# Birla Institute of Technology and Science, Pilani

Off-campus Programmes and Industry Engagement

**JOB DESCRIPTION**

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| **About BITS, Pilani** | **Birla Institute of Technology & Science, Pilani** has been declared as an "Institution of Eminence Deemed to be University" by the Central Government of India in exercise of the power conferred under **Section 3** of the **UGC Act 1956** and is a renowned science and technology institute with Its headquarter located in Pilani, Rajasthan, India. In addition to Pilani, BITS Pilani has campuses in Dubai, Goa, Hyderabad and Mumbai.<br><br>Work Integrated Learning Programmes (WILP) was established in 1979 focuses on providing continuing education to working professionals across different sectors. WILP has 45+ years of educating working professionals, 46+ programmes, 1,20,000+ working professionals graduated, 46,000+ working professionals enrolled. |
| **Industry/Service** | Higher Education |
| **Post/Job Title** | **Research Associate – Smart Manufacturing** |
| **Job Type** | Regular, Full time |
| **Reporting to** | **Associate Head Of Group** |
| **Will also work very closely with** | **Faculty & Staff** |
| **No. of positions** | 1 |
| **Job Location** | **Bengaluru** |
| **Principal Accountabilities & Responsibilities** | • **Smart Manufacturing Competency Centre (SMCC):** Drive the development of Bengaluru and Pune SMCC labs as applied research hubs for advanced automation, cyber-physical systems, and digital manufacturing innovations aligned with industry needs.<br>• **Industry Research & Problem-Solving Projects:** Lead end-to-end investigation, design, and deployment of automation-based solutions for real industrial problem statements, generating validated prototypes, pilots, and publishable case studies.<br>• **Industrial PLC & Automation Research:** Develop and implement automation architectures using PLCs (Siemens, Delta, Mitsubishi, Allen-Bradley, etc.) for real-world industrial processes, with emphasis on system performance, reliability, and scalability.<br>• **Control Logic Development:** Build, optimize, and experimentally validate ladder logic, structured text, and HMI/SCADA interfaces to solve complex industrial automation challenges.<br>• **Automated System Design & Commissioning:** Research, design, and commission automation testbeds such as conveyor systems, machining setups, and pneumatic/hydraulic actuation rigs for experimentation and industry co-creation.<br>• **Digital Twin & Simulation Research:** Develop high-fidelity digital twin models using MATLAB/Simulink, Python, or open-source tools to support predictive maintenance, virtual commissioning, and process optimization studies.<br>• **Machine Vision Research:** Implement and evaluate vision-based inspection, defect detection, measurement, and guidance systems using cameras, illumination setups, AI/ML models, and edge-compute platforms for industry-grade applications.<br>• **Industrial Robotics Research:** Program and integrate 6-axis and SCARA robots (e.g., Epson, ABB, Fanuc) for material handling, assembly, welding, inspection, and human– |

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| | robot collaboration scenarios; conduct performance benchmarking and safety validation.<br>• **Data Integration & Industrial Software Connectivity:** Implement robust integration between automation systems, industrial databases, IIoT platforms, and analytics dashboards to support data-driven industrial decision-making.<br>• **Technical Documentation & Research Outputs:** Prepare wiring diagrams, schematics, PLC logic documentation, simulation workflows, and generate research-focused case studies demonstrating measurable industrial impact.<br>• **Industry-Focused Training Delivery:** Conduct specialized, research-informed hands-on training for industry professionals and students in automation, controls, digital twins, and advanced manufacturing technologies.<br>• **Lab Exercise Development:** Create application-backed laboratory experiments and experiential learning modules that support course faculty in delivering cutting-edge automation curriculum.<br>• **WILP Lab Deployment & Assessment:** Deliver lab components to WILP cohorts, ensuring rigorous assessment and alignment with industry use cases under faculty supervision.<br>• **Research Infrastructure Maintenance:** Ensure periodic calibration, maintenance, and software lifecycle management of advanced automation research equipment and platforms.<br>• **Technical & Research Support for Students:** Provide guidance in electrical troubleshooting, documentation, experimental design, and site-level commissioning activities for student and industry projects. |
| **Qualification and Personal Profile** | • B.Tech / B.E in Electrical/Electronics/Instrumentation Engineering with 5+ Years of industry experience<br>• MTech / M.E degree in Mechatronics/Electrical/Electronics/Instrumentation/Embedded Systems/IoT Engineering with 3+ years of industry preferred<br>• **Extensive experience in industrial automation systems is essential**, including end-to-end design, integration, troubleshooting, and deployment of automation solutions in real manufacturing or process industry environments.<br>- Proven expertise in industrial PLC integration (Siemens, ABB, Rockwell, Schneider Electric) for multi-equipment automation, safety interlocks, and process optimization.<br>- Hands-on experience with Siemens S7-1200/1500 series and TIA Portal for developing, validating, and commissioning automation logic.<br>- Practical exposure to SCADA development, HMI configuration, and real-time data acquisition for industrial monitoring and control.<br>- Strong working knowledge of industrial communication protocols such as OPC UA, Modbus TCP, MES connectivity, and MQTT for IIoT and system-level orchestration.<br>• **Applied experience with actuator systems**, including **VFDs, servo drives, pneumatic/hydraulic actuators**, and their integration into automated cells, robotic systems, or process equipment.<br>• **Proficiency in electrical and control panel design** using AutoCAD or EPLAN, including schematic creation, wiring layouts, bill of materials, and implementation support for commissioning. |

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| | • **Foundational knowledge in microcontrollers, Python, and MATLAB**, especially for automation prototyping, data acquisition, digital twin modeling, or machine vision/robotics integration, will be an added advantage. |
| **Other Skill and Ability Requirements** | Self-motivated, open to acquire new skills, able to travel frequently to other locations based on need. |