Role Description
Professional Managerial Roles

Role Title: Research Technologist

Incumbent:

Department: WindEEE Research Facility, Western Engineering

Unit/Department Leader(s):

Dr. Girma Bitsuamlak, Director, WindEEE Research Facility

Date: January 31st, 2023

1. UNIT OVERVIEW:
   a) Unit’s Mission (2 or 3 sentences about the overall purpose or role of the unit)
   WindEEE Research Facility’s mission is to make global contributions in building resilient and sustainable communities through multidisciplinary wind research, education and innovation.

   The Wind Engineering, Energy and Environment (WindEEE) Dome, the world's first hexagonal wind chamber, represents a technological breakthrough in the study of wind-related phenomena as it has the capability of physically simulating high intensity wind systems - including tornados, downbursts, gust fronts or low-level nocturnal currents - that cannot be created in any of the existing wind tunnels. The WindEEE Dome is a one of a kind 3D-wind testing facility located off Western University's campus at the Advanced Manufacturing Park in southeast London, Ontario.

   b) Key Goals of the Unit
   To attract long term partnerships in wind research nationally and internationally and conduct world-class research, leading the wind engineering field.

2. PURPOSE OF THE ROLE: (2 or 3 sentences about why this role exists and how it contributes to the mission and goals of the unit)
   The Research Technologist will be responsible for planning, executing and evaluating wind tunnel testing procedures at the WindEEE Research Facility, working together with researchers, students and other technical staff. This includes the installation, operation and maintenance of various types of available instrumentation as well as the necessary technical communication with all facility users. Additionally, the role will provide support and guidance to faculty, students, staff and external users regarding project design, as well as approaches to utilizing required equipment and tools to ensure timely, innovative research project outcomes are achieved.
3. **KEY ACCOUNTABILITIES:** (a) *Summarize, in point-form, the work to be performed.* (b) As applicable, indicate with whom the role collaborates to perform the work, and to whom the work is provided. (c) Indicate relevant metrics to indicate the scope of the work e.g. size of budget managed, payroll administered, or research funding administered, number of direct reports, number of students served by role, square footage of facilities managed by role, etc.

- Plans, executes and evaluates wind tunnel projects, ensuring all parameters are set correctly and the test is carried out as planned/specified, using a wide range of instrumentation and associated software
- Prepares, installs and operates various air flow and structural instrumentation
- Prepares, installs and adjusts various types of test objects and proxy structures, both full and model scale, including operations of a wide range of tools and CNC machinery
- Ensures that work is performed in full compliance with Standard Operating Procedures and occupational health and safety standards, provides guidance and training to users, ensuring correct lab protocols and equipment operation procedures are followed
- Performs laboratory instrumentation calibration, investigates hardware/software malfunction, coordinating repair with vendors as required
  - Completes periodic checks on equipment status, documenting and reporting all signs of performance degradation or equipment failure, supporting the repair process when required
  - Ensures an up-to-date inventory of the equipment and supplies is documented for the lab, monitoring expenses and planning necessary purchases in advance
  - Produces process documentation on wide range of instrumentation/equipment and associated use cases
- Participates in various aspects of facility maintenance and upgrade activities on mechanical, electrical and pneumatic systems, including organization and cleaning of workspaces
- Prepares tests reports and basic data analysis to clearly convey testing details, instrumentation used, data quality, result validation and engineering recommendations
- Archives project data and associated documentation in accordance with the unit’s administrative framework
- Maintains an up-to-date knowledge on all current methods, techniques, tools, instruments and equipment related to their area of specialty in order to increase effectiveness
- Collaborates with the Operations Manager and technical colleagues to maintain research-ready status for all laboratory equipment and related facilities
- Collaborates with technical and administrative staff at the WindEEE Research Facility to ensure complete and efficient project execution, including resource tracking, data processing, project reporting, invoicing and data archiving
- Collaborates with clients to ensure proper information exchange and proper scope of work is carried out, providing support and solutions when technical help is needed, reporting on testing or analysis errors, and suggesting steps to prevent future problems as required
- Participates in the design of models, equipment, tools and other products to be developed or manufactured based on the research outcomes to be achieved, in collaboration with University Machine Services, ensuring information exchange is efficient and accurate and a proper model is produced for testing purposes
- Collaborates with clients and Project Leads to ensure all test parameters are properly specified to obtain suitable data, completes or partially completes fabrication of test apparatus using various tools and/or CNC machinery
4. **OUTCOMES THE ROLE IS TO ACHIEVE:** *(5 to 8 key results that will be in place by performing the work described in “Key Accountabilities”)*  
Examples
- A productive, safe and effective work environment
- Compliance with all relevant policies, practices and procedures is achieved
- Well-executed experiments and well-prioritized work and facility maintenance plans based on sound assessment of urgency and importance
- Issues and the approaches for resolution are efficiently identified and documented
- A cutting-edge technology environment, knowledge development and sharing with facility users is achieved through effective training, support and documentation
- Increased user satisfaction and retention through delivery of high-quality work and excellent customer service
- Increased volume of projects through improved efficiency and development of new areas of work

5. **PROBLEM SOLVING AND AUTHORITY FOR DECISIONS** *(List a few examples of complex or challenging issues regularly encountered in this role where it requires the incumbent to identify or recommend a solution e.g. issues with respect to service delivery, planning, human resources, students, facilities, or other areas. For each example, indicate who is affected by the solution e.g. clients, colleagues, Department, Faculty, University)*  
Examples

a. **Examples of issues** that the incumbent is expected to resolve independently and **Who is affected:**
- Planning, executing, evaluating and reporting of experiments, analyzing and resolving issues utilizing judgment and professional knowledge
- Planning and executing of day-to-day activities minimizing project delays and/or equipment downtime
- Purchasing materials, supplies, equipment, or other products in time and within approved budgetary limits
- Preparing reports and presenting results to clients for review and approval, recommending resolutions for issues
- Recommending technical approaches for research projects, suggesting project ideas and drafting proposals for users
- Fabrication of model, proxy structures, parts, etc.

b. **Examples of issues** where incumbent requires approval and/or consultation with supervisor or others to resolve and **Who is affected:**
- Problems beyond the role’s area of expertise
- Commitment of significant financial resources or timeline commitments
- Establishing strategies and prioritizing initiatives and projects
- Introducing significant changes in established priorities and processes, and/or introducing new areas of technical expertise
- Changes in project direction, timeline or budget
- Any aspects related to academic programs
- Final submission of proposals and reports for clients
c. Pre-established Guidelines for Decisions (e.g. List key University policies, Western collective agreement articles, legislation, professional or other standards that specify the way the role must perform certain tasks or make certain decisions)

- Manual of Administrative Policies and Procedures
- Occupational Health and Safety Act and Regulations
- Western Research and Development policies and procedures
- Grant proposal templates/guidelines (i.e., NSERC, ORF, CFI)
- WindEEE Research Facility policies and procedures, governance structure

6. SUPPORT AND RESOURCES:

a. Leadership: Who provides the incumbent with work expectations, coaching, development support, formal performance feedback and evaluation?
The Research Technologist will work with the Operations Manager to establish priorities and work assignments. The Operations Manager will provide supervision, performance feedback and coaching regularly, and more formal reviews annually through the PDG process to collaboratively design and oversee their professional development plan.

b. Colleagues & Key Resource People: With whom does the incumbent regularly collaborate to receive or share information and engage in problem-solving relevant to their role?
- Operations Manager and all technical staff at WindEEE Research Facility - regarding all equipment/facility maintenance and development work
- Facility users - for assigned projects, interacting with other members of the project team, to send or receive information pertaining to the assigned work
- Project leads and technical staff - provide coaching and development support in the day-to-day tasks and detailed work procedures
- Undergraduate and Graduate students, and Postdoctoral Fellows
- University Machine Services - regarding project components
- External contractors - to ensure outsourced work matches the technical requirements and project timeline

c. Other: List any specialized training, equipment, resources, or other supports required for success in this role (e.g. PeopleSoft training, lab safety, mobile devices, private space, protective equipment, etc.).
Work is primarily conducted at the WindEEE Research Facility located at the Advanced Manufacturing Park at Veteran’s Memorial Parkway and Bradley Avenue in southeast London, Ontario.

- The role must successfully complete all required training modules at Western University (https://www.uwo.ca/hr/learning/required/index.html)
- Training on all specialized equipment and procedures will be provided as projects and/or responsibilities demand
• Training on the use of following will potentially be acquired early in the employment: laser safety, aerial work platform, fall arrest, fire extinguisher, forklift, wood and metal working equipment

7. WORK CONTEXT:

*ATTACH an organization chart that shows to whom the role reports, key peer relationships and whom the role supervises if applicable.

8. REQUIREMENTS TO PERFORM SUCCESSFULLY IN THE ROLE

a. Professional Qualifications & Education

Minimum Required:
• Master’s or Bachelor’s Degree in Engineering or Computer Science, Robotics, Automation, Electrical, Software or Mechanical disciplines; relevant education and experience will be considered

Preferred:

b. Experience

Minimum Required:
5 years experience in an educational (such as a student or internship work experience) or research environment coordinating and implementing projects, following engineering practices, and performing various types of experiments

Experience with automation/electrical equipment and methodologies

**Preferred:**

- Experience with CNC hardware and software
- Experience in automation, robotics and/or electrical equipment maintenance
- Experience with wind engineering and related research analysis and methodologies

**c. Knowledge, Skills & Abilities:** *(Describe the knowledge, skills and abilities needed to perform the role successfully [including the use of specialized equipment]*)

**Examples**

- Knowledge of wind tunnel methodology and overall technical ability in flow field measurements (utilizing cobra probes, pressure scanners, particle image velocimetry (PIV); field–light detection and ranging (LiDAR), weather mast) and associated test setup engineering preferred
- Ability to complete model design and test preparations preferred
- Knowledge of instrumentation and various types of sensors (pressure, acceleration, strain, force, temperature, etc.) preferred
- Self-driven, independent thinker who is highly motivated and possesses an intrinsic passion for quality outcomes
- Ability to handle complex technical details/procedures with a high degree of accuracy and to organize and prioritize a high volume of experimental work to meet deadlines
- Demonstrated ability to analyze and synthesize sizable amounts of detail and prepare clear, concise and accurate reports to highlight findings
- Demonstrated ability to research/investigate issues and resolve problems with a sense of urgency in resolving issues and getting tasks completed.
- Ability to understand customer needs and expectations and provide excellent customer service in a professional, respectful and diplomatic manner
- Ability to work independently and effectively as a member of the team to achieve group goals
- Ability to develop relationships, provide guidance, support and feedback in a way that is positively received
- Intermediate computer skills and demonstrable experience using Microsoft Office (Outlook, Word, Excel, PowerPoint) is required; Intermediate computer skills in software development applications (such as MATLAB, LabVIEW, Python), CAD/CAM software tools, and photo/video editing software preferred
- Knowledge of the Occupational Health and Safety Act with the ability to adhere to legislated safety requirements and Western safety policies
- Must have own transportation with ability to travel to WindEEE Research Facility; Valid Class G driver’s license required

**d. Background Checks Required** *(Type a “Y” to the left of any required background checks)*

| Y | Education Verification | Y | Credential Verification |

Revised March 24, 2014
9. **WORKING CONDITIONS** *(Type a "Y to the left of any applicable conditions where they are a regular part of performing the role. Note: “Regular” is defined as daily or almost daily)*

**Physical Effort:**

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<tr>
<td>Y</td>
<td>Computer workstation</td>
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<td></td>
<td>Extensive walking</td>
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<td>Y</td>
<td>Lifting/pushing heavy objects</td>
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<td>Y</td>
<td>Squatting/awkward positions</td>
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<td>Y</td>
<td>Climbing</td>
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<td>Y</td>
<td>High Repetitive movements</td>
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<td>Other:</td>
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**Physical Environment:**

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<tr>
<td>Y</td>
<td>Normal Administrative Office Environment</td>
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<tr>
<td>Y</td>
<td>Driving on behalf of employer</td>
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<td>Y</td>
<td>High noise level</td>
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<td>Exposure to welding equipment and fumes</td>
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<td>Extremes of temperatures</td>
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<td>High dust concentrations</td>
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<td>Potential exposure to hazardous substances</td>
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<td>Exposure to contagious illnesses</td>
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<td>Exposure to chemical or biological agents</td>
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<td>Y</td>
<td>Exposure to occupational injuries</td>
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<tr>
<td>Y</td>
<td>Other: Class 4 Lasers, high voltage electrical equipment</td>
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**Sensory Attention:**

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<tr>
<td>Y</td>
<td>Prolonged periods of listening/reading/watching/observing</td>
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<td></td>
<td>Smelling, tasting, touching</td>
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<tr>
<td>Y</td>
<td>Monitoring video displays</td>
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<td>Auditing</td>
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<td>Y</td>
<td>Technical troubleshooting</td>
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<td>Other:</td>
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**Mental Demands:**

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<tr>
<td></td>
<td>On-call responsibilities outside of normal schedule</td>
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<td>Odd and irregular schedule of hours</td>
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<td>Requirement to travel out of town</td>
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<tr>
<td>Y</td>
<td>Unpredictable workload</td>
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<tr>
<td>Y</td>
<td>Isolation – main worksite is at an off-campus facility</td>
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<td>Other:</td>
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Additional Notes on Working Conditions:
Travelling out of town is required occasionally. Workload can be unpredictable, but is generally manageable through planning.

11. REASON FOR SUBMISSION TO HUMAN RESOURCES: (Type a “Y” to the left of the reason)

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<tr>
<td>Y</td>
<td>Evaluation and recruitment of a new role</td>
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<td>Evaluation and recruitment of an updated or redesigned role</td>
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<td>Evaluation of a redesigned role that is currently filled</td>
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12. DISTRIBUTION OF COMPLETED DOCUMENT:

   1. Copies to Employee and Leader
   2. Signed original to Next Level Supervisor/Budget Unit Head
   3. Send to HR-Pos-Desc@uwo.ca
      Include:
      a) A scanned, signed version of the completed role description form
      b) An organization chart
      c) If recruiting, attach a Request for Hire form and a MS Word version of the role description

Note: Human Resources requires a scanned, signed version of all role descriptions on file. A MS Word version enables using the description content for recruitment efforts.