BOLOGNA AND CIVIL ENGINEERING IN UK

James MW Brownjohn

Dept of Civil and Structural Engineering, University of Sheffield, United Kingdom

The University Of Sheffield.

BOLOGNA PROCESS AIMS

- The purpose of the **Bologna process** (or Bologna accord) is to create the European higher education area by making academic degree standards and quality assurance standards more comparable and compatible throughout Europe.

BOLOGNA CYCLES

The basic framework adopted is of three cycles of higher education qualification. As outlined in the *Bergen Declaration*[1] of 2005, the cycles are defined in terms of qualifications and ECTS credits:

1st cycle: typically 180–240 ECTS credits, usually awarding a Bachelor's degree.

2nd cycle: typically 90–120 ECTS credits (a minimum of 60 on 2nd-cycle level). Usually awarding a Master's degree.

3rd cycle: Doctoral degree. No ECTS range given.

In most cases, these will take 3, 2, and 3 years respectively to complete. The actual naming of the degrees may vary from country to country.

These levels are closer to the current model in the UK and Ireland than that in most of continental Europe, where the model often is based on the diploma. In any case, program length tends to vary from country to country, and less often between institutions within a country.

SITUATION FOR UK ENGINEERS

- The master’s degree effectively becomes the minimum qualification for a professional engineer, rather than the bachelor’s degree.
- The academic three-year degrees prepare only for continuing towards master's, so students who enter the workforce at that point will not be properly prepared.
- The end-result of the change is that the agreements between professional bodies require reevaluation in some cases as qualifications change.

UK SITUATION

- 3-year BSc/BEng was common qualification until 90s
- Mid 90s, MEng became common. Masters graduates are eligible for entry to process to become Chartered Engineer
- BEng graduates needed additional training to bring to required level:
- UK Engineering Council called these ‘matching sections’

- So there is a mismatch between UK 4-year masters (240ECTS), which is the professional engineer degree, and the Bologna ideal (min 270).
- Does it matter?
- Some universities looking for ways to get student industrial attachments properly accredits as ECTS
- Minimum first+second cycle is 180+90=270
- Hence UK 4-year MEng needs to find extra 30 ECTs somewhere

The University Of Sheffield.

OPPORTUNITIES: PGT AND CPD

Taught courses

We run four courses

Structural Engineering (SE)

Steel Construction (SC)

Concrete Engineering (CE)

Earthquake and Civil Engineering Dynamics (ECED)

And there are four ways to study

12 months full-time Diploma

24 months part-time Diploma

12 months full-time MSc (Eng)

24 months part-time MSc (Eng)

Courses are modular, in blocks of two or three weeks. The full time MSc consists of 12 ten-credit courses with a 60-credit dissertation during the summer. A certificate is awarded on the successful completion of 60 credits worth of taught modules. The diploma is awarded for the successful completion of 120 credits of taught modules. Individual modules are available as continuous professional development (CPD) courses.

Modules include

	SE	CE	SC	ECED
Structural Design	X	X	X	X
Computational Structural Analysis	X	X	X	X
Vibration Engineering	X	X	X	X
Introduction to Earthquake Engineering	X	X	X	X
Advanced Concrete Design	X	X		X
Integrated Building Design			X	
Sustainable Concrete Technology	X1	X	X3	
Design of Earthquake Resistant Structures	X1		X3	X
Design of Structural Steel Frames	X		X	
Performance and Durability of Concrete		X		
Experimental Dynamics				X
Structural Analysis and Design for Fire			X	
FRP Composites in Construction	X2	X		
Blast and Impact Effects on Structures	X2			X
Design Project	X	X	X	X

For a full list of modules, see our web pages.

Why Choose The University Of Sheffield?



The Department of Civil and Structural Engineering at the University of Sheffield has been ranked second in the UK for two years running, according to the 2005 Guardian University Guide.

Our MSc and Diploma courses are approved by the Institution of Civil Engineers, the Institution of Structural Engineers and the Institution of Highways and Transportation towards chartered engineer status For our research we achieved an excellent Grade 5 in the 2001 UK Research Assessment Exercise.

Half of our academic staff are structural engineers, most of which conduct internationally-leading research.

We have close links to major UK consultants with whom we share experiences and expertise to the benefit of our students

RESEARCH

Over the last five years research activity in the Department has continued to expand. Within each of the groups, work of an internationally competitive standard is being carried out, in one of the most active research communities within civil engineering in the UK.

Our vibration engineering section is internationally recognised for expertise in *vibration serviceability* moreover, our award-winning fire engineering group has two decades of expertise in performance of concrete and steel structures during fires

CONSULTANCY

Recent consultancy activities include:

- Emergency research and dynamic testing related to the vibration serviceability problems of the London Millennium Bridge
- Dynamic testing of a number of high-profile sports stadia in the UK
- Dynamic testing and analysis of slender floor structures with vibration serviceability problems
- Technical review of petroleum spill in a chalk aquifer, with recommendations for installation of multilevel sampling systems
- Determination of retention times in storage tank systems

AWARD WINNING

We are proud to report that two of our former students have received awards from IStructE. Dr John Roberts, former PhD student, has been awarded the Institution's highest accolade, the Gold Medal for successfully injecting a great deal of excitement into structural engineering and managing personally to make it accessible to a very wide audience. Dr Roberts is well known for designing dramatic theme park rides, including a huge rollercoaster at Blackpool's Pleasure Beach and for his involvement in the London Eye. More recent graduate, Sally Preston, was awarded the Young Structural Engineer of the Year award.

Contact: Pat Raynor, Department of Civil and Structural Engineering,
The University of Sheffield, Mappin Street, Sheffield, S1 3JD
Tel: 0114 222 5758 - Fax: 0114 222 5700 - E-mail: praynor@shef.ac.uk

FEES AND BOOKING available online at: www.sheffield.ac.uk/civil/industry/courses/ced.html

The University Of Sheffield.

Department Of Civil & Structural Engineering.

Continuing Professional Development.

Short Courses 2007