

UMA - UNMANNED AIRCRAFT

UMA 100 Explore Fundamentals of Unmanned Aerial Vehicles (2-2-3)

This course provides an introduction to unmanned aerial vehicles (UAVs) by covering the main types of UAV platforms and their key characteristics. Students will learn about the major components and subsystems commonly found in UAVs, as well as the basic principles of aerodynamics that affect flight performance. The course also explores the common materials used in UAV construction and how they influence design, strength, and efficiency. Overall, the course gives students a foundational understanding of UAV design and operation.

UMA 101 Investigate Electrical and Electronic Principles (2-2-3)

This course introduces students to the principles of electricity and electronics. Learners study the theories of electricity, electrical quantities and units, and the fundamental laws of direct-current (DC) circuits, including Ohm's Law and Kirchhoff's Laws. Students learn to use electrical measuring instruments, build and analyze series and parallel circuits, and verify circuit laws experimentally. The course introduces digital fundamentals, logic gates, and simple combinational logic circuits, and develops practical skills in constructing and troubleshooting basic electronic circuits.

UMA 102 Explore UAV Safety, Regulations and Applications (3-0-3)

This course introduces the fundamentals of safe and compliant UAV operations. Learners explore safety, human factors, risk management, airspace, operating limits, and UAE and selected international UAV regulations. The course also examines UAV applications in relation to operational risks, safety, and regulatory requirements.

UMA 103 Examine UAV Propulsion and Power Systems (2-4-4)

This course develops knowledge and practical skills related to propulsion and power systems used in Unmanned Aerial Vehicles (UAVs). Learners examine thrust generation, motor operation, propeller characteristics, battery technologies, power distribution, and system efficiency. The course also provides hands-on experience in selecting, configuring, testing, troubleshooting, and maintaining UAV propulsion and power systems while applying safe operating and maintenance practices.

UMA 104 Examine UAV Control, Communication and Navigation Systems (2-4-4)

This course develops knowledge and practical skills related to UAV control, communication, and navigation systems. Learners examine flight control and stabilization mechanisms, onboard sensors, telemetry and RF communication systems, and GPS/GNSS-based navigation technologies. The course provides hands-on experience in configuring flight controllers, calibrating sensors, establishing communication links, interpreting navigation data, and testing UAV systems to ensure reliable and safe operation in controlled environments.

UMA 105 Assemble and Integrate an Unmanned Aerial Vehicle (2-2-3)

This course introduces learners to the practical skills required to assemble, integrate, test, and inspect an Unmanned Aerial Vehicle (UAV). Learners will use appropriate tools and safety practices to assemble the airframe, install propulsion and avionics components, and perform basic calibration, inspection, and ground testing while following workshop safety, HSE, ethical, privacy, and security requirements.

UMA 201 Perform UAV Operations and Flight Training (1-2-2)

This course develops the knowledge and practical skills required for safe and effective UAV operations. Learners perform pre-flight planning, inspections, and system checks; execute basic and intermediate flight manoeuvres; and apply operational procedures during flight. The course emphasizes flight safety, regulatory compliance, situational awareness, risk management, and post-flight evaluation through hands-on flight training in controlled operational environments.

UMA 205 Plan and Execute UAV Autonomous Missions (0-2-1)

The aim of this course is to introduce students to the planning and execution of UAV autonomous missions. Students will learn how to design flight paths, configure mission parameters, operate autonomous flight systems, and monitor UAV performance while applying safety and operational procedures in real-world mission scenarios.

UMA 231 Apply Workplace Practices in UAV Environments (0-8-4)

The aim of this unit is to allow students to participate in an apprenticeship program/on-job training. It provides learners with the practical knowledge and skills to develop students' abilities in addressing real-world problems. The unit assesses the trainee's competencies in completing safe and effective on-site hands-on training in disciplines related to Unmanned Aerial Vehicles.

UMA 232 Assist in UAV Assembly and Basic Maintenance (0-8-4)

The aim of this unit is to allow students to participate in an apprenticeship program/on-job training. It provides learners with the practical knowledge and skills to develop students' abilities in addressing real-world problems. The unit assesses the trainee's competencies in completing safe and effective on-site hands-on training in disciplines related to Unmanned Aerial Vehicles.

UMA 233 Perform UAV Systems Integration and Testing (0-8-4)

The aim of this unit is to allow students to participate in an apprenticeship program/on-job training. It provides learners with the practical knowledge and skills to develop students' abilities in addressing real-world problems. The unit assesses the trainee's competencies in completing safe and effective on-site hands-on training in disciplines related to Unmanned Aerial Vehicles.

UMA 234 Support UAV Operations and Flight Activities (0-8-4)

The aim of this unit is to allow students to participate in an apprenticeship program/on-job training. It provides learners with the practical knowledge and skills to develop students' abilities in addressing real-world problems. The unit assesses the trainee's competencies in completing safe and effective on-site hands-on training in disciplines related to Unmanned Aerial Vehicles.

UMA 235 Perform UAV Maintenance and Troubleshooting (0-8-4)

The aim of this unit is to allow students to participate in an apprenticeship program/on-job training. It provides learners with the practical knowledge and skills to develop students' abilities in addressing real-world problems. The unit assesses the trainee's competencies in completing safe and effective on-site hands-on training in disciplines related to Unmanned Aerial Vehicles.

UMA 236 Execute UAV Operations and Professional Tasks Independently (0-8-4)

The aim of this unit is to allow students to participate in an apprenticeship program/on-job training. It provides learners with the practical knowledge and skills to develop students' abilities in addressing real-world problems. The unit assesses the trainee's competencies in completing safe and effective on-site hands-on training in disciplines related to Unmanned Aerial Vehicles.