



# HS

## SCHOOL OF HEALTH SCIENCES

Ngee Ann Polytechnic's **School of Health Sciences (HS)** appeals to those who have 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 topics such as life sciences and psychology.

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[www.np.edu.sg/hs](http://www.np.edu.sg/hs)

HS graduates can look forward to rewarding careers filled with challenges and making a 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)

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, immunology and oncology, medical microbiology and infectious diseases and health informatics, students are also trained for research in the healthcare and biomedical sciences sectors.

The OPT course addresses the rising prevalence and severity of myopia, as well as the needs of an ageing population in Singapore. With the current crunch in qualified optometrists that is predicted to continue well into the future, job prospects in this sector are excellent.

### MAJOR ACHIEVEMENTS

HSN and OPT students have received very positive feedback from hospitals and patients on their performance during clinical attachments and internships. HS 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 devices such as iPod touch or iPhone as e-logbooks to access databases of drugs, diseases, treatment techniques, lesson contents and other useful information on the Internet.

These devices 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. Hence, students are kept abreast with current practices in the field of nursing.

## FACILITIES AND STAFF

The School of Health Sciences has a highly qualified team of professionals with many years of experience in teaching and working in hospitals and private sectors. 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 valuable guidance and support.

Lectures and tutorials are supplemented by project work, presentations and laboratory practical 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 life-like 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 Ngee Ann Polytechnic Optometry Centre, OPT students can hone their skills in a full-scale retail setting with consultation rooms replete with advanced equipment for a multitude of eye tests, under the supervision of registered optometrists.

## COLLABORATIONS

The School maintains close links with major healthcare institutions from SingHealth Group and National Healthcare Group, as well as private and voluntary organisations. Other healthcare sectors include day rehabilitation centres and private nursing homes.

HSN students undergo 43 weeks of clinical attachment at various healthcare institutions during their course. They are usually attached to general wards, special discipline wards/units, primary healthcare settings, rehabilitation centres and nursing homes. HSN students can look forward to various sponsorship opportunities from hospitals during their studies. The sponsorships cover tuition fees and include a monthly training allowance.

OPT students will also gain from our strong healthcare industry links. They undertake optometry-related research projects with healthcare institutions as well as undergo a 16-week internship at optometric retail outlets, eyecare product companies, ophthalmology clinics and hospitals to gain valuable work experience. OPT graduates enter the industry with a very marketable set of skills.



# HSN

## DIPLOMA IN HEALTH SCIENCES (NURSING)

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 biological, social and behavioural sciences, together with 43 weeks of clinical attachment throughout the three-year course to enable students to put into practice what they have learnt.

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.

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

*You must also fulfil the aggregate computation requirements.*

*\* Candidates with English as a second language (EL2) 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.*

### CAREER PROSPECTS

HSN graduates can practise 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 nurse clinician focused on providing care to those in need. There is potential for graduates on this path to become an advanced practice nurse, as well as a nurse manager or an 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 over the world, and nursing qualifications will open doors 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, University of Melbourne 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: 35 hours per week)**

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

#### Level 1.2

**(Academic: 29 hours per week)**

**(Clinical Attachment: 35 hours per week)**

Anatomy & Physiology 2	5
Cell & Molecular Biology	4
Gerontology & Community Nursing	3
Medical Sociology	4
Nursing Research 1	2
Nursing Skills Laboratory 1.2	6
Pharmacology 1	3
Clinical Attachment 1.2	5
Sports & Wellness ^	2

Module Name	Credit Units
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### YEAR 2

#### Level 2.1

**(Academic: 28 hours per week)**

**(Clinical Attachment: 35 hours per week)**

Nursing Research 2	4
Nursing Science 1	6
Nursing Science 2	5
Nursing Skills Laboratory 2.1	8
Pharmacology 2.1	3
Clinical Attachment 2.1	5
Singapore & World Issues ^	2

#### Level 2.2

**(Academic: 27 hours per week)**

**(Clinical Attachment: 35 hours per week)**

Law, Ethics & Healthcare	2
Emerging Clinical Trends: Mental Health Nursing & Palliative Care	4
Nursing Science 3	6
Nursing Science 4	4
Nursing Skills Laboratory 2.2	8
Pharmacology 2.2	3
Clinical Attachment 2.2	6

Module Name	Credit Units
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### YEAR 3

#### Level 3.1

**(Academic: 26 hours per week)**

Life Sciences (Elective)	3
Nursing Management & Professional Development	3
Nursing Science 5	6
Nursing Skills Laboratory 3.1	8
Pharmacology 3	2
Research Project	4

#### Level 3.2

**(Academic: 25 hours per week)**

**(Clinical Attachment: 35 hours per week)**

Clinical Attachment (Specialised)	4
Pre-Registration Consolidation Placement	14
Clinical Attachment 3.2	6
Healthcare Career & Professional Preparation (Nursing)	1

#### Notes:

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

#### IS Modules

The School of Interdisciplinary Studies (IS) delivers a broad-based curriculum, which nurtures a new generation of professionals with multidisciplinary skills and an innovative and entrepreneurial spirit to meet the challenges of a knowledge economy. IS offers both prescribed modules and electives to challenge boundaries. Prescribed modules develop students' competencies in core areas such as Communication, Innovation and Enterprise, Culture and Communication, and Personal Mastery and Development, while elective modules provide insights into Arts and Humanities, Business, Design, and Science and Technology.

## COURSE MODULES

### LEVEL 1.1

#### Anatomy & Physiology 1

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

#### 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.

#### Fundamentals of Nursing

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 using 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.

#### Health Psychology

This module provides students with an understanding of human development, health psychology and abnormal psychology, as well as how psychological concepts are applied in the context of healthcare.

#### 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 microorganisms, and the prevention and control of infection in the hospital and community.

#### Nursing Skills Laboratory 1.1

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

#### Clinical Attachment 1.1

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

### LEVEL 1.2

#### 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.

#### 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 biology techniques and applications of stem cell research.

#### Gerontology & Community Nursing

This module provides students with knowledge and understanding of the ageing process and the problems faced by the elderly. It prepares the students to acquire the knowledge and skills to care for the elderly in various healthcare settings. Students will also have the opportunity to employ the Nursing Process to devise preventive health strategies for the individuals, families and communities.

#### Medical Sociology

This module presents an overview of sociological perspectives for the broad understanding and analyses of society. It also presents concepts of medical and sociological theories and how these are applied in healthcare.

#### Nursing Research 1

In this module, students will be introduced to nursing research principles, research methodologies and nursing research processes.

#### 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.

#### 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.

#### Clinical Attachment 1.2

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

### LEVEL 2.1

#### Nursing Research 2

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

#### 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 gastrointestinal, hepatic, pancreatic and renal systems. Students will consolidate knowledge of anatomy and physiology, pathophysiology, pharmacology, medical and surgical management in caring for patients with these diseases and disorders. The nursing process framework will be used to develop care plans that meet the physical, psychosocial and spiritual needs of the patients.

### Nursing Skills Laboratory 2.1

This module equips students with the knowledge and skills to handle patients, and provide 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 2.1

This module builds on Pharmacology 1 while focusing on the pharmacology of pathophysiological conditions related to the cardiovascular, renal, respiratory and digestive systems.

### 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

#### Law, Ethics & Healthcare

This module helps students 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.

### Emerging Clinical Trends: Mental Health Nursing & Palliative Care

This module helps students to assess and plan care for patients from the young to the elderly with psychiatric disorders. They will explore the treatment modalities, legal and ethical issues related to mental health nursing and the role of the psychiatric nurse in the hospital and community. Students will also plan and deliver palliative care with an understanding of end-of-life patients requiring palliative care across their lifespan.

### Nursing Science 3

This module focuses on diseases and disorders of the endocrine, reproductive, musculoskeletal, haematological, integumentary, central nervous 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, psycho-social and spiritual needs of patients.

### Nursing Science 4

This module introduces students to specialties such as maternal and infant nursing. This provides a basic understanding of conception and care of the expectant 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 hospitals.

### 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.

### Pharmacology 2.2

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

### 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 obstetrics and gynaecology units or the Communicable Disease Centre for their clinical attachment practice.

### LEVEL 3.1

#### Life Sciences (Elective)

Students have a choice of Medical Microbiology and Infectious Diseases, Drug Discovery: From Bench to Bedside, Immunology & Oncology or Health Informatics for this module.

### Nursing Management & Professional Development

This module provides students with an understanding of the healthcare system, organisation of nursing services and healthcare operations. Students will examine their future roles as registered nurses, managers and leaders. They will understand the need and requirement to continuously develop themselves personally and professionally.

### 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 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.

### Pharmacology 3

This module builds upon the students' prior knowledge in Pharmacology 1, 2.1 and 2.2 modules. They will learn pharmacokinetics and pharmacodynamics of classes of drugs commonly used in perioperative and critical care and emergency care patients.

### 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.

## LEVEL 3.2

### Clinical Attachment (Specialised)

This module gives students experience in caring for patients across a lifespan in a hospital setting. They will apply the knowledge and skills learnt to clinical practice. Students will be assigned to care for patients in specialised settings in the Emergency Unit, Operation Theatre and Community Health.

### Pre-Registration Consolidation Placement

This module gives students experience in caring for patients across a lifespan in a hospital setting. They are required to complete a 14-week Pre-Registration Consolidation Placement (PRCP) in Medical or Surgical/Orthopaedic discipline. PRCP provides opportunities for students to consolidate and refine their skills and knowledge.

### 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. Students are prepared for PRCP.

### Healthcare Career & Professional Preparation (Nursing)

The module helps to give students an introduction to the curriculum of their three-year Diploma in Health Sciences (Nursing) course and prepares them for the healthcare industry. It will help them to embark on their three-year course with the end in mind, through guided reflection of their personal characteristics, and producing an overall game plan for their future education and career goals. It also aims to deepen students' commitment to the healthcare sector.



# OPT

## DIPLOMA IN OPTOMETRY

The **Diploma in Optometry (OPT)** is a full-time three-year course which trains 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.

OPT provides comprehensive training in eye examination such as clinical and refraction practices together with evidence-based research. The course curriculum also covers paediatric and low visions as well as optometric business management and psychology, for better understanding and communication with customers.

Students will also have opportunities to attend off-campus classes with various companies throughout their course. Under the tutelage and guidance of experts in many fields of optometry, students will perfect their skills using the latest technologies available.

### ENTRY REQUIREMENTS

To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

Subject	'O' Level Grade
English Language*	1-7
Mathematics (Elementary/Additional)	1-6
Science (with Physics, Chemistry or Biology component) or Biotechnology	1-6

*You must also fulfil the aggregate computation requirements.*

*\* Candidates with English as a second language (EL2) must have attained a minimum grade of 6.*

*Candidates with severe vision deficiency should not apply for the course.*

### CAREER PROSPECTS

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

### ACCREDITATION FOR FURTHER STUDIES

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 advanced technology. 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.

Graduates may apply to degree programmes offered by universities such as:

- National University of Singapore
- Nanyang Technological University
- Singapore Management University
- University of Manchester (UK)
- Cardiff University (UK)
- City University London (UK)
- The Hong Kong Polytechnic University (HK)
- University of New South Wales (Australia)
- Queensland University of Technology (Australia)

## COURSE CURRICULUM

Module Name	Credit Units
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### YEAR 1

#### Level 1.1 (29 hours per week)

Chemistry & Biochemistry	6
General Anatomy & Physiology	3
Geometrical & Physical Optics	6
Mathematics	5
Ocular Anatomy & Physiology	5
Communication & Contemporary Issues ^	4

#### Level 1.2 (29 hours per week)

Ocular Health Assessment & Disease Management I	4
General Pathology	2
Microbiology & Pathology	4
Ophthalmic Optics & Dispensing I	4
Refraction	6
Visual Perception & Instrumentation A	5
Sports & Wellness ^	2
Innovation Toolkit ^	2

### YEAR 2

#### Level 2.1 (27 hours per week)

Binocular & Sports Vision	4
Ocular Health Assessment & Disease Management II	5
Contact Lens & Fitting I	5
Ophthalmic Optics & Dispensing II	5
Visual Perception & Instrumentation B	6
Interdisciplinary Studies (IS) elective ^	2

#### Level 2.2 (26 hours per week)

Biostatistics & Research methods	5
Contact Lens Patient Management	3
General Clinic Practice 1	6
Contact Lens & Fitting II	5
Paediatric Vision Management	5
Interdisciplinary Studies (IS) elective ^	2

Module Name	Credit Units
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### YEAR 3

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

Contact Lens Clinical Practice 1	6.5
General Clinical Practice 2	7
Research Project A	1
Internship (16 weeks)	16

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

Contact Lens Clinical Practice 2	3
General Clinical Practice 3	4
Low Vision & Community Optometry	3
Ophthalmic Pharmacology	3
Optometric Practice, Ethics & Psychology	5
Paediatric Clinical Practice	4
Research Project B	3
Healthcare Career & Professional Preparation (Optometry)	3
World Issues: A Singapore Perspective ^	2
Interdisciplinary Studies (IS) elective ^	2

#### Notes:

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

#### IS Modules

The School of Interdisciplinary Studies (IS) delivers a broad-based curriculum, which nurtures a new generation of professionals with multidisciplinary skills and an innovative and entrepreneurial spirit to meet the challenges of a knowledge economy. IS offers both prescribed modules and electives to challenge boundaries. Prescribed modules develop students' competencies in core areas such as Communication, Innovation and Enterprise, Culture and Communication, and Personal Mastery and Development, while elective modules provide insights into Arts and Humanities, Business, Design, and Science and Technology.

## COURSE MODULES

### LEVEL 1.1

#### Chemistry & Biochemistry

This module covers the fundamentals of organic and inorganic chemistry of biomolecules and some basic metabolic pathways.

#### General Anatomy & Physiology

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

#### 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 matter.

#### Mathematics

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

#### Ocular Health Assessment & Disease Management I

This module covers the clinical optometric techniques such as the slit-lamp biomicroscopy and keratometry in examining the anterior segment of the eyes. The students will learn the detection and management of the anterior eye diseases based on the assessment and interpretation with these techniques.

### General Pathology

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

### 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.

### Ophthalmic Optics & Dispensing I

This module equips students with the knowledge on the types, materials, physical and optical properties of single vision lenses and spectacle frames available in the industry. Students will also be taught the basic skills such as hand neutralisation, pupillary distance measurement, focimetry and related measurements in fitting lenses into frame. Principles and processes of lens coating and basic single vision ophthalmic lens glazing will also be covered.

### Refraction

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

### Visual Perception & Instrumentation A

This module studies the eye as an optical system. It includes refractive errors, visual resolution, spectral sensitivity, spatial perception, motion perception, depth perception and entoptic phenomena. The principles of psychophysical methods in studying the visual system are also included.

### LEVEL 2.1

#### 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 included.

### Ocular Health Assessment & Disease Management II

This module covers the clinical optometric techniques direct and indirect ophthalmoscopy and emphasises the detection and management of the posterior eye diseases, as well as ocular tumours and systemic diseases of the eye. In addition, students will be equipped with the knowledge of ocular trauma and to differentiate between ocular emergencies and non-emergencies for referrals.

### Contact Lens & Fitting I

This module covers the history, types of contact lenses and the manufacturing processes of contact lens. It also covers the designs, materials and care and maintenance of the soft contact lens. Students will learn the techniques of insertion and removal, as well as the assessment of soft contact lens fitting.

### Ophthalmic Optics & Dispensing II

This module equips students in the knowledge of the types of progressive and bifocal ophthalmic lenses. Students will also be taught the skills on fitting and glazing of single vision, bifocal and multifocal / progressive lenses, as well as rimlon and rimless frames. Applications and principle of tinted/photochromatic/ filters lens will be covered. Students will also learn proper ophthalmic dispensing procedure and trouble shooting.

### Visual Perception & Instrumentation B

This module covers topics on visual function such as colour perception, visual field and contrast sensitivity. Students will be trained in the use of various instruments and techniques in assessing colour vision, visual field, contrast sensitivity and photodocumentation.

### LEVEL 2.2

#### Biostatistics & Research Methods

This module starts with basic statistics and moves on to include probability and statistical inference. Students will also learn the basic processes and principles applied in

research, as well as how to conduct literature reviews.

### Contact Lens Patient Management

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

### General Clinical Practice 1

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

### Contact Lens & Fitting II

This module covers the designs and materials for rigid gas permeable (RGP) contact lenses. It also covers the verifications of both soft and RGP lenses. Students will learn the techniques of insertion and removal, as well as the assessment of the RGP fitting. In addition, practical effects of optical differences between contact lenses and spectacles will be covered.

### Paediatric Vision Management

This module will cover visual development, eye examination and management of paediatric patients.

### LEVEL 3.1

#### 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.

### Research Project A

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

### Internship

Students will intern at establishments with optometric practice, where they get experience in dealing with patients requiring eye examinations and attending to the optometry needs of these patients in a realistic working environment. Students will learn about the operations of an optical shop, a hospital organisation, as well as interact with their supervisor and colleagues.

### LEVEL 3.2

#### Contact Lens Clinical Practice 2

This module continues to provide students with hands-on clinical practice on the fitting of contact lens and contact lens patient management with the introduction of topics like keratoconus, orthokeratology and post-refractive surgery.

#### General Clinical Practice 3

This module provides continued training of students in hands-on clinical practice in patient examination, case analysis, management including special cases. It will include introduction to more advanced techniques of angiography, ultrasonography, electrophysical tests and optical coherence tomography.

#### Low Vision & Community Optometry

This module covers the relevant principles of public health with an emphasis on the epidemiology of vision problems especially those affecting geriatric as well as paediatric patients. Delivery of eyecare services in a hospital environment will also be discussed.

#### Ophthalmic Pharmacology

Students will learn the fundamental principles of pharmacology and how these are relevant in the prevention and treatment of eye conditions and diseases.

#### Optometric Practice, Ethics & Psychology

This module covers general codes of practice, ethics and laws applicable to patient care. Students will also gain an overview of the legal and professional regulations governing optometry practice in Singapore. In addition, students will gain insights about human

behaviour and motivations as well as how these apply in building and forging customer relations.

#### Paediatric Clinical Practice

This module provides hands-on clinical practice involving examination, case analysis, prescribing treatment and dispensing for paediatric patients.

#### Research Project B

Students will conduct a research project either with an industry partner and/or at Ngee Ann Polytechnic. A supervisor both from Ngee Ann Polytechnic and/or the collaborating institution will be appointed. The project will culminate with a written report and presentations.

#### Healthcare Career & Professional Preparation (Optometry)

The module helps to give students a foundational introduction to their three-year diploma course curriculum and how it prepares them for industry. It will help them to embark on their three-year course with the end in mind, through guided reflection of their personal characteristics, and producing an overall game plan for their future education and career goals. It also aims to deepen students' commitment to the sector that the course prepares them for. Students will be equipped with skills necessary to seek and secure work. They will also be equipped to communicate their personal brand in a positive way. As students sharpen their communication skills, they will also learn how to market themselves effectively.