COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

INDUSTRIAL SAFETY & LEAN MANUFACTURING
MEC3486 3 Credit Hours

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

Prerequisites:
None

Controlling Purpose:
This course is designed to help the student increase their knowledge regarding fundamentals of industrial safety and lean manufacturing.

Learner Outcomes:
Upon completion of the course, the student will be able to demonstrate a proficiency in applying lean manufacturing concepts to practical manufacturing processes and product flow. The student will also be able to demonstrate skills in safety 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 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: Cost and Profit

Outcomes: Upon completion of this unit, the student will be able to successfully identify sources of cost and profit in a business model.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Determine the objectives and functional requirements of a typical manufacturing company.
						Demonstrate what determines ways to make a profit.
						Evaluate all of the ways a manufacturing plant incurs cost.
						Describe the differences between indirect and direct cost.
						List ways that a company can control costs.
						List ways to provide faster lead times to the customer.
						Determine metrics that will accurately measure cost and profit improvements.

UNIT 2: Cash Flow Outcomes: Upon completion of this unit, the student will be able to successfully apply lean techniques to a business model.						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Identify and define cash flow as applied to industrial plants.
						Determine how inventory and carrying costs affect a company's profit line.
						Define what a lean manufacturing system is and how it can eliminate waste.
						Define how a lean manufacturing system can increase flow processes with very high velocity.

UNIT 3: Inventory Control Outcomes: Upon completion of this unit, the student will be able to successfully apply lean techniques to a manufacturing model.						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Understand the concept of the cost of money.
						Understand the concept of opportunity costs as a function of having money tied up in inventory.
						Describe and give examples of obsolescence and how it relates to tax write offs.
						Explain how product throughput is critical in terms of real costs of inventory.
						Describe the relationships between velocity, throughput and lead time.
						Describe the meaning of Lean terminology.
						Create a value flow, baseline, and action plan.

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.

Catalog Description:
MEC 3486 - INDUSTRIAL SAFETY & LEAN MANUFACTURING (3 hrs)
The student will learn to recognize an industrial environment that could be injurious to personnel, systems, and processes. Areas to be included are industrial accidents, accident investigations, safety inspection, hazardous materials, preventive measures, and associated costs. The student will also demonstrate familiarity with federal, state, and local health and safety regulations by discussing impact on industry. A large portion of the class will include Lean Manufacturing concepts and how to implement the principles into a manufacturing environment.

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.