



Nuclear Engineering and Decommissioning

Nuclear energy is exploited on a commercial basis throughout the world for the production of electricity.

The Civil Nuclear Sector is currently experiencing a revolution as many of the older and ageing facilities are approaching the end of their licenses or are in need of safe decommissioning. We are constantly reminded about the issues of Climate Control and its importance on the world agenda. Engineers are expected to be looking for solutions. Therefore there is a demand for new power stations to be designed and built with a view to sustainable decommissioning. There has also been a growth in medical applications for nuclear science and technology in recent years, which has rekindled an excitement for its increasingly important demand. This creates a need for Nuclear Engineering related skills which are required across a range of engineering businesses, including multi-nationals and small engineering design consultancies. We believe the introduction of MScs by research will encourage engineers to undertake postgraduate research; to explore and design new techniques and tools for safe and reliable decommissioning; and adopt safe Nuclear Engineering related solutions to meet the demands of Climate Control and safe cleanup of ageing nuclear power stations.



John Tyndall was a man of science a draftsman, surveyor, physics professor, mathematician, geologist, atmospheric scientist, public lecturer, and mountaineer. Throughout the course of his Irish and later, English life, he was able to express his thoughts in a manner none had seen or heard before. His ability to paint mental pictures for his audience enabled him to disseminate a popular knowledge of physical science that had not previously existed. Tyndall's original research on the radioactive properties of gases as well as his work with other top scientists of his era opened up new fields of science and laid the groundwork for future scientific enterprises. Over the course of his life, John Tyndall published numerous papers and essays on his scientific discoveries, as well as literature, religion, mountaineering, and travel. His accomplishments led him to receive five honorary doctorates and become a respected member of thirty-five scientific societies.

“WITHOUT WATER VAPOUR , THE EARTH’S SURFACE WOULD BE HELD FAST IN THE IRON GRIP OF FROST”



On the Shoulders of Giants

A portrait of John Tyndall.

(Drawing by Roger Kemmerer)

1820-1893

<http://earthobservatory.nasa.gov/Features/Tyndall/>

MSc

By Research

Sustainable Nuclear and Wind Energy Group



The John Tyndall Institute



for

Nuclear Research

Faculty of Science and
Technology

School of Computing,
Engineering and Physical
Sciences

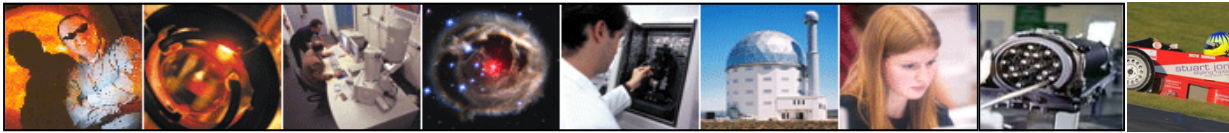
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University of Central Lancashire



The University of Central Lancashire (UCLAN)

UCLAN acquired Westlakes Research Institute and Scientific Consulting Limited in West Cumbria in 2005 and aims to develop the region's knowledge base to meet the demands of the nuclear decommissioning agenda.

The John Tyndall Institute for Nuclear Research (JTI), launched in Summer 2007, is located on the Preston Campus and also the West Cumbria Campus located on the Westlakes Science and Technology Park, Launched the UK's first Foundation Degree in Nuclear Decommissioning. The JTI is now proud to offer **MScs by Research** in Nuclear related industries from **January 2010**.

The ideal candidates for these programmes are those that already work within the nuclear sector and are encouraged to develop their research in niche areas of the jobs on their current employment. Following areas in which research projects can be supported:

- Nuclear Decommissioning related projects
- Power Line research in Nuclear Applications
- Sensors, Signals and DSP
- Robotic related and Decommissioning Robots
- Designing Intelligent Machines
- Embedded Systems
- Project Management and Professional Issues
- Mechanical Systems & Engineering Simulations
- Nuclear Power Station Fuel Route and Safety
- Communication & Wireless Sensors and Control
- Electronics Engineering in Nuclear Environment
- Nuclear Instrumentation and Control
- Nuclear Power Station Projects Management
- Preventive Maintenance Management
- Safety in Heating and Ventilation Systems
- Wind Energy Engineering and Wind Energy Systems
- Virtual Reality and 3D Thinking
- Power Engineering and Power Electronics
- Fuzzy Logic Control and Design Methodology
- Fire Explosion Modelling Studies
- Strength and Materials Engineering
- Waste Management and Environmental Clean up
- Safety in Nuclear Decommissioning Applications
- Sustainable Design
- Engineering Computation

MSc By Research Course Summary

Full time 12 Months or Part time 24 Months

The school has extremely good industry links and through this has opportunities for industrial research projects. This is particularly attractive to mature students with industrial experience who wish to augment their qualifications within a specific area, but prefer the greater flexibility that an MSc by Research would offer over a structured taught MSc.

The aim of this programme is to provide Technology based graduates with the opportunity to develop an area of technological expertise through a major research project leading to a master's degree qualification.

It also gives students understanding and skills in the methodology of research and the experience of a critical investigation of an approved topic at a high level.

Entry Requirements At least an upper second class honours degree, or its equivalent, in engineering or a closely related discipline. Applicants who do not meet these criteria but who have significant industrial experience will also be considered subject to individual circumstances.

The English language requirement is **IELTS: 6.5** or equivalent.

Start date

1st January 2010 or 1st April 2010

Application Deadline

30th October 2009 or 1st February 2010



Sustainable Nuclear and Wind Energy Related Projects



MSc By Research Project

The project consists of a substantial piece of research work in the area of the student's chosen topic, preferably related to the student's specialisation and employment within the nuclear industry. Projects are also drawn from, and are supportive of, current nuclear related research programmes within the Institute.

Where a student's project is nuclear related and based in nuclear industries, we will seek to appoint an industrial advisor to ensure the brief is agreed and issues such as confidentiality and intellectual property rights are addressed.

Assessment Students are expected to submit an Interim report with a final thesis based on the research project and a paper suitable for publication. There will also be a viva voce exam.

Head, John Tyndall Institute

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