NUI Galway
OÉ Gaillimh

Engineering and Informatics at NUI Galway

POSTGRADUATE PROGRAMMES

www.nuigalway.ie/engineering-informatics

contents

ENGINEERING & INFORMATICS

take a closer look

NUI Galway's Engineering Building, is the largest School of Engineering in the country. The building is equipped with world class facilities, providing a working example for engineering students to study. The building gives our students an opportunity to engage with other students and to help them to understand engineering on a more personal level. From exposed structural elements on view to built-in sensors (measuring light, temperature, carbon dioxide, strain) throughout, these features make the learning experience a more positive one for our students.

This learning laboratory, located beside the river Corrib houses state-of-the-art lecture theatres, classrooms, research facilities and breakout spaces where students collaborate on projects and discuss the latest cutting edge developments in Engineering. Our laboratories give our students an opportunity to design and build prototypes for testing and evaluation.

Find out more at:
www.nuigalway.ie/new-engineering-building/

In today's challenging economic climate, it is critical to choose the right postgraduate qualification. The College of Engineering and Informatics provides excellent opportunities for students in a great learning environment, and also for creative and talented researchers at masters, doctoral and postdoctoral levels. Within the College there are active researchers in Civil, Electrical and Electronic, Mechanical and Biomedical Engineering, Energy Systems Engineering and Information Technology with opportunities for students in all of these areas. Inspirational research is at the forefront of all of our activities at the College of Engineering and Informatics. This research is global in scale with internationally recognised expertise. You can choose to pursue your postgraduate studies in one of the major research institutes in the University and many of these are affiliated to the College of Engineering and Informatics. These include the Insight Research Institute (IRI), the National Centre for Biomedical Engineering Science (NCBES), the Centre for Research in Medical Devices (CÚRAM) and the Ryan Institute.

World-leading research drives teaching forward at the College of Engineering and Informatics. Your learning experience is enhanced by this spirit of inquiry, as you are taught by academics who are bringing the latest ideas and discoveries into the lecture theatre. At the College of Engineering and Informatics, we are committed to delivering top quality teaching for our students and our Centre for Excellence in Teaching and Learning enables lecturers to keep up to date with their teaching practices. Blackboard, our Virtual Learning Environment, is extremely popular with students, who find that it enhances their learning experience and gives them access to more learning resources.

A postgraduate qualification from the College of Engineering and Informatics helps you to distinguish yourself in a competitive job market. It also enables you to develop the specialist skills you need to succeed in your chosen field. Our postgraduates are well regarded by employers and find employment soon after completing their programmes.

We look forward to welcoming you to the College of Engineering and Informatics where you will be at the forefront of developments in graduate education.

Professor Peter McHugh
Dean, College of Engineering and Informatics
NUI Galway

how to apply

Online Application

Applications to most postgraduate programmes at NUI Galway are made online via the Postgraduate Applications Centre (PAC). PAC opens on 1 November annually to accept applications for entry to the following academic year.

Prospective students can access the system through PAC on www.pac.ie/nuigalway. You will require an active email account to use the system. Applicants select the PAC code(s) for the programme(s) that they are interested in, which are available on each course page of this brochure and also online at **www.nuigalway.ie/courses**

Applicants may (but are not obliged to) apply for three taught programmes OR three research programmes when making an application to NUI Galway via PAC. Your applications do not need to be ranked in order of preference, as applications are assessed on a simultaneous basis. The cost of applying is €50 and is a non-refundable application processing fee, payable to PAC.

Supporting Documents

When making an online application to PAC most programmes require additional documentation to supplement the application, e.g., transcript of results, a C.V., etc. To see what supporting documents, if any, may be required for your programme, please visit **www.nuigalway.ie/postgrad/pac_supp_docs.html**

All supporting documentation (specifying the PAC application number you will be assigned) relevant to the application should be posted to PAC at the following address:

Postgraduate Applications Centre
1 Courthouse Square, Galway, Ireland

Alternatively you may upload selected supporting documents to your online application via your PAC account.

Other Application Routes

Some of our programmes are applied to via different means than PAC. This alternate route will be clearly listed on the relevant programme page in this prospectus and in the online course listing (**www.nuigalway.ie/courses**).

Recommendations

You should give yourself plenty of time in which to apply, particularly if you are applying from outside of the European Union (EU) and will need to apply for a student visa. You should also allow sufficient time to make any financial, travel and accommodation arrangements, if you are offered a place. We recommend that you apply early in the year (January/February) for programmes that start in the autumn (September/October).

Research Applicants

You are advised, in the first instance prior to making an online application, to consult with the academic discipline, or the Research Centre at NUI Galway in which you intend to do your research. At this stage you should have prepared an outline proposal for submission for the discipline to consider and support. Generally there is no closing date for research applications; however, this will be clearly listed on the relevant online course listing **www.nuigalway.ie/courses**. Please also allow at least four weeks, from the date we receive your research application, to receive notification of whether you have been offered a place.

English Language Requirement

Students from outside of Ireland whose first language is not English must provide evidence that their English language ability meets the required standard for admission. The requirement for each specific programme is clearly listed on the online course listing (**www.nuigalway.ie/courses**).

Fees

Tuition fees vary from year to year and from course to course, normally increasing with inflation. Fee information is available online at: **www.nuigalway.ie/fees** or you can email your query to **fees@nuigalway.ie**

We encourage you to apply as early as possible

Thinking about applying?

www.pac.ie/nuigalway

TechInnovation (PGDip)

College of Engineering & Informatics

TechInnovate is a unique team-based technology innovation fellowship at NUI Galway, where teams identify real needs in a certain domain and invent/implement solutions. The programme is a 10-month full-time stipend-supported fellowship. This fellowship has been established to inspire and create the next generation of entrepreneurial technologists, forming new companies and strengthening existing ones. High-calibre Fellows are recruited to form 2–3 person interdisciplinary teams that go from concept to product.

Course Content

Structure

- Identify: The programme begins with a five-week intensive training programme on the process of innovation. The next eight weeks are spent in domain immersion and the identification of needs (usually up to 200).
- Invent: The Fellows characterise these needs into possible solutions involving brainstorming, mentoring by academics, industry leaders and domain specialists.
- Implement: The next phase involves prototyping and go-to-market strategies. The Fellows bring about four concepts through to business planning, pitching to venture capitalists and in some cases commercialisation. The selection of the individual Fellows, team composition and dynamics, meaningful domain-specific engagement and intensive mentoring is paramount to the programme's success.
- Iterate: Iteration is the process of constantly adding the highest-value features that moves it towards a complete product.

Modules

- GS5105: TechInnovate I: Needs Finding to Concept Generation (10 ECTS)
- GS5106: TechInnovate II: Concept Development and Implementation (10 ECTS)
- EI5101: TechInnovate III: Innovation Project (40 ECTS)

Course Facts

Programme(s) Available: Postgraduate Diploma (NFQ Level 9)

Minimum Entry Requirements: Candidates in the areas of engineering, information technology, design, law, and business must have completed an undergraduate degree in their area and should hold a postgraduate qualification or have equivalent professional experience.

Duration: 1 year, full-time

Number of Places: 6

PAC Code(s): Applications can be made via techinnovate.org

Fees and Funding: Available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: Applications close in March of each year

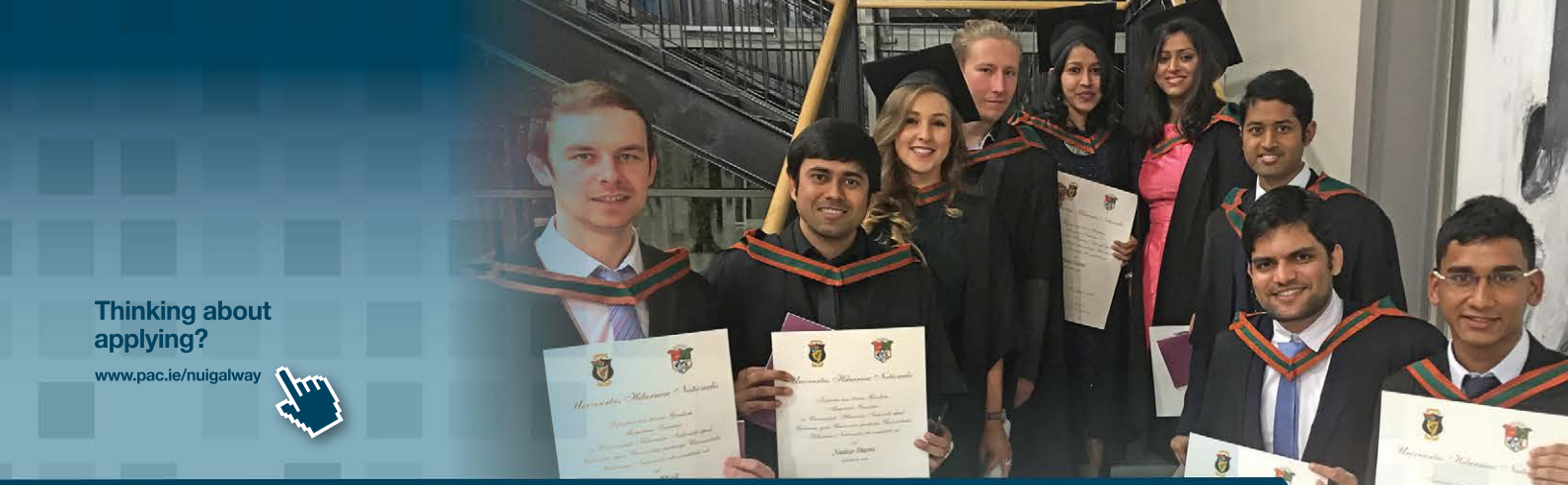
Assessment

This module is delivered following a blended learning model which consists of three components:

- Online materials (in the Blackboard site for the module) and guided reading;
- Weekly workshops with associated activities and discussion;
- Individual and team research.

Find out more

Dr John Breslin
T: + 353 91 492 622
E: info@techinnovate.org
or visit www.techinnovate.org



Thinking about applying?

www.pac.ie/nuigalway

Computer Science (Data Analytics) MSc or Postgraduate Diploma

FULL-TIME or 2 YEAR PART-TIME or 1 YEAR PART-TIME DIPLOMA

College of Engineering & Informatics

Almost everything we do results in data being created and stored somewhere. Individuals, communities, business and governments face major challenges in harnessing all this data to create knowledge that will underpin a healthier, safer, more productive world. There is a global shortage of talent and expertise in Data Analytics and Data Science. This MSc and Diploma programme will provide graduates of Computing or related degrees with the deep technical knowledge and analytical skills to succeed in this growth area.

The following programme options are available:

- 1-year MSc full-time (GYE06)
- 1-year Diploma part-time (GYE27)
- 2-year MSc part-time (GYE07)

Course Content

The MSc option is an 90-ECTS course with three main elements: foundational modules (20 ECTS), advanced modules (40 ECTS), and a substantial capstone project (30 ECTS).

Students taking the 2-year part-time option will undertake a larger capstone project (40 ECTS) and take 10 ECTS less in taught module.

The 1-year part-time Diploma in Computer Science Data Analytics is a 30 ECTS programme. Diploma students will be eligible to progress to the 2nd year of the part-time MSc if they achieve a minimum of a 2.1 in the diploma year.

Foundational modules include: Statistics & Probability; Machine Learning and Data Mining; Programming for Data Analytics; Tools and Techniques for Large Scale Data Analytics; Applied Regression Modelling; Digital Signal Processing.

Advanced modules include: Advanced Topics in Machine Learning and Information Retrieval; Natural Language Processing; Web and Network Science; Linked-Data Analytics; Modern Information Management; System Modelling & Simulation; Embedded Image Processing; Data Visualisation and Case Studies in Data Analytics.

From semester II onwards, students work on individual projects and submit them in August. Projects may have a research or applied focus.

Special Features

- This is a distinctive programme that is closely aligned to the research and teaching expertise of the Information Technology discipline and NUI Galway's Insight Centre for Data Analytics.

Course Facts

Programme(s) Available: MSc (Level 9); Postgraduate Diploma (Level 9)

Minimum Entry Requirements: This MSc is targeted at high-performing graduates of level 8 computer science programmes or level 8 science or engineering programmes that offer sufficient training in computing. Eligibility will be determined by the programme director.

The minimum requirement for entry to the full-time and part-time programme is normally a 2.1 degree. Additionally, part-time applicants should have 3+ years of industry experience and availability to attend lectures in NUI Galway.

On an exceptional basis, candidates who do not meet these requirements but are deemed by the programme director to have reached an equivalent standard may also be considered..

Duration: Full-time MSc: 1 year; Part-time Diploma: 1 year; Part-time MSc: 2 years.

Number of Places: 30

PAC Code(s): Full-time 1-year MSc: GYE06; Part-time 2-year MSc : GYE07; Part-time 1-year Diploma: GYE27

Fees and Funding: Available online at: http://www.nuigalway.ie/courses/fees-and-funding/fees.html#eng

When to Apply: This is a popular programme. Candidates are encouraged to apply as early as possible. Offers will be issued on a continuous basis until the programme is full. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Career Opportunities

Graduates will be excellently qualified to pursue new career opportunities in industry, to establish new ventures or do PhD-level research.

Find out more:

Dr. Conor Hayes
T: +353 91 495077
E: conor.hayes@nuigalway.ie
or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/msc-in-computer-science-data-analytics.html

"I returned to NUI Galway with a view to upskilling, as well as broadening the expertise which I had acquired in the workplace. I chose the Masters of Applied Science (Enterprise Systems) because it allowed me to select the subjects which best suited my future career goals. Through a combination of lectures, workshops, guest speaker presentations, assignments, and a research thesis; I was challenged to critically analyse situations, voice my opinion, and improve my technical writing and presentation skills. This course has given me great confidence and was a key factor in helping me secure my current role as a Process Engineer."

TOMÁS DOWLING, RPS GROUP
(Working on behalf of Astellas Ireland)

Thinking about applying?
www.pac.ie/nuigalway

OVERALL WINNER
National Postgraduate Course of the Year Award 2013
ENGINEERING

Enterprise Systems (MApplSc)

College of Engineering & Informatics

The Masters of Applied Science (Enterprise Systems) is designed to meet the specific requirements of industry. It equips graduates with essential knowledge and skills in the fields of operations, quality and innovation management in sectors that include medical technology, manufacturing and health services. This programme is highly regarded by employers, and there is a strong demand for our graduates. It is suitable for engineering, science, commerce and arts graduates.

Course Content

The flexible structure allows you to tailor the programme to your specific needs. You can choose from those listed below. Modules are subject to availability and other modules may be made available.

- Technology Innovation and Entrepreneurship
- Project Management
- Decision Systems and Business Analytics
- Information Systems Strategy and Planning
- Operations Management
- Operations Strategy
- Logistics and Transportation
- Lean Systems
- Operations Research
- Quality Management
- Human and Systems Reliability
- Ergonomics
- Safety and Risk Management
- Regulatory Affairs

You must also prepare an industrial-based research thesis on a topic to be agreed with an academic supervisor. We will provide you with a list of company-specific case studies in medical technology and services organisations.

Assessment

Problem-based learning techniques are used in most of our modules. You must also complete a number of real world assignments. Written examinations take place at the end of each semester.

Special Features

Key features include:

- An ethos of innovation
- Engaging teaching methods
- Customised learning programme
- Multidisciplinary approach
- Extensive career opportunities.

Course Facts

Programme(s) Available: MApplSc (Level 9)

Minimum Entry Requirements: Entry to the Masters of Applied Science (Enterprise Systems) is open to those who hold a Second Class Honours degree at Level 8 in a related discipline. Candidates who hold a Level 8 degree without honours or equivalent and who have three years' relevant experience will also be considered.

Duration: 1 year, full-time; 2 years, part-time.

Number of Places: 25

PAC Code(s): GYE13 (full-time) | GYE14 (part-time)

Fees and Funding: Available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Career Opportunities

All of our graduates have secured high quality employment in sectors such as medical technology, high tech manufacturing, software and financial services.

Martin Conroy,
Senior Director for Continuous Improvement Medtronic
The programme encourages candidates to analyse problems using scientific methods and to generate innovative and effective solutions to these problems. Furthermore graduates are given real skills such as the ability to work in a team and communicate well. Such skills are essential to fast moving high tech companies like ours.

Alan Phelan, CEO Nucleus Venture Partners
We have engaged and recruited graduates and found them to be great problem solvers and critical thinkers.

Find out more:

Dr. Kathryn Cormican
Programme Director
T: + 353 91 493975
E: kathryn.cormican@nuigalway.ie

or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/enterprise-systems.html

Occupational Safety Engineering & Ergonomics (MApplSc)

College of Engineering & Informatics

Thinking about applying?

www.pac.ie/nuigalway

The aim of this Master's programme is to develop the knowledge and skills required for a career in Occupational Health and Safety and/or Ergonomics. The programme is open to a range of candidates, including recent graduates, those with a primary qualification in Occupational Health and Safety and/or Ergonomics or a related area, and professionals wishing to add to their qualifications. This programme recognises prior academic achievement in relevant areas.

Course Content

Candidates must complete at least four and up to six courses from a list of subjects provided. Courses include.

- Ergonomics
- Human and Systems Reliability
- Occupational Hygiene
- Quality Management
- Safety and Risk Management
- Research Methods
- Legal Studies
- Management Studies
- Quality Engineering
- Regulatory Affairs.

In addition, candidates must submit their year's work, which will be continuously assessed, and candidates are required to write a research thesis on a topic agreed and approved by their supervisor.

Assessment

Semester One exams: December.
Semester Two exams: April/May.
A range of assessment methods are integrated and applied throughout the programme. These include essays, projects, reports, presentations and case studies.

Special Features

- The MApplSc programme's broad base will appeal to those from diverse backgrounds.
- The focus is on engineering systems. However, the knowledge gained can be applied to various disciplines and workplaces. Participants can choose the lecture courses they study to suit their background and their career aspirations.

Course Facts

Programme(s) Available: MApplSc (Level 9)

Minimum Entry Requirements: The MApplSc programme is open to individuals that have an Honours degree from a recognised university or third level college or a pass degree with at least three years' relevant experience, that is acceptable to the College of Engineering.

Duration: 1 year, full-time; 2 years, part-time

Number of Places: 12

PAC Codes(s): GYE00 (full-time); GYE01 (part-time)

Fees and Funding: Available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Career Opportunities

Graduates have found employment in workplaces ranging from project engineering, hi-tech manufacturing engineering, regulatory bodies, healthcare and the services sector. Typical job titles include: Safety Engineer, Safety and Risk Specialist, Risk Manager, Regulatory Affairs Specialist, Ergonomics Health and Safety Consultant, Health and Safety Officer; Environmental Health and Safety Officer.

Find out more

Mr. Enda Fallon, Programme Director
T: +353 91 492745
E: enda.fallon@nuigalway.ie

or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/occupational-safety-engineeringergonomics.html

Thinking about applying?

www.pac.ie/nuigalway

Software Design & Development (HDip)

College of Engineering & Informatics

This programme is aimed at candidates with little or no IT experience. It provides an academic foundation and broad technical training in software design and development. The skills developed in this programme include the core software development tools and techniques.

Course Content

The programme's modules comprise:

- Databases
- Software Engineering
- Programming in Java
- Object-Oriented Programming
- Internet Programming
- Computer Architecture and Operating Systems
- Computer Networks
- Software Design & Development Project

Assessment

Semester One exams: December
Semester Two exams: April/May
A range of assessment methods are integrated and applied throughout the programme. These include essays, projects, reports, presentations and case studies.

Special Features

Transfer options: Students may transfer to the MSc in Software Design and Development (GYE03) subject to places being available, an interview and achievement of a minimum 2.1 result in the Higher Diploma.

"I transferred from my primary degree in Multimedia to the HDip in Software Design and Development as I wanted to improve upon my computer-language programming skills. The HDip allows for experience in many of these languages, with extra help in the form of handouts, lab sessions and excellent library facilities. Every lecturer I encountered during my time on the course was extremely approachable and were always able to make time to converse with me about any area in which I may be having difficulty. Working with a group during the required year long project helped me to hone my team-working skills and get to know my classmates better. In personal experience, I feel the greatest asset to me was the research module, which when I moved to perusing the second year and the Masters in Software Design and Development, was certainly a desirable benefit."
DEBORAH KELLY, HDIP

Course Facts

Programme(s) Available: HDip (Level 8)

Minimum Entry Requirements: This programme is open to applicants who have a Level 7 pass degree (or equivalent international qualification) from a recognised university or third level college.

Duration: 1 year, full-time

Number of Places: 30

PAC Code(s): GYE12

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Career Opportunities

Opportunities exist in various industries, ranging from web design, gaming and banking to telecommunications, health and the energy sector. Companies/organisations that have recruited graduates recently include Cisco, Galway; HP, Galway; and DCM Compliance, Limerick.

Find out more

Dr Séamus Hill | Dr Hugh Melvin
T: +353 91 495 232 | +353 91 493 716
E: seamus.hill@nuigalway.ie | hugh.melvin@nuigalway.ie

or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/software-design-development.html

Software Design & Development (MSc)

College of Engineering & Informatics

Course Facts

Programmes Available: MSc (Level 9)

Minimum Entry Requirements: Candidates must have a minimum 2.2 honours (Level 8) undergraduate degree (or equivalent international qualification). If applicable, applicants require a GPA score of 3.0 (or equivalent international qualification) and an IELTS score of 6 (or equivalent international qualification).

Duration: 2 years, full-time
Students can choose to exit the programme with a HDip upon successful completion of Year 1.

Number of Places: 30

PAC Code (s): GYE03

Fees and Funding: Available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Thinking about applying?
www.pac.ie/nuigalway

This two-year MSc is aimed at candidates with little or no IT experience who want to pursue a career in the IT industry. The skills developed in this programme include the core software development tools and techniques as well as a solid grounding in research and its application in a specific ICT (information and communications technology) domain.

Course Content

The first year follows the normal academic cycle of lectures and laboratory sessions/tutorials, and provides students with a thorough foundation in IT skills. Time will also be spent on developing research interests/skills to prepare for their second year, during which students will conduct a research project and submit a thesis on their findings:

First Year subjects include:

- Databases
- Software Engineering
- Programming in Java
- Object-Oriented Design
- Internet Programming
- Computer Architecture and Operating Systems
- Computer Networks
- Research Methods

Assessment

Semester One exams: December
Semester Two exams: April/May.
A range of assessment methods are integrated and applied throughout the programme. These include essays, projects, reports, presentations and case studies. Year Two culminates with the submission of a dissertation.

Career Opportunities

A variety of opportunities are open to graduates in the software industry or in a range of other sectors, such as telecommunications, medical informatics, energy informatics, digital media, banking and consulting. Many graduates continue with careers related to their specialised field of research. Companies/organisations that have recruited graduates recently include Fidelity Investments, Galway; Cisco, Galway; and Ericsson, Athlone.

Special Features

Students can exit this programme after Year One with a Higher Diploma (GYE12).

Find out more

Dr Séamus Hill
T: +353 91 495 232
E: seamus.hill@nuigalway.ie

Dr Hugh Melvin
T: +353 91 493 716
E: hugh.melvin@nuigalway.ie

Or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/software-design-development.html

Thinking about applying?

www.pac.ie/nuigalway

"The course is a fantastic opportunity for anyone with or without any IT experience. Having a background in IT, the course enabled me to improve my technical skills and expand my soft skills, which are a necessity when pursuing a career in this field. A great asset of this course is the opportunity to get hands on practical experience with a reputable company after your academic year and have them influence your education, with a focus on industry requirements."

COLIN BARBOUR , BA IN INFORMATION TECHNOLOGY AND GEOGRAPHY, H-DIP SOFTWARE DESIGN AND DEVELOPMENT (INDUSTRY STREAM).

Software Design & Development - Industry Stream (HDip)

College of Engineering & Informatics

OVERALL WINNER
National Postgraduate Course of the Year Award 2015
INFORMATION TECHNOLOGY

The goal of this one-year postgraduate conversion programme, codesigned with industry partners, is to increase the supply of skilled graduates to meet the needs of Ireland's high-growth software industry. It provides graduates with a fast-track, focused computing qualification, and presents them with an opportunity to obtain valuable industry work experience. The course fees are free and all students are guaranteed a paid work placement on enrolment to the course.

Course Content

We work closely with our industry partners to provide our graduates with a foundation in software design, a choice of software architecture specialisation in either .NET or Java Enterprise, and a guaranteed work placement to gain industrial experience.

Course Modules: Database Development; Software Engineering; Java Programming; Internet Programming; Architecture, OS and Networks; Advanced .NET Programming; Enterprise Java Programming; Industrial Project*.

**The Industrial Development Project is designed in partnership with your company mentor and an academic supervisor. It is intended that this project will be used to develop essential software development skills in preparation for placement and onwards into employment.*

After completion, students may transfer to the MSc (Software Design & Development, see Page 170) subject to places being available, and the student completing a required additional course on research methods, and an interview, in tandem with the achievement of a minimum 2:1 result in the Higher Diploma.

Assessment

Assessment includes examinations in Semester I and Semester II, continuous assessment, a capstone project in software design and development, and completion of a three-month industrial internship.

Special Features

- **Paid internships:** 19 industry partners have joined with NUI Galway in making paid internships available to the successful applicants.
- **Free fees:** The Higher Education Authority is sponsoring the programme; therefore, the course fees are free and students only have to pay the student levy.

Career Opportunities

This programme is designed specifically with the needs of industry employers in mind. In addition to providing paid internships, our industry partners assist in interviewing candidates and mentoring the students through to final completion of the programme. Employment prospects from the programme are excellent with over 90% of our graduates going onto long-term employment in the IT industry. Salaries are very competitive in the software development sector with excellent opportunities for specialisation, travel and advancement.

Course Facts

Programme(s) Available: HDip (Level 8)

Minimum Entry Requirements: The programme is open to candidates with level 8 degrees, preferably with a background in a cognate discipline. Level 7 applicants with relevant industrial experience are also eligible to apply. Students will be assessed prior to being offered a place on the course, and this assessment includes a formal interview and/or standard aptitude tests.

Duration: 1 year, full-time

Number of Places: 30

PAC Code(s): Not applicable.
Applications can be made through **www.springboardcourses.ie**

Fees and Funding: No course fees; Students pay student levy fee only.

When To Apply: Candidates are encouraged to contact Dr. Enda Howley with respect to making an application to this programme as application dates are contingent on our funding and industry partners from year to year.

Find out more

Dr Enda Howley
T: +353 91 494 335
E: enda.howley@nuigalway.ie

or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/softwaredesignanddevelopmenthdipappsc-industrystream/

Thinking about applying?

www.pac.ie/nuigalway

Software Design & Development - External Stream (MSc)

College of Engineering & Informatics

This course is aimed at students who have already obtained a Level 8 postgraduate qualification in IT and are interested in pursuing an MSc qualification. As a distance-learning programme, it suits candidates who are in full-time employment and/or living abroad. The programme is in line with the University Policy for Recognition of Prior Learning in that it recognises prior academic qualifications.

Course Content

This course is research based only. Students pursue their research project over one academic year, during which they complete a body of work equivalent to 800 hours of academic studies, culminating in a thesis submission.

Assessment

The overall assessment is solely based on the submitted dissertation.

Special Features

Students will be required to attend University on an infrequent basis for project meetings and research days.

Career Opportunities

Recent graduates have already found that the course opens up many new career opportunities.

Find out more

Dr Séamus Hill
T: +353 91 495 232
E: seamus.hill@nuigalway.ie

Dr Hugh Melvin
T: +353 91 493 716
E: hugh.melving@nuigalway.ie

or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/software-design-development.html

Course Facts

Programme(s) Available: MSc (Level 9)

Minimum Entry Requirements: This programme is available to students who have completed an accredited (subject to approval by the School of Engineering and Informatics), Level 8 (with 60 ECTS credits) postgraduate qualification in Computer Science or Information Technology. This qualification can relate to academic programmes or accredited industry-sponsored qualifications. Potential candidates must have achieved the equivalent of a Second Class Honours, Grade 1 (2.1) (or better) in their postgraduate qualification.

Duration: Typically 1 year, full time (by distance learning)

Number of Places: 15

PAC Code: GYE15

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Thinking about applying?

www.pac.ie/nuigalway

Software Engineering & Database Technologies (MSc)

College of Engineering & Informatics

The aim of this programme is to develop your career with an innovative MSc in Software Engineering and Database Technologies. Designed and delivered jointly by NUI Galway and Regis University, Denver (USA), this tailor-made programme will advance your knowledge of software development and database systems. This whooly online course is particularly suited to people who are working or have other daytime commitments.

Course Content

The programme is part-time and runs over two years. You will study one online module every eight weeks, and in addition you will research and write a thesis during your second year. The programme content is extensive and varied, and includes both mandatory and optional modules.

These include: Software Engineering; Computer Architecture and Operating Systems; Fundamentals of Programming; Database Architecture; Database Administration; Service Oriented Architecture Concepts; Object Oriented Design; Object Oriented Programming; Distributed Systems; Artificial Intelligence; Real-Time Systems; Graphics Programming; Computer Architecture; PL/SQL Programming; Intro to NO SQL and Thesis Fundamentals.

Assessment

This programme uses continuous assessment and a final online examination at the end of each eight week module. There is also a research thesis to complete during the second year.

Special Features

- This MSc course is part-time, and is delivered and examined in a fully online environment. This provides maximum flexibility for students in terms of their location and work schedules.
- Teaching is shared by NUI Galway and Regis University.
- Students may take one CPD module if desired.

Career Opportunities

Software/database design and development is one of the success stories of the Irish economy. This course will equip you to participate in this vibrant, international industry. Many of our graduates have found that this course has increased their career prospects.

Find out more

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or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/software-engineering-database-technologies.html
or www.naigalway.ie/ itonllne

Course Facts

Programme(s) Available: MSc (Level 9), CPD for modular credit

Minimum Entry Requirements: This degree is open to Honours degree (Level 8) graduates (or equivalent) in Science, Engineering and other relevant disciplines. It is also open to ordinary degree (Level 7) graduates with 3+ years of experience. An IELTS score of 6.5 (or equivalent) is required in certain cases.
See www.nuigalway.ie/itonline.

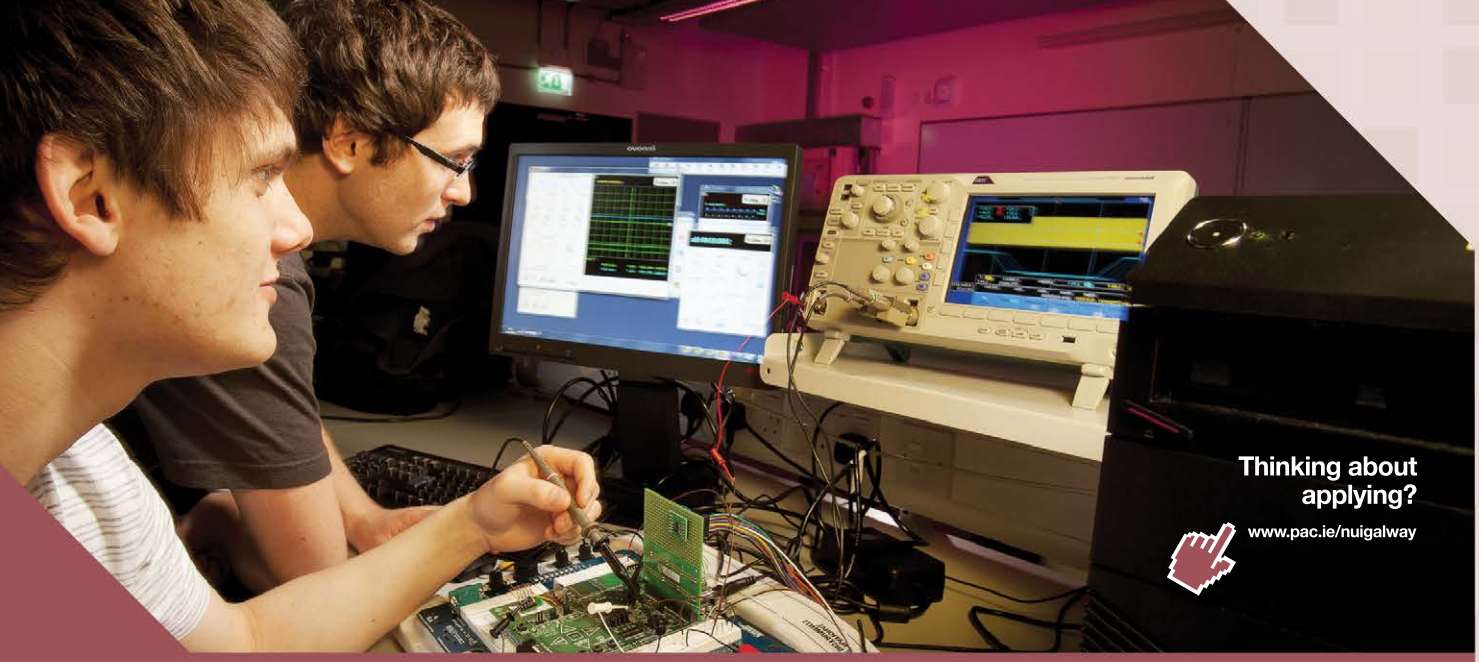
Duration: 2 years, part-time

Number of Places: Unlimited Places

PAC Code: GYE04

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: There are start dates in August and October. See www.nuigalway.ie/itonline for more information. If taking a single CPD module, there are various start dates. Contact us for more information.



Software Engineering (Dip)

College of Engineering & Informatics

This fully online diploma provides a focused programme of study in the area of software design and development, providing an insight into technical skills and modern industry techniques. Computer programming and design are taught to the diploma, as well as number of important software engineering methodologies.

Course Content

This programme is part-time and runs over one year. You will study one online module every eight weeks. This is an ideal programme for students who wish to:

- Update their software development and ICT skills.
- Engage with an interesting and challenging curriculum in a flexible, online environment.
- Improve their employability opportunities by re-skilling in the area of software development.

Rather than being a general purpose award in computing, the intention of this diploma programme is to provide a coherent and complementary set of in-depth modules which bring the student up-to-speed on relevant software development tools and techniques. A full list of Core and Elective modules are available on www.nuigalway.ie/itonline

Career Opportunities

The software industry includes businesses involved in the development, maintenance and publication of computer software, as well as software services such as training, documentation, and consulting. At the heart of this industry is the activity of actually building and producing computer software, which is the emphasis of this diploma. Opportunities for software developers are excellent within Ireland and internationally.

Assessment

This programme uses continuous assessment and a final online examination at the end of each eight-week module.

Course Facts

Programme(s) Available: Diploma (Level 8)
Minimum Entry Requirements: This degree is open to Honours degree (Level 8) graduates in Science, Engineering. and other relevant disciplines. It is also open to ordinary degree (Level 7) graduates with 3+ years of experience. An IELTS score of 6.5 (or equivalent) is required in certain cases. See www.nuigalway.ie/itonline.
Duration: 1 year, part-time
Number of Places: Unlimited Places
PAC Code: GYE16
Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html
When to Apply: See www.nuigalway.ie/itonline.

Special Features

- The diploma is part-time, and is delivered and examined in a fully online environment. This provides maximum flexibility for students in terms of their location and work schedules.
- Teaching is shared by NUI Galway and Regis University, Denver (USA). A strict limit of 15 students in each "virtual classroom" is applied.

Find out more

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or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/softwareengineeringdip or www.nuigalway.ie/itonline

Thinking about applying?

www.pac.ie/nuigalway

BioInnovation (PGDip)

College of Engineering & Informatics

BioInnovate Ireland is a forum which combines resources to Lead Medical Innovation by:

- Delivering the next generation of specially skilled people to the medtech sector
- Identifying new product development opportunities.
- Developing and proposing commercial opportunities to move real clinical needs forward.
- Providing research opportunities and spinout companies in collaboration with clinicians and partnering companies.
- Building a medtech innovation ecosystem

BioInnovate Ireland has unparalleled access to clinicians, industry, and investment experts.

Course Content

The Fellowship is a specialist Medtech innovation programme, affiliated with the Stanford BioDesign program. The 10-month, full-time, programme combines teams of high-calibre Fellows from either a medical, engineering, business or technical graduate background that aim to align unmet clinical needs with a market opportunity. Team members are chosen to contribute their skills, knowledge and expertise as part of a multi-disciplinary Fellowship team. During the process Fellows focus on one specific clinical area, receive mentorship from Industry, Clinicians, VC's, Domain Experts and Academics and are stipend supported by Enterprise Ireland. Fellowship teams are physically located at one of the partner Universities, perform their initial clinical immersion phase in the associated hospitals, and subsequently in hospitals across the country. To date, Fellows have interacted with hundreds of clinical staff in over 50 hospitals. The programme commences in early August each year, and had an associated Post Graduate Diploma Award.

Course Facts

Programme(s) Available: PGDip (Level 9)

Minimum Entry Requirements: Bachelors Degree in Medicine, Business, Engineering, Life Sciences, Law, IT, Pharmacy. Experience working in Industry is essential.

Duration: 10 Months, Full time

Number of Places: 12-16

Garda vetting/police clearance required? Yes

PAC Code: Please contact BioInnovate directly at info@bioinnovate.ie

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: Applications close in March of each year.

Assessment

Continuous and Final Report.

Special Features

This stipend supported programme is targeted to professionals (ranging from early to late career) with an interest in innovation and the generation of a start-up. In the 10-month process, Fellows identify and validate unmet clinical needs, map them to a commercial opportunity and pursue a start-up opportunity.

Career Opportunities

All of our graduates are currently employed with approximately half of them pursuing commercial opportunities identified during the programme. Several graduates work in start-ups, major multinationals or the government sector.

Find out more

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or visit: www.bioinnovate.ie

Biomedical Engineering (ME)

College of Engineering & Informatics

Thinking about applying?

www.pac.ie/nuigalway

This is a one-year of Engineering (ME) programme in Biomedical Engineering, based at NUI Galway's new, award-winning Engineering Building. The programme is designed to give an advanced educational experience in biomedical engineering to bachelors graduates, focusing on developing advanced technical knowledge and skills and real-world implementation of these in terms of innovation, commercialisation and business development.

Course Content

The development of this 60 ECTS programme has been driven by the needs of the medical technology industry and of cuttingedge biomedical engineering research at NUI Galway, ensuring the relevance of the delivered content. It combines instruction through taught modules and a significant project-based learning component. The programme is designed around the core areas of biomechanics, biomaterials and medical devices. Students take 25 ECTS in biomedical engineering specific modules and 15 ECTS in transferrable skills modules. A substantial group project of 20 ECTS on a state-of-the-art topic in medical technology has to be carried out.

Special Features

- The programme is designed to satisfy the educational criteria of Engineers Ireland for Chartered Engineer professional accreditation.
- It is inter-disciplinary in nature, based around a sound engineering educational core, enhanced by direct linkages with science and medicine. The programme will be delivered by staff members who are world leaders in terms of research and interactions with industry.

Course Facts

Programme(s) Available: ME (Level 9)

Minimum Entry Requirements: Entry to the programme is open to individuals who have Second Class Honours in a Level 8 engineering degree in a related discipline from a recognised university or third level college or equivalent.

Duration: 1 year, full-time

Number of Places: 30

PAC Code: GYE18

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Assessment

Students are assessed using a combination of assessment methods across the modules taken, including written examinations, continuous assessment and oral presentations.

Career Opportunities

The programme aims to generate the future leaders of the medical technology industry, and of academic research and teaching in biomedical engineering. Graduates will be employable in medical technology and high-tech industries (e.g. micro-electronics, pharmaceuticals). Employment roles will include research and development (R&D), design assurance, manufacturing and production, quality assurance and regulatory affairs. Graduates will also be ideally qualified to undertake PhD-level research, leading to employment in the academic and industrial research sectors.

Find out more

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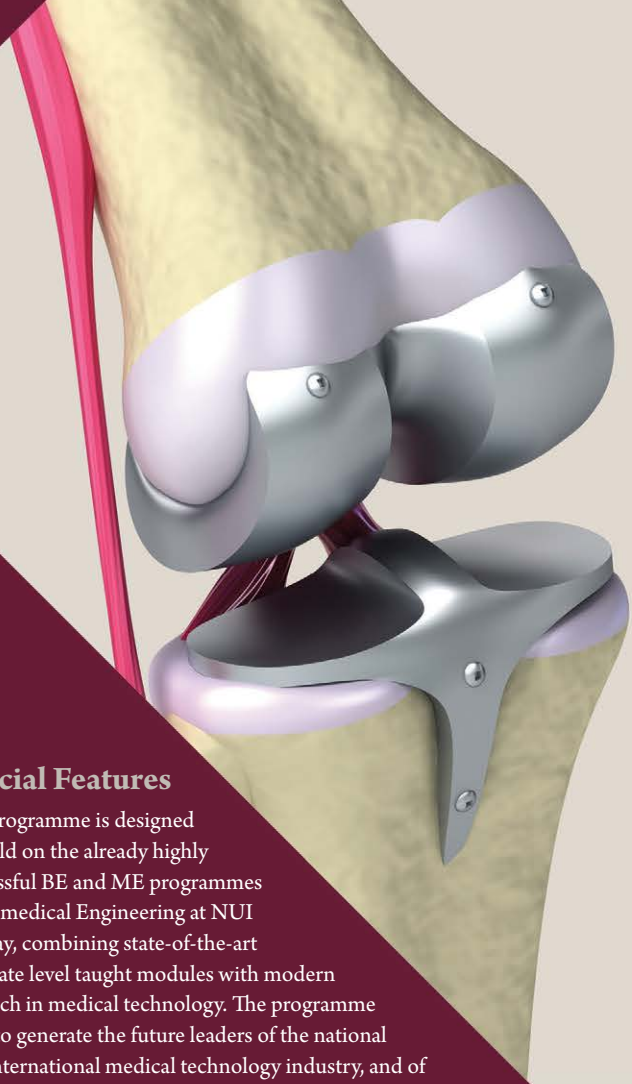
E: jane.bowman@nuigalway.ie

or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/biomedical-engineering.html

Thinking about applying?

www.pac.ie/nuigalway



Biomedical Engineering (MSc)

College of Engineering & Informatics

This is a one-calendar year 90 ECTS of Science (MSc) programme in Biomedical Engineering. The programme is designed to give an advanced educational experience in biomedical engineering to bachelors graduates, focused on developing advanced technical knowledge and skills, coupled with real-world implementation through research and innovation. The programme combines a substantial research component with instruction through taught modules and a significant project-based learning component.

Course Content

This one-calendar-year programme is designed around three thematic areas: biomechanics/medical devices, biomaterials and bioelectronics. A substantial thesis of 30 ECTS on a state-of-theart topic in medical technology research has be be undertaken. Students take at least 15 ECTS in foundational modules and up to 45 ECTS in advanced modules.

Assessment

The students will be assessed using a combination of assessment modalities across the modules taken, including written examinations, continuous assessment and oral presentations.

Course Facts

Programm(s) Available: MSc (Level 9)

Minimum Entry Requirements: Entry to the programme is open to individuals who have a Second Class Honours grade one Level 8 degree in Biomedical Engineering or in a related discipline.

Duration: 1 calendar year, full-time

Number of Places: 20

PAC Code: GYE24

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Special Features

The programme is designed to build on the already highly successful BE and ME programmes in Biomedical Engineering at NUI Galway, combining state-of-the-art graduate level taught modules with modern research in medical technology. The programme aims to generate the future leaders of the national and international medical technology industry, and of academic research and teaching in biomedical engineering.

Career Opportunities

Graduates will be readily employable in the medical technology and cognate high-tech industries (e.g. microelectronics, pharmaceuticals). In the medical technology industry in particular, employment roles will include research and development (R&D), design assurance, manufacturing and production, quality assurance and regulatory affairs. Graduates will also be ideally qualified to undertake PhD-level research, leading to employment in the academic and industrial research sectors.

Find out more

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or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/biomedical-engineering.html

Civil Engineering (ME)

College of Engineering & Informatics

Thinking about applying?

www.pac.ie/nuigalway

This ME programme, based in NUI Galway's award winning Engineering Building, will ensure that the next generation of Civil Engineers is educated to a high standard. The ME in Civil Engineering has a particular emphasis on design. It has three primary elements: (i) advanced core modules in Civil Engineering, (ii) an individual project, and (iii) modules on transferable skills and personal development.

Course Content

The ME in Civil Engineering is a broad design-focussed Level 9 programme tailored to meet both the educational requirements for progression to Chartered Engineer status and the diverse needs of a progressive modern Civil Engineering practice. Students will strengthen their core knowledge with modules on a range of advanced Civil Engineering topics, while improving their versatility and leadership potential as engineers through transferrable skills and personal development modules. The Integrated Design team project is a unique feature of the programme; students take on a real-world design challenge with support from practising engineers. Research experience is gained through a minor thesis, with access to laboratory facilities in the award-winning Engineering Building, Ireland's largest engineering education facility.

Assessment

This programme has an overall weighting of 60 ECTS. The student takes a number of taught modules (40 ECTS) and these are examined at the end-of-semester examinations in December and April and/or through assignments and continuous assessment. The individual research project (20 ECTS) runs throughout the year, with a submission date towards the end of May. Research projects are available across all branches of Civil Engineering, and the student works with an individual supervisor. The student may also wish to propose a project of his/her own.

Special Features

Since 2013, the educational standard required for progression to Chartered Engineer status, set by Engineers Ireland, is a Level 9 degree. The ME programme in Civil Engineering at NUI Galway received full accreditation by Engineers Ireland in 2015, and therefore enjoys international recognition through the Washington Accord.

Career Opportunities

This degree programme is ideally suited to a civil engineer with an honours (Level 8) undergraduate degree who wishes (i) to become more competent in advanced Civil Engineering topics and (ii) to accelerate to positions of leadership within an organisation. Many employers are expressing a preference for ME graduates over BE graduates due to their advanced problem-solving skills and versatility. Graduates of the programme will be capable of following challenging career paths in any branch of civil engineering, including consulting, contracting and research and development.

Course Facts

Programme(s) Available: ME (Level 9)
Minimum Entry Requirements: Entry to the programme is open to individuals who have Second Class Honours in a Level 8 degree in a related discipline from a recognised university or third level college (or equivalent).
Duration: 1 year, full-time
Number of Places: 30
PAC Code: GYE19
Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html
When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Find out more

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or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/civilengineering.html

Thinking about applying?
www.pac.ie/nuigalway

Electronic & Computer Engineering (ME)

College of Engineering & Informatics

The ME in Electronic & Computer Engineering is a 9 month, full-time Masters programme designed as a follow-on to a Level 8 (honours) degree in Electronic & Computer Engineering or equivalent. It allows graduates to develop advanced, industry-relevant skills in a range of topics in Electronic & Computer Engineering, providing them with a Level 9 qualification that satisfies Engineers Ireland's criteria for Chartered status.

Course content

Students can choose from a number of advanced technology modules such as: signal and image processing, embedded systems, communications technologies, sensor systems, the Internet of Things, advanced system-on-chip design and artificial intelligence.
A range of Engineering Transferable Skills modules enable students to develop skills in business, innovation, regulatory and research methods, while also providing options in advanced mathematical techniques and information technology. These modules will prepare students for lifelong learning and development in a professional engineering career, either in industry or in a research environment.

Project Work

The advanced year-long Electronic & Computer Engineering Project will provide students with technical experience in advanced electronic & computer engineering design, using the professional skills of project management, report writing and presentation skills. Students will work to design and implement a system using advanced technologies and techniques. All projects will include components of design, modelling, analysis, prototyping and testing, building on current state-of-art technologies as identified in commercial and academic literature, and informed by current advanced research in the area of Electronic & Computer Engineering at NUI Galway.

Career Opportunities

Graduates of this programme will be well qualified to pursue careers in industry and academic research, and will be equally comfortable working in the software and hardware industries. Numerous opportunities exist for graduates of this programme in industries ranging from large multi-nationals, indigenous companies, state bodies and small businesses. Graduates may also wish to join or form their own start-up business, as many of our graduates have done so successfully in the past.

Course Facts

Programme(s) Available: ME (Level 9)

Minimum Entry Requirements: Entry to the programme is open to individuals who have Second Class Honours in a Level 8 degree in a related discipline from a recognised university or third level college (or equivalent).

Duration: 1 year, full-time

Number of Places: 20

PAC Code(s): To be assigned

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Find out more

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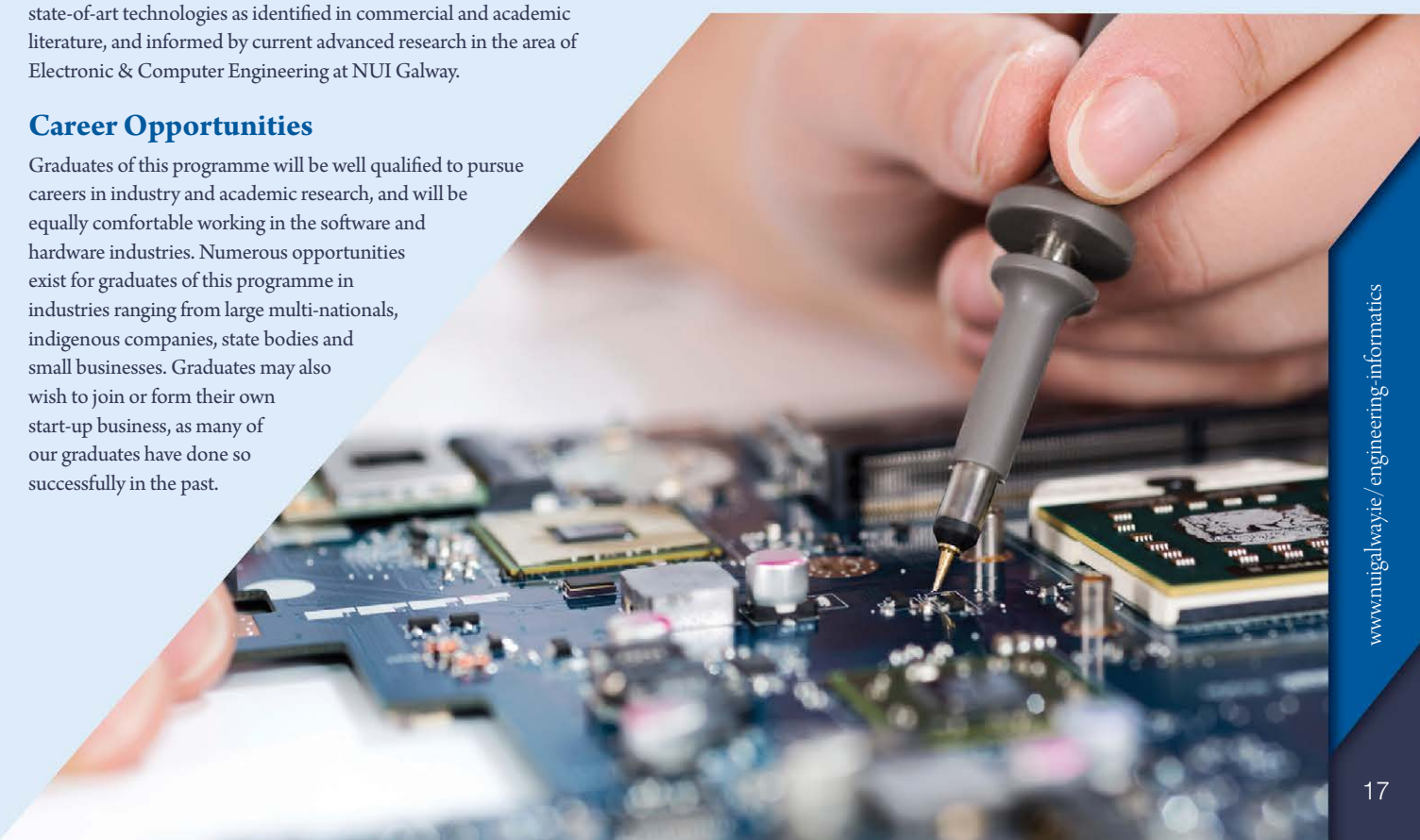
or visit: www.nuigalway.ie/engineering-informatics/electrical-and-electronic-engineering
www.eee.nuigalway.ie



Thinking about applying?

www.pac.ie/nuigalway

Electrical & Electronic Engineering (ME)

College of Engineering & Informatics

This full-time programme is at Level 9 in the Irish qualifications system and has been designed to meet the educational requirements necessary for progression to Chartered Engineer status with Engineers Ireland. Accreditation for the programme will be sought after the first cohort of graduates emerges from the programme. NUI Galway has a long tradition of providing a high quality accredited bachelor degree (BE) in Electrical and Electronic Engineering and this new programme builds on that experience.

Course Content

The ME has three primary elements: (i) advanced technology modules in Electrical and Electronic Engineering, (ii) transferrable skills modules, and (iii) an individual capstone project.

Projects will be defined in one of research areas such as power electronics for computing and renewable energy systems; sensor systems for biomedical, automotive and the Internet of Things applications; and advanced system-on-chip technologies. A range of advanced technology modules provides back-ground material for these project areas. Available transferrable skills modules include: Financial Management; Engineering Research Methods; Probability, Reliability and Risk Engineering; and Technology, Innovation and Entrepreneurship.

Assessment

Assessment of taught modules (40 ECTS) will be through end of semester examinations in December and April, and/or through assignments and continuous assessment. The individual project will run throughout the academic year, with a submission date at the end of May. Projects will be available across all branches of Electrical and Electronic Engineering and you will work with an individual supervisor. You may also wish to propose a project of your own.

Special Features

This programme is offered within a purpose built €40 million Engineering Building, a 14,200m^2 modern, energy-efficient facility, and the largest School of Engineering in the country.

Course Facts

Programme(s) Available: ME (Level 9)

Minimum Entry Requirements: Entry to the programme is open to individuals who have a Second Class Honours in a Level 8 degree in a related discipline from a recognised university or third level college (or equivalent).

Duration: 1 academic year (September – May), full-time

Number of Places: 20

PAC Code(s): GYE21

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates/ for more information

Career Opportunities

This degree programme is ideally suited to the electrical/ electronic engineer with an honours (Level 8) undergraduate degree who wishes to become more competent in advanced Electrical and Electronic Engineering topics. Graduates of the programme will find employment in a range of branches of Electrical and Electronic Engineering, including power electronics & energy conversion, biomedical electronics, consumer electronics and advanced silicon-on-chip & microsystems technologies.

Find out more

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or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/electrical-electronic-engineering.html
www.eee.nuigalway.ie

Thinking about applying?

www.pac.ie/nuigalway

Energy Systems Engineering (ME)

College of Engineering & Informatics

This new programme, based at NUI Galway's new Engineering Building, is for graduates of Level 8 BE degrees who want to develop their engineering knowledge for a career in industry or research based on energy systems applications. It is fully accredited by Engineers Ireland to meet the education standard for Chartered Engineer (C.Eng.) for graduates of a recognised Level 8 BE degree. It builds on the successful BE in Energy Systems Engineering, providing graduates with an opportunity to specialise further or to broaden their knowledge in engineering disciplines.

Course Content

This programme consists of three strands: advanced technical modules in energy systems engineering, transferable skills for industry and research careers in the energy sector, and technology development through an industry-aligned energy systems engineering project. The following is a sample of the modules available.

Transferable skills: Renewable Energy Economics; Research Methods for Engineers; Financial Management; Estimates and Costing; Databases; Computer Architecture & Operating Systems; Programming; Lean Systems; Regulatory Affairs; Technology, Innovation & Entrepreneurship.

Advanced Technologies: Advanced Energy Systems Engineering; Global Change; Smart Grid; Energy in Buildings; Computational Methods; Advanced Finite Element Analysis; Design of Sustainable Environmental Systems; Advanced Mechanical Analysis and Design; Turbomachines & Advanced Fluid Dynamics; Combustion Science and Engineering; Power Systems; Transportation Systems and Infrastructure; Advanced Power Electronics; Advanced Mechanical Analysis and Design; Advanced Mechanics of Materials; Power Systems.
Modules are subject to change. Eligibility for modules is dependent on each student's prior education.

Assessment

Taught modules are assessed through exams (end of semester) and continuous assessment. Students also complete a project that focuses on current research in energy systems engineering. The programme comprises a 20 ECTS project, 20-25 ECTS of advanced technical modules and 15-20 ECTS of transferable skills modules.

Special Features

- This programme is offered in the new €40m Engineering Building, a 14,200 square-metre modern, energy-efficient facility, and the largest School of Engineering in the country.
- The building is a "living laboratory", which will provide high-tech working examples for engineering students to study.

Career Opportunities

There are job opportunities in design and testing, consultancy, project management, energy systems management, product development and facilities engineering. The need for graduates with skills in energy systems technologies is growing, including in building energy management, renewable energy systems, electrical power systems, smart grid and energy consultancy. Other potential roles are in the areas of energy economics, energy policy, energy regulation, energy planning and the law.

Course Facts

Programme(s) Available: ME (Level 9)
Minimum Entry Requirements: Entry to the programme is open to individuals who have Second Class Honours in a Level 8 engineering degree in a related discipline (including mechanical, electrical, civil and energy engineering) from a recognised university, third level college (or equivalent).
Duration: 1 year, full-time
Number of Places: 25 (approximately)
PAC Code: GYE20
Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html
When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Find out more

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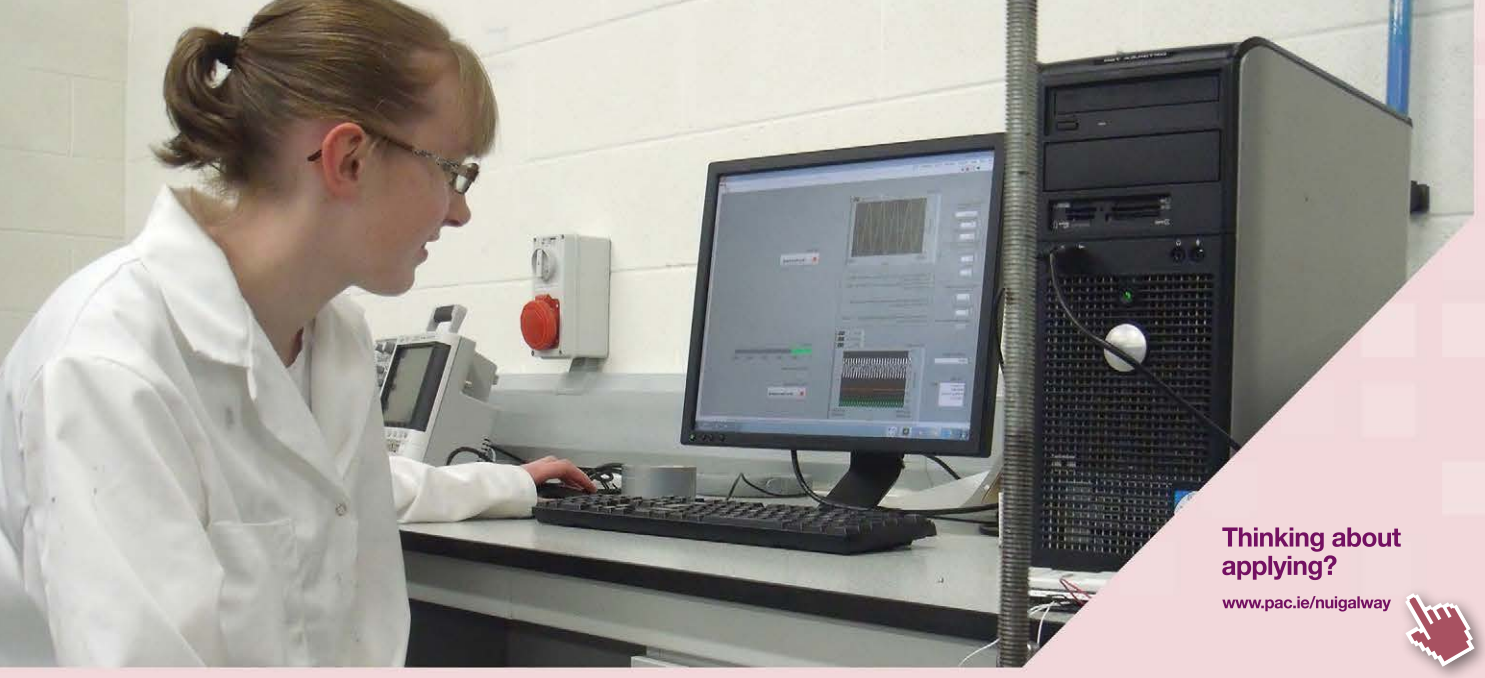
or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/energy-systems-engineering.html



Thinking about applying?

www.pac.ie/nuigalway

Mechanical Engineering (ME)

College of Engineering & Informatics

This is a one academic year (9 months) taught Master of Engineering (Mechanical Engineering) programme, which is a direct follow-on from the four-year undergraduate BE programme in Mechanical Engineering, providing students with the opportunity to take a first step in advanced engineering education and research skills, within the framework of the academic and professional requirements for Chartered Engineer status. The philosophy of the programme is the preparation of graduates for exciting careers in advanced engineering and innovative technology development and management.

Course Content

The programme combines advanced mechanical engineering modules with a substantial (9 month) research and development project and modules on engineering transferable skills. The large group development project, which is the capstone of the ME, will be conducted in collaboration with an engineering industrial partner to develop new mechanical engineering technology. A key aspect of this programme is the teaching of innovation and entrepreneurship skills and technology, along with research methods. A range of advanced engineering modules (advanced mechanics of materials, advanced manufacturing, advanced finite elements, advanced energy systems) are also taught to build directly on undergraduate mechanical engineering topics and bring students to a more specialized understanding of and ability to conduct state-of-the-art engineering design.

Assessment

Assessment will consist of continuous assessment via course work and project work along with written examinations.

Course Facts

Programme(s) Available: ME (Level 9)

Minimum Entry Requirements: Entry to the programme is open to individuals who have second class honours in a Level 8 engineering degree in a related discipline from a recognised university or third level college (or equivalent).

Duration: 1 academic year, full-time

Number of Places: 20

PAC Code: GYE17

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible.

Career Opportunities

Mechanical engineering industry (e.g. power generation, renewable energy, machine tool manufacture, equipment manufacture, transport and aerospace industry, traditional and advanced manufacturing industries, offshore oil and gas industry). Biomedical engineering industry (e.g., medical device research and development). Engineering management. Software (engineering) development. Engineering consultancy. Further advanced research (e.g. PhD).

Find out more

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Thinking about applying?

www.pac.ie/nuigalway

Mechanical Engineering (MSc)

College of Engineering & Informatics

The MSc is a 12-month, Level 9 Master of Science in Mechanical Engineering, which will take engineering (BE) and closely-related graduates to an advanced level of mechanical engineering capability, focusing on advanced design, analysis, materials and manufacture via state-of-the-art technology. The programme is designed to meet the international demand for Level 9 qualifications. This course offers a broad range of advanced engineering modules, including advanced applied mathematics and advanced computational modelling, as well as industry-specific advanced modules in manufacturing technology, offshore engineering, energy and medical device development and materials. A substantial 12-month research thesis allows the students to implement new research skills developed within a specially-designed module on engineering research methods, including publication of the research findings. Each MSc project focuses on a current 'hot topic' in mechanical engineering industry and is carried out in collaboration with industry partners.

Course Content

This 90 ECTS programme includes a substantial 30 ECTS research project, complemented by 60 ECTS of modules (including 10 ECTS of optional modules). The research project is directly supervised by a member of academic staff for the full 12-month period on a selected industry or research topic and is assessed on the basis of a written thesis. The modules focus on advanced engineering research methods and technology, where students will combine design, computational methods and modelling, as well as experimental testing and prototyping activities, utilizing state-of-the-art research facilities in the New Engineering Building in NUI Galway. Over two semesters, students will take a total of 10 mandatory advanced modules in mechanics, manufacturing, materials, applied mathematics for engineering and research methods. In addition, students will choose two further modules from a choice of nine specialist modules including turbomachines, offshore engineering and advanced energy systems.

Assessment

Assessment will consist of continuous assessment via course work and project work along with written examinations.

Course Facts

Programme(s) Available: MSc (Level 9)

Minimum Entry Requirements: Entry to the programme is open to individuals who have Second Class Honours grade one in a Level 8 engineering degree in a related discipline from a recognised university or third level college.

Duration: 12 months, full-time

Number of Places: 20

PAC Code: GYE26

Fees and Funding: Fees and funding information is available online at: www.nuigalway.ie/courses/fees-and-funding.html

When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible.

Career Opportunities

Mechanical engineering industry (e.g. power generation, renewable energy, machine tool manufacture, equipment manufacture, transport and aerospace industry, traditional and advanced manufacturing industries, offshore oil and gas industry). Biomedical engineering industry (e.g., medical device research and development). Engineering management. Software (engineering) development. Engineering consultancy. Further advanced research (e.g. PhD).

Find out more

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http://www.nuigalway.ie/courses/taught-postgraduate-courses/mechanical-engineering-msc.html

Water Resources Engineering (MSc)

College of Engineering & Informatics

Water security is one of the main threats facing humanity; engineers will be the primary professionals tackling this problem. This 1-year 90 ECTS MSc programme will provide engineers with the technical competences needed to design solutions to deliver safe/clean water. The programme will also give opportunities to students to study the economics and management of large projects. Key features of this programme include a focus on the understanding and use of modern hydraulic modelling tools, real-world engineering design problems and group project work.

Course Content

The core programme modules are: Hydrology & Water Resources Engineering; Hydrological Modelling; Design of Sustainable Environmental Systems; Water Quality; Water Resources in Arid Regions; Applied Field Hydrogeology.

Elective modules are available from the following: Computational Methods in Engineering; Global Change; Project Management; Natural Resources Governance; Earth Observation and Remote Sensing; Coastal & Offshore Engineering; Estimates and Costing of Engineering Projects.

Along with taught modules students will complete a group Integrated Design Project where they will design components of a water supply and treatment system. The project is typical of one in a real-world environment has significant input from consulting engineers working in the water sector. Each student will also complete an individual minor research thesis in the area of water resources engineering. This thesis accounts for one third of the overall programme mark.

Assessment

The 90 credits (ECTS) of this programme are split as follows: Taught Modules (50 ECTS), Integrated Design Project (10 ECTS) and Thesis (30 ECTS).

Special Features

- Water engineering has been taught at graduate level at NUI Galway for over 40 years.
- Over 400 water resource engineering professionals from 56 countries around the world have received their postgraduate qualifications at NUI Galway .
- This programme has developed from the very successful International Postgraduate Hydrology Programme originally run by Professor Eamonn Nash.
- Staff are involved in large-scale funded research projects in water resources, facilitated by our world-class research facilities.

Career Opportunities

Traditionally around 50% of Civil Engineers are employed in the water industry, this is set to increase. Existing water infrastructure is straining to meet current demands. Population growth, urbanisation, climate change and increasing energy demands, are placing unprecedented pressures on our finite water resources. The provision of sustainable and safe water supplies into the future will be addressed primarily by engineers.

Course Facts

Programmes Available: MSc (Level 9)
Minimum Entry Requirements: Minimum entry requirement is a Second Class Honours Grade 1 in civil/environmental engineering or equivalent. Applications from candidates from cognate disciplines will be considered on a case-by-case basis.
Duration: 1 year, full-time
Number of Places: 20
PAC Code(s): GYE23
Fees and Funding: See: www.nuigalway.ie/courses/taught-postgraduate-courses/water-r esources-engineering.html
When to Apply: NUI Galway does not set a deadline for receipt of applications (with some exceptions). Offers will be issued on a continuous basis. Candidates are encouraged to apply as early as possible. Please visit www.nuigalway.ie/postgrad/assessmentdates, for more information.

Find out more

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Or visit: www.nuigalway.ie/courses/taught-postgraduate-courses/water-resources-engineering.html

Research Areas

The College of Engineering and Informatics has a wide range of research programmes on offer. These include Structured PhDs and Research Masters in each of the areas listed over.

The Structured PhD is a 4-year programme which offers added value to the core component of doctoral training. Students on this programme are offered disciplinary or dissertation specific modules, as well as generic and transferable skills designed to meet the needs of an employment market that is wider than academia. The programme is flexible and student centred, as candidates choose their own pathways in consultation with their Supervisor and Graduate Research Committee.

For more information related to each of the programmes including entry requirements please visit:
www.nuigalway.ie/courses/research-postgraduate-programmes/phd-and-masters/

Research Areas

Biomedical Engineering

Biomedical Engineering at NUI Galway is internationally recognised for research excellence, with over 50 postgraduate students and postdoctoral researchers working within a field that integrates principles of engineering mechanics, materials and biomaterials, pharmacology, biology and clinical practice. The Discipline hosts the Biomechanics Research Centre (BMEC), whose core research activities include orthopaedic and cardiovascular biomechanics, mechanobiology and medical device design.

The Discipline also links closely with, and hosts researchers at CÚRAM, a Science Foundation Ireland research centre designing the next generation of 'smart' medical devices through research in the fields of biomaterials, tissue engineering, drug delivery, Glycoscience and device design. The Discipline offers internationaly recognised structured PhD programmes in areas spanning the Biomedical Engineering and Regenerative Medicine (BMERM) domains, key strategic areas of research in which Ireland is already playing a strong international role.

A PhD in BMERM at NUI Galway combines an original research project with a unique experiential learning and didactic programme, resulting in an unparalleled training experience for the student in terms of its combination of world-class research and focused clinical and industrial interaction. The BMERM programme will be delivered by a core partnership of institutions: National University of Ireland Galway, University of Limerick and University College Cork, linked with a wider consortium of partner institutions nationally and internationally.

Find out more

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www.bmec.ie
www.nuigalway.ie/engineering-informatics/biomedical-engineering/aboutus/bmerm

BMERM
BIOMEDICAL ENGINEERING & REGENERATIVE MEDICINE

BioInnovate (MSc)

BioInnovate Ireland is a national medical technology innovation training programme that aims to act as a neutral territory in which academia, clinicians and industry can collaborate to develop novel medical technologies. The programme is an active partnership between multiple universities (NUI Galway, University of Limerick and University College Cork), engages with hospitals all over the country, and is supported by Enterprise Ireland, IMDA and multiple industry sponsors.

The Fellowship programme is a specialist medical device innovation programme which is affiliated with the Stanford BioDesign programme.

The 10-month, full-time, programme combines teams of high-calibre Fellows from either a medical, engineering, business or technical graduate background that aim to align unmet clinical needs with a market opportunity. Team members are chosen to contribute their skills, knowledge and expertise as part of a multi-disciplinary Fellowship team. During the process Fellows focus on one specific clinical area, receive mentorship from Industry, Clinicians, VC's, Domain Experts and Academics and are stipend supported by Enterprise Ireland. Fellowship teams are physically located at one of the partner Universities, perform their initial clinical immersion phase in the associated hospitals, and subsequently in hospitals across the country. To date, Fellows have interacted with hundreds of clinical staff in 100+ hospitals. The programme commences in early August each year, and has an associated post-graduate award of either a Post Graduate Diploma or a Research Masters.

Find out more

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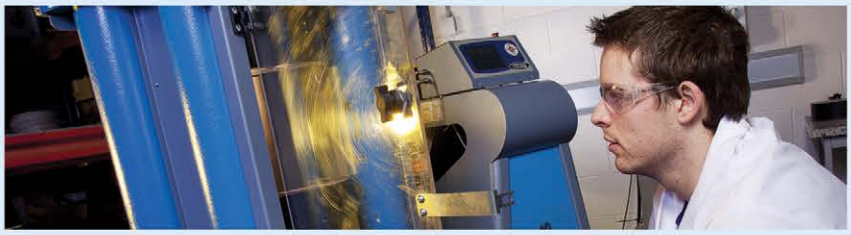
or visit www.bioinnovate.ie



Civil Engineering

Civil Engineering Research activity at NUI Galway spans a broad spectrum of civil engineering subjects, which includes (but is not limited to) marine and coastal engineering, hydrology, energy management in buildings, geotechnics/foundation engineering, structural/earthquake engineering, concrete and timber technology, computational mechanics, environmental engineering, transportation engineering, and risk and reliability. This research, both topical and strategic, is funded by industrial partners and several national and international funding agencies, including the European Union (EU). Some of the research is interdisciplinary and is aligned with the university's major research themes; many academic staff work within research centres such as NUI Galway's Ryan Institute and the Science Foundation Ireland (SFI) MaREI Centre.

Find out more

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Electrical & Electronic Engineering

Electrical & Electronic Engineering at NUI Galway has the following research priorities: Biomedical Electronics, Biometrics and Bio-inspired Electronics, Signal Processing and Communications and Power Electronics and Energy Conversion. Parallel with these research priorities is a significant technological capability in Embedded Systems Design, which has potential application across all of Electrical & Electronic Engineering research priorities. Current research projects include applications in automotive, biomedical, consumer electronics and energy systems, focusing on topics such as image processing for vehicular safety systems, wearable electronics for biomedical devices and energy efficient solutions for portable devices.

Find out more

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www.eee.nuigalway.ie/Research/index.html

Information Technology

Information Technology offers MSc and PhD degrees comprising an extended period of research and the submission of a dissertation. Admission to a research degree is at the discretion of the potential supervisor (a member of academic staff) and the Head of Discipline. Applicants should have an honours primary degree in computing/IT or related areas. Applications for MSc and PhD by research can be made at any time, but registration follows the normal academic year cycle. Most of the department's research candidates are supported by fellowship schemes or externally funded research programmes.

Find out more

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Insight Research Institute (IRI)

Data is becoming a driving force for society, economics and science. Data influences every aspect of society. Our capability to analyse and learn from it increasingly determines our well-being. Data has a huge influence in the sciences and the arts, in business, government, medicine and engineering. Science, business and engineering have always tended to produce a lot of data and the volume of this data is increasing year by year. There are similar trends in the humanities with digital humanities becoming a major topic in recent years. Data needs to be organised and analysed. If properly used and analysed, data can empower a society and drive an economy. The challenge for engineers, scientists, doctors, business leaders, governments and humanities scholars alike is to recognise the opportunities that data analytics and data science now provides in their respective disciplines and put this science to work for their benefit.

Insight Research Institute (formerly DERI) has established itself as a premier research entity of international importance as demonstrated by international collaborations, industry visibility, standards setting and research citations. It continues to play a key role in the development of the Data Web which is growing in importance both as a research topic and as a business opportunity.

In the past few years the focus has shifted from creating the foundations to analysing and making sense of all the available data. SFI have recognised this shift to data analytics as can be seen by their funding of the Insight Centre for Data Analytics, in which IRI plays a leading role. Other funding agencies, including the European Union, have also allocated substantial budgets to research in the areas of data analytics, linked data and its application to various domains. IRI is very well positioned to exploit its research expertise in attracting funding and continuing its research leadership in this growing area.

Find out more

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Mechanical Engineering

NUI Galway has a vibrant, internationally recognised Mechanical Engineering research community with expertise including fluid dynamics, materials, energy systems, enterprise systems and manufacturing. Our activity ranges from fundamental research in all these fields to industrial collaborations with the energy, medical device, aerospace and other sectors in Ireland and internationally. We work closely with the MAREI SFI Centre for Marine Renewable Energy, the CÚRAM SFI Centre for research in medical devices, the NUI Galway Ryan Institute for Environmental, Marine and Energy research, and the Biomechanics Research Centre, BMEC.

Find out more

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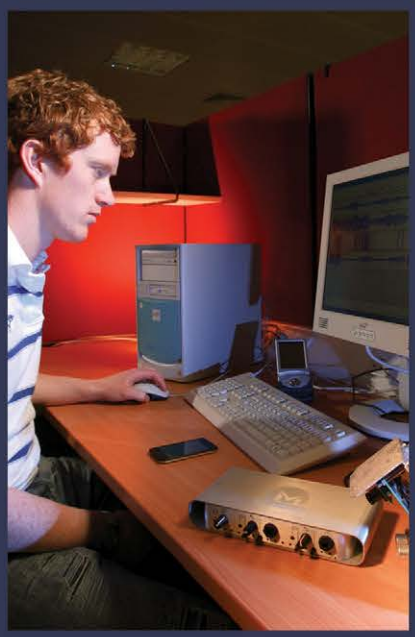

NUI Galway
OÉ Gaillimh

Find out more about the postgraduate programmes at the College of Engineering and Informatics at:

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www.nuigalway.ie/engineering-informatics