

## Job Description

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<b>Job Title:</b>	Automotive Technician, Software
<b>Department:</b>	Mechanical & Mechatronics Engineering
<b>Reports To:</b>	Amir Khajepour
<b>Jobs Reporting:</b>	None
<b>Salary Grade:</b>	USG 8
<b>Effective Date:</b>	January 2020

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### **Primary Purpose**

The Automotive Technician provides technical support for the Mechatronic Vehicle Systems (MVS) Laboratory research team in the Department of Mechanical and Mechatronics Engineering. This involves software design for electric vehicle control, robotic control systems, data management, data security management, and code implementation and testing on vehicles and robots, both in hardware-in-the-loop and real systems. This position reports to Prof. Amir Khajepour and MVS Lab Director.

### **Key Accountabilities**

#### **Technical Support for Mechatronic Vehicle Systems**

- Real time software design and validation
- Hardware in the loop and real systems testing
- Data security management to meet our industry partners requirements
- Human interface development
- Instrumentation with sensors and data acquisition systems
- Design and construct analog and/or digital circuits, specific to research projects
- Support software-based test, measurement, and control systems such as LabVIEW
- Assist with the design and development of research equipment and methods

#### **Technical Support for Mechatronics Courses**

- supervise, instruct, and mentor students
- create and develop labs, demonstrations, and workshops
- design and construct mechanical systems for labs
- develop written instructions and manuals for students
- supervise, instruct, and assist with MVS lab student projects

#### **Health and Safety**

- Promote and maintain safety standards
- Manage assigned labs by: maintaining MSDS inventory, maintaining equipment inventory
- Conduct workplace inspections in areas assigned
- Maintain training levels

*\*All employees of the University are expected to follow University and departmental health and safety policy, procedures and work practices at all times. Employees are also responsible for the completion of all health and safety training, as assigned. Employees with staff supervision and/or management responsibilities will ensure that assigned staff abide by the above, and actively identify, assess and correct health and safety hazards, as required.*

### Required Qualifications

#### **Education**

- College diploma in Engineering with a focus on software and IT

#### **Experience**

- Several years of experience with data management systems and security, and programming

#### **Knowledge/Skills/Abilities**

- A strong aptitude for computer programming, mechanical, and electrical technologies and systems is essential. Must have good knowledge and operational experience in many of the following areas:
  - Software development and programming
  - Familiar with C and C++
  - Familiar with database systems and software
  - Industrial grade computation and networking (e.g., PLCs, EtherCAT, CAN)
  - Data management and data security
  - Engineering Tools (e.g., Matlab, Simlunk, dSpace)
  - Embedded system design, and prototyping
  - Controls Systems
  - Data acquisition and Monitoring
  - Sensor and actuator selection, sourcing, installation, calibration, and filtering
  - Professional driving on a closed course
  - Safety standards and procedures

### Nature and Scope

- **Contacts:** Provides technical support for MVS graduate students. Must be able to effectively communicate with people at all levels of expertise. Confront and resolve safety concerns effectively.
- **Level of Responsibility:** Maintain MVS lab website, shared directory, validity of test and test results with respect to the objectives. Independently advises and instructs students. Manages equipment inventory and co-ordinates the transportation of dangerous goods. Maintain a safe laboratory environment
- **Decision-Making Authority:** Design of tests to push research to its limits. Advises students in conjunction with supervising faculty.
- **Physical and Sensory Demands:** Heavy lifting and use of power tools. Installing dirty and wet equipment in the cold. Professional driving and high G maneuvers that may cause nausea.
- **Working Environment:** Long periods sitting at a desk, crouching to debug electrical panel for days, and facilitating track days in extreme hot and cold weather are all typical. Working outside of normal hours might be occasionally required to deal with emergencies, maintenance, extended run experiments, or upgrades.