



JAE CODE C73

Diploma in
Chemical &
Pharmaceutical
Technology

Diploma in Chemical & Pharmaceutical Technology

This is for you if you want to craft innovative and green solutions to improve sustainability and enhance lives. Make a significant impact in fields ranging from chemical and pharmaceutical to environmental and sustainable energy.

Embark on an exciting learning journey in advanced chemical and pharmaceutical manufacturing technologies.

Contribute to the growing chemical and pharmaceutical sector as a highly skilled chemical technologist with a strong foundation in science and technology.

This diploma lets you...

- Discover how advanced technologies transform chemical compounds into useful everyday products and life-saving medicines.
- Attain practical competencies and valuable expertise in advanced chemical and pharmaceutical manufacturing technologies by working at our Secondary Pharmaceutical Technology Centre and Active Pharmaceutical Ingredient Plant.
- Seize career opportunities in diverse fields such as oil and gas, petrochemicals, specialty chemicals, high-end polymers, and pharmaceuticals/medicinal products.

Career Paths

- Assistant Process Engineer
- Laboratory Analyst
- Maintenance Engineer
- Manufacturing Biotechnologist
- Operations Associate
- Quality Control Officer
- Quality Assurance Specialist
- Research & Development Officer
- Safety & Environment Engineer
- Validation Executive

Benefits

- Gain valuable knowledge required to become a skilled chemical technologist.
- Attain practical know-how and expertise in diverse fields.
- Experience what it's like working in state-of-the-art chemical and pharmaceutical pilot plants and laboratories.

Course Structure

The NYP-PCM for Diploma in Chemical & Pharmaceutical Technology consists of:

• 25 Competency Units

Within each Competency Unit, the skills and knowledge of different disciplines are integrated and taught holistically. This enables you to fulfil specific work tasks upon completion.

• 6 Course Competencies

Each Course Competency consists of a collection of Competency Units that develops specific learning outcomes and competencies.

• 5 Competency Canvases

Each Competency Canvas consists of a collection of Competency Units and a Work-Integration Unit (WIU), which is a workplace-contextualised project. Competency Canvases help you develop and demonstrate your abilities to perform work tasks at a higher proficiency.

• 1 Final Year Project

• 1 Internship Programme

• 11 General Studies Modules

These modules allow you to explore other areas of interest beyond your chosen area of specialisation.

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Competency Canvases

These consist of Competency Units and workplace-contextualised projects known as Work-Integration Units (WIUs).

1. Applied Science in Action

- Applied Science Project (WIU)
- Biochemical Analysis
- Chemical Laboratory Skills
- Data & Statistical Methods
- Instruments & Measurements

2. Process Sustainability

- Chemical Plant Equipment Operations
- Sustainability Practices
- Sustainability Project (WIU)
- Water Treatment & Applications

3. Process Integration

- Engineering Drawing
- Heat Transfer Analysis
- Mass Balance Applications
- Mass Transfer Operations
- Process Integration Project (WIU)

4. Safety Management

- Chemical Laboratory Skills
- Process Control & Automation
- Safety & Risk Management
- Safe Process Operations
- Safety Management Project (WIU)

5. Energy Optimisation

- Data & Statistical Methods
- Energy Analysis & Optimisation
- Energy Balance Applications
- Energy Optimisation Project (WIU)
- Fluid Mechanics Applications
- Process Operations & Optimisation
- Thermodynamic Cycles & Applications

Course Competencies

Completing the required Competency Units will equip you with six Course Competencies:

1. Energy & Resource Management
2. Laboratory Analysis & Quality Management
3. Manufacturing Technology & Processes
4. Process Operations & Control
5. Safety & Health Management
6. Transfer Processes

Competency Units

YEAR 1

- Applied Calculus in Scientific Processes
- Applied Science Project (WIU)
- Biochemical Analysis
- Chemical Analysis Methods
- Chemical Laboratory Skills
- Chemical Plant Equipment Operations
- Data & Statistical Methods
- Instruments & Measurements
- Mass Balance Applications
- Organic Synthesis Methods
- Sustainability Practices
- Water Treatment & Applications

YEAR 2

- Energy Balance Applications
- Engineering Drawing
- Fluid Mechanics Applications
- Heat Transfer Analysis
- Mass Transfer Operations
- Pharmaceutical Manufacturing
- Process Control & Automation
- Process Integration Project (WIU)
- Quality Systems & Good Manufacturing Practice
- Safe Process Operations
- Safety & Risk Management
- Sustainability Project (WIU)

YEAR 3

- Energy Analysis & Optimisation
- Energy Optimisation Project (WIU)
- Final Year Project (WIU)
- Internship Programme (WIU)
- Process Operations & Optimisation
- Reactor Operations
- Safety Management Project (WIU)
- Thermodynamic Cycles & Applications

Our Industry Partners

CRODA

CHAN CHIAN YEOW

OPERATIONS DIRECTOR, CRODA SINGAPORE

Croda's commitments are to be Climate, Land and People Positive by 2030 and to be the most sustainable supplier of innovative ingredients. As part of our ambitious goals, Croda Singapore has collaborated with NYP to create the Professional Competency Model (PCM) curriculum for the Diploma in Chemical & Pharmaceutical Technology. The new curriculum places emphasis on sustainability, safety management and Industry 4.0 applications. These are the megatrends that will address the current needs in the process industry and, most importantly, prepare NYP graduates in a VUCA (volatile, uncertain, complex, and ambiguous) landscape.



BONG HEAN TAR

DEVELOPMENT ENGINEERING MANAGER, SINGAPORE REFINING COMPANY

The Diploma in Chemical & Pharmaceutical Technology's PCM curriculum is a collaboration between NYP and its partners, aimed at developing a pipeline of highly trained talent, who are crucial to Singapore's status as a process industrial hub. The Singapore Refining Company (SRC) believes that our employees are our most important assets and the driving force behind our success. One of our primary goals is to train young people, challenge their abilities, and continue to develop them. SRC is glad to work with NYP to ensure that the curriculum is aligned with the industry's best practices and designed to optimise a learner's potential and develop competencies relevant to the current industry needs.

HUNTSMAN

Enriching lives through innovation

HAN WEE GUAN

ENVIRONMENT, HEALTH & SAFETY MANAGER, HUNTSMAN SINGAPORE

As a global chemicals company, Huntsman finds it key that the industry workforce is highly skilled and innovative. The NYP-PCM focuses on allowing learners to apply their knowledge in industry-relevant tasks. With the PCM, learners are equipped with key competencies and skills to contribute to the workplace and the industry. They also gain invaluable insights from industry partners, which will help them learn, innovate, and thrive. We look forward to building the next generation of career-ready talent by working alongside NYP to enhance the Diploma in Chemical & Pharmaceutical Technology curriculum and its delivery.



KOH SIONG TECK

DIRECTOR (SINGAPORE WATER ACADEMY), PUBLIC UTILITIES BOARD (PUB)

The water industry is a key growth and strategic sector in Singapore. As the National Water Agency, PUB is thrilled to support NYP in developing the next generation of professionals through strengthening the industrial relevance and co-developing the curriculum in the areas of water treatment and technology. With this collaboration, graduates will be equipped with future-ready competencies and skills to tackle evolving water challenges and contribute to building a green and resilient water system for Singapore.