



# SCHOOL OF HEALTH SCIENCES

Ngee Ann Polytechnic's School of Health Sciences (HS) appeals to those who share its vision of creating a "Passion to Touch Lives". The School aims to inspire and transform students into caring healthcare professionals with its integrated and industry-oriented curriculum covering core modules in nursing and healthcare as well as contemporary topics such as life sciences and psychology.

HS graduates can look forward to rewarding careers filled with challenges and making a real difference in the lives of many people.

## COURSES OFFERED

HS offers two full-time courses:

- Diploma in Health Sciences (Nursing) (HSN)
- Diploma in Optometry (OPT) **NEW**

The HSN course is designed to nurture students to become competent and caring nursing professionals by integrating knowledge gained from nursing as well as biological, social and behavioural sciences. Armed with a curriculum that covers cell and molecular biology, clinical trials, intellectual property management and drug discovery, students are also trained for research in the healthcare and biomedical sciences sectors.

The new OPT course addresses the rising prevalence and severity of myopia in Singapore. With the current crunch in qualified optometrists that is predicted to continue until 2020, job prospects in this sector are excellent.

## MAJOR ACHIEVEMENTS

Hospitals and patients, who have received nursing care from HSN students on clinical attachments, have given very positive feedback on their performance. HSN students are well-regarded and often praised for their ability to perform their duties with enthusiasm, compassion and professionalism.

HSN students are the first in Asia to use Personal Digital Assistants (PDAs) to access databases on drugs, diseases, treatment techniques and other useful information on the Internet.

These PDAs empower the students to provide quality care to the patients as they are able to access relevant information immediately, analyse the situation and provide the necessary nursing and medical assistance required. Students are kept abreast with current practices in their field of nursing.

## FACILITIES & STAFF

The School of Health Sciences has a highly qualified team of professionals with many years of experience in teaching and working in hospitals. Staff employ a wide range of teaching strategies and tools to bring out the best in students. They constantly engage students in critical thinking and provide them with constant guidance and support.

Lectures and tutorials are supplemented by project work, presentations, laboratory practicals and training in simulated and real-time clinical settings. These enable students to conceptualise clearly and integrate theory in practical settings. Students are required to reflect upon their learning experiences by using journals and discussions, thereby enhancing their critical thinking, clinical judgement and competency as healthcare professionals.

The School is equipped with state-of-the-art facilities such as a Patient Simulation Centre, nursing wards and an operating theatre. The Patient Simulation Centre uses lifelike mannequins in both Intensive Care Unit and Emergency Department settings, where life-saving techniques are taught. The operating theatre allows students to have hands-on experience in a surgical environment before they are deployed to clinical attachments at healthcare institutions.

There are also anatomy and physiology laboratories, and a microbiology laboratory equipped with molecular diagnostic equipment and culture facilities.

At our soon-to-be opened Optometry Business Centre, OPT students hone their skills under the guidance of registered optometrists.



## COLLABORATIONS

HSN students undergo 45 weeks of clinical attachments at various healthcare establishments during their course. Clinical attachments are often to general wards, special discipline wards/units, primary healthcare settings, rehabilitation centres and nursing homes.

Staff and students are also engaged in research projects in collaboration with healthcare institutions. Such projects teach quality care and management of patients.

The School maintains close links with major healthcare institutions from SingHealth Group and National Healthcare Group including private and voluntary organisations. These institutions include Singapore General Hospital, Alexandra Hospital, Tan Tock Seng Hospital, Changi General Hospital, Institute of Mental Health, KK Women's and Children's Hospital, National University Hospital, Raffles Hospital, St Luke's Hospital and Bright Vision Hospital. Other healthcare sectors include day rehabilitation centres and private nursing homes.

HSN students can look forward to various sponsorship opportunities from hospitals during their studies. The sponsorships can cover tuition fees while providing a monthly training allowance.

OPT students will also gain from our strong health industry links. They will undertake optometry-related research projects as well as undergo a 15-week internship at retail optical shops and hospitals to gain valuable work experience. OPT graduates enter the industry with a very marketable set of skills.

## DIPLOMA IN HEALTH SCIENCES (NURSING) (HSN) (3-YEAR COURSE)

SCHOOL OF HEALTH SCIENCES



The **Diploma in Health Sciences (Nursing) (HSN)** was introduced in 2005 with a vision to inspire and transform students into professional, caring nurses with a human touch.

The course provides comprehensive training in the biological, social and behavioural sciences, together with 45 weeks of clinical attachment throughout the three-year course to enable students to put into practice what they have learned.

In addition to core nursing modules, students will learn about the life sciences. The curriculum includes the latest developments in biomedical sciences such as cell and molecular biology, clinical trials, intellectual property management and drug discovery.

HSN graduates are versatile professionals who are well prepared for nursing positions in the healthcare, pharmaceutical and biomedical industries, and are also equipped to explore opportunities in fields other than the health services.

### ENTRY REQUIREMENTS

To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results and fulfill the aggregate computation requirements:

Subject	'O' Level Grade
English Language	1-7**
Mathematics (Elementary/Additional)	1-6
Science (with Physics or Chemistry or Biology component) or Food & Nutrition or Human & Social Biology or General Science	1-6

The aggregate computation for selection is based on grades obtained for English, Mathematics, Science or Design & Technology (Grade 1-9) or Computer Studies (Grade 1-9) and two other subjects.

\*\* Candidates with English as a second language must have attained a minimum grade of 6.

Due to the special requirements of the healthcare profession, all candidates have to pass a medical examination and be free from physical handicap to ensure suitability.

### CAREER PROSPECTS

HSN graduates can practice as registered nurses accredited with the Singapore Nursing Board, and enjoy a good salary package and career progression.

Graduates can embark on a fulfilling career as a clinician nurse focused on providing care to those in need. There is potential for graduates on this path to become a junior doctor, as well as a nurse manager or educator.

Alternatively, HSN graduates can serve the community in a variety of settings related to the healthcare, pharmaceutical and biomedical industries, and even contribute to patient care through research on clinical procedures.

Members of the nursing profession are highly-sought after the world over, and nursing qualifications will open doors to nursing work in many countries.

## ACCREDITATION FOR FURTHER STUDIES

The HSN diploma is recognised by local and established overseas universities. Many Australian universities offer HSN graduates a one-year degree programme.

In addition, several Australian universities such as the **University of Sydney, La Trobe University, Melbourne University and Griffiths University** run part-time courses in Singapore. Many staff nurses opt for such courses so that they can continue working while studying. The Singapore Nursing Board also accredits these degree courses.

## COURSE CURRICULUM

Module Name	Credit Units
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### YEAR 1

#### Level 1.1

(Academic: 26.5 hours per week)

(Clinical Attachment: 40 hours per week)

Fundamentals of Nursing 1	4
Nursing Skills Laboratory 1.1	6
Psychology & Sociology 1	4
Anatomy & Physiology	5
Microbiology & Infection Control	3.5
Creative & Innovative Thinking Skills <sup>^</sup>	2
Communication in Nursing Practice	2
Clinical Attachment 1.1	5

#### Level 1.2 (25 hours per week)

(Academic: 28 hours per week)

(Clinical Attachment: 40 hours per week)

Fundamentals of Nursing 2	4
Nursing Skills Laboratory 1.2	6
Cell & Molecular Biology	4
Pharmacology 1	3
Anatomy & Physiology 2	5
Nursing Research 1	2
Clinical Attachment 1.2	5
Singapore & World Issues <sup>^</sup>	2
Sports & Wellness <sup>^</sup>	2

### YEAR 2

#### Level 2.1

(Academic: 28 hours per week)

(Clinical Attachment: 40 hours per week)

Nursing Science 1	7
Nursing Science 2	6
Nursing Skills Laboratory 2.1	8
Pharmacology 2	3
Nursing Research 2	4
Clinical Attachment 2.1	6

Module Name	Credit Units
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### Level 2.2

(Academic: 27 hours per week)

(Clinical attachment: 40 hours per week)

Nursing Science 3	6
Nursing Science 4	7
Nursing Skills Laboratory 2.2	8
Psychology & Sociology 2	4
Law, Ethics & Healthcare	2
Clinical Attachment 2.2	6

### YEAR 3

Level 3.1 (Academic: 27 hours per week)

Nursing Science 5	3
Nursing Management	5
Work & Professional Development	4
Research Project	4
Nursing Skills Laboratory 3.1	8
Life Sciences Elective	3

Level 3.2 (Clinical Attachment: 40 hours per week)

Clinical Attachment 3.2	10
Pre-Registration Consolidation Placement	14

### Notes:

<sup>^</sup> For more details on Interdisciplinary Studies (IS) modules, please log on to [www.np.edu.sg/is/](http://www.np.edu.sg/is/).

### IS Modules

The School of Interdisciplinary Studies (IS) delivers the interdisciplinary curriculum under the Ngee Ann Learning Model (NLM). The NLM was introduced in 2001 to nurture a new generation of professionals with multidisciplinary skills to meet the challenges of a knowledge-based economy. The NLM incorporates core disciplines and Interdisciplinary Studies. It also nurtures innovative and entrepreneurial traits through the Innovation & Enterprise in Action (I & E in Action) module. IS modules challenge boundaries and offer insights into Communication, Entrepreneurship, Life Skills, Media & the Arts, and Science & Technology.

## COURSE MODULES

### LEVEL 1.1

#### Fundamentals of Nursing 1

This module covers Foundation of Professional Nursing, Principles of Health Promotion, Disease Prevention & Rehabilitation and Nursing Process. The module surveys the development of nursing in Singapore and abroad, as well as the principles of nursing practice, focusing on the caring concept. The framework of the nursing process is introduced for the development of all care plans. Students will also learn how to promote health awareness, disease prevention and rehabilitation.

#### Nursing Skills Laboratory 1.1

This module equips students with the knowledge and skills needed to meet patients' basic health needs at a beginner's level. These essential skills are fundamental to nursing practice and can be applied in a variety of healthcare settings.

### Psychology & Sociology 1

This module presents an overview of psychology, with an introduction to sociological concepts and perspectives for the broad understanding and analysis of society and culture. It provides students with an understanding of how psychology and sociology are applied to healthcare practice.

### Anatomy & Physiology 1

This module provides a basic knowledge of the anatomy and physiology of the human body at the cellular, tissue, and systems level. Various body systems are covered, including the musculo-skeletal, cardiovascular, respiratory, gastro-intestinal, renal, blood, lymphatic and immune systems. The inter-relationships of the body systems and how they maintain homeostasis are also examined.

### Microbiology & Infection Control

This module examines basic microbiology, immunology and the infection process, the body's defence mechanism, and the host-immune response to infections. Students will learn about the modes of transmission of micro-organisms, and the prevention and control of infection in the hospital and community.

### Communication in Nursing Practice

This module focuses on developing effective communication skills for students to establish caring and supporting relationships with patients, their families and healthcare members.

### Clinical Attachment 1.1

This module offers opportunities for students to care for individuals with health needs, diseases and illnesses across a lifespan. Students should will apply the knowledge and skills learnt in clinical practice in the community and hospital settings.

## LEVEL 1.2

### Fundamentals of Nursing 2

This module covers Health Assessment, Caring & Clinical Judgement, Pre- and Post-Operative Nursing Care, and Gerontological Nursing. Students will learn how to interview patients to piece together a health history, and perform a general physical assessment. Besides imparting knowledge on how to care for patients undergoing surgeries, this module also covers the ageing process, problems faced by the elderly and how to care for them in various healthcare settings.

### Nursing Skills Laboratory 1.2

This module provides students with strategies to assess patients' health needs, formulate nursing diagnoses and assist in implementing nursing interventions and care plans.

### Cell & Molecular Biology

This module presents the basic living unit (the cell), cell structures and functions, the central dogma of genetics and genetic diseases. It also covers gene cloning, some advanced molecular techniques and applications of stem cell research.

### Pharmacology 1

This module introduces students to pharmacokinetics and pharmacodynamics. The principles for safe drug administration are highlighted and the nursing process framework is utilised to avoid drug errors. Systems of measurement and drug calculation are also included.

### Anatomy & Physiology 2

This module provides students with a basic knowledge of the anatomy and physiology of the human body's nervous, reproductive, integumentary and endocrine systems. Students will learn the way the body's receptors provide sensory information and how the sensory pathways distribute this information to provide us with our sense of smell, taste, touch, sight, hearing and equilibrium.

### Nursing Research 1

In this module, students will be introduced to nursing research principles, research methodology and nursing research process.

### Clinical Attachment 1.2

This module offers students more exposure in caring for patients in a hospital setting. Students get to apply the knowledge and skills learnt to clinical practice.

## LEVEL 2.1

### Nursing Science 1

This module commences with the human physiological processes followed by diseases and disorders of the immune, cardiovascular and respiratory systems. Students will consolidate their knowledge of anatomy and physiology, pathophysiology and pharmacology, as well as medical and surgical management in caring for such patients. The nursing process framework will be used to develop care plans to meet physical, psychosocial and spiritual needs of patients.

### Nursing Science 2

This module commences with the study of human physiological processes followed by diseases and disorders of the renal, gastrointestinal, hepatic and pancreatic systems. Students will consolidate their knowledge of anatomy and physiology, pathophysiology, pharmacology, as well as medical and surgical management in caring for such patients. The nursing process framework will be used to develop care plans to meet physical, psychosocial and spiritual needs of patients.

### Nursing Skills Laboratory 2.1

This module equips students with the knowledge and skills to handle patients, providing preventive, therapeutic and rehabilitative care. These developmental skills are necessary to enable students to implement plans in caring for adult patients with diseases and medical-surgical disorders of body systems.

### Pharmacology 2

This module builds on Pharmacology 1 and adopts a pathophysiological approach for the study of pharmacology. The classification of drugs according to the disorders of the body systems and diseases places the drugs in the context of how they are used therapeutically. Nursing considerations are emphasised and students are required to use the nursing process framework in drug administration.

### Nursing Research 2

This module introduces quantitative research methods, statistics and qualitative research methods. Students will be presented with evidence-based models and will acquire knowledge and skills to write research proposals.

### Clinical Attachment 2.1

This module offers opportunities for students to care for individuals with diseases in a hospital setting. Students will apply the knowledge and skills learnt to clinical practice.

## LEVEL 2.2

### Nursing Science 3

This module focuses on diseases and disorders of the central nervous, endocrine, reproductive, musculoskeletal, haematological, integumentary and sensory systems. Students will consolidate their knowledge of anatomy and physiology, pathophysiology, pharmacology, as well as medical and surgical management in caring for such patients. The nursing process framework will be used to develop care plans that meet physical, psychosocial and spiritual needs of patients.

### Nursing Science 4

This module introduces students to specialties nursing such as maternal and infant nursing. This provides a basic understanding of conception and care of the mother during the pre-natal, intra-natal and post-natal periods, as well as infant care. Paediatric nursing prepares students for paediatric clinical practice in hospital. For mental health nursing, students will be guided in assessing and planning nursing care for patients with psychiatric disorders, as well as exploring the legal and ethical issues.

### Nursing Skills Laboratory 2.2

This module equips students with the knowledge and skills to provide preventive, therapeutic and rehabilitative care to meet patients' health needs. These developmental skills are necessary to enable students to care for patients with mental health problems, obstetric and gynaecological disorders, and children with medical-surgical disorders.

### Psychology & Sociology 2

This module provides students with an understanding of human development, health psychology, abnormal psychology, and medical sociological theories, and how these concepts apply to healthcare practice. It also provides students with an understanding of psychological and sociological perspectives on health and illnesses.

### Law, Ethics & Healthcare

This module helps students to understand the laws that govern nursing practice, and explores ethical principles and moral standards of conduct. Students are also encouraged to examine their own personal and professional values and beliefs.

### Clinical Attachment 2.2

This module gives students a first-hand experience in caring for patients across a lifespan in a hospital setting. Students should apply the knowledge and skills learnt to clinical practice. They will be assigned to mental health, paediatric, and obstetric and gynaecology units or the Communicable Disease Centre for the clinical attachment practice.

## LEVEL 3.1

### Nursing Science 5

This module has two components, Peri-Operative Nursing and Emergency & Critical Care Nursing. Students will learn about the physical set-up and environment of the operating room and find out about the responsibilities of the nurse. Students will also be introduced to the management of acute or life-threatening conditions at the Accident and Emergency Unit and the care of the critically ill in the high dependency/intensive care units.

### Nursing Management

This module provides students with an understanding of the healthcare system and the organisation of nursing services. Students will examine the role of the registered nurse as a manager and leader.

### Work & Professional Development

This module aims to provide students with a fundamental knowledge of organisations, as well as to promote the personal and professional development of nurses. The knowledge gained will help the students to adapt better in their future work environment.

### Research Project

In this module, students will conduct a clinical research project that will be primarily evidence-based in nature. Students will be exposed to report writing and research workshops.

### Nursing Skills Laboratory 3.1

This module equips students with the knowledge and skills to provide preventive, therapeutic and rehabilitative care for patients. This is necessary to enable students to coordinate and manage patient care in a variety of healthcare settings. Students will also learn how to care for patients in specialised settings such as emergency unit, operation theatre and high dependency/intensive care unit.

### Life Sciences Elective

This module enables students to select either Drug Discovery & Development or Clinical Trials & Intellectual Property Management. Drug Discovery & Development will give students an appreciation of how bio-active compounds are identified and developed into drugs. Clinical Trials & Intellectual Property Management will introduce the fundamentals of clinical trials as design, conduct, analysis and interpretation of trial results and the application of intellectual property management to clinical trials.

## LEVEL 3.2

### Clinical Attachment 3.2

This module gives students experience in caring for patients across a lifespan in a hospital setting. Students will apply the knowledge and skills learnt to clinical practice. They will be assigned to specialised settings such as the emergency unit, operation theatre and high dependency/intensive care unit.

### Pre-Registration Consolidation Placement

Students are required to complete a 14-week Pre-Registration Consolidation Placement (PRCP) in a medical or surgical/orthopaedic discipline. This practice will test all aspects of what has been learnt in the entire course.

## DIPLOMA IN OPTOMETRY (OPT) NEW (3-YEAR COURSE)

SCHOOL OF HEALTH SCIENCES



The **Diploma in Optometry (OPT)** is a full-time three-year course to train students to develop the skills and professionalism required of optometrists.

The course aims to address the needs of an ageing population and the rising prevalence and severity of myopia in Singapore. OPT graduates will be able to play a pivotal role in the first line of detection of eye conditions and diseases in addition to recommending treatments and dispensing visual aids.

It provides comprehensive training in eye examination and hands-on optometry such as clinical and refraction practices together with evidence-based research. The course curriculum also covers paediatric, geriatric and low visions as well as a module on psychology for better understanding and communication with customers.

### ENTRY REQUIREMENTS

To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results and fulfill the aggregate computation requirements:

Subject	'O' Level Grade
English Language	1-7**
Any two of the following subjects:	1-6
Mathematics (Elementary/Additional)	
Additional Combined Science	
Additional Science	
Biology	
Chemistry	
Combined Science	
Engineering Science	
Integrated Science	
Physical Science	
Physics	
Science (Chemistry, Biology)	
Science (Physics, Biology)	
Science (Physics, Chemistry)	
Science (Physics, Chemistry, Biology)	

The aggregate computation for selection is based on grades obtained for English, Mathematics, Science or Design & Technology (Grade 1-9) or Computer Studies (Grade 1-9) and two other subjects.

\*\* Candidates with English as a second language must have attained a minimum grade of 6.

Candidates with severe vision deficiency including colour appreciation deficiency should not apply for the course.

### CAREER PROSPECTS

OPT graduates can practice in ophthalmological clinics, optometry retail outlets, eye care-related companies and hospitals as well as eye research facilities. They can enjoy an attractive salary package and career progression.

With a Diploma in Optometry, graduates will be able to perform refraction, prescribe optical appliances and contact lenses and detect abnormalities in the visual system through the use of optical equipment. Being versatile and sufficiently equipped with such skills as innovation, entrepreneurship and psychology, they can also explore opportunities in fields other than the health services.

### ACCREDITATION FOR FURTHER STUDIES

Graduates can seek admission to relevant degree programmes offered by overseas universities such as:

- University of Manchester (UK)
- Cardiff University (UK)
- City University London (UK)
- The Hong Kong Polytechnic University (HK)
- University of Melbourne (Australia)
- University of New South Wales (Australia)

### COURSE CURRICULUM

Module Name	Credit Units
<b>YEAR 1</b>	
<b>Level 1.1 (29 hours per week)</b>	
General Anatomy & Physiology	3
Chemistry & Biochemistry	6
Geometrical & Physical Optics	6
Maths	5
Ocular Anatomy & Physiology	5
Creativity & Applied Thinking Skills <sup>^</sup>	2
Sports & Wellness <sup>^</sup>	2
<b>Level 1.2 (29 hours per week)</b>	
Fundamentals of Contact Lens	3
Microbiology & Pathology	4
Refraction	6
Ophthalmic Optics	5
Visual & Physiological Optics	5
Systemic Pathology	2
Communication Toolkit <sup>^</sup>	4
<b>YEAR 2</b>	
<b>Level 2.1 (29 hours per week)</b>	
Clinical Optometry	5
Clinical Optometric Instrumentation	6
Lens Glazing & Dispensing	5
Contact Lens Fitting	5
Binocular & Sports Vision	4
Interdisciplinary Studies (IS) Module <sup>^</sup>	2
Interdisciplinary Studies (IS) Module <sup>^</sup>	2

### Module Name

### Credit Units

#### Level 2.2 (28 hours per week)

Ocular Diseases & Management	5
Contact Lens Patient Management	3
Biostatistics & Research Methods	5
Paediatric Vision Management	5
General Clinical Practice 1	6
Innovation & Enterprise in Action <sup>^</sup>	4
Internship (15 weeks)	15

#### YEAR 3

##### Level 3.1 (7 weeks) (29 hours per week)

Community Optometry	1.5
Retail Optometric Practice Management	1.5
Research Project A	1
Contact Lens Clinical Practice 1	4.5
General Clinical Practice 2	4.5
Optometry Law & Ethics	0.75
Psychology	0.75

##### Level 3.2 (29 hours per week)

Geriatric & Low Vision	1
Ophthalmic Pharmacology	3
Contact Lens Clinical Practice 2	8
Research Project B	2
General Clinical Practice 3	7
Paediatric Clinical Practice	4
World Issues: A Singapore Perspective <sup>^</sup>	2
Interdisciplinary Studies (IS) Module <sup>^</sup>	2

#### Notes:

<sup>^</sup> For more details on Interdisciplinary Studies (IS) modules, please log on to [www.np.edu.sg/is/](http://www.np.edu.sg/is/).

#### IS Modules

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### COURSE MODULES

#### LEVEL 1.1

##### General Anatomy & Physiology

This module covers the basic concepts of human systems. It links organs and tissues to their functions.

##### Chemistry & Biochemistry

This module covers the fundamentals of organic and inorganic chemistry of bio-molecules and some basic metabolic pathways.

### Geometrical & Physical Optics

This module equips students with the knowledge of the optics of lenses, lens systems and aberrations. It also covers topics of photometry, laser and behaviour of light and its interaction with matters.

### Maths

This module ensures that students have sufficient mathematical knowledge and skills to solve problems in the course. It will also cover some basic principles of statistics.

### Ocular Anatomy & Physiology

This module covers in detail the anatomy of the eye and its orbit. The anatomical relationships of the orbital contents including the extra-ocular muscles, the orbital nerves, the orbital blood vessels, and the ocular adnexa are described. Physiology and biochemistry of the principal constituents of the eye, including the cornea, crystalline lens, aqueous humour, vitreous humour, retina, ciliary apparatus and tear film are also covered.



## LEVEL 1.2

### Fundamentals of Contact Lens

This module begins with looking at the history of contact lenses and the different types available. It also covers the manufacture, design, verification, and care and maintenance of all types of contact lenses.

### Microbiology & Pathology

This module provides students with knowledge of basic microbiology and the infection process. There is emphasis on ocular infection, diagnosis, prevention and treatment. It will also cover the nature of disease and its causes, processes, development and consequences.

### Refraction

This module focuses on clinical techniques of objective and subjective refraction. It also includes the clinical assessment of vision and visual acuity.

### Ophthalmic Optics

This module covers the optical characteristics and design of standard ophthalmic, single vision, multi-focal, absorptive, coated lenses, as well as prescription verification, prismatic effects, frames measurement and proper fitting of lenses into frames.

### Visual & Physiological Optics

This module studies the eye as an optical system. Topics covered include refractive errors, visual resolution, spectral sensitivity, spatial perception, colour perception, motion perception, depth perception and entoptic phenomena. It also covers the principles of psychophysical methods in studying the visual system.

### Systemic Pathology

This module teaches students basic pathology mechanisms, which includes cell and tissue damage, inflammations, infections, vascular disorders and tumours.

## LEVEL 2.1

### Clinical Optometry

This module covers the basic clinical optometric instrumentation used in examining the eyes. These include slit-lamp bio-microscopy, keratometry and ophthalmoscopy. In addition, students will be practicing the techniques of refraction learned in Level 1.2.

### Clinical Optometric Instrumentation

This module trains the students in the use of various instruments and techniques in further investigation of visual functions such as colour vision, visual fields, contrast sensitivity and photo-documentation. It also includes tonometry and gonioscopy.

### Lens Glazing & Dispensing

This module teaches the skills of fitting and glazing ophthalmic lenses and trains students in frame and lenses selection, frame fitting, adjusting techniques and repairs.

### Contact Lens Fitting

This module teaches techniques of insertion and removal of both soft and gas permeable contact lenses. Students will learn how to assess the fitting of both soft and gas permeable lenses.

### Binocular & Sports Vision

This module teaches the fundamental concepts of binocular vision and anomalies. This includes the assessment, diagnosis and management of binocular vision anomalies. The fundamentals of sports vision are also covered.

## LEVEL 2.2

### Ocular Diseases & Management

This module emphasises the detection and management of ocular diseases. It covers the handling of infectious eye diseases, congenital ocular conditions, tumours, injuries to the eyes as well as management of ocular conditions related to systemic diseases such as diabetes and hypertension.

### Contact Lens Patient Management

The emphasis of this module is on the detection and management of chronic and acute complications induced by contact lenswear.

### Biostatistics & Research Methods

This module starts with basic statistics and moves on to cover probability and statistical inference. Students will also learn the basic processes and principles applied in research, as well as how to conduct literature surveys.

### Paediatric Vision Management

Paediatric vision will cover visual development, eye examination and management of paediatric patients.

### General Clinical Practice 1

Students will experience hands-on clinical practice in patient examination, case analysis, prescribing and dispensing optical aids.

### Internship

Students are attached to optometric retail outlets and hospitals, where they get experience in dealing with patients requiring eye examinations and attending to the optometry needs of these patients.



## LEVEL 3.1

### Community Optometry

This module covers the relevant principles of public health with an emphasis on the epidemiology of vision problems. Delivery of eye care services in a hospital environment will also be discussed.

### Retail Optometric Practice Management

This module covers the basic concepts in marketing, operations management and finance in an optometry retail outlet. Students will gain an understanding of basic book-keeping principles, balance sheets, and profit and loss statements.

### Research Project A

Grouped in pairs, students will undertake a topic of research, where they conduct literature reviews, draw up a research proposal and design an experimental protocol.

### Contact Lens Clinical Practice 1

This module provides hands-on clinical practice for prescribing contact lens, including preliminary assessment, contact lens fitting, contact lens delivery and aftercare.

### General Clinical Practice 2

Students will experience hands-on clinical practice in patient examination, case analysis, prescribing treatment and dispensing. The module also covers topics related to various refractive surgeries.

### Optometry Law & Ethics

This module covers general codes of ethics and laws applicable to patient care. Students will gain an overview of the legal and professional regulations governing optometry practice in Singapore.

### Psychology

This module introduces students to the basic understanding of human behaviour and motivation, and how these relate to customer behaviour. Students will also learn how to deal with children.

## LEVEL 3.2

### Geriatric & Low Vision

This module covers the various definitions of visual impairment, its common causes and the usage of different basic low vision optical aids.

### Ophthalmic Pharmacology

This module covers the general principles of pharmacology, which includes the actions, mechanisms of actions, absorption, rate, excretions, toxicity, and the diagnostic and therapeutic uses of both systemic and ocular drugs. The systemic effects of ocularly-administered drugs and the ocular effects of systemically administered drugs are also covered.

### Contact Lens Clinical Practice 2

This module provides hands-on clinical practice for prescribing contact lens, including preliminary assessment, contact lens fitting, contact lens delivery and aftercare. It also covers the principles of orthokeratology, as well as topics on contact lenses for keratoconus and post-refractive surgery.

### Research Project B

This is a continuation of Research Project A. Students will collect and analyse data, submit a report and an oral presentation to a panel of assessors.

### General Clinical Practice 3

Students will experience hands-on clinical practice in patient examination, case analysis, prescribing treatment and dispensing. This module will also include the introduction to more advanced techniques of angiography, ultrasonography, electrophysiological tests and optical coherence tomography.

### Paediatric Clinical Practice

Students will experience hands-on clinical practice in paediatric patient examination, case analysis, prescribing treatment and management.