field of study Specific Guidelines

Automation and Controls - Robotics

Robotic-centric projects must at a minimum include

* Expand beyond what was covered in class when the student had robotics
* Include end effector design and build
* Feedback/sensor integration with robot or PLC
* Include as-built prints of all user designed components (tooling, end effectors, etc.)
* Include print(s) of cell/area used and mounting/location of all integrated items
* Include complete BOM (including components that were found in the lab)
* Include block diagram of finished system
* Include all programs with comments/documentation (including screen captures of all settings for any machine vision programs, PLC ladder logic, robot programs, etc.)

Project proposal guidelines

* Justification for project concept
* Evidence that the solution is either too expensive to “just purchase” or is commercially unavailable
* Anticipated BOM for necessary components
* Block diagram of intended solution
* Flow charts for anticipated logic
* Realistic timeline given other lab commitments/availability
* Comprehensive test plan that includes good parts, bad parts, disaster recovery test, etc.

final report guidelines

* Correctly drawn “as-built” prints for any manufactured components (e.g. grippers, tooling, work-holding, etc.) and any electrical wiring completed
* Block diagram(s) and flow chart(s) of implemented solution
* Finalized BOM
* Results from test plan, including intentional “bad” parts

Automation and Controls - PLC-based projects

PLC-centric projects must at a minimum include

* Include data logging of some sort (alarms are acceptable)
* Include inter-PLC communications
* Tie multiple components together (e.g. multiple conveyors, sensors, machine vision, robots, etc.)
* Include HMI component
* Full electrical prints for all PLCs included using proper wiring notations (such that the solution could be rewired in the future)
* All programs with comments/documentation (including screen captures of all settings for any machine vision programs, PLC ladder logic, robot programs, etc.)
* Network diagram of finished system

Project proposal guidelines

* Justification for project concept
* Evidence that the solution is either too expensive to “just purchase” or is commercially unavailable
* Anticipated BOM for necessary components
* Block diagram of intended solution
* Flow charts for anticipated logic
* Realistic timeline given other lab commitments/availability
* Comprehensive test plan that includes good parts, bad parts, disaster recovery test, etc.

final report guidelines

* Correctly drawn “as-built” prints for any manufactured components (e.g. grippers, tooling, work-holding, etc.)
* Block diagram(s) and flow chart(s) of implemented solution
* Finalized BOM
* Results from test plan, including intentional “bad” parts