projects
- Fantastic network of students and alumni
- Opportunity to expand interests through elective modules in Forensic Biology, Cytogenetics or Introductory Pharmacology

ENTRY REQUIREMENTS

2019 JAE ELDGZ: 7
Aggregate Type: ELR2B2-C

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The Diploma in Biomedical Science is a three-year full-time programme.

**FIRST YEAR**
- **Common**
  - Analytical and Physical Chemistry
  - Cell and Molecular Genetics
  - Communicating for Personal and Team Effectiveness
- **Cardiac Technology Option**
  - Electrophysiology and Pacemakers
  - Echocardiography
  - ECG and Rythmn Disorders
  - Cardiac Catheterisation
- **Biomedical Research Option**
  - Advanced Cell Biology
  - Advanced Immunology
  - Biostatistics
  - Clinical Biochemistry
  - Design Thinking for Social Innovation
  - Education and Career Guidance 1 – Personal Development (15 hours)
  - Elective 1
  - General Cardiology and Cardiovascular Disorders 1

**SECOND YEAR**
- **Medical Technology Option**
  - Advanced in Laboratory Medicine
  - Applied Clinical Chemistry
  - Applied Haematology
  - Applied Immunology
  - Internship Programme
  - Molecular Medical Microbiology
  - Project
  - Elective 3
- **Cardiac Technology Option**
  - Applied Cardiovascular Anatomy and Physiology
  - Clinical Applications of Cardiovascular Drugs
  - Clinical Attachment
  - Clinical Research Management
  - Diagnostic and Interventional Cardiac Catheterisation
  - ECG and Rhythm Disorders
  - Electrocardiography
  - Electrophysiology and Pacing Devices
  - General Cardiology and Cardiovascular Disorders 1
- **Biomedical Research Option**
  - Advanced Cell Biology
  - Advanced Immunology
  - Biostatistics
  - Clinical Biochemistry
  - Design Thinking for Social Innovation
  - Education and Career Guidance 2 – Personal Development (15 hours)
  - Elective 2
  - Elective 3
  - Haematology
  - Histological Techniques
  - Introductory Pharmacology
  - Medical Microbiology
  - Molecular Techniques for Biosciences
  - Organic Chemistry - Reaction Mechanism

**THIRD YEAR**
- **Medical Technology Option**
  - Advances in Laboratory Medicine
  - Applied Clinical Chemistry
  - Applied Haematology
  - Applied Immunology
  - Internship Programme
  - Molecular Medical Microbiology
  - Project
  - Elective 3
- **Cardiac Technology Option**
  - Advanced Cardiac Anatomy and Physiology
  - Clinical Applications of Cardiovascular Drugs
  - Clinical Attachment
  - Clinical Research Management
  - Diagnostic and Interventional Cardiac Catheterisation
  - ECG and Rhythm Disorders
  - Electrocardiography
  - Electrophysiology and Pacing Devices
  - General Cardiology and Cardiovascular Disorders 1
- **Biomedical Research Option**
  - Advanced Cell Biology
  - Advanced Immunology
  - Biostatistics
  - Clinical Biochemistry
  - Design Thinking for Social Innovation
  - Education and Career Guidance 2 – Personal Development (15 hours)
  - Elective 2
  - Elective 3
  - Haematology
  - Histological Techniques
  - Introductory Pharmacology
  - Medical Microbiology
  - Molecular Techniques for Biosciences
  - Organic Chemistry - Reaction Mechanism

**CAREER OPTIONS**
- Administrator (Medical Industry)
- Assistant Biotechnologist
- Assistant Quality Control Laboratory Analyst
- Research Assistant
- Sales and Marketing Executive
- Technical Specialist
- Medical Technologist
- Quality Assurance Assistant
- Research Assistant
- Biotechnologist
- Medical Technologist

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

Eric Ong Jia Yong
DBS Gold Medallist, Class of 2017

Electives
The SP elective framework offers students options to pursue their passion and to meet different career needs, and as an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

The clinical-based curriculum was comprehensive, coupled with a plethora of well-designed practical sessions providing us with a strong foundation in the biomedical sciences and laboratory competencies.

In addition, internship has greatly broadened our horizons in hospital medical laboratories and research facilities. Our Final-Year Projects equipped us with appropriate skills that enabled us to carry out scientific investigation and experiments independently.

For a list of electives offered, please visit www.sp.edu.sg

For all full-time diploma students are required to take two compulsory Education and Career Guidance Modules. Students in SP will take SP004 Education and Career Guidance 1 – Personal Development (15 hours) in their first year. In their second or third year, students will take SP004A Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year on SFL. In their second and third year, students may sign up for SFL module as an elective.
DIPLOMA IN

BIOTECHNOLOGY (DBT – S72)

An inquiry-focused curriculum for bio-enthusiasts who love to learn through self-discovery.

The diploma focuses on translational and life sciences, research and the bio-pharmaceutical industries. Fun and interactive modules in the first year form a foundation in biosciences. This is further enhanced in the second year through an integrated approach to encourage life-long learning. Structured internships in the final year reinforce fundamental and applied knowledge.

Opportunities are available for students to expand their interests through elective modules in Forensic Biology, Cytogenetics, Introductory Pharmacology, Bioremediation Technologies or Agrobiootechnology.

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 biosciences and biologics industries will open the door to many career possibilities.

SCHOLARSHIPS AVAILABLE

- Singapore Polytechnic Scholarships
- A*STAR Science Award
- MOH Holdings Scholarships

COURSE HIGHLIGHTS

- Hands-on training in specialised laboratories on campus and through internships and research projects
- Opportunity to work with prominent scientists and researchers in local and overseas top-ranked universities and research institutions during internships
- A career in R&D, biologics, bio-pharmaceuticals, commerce, food or as biosafety coordinators
- Extensive Alumni Network

ENTRY REQUIREMENTS

2019 JAE ELR2B2: B
Aggregate Type: ELR2B2-C

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COURSE MODULES

The Diploma in Biotechnology is a three-year full-time programme.

FIRST YEAR
- Analytical and Physical Chemistry
- Cell and Molecular Genetics
- Communicating for Personal and Team Effectiveness
- Communicating for Project Effectiveness
- Critical and Analytical Thinking
- Education and Career Guidance 1
- Elective 1
- Good Biosafety Practices
- Immunology
- Inorganic and Organic Chemistry
- Mathematics A
- Mathematics B
- Microbiology
- Narrative Thinking
- Physiology and Biochemistry

SECOND YEAR
- Advanced Cell Biology
- Bio-Conceptualise
- Bio-Discover
- Biostatistics
- Cell and Tissue Engineering
- Current Good Manufacturing Practice and Validation
- Design Thinking for Social Innovation
- Education and Career Guidance 2
- Elective 2
- Elective 3
- Flow Cytometry and Microscopy
- Molecular Techniques for Biosciences
- Organic Chemistry - Reaction Mechanism
- Proteomics

THIRD YEAR
- Bio-Discover
- Bioprocessing and Biologics Technology
- Drug Discovery and Bioinformatics
- Health, Safety and Environmental Management
- Internship Programme

FURTHER STUDIES
Many of our graduates gain direct entry into the second or third year of biological science degree programmes in local and overseas universities. You also have the flexibility to pursue other courses such as biomedical science, pharmacy, medicine, dentistry, environmental science and biomedical science with traditional Chinese medicine at local universities such as National University of Singapore and Nanyang Technological University.

CAREER OPTIONS
- Assistant Biotechnologist
- Assistant Quality Control Laboratory Analyst
- Clinical Trial Coordinator
- Laboratory Biosafety Coordinator
- Laboratory Technologist
- Microbiologist
- Quality Assurance Assistant
- Research Assistant
- Sales and Marketing Executive
- Technical Specialist

The comprehensive curriculum which places great emphasis on hands-on and applied learning has equipped me with the relevant skills needed in my journey beyond Singapore Polytechnic. The recently implemented Final Year Project system, with its emphasis on self-exploration, has imparted me with a sturdy foundation in research and data analysis. The 30-week internship at A*STAR has built my confidence as a work ready researcher and most importantly, a world ready individual!

Don Loi Xu
DBT Gold Medallist and Lee Kuan Yew Award Winner, Class of 2017

Electives
The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, lifelong learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year. In their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.
DIPLOMA IN CHEMICAL ENGINEERING

Chemical engineering is the discipline where sciences are combined with applied mathematics and engineering principles. It takes laboratory ideas and turns them into value-added products using cost-effective, safe and cutting-edge processes for the chemical industry.

Some famous chemical engineers in history include John McKeen, who designed the first industrial-scale production of penicillin that saved thousands of soldiers’ lives during World War II; Carl Bosch who invented the Haber-Bosch process to produce ammonia, a critical ingredient in synthetic fertilizers that enable us to produce enough food to feed the Earth’s growing population.

Join us if you aspire to be like the above prominent chemical engineers who make real, significant impact in improving our world for a better tomorrow!

SCHOLARSHIPS AVAILABLE

- Singapore Polytechnic Engineering Scholarships
- A*STAR Science Award
- Mitsui Chemicals Scholarships

COURSE HIGHLIGHTS

- First diploma programme in Singapore to be fully accredited by the Institution of Chemical Engineers, IChemE, United Kingdom. The full IChemE accreditation signifies worldwide recognition by universities and industries of the rigour and quality of our programme.
- Triple-winner of IChemE’s Excellence in Education and Training award, which signifies the outstanding quality of our programme.
- First chemical engineering diploma course in the world to adopt the Conceive-Design-Implement-Operate (CDIO) education framework which is in collaboration with top universities such as Massachusetts Institute of Technology, United States and Tsinghua University, China.
- Internship at local and overseas chemical processing companies and institutions.

ENTRY REQUIREMENTS

2019 JAE ELR2B2: 13
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(DCHE – S70)
The Diploma in Chemical Engineering is a three-year full-time programme.

**FIRST YEAR**
- Analytical and Physical Chemistry
- Basic Mathematics
- Chemical Engineering Thermodynamics
- Communicating for Project Effectiveness
- Critical and Analytical Thinking
- Education and Career Guidance 1
- Engineering Mathematics I
- Fluid Flow and Equipment
- Heat Transfer and Equipment
- Inorganic and Organic Chemistry
- Introduction to Chemical Engineering
- Laboratory and Process Skills 1
- Laboratory and Process Skills 2
- Materials for Design
- Narrative Thinking

**SECOND YEAR**
- Chemical Engineering Design Calculations
- Chemical Product Design and Development
- Chemical Reaction Engineering
- Communicating for Professional Effectiveness
- Design Thinking for Social Innovation
- Education and Career Guidance 2
- Elective 1
- Elective 2
- Engineering Mathematics II
- Introduction to Chemical Product Design
- Pharmaceutical Engineering
- Process Instrumentation and Control
- Process Operation Skills 1
- Process Operation Skills 2
- Separation Processes and Simulation

**THIRD YEAR**
- Biopharmaceutical Engineering
- Capstone Project
- Critical and Analytical Thinking
- Entrepreneurship Programme
- Plant Design, Economics and Sustainable Development
- Process Plant Safety and Engineering Ethics

**FURTHER STUDIES**
Each year, more than half of our graduates are successfully accepted into well-established local and overseas universities. Many of them are also offered module exemptions or direct entry into the second or third year of their university degree programmes.

Our graduates can also apply for either a 2.5-year degree programme in chemical engineering that is offered by Technical University of Munich (TUM) and Singapore Institute of Technology (SIT) or a 2-year degree programme in chemical engineering that is offered by Newcastle University (Nj), United Kingdom and SIT.

**CAREER OPTIONS**
- Assistant Biotechnologist
- Business Development Executive
- Engineering, Procurement and Construction (EPC) Engineer
- Health, Safety Environmental (HSE) Officer
- Laboratory Technician
- Logistics and Supply Chain Specialist
- Maintenance Specialist / Technician
- Process Engineer / Technician / Technologist
- Production Technician
- Project Management Engineer
- Quality Assurance / Control Engineer
- Sales and Marketing Engineer

The rigorous DCHE curriculum in SP which is recognised by the industry and tertiary institutions worldwide has been beneficial to my academic and personal development. CDIO, Design Thinking and Flipped Classrooms are integrated in various modules to make learning more dynamic for me. An internship at the University of Canterbury exposed me to an overseas educational and research environment. A local industrial attachment at Solvay Specialty Chemicals allowed me to apply theoretical knowledge and practical skills gained from the course to develop and optimise existing processes and systems. In short, the experiential learning in DCHE has prepared me to meet future challenges.

Liew Zheng Jie
DCHE Gold Medallist and Lee Kuan Yew Award Winner, Class of 2017

**FPT**

Electives

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year in their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year students may sign up for SFL module as an elective.
DIPLOMA IN FOOD SCIENCE & TECHNOLOGY

(Scholarships Available)

- Singapore Polytechnic Scholarships
- A*STAR Science Award
- BASF Scholarship
- MOH Holdings Scholarships
- SFMA – Pak Ching Chuan Scholarship
- SFST Best Student Award cum Rintoul Memorial Scholarship
- Tai Hua Scholarship

Come part of the team that designs food to excite the taste and imagination through food science and technology. Come join the ranks of food scientists and technologists to launch innovative new products to meet the needs of today’s ever curious and adventurous consumers!

Through Design Thinking innovative teaching and industry-linked projects, you will discover the world of food - from raw materials to ingredients, processes and packaging to finished consumer products! As a food scientist or technologist, you can play an important role in making our foods more appealing, yet healthier and safer!

Come journey through DFST by honing your skills though basic science modules and uncovering the mysteries of food.

COURSE HIGHLIGHTS

- Well-equipped facilities such as the Food Creation Lab, Dough and Roll Studio, Food Analysis Lab, Food Processing & Packaging Lab and Biotransformation Lab
- Work with the Food Innovation & Resource Centre (FIRC) at SP, a one-stop centre that provides integrated consultancy, advice and training for food companies
- This course is certified by the International Union of Food Science & Technology (IUFoST) for having met international standards and guidelines
- Opportunities to acquire a global perspective on research, product development and food operations through overseas internships or learning journeys
- Successful commercialisation of a portfolio of food products including the XO Kaya, Lemon & Kalamansi drink etc.

ENTRY REQUIREMENTS

2019 JAE ELR2B2: 12
Aggregate Type: ELR2B2-C

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COURSE MODULES

The Diploma in Food Science & Technology is a three-year full-time programme.

FIRST YEAR
- Analytical & Physical Chemistry
- Applied Nutrition
- Basic Mathematics
- Basic Microbiology
- Critical and Analytical Thinking
- Culinary Science
- Education and Career Guidance 1
- Engineering Mathematics I
- Food Chemistry
- Food Processing Principles
- Inorganic & Organic Chemistry
- Introductory Food Science
- Narrative Thinking
- Nutrition

SECOND YEAR
- Education and Career Guidance 2
- Elective 1
- Elective 2
- Food Ingredients
- Food Microbiology
- Food Preservation
- Food Process Engineering
- Food Product Design and Packaging
- Food Safety and Quality Management
- Project
- Statistics & Analytics
- Instrumental Analysis
- Organic Chemistry – Reaction Mechanism
- Study Trip

THIRD YEAR
- Communicating for Professional Effectiveness
- Elective 3
- Food Trends and Regulations
- Internship Programme
- Process Design and Implementation
- Project

FURTHER STUDIES
You can apply for related degree programmes at local or overseas universities such as the Bachelor in Science – Food Science and Technology at the National University of Singapore; or the Degree in Biological Sciences with a Second Major in Food Science and Technology or the Degree in Chemical and Biomolecular Engineering with a Second Major in Food Science and Technology or the Degree in Chemistry and Biological Chemistry with a Second Major in Food Science & Technology at Nanyang Technological University. You can also apply for admission to the Bachelor in Food Technology (Honours) programme or the Bachelor of Professional Studies in Culinary Arts Management offered by the Singapore Institute of Technology.

CAREER OPTIONS
- Assistant Food Technologist
- Food Technologist
- Food Audit Officer
- Food Hygiene Officer
- Food Safety Officer
- Laboratory Technologist
- Market Development Executive
- Packaging Technologist
- Quality Assurance / Quality Control Executive
- Research & Development Technologist
- Sales & Marketing Executive

DFST has provided me with abundant opportunities to explore my interests through experiential learning. These experiences have allowed me to hone my technical and soft skills, and build meaningful connections within the industry. I feel immensely thankful for our dedicated lecturers who made me realise that education is not rooted in individual success, but it is entrenched in the belief that this could be used for the betterment of my community.

Magdalene Tan Qiao Hui
DFST Gold Medallist, Class of 2017, who is pursuing a B. Sc. (Hons) Food Science & Technology at National University of Singapore under the Rintoul Scholarship
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 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.

SCHOLARSHIPS AVAILABLE
• Singapore Polytechnic Scholarships
• A*STAR Science Award
• BASF Scholarship
• MOH Holdings Scholarship

COURSE HIGHLIGHTS
• Advanced facilities such as the Nutrition, Health and Wellness Centre, which houses the physical fitness and exercise physiology laboratories; food science, health food preparation and demonstration laboratories
• Participate in health and wellness outreach programmes
• A 17-week local or overseas internship programme

ENTRY REQUIREMENTS
2019 JAE ELR2B2: 9
Aggregate Type: ELR2B2-C
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### COURSE MODULES

The Diploma in Nutrition, Health & Wellness is a three-year full-time programme.

#### FIRST YEAR
- Analytical and Physical Chemistry
- Anatomy and Physiology
- Cell Biology, Microbiology and Immunology
- Communicating for Project
- Critical and Analytical Thinking
- Effectiveness
- Education and Career Guidance 1
- Fitness and Wellness throughout the Lifespan
- Introductory Food Science
- Introduction to Health and Wellness
- Inorganic and Organic Chemistry
- Mathematics A
- Mathematics B
- Narrative Thinking
- Nutrition

#### SECOND YEAR
- Applied Nutrition
- Basic Biomechanics
- Biostatistics
- Communicating for Personal and Team Effectiveness
- Design Thinking for Social Innovation
- Diet and Nutrition Assessment
- Education and Career Guidance 2
- Elective 1
- Elective 2
- Exercise Physiology
- Health and Aging
- Health Education and Health Promotion
- Introduction to Biochemistry
- Nutrition and Disease
- Organic Chemistry - Reaction Mechanism

#### THIRD YEAR
- Clinical Nutrition
- Elective 3
- Internship Programme
- Physical Fitness Assessment and Exercise Prescription
- Project
- Public Health and Community Nutrition
- Research Methods
- Sports and Exercise Nutrition

#### FURTHER STUDIES

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

#### CAREER OPTIONS
- Assistant Nutritionist
- Corporate Wellness Coordinator
- Dietetic Assistant
- Fitness Instructor
- Health Promotion Executive
- Health Screening Assistant
- Lifestyle Coach
- Patient Service Associate
- Personal Trainer
- Rehabilitation Assistant
- Sales & Marketing Executive

One of my memorable highlights at DNHW was participating in health and wellness outreach programmes. I look forward to doing my part in ensuring disease prevention and control, as well as promoting and maintaining good health among the people around me.

Melissa Tay Hui Juan
DNHW Gold Medallist, Class of 2016

Electives

The SP elective framework offers students options to pursue their passion and / or meet different career needs, and is an integral part of the holistic education we seek to provide to our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year, in their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

“...”
Take a moment to consider the importance of eyesight and the impact it has 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 managing refractive errors (such as myopia and presbyopia) through spectacle and contact lens correction, and detecting common eye diseases (such as cataract, diabetic retinopathy and glaucoma).

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

**COURSE HIGHLIGHTS**
- First tertiary institution in Singapore to offer this course since 1994
- Our students start working with patients in the first year and continue with greater responsibilities in the subsequent years
- Excellent clinical and laboratory facilities and SP Optometry Centre provide you with hands-on experience using state-of-the-art precision instruments and equipment
- Register as a qualified optometrist with the Optometrists and Opticians Board when you graduate
- Regular industrial attachments at hospitals, optometric practices, contact lens or ophthalmic lens companies to widen your scope and experience in optometry
- Four-month continuous internship in the eye care industry is a key component
- Opportunities for overseas exposure via community service projects or attachments to optometry schools and research institutions abroad

**ENTRY REQUIREMENTS**
2019 JAE ELR2B2: 12
Aggregate Type: ELR2B2-C

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Applicants with severe vision impairment may encounter difficulties meeting the course requirements and expectations. Please refer to the Ministry of Health (MOH) website on ‘Fitness to Practice’ for registered Optometrists.
FURTHER STUDIES

SP Optometry diploma allows direct entry into the second or third year of overseas optometry degree programmes. You are also eligible to apply for many non-optometry degree programmes at local universities, including Medicine at NUS and Biological Sciences at NTU.

CAREER OPTIONS

• Lens Consultant
• Marketing and Customer Development Executive
• Optometrist at retail optical outlets
• Optometrist at Hospitals and Clinics
• Professional Affairs Executive
• Research Optometrist

I had many memorable experiences as a Diploma in Optometry student. I did my internship at AeroV Singapore, where I learnt more about contact lenses that you can wear to sleep and gained opportunities to use various forms of optometry equipment to serve customers. I’m also thankful for the opportunity to provide eye care to local and overseas communities on trips such as the Gift of Sight programme in Surabaya, Indonesia. Such experiences have allowed me to develop a greater sense of empathy, and I look forward to delivering best-quality eye and vision care to my future patients.

Lai Pin Nean
DOPT Gold Medallist, Class of 2018

FIRST YEAR
• Clinical Optometry 1
• Clinical Optometry 2
• Communicating for Personal and Team Effectiveness
• Critical and Analytical Thinking
• Education and Career Guidance 1
• Geometrical and Physical Optics
• Human Physiology and Cell Biology
• Mathematics A
• Mathematics B
• Narrative Thinking
• Ocular Anatomy and Physiology
• Ophthalmic Dispensing
• Ophthalmic Optics
• Physiological and Visual Optics

SECOND YEAR
• Analytical and Physical Chemistry
• Binocular Vision
• Clinical Optometry 3
• Clinical Practice 1
• Contact Lenses
• Contact Lens Practice 1
• Design Thinking for Social Innovation
• Education and Career Guidance 2
• Elective 1
• Elective 2
• Inorganic and Organic Chemistry
• Ocular Disease 1
• Ocular Pharmacology

THIRD YEAR
• Clinical Practice 2
• Contact Lens Practice 2
• Elective 3
• Internship Programme
• Low Vision and Community Health Optometry
• Ocular Disease 2
• Paediatric Optometry

Electives

The SP elective framework offers students options to pursue their passion and/or meet different career needs, and is an integral part of the holistic education we seek to provide for our students. The learning experiences of this elective framework help students in their development as self-directed, versatile, life-long learners, which are essential in today’s volatile and changing societal as well as occupational landscape.

For a list of electives offered, please visit www.sp.edu.sg

All full-time diploma students are required to take two compulsory Education and Career Guidance Modules in SP. Students will take SP101A: Education and Career Guidance 1 – Personal Development (15 hours) in their first year in their second or third year, students will take SP201A: Education and Career Guidance 2 – Career Development (30 hours).

All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

FURTHER STUDIES

SP Optometry diploma allows direct entry into the second or third year of overseas optometry degree programmes. You are also eligible to apply for many non-optometry degree programmes at local universities, including Medicine at NUS and Biological Sciences at NTU.
DIPLOMA IN PERFUMERY & COSMETIC SCIENCE

If you have the passion to:
- formulate products that will give you age-defying looks;
- uncover the secrets of fragrance creation;

you are cordially invited to begin your journey with the Diploma in Perfumery & Cosmetic Science (DPCS) at SP.

It is the only local diploma programme that provides training in chemistry with applications in perfumery and cosmetic science. You will have integrated learning experience where you will build a strong chemistry foundation and apply your knowledge in specific applications using your senses.

With this unique training in SP, your skills will be highly sought after not just locally but internationally in the lucrative and recession resistant fragrance and cosmetic industries.

SCHOLARSHIPS AVAILABLE
• Singapore Polytechnic Scholarships
• Society of Cosmetic Scientists (Singapore) Merit Award
• A*STAR Science Award

COURSE HIGHLIGHTS
• Specialisation in Chemistry, Perfumery and Cosmetic Science
• Get trained in our state-of-the-art Perfumery and Cosmetic Science Centre
• Collaborate with industry partners to create and commercialise student formulations, for example, the Romance Singapore series of perfumes was created by our students
• Real and exciting experiences in making perfumes and cosmetic products, producing fragrance raw materials through organic synthesis and distilling essential oils from plant extracts
• Internship with perfumers, chemists, product formulators or dermatologists at chemical companies or cosmetic companies or fragrance and flavour houses
• Be awarded with a training certificate in ‘Analytical Instrumentation and Laboratory Techniques’ accredited by the Royal Society of Chemistry (RSC), UK

ENTRY REQUIREMENTS
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COURSE HIGHLIGHTS
• Specialisation in Chemistry, Perfumery and Cosmetic Science
• Get trained in our state-of-the-art Perfumery and Cosmetic Science Centre
• Collaborate with industry partners to create and commercialise student formulations, for example, the Romance Singapore series of perfumes was created by our students
• Real and exciting experiences in making perfumes and cosmetic products, producing fragrance raw materials through organic synthesis and distilling essential oils from plant extracts
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## COURSE MODULES

The Diploma in Perfumery & Cosmetic Science is a three-year full-time programme.

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<td>• Elective 1</td>
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<td>• Environmental Studies</td>
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<td>• Engineering Mathematics I</td>
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<td>• Hair Care Raw Materials and Products</td>
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<td>• Inorganic Chemistry</td>
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<td>• Laboratory Skills in Analytical and Physical Chemistry</td>
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<td>• Pharmaceutical Microbiology</td>
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<td>• Physical Chemistry</td>
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<td>• Skin Care Raw Materials and Products</td>
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<td>• Instrumental Analysis</td>
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<td>• Introduction to Fragrances and Flavours</td>
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<td>• Safety Assessment, GMP and Cosmetic Regulations</td>
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<td>• The Art of Perfumery</td>
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<td>• FEEL Programme</td>
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<td>• Advanced Instrumental and Lab Techniques</td>
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<td>• Advanced Organic Chemistry</td>
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**Electives**

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All students are required to take one compulsory Sports for Life (SFL) module for one semester in their first year in SP. In their second and third year, students may sign up for SFL module as an elective.

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DPCS gave me a platform to understand the industry better. During my 10-month internship in the Applied Research Department of Symrise Singapore, I did research on fragrance encapsulation technology and even conducted test evaluations for an overseas client. The internship deepened and nurtured my passion for cosmetics science.

I look forward to fulfilling my dream of becoming a formulation scientist, a role that will allow me to create personal or home care products that can make a difference to the lives of people. I also envision myself creating low-cost household products for developing countries with hygiene issues.

Lim Jing Ying
DPCS Gold Medalist, Class of 2018, who is pursuing a degree in Chemistry and Biological Chemistry at Nanyang Technological University

**CAREER OPTIONS**

- Chemist
- Formulator
- Fragrance Evaluator
- Procurement Executive
- Product Application Chemist
- Product Development Specialist
- Quality Control / Assurance Chemist
- Regulatory and Product Safety Personnel
- Sales / Business / Marketing Executive
- Trainee / Assistant Perfumer

**FURTHER STUDIES**

You may gain entry into the second and third year of degree programmes in local and overseas universities. You can pursue further studies in the areas of cosmetic science, perfumery and chemistry.
Singapore Polytechnic
500 Dover Road Singapore 139651

For more information regarding entry requirements and course information, please contact:

**School of Chemical & Life Sciences**
Tel: (65) 6775 1133
Fax: (65) 6772 1976
Email: contactus@sp.edu.sg
Website: www.sp.edu.sg/cls

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