Indiana CTE Next Level Programs of Study

Mechatronics Systems (2025)

Electrical and Robot Systems

1. **Understand the hazards of electromechanical equipment and apply safe working practices.** 7106.D1.1
2. **Describe the basic functions and design of a robotic mechatronic system.** 7106.D1.2
3. **Apply basic knowledge of robot physics in a mechatronics system.** 7106.D1.3
4. **Explain the role of various electrical components within a robotic mechatronic system.** 7106.D1.4
5. **Trace and describe the flow of energy and information in a robotic mechatronic system.** 7106.D1.5
6. **Describe the basic physical properties of electrical components.** 7106.D1.6
7. **Read, analyze, and utilize technical documents such as data sheets, timing diagrams, operational manuals, schematics, etc. for a mechatronic system.** 7106.D1.7
8. **Carry out measurements and adjustments on electrical components/circuits in a mechatronic system.** 7106.D1.8
9. **Localize, identify, document and correct (where possible) malfunctions in electrical circuits, based upon the technical documentation.** 7106.D1.9
10. **Transfer the knowledge learned from one system to another system.** 7106.D1.10
11. **Effectively use current and emerging computer technologies when applicable.** 7106.D1.11
12. **Demonstrate ability to read and interpret technical documents.** 7106.D1.12
13. **Demonstrate the ability to use various types of software applicable to course.** 7106.D1.13

Mechanical Systems

1. **Understand the hazards of electromechanical equipment and apply safe working practices.** 7106.D2.1

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2. **xplain the role of various mechanical components within a given system or nodule.** 7106.D2.2

3 **Trace and describe the flow of energy in a given mechatronic system or subsystem.** 7106.D2.3

4 **Describe the basic physical properties of mechanical components including materials, lubrication requirements, and surface properties.** 7106.D2.4

5 **Carry out adjustments on mechanical components in a mechatronic system.** 7106.D2.5

6 **Read, analyze, and utilize the technical data sheets for the mechanical components and electrical drives within a mechatronic system.** 7106.D2.6

7 **Correctly localize, identify and document causes of malfunctions in mechanical components or electrical drives, based upon the technical documentation.** 7106.D2.7

8 **Correct malfunctions where possible, or correctly identify the expertise required to correct a malfunction.** 7106.D2.8

9 **Transfer the knowledge learned from one system to another system.** 7106.D2.9

10 **Effectively use current and emerging computer technologies when applicable.** 7106.D2.10

11 **Demonstrate ability to read and interpret technical documents.** 7106.D2.11

12 **Demonstrate the ability to use various types of software applicable to course.** 7106.D2.12