Tender for Design Industrial Partner 2018-2020

The Department of Civil, Environmental and Geomatics Engineering (CEGE) seeks tenders from interested industrial organisations to provide direct input into the teaching of civil engineering design to undergraduate civil engineering students for an initial period of two years from appointment. The Design Industrial Partner will work in close collaboration as an integral partner with academic staff who lead and deliver design teaching and learning.

As an integral partner in the delivery of design teaching/learning and a core part of the Design Teaching Team, the Design Industrial Partner will have opportunity to inform and influence the direction and detail of design education in CEGE.

**Tenders will be judged solely on the basis of best value for our students.** The contract for this service will run initially for the period of 2018-2020 for a fee of £42,000 per year.

**Closing date for tenders will be the 24th August 2018**

The anticipated likely acceptable minimum provision of service is:

1. 30 working days tutorial support (1 day per week Terms 1+2)
2. 25 half day meetings/attendance at presentations and the like
3. 30 2hr teaching sessions
4. 35 hours of further support/resource

**Tender Submission**

The tender submission shall include the following:

1. A formal letter of support from the business to undertake this service
2. Details of the service lead which should include a detailed C.V., and a personal statement supporting their interest to contribute to the intrinsic education of the next generation of civil engineers and why he/she should lead this core part of our educational provision
3. Details of staff with C.V’s, who will support the service provision
4. A financial breakdown of the provision of proposed service
5. Parts of the service that will be provided from outside of the business
6. Details of value added provision to the service which makes it a unique offer – this must be specific too the provision of education to our undergraduates
CEGE Design Teaching and Learning

The CEGE is committed to: holding and maintaining a very broad interpretation of ‘civil engineering’. This clearly differentiates us from competitors in the UK and internationally and is specifically intended to prepare our graduates for the working place to level which visibly exceeds that of other educational institutions.

Students on the undergraduate civil engineering programme may undertake a very broad range of optional modules from Year 2, some of these modules may be perceived to be none traditional civil engineering in content or context. This philosophy underpins our ambition to produce civil engineering graduates who on graduation will go on to have a significant impact whether in the UK or internationally and ‘Change the world for the better’.

Design teaching and learning is undertaken in Years 1, 2 of the combined MEng and BEng undergraduate programme and in Year 4 of the MEng undergraduate programme where the MEng cohort are combined with MSc students who elect to undertake the Integrated Design Project Module. All teaching and learning across the programmes is delivered through group-based project work, using actual or credible real world scenarios and projects. Typically the project working groups vary in size from 4-8 students.

The underpinning philosophy of our design problem-based learning approach is to use traditional subject teaching as a spring board and apply it to civil engineering problems. However as would be expected the application of taught theory to real world situations is a significant step for students and to support this step change, civil engineers with practical industry experience are appointed in various roles – full or part time academic staff, as a consultancy service or on a temporary basis, to show and lead practice in both a group and individual context at various stages of the programmes.

Overview of current Design Teaching and Learning

Year 1:

This is delivered through three modules:

- **Challenges** – these are run in conjunction with other departments in the Engineering Faculty.
- **Scenarios** – there are a number of these where a specific situation is used as the basis of project work. An example of a typical project is an off-shore renewable energy wind array.
- **Design and Professional Skills** – has a core design element; the objective of the project work is to illustrate basic engineering principles such as overturning, stability flood control, sustainability and ‘design process’.
Year 2:

The delivery of teaching/learning is similar to Year 1 with the exception of:

- The Design and Professional Skills module has a significant design project to be undertaken. This is typically based on timber engineering (to broaden the materials aspect of the overall undergraduate programme). The student assignment is the submission of a broad Design Report which is a significant proportion of the module. Industry partners are specifically involved in supporting this project.

Year 4:

This is delivered through the Integrated Design Project – this is the equivalent of 4 standard modules and is undertaken across the academic year. This is a unique programme in the UK and possibly globally. The IDP is a simulation of a real design office experience working on a major global project – typically with a value in the realm of £500million plus. It is a major aspect of the Masters programme and very highly regarded by industry. It is the culmination of the educational journey and prepares our graduates to step across into the world of work very successfully. We endeavour to treat our students undertaking IDP no longer as students but as colleagues, this supports the transition to the workplace and all the teaching team ‘buying into’ their individual success.

The IDP directly contributes a significant component of an individual student’s final award from the College. It has a reputation for being demanding, challenging and a very high work commitment. It is essential that the whole teaching team, recognise this and contribute directly and enthusiastically, to a positive and highly supportive environment in which each student can flourish.

Each individual undertaking IDP values the benefit of having extensive access to industry partners highly.

The Industry Partner will be instrumental in supporting the delivery of IDP, providing expertise in design, practical knowledge, inspiration and support to the cohort. The large majority of the Industrial Partners involvement in CEGE will be directed to supporting the IDP under the direction of academic staff.

Student assignments are in the form of design reports typically with a number of A1 drawings, both group and individual submissions.

The principle written submissions are:

- Group submissions: A report consisting of about 10 pages A3 plus 4 sheets A1 – four in the year; currently: November, Christmas break, Easter break, end of Term 3
- Individual submission: An extended design report consisting of about 25 pages A3 plus 4 sheets of A1 drawings all based on evidence of design work undertaken

There are a number of formal group presentations during the academic year undertaken to the cohort, mentors, academic staff and the teaching team
**Provision of Service**

The provision of service is as below:

To provide multi-disciplinary design expertise and support to students under undergraduate design modules within CEGE. Whilst not be restricted to only the following the key areas of expertise which are to be available are:

- **Structural Engineering**: bridge and building structures (incl. tall buildings), dynamic assessment, wind loading assessment
- **Geotechnical Engineering**: traditional deep and shallow foundations, tunnelling, station box, settlement assessment, retaining solutions
- **Drainage and Hydraulics**: Surface and Foul drainage in both urban and non-urban environments, SUDS, scour both non-maritime and maritime
- **Roads and Transport**: Transportation systems, roads design, traffic prediction, pedestrian design

It must be recognised that whilst we are educating for current working practice and technologies we are also educating the future global engineers and influencers. In all teaching and learning opportunities the Design Industrial Partner will support and champion Sustainability, Creativity, Health & Safety and Constructability.

All resources which are provided to deliver the Service should be empathetic to students and passionate about supporting their success. A high level of English written and verbal communication skill is required as is a respect for the individuality of our cohort. CEGE attracts students globally any person engaged with the programme must respect all students.

The Design Industrial Partner shall deliver all activities undertaken within CEGE in accordance with all UCL policies and processes and specifically Health & Safety, Diversity and Equality, Equal Opportunity.

1. **Year 1**

   1.1. Engage in and support the development of new Scenarios and delivery of the same.
   1.2. Support the creation of short design projects which illustrate basic civil engineering concepts

2. **Year 2**

   2.1. Engage in and support the development of new Scenarios and the delivery of the same
   2.2. Inform and support the creation of new Design Projects for group-based assignments

   a. Prepare and deliver up to 6 No. 2hr teaching sessions on timber engineering or similar
b. For a specific time during each week have an engineer/engineers available to be consulted by students whilst undertaking the Design Project.

c. Undertake the 1st Marking and provide detailed feedback of the Design Project within the UCL policy assignment return period of three working weeks from submission.

d. Contribute to presentation judging panels along with academic staff.

3. Year 4

3.1. To provide at a minimum one day per week tutoring presence in CEGE on a day which corresponds to the IDP timetabled sessions – currently Wednesday and Thursday.

3.2. To engage in support the creation of four new IDP project briefs each academic year.

3.3. To provide individual workshops and teaching sessions on a range of specialist civil engineering topics to support IDP students during their individual project work.
   a. The design of foul and surface water drainage systems
   b. Roads and pavement design
   c. Project costing
   d. Project management
   e. Structural dynamics
   f. Bridge design – both heavy traffic and pedestrian bridges
   g. Maritime structures
   h. Building Physics
   i. Façade Design
   j. Architectural and Creative design

*The above list is not exhaustive – it is acceptable for the Design Industrial Partner to use their own networks to contribute to this.

3.4. To give students specific support during the developed design phase of the IDP on subjects such as Finite Element Modelling, Revit, AutoCad. It is anticipated that these sessions will be held in the Design Industrial Partners offices.
Criteria basis

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<th>Experience and knowledge</th>
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<td>Demonstrable current industrial expertise in the design of one and preferably more of the core specialisms of Civil Engineering.</td>
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<td>Excellent knowledge of analysis and design strategies and tools in current industrial technologies.</td>
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<td>A minimum of 5 years professional practice</td>
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<td>Experience of mentoring graduate students</td>
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<th>Skills and abilities</th>
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<td>Ability to develop and deliver teaching.</td>
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<td>Ability to communicate clearly both orally and in writing, with students, academic and administrative staff at all levels.</td>
<td>Essential</td>
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<td>Ability to work harmoniously with colleagues and students of all cultures and backgrounds.</td>
<td>Essential</td>
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<td>Ability to work in teams.</td>
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<th>Personal attributes</th>
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<td>A passion for civil engineering design and enthusiasm to share knowledge and experience with students.</td>
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<td>Ability to show empathy with students and their aspirations.</td>
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<td>Commitment to UCL’s policy for equal opportunity.</td>
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