



**COWLEY COLLEGE
& Area Vocational Technical School**

COURSE PROCEDURE FOR

**INTRODUCTION TO MECHATRONICS
MEC3400 3 Credit Hours**

Student Level:

This course is open to high school and post-secondary level students.

Catalog Description:

MEC 3400 – INTRODUCTION TO MECHATRONICS (3 hrs)

At the completion of the course, the student will be able to comprehend, apply and evaluate relevant information while demonstrating technical proficiency in all skills and behaviors necessary to run basic machines and equipment in a safe manner. Students will also demonstrate a basic knowledge of mechatronics and it's applications to industries.

Prerequisites:

None

Controlling Purpose:

This course is designed to help the student increase their knowledge regarding fundamentals of industrial related technical documentation comprehension and production.

Learner Outcomes:

Upon completion of the course, the student will be able to demonstrate a proficiency in reading and understanding technical documents. The student will also be able to demonstrate skills in producing documentation for safety, emergency management, and OSHA compliance.

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

Units Outcomes and Criterion Based Evaluation Key for Core Content:

The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

A = All major and minor goals have been achieved and the achievement level is considerably

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DISCLAIMER: THIS INFORMATION IS SUBJECT TO CHANGE. FOR THE OFFICIAL COURSE PROCEDURE CONTACT ACADEMIC AFFAIRS.

- above the minimum required for doing more advanced work in the same field.
- B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.
- C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.
- D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
- F = Failing, will be computed in GPA and hours attempted.
- N = No instruction or training in this area.

Unit 1: History of Mechatronic Engineering

Outcomes: Upon completion of this unit, the students will be able to successfully describe the introduction of Mechatronics Engineering to modern industries.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Identify the country that originated the mechatronic engineering discipline.
						Describe the impact mechatronic engineering has had on a specific industry.
						Identify jobs well suited to mechatronic engineering in a modern industry.
						Describe the mechatronics disciplines and how they apply to industry.
						Describe the mechatronics sub-disciplines and how they apply to industry.

Unit 2: Introduction to Mechatronic Application

Outcomes: Upon completion of this unit, the students will be able to successfully describe the strengths of Mechatronic Engineering.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Identify industrial applications of the mechatronic disciplines.
						Apply the mechatronic disciplines to design.
						Design an integrated system using mechatronic disciplines.
						Identify the strengths of mechatronic designed systems over modified systems.

Unit 3: Computer Applications in Mechatronics

Outcomes: Upon completion of this unit, the students will be able to successfully use computer based systems.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Demonstrate basic control over CAD systems.
						Demonstrate use of basic computer programs.
						Demonstrate basic use of internet resources.
						Describe how to safely use computers to avoid loss of proprietary information and maintain security.

Unit 4: Technical Reading and Writing in Mechatronics

Outcomes: Upon completion of this unit, the students will be able to successfully read and write technical documents.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Demonstrate the ability to read and write operation procedures.
						Demonstrate the ability to read and write emergency action plans.
						Demonstrate the ability to read and write professional letters.
						Demonstrate the ability to read and write reports.

Unit 5: Laboratory Applications of Mechatronics

Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate the basics of mechatronic disciplines

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Demonstrate the operation of mechanical systems.
						Demonstrate the operation of computer systems.
						Demonstrate the operation of electronic systems.
						Demonstrate the operation of control systems.
						Identify the mechatronic disciplines in an integrated system.
						Demonstrate the functioning of a robotic system.
						Describe the functioning of a system using schematics.
						Be able to identify the type of system by the schematic.

Projects Required:

As assigned.

Textbook:

Contact Bookstore for current textbook.

Materials/Equipment Required:

None

Attendance Policy:

Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:

The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:

Based on classroom occupancy

Course Timeframe:

The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

[402.00 Academic Code of Conduct](#)

[263.00 Student Appeal of Course Grades](#)

[403.00 Student Code of Conduct](#)

Disability Services Program:

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability, which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.