

COURSE OUTLINE: RAA104 - MANUFACTURING PROC

Prepared: Donovan Kennedy

Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	RAA104: MANUFACTURING PROCESSES		
Program Number: Name	4073: ROBOTICS & AUTOMATIO		
Department:	ROBOTICS GRADUATE CERTIFICATE		
Semesters/Terms:	21F		
Course Description:	The students in this course will gain an understanding of typical processes used in various manufacturing environments and the arguments for and against introducing automation into these environments. Students will be introduced to the concepts of design for assembly, return on investment (ROI), mean time between failure (MTF), lead time and several other topics as they relate to automation and robotics used in industry		
Total Credits:	3		
Hours/Week:	3		
Total Hours:	45		
Prerequisites:	There are no pre-requisites for this course.		
Corequisites:	There are no co-requisites for this course.		
This course is a pre-requisite for:	RAA204		
Vocational Learning Outcomes (VLO's) addressed in this course: Please refer to program web page for a complete listing of program outcomes where applicable.	 4073 - ROBOTICS & AUTOMATIO VLO 3 Collaborate with health and safety personnel to develop plans and specifications that incorporate, among other elements, safety controls and physical guarding to comply with all applicable regulatory safety designs and standards used in industrial robotic applications. VLO 4 Assist in the assessment and management of robotic systems by applying business principles to the electromechanical environment. VLO 6 Integrate budgetary, technical, functional and safety considerations in the design and optimization of custom automation solutions. 		
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 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. 		

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.



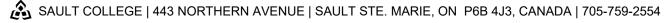
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		in groups or teams that contribute to effective working ne achievement of goals.			
	EES 10 Manage the use of	time and other resources to complete projects.			
	EES 11 Take responsibility	for ones own actions, decisions, and consequences.			
Course 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% 4.00 B 70 - 79% 3.00 C 60 - 69% 2.00 D (Fail)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. Smart watches, smart phones and similar devices are not allowed during tests or quizzes and must be removed. Smart phones are not acceptable for use as a calculator during a test or quiz.				
Books and Required Resources:	Automation, Production Systems, and Computer-Integrated Manufacturing by Mikell P. Groover Publisher: Pearson Edition: Fifth ISBN: 978-0-13-460546-3				
Course Outcomes and Learning Objectives:	Course Outcome 1	Learning Objectives for Course Outcome 1			
	Investigate different manufacturing processes as they pertain to automation, specifically robotics	1.1 Identify and explain various processes used in manufacturing facilities 1.2 Give examples of processes that would benefit from implementation of automation 1.3 Investigate case studies of successful and unsuccessful implementations of automation 1.4 Debate reasons for and against implementation of automation			
	Course Outcome 2	Learning Objectives for Course Outcome 2			
	Investigate concepts of Automated Manufacturing	2.1 Review design for assembly concepts 2.2 Identify the differences between fixed (hard), programmable and flexible automation 2.3 Examine relationships between production facilities and			

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products



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	Course Outcome 3	Learning Objectives for Course Outcome 3		
	3. Examine cost benefit analysis of automation 3.1 Investigate manual vs. automated costs for a typical manufacturing environment 3.2 Investigate concepts such as lead-time, mean-time between failure and other production planning concepts			
	Course Outcome 4	Learning Objective	tives for Course Outcome 4	
	4. Investigate various manufacturing transport systems and automated storage systems (ASRS)	systems 4.2 Analyze different and how they are	us types and components to automated ent automated storage and retrieval systems used in production environments us automated inspection technologies	
Evaluation Process and	Evaluation Type	Evaluation Weight		
Grading System:	Assignments	20%		
	9			
	Attendance & Participation			
	Case Study / Project	20%		
	Test 1	25%		
	Test 2	25%		
Date:	September 7, 2021			
Addendum:	Please refer to the course o information.	utline addendum on t	he Learning Management System for further	

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