## Introduction

There has been a growing demand for cardiac procedures in Singapore, which has influenced the changes in techniques and equipment over the past 10 years. The jobs of Cardiac Technologists have become more complex and specialized, thus creating a need for them to be formally trained to keep up with these changing trends.

Recognizing this need, National Heart Centre Singapore, together with Singapore Polytechnic launched the Cardiac Technology Option in Diploma in Biomedical Science. Being the first of its kind in Asia, the course aims to produce more qualified Cardiac Technologists to serve a specialised niche in the healthcare industry.

Graduates from this course will be equipped with the knowledge of the basic theoretical concepts in the practice of cardiac technology and their applications in clinical settings.

## Course Structure

This is a 3-year full-time course where classes will be held both at Singapore Polytechnic and National Heart Centre Singapore. Students will spend 2 semesters doing their clinical attachment with National Heart Centre Singapore, where they will have hands-on with the state of-the art equipment in the cardiac laboratories as well as the exposure to the clinic facilities in a hospital setting.

## Entry Requirement

**Entry Criteria:**

GCE 'O' Level

English, Grade 1-7

Math, Grade 1-6

1 Science subject, Grade 1-6

**Entry criteria can be found in**:

http://www.sp/edu.sg

## Cardiac Module Synopsis

**CT0012: Applied Cardiac Anatomy and Physiology**

This module aims to provide students with basic understanding of anatomy and physiology of the heart, and the clinical relevance of this knowledge. Students will also be introduced to applied anatomy.

**CT0013: General Cardiology & Cardiac Disorders I**

The module aims to provide students with definitions, etiologic, evaluations, pathophysiology, clinical manifestation, risk factors, treatment, management and complications of various heart diseases.

**CT0021: ECG & Rhythm Disorders**

This module aims to provide students with fundamental concepts of interpreting & monitoring ECG, related to diagnosing heart diseases & abnormalities. It also provides understanding for the various rhythm abnormalities commonly encountered in clinical practice.

**CT0015: Diagnostic & Interventional Cardiac Catheterisation**

This module aims to provide students an overview of diagnostic and interventional applications of cardiac catheterisation. It looks at history, principles, indications, instrumentation techniques, equipment use and new developments of percutaneous coronary intervention and valvuloplasty.

**CT0016: General Cardiology and Cardiac Disorders II**

This module aims to provide students with definitions, etiologic evaluations, pathophysiology, clinical manifestation, risk factors, treatment, management and complications of various heart diseases.

**CT0017: Echocardiography**

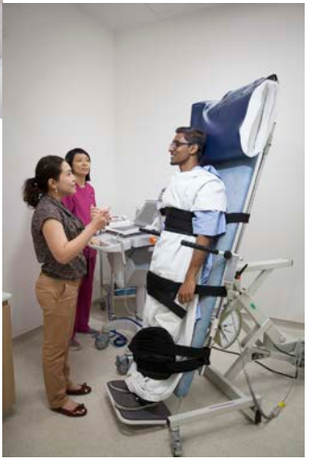
Conventional and Doppler Echocardiography imaging techniques and illustrations of how they are used in the diagnosis of selected heart diseases will be covered in this module.

**CT0018: Electrophysiology & Pacemakers**

This module aims to provide students with the basic knowledge in identifying arrhythmias. This module includes the fundamental concepts of electrophysiology studies and the pacing.

**CT002Y/Z: Clinical Attachment**

This module aims to let students acquire practical skills in both invasive and non-invasive procedures involved in the investigation, diagnosis and management of cardiovascular diseases



## Course Modules*

***Course structure is subjected to changes.***

### First Year

| | |
|---|---|
| CP2042 | Basic Immunology |
| CP2077 | Anatomy and Physiology |
| CP2078 | Basic Microbiology |
| CP2079 | Cell Biology |
| CP2085 | Basic Biochemistry |
| CP 4001 | Analytical & Physical Chemistry |
| CP 4006 | Inorganic & Organic Chemistry |
| LC 0254 | Communicating for Personal and Team Effectiveness |
| LC 0255 | Communicating for Project Effectiveness |
| MS2101 | Mathematics A |
| MS2103 | Mathematics B |

### Second Year

| | |
|---|---|
| CP2041 | Clinical Chemistry I |
| CP2046 | Medical Microbiology A |
| CP2052 | Introductory Pharmacology |
| CP2063 | Genetics and Molecular Biology |
| CP2100 | Laboratory Management & Biosafety |
| *CT0012 | Applied Cardiac Anatomy & Physiology |
| *CT0013 | General Cardiology & Cardiac Disorders 1 |
| *CT0021 | ECG & Rhythm Disorders |
| *CT002Y | Clinical Attachment |
| MS2231 | Biostatistics |

### Third Year

| | |
|---|---|
| *CT0015 | Diagnostics and Interventional Cardiac Catherization |
| *CT0016 | General Cardiology & Cardiac Disorders 2 |
| *CT0017 | Echocardiography |
| *CT0018 | Electrophysiology & Pacemakers |
| *CT002Z | Clinical Attachment |

*These modules are conducted in the clinical setting at the National Heart Centre Singapore. For synopsis of these modules, please refer 'CARDIAC MODULE SYNOPSIS'.

| | |
|---|---|
| CP2029 | Basic Pathology |
| CP2047 | Clinical Chemistry 2 |
| CP2058 | Immunohaematology |
| CP2082 | Biochemistry |
| CP2111 | Cardiac Drugs and Calculation |
| CP2121 | Clinical Research Management |

## About National Heart Centre Singapore

National Heart Centre Singapore is the national referral center for cardiovascular disease in Singapore. It provides a one-stop comprehensive range of cardiovascular and thoracic services ranging from standard procedures such as investigative procedures like echocardiography, angiography and treatment options like electrophysiological testing, percutaneous coronary revascularisation, coronary bypass surgery to advanced clinical treatment of heart failure and heart and lung transplantation.

National Heart Centre Singapore collaborated with Singapore Polytechnic to train more cardiac technologists to meet the increasing demand for this specialised group of technologists.

For enquiries, please send in your enquiries to:

National Heart Centre Singapore
Email: nhcs@nhcs.com.sg

## About Singapore Polytechnic

Singapore Polytechnic is the first polytechnic to be established in Singapore in 1954.

To date, graduate output from Singapore Polytechnic is close to 178,000, some of whom have gone on to become Parliamentarians, captains of industries, senior executives of multi-national corporations, and successful entrepreneurs and professionals in Singapore and overseas.

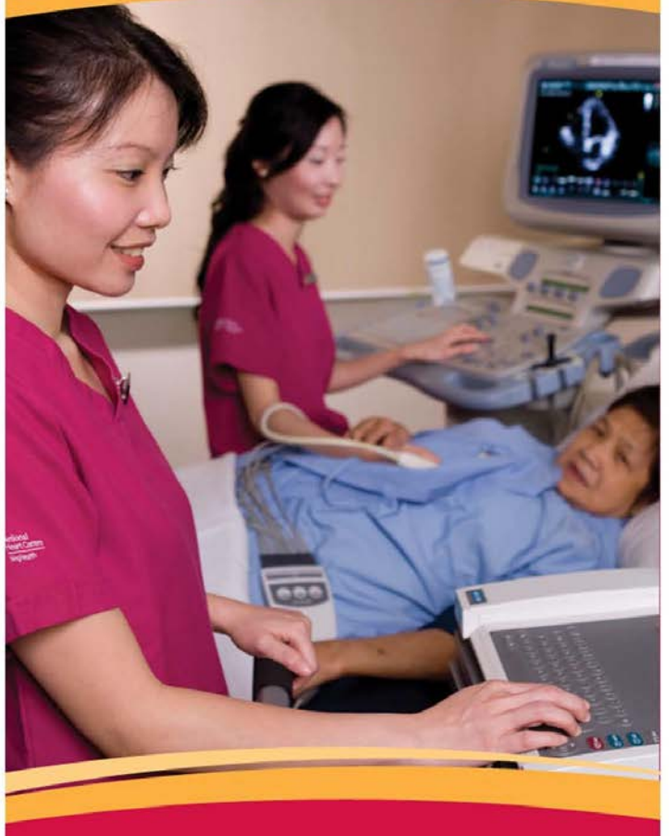
Currently, Singapore Polytechnic has an enrolment of close to 16,000 students, with an offering of 50 full time diploma courses across all its 10 schools, namely the Schools of Architecture and the Built Environment; Business; Chemical and Life Sciences; Communication, Arts and Social Sciences; Design; Digital Media and Infocomm Technology; Electrical and Electronic Engineering; Mathematics and Science; Mechanical and Aeronautical Engineering and the Singapore Maritime Academy.

For enquiries, please contact:

School of Chemical & Life Sciences
Singapore Polytechnic
Tel: (65) 6870 7881
Email: morganavel_selvarajoo@sp.edu.sg

# Diploma in Biomedical Science

# (Cardiac Technology)



National Heart Centre SingHealth