HIGHER NITEC IN BIOTECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform pre-testing activities such as cleaning of laboratory apparatus and glassware, interpret data sheets and verification of equipment suitability.
- Prepare reagents / solutions for products and processes following standardized formulas.
- Perform biochemical and microbial tests, identification of growth conditions of microorganism, enumeration and maintenance of microbes/microbial culture.
- Perform analysis of test samples using various techniques such as volumetric titration and gravimetric extraction.
- Perform qualitative and quantitative testing of biological compounds and biomolecule analytical tests.
- Compile and compute data, interpret test results and analyses and generate analysis report.
- Perform calibration of test equipment and troubleshooting of minor laboratory equipment breakdown.
- Perform laboratory housekeeping activities such as handling and storage of chemicals and biological materials, and disposing of chemical and biohazardous waste in a safe manner.
- Maintain proper records of standards, test procedures and laboratory equipment usage.

JOB OPPORTUNITIES

Higher Nitec in Biotechnology graduates are well suited for employment as Biotech Laboratory Technicians in a research and development department or quality control laboratory in the medical technology, biotechnology or laboratory testing/ accreditation sectors. Their roles include performing a wide range of laboratory procedures and technical functions to support researchers or analysts with the preparative and maintenance work for research and development, analysis and testing activities. Employment prospects are bright with the increasing emphasis in life sciences and demand for health care services that would create a demand for Biotech Laboratory Technicians in the organizations mentioned above. There are excellent opportunities for career advancement to supervisory positions and beyond in the life science industry. The challenge is for students to prepare themselves by upgrading their technical skills and knowledge by taking up higher-level courses.

CERTIFICATION

Credits required for certification:

Core Modules	:	50
Life Skills Modules	:	12
Elective Modules	:	4
Total	:	66

COURSE STRUCTURE

Module Title	Credits
CORE MODULE	
Introductory Chemistry	6
Analytical Chemistry	6
Laboratory Mathematics	9
Quality Control and Assurance	6
General Microbiology	6
Analytical Biochemistry	5
Molecular Bioscience	6
Industry Attachment	6
ELECTIVES (COURSE SPECIFIC)	
Tissue Culture Techniques	2
Medical Laboratory Practices*	2
Essentials in Environmental Science	2
ELECTIVES (GENERAL)	
Refer to pages 272-274	
LIFE SKILLS MODULES	
Refer to page 278	

Note: *The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.*

* *Students, who opt to study the Elective Module - Medical Laboratory Practice in Year 2 of study, are required to undergo Health Screening for Hepatitis B. Students will be reassigned to another elective if they are found to be Hep B positive*

MODULE OBJECTIVES

Core Modules

Introductory Chemistry
On completion of the module, students should be able to identify the common elements of organic molecules, nomenclature used, chemical structure and bonding, common functional groups as well as the properties associated with the various functional groups of organic compounds.

Analytical Chemistry
On completion of the module, students should be able to carry out laboratory procedures in preparation of reagents and media, as well as applications in maintaining and handling glassware, performing sampling methodology and various separation techniques.

Laboratory Mathematics
On completion of the module, students should be able to apply the various mathematical principles such as algebra, logarithms and graphs construction for laboratory operations and analysis.

Quality Control and Assurance
On completion of the module, students should be able to maintain the quality standards of chemical laboratory, including record-keeping for traceability purposes, calibration of measuring instruments, and application of quality control tools for laboratory applications.

General Microbiology
On completion of the module, students should be able to handle the micro-organisms safely, perform isolation of micro-organisms, identify the characteristics of common groups of micro-organisms, and perform various techniques for their microscopy and cultivation.

Analytical Biochemistry
On completion of the module, students should be able to perform the analysis of biological compounds using various biochemical and chromatographic techniques as well as to interpret the results obtained.

Molecular Bioscience
On completion of the module, students should be able to perform various molecular biology techniques for the manipulation and analysis of proteins and DNA.

Industry Attachment
Students are provided with the opportunity to work in a laboratory-based environment to gain hands-on training in the real work environment.

Electives (Course Specific)

Tissue Culture Techniques
On completion of the module, students should be able to apply the fundamentals of tissue culture, and to prepare culture media, as well as seeding and propagating cell cultures in a tissue culture laboratory.

Medical Laboratory Practice
On completion of the module, students should be able to perform basic preparative and analytical techniques which are relevant to a medical diagnostic laboratory.

Essentials in Environmental Science
On completion of the module, students should be able to perform tests on air, water and effluent waste in monitoring of environment and pollution in the manufacturing industries.

Electives (General)

As reflected on pages 272-274.

Life Skills Modules

As reflected on page 278.

HIGHER NITEC IN CHEMICAL TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform pre-testing activities such as cleaning of laboratory apparatus and glassware, and verification of equipment suitability.
- Prepare reagents/solutions for products and processes following standardized formulas.
- Conduct and analyse test samples using various techniques such as volumetric titration, gravimetric extraction, spectroscopy, chromatography and physical separation.
- Compile and compute data, interpret test results and analyses and generate analysis reports.
- Perform calibration of test equipment and troubleshooting of minor laboratory equipment breakdown.
- Perform laboratory housekeeping activities such as handling and storage of chemicals, and disposing of chemicals.
- Maintain proper records of standards, test procedures and laboratory equipment usage.

JOB OPPORTUNITIES

Higher Nitec in Chemical Technology graduates are suitable for the career as Chemical Laboratory Technicians/Assistants in the R&D, quality assurance or quality control laboratory of companies in the various industry sectors such as food, chemicals, petrochemicals, pharmaceutical and environmental. Their roles include performing laboratory tests and a variety of technical support functions requiring the application of established or prescribed procedures and techniques to assist chemists, engineers or analysts in research, development and testing activities. There are excellent opportunities for career advancement to supervisory positions and beyond. The challenge is for students to prepare themselves by upgrading their technical skills and knowledge by taking up higher-level courses.

CERTIFICATION

Credits required for certification:

Core Modules	:	51
Life Skills Modules	:	12
Elective Modules	:	4
Total	:	67

COURSE STRUCTURE

Module Title	Credits
CORE MODULE	
Introductory Chemistry	6
Analytical Chemistry	6
Laboratory Mathematics	9
Quality Control and Assurance	6
Sample Handling and Processing	4
Basic Instrumental Analysis	7
Advanced Instrumental Analysis	7
Industry Attachment	6
ELECTIVES (COURSE SPECIFIC)	
Introduction to Microbiology	2
Essentials in Environmental Science	2
ELECTIVES (GENERAL)	
Refer to pages 272-274	
LIFE SKILLS MODULES	
Refer to page 278	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Introductory Chemistry
On completion of the module, students should be able to identify the common elements of organic molecules, nomenclature used, chemical structure and bonding, common functional groups as well as the properties associated with the various functional groups of organic compounds.

Analytical Chemistry
On completion of the module, students should be able to carry out laboratory procedures in preparation and application of reagents and media, maintaining and handling glassware, and in performing sampling methodology and various separation techniques.

Laboratory Mathematics
On completion of the module, students should be able to apply the various mathematical principles such as algebra, logarithms and graphs construction for laboratory operations and analysis.

Quality Control and Assurance
On completion of the module, students should be able to maintain the quality standards of chemical laboratory, including record-keeping for traceability purposes, calibration of measuring instruments, and application of quality control tools for laboratory applications.

Sampling Handling and Processing
On completion of the module, students should be able to perform common sample pre-treatment methodologies, as well as sampling activities and processes which comply with industrial standards such as cGMP and GLP.

Basic Instrumental Analysis
On completion of the module, students should be able to perform the various modes of spectroscopy which include ultra- violet and infrared spectrometry, atomic spectrometry, and the applications of inductive-coupled plasma and thermal bench instruments. They will also be taught to troubleshoot and maintain spectroscopic and thermal bench instruments.

Advanced Instrumental Analysis
On completion of the module, students should be able to perform the various modes of chromatography which include High Performance Liquid Chromatography (HPLC), Gas Chromatography (GC), LC-Mass Spectrometry and GC-Mass Spectrometry. They will also be able to troubleshoot and conduct basic routine maintenance for chromatographic instruments.

Industry Attachment
Students are provided with the opportunity to work in a laboratory-based environment to gain hands-on training in the real work environment.

Electives (Course Specific)

Introduction to Microbiology
On completion of the module, students should be able to perform basic microbiological techniques, such as safe-handling, examining and cultivating of microorangisms.

Essentials in Environmental Science
On completion of the module, students should be able to perform tests on air, water and effluent waste in monitoring of environment and pollution in the manufacturing industries.

Electives (General)

As reflected on pages 272-274.

Life Skills Modules

As reflected on page 278.

HIGHER NITEC IN PARAMEDIC & EMERGENCY CARE

COURSE SYNOPSIS

On completion of the course, students should be able to

- Perform pre-hospital patient assessment.
- Perform procedures related to ambulance operations.
- Assess, interpret and provide treatment for casualties with medical and trauma emergencies.
- Prioritize and manage emergency cases en-route to the emergency department.
- Provide quality pre-hospital treatment in crisis situations and disasters.

JOB OPPORTUNITIES

Higher Nitec in Paramedic & Emergency Care graduates are employed as paramedics by ambulance service providers such as SCDF, or other private ambulance operators. They can also be employed to assume various roles such as trainers, emergency response medics in various healthcare organizations and hospitals.

CERTIFICATION

Credits required for certification:

Core Modules	:	42
Life Skills Modules	:	2
Elective Modules	:	2
Total	:	46

COURSE STRUCTURE

Module Title	Credits
CORE MODULE	
Human Bioscience	3
Paramedic Studies and Skills	5
Paramedic Lab I	4
Ambulance Practicum	3
Paramedic Lab II	4
Paramedic Stimulation I	3
Ambulance and Hospital Practicum	5
Special Population Groups	6
Paramedic Stimulation II	4
Pre-hospital Consolidation Placement	5
ELECTIVES (COURSE SPECIFIC)	
Special Incidents and Operations	2
LIFE SKILLS MODULES	
Sports and Wellness	2

MODULE OBJECTIVES

Core Modules

Human Bioscience
On completion of the module, students should be able to identify the various structures; describe the functions and dysfunctions of the various body systems.

Paramedic Studies and Skills
On completion of the module, students should be able to explain the organization of the local emergency medical services, safety considerations pertaining to pre-hospital care and also medical, legal and ethical issues in healthcare settings. They will also be able to assess, prioritize and manage patients in the pre-hospital settings.

Paramedic Lab I
This module will provide students with hands-on opportunity to integrate knowledge and skills in a controlled environment. On completion of the module, students should be able to manage patients in various trauma emergencies in the pre-hospital settings using prescribed protocols.

Ambulance Practicum
Students will gain hands-on training through industry attachment with the emergency ambulance services where they assist the crew leader in managing patients with trauma or medical emergencies.

Paramedic Lab II
This module will provide students with hands-on opportunity to integrate knowledge and skills in a controlled environment. On completion of the module, students should be able to manage patients in various medical emergencies in the pre-hospital settings using prescribed protocols.

Paramedic Simulation I
This module will provide students with hands-on opportunity to integrate knowledge and skills in simulated environment. On completion of the module, students should be able to manage patients in various trauma emergencies in the pre-hospital settings.

Ambulance and Hospital Practicum
Students will gain hands-on training through industry attachment with the emergency ambulance services where they will operate as crew leaders under supervision. They will also be attached to hospitals for clinical skill practice.

Special Population Groups
On completion of the module, students should be able to manage obstetrical and gynecological emergencies in the pre-hospital settings. They should also be able to perform assessment for geriatric and pediatric patients.

Paramedic Simulation II
This module will provide students with hands-on opportunity to integrate knowledge and skills in simulated environment. On completion of the module, students should be able to manage patients in various medical emergencies in the pre-hospital settings using prescribed protocols.

Pre-hospital Placement Consolidation Placement
This module will provide students with the opportunity to consolidate their knowledge and skills acquired during the course of training and apply them in the actual work environment.

Electives (Course Specific)

Special Incidents and Operations
On completion of the module, students should be able to manage patients in non-routine situations.

Life Skills Modules

Sports and Wellness
On completion of the module, students should be able to acquire the skills and knowledge to maintain an active lifestyle and a healthy body. In addition, students will be able to design simple fitness programmes and assume roles in organizing games.

NITEC IN APPLIED FOOD SCIENCE

COURSE SYNOPSIS

On completion of the course, students should be able to

- Maintain food safety and food hygiene standards in food industries.
- Perform basic measurements and calibration techniques in the laboratory.
- Conduct physical and chemical checks and tests.
- Perform basic microbiological tasks.
- Conduct laboratory analysis for incoming, in-process and final products.
- Perform pre- and post-cleaning, start-up and shutdown of food processing equipment.
- Operate food processing equipment.
- Carry out basic maintenance activities of plant and equipment.
- Carry out logging and documentation of manufacturing activities.
- Perform food service operations.
- Carry out activities in compliance with legislative and organisational requirements.
- Assist in product development activities.

JOB OPPORTUNITIES

Nitec in Applied Food Science graduates are employed in food Manufacturing/processing/production plants and factories, catering facilities, as well as major F&B retail outlets. Some of the job titles held by graduates include Food Technician, Food Production Technician and Food Processing Technician. There are excellent opportunities for career advancement to supervisory positions and beyond. Food Technicians, with work experience and good performance, may be promoted to Food Production Supervisors.

CERTIFICATION

Credits required for certification:

Core Modules	:	50
Life Skills Modules	:	12
Elective Modules	:	4
Total	:	66

COURSE STRUCTURE

Module Title	Credits
CORE MODULE	
Applied Science Fundamentals	6
Introduction to Food Science	7
Food Processes and Equipment	6
Food Microbiology	7
Fundamentals of Laboratory Chemistry	3
Food Services and Business Management	3
Food Analysis	7
Food Safety and QMS	7
Industry Attachment	4
ELECTIVES (COURSE SPECIFIC)	
Food Packaging	2
Product and Process Development	4
ELECTIVES (GENERAL)	
Refer to pages 275-278	
LIFE SKILLS MODULES	
Refer to page 278	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Applied Science Fundamentals
On completion of the module, students should be able to identify common elements of organic molecules, inorganic molecules, nomenclature used, chemical structure and bonding, common functional groups as well as the properties associated with the various functional groups of organic compounds, inorganic compounds and perform basic measurements in the laboratory.

Introduction to Food Science
On completion of the module, students should be able to identify the various food groups, components in food including their physical and chemical properties, identify the select criteria and perform inspections through physical checks or using equipment.

Food Processes and Equipment
On completion of the module, students should be able to follow the safety requirements in a processing plant, explain the various methods of food preparation and processing, perform recording of process parameters, operate food preparation and processing equipment safely, and troubleshoot product deviations of the process.

Food Microbiology
On completion of the module, students should be able to perform environmental monitoring, conduct microbial analysis of food samples, perform basic microscopic technique and identify the characteristics of micro-organisms.

Fundamentals of Laboratory Chemistry
On completion of the module, students will be able to perform basic laboratory techniques, organize laboratory data and perform basic analytical preparation and measurement.

Food Service and Business Management
On completion of the module, students will be able to identify the various types of food service operations, develop products/services for customers and perform specific procedures pertaining to food service operations.

Food Analysis
On completion of the module, students should be able to perform in-coming, in-process and final product laboratory analysis as well as interpret data obtained from the various tests.

Food Safety and QMS
On completion of the module, students should be able to explain the importance of food hygiene, practise good personal hygiene and housekeeping, conduct audit on food premises and monitor the critical control points at the various stages of food production.

Industry Attachment
Students are provided with the opportunity to work in food processing/manufacturing/catering or food laboratory analysis environments to gain hands-on training in the real work environment.

Electives (Course Specific)

Food Packaging
On completion of the module, students should be able to select suitable packaging materials, perform quality tests/check for packaging materials as well as assess the effectiveness of applied packaging technology on food product shelf life.

Product and Process Development
On completion of the module, students will be able to plan and design tasks specific to a project and perform planned tasks according to the project plan. They will also be required to prepare a report and orally present the data and results collated from their project.

Electives (General)

As reflected on pages 275-278.

Life Skills Modules

As reflected on page 278.

NITEC IN CHEMICAL PROCESS TECHNOLOGY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Maintain safety, health and environmental standards in the biologics, petrochemicals, pharmaceuticals and process industries.
- Organise storage and logistics of materials.
- Handle, store and transport chemical materials.
- Prepare for manufacturing process.
- Operate, monitor and control continuous or batch processes.
- Operate process plant and equipment.
- Perform purification process.
- Maintain product quality.
- Perform documentation.
- Perform laboratory analysis.
- Prevent contamination in processes.
- Perform cleaning and de-contamination of equipment.
- Perform sanitization of equipment and process room.
- Provide routine and preventive maintenance and services to processes, equipment and instrumentation in the biologics, petrochemicals, pharmaceuticals and process industries.
- Assist to perform startup and shutdown operation in biologics, petrochemicals, and pharmaceuticals processes.
- Install and test a range of process instruments and control equipment.
- Monitor, troubleshoot and rectify instrumentation and control system faults.
- Calibrate and configure process instruments and control equipment.
- Perform basic loop check and wiring within cabinets and field devices

JOB OPPORTUNITIES

Nitec in Chemical Process Technology graduates are employed by companies in the Biologics, Petrochemicals, Pharmaceuticals and Process Instrumentation industries. Some of the job titles held by graduates include Process Technician, Operation Technician, Plant Maintenance Technician, Process Instrument Technician, Instrumentation Technician and Engineering Assistant. There are excellent opportunities for career advancement to supervisory positions and beyond. The challenge is for students to prepare themselves by upgrading their technical skills and knowledge by taking up higher-level courses.

CERTIFICATION

Credits required for certification:

Core Modules	:	48
Specialisation Modules	:	8
Life Skills Modules	:	12
Elective Modules	:	5
Total	:	73

COURSE STRUCTURE

Module Title	Credits
CORE MODULE	
Applied Science Fundamentals	6
Health, Safety, Security and Environment Management	6
Process Instrumentation and Control I	8
Process Equipment and Operation	8
Process Fundamentals and Quality Assurance	7
Plant Processes	5
Industry Attachment	8
SPECIALISATION MODULES	
GMP and Biologics Processes	8
Equipment Maintenance and Utilities	8
GMP and Pharmaceutical Processes	8
Process Instrumentation and Control II	8
ELECTIVES (COURSE SPECIFIC)	
Applied Microbiology	3
Distributed Control System	2
Simulated Control Panel Operation	3
Introduction to Process Gas Chromatography	3
Good Manufacturing Practices	3
ELECTIVES (GENERAL)	
Refer to pages 275-278	
LIFE SKILLS MODULES	
Refer to page 278	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Applied Science Fundamentals
On completion of the module, students should be able to identify common elements of organic molecules, inorganic molecules, nomenclature used, chemical structure and bonding, common functional groups as well as the properties associated with the various functional groups of organic compounds, inorganic compounds and perform basic measurements in the laboratory.

Health, Safety, Security and Environment Management
On completion of the module, students should be able to apply skills and knowledge in monitoring and treating waste effluent, collecting samples, performing water testing. They are taught the importance of housekeeping, selecting and operating safety equipment, rendering first aid and responding to emergency situations and monitor process plant security.

Process Instrumentation and Control I
On completion of the module, students should be able to interpret piping and instrument diagrams and they should be able to identify and locate process components. They also learn to measure and record operational parameters, perform valve by-pass and switching operation, isolate piping system by using blinds and install packing into stuffing box of a gate valve.

Process Equipment and Operation
On completion of the module, students should be able to apply skills and knowledge in the starting up and shutting down of pumps and compressors, maintaining storage facilities and commissioning process equipment. They also learn to monitor and control process parameters as well as handle products.

Process Fundamentals and Quality Assurance
On completion of the module, students should be able to apply principles of physics and chemical reaction to perform routine analytical testing correctly and safely. Basic knowledge of electricity, electrical concepts and common measuring instruments are studied.

Plant Processes
On completion of the module, students should be able to apply skills and knowledge in starting up and shutting down of boilers, reboilers, commissioning various units like distillation columns, evaporators, etc.

Industry Attachment
The module provides opportunity for students to apply the concepts and skills acquired during institutional training in a real work environment; gain hands-on practical training pertaining to the Biologics, Petrochemicals, Pharmaceuticals and Process Instrumentation Industry.

Specialisation Modules

GMP and Biologics Processes
On completion of the module, students should be able to apply skills and knowledge in following documentation procedures, the rationale, rules and regulation governing ethics with regards to traceability of products and consumer safety. They should also be able to apply skills and knowledge in operating, monitoring and troubleshooting bioreactor, cell harvesting, filtration and process chromatography.

Equipment Maintenance and Utilities
On completion of the module, students should be able to apply skills and knowledge in lubricating equipment, checking pumps and compressors, preparing boilers, pumps, compressors and heat exchangers for maintenance. They will also learn to apply skills and knowledge to the operations of the utilities in a process plant.

GMP and Pharmaceutical Processes
On completion of the module, students are trained to apply skills and knowledge in following proper documentation procedures, the rationale, rules and regulation governing ethics with regards to traceability of products and consumer safety. In addition, they are taught monitoring and preventing contamination during processing and performing sanitization for equipment in both the primary and secondary plants of the pharmaceutical industry. They also learned the fundamental aspects of drug processing such as materials handling, pure water systems and perform operation of the equipment used in both the primary and secondary production plants of the pharmaceutical industry.

Process Instrumentation and Control II
On completion of the module, students are trained to monitor, calibrate process and control equipment, install and test a range of instrumentation and control equipment. It includes the selection and use of appropriate tools and techniques to position, connect, set and calibrate the equipment, and connect to the required services.

Electives (Course Specific)

Applied Microbiology

On completion of the module, students should be able to apply the skills and knowledge in preparing and handling media and buffers, conducting qualitative tests. The students will also be trained to select and use appropriate personal protective equipment and follow proper aseptic practices and Good Laboratory Practices.

Distributed Control System

On completion of the module, students should be able to operate and do simple configuration on the DCS like changing range, alarm limits, adding new points and simple modification of both graphics and reports respectively.

Simulated Control Panel Operation

On completion of the module, students should be able to apply skills and knowledge in the starting up, shutting down and upset recovery of heat exchanger, basic distillation unit, centrifugal compressor, furnace, atmospheric/vacuum crude unit using a simulated control panel.

Introduction to Process Gas Chromatography

On completion of the module, students should be able to perform start-up, shut-down and calibration of the process gas chromatograph, perform simple routine maintenance on the sampling system, and disassembled and assembled switching valve in a process gas chromatograph.

Good Manufacturing Practices

On completion of the module, students should be able to apply skills and knowledge in following proper documentation procedures, the rationale, rules and regulation governing ethics with regard to traceability of products and consumer safety, monitoring and preventing contamination during processing and performing sanitization for equipment in both the primary and secondary plants of the petrochemicals industry.

Electives (General)

As reflected on pages 275-278.

Life Skills Modules

As reflected on page 278.

NITEC IN COMMUNITY CARE & SOCIAL SERVICES

COURSE SYNOPSIS

On completion of the course, students should be able to

- Assist clients with activities of daily living and related training.
- Assist clients with functional activities.
- Assist in rehabilitation programmes, care and counselling of clients.
- Organise and facilitate activities and events for clients/residents and their families.
- Assist with clinical procedures based on clients/residents' needs.
- Assist with the daily operations of the centre/home.
- Perform administrative duties and responsibilities.
- Conduct routine home visits based on the centre's guidelines.

JOB OPPORTUNITIES

Nitec in Community Care & Social Services graduates are employed in Day Care Centres, Senior Activity Centres, Neighbourhood Links, Welfare Homes, Nursing Homes, Community Hospitals, Community Rehabilitation Centres and Integrated Rehabilitation Centres. Some of the job titles held by graduates include Social Service Assistant, Therapist Aide, Assistant Programme Coordinator, Programme Assistant, Assistant Welfare Officer, and Activities Officer. There are opportunities for career advancement in the community and social sectors. Graduates with good grades may progress to diploma courses being offered by the Polytechnics and other advanced courses offered by the Social Service Institute.

CERTIFICATION

Credits required for certification:

Core Modules	:	47
Life Skills Modules	:	12
Elective Modules	:	8
Total	:	67

COURSE STRUCTURE

Module Title	Credits
CORE MODULE	
Anatomy and Physiology	5
Behavioural Science I	3
Client Care	6
Elements of Community and Social Services	4
Rehabilitative Services - Physiotherapy	6
Centre Operations	5
Rehabilitative Services - Occupational Therapy	6
Dementia Care	4
Industry Attachment	8
ELECTIVES (COURSE SPECIFIC)	
Introduction to Social Work	4
Special Needs Education	4
ELECTIVES (GENERAL)	
Refer to pages 275-278	
LIFE SKILLS MODULES	
Refer to page 278	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Anatomy and Physiology
On completion of the module, students should be able to relate the organization of the human body, examine structures and functions of the various human systems as well as relate the terminologies and clinical manifestations of common diseases.

Behavioural Science I
On completion of the module, students should be able to explain the psychological implications and adjustments during each stage of human development.

Client Care
On completion of the module, students should be able to perform infection control, assist with activities of daily living of clients, render First Aid, perform cardiopulmonary resuscitation, assist with health care procedures, health screening, nutritional and medication needs of clients.

Elements of Community and Social Services
On completion of the module, students should be able to describe the roles of community services and responsibilities of staff working in the sector. In addition, students should be able to identify and explain the legislative acts and general developments pertaining to the social service sector in Singapore.

Rehabilitative Services - Physiotherapy
On completion of the module, students should be able to apply their skills and knowledge in assisting the therapists in conducting therapeutic exercises for clients with various medical conditions. They will be equipped with skills to handle clients requiring mobility aids as well as to assist the therapists in applying electrical and mechanical modalities under supervision.

Centre Operations
On completion of the module, students should be able to assist with the daily operations of a social work agency, carry out workplace safety and health procedures and perform administrative work.

Rehabilitative Services – Occupational Therapy
On completion of the module, students should be able to assist the therapists in training clients in Activities of Daily Living, planning and conducting group and community activities/ events for clients and in planning and supervising work training programmes.

Dementia Care
On completion of the module, students should be able to demonstrate a basic understanding of dementia and the problems associated with dementia. They will be equipped with skills and knowledge to assist in the management of client with dementia. In addition, they will also be introduced to the various types of basic assessment tools to assess the needs of the client with dementia and be part of the client-centred dementia care team.

Industry Attachment
Students would be able to put into practice what they have learnt in the classroom setting. Students are required to undertake hands-on work experience in various organizations in the community and social service sector.

Electives (Course Specific)

Introduction to Social Work
On completion of the module, students should be able to provide an overview of social work profession and social work practices pertaining to working with children, youth, family, elderly, and people with disability, people with substance abuse or other addictions, and rehabilitation setting.

Special Needs Education
On completion of the module, students should be able to assist in modelling positive behaviour and managing clients with special needs as well as in the delivery of special education instructions and services within a special needs education setting.

Electives (General)

As reflected on pages 275-278.

Life Skills Modules

As reflected on page 278.

NITEC IN NURSING

COURSE SYNOPSIS

On completion of the course, students should be able to

- Promote the well-being of both healthy and sick individuals in the community and in the hospitals.
- Monitor, report and document significant changes in patients' condition.
- Perform specific nursing procedures and treatment orders.
- Teach patients/care-givers self-care.
- Assist in administering medications as approved by the hospital/institution.

JOB OPPORTUNITIES

Nitec in Nursing graduates are employed as Enrolled Nurses in various healthcare organisations and hospitals. There are excellent opportunities for career advancement within the healthcare industry. The challenge is for students to prepare themselves by upgrading their skills and knowledge by taking up higher-level courses such as the Diploma in Nursing conducted by the Polytechnic.

CERTIFICATION

Credits required for certification:

Core Modules	:	51
Life Skills Modules	:	12
Elective Modules	:	6
Total	:	69

COURSE STRUCTURE

Module Title	Credits
CORE MODULE	
Nursing Studies and Skills	8
Biological Science I	4
Behavioural Science I	3
Clinical Practice I	5
Patient Care A	4
Patient Care B	5
Biological Science II	4
Behavioural Science II	3
Critical Thinking and Reflection in Practice	3
Clinical Practice II	6
Pre-Enrolment Clinical Practice	6
ELECTIVES (COURSE SPECIFIC)	
Trends and Issues of Elder Care	3
Psychiatric Nursing	3
Oncology Nursing	3
Evidence-Based Practice in Healthcare	3
Chronic Disease Management	3
ELECTIVES (GENERAL)	
Refer to pages 275-278	
LIFE SKILLS MODULES	
Refer to page 278	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Nursing Studies and Skills
On completion of the module, students should be able to describe the organization and spectrum of the healthcare system and the factors that influence the provision of healthcare in Singapore as well as apply nursing skills to meet the basic needs of patients.

Biological Science I
On completion of the module, students should be able to identify and describe the various parts and functions of the systems of the human body; explain the importance of appropriate nutrition; describe the effects of pathological micro-organisms on the human body and discuss the use of common pharmacological products and their nursing implications.

Behavioural Science I
On completion of the module, students should be able to explain the psychological implications and adjustments during each stage of human development.

Clinical Practice I
On completion of the module, students should be able to apply the concepts and skills acquired from Nursing Studies and Skills, Biological Science I, Behavioural Science I and Life Skills modules in the delivery of holistic care to patients in a variety of health care settings.

Patient Care A
On completion of the module, students should be able to describe and demonstrate holistic nursing care of patients with alterations of various body systems and requiring different treatment modalities.

Patient Care B
On completion of the module, students should be able to describe and demonstrate holistic nursing care of specific groups of patients, and those with alterations of various body systems and requiring different treatment modalities.

Biological Science II
On completion of the module, students should be able to describe the human body; the effects of pathological micro-organisms and discuss the use of pharmacological products and their nursing implications.

Behavioural Science II
On completion of the module, students should be able to explain the basic sociological concepts in the context of the health care setting; and describe common abnormal behavioral patterns and apply the relevant knowledge and skills to provide holistic care to patients.

Critical Thinking and Reflection in Practice
On completion of the module, students should be able to apply the critical thinking skills in clinical situations to ensure the delivery of safe, holistic and quality nursing care to patients.

Clinical Practice II
On completion of the module, students should be able to apply the concepts and skills acquired from Patient Care A, Patient Care B, Biological Science II, Behavioural Science II, 2 out of 5 course specific elective modules offered and Life Skills modules in the delivery of holistic care to patients in a variety of health care settings.

Pre-Enrolment Clinical Practice
On completion of the module, students should be able to consolidate their theoretical knowledge and clinical skills acquired during the course of training and apply them in the prospective work environment.

Electives (Course Specific)

Trends and Issues of Elder Care
On completion of the module, students should be able to assess the needs of the older persons and apply the relevant knowledge and skills to give them holistic care in various healthcare settings.

Psychiatric Nursing
On completion of the module, students should be able to identify the altered mental status of a psychiatric patient and implement interventions prescribed.

Oncology Nursing
On completion of the module, students should be able to apply basic concepts and principles of oncology nursing to ensure the delivery of safe, holistic and quality care to patients with cancer.

Evidence-Based Practice in Healthcare
On completion of the module, students should be able to apply the skills and knowledge in evidence-based practice as well as be involved in quality improvement projects or research work in the various healthcare setting.

Chronic Disease Management
On completion of the module, students should be able to apply the basic concepts and principles of chronic disease management model to ensure the delivery of safe, holistic and quality care to patients with common chronic diseases such as diabetes mellitus and the application of health education, case management and use of integrated care model.

Electives (General)
As reflected on pages 275-278.

Life Skills Modules
As reflected on page 278.

NITEC IN OPTICIANRY

COURSE SYNOPSIS

On completion of the course, students should be able to

- Take and record clients' measurements and specifications required for optical aids.
- Assist clients in selecting frames to co-ordinate with the style, colour, facial and eye measurements, and optical prescription.
- Recommend specific lenses, lens coatings and frames to suit clients' needs.
- Perform sales of optical products such as spectacles, sunglasses and other eye related goods.
- Prepare work orders and instructions for edging of lenses.
- Adjust eyewear to fit clients.
- Maintain records of clients' prescription, work orders and payments.
- Perform administrative duties such as tracking inventory, sales and simple bookkeeping.

JOB OPPORTUNITIES

Nitec in Opticianry graduates are employed in variety of settings such as independent or joint practice, hospitals, eye care centres, optical laboratories or optical retail stores. Some of the job titles held by graduates include Optician, Dispensing Optician and Dispensing and Refraction Optician.

CERTIFICATION

Credits required for certification:

Core Modules	:	49
Life Skills Modules	:	12
Elective Modules	:	6
Total	:	67

COURSE STRUCTURE

Module Title	Credits
CORE MODULE	
Basic Optics	7
Basic Ocular Anatomy and Instrumentation	6
Ophthalmic Laboratory Processing I	7
Ophthalmic Dispensing	7
Ophthalmic Laboratory Processing II	7
Subjective Refraction	7
Industry Attachment	8
ELECTIVES (COURSE SPECIFIC)	
Physiological Optics	4
Eye Care and Retail Management	4
ELECTIVES (GENERAL)	
Refer to pages 275-278	
LIFE SKILLS MODULES	
Refer to page 278	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Core Modules

Basic Optics
On completion of the module, students should be able to assess and evaluate patients' ophthalmic condition with various diagnostic tests and procedures.

Basic Ocular Anatomy and Instrumentation
On completion of the module, students should be able to describe the anatomical features of the eyes and perform basic ocular checks which includes measurement of visual acuity, colour vision and spectacle power.

Ophthalmic Laboratory Processing I
On completion of the module, students should be able to carry out basic activities relating to pattern making and edging of optical lenses.

Ophthalmic Dispensing
On completion of the module, students should be able to measure major placement points required for eye glasses and perform spectacle adjustments and fittings of frames for clients.

Ophthalmic Laboratory Processing II
On completion of the module, students should be able to perform full frame and frameless edging, colour tinting and mounting of lenses, and verify the specifications of the finished optical products.

Subjective Refraction
On completion of the module, students should be able to perform visual acuity test, spherical power check, astigmatism test, binocular balancing and near addition check, as well as evaluate the different refractive conditions of patients based on the results obtained.

Industry Attachment
This module provides opportunity for students to apply the concepts and skills acquired during institutional training as well to gain hands-on practical training in a real work environment in areas pertaining to fabrication and dispensing of optical lenses and frames, retail and customer service.

Electives (Course Specific)

Physiological Optics
On completion of the module, students should be able to perform contrast sensitivity experiments and apply the concept of visual and colour perceptions pertaining to relevant ocular checks.

Eye Care and Retail Management
On completion of the module, students should be able to apply the appropriate concepts and skills in the management of an optical outlet and communicate effectively with customers in providing quality customer service.

Electives (General)

As reflected on pages 275-278.

Life Skills Modules

As reflected on page 278.