

HIGHER NITEC IN TECHNOLOGY – CHEMICAL PROCESS TECHNOLOGY

Course Code: HT2CP / Plan Code: HT2CP

COURSE OBJECTIVE

This course equips students with skills and knowledge to operate, monitor and control continuous or batch processes, maintain safety, health & environmental standards, perform quality control and configure process instruments in the biologics, petrochemical or pharmaceutical manufacturing facilities.

COURSE STRUCTURE

Core/Specialisation Modules

S/N	Module Details	Module Code	Module Objectives
MSC: Process Equipment & Operations			
C1	Process Instrumentation 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE43001FP	On completion of the module, students should be able to carry out control valve operation with hand-wheel, control valve by-pass operation, monitor process conditions, and perform instrument functionality check.
		Equivalent Code CE2108FP	
C2	Process Operations 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE43002FP	On completion of the module, students should be able to load and unload material, perform inter-tank transfer and collection of raw material and sampling.
		Equivalent Code CE2109FP	
C3	Fluid Flow & Equipment Operations 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE43003FP	On completion of the module, students should be able to line up the pipelines and valves, carry out pump, heat exchanger, mixer, furnace and compressor operations.
		Equivalent Code CE2109FP	
MSC: Pharmaceutical & Bioprocess Operations			
C4	Upstream Bioprocess Operations 45 (T) 15 (P) Credits 3 Prerequisite: Nil	CE43004FP	On completion of the module, students should be able to perform process relating to the upstream processes in a biologics and pharmaceutical industry. Students would be able to perform seed and inoculum preparation activities, carry out bioreactor setup, perform bioreactor operations and carry out process monitoring operation.
		Equivalent Code CE3106FP	
C5	Downstream Bioprocess Operations 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE53003FP	On completion of the module, students should be able to perform process relating to the downstream processes in a biologics and pharmaceutical industry. Students would be able to perform cell disruption process, perform post fermentation purification processes. In addition, students would be able to perform product analysis and perform CIP and SIP operation.
		Equivalent Code CE3106FP	
C6	Pharmaceutical Operations 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE43006FP	On completion of the module, students should be able to carry out isolator operation, reactor/vessel operations, phase separation and drying operation.
		Equivalent Code CE3106FP	
MSC: Quality Control & GMP			
C7	Cleanroom Operations & Practices 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE43005FP	On completion of the module, students should be able to perform gowning for entry and handle materials in the cleanroom / controlled environment. They also be able to carry out plant turnaround and changeover activities.
		Equivalent Code CE2110FP	

S/N	Module Details	Module Code	Module Objectives
C8	Product Quality Testing 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE53001FP	On completion of the module, students should be able to perform instrumental analysis on petroleum and pharmaceutical products, in accordance to respective testing standards.
		Equivalent Code CE2107FP	
MSC: Plant Processes			
C9	Separation & Transfer Processes 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE43007FP	On completion of the module, students should be able to carry out distillation operation, gas absorber and extraction unit operation.
		Equivalent Code CE2108FP	
		Equivalent Code CE3105FP	
C10	Material & Energy Balances 33 (T) 27 (P) Credits 3 Prerequisite: Nil	CE53004FP	On completion of the module, students should be able to apply principles of chemical engineering to perform material and energy balances on common process unit.

Abbreviations: T - Theory, P - Practical, MSC - Modular Skills Certificate

CREDITS FOR CERTIFICATION

Total of 30 credits from successful completion of 10 Core/Specialisation modules.

Applicants who do not meet the entry requirements for Core/Specialisation modules will need to complete 12 credits from 4 Foundation modules before taking Core/Specialisation modules.

Foundation Modules

S/N	Module Details	Module Code	Module Objectives
F1	Basic Laboratory Techniques 33 (T) 27 (P) Credits 3 Prerequisite: Nil	AS33001FP	On completion of the module, students should be able to adhere to laboratory safety, maintain the quality standards of chemical laboratory, perform basic laboratory techniques, carry out basic calibration and organise laboratory data.
		Equivalent Code Nil	
F2	Occupational Health & Safety 33 (T) 27 (P) Credits 3 Prerequisite: Nil	AS33002FP	On completion of the module, students should be able to perform workplace housekeeping and maintain workplace safety, which includes process safety, handle hazardous materials, perform biohazard waste management as well as participate in risk assessment.
		Equivalent Code CE2107FP	
F3	Applied Science Fundamentals 33 (T) 27 (P) Credits 3 Prerequisite: Nil	AS33003FP	On completion of the module, students should be able to identify common elements of organic and inorganic molecules, nomenclature used, chemical structure and bonding, common functional groups as well as the properties associated with the various functional groups. Students should also be able to perform basic measurements, prepare stock solution and do simple dilution in the laboratory.
		Equivalent Code Nil	
F4	Basic Mathematics 45 (T) 15 (P) Credits 3 Prerequisite: Nil	AS33004FP	On completion of the module, students should be able to apply the various mathematical principles such as algebra, perform unit conversion and construct graphs for laboratory data expression and analysis. In addition, they should be able to collate data and perform basic functions using common software programme.
		Equivalent Code Nil	

Abbreviations: T - Theory, P - Practical

VENUE

ITE College East

Note:

- 1) The training schedule of lessons is subject to change.
- 2) Depending on the demand, not all the modules in the CET *Higher Nitec* in Technology courses will be offered in each intake. Where the modules are offered and there is insufficient enrolment, the classes will be cancelled and a full refund will be given to the affected students.