

Job Description

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

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 and validation to create real time environments in which vehicle control code can be tested, both in hardware-in-the-loop and live driving situations. This position reports to Prof. Amir Khajepour and MVS Lab Director.

Key Accountabilities

Technical Support for Mechatronic Vehicle Systems

- Real time vehicle software design and validation
- Hardware in the loop and real vehicle testing
- Vehicle instrumentation with sensors and data acquisition systems
- Design and construct analog and/or digital circuits, specific to research projects
- High and low voltage electrical design and wiring for electric vehicles
- Set up, calibration, maintenance, troubleshooting, construction and modification of equipment
- 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 <ul style="list-style-type: none">• College diploma in Engineering with a focus on software and hardware
Experience <ul style="list-style-type: none">• Several years of experience with electro-mechanical systems is required
Knowledge/Skills/Abilities <ul style="list-style-type: none">• A strong aptitude for mechanical, electrical, and software technologies and systems is essential. Must have good knowledge and operational experience in many of the following areas:<ul style="list-style-type: none">○ Software development and programming○ Industrial grade computation and networking (e.g., PLCs, EtherCAT, CAN)○ Engineering Tools (e.g., Matlab, Simlunk, dSpace)○ Embedded system design, and prototyping○ Controls Systems○ Data acquisition and Monitoring○ CAD (solid modeling, part drawings, electrical diagrams)○ Sensor and actuator selection, sourcing, installation, calibration, and filtering○ Electrical panel design, and build○ Wiring low-high voltages (12V DC – 400V DC)○ Mechanical and hydraulic testing equipment○ 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.
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