

The Civil Engineering Department Program Benchmarks

Introduction

Civil Engineering is one of the highly progressing disciplines that need to be up to date with state of the art technology. The courses offered by the Civil Engineering Department at Philadelphia University follow the highest standards and the outlines and text books used by top foreign universities. Our faculty members have a broad experience in all aspects of civil Engineering, both in academic and field experience.

The graduates of the civil engineering department are trained during their study at the department to deal with the various situations that may face them at working sites or work field. Students are armed with knowledge, experience, and science to handle the most difficult situations. The outcome of civil engineering study is a product, or perhaps a process or system; so that it distinguishes it from Science and Mathematics. Thus, the criteria of content of civil engineering degree set out as follows in Table 1.

The primary purposes of the Benchmarking Statements are to assist:

- Higher education institutions in designing and validating programs of study;
- Academic reviewers and external examiners in verifying and comparing standards;
- Where appropriate, professional bodies during accreditation and review process;
- Students and employers when seeking information about higher education provision.

Assessment

In developing an assessment strategy some key factors should be considered:

- There must be sufficient clearly identified opportunities for students to demonstrate that they have met the threshold in all components of the benchmark;

- Achievement of threshold standards may, in some cases, be implicit in the learning process (e.g. the completion of a project may demonstrate attainment of some general transferable skills);
- Achievement of threshold standards should be possible without an individual student being required to pass all units of assessment. For example, a particular unit may include the assessment of only one element of the benchmark. A student may achieve the threshold in this element but not achieve a pass mark in the unit as a whole.
- Careful selection from a wide range of assessment methods can make the process more efficient and effective;
- It is important that the strategy provides sufficient opportunity for the best students to exhibit the level of innovation and creativity associated with excellence.

Recommendations

- The Benchmark Statements set out in Table 2 and based upon the rationale provided by the Criteria for Content above should be used to guide the academic review of programs in engineering.
- Individual disciplines within engineering should use the generic criteria of content in Table 1 to provide an interpretation of content and balance of attainment for their own discipline.
- Professional Engineering Institutions when setting criteria for their discipline and for the sections of the Engineering Council Register, for which they hold responsibility, should relate them to the generic criteria and the appropriate discipline-specific interpretation.

Table 1: Criteria of content of Civil Engineering Program:

Engineering practice	
<i>knowledge and understanding of</i>	<ul style="list-style-type: none"> • designing and/or analyzing practice • codes of practice and the regulatory framework • requirements for safe and secure work
<i>Intellectual abilities</i>	<ul style="list-style-type: none"> • ability to produce solutions to problems through the application of methodologies related to civil engineering • knowledge and understanding ability to undertake technical risk evaluation
<i>Practical skills</i>	<ul style="list-style-type: none"> • ability to apply civil engineering techniques taking account of constructional, industrial and commercial constraints • project management and application of civil engineering practice and engineering methodologies
<i>General transferable skills</i>	<ul style="list-style-type: none"> • the use of engineering approach to the solution of problems • time and resource management • teamwork and leadership

Table 2: Benchmark Statements:

Engineering practice	Threshold	Good	Excellent
<p>Knowledge and understanding of</p> <ul style="list-style-type: none"> • designing and/or analyzing practice • codes of practice and the regulatory framework • requirements for safe and secure operation 	<p>has a basic knowledge of current practice in the real world has knowledge of specific codes of practice in routine problems, including the role of design factors has a basic knowledge of codes of practice relating to hazards and operational safety understands the need for operational safety by design and good working practices</p>	<p>has a wide knowledge and good understanding of current practice has knowledge and some understanding of specific codes of practice, with some understanding of the limitations of the techniques and design factors involved has knowledge and understanding of codes of practice relating to hazards and operational safety and can apply these to familiar and some unfamiliar situations</p>	<p>has a comprehensive understanding of current practice, its limitations, and likely new developments has understanding of appropriate codes of practice, with wide understanding of the limits of the code and design factors involved has a comprehensive knowledge and understanding of codes of practice relating to hazards and operational safety, and can apply these to a wide range of situations</p>
<p>Intellectual abilities</p> <ul style="list-style-type: none"> • ability to produce solutions to problems through the application of methodologies related to civil engineering • knowledge and understanding ability to undertake technical risk evaluation 	<p>can integrate knowledge of mathematics, science, construction design, business context and civil engineering practice, to solve routine problems as taught can evaluate typical technical risks, using the appropriate tools as taught</p>	<p>can integrate knowledge of mathematics, science, construction design, business context and civil engineering practice, to solve problems , some of which are unfamiliar and require good understanding can evaluate technical risks, even in some unfamiliar circumstances</p>	<p>can integrate knowledge of mathematics, science, construction design, business context and civil engineering practice, to solve a wide range of civil engineering problems applying profound understanding to novel and challenging situations, is aware of limitations of solution methods can make general evaluations of technical risks, through an understanding of the basis of such risks</p>
<p>Practical skills</p> <ul style="list-style-type: none"> • ability to apply civil engineering techniques taking account of constructional, industrial and commercial constraints • project management and application of civil engineering practice and engineering methodologies 	<p>has some experience of applying civil engineering techniques taking account of constructional, commercial and industrial constraints can develop a project plan, identifying the resource requirements, and the timescales involved</p>	<p>has experience of applying civil engineering techniques taking account of a range of constructional, commercial and industrial constraints can apply standard management techniques to plan and allocate resources to projects</p>	<p>has experience of applying civil engineering techniques taking account of a wide range of constructional, commercial and industrial constraints can develop, monitor and update a plan, to reflect a changing operating environment</p>
<p>General transferable skills</p> <ul style="list-style-type: none"> • the use of engineering approach to the solution of problems • time and resource management • teamwork and leadership 	<p>can solve some general problems through systematic analysis and design methods can develop a personal plan of work to meet a deadline and to identify the main external constraints can work as part of a team</p>	<p>can solve some general problems through systematic analysis and design methods and where necessary learn new theories, concepts, methods etc in an unfamiliar situation outside the discipline area can identify the critical activities within a personal plan of work can undertake many of the roles within a team</p>	<p>can solve some general problems through systematic analysis design and planning, and where necessary, learn new theories, concepts, methods etc in an unfamiliar situation outside the discipline area can monitor and adjust a personal program of work on an on-going basis can undertake most of the roles within a team including leadership</p>