COURSE OUTLINE: AMF205 - PROJECT COURSE

Prepared: Donovan Kennedy
Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	AMF205: PROJECT COURSE
Program Number: Name	4069: AUTOMATED MANUFACT.
Department:	ROBOTICS GRADUATE CERTIFICATE
Academic Year:	2022-2023
Course Description:	Students in this course will research a relevant automated manufacturing application used in industry and perform similar operations using the CNCs and 3D printers which they have become familiar with over the course of the program. Students will be required to independently apply project management and research techniques including scheduling and reporting.
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Prerequisites:	AMF101, AMF102, AMF103, AMF104, AMF105, AMF106
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**4069 - AUTOMATED MANUFACT.** VLO 1 Solve automated manufacturing problems found in a typical industrial environment by applying engineering principles and decision-making strategies. VLO 2 Analyze and synthesize technical data to develop graphics and related technical documents conforming to engineering standards. VLO 3 Select and manage appropriate hardware and software for the creation of engineering designs. VLO 4 Identify and utilize manufacturing processes, rapid prototyping methods, and automation technologies to optimize product development. VLO 5 Incorporate sustainable, economic, safe and ethical approaches in the design and implementation of projects. VLO 6 Configure, control, monitor, and evaluate automated manufacturing components and systems to improve automated manufacturing systems and maintain quality control measures in response to industry needs and requirements. VLO 7 Exercise professionalism, leadership, and effective communication in an industrial work setting to increase overall productivity and support a positive work environment. VLO 8 Ensure automation equipment is in compliance with established operating procedures, and occupational health and safety regulations.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.

	EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	Grade Definition Grade Point Equivalent A+ 90 - 100% 4.00 A 80 - 89% B 70 - 79% 3.00 C 60 - 69% 2.00 D 50 - 59% 1.00 F (Fail)49% and below 0.00 CR (Credit) Credit for diploma requirements has been awarded. S Satisfactory achievement in field /clinical placement or non-graded subject area. U Unsatisfactory achievement in field/clinical placement or non-graded subject area. X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. NR Grade not reported to Registrar`s office. W Student has withdrawn from the course without academic penalty.
Course Outcomes and Learning Objectives:	

Course Outcome 1	**Learning Objectives for Course Outcome 1**
1. Identify various elements of manufacturing processes that may be benefited by use of automated manufacturing techniques to improve upon quality, accuracy, cost or speed.	1.1 Investigate existing processes that would benefit from the use of automated manufacturing equipment and automation solutions. 1.2 Determine any limitations to applying automation solutions to existing processes and any processes that are not suitable for automated manufacturing. 1.3 Synthesize the results of investigations with the manufacturing capabilities and solutions that are available to the project team.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Research a relevant manufacturing project that	2.1 Investigate case studies and projects that use automated manufacturing equipment such as CNC technology and 3D

	can be implemented using available resources such as CNC technology and 3D printing.	printing. 2.2 Plan and prepare documentation, to include project specifications, by applying knowledge of design techniques that are relevant to an automated manufacturing project. 2.3 Conduct simulations and prototyping of automated manufacturing processes as required. 2.4 Identify, interpret and apply applicable safety policies and regulations such as lab safety policies, safe operating procedures, WHMIS/GHS, etc.
	Course Outcome 3	**Learning Objectives for Course Outcome 3**
	3. Manage and execute an automated manufacturing project by applying knowledge of project management principles and the use of automated manufacturing technology.	3.1 Implement the specifications and requirements of the developed project plan. 3.2 Demonstrate the ability to adhere to schedules and track the progression of a project as compared to estimated timelines. 3.3 Maintain project logbook documenting project task progression and commissioning/testing processes. 3.4 Participate in accomplishing project goals and interact effectively in a team environment. 3.5 Demonstrate reliability and assume responsibility for one`s own tasks in a team environment. 3.6 Participate effectively in project progress meetings 3.7 Produce sufficient project documentation to allow repetition of project results.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Individual Contribution to Project and Team Success	20%
Project Demonstration	35%
Project Final Report	35%
Project Proposal and Presentation	10%

Date: August 15, 2022

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.