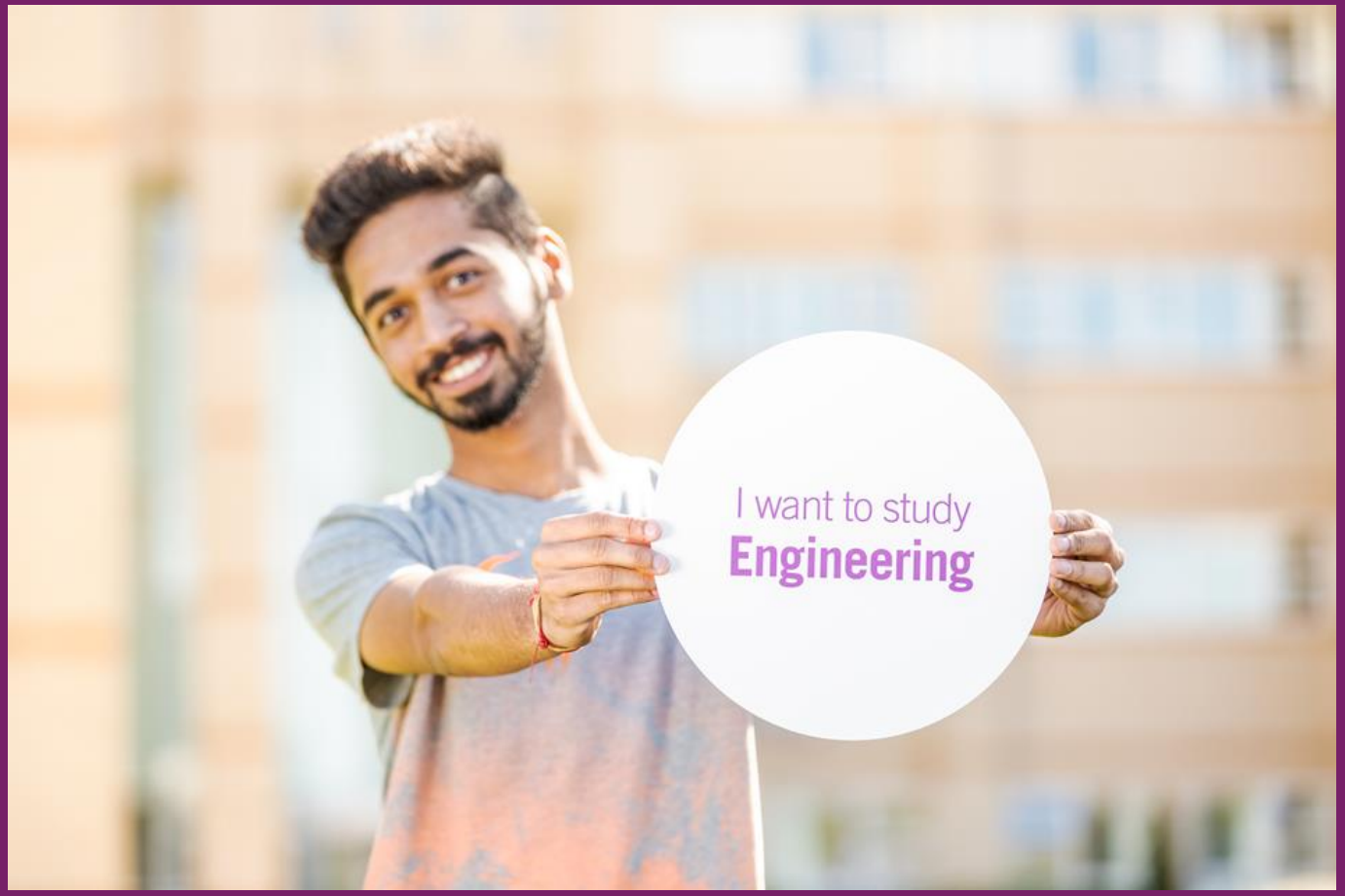
Durham University

International Study Centre



Suraj Sanjay from India

Welcome……

Durham University

International Study Centre

Degrees available for progression

Pre-Masters

- ✓MSc New and Renewable Energy
- ✓MSc Advanced Mechanical Engineering
- ✓MSc Civil Engineering
- ✓MSc Electronic and Electrical Engineering

International Foundation Year

- ✓BEng General Engineering

Durham University

International Study Centre

Introducing the Department of Engineering

Dr Grant Ingram
Director of Education

Miss Kate Brennan
International Officer

Engineering at Durham

- Applying science to solve problems
  - Scientific understanding & mathematical ability key

- Combined department of *General Engineering*
  - Ranked 4th for General Engineering* in the UK

Growing to ~90 Taught Postgraduate MSc students by 2020

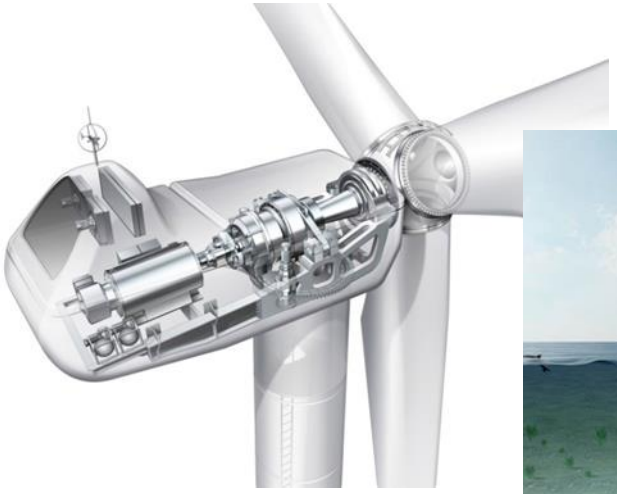
Growing to ~50 Academic Staff by 2020 (currently ~38)

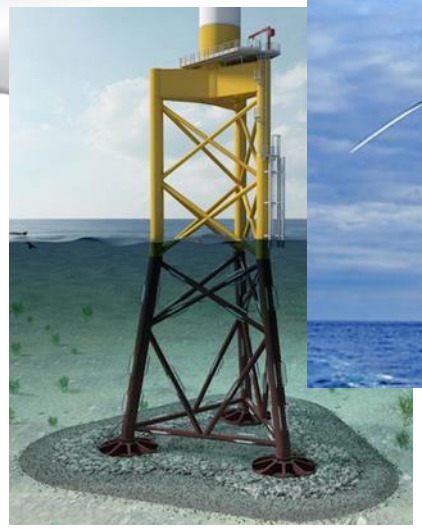
~30 Support Staff (technicians, admin)

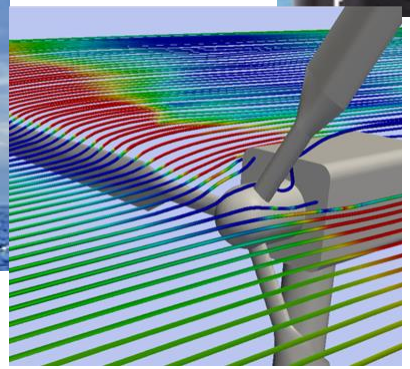
*Guardian University Guide 2018

Engineering as a Single Subject

- Philosophy of department
- Real engineering problems are highly multidisciplinary







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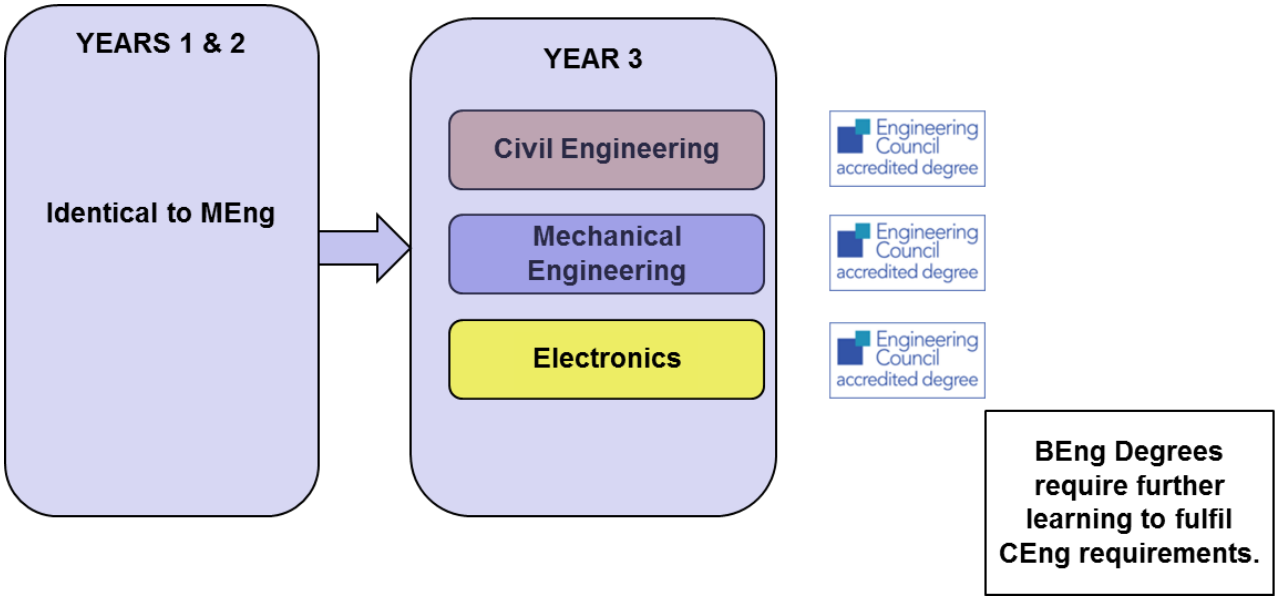
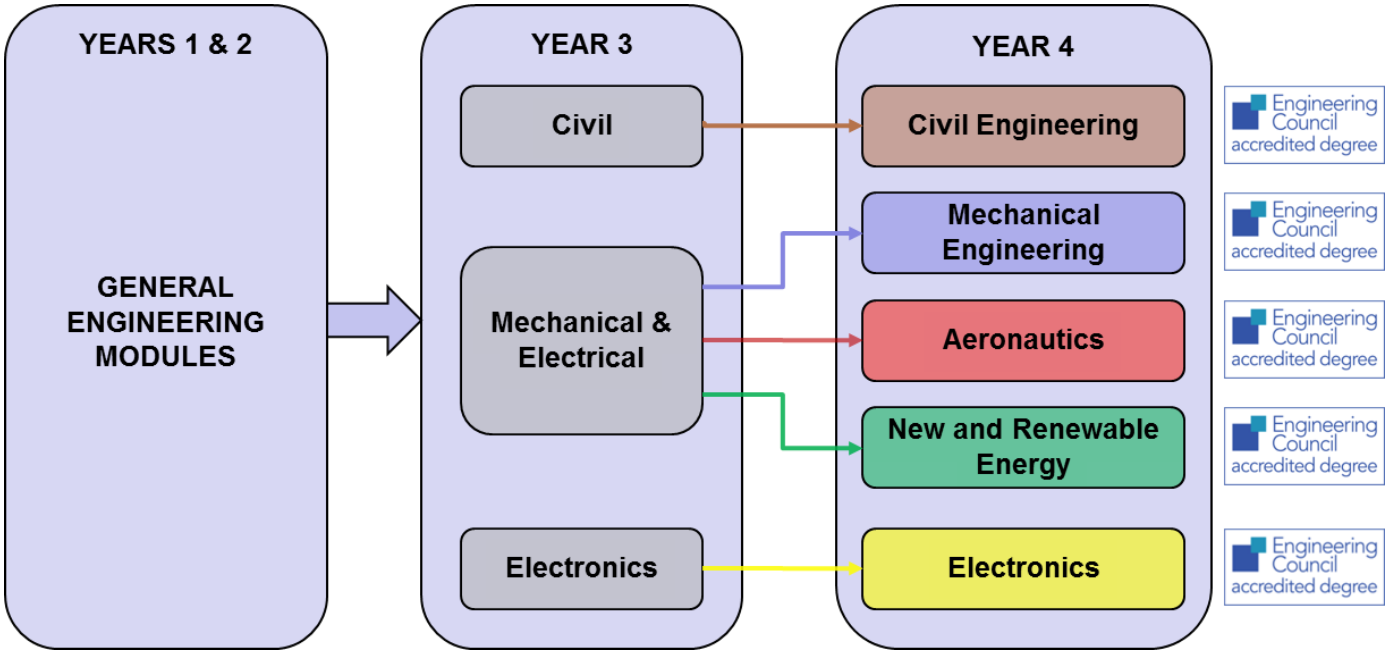
Undergraduate programmes

BEng Degree Programme



MEng Degree Programme

- Students can progress from BEng to MEng if grades are met at end of Year 3
- Years 1 and 2 are common
- Progressive specialisation in Years 3 and 4



Engineering at Durham

- Lectures
- Problem Classes
- Laboratories
- Computer Based Classes
  - CAD, Programming, Analysis
- Design
- Industrial Projects
- Research Projects
- Extra Curricular

- Durham University Solar Car
- Highway speeds on the power of a hair dryer
- Raced across USA/Canada and Australia

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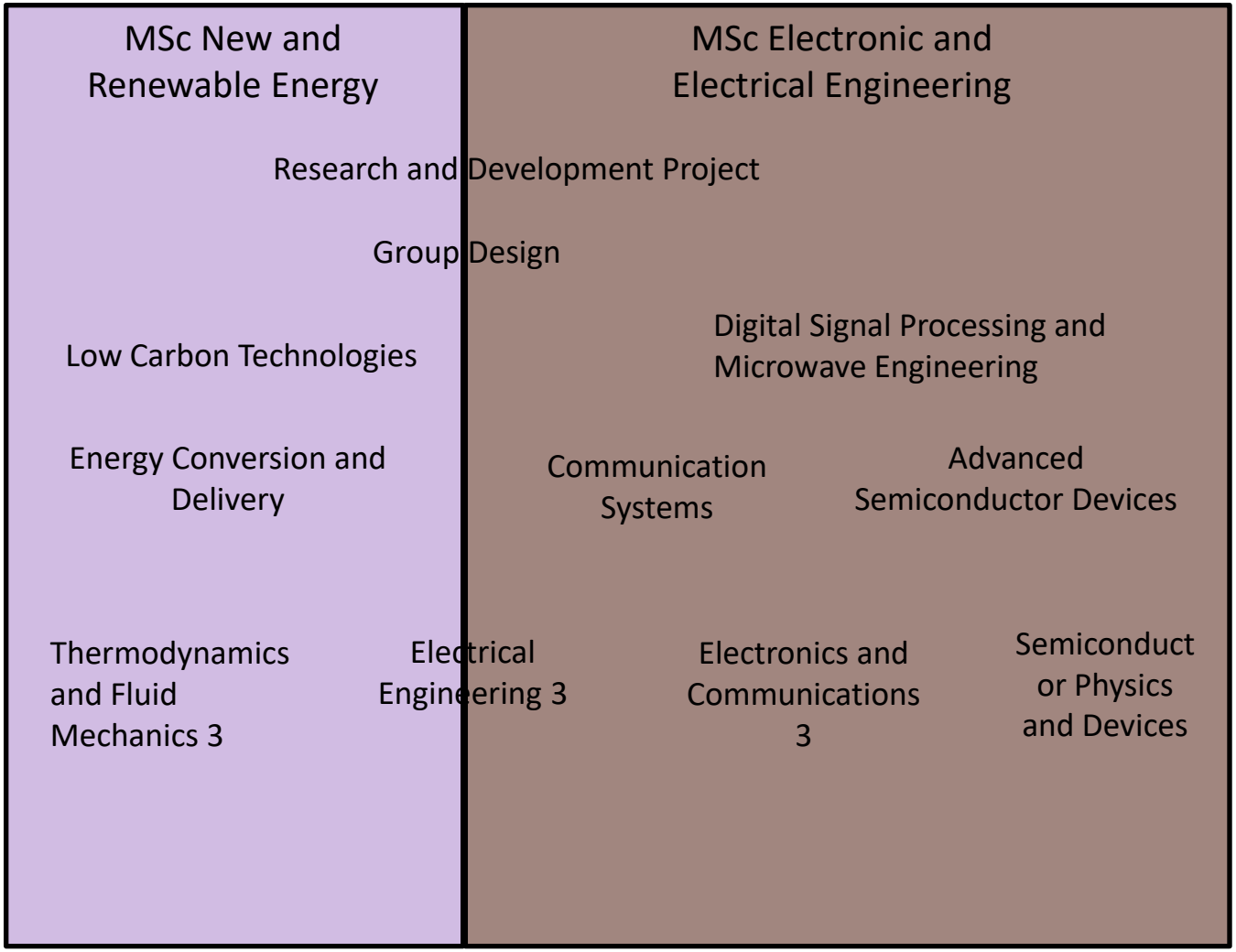
Postgraduate taught programmes

MSc (T) courses

- New and Renewable Energy
- Electronic and Electrical Engineering
- Advanced Mechanical Engineering
- Civil Engineering

Current MSc(T) Structure



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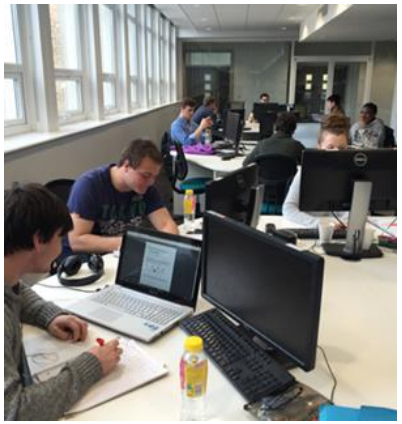
Programme overview

- Durham operates a term-based system
- Students take 180 credits per year with 20 credits per modules
    - 90 Credits for R&D Project
    - 30 Credits for Group Design
    - 60 Credits for three “taught” modules
- Taught modules are assessed via a mixture of coursework and exams in May/June.
- Group Design is assessed by report and presentation in December
- R&D Project is assessed by report and exam in August



Typical Course Timetable Example (NRE MSc(T))

Term 1 Michaelmas Oct-Dec	Term 2 Epiphany Jan-Mar	Term 3 Easter Apr-June	Summer July-Sept
Low Carbon Tech		Exams	Resit
Energy Conv. + Delivery		Exams	Resit
Electrical Eng		Exams	Resit
Design			
	Research and Development Project		

Durham University

Taught modules (3 x 20 credits)

- Each module has around 2 hours of lectures per week, may also include:
  - Laboratories (physical, computational, programming)
  - Problem classes/seminars (practice solving problems)
  - Office hours (small group tutorials on demand)

- MSc Students will spend more time doing self-study than they do in contact hours

Group Design

Use Engineering expertise

Team working

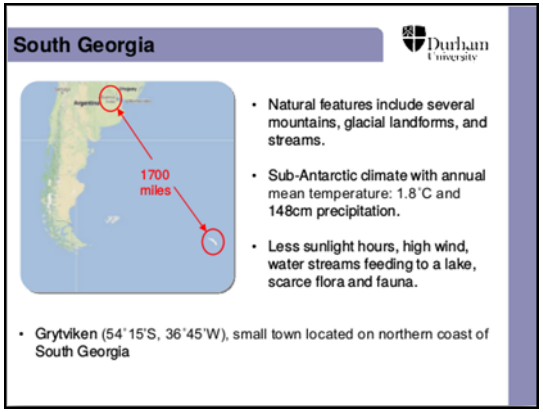
Work in groups of ~4-8 students

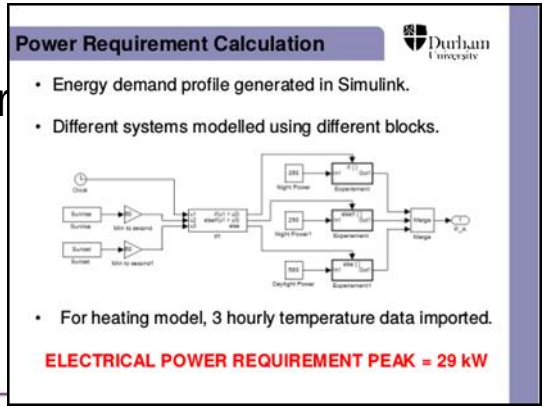
Assessment by report and presentation

New and Renewable Energy:

Typically design an off-grid power station

Images on right from a student presentation on their results

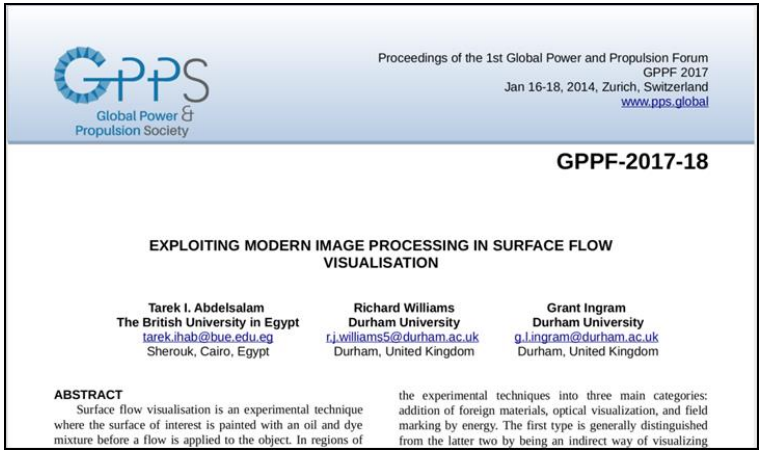




Research and Development Project

- Masters Level: cutting-edge topics and research projects
- Students choose projects based on staff/student expertise & strengths
- Linked to Department Research Challenges and students contribute to active research projects
- Publications from the work are not unusual!

Image on right is the front page of paper with first author from the MSc(T)



GPPS Global Power & Propulsion Society

Proceedings of the 1st Global Power and Propulsion Forum
GPPF 2017
Jan 16-18, 2014, Zurich, Switzerland
www.pps.global

GPPF-2017-18

EXPLOITING MODERN IMAGE PROCESSING IN SURFACE FLOW VISUALISATION

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ABSTRACT

Surface flow visualisation is an experimental technique where the surface of interest is painted with an oil and dye mixture before a flow is applied to the object. In regions of

the experimental techniques into three main categories: addition of foreign materials, optical visualization, and field marking by energy. The first type is generally distinguished from the latter two by being an indirect way of visualizing

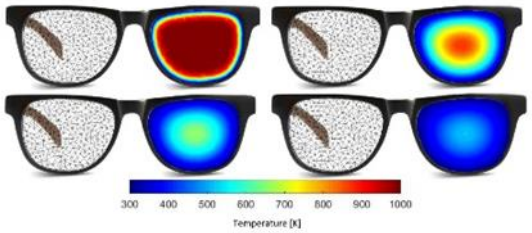
Previous Project Titles

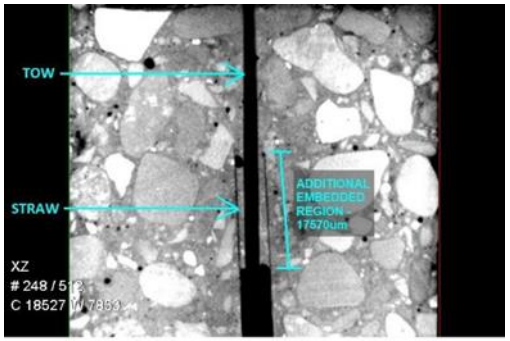
- Smart Pricing in Smart Grids
- Concept Design for a Portable, Scalable Hydrogen Production Device using Water Power
- Micro Rectennas – A New Paradigm for Thermal-Energy Conversion
- Thermodynamic and Economic Evaluation of a Renewable Energy Driven Waste Plastic Recovery System for Deployment in Developing Countries
- Assessing Small-Scale Technologies for Land Art Generation
- Demand side management techniques for smart grids
- Generating power from waste heat recovered from Northumbrian Water's Howdon sewage works
- Reliability Evaluation of Offshore Wind Electrical Collection Networks
- Use of Intelligent Power Converters to integrate Battery storage technologies in low voltage Smart Grids
- Thermal loading of Modular Multi-level Converters for Wind Turbines

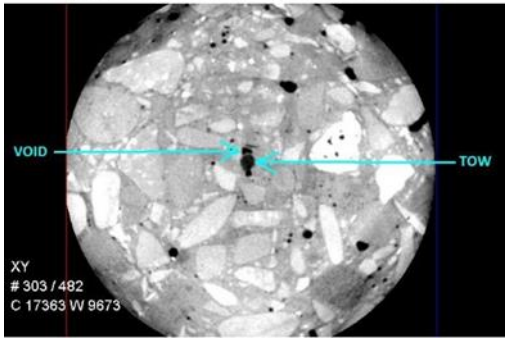
Research

- Research activity split into three challenge areas:
  - Future Energy Systems;
  - Next Generation Materials & Microsystems; and
  - Sustainable Infrastructure.
- A broad range of specialist research clusters support our activities in these areas.

- Durham MSc students have many opportunities to work in these challenge areas, often alongside industry in both independent and team work based design and research oriented tasks, namely:
  - engineering design activities
  - Final year research projects

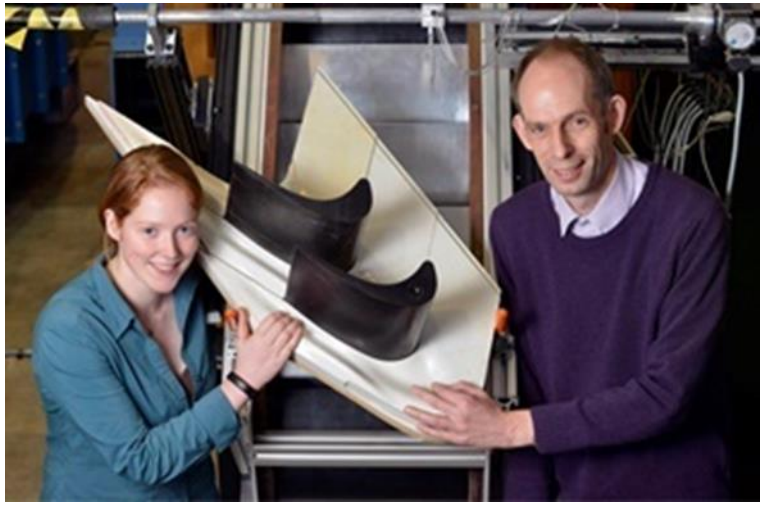






Research-led Teaching

- Taught Postgraduate Students do research as part of the course:
  - Develop independent thought & essential problem solving skills
  - Teach the fundamentals and allow students to apply them to a given engineering challenge



- Staff are leaders in their field:
  - Commitment to excellent education
  - Department ranked joint 1st in the UK for Internationally Excellent and World Leading Research Impact (REF 2014)

Accreditation

- Aim is that all MSc programmes will be accredited by the appropriate Professional Engineering Institution
  - MSc in New and Renewable Energy:
    - Accredited by the IMechE and the IET
  - MSc in Electronic and Electrical Engineering
    - To be submitted for accreditation in January 2018
- UG Programmes are accredited by institutions below:

The Institution of Structural Engineers

Institution of Mechanical Engineers

IET The Institution of Engineering and Technology

Royal Aeronautical Society

ice Institution of Civil Engineers

What our students say

Jingzi Tang (2012-2013)

Jingzi is now working in the solar industry in China. The company produces branded solar panels for European and US companies. With an undergraduate degree in business, she is currently working towards forming her own company producing solar and renewable energy system products.

“The year in Durham means so much for me, thanks to the kindness of teachers and the help of my friends. I made it through and learnt a lot. I am missing the days when I was in Durham but hope one day I could be back.”

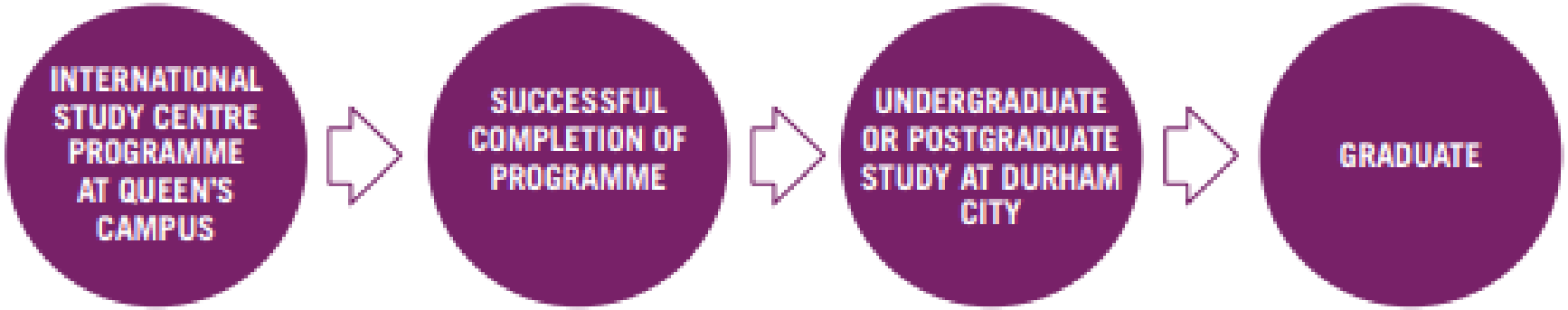
Durham University

International Study Centre

Pathways to Engineering

Student journey

Durham University International Study Centre is located at Durham University Queen's Campus in Stockton-on-Tees.



Once students complete the pathway programme and achieve the required grades, they can progress to degree study at Durham City.

Durham University

International Study Centre

International Foundation Year

Pathway
• Science and Engineering

£18,300

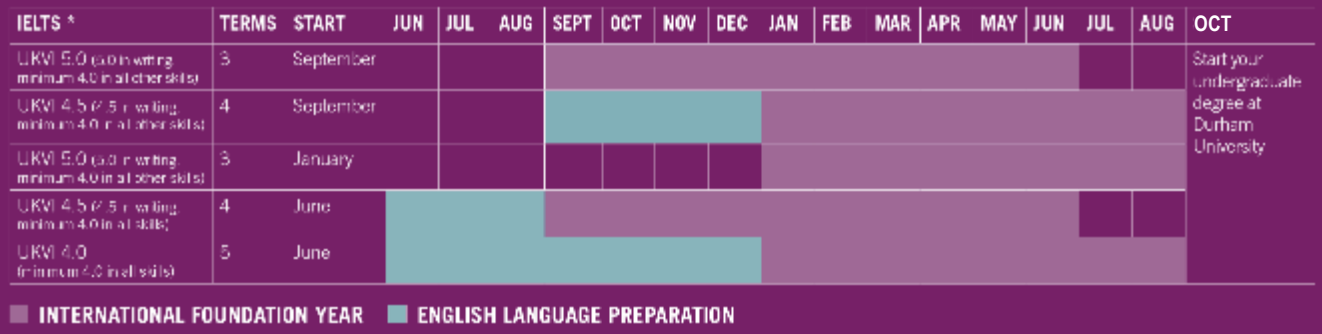
Facts
• **Course length:** 3 terms
• **Intakes:** September or January

Entry requirements
• **Academic:** Good high school graduation grades or equivalent
• **English language:** Academic IELTS for UKVI 5.0 (5.0 in writing and minimum 4.0 in all other skills)*

• **Age:** 17+

Progression requirement:
BSc (Hons) General Engineering:
75% overall
English grade: 60% with min. 50% in all skills

Study Plan



English Language Preparation course is available for students, who need to improve their level of English.

Tuition fee: £4,170 per term

* If you do not need a Tier 4 visa, or are exempted in another way, we can accept equivalent proof of English.
Tuition fees stated are valid until 5 January 2018

Content of the Foundation programme

Core modules

✓ Academic English Skills

Academic English Skills supports students to develop their skills in reading, writing, listening and speaking, with a particular focus on the language uses that will prove most useful throughout their studies at Durham University. This critical module runs throughout each term at the International Study Centre, and features particular emphasis on grammar and language skills for those requiring a boost in this area, whilst also allowing able students to stretch themselves in their written and spoken work.

✓ Core Foundation Maths

This module hopes to improve confidence in algebraic manipulation through the study of mathematical techniques and development of investigative skills. It will introduce and develop a knowledge of logarithms and their uses. The module also wishes to introduce and develop a knowledge of trigonometry, and to introduce and develop understanding of a range of standard techniques for differentiation and integration. The module will also include trigonometric and logarithmic functions.

✓ Core Foundation Chemistry

This module looks to encourage students to develop confidence in their own abilities in a science subject. It seeks to introduce a basic bank of knowledge on which students can build either by the process of self study or in further courses of directed study. It is also critical to develop confidence in a laboratory situation, to introduce a range of equipment, and ultimately to develop observational and interpretative skills. The module works to develop a problem-solving approach, to develop scientific report-writing, data handling and critical evaluation, and critically to develop confidence and ability in handling chemical calculations.

Content of the Foundation programme

Modules specific to General Engineering route

✓ Calculus, Further Maths and Mechanics with Statistics and Strategic Maths

This module seeks to extend knowledge of Cartesian coordinates in two and three dimensions to include equations of circles and lines, as well as to introduce and develop a knowledge of matrices and applications. It will look to develop a knowledge of vectors and their applications in two and three dimensions to include equations of lines, and also to improve confidence in algebraic and trigonometric manipulation. Students will find it will introduce and develop understanding of trigonometric formulae and their uses, and will also extend understanding of a range of standard techniques for differentiation and integration. The module will introduce and develop a knowledge of first and second order differential equations and their applications, also introducing and developing knowledge of complex numbers and the concept of polar coordinates. Students will have their own abilities to apply mathematics to problems based on physical situations enhanced. They will be provided with the opportunity for students to engage in logical reasoning, algorithmic thinking and applications. Some statistical techniques will also be introduced.

✓ Engineering with Advanced Physics with Project

The aim of this module is to encourage students to develop confidence in their own abilities in problem solving, it will aim to develop further understanding of physics and engineering concepts. The module looks also to enhance confidence and ability in handling calculations, and to develop a toolkit of independent study skills. It will develop the student's ability to perform an independent piece of research, which will prepare students for future studies in Higher Education. Students wlll become confident, competent and comfortable in using information technology in the context of academic environments.

✓ Foundations of Physics

This module will encourage students to develop confidence in their own abilities in a science subject, it will introduce and develop understanding of physics concepts, and will develop students' ability to apply physics concepts to problem solving. This course will develop confidence and ability in handling physics calculations, and will develop confidence in a laboratory situation, and observational and interpretive skills, as well as a problem solving approach. It will help to develop scientific report-writing, data handling and critical evaluation develop confidence and ability in handling physics calculations.

Durham University

International Study Centre

Pre-Masters

Pathways and tuition fees

- Science and Engineering
  - 2 terms - £16,100
  - 3 terms - £18,900

Facts

- **Course length:** 2 or 3 terms
- **Intakes:**
  - **Science and Engineering:**
  - **2 terms** – January or April
  - **3 terms** – September or January

Entry requirements

- **Academic:** Good First degree in a relevant subject
- **English language:**
  - **3 terms -** academic IELTS for UKVI 5.5 (minimum 5.5 in all skills)*
  - **2 terms** – academic IEKTS for UKVI 6.0 (minimum 5.5 in all skills)*
- **Age:** minimum 20+ years of age

Progression requirement: all Engineering MSc degrees

65% overall

English grade: 60% with 50% in all skills

STUDY PLAN

IELTS*	TERMS	START	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT
UKVI 5.0 (minimum of 5.0 in all skills)	4	June																
UKVI 5.0 (minimum of 5.0 in all skills)	4	September^																
UKVI 5.5 (minimum of 5.5 in all skills)	3	September																
UKVI 5.5 (minimum of 5.5 in all skills)	3	January^																
UKVI 6.0 (minimum of 5.5 in all skills)	2	January^																
UKVI 6.0 (minimum of 5.5 in all skills)	2	April^																

PRE-MASTERS ENGLISH FOR PRE-MASTERS

English for Pre-Masters course is available for students who need to improve their level of English. See Study Plan opposite.

Tuition fee: £4,170 per term

If you do not need a Tier 4 visa, or are exempted in another way, we can accept equivalent proof of English.

Tuition fees stated are valid until 5 January 2018

Content of the Pre-Masters programme

Core modules

✓ Academic English Skills

Academic English Skills supports students to develop their skills in reading, writing, listening and speaking, with a particular focus on the language uses that will prove most useful throughout their studies at Durham University. This critical module runs throughout each term at the International Study Centre, and features particular emphasis on grammar and language skills for those requiring a boost in this area, whilst also allowing able students to stretch themselves in their written and spoken work.

✓ Critical Reading and Applied Academic Writing Skills

This module sees students concentrating on the specific writing that will be required in their taught Masters degree programme. Fostering thorough scholarly skills, additional work involves the critical reading of authentic and up to date academic articles.

✓ Quantitative Skills for Science and Engineering

In this module students will focus on statistical tools that are integrated into science and engineering problem-solving processes. Areas covered will include descriptive statistics, probability and probability distributions, significance testing within an SPC context of Control Charts, building regression models and designing and analysing experiments.

✓ Laboratory Skills and Experimental Design

This module prepares students to work safely in the laboratory and to make appropriate choices in the selection of apparatus and procedures. Students will also learn the importance of maintaining a log book from which to prepare laboratory reports in accurate and appropriate written language and visual representations of data. Emphasis will be given not only to the analysis of data, but to the recognition that factors impact on the accuracy and reliability of results and thereby potential error. Students will develop their experimental design and re-design skills.

✓ Extended Research Project

The individual project provides students with a learning experience that will enable them to carry out independent research. Students are expected to plan, research and execute their project while developing skills in critical judgement and independent working, to demonstrate engineering / scientific competence.

Content of the Pre-Masters programme

Designated modules

- ✓ Advanced Applied Mathematics

This module covers the common mathematical techniques used in the study of engineering and natural sciences. During the course, special emphasis would be given on developing students' abilities in respect of the practical application of the appropriate techniques.

- ✓ Computational Mathematics

The main aim of the course is to equip the students with basic understanding of computational mathematics. The course includes detailed study of mathematical modelling techniques that can be used across wide range of practical problems in applied mathematics, and engineering. The course will provide a base for more advance applied mathematics and engineering courses.The course will not only cover the theoretical aspects of computational mathematics, but will also include practical examples using a suitable computer software package.

In the classroom…

- Each class is on average 15 to 25 students
- Contact hours are between 15-20 yours per week
- Study time is usually smaller group work, seminars or larger lectures
- Every student has an Academic Personal Tutor who they can meet with once a week
- Students are encouraged to self-study and make the most of the library facilities (both at Queen's Campus and in Durham).
- Online study materials are available (hosted on the VLE – called DUO). Each module has the associated materials that are from each teaching session, as well as additional supporting work and extra reading/activity
- Students are sent pre-arrival study materials for foundation year before they depart their own country
- Additional trips and activities at the ISC help to support students in their studies.

Durham University

International Study Centre

Durham University has two campuses – Queen's Campus and Durham City. The International Study Centre is located at Queen's Campus at Stockton-on-Tees. There is a regular bus service between the campuses which takes 45 minutes.

BY TRAIN

Queen's Campus (Thornaby station) to

Durham City: 45min
Newcastle: 1h 15min
Manchester: 2h 10min
Edinburgh: 2h 45min
London: 3h 10min

Durham City to

Newcastle: 15min
Manchester: 2h 20min
Edinburgh: 1h 50min
London: 2h 55min

Welcome to Queen's Campus

Queen's Campus is a modern purpose-built site situated in a waterfront setting offering a wide range of facilities and study resources.

- Excellent student experience
- Safe and supportive environment
- Modern facilities – library, café, restaurant and modern sports centre on site

ISC accommodation options

Endeavour House and **Infinity House** offer safe and modern accommodation dedicated to International Study Centre students and are conveniently located on Queen's Campus- less than a 5 minute walk from the International Study Centre.

Accommodation in Endeavour House is compulsory for under 18's.

WHAT'S INCLUDED?

- En suite bedrooms with fitted desks & wardrobes
- Shared modern kitchen/communal area
- On-site launderette
- 24 hour on-site security
- High speed broadband and Wi-Fi
- Bedding and kitchen pack including a duvet and cooking utensils

HOW MUCH WILL IT COST?

Start date	Tenancy Length	Total cost (incl. bedding pack)
15/09/2018	41 weeks	£6,050.00
05/01/2019	34 weeks	£5,375.00

CATERING PACKAGE

For easy access to freshly prepared nutritious meals, students can book our catered package. The package includes a healthy breakfast and evening meal served every weekday during term-time. Meals will be provided at the Waterside student restaurant on Queen's Campus.

Catering is charged per term and is compulsory for under 18's for their first term at the International Study Centre.

September term start (15/09/18 – 07/12/18)	£600.00
January term start (07/01/19 – 22/03/19)	£550.00

Durham University

About Stockton-on-Tees

Queen's Campus, location of the Durham University International Study Centre, is a short walk from Stockton-on-Tees town centre

- Shopping, local markets and other leisure facilities (cinema, ARC theatre, bowling).
- Events held throughout the year, such as the Stockton Stages – a comedy and music festival, the Tees Regatta (rowing event) and the Riverside Festival (street theatre, circus, dance and music).
- Teeside Shopping Centre, with all the major shops, is only 10 minutes away.

The Infinity Bridge in Stockton-on-Tees

Stockton-on-Tees - Town Centre and Fountain

Ropner Park

Teeside Shopping Centre