

# **PGDip Structural Engineering**

<b>Final award</b>	PGDip
<b>Intermediate awards available</b>	PGCert
<b>Mode of delivery</b>	UEL on campus
<b>Details of professional body accreditation</b>	N/A
<b>Relevant QAA Benchmark statements</b>	Masters in Engineering (MEng)
<b>Date specification last updated</b>	October 2015

## **The summary - Programme advertising leaflet**

### **Programme content**

The aim of the programme is to meet the needs of engineers engaged in the field of structural engineering and enhance their expertise in this area.

### **PGDip in Structural Engineering at UEL**

The programme offers several optional and self-contained modules in the field of Structural Engineering. Different areas, such as structural analysis of building structures and bridges, design in steel and concrete, dynamic analysis of structures, earthquake engineering, soil structure engineering, etc., are covered through the optional modules of this programme.

This programme has been developed from the PGDip Programme in Civil Engineering, owing to the wide offer of modules in the area of Structural Engineering. Postgraduate programmes in the field of Civil Engineering and Surveying have been successfully run at the UEL since 1964.

### **Entry requirements**

- BEng(Hons) minimum class 3 or BSc (Hons) minimum 2:2, both in Civil Engineering
- Appropriate professional qualifications such as MICE or MIStructE
- Applicants with other qualifications will be considered on an individual basis

In the case of applicants whose first language is not English, then IELTS Academic 6.0 Overall, with no less than 6.0 in writing and speaking and 5.5 in reading and listening components, or

equivalent, is required. International qualifications will be checked for appropriate entry to UK Higher Education postgraduate programmes.

Students who apply to enter stages of the programme may be admitted through normal Accreditation of Experiential Learning (AEL) or Accreditation of Certificated Learning (ACL) processes, or through an approved articulation agreement. Therefore such applicants must be able to demonstrate and evidence that they have the required learning outcomes as listed in the modules for which they are seeking exemption.

At UEL we are committed to working together to build a learning community founded on equality of opportunity - a learning community which celebrates the rich diversity of our student and staff populations. Discriminatory behaviour has no place in our community and will not be tolerated. Within a spirit of respecting difference, our equality and diversity policies promise fair treatment and equality of opportunity for all. In pursuing this aim, we want people applying for a place at UEL to feel valued and know that the process and experience will be transparent and fair and no one will be refused access on the grounds of any protected characteristic stated in the Equality Act 2010.

## **Programme structure**

The programme can be taken either in part-time or full-time mode. The PGDip is offered for full-time students with the possibility of being complete in one academic year. The PGDip for part-time students has half load during the semesters and, consequently, the length of these studies is doubled. Part-time students require two years to complete the PGDip programme.

Enrolment on the programme is possible either in semester A (starting in September, comprising the academic period from September to January) or semester B (starting in February, comprising the academic period from February to May).

The programme consists of four optional 30-credit modules. The common schedules for PGDip students are included below:

- Full-time PGDip student starting in semester A:
- Semester A (1st year): two 30-credit modules
- Semester B (1st year): two 30-credit modules
- Full-time PGDip student starting in semester B:
- Semester B (1st year): two 30-credit modules
- Semester A (1st year): two 30-credit modules
- Part-time PGDip student starting in semester A:
- Semester A (1st year): one 30-credit module
- Semester B (1st year): one 30-credit module
- Semester A (2nd year): one 30-credit module
- Semester B (2nd year): one 30-credit module
- Part-time PGDip student starting in semester B:
- Semester B (1st year): one 30-credit module
- Semester A (1st year): one 30-credit module
- Semester B (2nd year): one 30-credit module
- Semester A (2nd year): one 30-credit module
- The maximum registration period is six years.

Students require one 30-credit module for a Postgraduate Associate Certificate, two 30-credit modules for the PGCert, (Intermediate awards) and four 30-credit modules for the PGDip.

## **Learning environment**

Teaching methods include lectures, tutorials, seminars, laboratory work and external site visits, and web based learning is also employed.

## **Assessment**

Assessment is by a mix of coursework and end of semester examination. The aggregate pass mark for a module is 50% with minimum module component mark of 40%.

Students with disabilities and/or particular learning needs should discuss assessments with the Programme Leader to ensure they are able to fully engage with all assessment within the programme.

## **Relevance to work/profession**

Our teaching is informed by strong links with industry and the profession.

## **Added value**

Transfer from the PGDip to the MSc programme in Structural Engineering is possible depending on results achieved, and students may obtain details of current requirements from the programme leader.

## **Your future career**

Structural engineers with postgraduate qualifications find a wide range of career opportunities with consultancy, contractor and client organisations, as well as other related areas such as research and management.

## **How we support you**

You may approach staff for help with personal or academic problems either in person or by e-mail. A programme handbook provides all relevant information on the programme and the teaching resources.

## **Programme aims and learning outcomes**

### **What is this programme designed to achieve?**

This programme is designed to give you the opportunity to:

- Gain in-depth knowledge and understanding of the structural behaviour and design of different types of structures (building structures, bridges, roof structures, foundations, etc) with different structural materials.
- Gain in-depth knowledge and understanding of the loads (types, assessment, modelling) that has to be considered in the design of structures. Special attention will be paid to earthquake actions.
- Gain in-depth knowledge and understanding of the most up-to-date techniques for modelling and analysing the structural behaviour of structures
- Gain in-depth knowledge and understanding of the response of structural materials and appropriate design criteria of different structural elements
- Gain in-depth knowledge of the construction methods of different structures and how the construction method determines the internal forces
- Understand the role of the structural engineer as an important professional in society and the built environment
- Deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate conclusions clearly to specialist and non-specialist audiences
- Demonstrate self-direction and originality in solving problems, and act autonomously in planning and implementing tasks at a professional level
- Advance knowledge and understanding, and to develop new skills to a high level

## **What will you learn?**

### **Knowledge**

Understand the latest theories and practices in:

- Advanced analysis of structures
- Structural dynamics
- Earthquake engineering
- Design of structures
- Design in steel and concrete
- Building structures, roof structures, and bridges
- Soil structure engineering
- Relevant scientific principles of the specialisation.
- New and emerging technologies.
- Appropriate models for solving problems in engineering, and the ability to assess the limitations of particular cases.

### **Thinking skills**

Develop skills in:

- Development of models for the analysis of structures and their foundations
- Analysis of data related to the material properties, accuracy of models, suitability of models, the structural response, etc.
- Solving practical problems and design of structural elements
- Critical assessment
- Applying original thought to the development of practical solutions for products, systems, components or processes.
- Developing a thorough understanding of current practice and its limitations, and some appreciation of likely new developments.

- Developing advanced level knowledge and understanding of a wide range of engineering materials and components.
- Making general evaluations of risks through some understanding of the basis of such risks.

### **Subject-Based Practical skills**

Ability to:

- Use computer design packages
- Use office packages
- Complete design projects
- Use current codes and relevant structural guidelines
- Apply engineering techniques taking account of a range of commercial and industrial constraints

### **Skills for life and work (general skills)**

Ability to:

- Communicate effectively both verbally and in writing
- Work as a part of a design team
- Plan the work in advance, estimate the resources required, comply with deadlines and submit works in time
- Exercise initiative and personal responsibility, which may be as a team member or leader.
- Learn new theories, concepts, methods etc and apply these in unfamiliar situations.
- Develop, monitor and update a plan, to reflect a changing operating environment.

## **The programme structure**

### **Introduction**

All programmes are credit-rated to help you to understand the amount and level of study that is needed.

One credit is equal to 10 hours of directed study time (this includes everything you do e.g. lecture, seminar and private study).

Credits are assigned to one of 5 levels:

- |   |   |
|---|---|
| 3 | equivalent in standard to GCE 'A' level and is intended to prepare students for year one of an undergraduate degree programme |
| 4 | equivalent in standard to the first year of a full-time undergraduate degree programme  |
| 5 | equivalent in standard to the second year of a full-time undergraduate degree programme                                       |
| 6 | equivalent in standard to the third year of a full-time undergraduate degree programme  |
| 7 | equivalent in standard to a Masters degree  |

### **Credit rating**

The overall credit-rating of this programme is 120 for PGDip, 60 for PGCert and 30 for PGAssCert.

## Typical duration

The duration of this programme is 9 months full time if the enrolment is in September, and 21 months part time. For February enrolment, the duration becomes one year full time and two years part time.

It is possible to move from full-time to part-time study and vice-versa to accommodate any external factors such as financial constraints or domestic commitments. Many of our students make use of this flexibility and this may impact on the overall duration of their study period.

## How the teaching year is divided

The teaching year is divided into two semesters of roughly equal length. A typical student registered in a full-time attendance mode will study two 30-credit modules per semester and a typical student registered in a part-time attendance mode will study one 30-credit module per semester.

## What you will study when

Level	UEL Module Code	Available by distance learning (Y/N)	Module Title	Credit	Status
7	EG7004	N	Soil Structure Engineering	30	Option
7	EG7005	N	Design in Steel and Concrete	30	Option
7	EG7006	N	Advanced Structural Analysis	30	Option
7	EG7010	N	Structural Dynamics and Earthquake Engineering	30	Option
7	EG7015	N	Design in Timber and Masonry	30	Option

**Please Note – All modules greater than 20 credits are non-compensatable**

## Requirements for gaining an award

In order to gain a Postgraduate Certificate, you will need to obtain 60 credits at Level 7.

In order to gain a Postgraduate Diploma, you will need to obtain 120 credits at Level 7

In order to obtain a Masters, you will need to obtain 180 credits at Level 7. These credits will include a 60 credit level 7 core module of advanced independent research.

## Masters Award Classification

Where a student is eligible for an Masters award then the award classification is determined by calculating the arithmetic mean of all marks and applying the mark obtained as a percentage, with all decimal points rounded up to the nearest whole number, to the following classification

70% - 100%	Distinction
60%- 69%	Merit
50% - 59%	Pass
0% - 49%	Not passed

## Teaching, learning and assessment

### Teaching and learning

Knowledge is developed through:

- Lectures
- Tutorials
- Seminars
- Site visits

Thinking skills developed through:

- Coursework
- Mini projects

Practical skills:

- Laboratory experiments
- Design projects

Skills for life developed through:

- Seminars
- Presentation of analysis data

### Assessment

Knowledge is assessed by:

- Coursework
- Examinations

Thinking skills are assessed by:

- Solutions to practical problems
- Evaluation of literature

- Evaluation of experimental data

Practical skills are assessed by:

- Use of design aids
- Use of computer aided design packages
- Laboratory experiments

Skills for life are assessed by:

- Seminars
- Design drawings
- Oral examinations

## **How we assure the quality of this programme**

### **Before this programme started**

Before this programme started, the following was checked:

- there would be enough qualified staff to teach the programme;
- adequate resources would be in place;
- the overall aims and objectives were appropriate;
- the content of the programme met national benchmark requirements;
- the programme met any professional/statutory body requirements;
- the proposal met other internal quality criteria covering a range of issues such as admissions policy, teaching, learning and assessment strategy and student support mechanisms.

This is done through a process of programme approval which involves consulting academic experts including some subject specialists from other institutions.

### **How we monitor the quality of this programme**

The quality of this programme is monitored each year through evaluating:

- external examiner reports (considering quality and standards);
- statistical information (considering issues such as the pass rate);
- student feedback.

Drawing on this and other information, programme teams undertake the annual Review and Enhancement Process which is co-ordinated at School level and includes student participation. The process is monitored by the Quality and Standards Committee.

Once every six years an in-depth review of the whole subject area is undertaken by a panel that includes at least two external subject specialists. The panel considers documents, looks at student work, speaks to current and former students and speaks to staff before drawing its conclusions. The result is a report highlighting good practice and identifying areas where action is needed.

### **The role of the programme committee**



This programme has a programme committee comprising all relevant teaching staff, student representatives and others who make a contribution towards the effective operation of the programme (e.g. library/technician staff). The committee has responsibilities for the quality of the programme. It provides input into the operation of the Review and Enhancement Process and proposes changes to improve quality. The programme committee plays a critical role in the quality assurance procedures.

### **The role of external examiners**

The standard of this programme is monitored by at least one external examiner. External examiners have two primary responsibilities:

- To ensure the standard of the programme;
- To ensure that justice is done to individual students.

External examiners fulfil these responsibilities in a variety of ways including:

- Approving exam papers/assignments;
- Attending assessment boards;
- Reviewing samples of student work and moderating marks;
- Ensuring that regulations are followed;
- Providing feedback through an annual report that enables us to make improvements for the future.

The external examiner reports for this programme are located on the UEL virtual learning environment (UELPlus / Moodle) on the school notice board under the section entitled 'External Examiner Reports & Responses'. You can also view a list of the external examiners for the UEL School by clicking on the link below.

<http://www.uel.ac.uk/ga/CurrentExternalExaminers.htm>

### **Listening to the views of students**

The following methods for gaining student feedback are used on this programme:

- Module evaluations
- Student representation on programme committees

Students are notified of the action taken through:

- circulating the minutes of the programme committee
- providing charts on student feedback on the programme notice board

### **Listening to the views of others**

The following methods are used for gaining the views of other interested parties:

- Questionnaires to former students
- Industrial liaison committee

## Further information

### Where you can find further information

Further information about this programme is available from:

- The UEL web site (<http://www.uel.ac.uk>);
- The student handbook;
- Module study guides;
- UEL Manual of General Regulations (<http://www.uel.ac.uk/ga/>);
- UEL Quality Manual (<http://www.uel.ac.uk/ga/>);
- Regulations for the Academic Framework (<http://www.uel.ac.uk/academicframework/>);
- School web pages ([www.uel.ac.uk/ace](http://www.uel.ac.uk/ace));