Queen's University Belfast

Candidate Information

Position:	Research Fellow
School/Department:	School of Mechanical and Aerospace Engineering
Reference:	19/107193
Closing Date:	Tuesday 12 March 2019
Salary:	£33,199 - £39,610 per annum (potential to progress to £43,266 per annum through sustained exceptional contribution)
Duration:	2 years

JOB PURPOSE:

To join the Advanced Composites Research Group (ACRG) in the School of Mechanical and Aerospace Engineering at Queen's University Belfast, and contribute to world-leading research in the modelling of composite materials and structures.

Develop research proposals, for submission to funding bodies, under the guidance of the Principal Investigator.

MAJOR DUTIES:

1. Develop a detailed research project plan with the Principal Investigator.
2. Familiarisation with current computational research activities within the Group.
3. Develop new funding proposals under the guidance of the Principal Investigator.
4. Be an effective member of a multidisciplinary research group.
5. Present regular research progress reports to members of the research group and industry partners.
6. Disseminate and publicise research findings.
7. Prepare material for publication in leading journals and presentations at international conferences.
8. Carry out administrative tasks associated with the research project to ensure that the project is completed on time and within budget. These might include organisation of project meetings and documentation, financial control, risk assessment of research activities.
9. Assist in the supervision of PhD students within the Group.
10. Supervise undergraduate final year projects and MSc thesis projects.
11. Carry out occasional demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
12. Keep abreast of new developments in the specific area of research and related disciplines.

Planning and Organising:

1. Develop a planned programme of work.
2. Develop a timeline for the submission of research proposals.
3. Plan own day-to day activities within the agree framework.
4. Plan up to a year in advance to meet deadlines for journal publications and to prepare presentations and papers for conferences.
5. Coordinate and liaise with other members of the research group over work progress.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Provide guidance as required to support staff, within the research group, and any PhD/MSc/UG students who may be assisting with research.

Internal and External Relationships:

1. Liaise on a regular basis with colleagues, students and industry partners.

2.   Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
3.   Join external networks to share information and ideas.
4.   Contribute to the School's outreach programme by establishing links with local community groups, industries etc.

ESSENTIAL CRITERIA:
1.   A PhD in some aspect of computational modelling of composites
2.   2:1 or higher honours degree in mechanical/aerospace/materials engineering or closely related field.
3.   3 years relevant research experience with
      • A sufficient breadth of knowledge of composite materials and their utilisation.
      • A knowledge of composite damage mechanics.
      • A thorough understanding of the Finite Element Method and computational modelling.
      • Experience in Fortran coding.
      • An understanding of structural testing and material characterisation methods.
      • Experience in proposal writing and research programme development.
4.   Assisting in the supervision of undergraduate research projects.
5.   Ability to plan and manage a research project.
6.   Ability to communicate complex information clearly.
7.   Excellent communication skills
8.   Ability to build contacts and participate in internal and external networks.
9.   Demonstrable intellectual ability.
10.   Ability to assess and organise resources.

DESIRABLE CRITERIA:
1.   A PhD utilising or developing any of the following computational approaches in the modelling of composites:
      1. uncertainty quantification,
      2. multiscale modelling
      3. multiphysics modelling
2.   Any of the following:
      1. Experience of coding using Python or other scripting languages.
      2. Experience of coding in C/C++.
      3. Experience in using ABAQUS finite element software.
      4. Writing subroutines for ABAQUS.
      5. An understanding of other computational methods such as peridynamics and/or meshless methods.
      6. A working knowledge of computational damage mechanics.
      7. A working knowledge of multiscale modelling.
3.   Experience of working with industry on research programmes.