BEng Electronic Engineering with Nanotechnology (H6F3)
BEng Electronic Engineering with Nanotechnology with a year in industry (H6F4)

Recent advances in fields such as electron microscopy and device fabrication have put nanotechnology at the forefront of today’s electronic engineering. Nanotechnology encompasses the design and study of devices on a scale of less than 100nm, barely a few hundred atoms across. Devices utilising nano-wires, single electron logic and nano-scale memories are now being developed for various applications, including ultra-high speed processors. In the environmental and medical fields, nano-scale versions of devices, for example, photodiodes, are being combined with “lab-on-a-chip” technologies to offer revolutionary improvements in sensing capabilities.

All such applications depend upon a good understanding of nano-fabrication and integration methodologies, requiring knowledge of a wide range of electronic engineering principles – both hardware and software. The nanotechnology degree at York emphasises those areas of nanotechnology of direct relevance to contemporary electronics, placed in the context of a broad and strong core programme in electronics, and provides ‘hands-on’ opportunities to build and characterise nanoscale devices.

Drawing on the expertise of the nanotechnology research group at York, and including individual and group projects at every stage of the degree to develop practical, organisational, management and business skills, this programme will provide you with practical experience and theoretical knowledge required to operate with confidence – as a designer, operator or manager – in the rapidly-expanding world of nanotechnology.

As with all our undergraduate degrees, the BEng Electronic Engineering with Nanotechnology is fully accredited by the Institute of Engineering and Technology.
Programme Learning Outcomes

Our undergraduate programmes are based around a shared set of six Programme Learning Outcomes (PLOs). These consist of four major areas, which are developed throughout each programme:

A. **Knowledge** – understanding & processing information about the subject (PLO1)

B. **Engineering Application** – using knowledge to create and modify solutions to real-world problems (This alone consists of 3 separately identifiable Programme Learning Outcomes (PLOs): PLO2: Engineering Analysis; PLO3: Engineering Design; PLO4: Practical Skills.

C. **Communication** – explaining concepts and results to other people (PLO5)

D. **Management & Graduate Skills** – professional self and group organisation (PLO6)

After completing the programme, graduates will be able to:

<table>
<thead>
<tr>
<th>Area A: Knowledge</th>
<th>Assess electronic engineering and nanotechnology designs by applying detailed knowledge of algorithms, devices (miniaturisation, behaviour and fabrication) and systems and by consulting relevant documentation and research.</th>
<th>PLO1 Subject Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area B: Engineering Application</td>
<td>Analyse system &amp; component performance through computational methods and modelling.</td>
<td>PLO2 Engineering Analysis</td>
</tr>
<tr>
<td></td>
<td>Create designs to address real-world problems involving nanotechnology and electronic systems by synthesising ideas into engineering specifications.</td>
<td>PLO3 Engineering Design</td>
</tr>
<tr>
<td></td>
<td>Solve technical problems through employing skills in fabrication, programming, CAD, construction and measurement and by using safe laboratory techniques.</td>
<td>PLO4 Practical Skills</td>
</tr>
<tr>
<td>Area C: Communication</td>
<td>Clearly communicate and explain nanotechnology and electronic engineering issues and practice in a technically accurate manner to a variety of audiences, verbally, in writing and using multimedia.</td>
<td>PLO5 Technical Communication</td>
</tr>
<tr>
<td>Area D: Management &amp; Graduate Skills</td>
<td>Coordinate and execute complex projects in electronics, computing and nano-scale technologies, with effective time management, team working, and ethical decision-making.</td>
<td>PLO6 Management &amp; Personal Development</td>
</tr>
</tbody>
</table>

Find out more

For more details, including programme content and the application procedure, please visit our website:

www.york.ac.uk/electronics/undergraduate/courses/nanotechnology

Contact us at:

Undergraduate Admissions
Department of Electronics
University of York
York YO10 5DD

Tel: +44 (0)1904 322365
Email: elec-ug-admissions@york.ac.uk