(GRS) Global Robot Specifications Online Course (LMS #34043)

Contact Information

Instructors: Jim Hocking
Office: M-TEC Room 104
Internet e-mail: hockingj@macomb.edu
Technical assistance: Contact Macomb Online Support if you have questions or need assistance with CANVAS: onlinesupport@macomb.edu or 1.877.362.2662.

Course Description

This course is designed to familiarize participants with the content of the Global Robot Specifications (GRS). Upon successful completion of this course, participants will obtain an understanding of the core GM robot specifications which state the requirements for processing, integration, and interfacing of a robot used in different GM manufacturing applications. **NOTE:** This course is not a programming or troubleshooting course. This type of training should be obtained directly from the manufacturer of the robot.

Who Should Attend

- GM: Controls Engineers, Robot Engineers and Designers
- Suppliers: Controls Engineers, Robot Engineers and Designers
- Contractors: Controls Engineers, Robot Engineers and Designers

Note: (A student who does not have experience with robot specification may find it difficult to participate in the course.)

Student Materials

- All student materials are located on the Canvas LMS which contains:
- (4) Video lecture tutorials with integrated Exercises and Solutions.
- (4) PDF files consisting of content to follow along with while viewing the video lectures.

Needed for Exam

- Webcam
- Microphone
- Sufficient internet connection

To run a quick system check, go to: http://remoteproctor.com/rpinstall.

Course Outline

- **Module 1:** Robot Processing Fundamentals **3 Hours**
  - Global 4 Robot Specification
  - Robot Safety
  - Payload analysis and robot selection overview.
  - Dual Check Safety
  - Robotic cell timing before simulation
  - Robot Ruled of Process
  - Process/Function Limits
  - Robot / Cell Controller Physical Interface
  - Path Control Signals
  - Style Code and Option Code Usage
  - Path Segment Usage
  - Decision Code Usage
  - Exercises
- **Module 2:** Robot Integration **3 Hours**
  - Robot Integration
  - Interference Zones
  - TCP
  - Load Data Setup
  - Collision Detection Setup
  - Mastering
  - Application Setup
  - Electrical and Pneumatic Connections
  - Exercises
- **Module 3:** Robot Interfaces **7 Hours**
  - Cell Controller Interface
  - Resistance Weld Controller Interface
  - Resistance Weld Dense Pack Interface
  - Integrated Servo Gun Interface
  - Dispense Interface including Tool Changer
  - Material Handling Interface
  - Stud Weld Interface
  - Exercises

- **Module 4:** Robot Set-up Procedures **1 Hour**
  - GM Setup Wizard Procedure
  - Backup All Procedure
  - Controller Image Backup/Restore Procedure
  - Cold Start Procedure
  - Controlled Start Procedure
  - Robot Held Servo Gun Procedure

Student Certification **2.5 Hours**

- Students are required to take a (2.5) hour certification on Canvas LMS upon completion of the class.
- Students may use the GRS Student Manual and any documentation located in the GRS Online course during the test.
- Certification is worth 100 points – 80 points are needed to pass exam.
- This is a pass/fail competency certification – no grade will be given.
- If student passes with 80 points or better he/she will be considered certified and will be awarded 1.6 (CEU's) Continuing Education Units, which will apply to your Macomb Community College transcript.
- Student will also be mailed a Certificate.

Attendance

- This is self-paced course. Participants are expected to complete the GRS Online course within (60) days from the date they receive their logon information from Macomb Community College.

Duration

- The *GRS Online* course consists of successfully completing video lectures, exercises, and certification on the Canvas Learning Management System in a (60) day period.
- Certification Testing will occur online upon completion of the course. Student will be proctored and have 2.5 hours to complete the certification. The exam must be completed once it is started.
- Since this is self –paced course, committed hours vary due to student's prior experience. Thus, it is critical that each participant block out enough time to contribute to his/her success.

Student Rights and Responsibilities

Student online and on-ground behavior must be in accordance with Macomb's Handbook or Rights and Responsibilities http://www.macomb.edu/NR/rdonlyres/08393098-75E2-4DA0-B534-07B76A0E6DC2/0/StudentHandbook.pdf . Academic dishonesty will not be tolerated at Macomb Community College. Dishonesty, through cheating, plagiarism or other dishonest acts defeats the purpose and disgraces the mission and quality of Macomb College.

Software Requirement

Operating Systems

- Windows XP, Vista, Win 7 or higher.
- Mac OS X 10.4, 10.5, 10.6, 10.7 or higher.

Windows Browsers:

- Google Chrome version 60 or higher
- Internet Explorer version 11 and Edge 39 or higher
    - Make sure Windows Operating System is up to date

Mac Browsers:

- Safari version 9 and 10

Disable pop-up blockers when using Canvas

Recommended Software:

- Microsoft Office (Excel, Word, PowerPoint
- Adobe Acrobat Reader

For technical issues such as a password reset, login issues, or compatibility concerns contact Macomb Online Support if you have questions or need assistance with CANVAS: onlinesupport@macomb.edu or 1.877.362.2662.