HIGHER NITEC IN AEROSPACE ENGINEERING (2 YEARS)

CERTIFICATION

Credits required for certification:

Sector Foundation Modules	:	6
Specialisation Modules	:	33
Internship Programme	:	8
Life Skills Modules	:	9
Cross-Disciplinary Core Modules	:	6
Electives	:	6
Total	:	68

COURSE STRUCTURE

Module Title	Credits
SECTOR FOUNDATION MODULES	
Workplace Safety, Health & Environment	3
Mechanical Fundamentals	3
SPECIALISATION MODULES	
Aircraft Maintenance & Safety Practices	3
Human Factors & Legislation in Aviation Maintenance	3
Aircraft Materials Maintenance	3
Aircraft Electrical Systems	3
Aircraft Structure Inspections	3
Aircraft Structural Maintenance	3
Avionics & System Integration	3
Aircraft Systems & Operations	3
Aircraft Systems & Aerodynamics	3
Aircraft Propulsion System	3
Aviation Electronic Systems	3
INTERNSHIP PROGRAMME	
Internship Programme	8
ELECTIVES (COURSE SPECIFIC)	
Electronic Fundamentals & Digital Technique	2
Non-Destructive Testing	2
TIG Welding	2
Unmanned Aircraft System	2
ELECTIVES (GENERAL) AND LIFE SKILLS MODULES	
For details, click here	

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

Sector Foundation Modules

Workplace Safety, Health & Environment

On completion of the module, students should be able to apply Workplace Safety and Health (WSH) policies, Environmental Management System procedures and practices in the planning, preparation and execution of work activities to ensure a safe and reliable workplace environment.

Mechanical Fundamentals

On completion of the module, students should be able to measure and fabricate mechanical components for assembly.

Specialisation Modules

Aircraft Maintenance & Safety Practices

On completion of the module, students should be able to perform aircraft general maintenance such as usage of common hand tools, fastening application and aircraft piping in a safe manner.

Human Factors & Legislation in Aviation Maintenance

On completion of the module, students should be able to apply human factors & legislation framework, human-centered principles, regulated guidelines and recommended practices aim to optimize the performance, safety, and reliability in aviation maintenance and airworthiness.

Aircraft Materials Maintenance

On completion of the module, students should be able to perform mathematical calculations, identify different aircraft materials such as types of metallic and advance composite materials. The students should also be able to perform handling and storage of aircraft materials under different environment conditions, corrosion treatment of metallic materials including inspection techniques on aircraft materials.

Aircraft Electrical Systems

On completion of the module, students should be able to maintain and repair the aircraft Electrical Wiring Interconnect System (EWIS) and handle Electrostatic Discharge Sensitive (ESDS) devices.

Aircraft Structure Inspections

On completion of the module, students should be able to perform general visual inspection on aircraft structures using various inspection techniques and methodologies to ensure safety, reliability and regulatory compliance.

Aircraft Structural Maintenance

On completion of the module, students should be able to identify the structural components of the aircraft and their mechanical properties, as well as apply basic fundamentals of mechanics and thermodynamics concepts. Students should also be able to perform basic repair of aircraft structural components.

Avionics & System Integration

On completion of the module, students should be able to perform maintenance on the aircraft avionics systems, navigation systems, communications and aircraft instrumental systems. Students should also be able to interpret cockpit indications layout and perform work on board maintenance systems, cabin and information systems, aircraft lighting and oxygen systems.

Aircraft Systems & Operations

On completion of the module, students should be able to perform maintenance on aircraft systems such as electrical and pneumatic systems with respect to their related Ground Support Equipment (GSE). Students should also be able to maintain different types of aircraft systems, engines and perform ground operations such as aircraft jacking and towing.

Aircraft Systems & Aerodynamics
On completion of the module, students should be able to perform maintenance on the aircraft flight control systems with reference to the aircraft aerodynamics and Theory of Flights. Students should also be able to maintain the aircraft landing gear and hydraulic system.

Aircraft Propulsion System
On completion of the module, students should be able to perform basic maintenance on aircraft propulsion systems. The students should also be able to perform basic maintenance on aircraft engine systems and its components using the appropriate maintenance procedures.

Aviation Electronic Systems
On completion of the module, students should be able to perform maintenance and proper handling of semiconductor components such as diodes, transistors, integrated circuits and printed circuit boards in aviation electronic systems.

Electives (Course Specific)

Electronic Fundamentals & Digital Technique
On completion of the module, students should be able to perform different numbering systems conversion, interpret different logic gates and diagrams and Interpret networking infrastructure.

Non-Destructive Testing
On completion of the module, students should be able to perform non-destructive testing (NDT) techniques such as fluorescent penetrant inspection (FPI), magnetic particle inspection (MPI), eddy current testing (ET), and ultrasonic testing (UT). They learn to detect surface and internal defects in aircraft components, interpret test results, and follow safety and regulatory procedures in accordance with industry standards.

TIG Welding
On completion of the module, students should be able to perform joining of metals using TIG welding process, equipment setup, filler rod and tungsten electrode selection, shielding gases and joint preparation. It will also cover identification of common welding defects and methods to avoid them.

Unmanned Aircraft System
On completion of the module, students should be able to perform basic maintenance and explanation of an Unmanned Aircraft System as well as to follow safety and regulatory procedures in accordance with CAAS & industry standards.

Electives (General) and Life Skills Modules
For details, click here.