

## PROGRAMME SPECIFICATION

### KEY FACTS

|                          |                                  |
|--------------------------|----------------------------------|
| Programme name           | MSc Civil Engineering Structures |
| Award                    | MSc                              |
| School                   | School of Science & Technology   |
| Department or equivalent | Engineering                      |
| Programme code           | PSCEST                           |
| Type of study            | Full Time    Part Time           |
| Total UK credits         | 180                              |
| Total ECTS               | 90                               |

### PROGRAMME SUMMARY

Civil engineering structures represent synergy of creative design, analytical modelling and construction technology of the time. While we still marvel structures from ancient times today's structural engineers enable construction of modern infrastructure that marks our times. The Department of Civil Engineering offers a unique academic environment with many opportunities for creative design, research and professional engagement both at the University and with professional institutions and well known consulting engineers that are located in the vicinity. Experts from industry are regularly invited to provide insight into state of the art in structural engineering and diverse career opportunities.

The programme is structured in a flexible manner to enable both full-time and part-time study.

#### Aims

The aims of the programme are:

- To meet the needs of the industry for engineers with a practical understanding of the nature of hazardous loading on structures arising out of fire, earthquakes, blast, impact and extreme wind loading.
- To provide postgraduate education and training in an area of great importance, namely, the analysis and design of structures for safety against natural and man-made hazards and thus enhance the career prospects of both recent graduates and mid-career structural engineers.
- To provide practical experience in the use of computers and information technologies in solving advanced structural analysis and design problems.
- To achieve qualification parity with engineering graduates in Europe where undergraduate programme are commonly four years or more of duration) and thus contribute towards increasing the competitiveness of UK industry.

#### **MSc Civil Engineering Structures**

On completion of the MSc in Civil Engineering Structures you will demonstrate application of knowledge in structural analysis and design for a range of structural forms subject to different loading conditions using advanced methods and statutory codes of practice and show originality in your choice of approaches to practice. You

will have engaged in research or scholarly activity that contributes new knowledge or methodology to structural analysis and design.

### **Postgraduate Diploma in Civil Engineering Structures**

On completion of the Postgraduate Diploma in Civil Engineering Structures you will demonstrate application of knowledge in structural analysis and design for a range of structural forms subject to different loading conditions using advanced methods and statutory codes of practice and show originality in your choice of approaches to practice.

### **Postgraduate Certificate in Civil Engineering Structures**

On completion of the Postgraduate certificate in Civil Engineering Structures you will demonstrate some application of knowledge in structural analysis and design for a few structural forms subject to diverse loading conditions using some advanced methods and statutory codes of practice.

## **WHAT WILL I BE EXPECTED TO ACHIEVE?**

**On successful completion of this programme, you will be expected to be able to:**

### Knowledge and understanding:

- Knowledge of advanced methods of analysis of structures, including linear and nonlinear Finite Element Analysis
- Comprehensive understanding of the behaviour of structures, especially stability and dynamics
- Extensive knowledge of the underlying principles of modern methods of design of structures using concrete, steel or composite construction
- Intensive knowledge of some of the specialised aspects of the design of building and bridge structures.
- Wide knowledge of information technology aimed at increasing productivity in practice and for improved communication of results of design and analysis
- Knowledge of structural reliability theory and understanding of concepts relating to structural risk assessment.

### Skills:

- Thorough understanding of current practice and its limitations in the design of steel, concrete and composite construction.
- Ability to formulate, critically analyse and test concepts and hypotheses for innovative solutions.
- Enhanced communication of results of design and analysis through the use of information technology
- Creativity in developing design schemes and ability to apply codified rules for the design of safe structures.

### Values and attitudes:

- Rational solutions to problem with a professional approach

This programme has been developed in accordance with the QAA Subject Benchmark for Engineering.

### **HOW WILL I LEARN?**

The teaching and learning strategy is based on lectures, supported wherever appropriate by coursework, especially engineering design. Individual design modules may adopt Problem Based Learning approach.

The research project (dissertation) is aimed at preparing students to deal with complex problems systematically. The process includes literature search, assimilation of previous work, an experimental or parametric investigation, judgment on the results obtained and communication of research results obtained.

### **WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?**

#### Assessment and Assessment Criteria

Assessment for the programme is based on coursework and written examinations. The assessment strategy is that main fundamental and theoretical topics are primarily assessed by written examinations, applied (practice oriented) topics are assessed by design projects, and computer oriented modules are assessed by online exercises (coursework).

The research project is assessed through a dissertation.

Assessment Criteria are descriptions, based on the intended learning outcomes, of the skills, knowledge or attitudes that you need to demonstrate in order to complete an assessment successfully, providing a mechanism by which the quality of an assessment can be measured. Grade-Related Criteria are descriptions of the level of skills, knowledge or attributes that you need to demonstrate in order to achieve a certain grade or mark in an assessment, providing a mechanism by which the quality of an assessment can be measured and placed within the overall set of marks. Assessment Criteria and Grade-Related Criteria will be made available to you to support you in completing assessments. These may be provided in programme handbooks, module specifications, on the virtual learning environment or attached to a specific assessment task.

#### Feedback on assessment

Feedback will be provided in line with our Assessment and Feedback Policy. In particular, you will normally be provided with feedback within three weeks of the submission deadline or assessment date. This would normally include a provisional grade or mark. For end of module examinations or an equivalent significant task (e.g. an end of module project), feedback will normally be provided within four weeks. The timescale for feedback on final year projects or dissertations may be longer. The full policy can be found at:

### Assessment Regulations

In order to pass your Programme, you should complete successfully or be exempted from the relevant modules and assessments and will therefore acquire the required number of credits. You also need to pass each Part of your Programme in order to progress to the following Part.

The pass mark for each module is 50%, the pass mark for all assessment components is also 50%.

If you fail an assessment component or a module, the following will apply:

1. Compensation: where you fail up to a total of 20 credits at first or resit attempt (15 for a Postgraduate Certificate), you may be allowed compensation if:
  - Compensation is permitted for the module involved (see the What will I Study section of the programme specification), and
  - It can be demonstrated that you have satisfied all the Learning Outcomes of the modules in the Programme, and
  - A minimum overall mark of no more than 10% below the module pass mark has been achieved in the module to be compensated, and
  - An aggregate mark of 50% has been achieved overall.

Where you are eligible for compensation at the first attempt, this will be applied in the first instance rather than offering a resit opportunity.

If you receive a compensated pass in a module you will be awarded the credit for that module. The original component marks will be retained in the record of marks and your original module mark shall be used for the purpose of your Award calculation.

2. Resit: Where you are not eligible for compensation at the first attempt, you will be offered one resit attempt.

If you are successful in the resit, you will be awarded the credit for that module. The mark for each assessment component that is subject to a resit will be capped at the pass for the module. This capped mark will be used in the calculation of the final module mark together with the original marks for the components that you passed at first attempt.

If you do not meet the pass requirements for a module and do not complete your resit by the date specified you will not progress and the Assessment Board will require that you be withdrawn from the Programme.

If you fail to meet the requirements for the Programme, the Assessment Board will consider whether you are eligible for an Exit Award, as per the table below.

If you would like to know more about the way in which assessment works at City, please see the full version of the Assessment Regulations at:  
[http://www.city.ac.uk/data/assets/word\\_doc/0003/69249/s19.doc](http://www.city.ac.uk/data/assets/word_doc/0003/69249/s19.doc)

## WHAT AWARD CAN I GET?

### Master's Degree:

| Part                    | HE Level | Credits | Weighting (%) |
|-------------------------|----------|---------|---------------|
| Taught                  | 7        | 120     | 67            |
| Research / Dissertation | 7        | 60      | 33            |

| Class                  | % required |
|------------------------|------------|
| With Distinction       | 70         |
| With Merit             | 60         |
| Without classification | 50         |

### Postgraduate Diploma:

| Part   | HE Level | Credits         | Weighting (%) |
|--------|----------|-----------------|---------------|
| Taught | 7        | Use all credits | 100           |

| Class                  | % required |
|------------------------|------------|
| With Distinction       | 70         |
| With Merit             | 60         |
| Without classification | 50         |

### Postgraduate Certificate:

| Part   | HE Level | Credits | Weighting (%) |
|--------|----------|---------|---------------|
| Taught | 7        | 60      | 100           |

| Class                  | % required |
|------------------------|------------|
| With Distinction       | 70         |
| With Merit             | 60         |
| Without classification | 50         |

## WHAT WILL I STUDY?

The programme is structured into taught modules, of which each all core modules the student must take, and electives modules, of which the student must take three.

| Module Title                               | SITS Code | Module Credits | Core/ Elective | Can be Compensated? | Level |
|--|-----------|----------------|----------------|---------------------|-------|
| Taught modules                             |           |                |                |                     |       |
| Structural Reliability and Risk            | EPM719    | 10             | C              | Y                   | 7     |
| Advanced Structural Analysis and Stability | EPM717    | 20             | C              | Y                   | 7     |
| Dynamics of Structures                     | EPM704    | 15             | C              | Y                   | 7     |
| Finite Element Methods                     | EPM707    | 15             | C              | Y                   | 7     |

|  |        |    |   |   |   |
|--|--------|----|---|---|---|
| Design of Reinforced and Prestressed Concrete Structures               | EPM711 | 15 | C | N | 7 |
| Design of Steel and Composite Structures                               | EPM712 | 15 | C | N | 7 |
| Earthquake Analysis of Structures                                      | EPM720 | 15 | E | Y | 7 |
| Analysis of steel and concrete structures for blast and fire exposure* | EPM718 | 15 | E | N | 7 |
| Bridge Engineering   | EPM715 | 15 | E | N | 7 |
| Information Management and BIM in Construction                         | EPM957 | 15 | E | Y | 7 |
| Research modules   |        |    |   |   |   |
| Dissertation   | EPM949 | 60 | C | N | 7 |

A student will be permitted to complete a dissertation only if the requirement of 120 credits from taught modules has been met.

Some modules may be subject to change depending on the student numbers, tutor availability, or course updates. This may affect the overall number of modules being delivered in any year. Please contact the School directly if you wish to confirm a particular module is running.

\*This module is suspended in 2022/23

#### TO WHAT KIND OF CAREER MIGHT I GO ON?

If you would like more information on the Careers support available at City, please go to: <http://www.city.ac.uk/careers/for-students-and-recent-graduates>.

#### WHAT STUDY ABROAD OPTIONS ARE AVAILABLE?

- From time to time opportunities could arise for study abroad. Such opportunities are usually through Erasmus programmes and students would be encouraged to apply.

#### WHAT PLACEMENT OPPORTUNITIES ARE AVAILABLE?

- There are no formal arrangements for industrial placements.

#### WILL I GET ANY PROFESSIONAL RECOGNITION?

**Accrediting Body:** Joint Board of Moderators,  
Institution of Civil Engineers,  
Institution of Structural Engineers

**Nature of Accreditation**

Approved Further learning schemes for CEng  
JBM review and visit for all Civil Engineering programmes (UG and PG)

### **HOW DO I ENTER THE PROGRAMME?**

Applicants are normally expected to have at least a second class honours degree in Civil Engineering and to have demonstrated good performance in relevant modules taken as part of their undergraduate studies.

For those overseas applicants, whose first language is not English or their country has not been exempted from the English language requirement by the UK Home Office, they will need to provide one of the following English test qualifications:

IELTS: 6.5 - OR

TOEFL 92

There is no provision for RPEL.

Version: 9.0

Version date: May 2022

For use from: 2022/23