Information on Postgraduate Research Scholarship - Ref: M^{3}4Impact			
Faculty:	Engineering and Science	**Department:**	Computing and Mathematical Sciences
Lead Supervisor:	See list of available scholarships		
Project Title:	M^{3}4Impact – PhD Student Scholarships		
Project Description:	Our vision is to expand our world-leading Multi-Disciplinary and Multi-Scale Modelling expertise in both reach and ability, to tackle major societal challenges affecting the environment, quality of life, safety, security, and the economy. This will be achieved through the amalgamation and expansion of two existing award-winning teams: the Centre for Safety, Resilience and Protective Security (CSRPS) and the Computational Science and Engineering Group (CSEG), creating the Multi-scale, Multi-disciplinary Modelling for Impact (M^{3}4Impact) platform. Both teams excel at developing and applying mathematical models, computational simulations and bespoke software to create digital worlds that predict physically accurate outcomes addressing a wide range of societal challenges. M^{3}4Impact links three cross-cutting research and enterprise themes: **Safety and Security**, led by Prof Ed Galea (e.r.galea@gre.ac.uk), covers disaster resilience, fire and evacuation, dynamically coupling urban-scale and building scale evacuation modelling, Fire Modelling and protective security incorporating real-time interactivity through Virtual/Mixed Reality (VR/MR). **Materials Science and Engineering**, led by Prof Andrew Kao (a.kao@gre.ac.uk), focuses on the design and manufacture of sustainable, lighter, stronger materials with broad applications, in the transport, aerospace, energy and biomedical sectors. This encompasses materials and process modelling targeting recyclability, low waste and energy efficiency. **Digital Cities/London**, led by Prof. Koulis Pericleous (k.pericleous@gre.ac.uk), where interdisciplinary research will develop the evidence-base to protect UK cities/populations from pollution, pathogen dispersal, natural/anthropogenic disasters and to support policy decisions using a multi-scale approach from cityscape to street level. Underpinning these themes are multi-physics and computational disciplines such as Computational Fluid Dynamics (CFD), human behaviour, Agent-Based Modelling, High Performance Computing and Artificial Intelligence (including physics informed Machine Learning). We are planning to fund a total of **17 PhD students across all three themes**, with **10 PhD studentships** in the first phase of the expansion. The PhD studentships are for up to 4 years. When specific studentships are available they will be advertised on the following site: https://fseg.gre.ac.uk/fire/positions.html For further information please see the weblink or contact, the theme leads.		
Duration:	Up to 4 years, Full-Time Study		

Bursary available (subject to satisfactory performance):

Rates below are for full time (FT) mode, part time (PT) is pro rata.

Year 1: £23,237 (£19,237 UKRI rate + London weighting = £2,000 + Enhanced bursary = £2,000)

Year 2: In line with UKRI rate + London weighting = £2,000 + Enhanced bursary = £2,000

Year 3: In line with UKRI rate + London weighting = £2,000 + Enhanced bursary = £2,000

Year 4[*]: In line with UKRI rate + London weighting = £2,000 + Enhanced bursary = £2,000

In addition, the successful candidate will receive a contribution to tuition fees, equivalent to the University Home Rate, currently £4,712 (FT) or pro-rata (PT), for the duration of their scholarship. International applicants may need to pay the remainder tuition fee for the duration of their scholarship.

This fee is subject to an annual increase.

* The bursary is for 3 years with a potential extension of up to a maximum of 12 months. Funding extensions may be granted if the student demonstrates, to the satisfaction of the $M^3$4Impact Principal Investigators and PhD supervisors, that the thesis can be completed during the granted extension period.

Person Specification of Essential (E) or Desirable (D) requirements:

Criteria:	E or D
Education and Training:	
• 1st Class or 2nd class, First Division (Upper Second Class) honours degree or a taught master's degree with a minimum average of 60% in all areas of assessment (UK or UK equivalent) in a relevant area to the proposed research project	E
• For those whose first language is not English and/or if from a country where English is not the majority spoken language (as recognised by the UKBA), a language proficiency score of at least IELTS 6.5 (in all elements of the test) or an equivalent UK VISA and Immigration secure English Language Test is required, if your programme falls within the faculty of Engineering and Science a language proficiency score of at least IELTS 6.5 overall with a minimum of 6.0 in all elements of the test or an equivalent UK VISA and Immigration secure English Language Test is required. Unless the degree above was taught in English **and** obtained in a majority English speaking country, e.g. UK, USA, Australia, New Zealand, etc, as recognised by the UKBA.	E
Experience & Skills:	
• Previous experience of undertaking research (e.g. undergraduate or taught master's dissertation)	E
• Experience in a related discipline (Note this will depend on the topic of the PhD and the M34Impact Theme (Safety and Security, Materials Science & Engineering, Digital Cities). The list is not exhaustive, but examples include: • Mathematical Modelling • Behavioural psychology • Computational Fire Engineering • Materials Science • Physics	E

• Applied Mathematics • Manufacturing • Engineering (e.g. Mechanical, Civil, Chemical) • Built Environment	
• Experience in computer programming	**D**
• Experience of numerical modelling techniques	**D**
• Experience of numerical modelling packages, e.g. OpenFOAM, COMSOL, ANSYS, STAR-CCM+, FDS, EXODUS, SMARTFIRE, or equivalent	**D**
Personal Attributes:	
• Understanding the fundamental differences between a taught degree and a research degree in terms of approach and personal discipline/motivation	**E**
• Able to, under guidance, complete independent work successfully	**E**
Other Requirements:	
• This scholarship may require Academic Technology Approval Scheme approval for the successful candidate if from outside of the EU/EEA	**E**
• Start date is flexible and will be agreed with supervisory team and M^{3}4Impact Programme Leads	**E**
Closing date for applications:	*N/A – Open Call*
For further information contact:	**Prof Ed Galea – Safety and Security (e.r.galea@gre.ac.uk)** **Prof Andrew Kao – Materials Science and Engineering (a.kao@gre.ac.uk)** **Prof. Koulis Pericleous – Digital Cities (k.pericleous@gre.ac.uk)**

Making an application:
Please read this information before making an application. Information on the application process is available at: https://www.gre.ac.uk/research/study/apply/application-process. Applications need to be made online via this link. **No other form of application will be considered**.

All applications **must include** the following information. **Applications not containing these documents will not be considered.**
- **Scholarship Reference Number (Ref)** – Clearly included "M^{3}4Impact" in the personal statement section together with your personal statement as to why you are applying
- **a CV including 2 referees** *
- **academic qualification certificates/transcripts and IELTs/English Language certificate if you are an international applicant or if English is not your first language or you are from a country where English is not the majority spoken language as defined by the UK Border Agency** *

upload to the qualification section of the application form. Attachments must be a PDF format.

Before submitting your application, you are encouraged to liaise with the Lead Supervisor if known or the research theme leads identified above.