THE OHIO STATE UNIVERSITY

College of Engineering

Undergraduate Education & Student Services

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Memo

To: Randy Smith, Vice Provost for Academic Programs
From: Rosie Quinzon-Bonello, Assistant Dean for Curriculum and Assessment
Date: November 16, 2023
Re: Informational Item – FANUC Robotics Basic Material Handling Certificate

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On November 9, 2023, The College of Engineering Committee for Academic Affairs approved the proposal for a Non-Credit Workforce Development Certificate Program in *FANUC Robotics Basic Material Handling*.

Yours sincerely,

Rosie Quinzon-Bonello

College of Engineering

Proposal for a Non-Credit

Workforce Development Certificate Program

"FANUC Robotics Basic Material Handling Certificate"

October 4, 2023

OAA Certificate Program Category: (4) Workforce Development Certificate of Completion Program

Description
The FANUC (Fuji Automatic Numerical Control) Robotics Basic Material Handling Certificate program covers the material in FANUC's "HandlingTool Operations and Programming course." Then caps it off with an additional cumulative task that has the student incorporate all of the individual lessons into a comprehensive Robotic Workcell project, which demonstrates their grasp of the material.

The primary purpose of the certificate program and training is for participants to gain proficiency and knowledge in the application of FANUC robotics to automate processes in industry. With this knowledge they should be better equipped to specify robots for certain tasks, program and implement said robots, and maintain and change the robot's operation in a dynamic way as they encounter the natural changes in their field.

The certificate program will be taught by Instructor Joshua Hassenzahl from the Department of Integrated Systems Engineering. Joshua is a FANUC certified instructor for the HandlingTool course. The certificate program will consist of a total of four, 8-hour class and lab sessions to cover the relevant material. Current enrollment per offering will be limited to 8 people but will be expanded to 16-20 in the next year due to equipment limitations.

Organizations within Ohio State and outside may request an on demand session for a Robotics Material Handling Training Session. These can be scheduled on an individual need basis in a manner that does not interfere with the ongoing academic activities of the robotics area when companies request them.

To earn the certificate, participants must complete 3 requirements:

1. Attend all four days of the program: The content of the program builds on each other, thus missing any sessions will be prohibitive to continuing the training.
2. Complete all of the required lab activities: The participant must complete each of the required lab activities in order and pass an exam on the topics at the end of each lab to demonstrate understanding of the concepts.
3. Complete the Final Independent Project: The final project is essentially the practical application of all the individual lab topics, in a cohesive and efficient package which demonstrates a holistic understanding of the material in the course. The project is finished in the lab on the last day of the session and evaluated then for completion of the certificate.

The instruction for the course will consist of hands-on lab based training in the Integrated Systems Automation Lab and progress through the FANUC based lab and activity manual.

The course will be taught by Instructor Joshua Hassenzahl from the department of Industrial and Systems Engineering and delivered through the Professional and Distance Education Programs Office, College of Engineering.

Outcomes-based
Upon completion of the course participants will be able to:

1. Define the features and characteristics of a FANUC robotics system and their applications.
2. Power up and jog the robot
3. Perform File and Image Backup
4. Recover from common program and robot faults
5. Create Tool, User, and Jog frames
6. Execute Production operations
7. Create, Modify, and execute a material handling program
8. Monitor, force, and simulate input and output signals
9. Program Branching Instructions
10. Program Position Register Instructions
11. Create and Execute Macros

Curriculum and Credits
The non-credit program will include these topics:

1. Robot Systems, Safety, Jogging, and File Manipulation
2. Troubleshooting Alarms
3. Creating Frames and Programs
4. Edit Commands and Motion Instructions
5. Inputs and Outputs
6. Branching and Macros
7. Position Register Offsets and Misc. Functions
8. Post Test
9. Final Project

Stand-alone Program and Maximum Credit Overlap between Academic Certificate and Other Academic Programs
This is a non-credit course and will be a stand-alone program.

Maximum Credit Overlap with Degree Program
N/A

Minimum Acceptable Grade to Apply
N/A

Transfer Credit
N/A

EM Credit
N/A

Admission
There will be no admission's application or process. Participants will self-select based on their desire to supplement their knowledge on Robotic programming and implementation of automation systems.

Arranged/Individual Study Courses
None

Minimum Grades and GPA to Complete Program
No letter grade will be assigned for the course.

Recorded in the Student Information System (SIS)
No

Regular OSU Tuition and Fee Assessment
No, this is a non-credit program. Fee will be $1,800 per person. Interested Ohio State students can simply take ISE 5525.

Eligibility for Federal Pell Grant and Direct Student Loans
No

Diploma Issued
No

Type of Completion Document Issued
A certificate of completion will be provided after a student successfully completes the program.

Proposal Contact Information
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