

# AERT-AEROSPACE TECHNOLOGY (AERT)

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## **AERT 105. Aerospace Engineering PLTW 4 Credits (2+4P)**

Introduce the student to Aerospace Engineering (AE) concepts and history. Studied topics include History of Flight, Aerodynamics, Rocket Science, Orbital Physics, Systems Engineering and Life Support/ Environmental Systems. Restricted to: Community Colleges only.

## **AERT 111. Basic Electricity and Electronics 3 Credits (2+2P)**

Fundamentals of electricity and electronics, basic circuit devices, meters, transistors, integrated fiber optics, and industrial application topics. Minimum math proficiency of CCDM 103 or CCDM 104 required or math placement into CCDM 114 or higher. Restricted to: Community Colleges only. Crosslisted with: ELT 105

## **AERT 121. Introduction to the Aerospace Workplace 4 Credits (2+4P)**

The course covers space history, regulations, controls, aerospace industry terminology and acronyms as well as hands-on activities related to tools, procedures, and standard practices. Restricted to: Community Colleges only.

## **AERT 122. Aerospace Safety and Quality 3 Credits (2+2P)**

Covers identification of hazards, personal protective equipment, safe practices, and protection of personnel, property, and equipment in the aerospace environment. Basic principles of quality assurance engineering and quality control relating to work processes will be discussed. Restricted to: Community Colleges only.

## **AERT 211. Electromechanical Devices 4 Credits (2+4P)**

Theory and application of electromechanical devices and digital control circuits. Includes AD and DA converters, pneumatics, hydraulics, programmable logic controllers, DC, AC and stepper motors, and servomechanisms. Crosslisted with: MAT 240.

**Prerequisite(s):** ELT 160.

## **AERT 212. Materials and Processes (Basic Metallurgy) 3 Credits (2+2P)**

Basic Metallurgy: Aluminum and its alloys (Alclad), hardening, tempering, annealing, anodizing, magnetism, titanium, copper, stainless steel, surgical steel, safety wire, iron rust. Metallurgical Processes: Welding and soldering. Inspection Fundamentals: Eddy currents, magnetic particles (ferrous and non-ferrous metals), ultrasonic, x-ray, visual, corrosion and corrosion control, and vacuum bagging. Restricted to: Community Colleges only.

## **AERT 213. Aerospace Fluid Systems 3 Credits (2+2P)**

This course includes a familiarization of fluid system components, characteristics, and applications. Cryogenic and hypergolic materials and high pressure systems are also covered. Restricted to: Community Colleges only.

## **AERT 214. Aerospace Systems 3 Credits (2+2P)**

This course provides an introduction to expendable and reusable spacecraft systems including hydraulic, pneumatic, electrical, propulsion, mechanical, HVAC, and ECLSS (Environmental Control and Life Support System). How systems interact with computer and data acquisition systems is also covered. Restricted to: Community Colleges only.

## **AERT 221. Inspection Requirements and Planning Metrology 3 Credits (2+2P)**

Course teaches the benefits of inspection, quality control, material conditions. Also covers measurements, including temperature, ultrasonic, vibration and more. Restricted to: Community Colleges only.

## **AERT 222. Electromechanical Systems 3 Credits (2+2P)**

Principles and applications of preventive and corrective maintenance procedures on industrial production machines using systems technical and maintenance manuals to develop troubleshooting procedures using systems block and schematic diagrams. Crosslisted with: MAT 245.

**Prerequisite(s)/Corequisite(s):** AERT 221 or MAT 240. Prerequisite(s): ELT 160.

## **AERT 224. Aerospace Tests and Measurements 3 Credits (2+2P)**

This course covers electrical and mechanical testing procedures (primarily non-destructive testing), equipment, measurements, and instrumentation involved in aerospace systems. Verification of tool and equipment calibration is also covered.

**Prerequisite(s)/Corequisite(s):** AERT 221. Restricted to: Community Colleges only.

## **AERT 225. Cooperative Experience 1-3 Credits (1-3)**

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Consent of instructor required. Graded: S/U. Restricted to: Community Colleges only.

## **AERT 255. Special Topics 1-4 Credits (1-4)**

Specific topics to be announced in the Schedule of Classes. Restricted to: Community Colleges only.

## **AERT 290. Independent Study 1-3 Credits (1-3)**

Individual studies in areas directly related to aerospace. Consent of instructor required. Restricted to: Community Colleges only.