Student funding available

Cranfield UNIVERSITY

Microsystems and Nanotechnology

MSc, PgDip

Full and part-time

'Nanotechnology' – science and engineering at the molecular scale - has moved from the rhetoric of hype into a manufacturing reality. In such a rapidly changing and vibrant atmosphere it is vital that organisations are agile. Large organisations such as Unilever and QinetiQ are already integrating micro and nanosystems with the aim of developing products that are lighter, stronger, less expensive and more precise.

The innovative MSc in Microsystems and Nanotechnology aims to provide students with a thorough grounding in the skills necessary for a technically-based career in the new high-tech industries. The course covers technologies used to design, realise and analyse micro and nano-scale devices, materials and systems, coupled with general and technology management.

Focus on your career

Successful students are able to secure positions in the newly developing microsystems and nanotechnology-based industries as well as more traditional industries, such as microelectronics and precision engineering. The multidisciplinary nature of the subject enables graduates to pursue careers in a diverse range of industries including automotive, aerospace, cosmetics and pharmaceutical.

"It is a pleasure to express my support for the MSc Microsystems and Nanotechnology at Cranfield University. I believe the Masters degree fulfils an important need in training. This is timely considering the rapid changes in research and development."

Professor James K Gimzewski,
University of California, Los Angeles

Benefit from our reputation

Cranfield has built an international reputation in microsystems and nanotechnology. Our expertise in functional ceramics, microelectromechanical systems (MEMS) and microsystems has been developed with support from a number of research projects funded through the Engineering and Physical Sciences Research Council (EPSRC) and EC Networks of Excellence. Our wide range of research facilities include exceptional materials processing and characterisation equipment and over 100m^2 of clean rooms.

Benefit from our links with industry

The course is directed through its own Industrial Advisory Committee that ensures the course is aligned to industry needs. Members include Applied Microengineering, BAE Systems, EADS Astrium, GE Infrastructure, Nano Ventures, National Physical Laboratory, QinetiQ, TDK, Tecan, Technology for Industry, Unilever and Xaar. Industry practitioners teach alongside a wide range of subject specialists from the academic community at Cranfield.

Benefit from practical experience in work-based projects.

Work-based project work enables you to assimilate the knowledge and skills gained from the taught element of the course and put them into real-world practise while gaining transferable skills in project management, team-work and independent research. Group and individual thesis projects are often supported by industry. Part-time students benefit from addressing their employer's real business problems supported by academic supervision.

www.cranfield.ac.uk/sas/msn

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Course details

Duration: Full-time: 1 year.
Part-time: 2-5 years.

Start date: Full-time: October.
Part-time: Throughout the year.

Funding: Funding opportunities exist, such as industrial sponsorship and School bursaries. For the majority of part-time students sponsorship is organised by their employers. For information on funding opportunities please visit: www.cranfield.ac.uk/sas/funding

Entry requirements: Candidates must possess, or be expected to achieve, a 1st or 2nd class UK honours degree or equivalent in a relevant engineering or science-based discipline. Other relevant qualifications together with industrial experience may be considered.

Who should apply?

- Graduates with science, engineering or related degrees keen to develop careers at the cutting edge of micro-engineering
- Graduates currently working in industry keen to extend their qualifications
- Individuals with other qualifications who possess considerable relevant experience

Course overview

The course comprises eight one-week assessed modules, a group project and an individual project. The modules include lectures and tutorials, and are assessed through written examinations and assignments. These provide the 'tools' required for the group and individual projects.

Through the group project, you will apply your skills and knowledge to address real organisational challenges in microsystems and nanotechnology. For part-time students, a work-based project may replace the group project.

Finally, the individual thesis project provides you with the opportunity to develop and demonstrate independent research ability, working within agreed objectives, deadlines and budgets.

Full time students compete for the McKeown Prize for 'Best Student'. This prize is awarded by Professor Pat McKeown, OBE.

Alternatively, the qualification of Postgraduate Diploma (PgDip), consisting of the eight taught modules and a design project, is available.

Structure

- Taught modules 40%
- Group project* 20%
- Individual project 40%

*dissertation for part-time students.

Modules

- Foundation in Materials for MSN
- Nano and Microtechnologies for Energy
- Nano and Micro Scale Rapid Prototyping Manufacture
- General Management
- Microsystems Manufacturing Processes
- Microsystems Design
- Applied Nanotechnology
- Surface Engineering and Coatings

"This course has opened my eyes to a whole new industry. Hardly a week went by when I didn't speak to, or meet, an external professional direct from industry. Cranfield has state-of-the-art facilities, and the course was enjoyable, with a friendly and relaxing atmosphere."

Garfay Liu, Alumnus

Why Cranfield University

Cranfield University is a wholly postgraduate university with an international community and a truly global reputation. With a top five ranking for student employment on graduation, an excellent rating for teaching, and exceptional facilities, Cranfield makes an ideal destination for advancing careers. All courses are designed to meet the training needs of industry and have a strong input from experts in their sector. Our focus is on applied research and developing industry's future engineers, managers, consultants, and entrepreneurs.

Contact

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