## Purpose of role

Overall the functions of the Electrical Coil Winding Technician role are to support the PEMC group research projects ensuring that timescales, deliverables are met in accordance with the faculty’s health and safety policy. This will involve and the construction of both single phase and three phase motors/generators and inductors for use in PEMC laboratories to further research development.

<table>
<thead>
<tr>
<th>Main responsibilities</th>
<th>% time per year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bespoke motor and generator winding</strong></td>
<td>55%</td>
</tr>
<tr>
<td>▪ Electrical winding of AC stators, inductors, transformers and permanent magnet motors using a CNC coil winding machine and manual winding skills.</td>
<td></td>
</tr>
<tr>
<td>▪ Develop new and innovative processes to wind bespoke and cutting edge motors and generators.</td>
<td></td>
</tr>
<tr>
<td>▪ Develop jigs and fixtures to aid and improve the winding and build process.</td>
<td></td>
</tr>
<tr>
<td>▪ Use of specialized equipment in the prototype testing and monitoring of all winding of motor/generator build processes, and report findings to research group members for analysis</td>
<td></td>
</tr>
<tr>
<td>▪ Work with research group members to assess designs and offer advice of alternative engineering solutions to achieve the design objectives.</td>
<td></td>
</tr>
<tr>
<td>▪ Inspect precision components, including rotor/stator stacks, and liaise with suppliers to resolve any manufacturing issues.</td>
<td></td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td>20%</td>
</tr>
<tr>
<td>▪ Ability to use a variety of CAD packages to help interpret and build motor components based on customer specification.</td>
<td></td>
</tr>
<tr>
<td><strong>Health &amp; Safety</strong></td>
<td>15%</td>
</tr>
<tr>
<td>▪ Ensure risk assessments and method statements associated with the motor winding process within the group are completed and revised where necessary.</td>
<td></td>
</tr>
</tbody>
</table>
- Working with the engineering team in the development of risk assessments and method statements during the design, manufacture and construction of stators and associated components.
- Arrange and carry out relevant workplace and building audits where necessary.

| 4   | **Calibration & Maintenance** | Control and carry out the calibration, maintenance and servicing schedules of test equipment and rigs associated with the winding process.  
Liaising with members of academic or research staff associated with the PEMC to advise on rig and experimental program matters.  
Maintain good housekeeping of all workshops and laboratories associated with PEMC activities. | 10% |
## Person specification

<table>
<thead>
<tr>
<th></th>
<th>Essential</th>
<th>Desirable</th>
</tr>
</thead>
</table>
| **Skills**          | ▪ Experience in the winding of bespoke motors, generators and inductors using manual coil winding techniques and a CNC coil winder, taking into account thermal characteristics associated with various winding techniques used to construct motors and generators.  
                      ▪ Ability to use test/ fault finding equipment to check the integrity of motor/generator builds, and inspect precision components such as rotor/stator stacks. Liaise with suppliers to resolve any manufacturing issues.  
                      ▪ Develop jigs and fixtures to aid and improve the winding and build process including the design and machining of formers.  
                      ▪ Competent knowledge of both AC and DC electrical machines, and the ability to interpret complex wiring diagrams.  
                      ▪ Ability to communicate clearly to non-specialist and senior level audiences.  
                      ▪ Experience of associated winding techniques including chemical and fluid handling of potting compounds; thermal pastes, greases etc.  
                      ▪ Motivated, self-directed and independent.  
                      ▪ Computing skills using software packages such as Microsoft Office and MotorCad. | ▪ Experience in the use of manual engineering workshop machinery (Lathes, Milling Machines)  
                      ▪ Good understanding of electrical theory.  
                      ▪ Ability to travel.  
                      ▪ Good computing skills. |
| Knowledge and       | ▪ Experience of CNC coil winding machines.  
                      ▪ Proven experience of manual coil winding techniques.  
                      ▪ Have a good understanding of the thermal characteristics associated with various winding techniques used to construct the motors and generators. | ▪ Chemical & fluid handling.  
                      ▪ Working with, and direction of, Sub-contractors.  
                      ▪ Experience of working within an organisation such as a University Or company R&D environment.  
                      ▪ Experience working with high power machines and electronic device assemblies. |
| experience          |                                                                                                                                  |                                                                                                                                            |
| Qualifications,     | ▪ HNC in relevant subject or equivalent qualifications or substantial experience in a relevant role. | ▪ HND, degree or other higher-level engineering qualification. |
| certification and   |                                                                                                                                  |                                                                                                                                            |
| training            |                                                                                                                                  |                                                                                                                                            |
| (relevant to role)  |                                                                                                                                  |                                                                                                                                            |
The interpretation and implementation of work related regulations and procedures and an understanding of noncompliance on other staff and the University (e.g. Health and Safety).

Experience with risk analysis specific to winding of Motor/generators e.g., electrical hazards, fire.

The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.
Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

**Valuing people**
Is friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of the way to ensure people feel valued, developed and supported.

**Taking ownership**
Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.

**Forward thinking**
Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.

**Professional pride**
Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.

**Always inclusive**
Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others

- **Line manager**
- **Role holder**
- **Key stakeholder relationships**
  - Colleagues
  - Students

- **Senior Technical Manager**
- **Coil Winding Technician**