**Collaborative Robotics Technician**

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| Function Areas | Specific Tasks |
| 1. **Install Robot**
 | Connect robot mechanically | Connect robot electronically | Connect robot pneumatically | Reteach points | Install a program | Verify safety functionality (wiring, response, checklist) |  |
| 1. **Move Robot**
 | Determine disassembly needs | Determine rigging requirements for movement (per manufacturer’s manual) | Secure robot for shipping (build pallet, etc., when necessary) | Connect robot mechanically | Connect robot electronically | Connect robot pneumatically | Reteach points |
|  | Verify safety functionality |  |  |  |  |  |  |
| 1. **Maintain Robot**
 | Consult manufacturer’s manual for preventive maintenance checks and services | Save current program prior to conducting new operations | Disassemble robot | Grease points | Change seals on pneumatic tooling | Replace filters | Replace Belts |
|  | Replace joints | Recalibrate robot | Monitor & toggle I/O | Reteach points | Maintain a current backup | Perform recovery operations from backups | Verify safety functionality |
| 1. **Troubleshoot robot operations**
 | Follow the steps/logic to determine problem | Determine the root cause (mechanical, electrical, pneumatic, etc.) | Communicate with operator | Change machine modes (auto/manual) | Run robot at variable speeds to identify mechanical issues | Manipulate machine in manual mode | Start, stop, and clear errors |
|  | Locate a bad sensor | Determine sensor trouble | Recover from a crash | Trace and correct faults in area scanners, light curtains, and load cells | Verify safety functionality |  |  |

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|  | Occupational Task Analysis Panel Members |  |

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| Maintenance Supervisor | Core Tech |
| Robotics Field Service Engineer | Cross Robotics & Machine Automation |
| Controls Engineer | Brooks Machine & Design, Inc. |
| Controls Engineer | Brooks Machine & Design, Inc. |
| President | Mertek Solutions |
| Controls Manager | Mertek Solutions |
| Sales Support Engineer | SCHUNK |

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| **Analysis Facilitator:** | Jay Jackson |
| **Analysis Coordinator:** | Rachel Haskins |
| **Analysis Recorder:** | HollyAnn Nye Rogers |

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| Collaborative Robotics Technician | **Collaborative Robotics Technician installs, moves, maintains, and troubleshoots collaborative robots in the field.** |

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| Knowledge | Control CircuitsIndustrial/Mechanical MaintenanceBasic PhysicsRead a SchematicBasic Electrical WiringBasic Programming LogicBasic Motors and EncodersPneumatic Principles and SchematicsGearing (mechanical)Basic Automation Products (core components) | Basic Data NetworkingBasic Tools (i.e., multimeter)Safety Standards and Robotic Industry Association (RIA) StandardsCartesian Coordinates and Frames Ability to Use Google Arc Flash SuitsLinear Devices (screws, belt drives, drives, rack and pinion)How Machine Runs in Auto |

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| Skills | Basic Wiring (including soldering)Mechanical SkillsAbility to Read a MultimeterProblem-Solving Skill  | Soft Skills* Customer Interaction
* Communication

Basic Computer Skills |

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| Equipment | ScrewdriversAllen Wrenches (SAE & Metric)Needle-Nose PliersDigital MultimeterWire StrippersLockout/Tagout KitTorque WrenchSafety GlassesEar Plugs  | USB DrivesCables (Ethernet, Serial, USB)Box CutterAdjustable WrenchesSoldering KitRubber MalletCell Phone CameraFlashlight  |

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| Instruction Equipment(needed by the college) | LaptopSimulation Software (Robot Studio, Yumi)Light Curtains and Area ScannerSafety Hardware FencingEnd-of-Arm Tooling Options (grippers, vacuum cups, magnets)Wiring Cabinet with Electrical TerminalBlocks, HMI, PLC, Vision/Camera | Air Supply (compressor)3D PrinterSafety RelaysTool ChangersCompliance Device (tool on the robot arm)Push Buttons and Switches/RelaysStack Light  |

**Collaborative Robotics**

**Technician**

**Occupational TASK ANALYSIS**

### Developed by

**Wake Technical Community College**

**Corporate and Business Solutions**

**Robotics Awake**

**9101 Fayetteville Road**

**Raleigh, NC**

**919-335-1002**

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