

## **Competency Standards: Civil and Environmental Engineering 2019-2020**

The following table highlights the potential competency standards expected of students studying all taught programmes in the Faculty of Engineering.

These competence standards highlight the core skills students should be able to demonstrate by the end of their programme of study in the Civil and Environmental Engineering Department. In addition to these competence standards all students will be expected to meet the basic academic competence standards contained within the admissions policy for their programme of study.

- Information on the College's admissions policies can be found at: <http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/admissions/>
- Information on Postgraduate Masters admissions to the Department of Civil and Environmental Engineering can be found at: <http://www.imperial.ac.uk/civil-engineering/prospective-students/postgraduate-taught-admissions/>

These competence standards apply to the following degree programmes:

- MSc Advanced Materials for Sustainable Infrastructure
- MSc in Concrete Structures
- MSc in Earthquake Engineering
- MSc in General Structural Engineering
- MSc in Structural Steel Design
- MSc in Environmental Engineering
- MSc in Environmental Engineering with Business Management
- MSc in Hydrology and Water Resources Management
- MSc in Hydrology with Business Management
- MSc in Engineering Fluid Mechanics for Offshore, Coastal and Built Environments
- MSc in Soil Mechanics
- MSc in Soil Mechanics with Business Management
- MSc in Soil Mechanics and Engineering Seismology
- MSc in Soil Mechanics and Environmental Geotechnics
- MSc in Transport
- MSc in Transport with Business Management

Students seeking admission to Faculty of Engineering degrees are also advised to consult the Engineering Council's UK Standard for Professional Engineering Competence (UK-SPEC) which identifies key competences for the various levels of the Council's registrants:

[http://www.engc.org.uk/engcdocuments/internet/Website/UKSPEC%20third%20edition%20\(1\).pdf](http://www.engc.org.uk/engcdocuments/internet/Website/UKSPEC%20third%20edition%20(1).pdf). This document provides insight into the expectations of the Engineering Council for practising professionals, post-graduation.

It should be noted that the Faculty of Engineering believe in providing the widest practicable access to all degree programmes and appreciate that it is not possible to anticipate all circumstances. If it is possible to mitigate the impact of a disability by making a reasonable adjustment to procedures, e.g. by the use of an amanuensis or by the application of a specific technology, then every effort will be made to implement this with due consideration to ensuring fairness to all students and ensuring that all health and safety concerns are met. Therefore, the inability to meet one of the below competency standards due to disability does not necessarily preclude entry to a given degree programme but rather constitutes the starting point for a dialogue between the potential applicant, the College's disability officer and the Department.

Area	Competence Standard
<b>Subject specific knowledge and understanding</b>	Ability to perceive, comprehend, synthesise, retain and apply information presented orally and in writing from a range of contexts including large-group, small-group and individual teaching, as well as eLearning, seminars and practical work.
	Ability to undertake guided independent learning.
	Ability to use acquired theoretical and practical knowledge to solve unseen engineering problems.
	Ability to follow general laboratory, workshop and/or fieldwork safety guidance and precautions.
	Acceptance of the general principles and practices of engineering professional codes of conduct.
	Ability to understand the wider context of the engineering discipline, its practical applications, societal impact and limitations.
	Psychological ability to cope with full-time study in a city environment
	Excellent arithmetic ability
	Ability to prepare, process, and interpret data and/or observations using appropriate techniques.
<b>Intellectual skills</b>	Ability to form logical, reasonable conclusions and make sound recommendations based on available data and/or observations.
	Ability to obtain necessary data from scientific and technical documents, reports, and other reference materials
	Ability to undertake work with a high level of initiative and commitment to the task in hand

<b>Practical skills</b>	Physical and manual dexterity to precisely perform precise practical procedures.
	Ability to observe, undertake the measurement of, accurately record and manipulate data and/or observations in a laboratory, workshop and/or fieldwork environment using appropriate equipment (following appropriate training).
	Ability to use appropriate equipment competently and safely (following appropriate training).
	Ability to use chemicals and other consumables competently and safely (following appropriate training).
	Ability to produce sketches to communicate ideas and concepts.
	Ability to prepare technical drawings by hand (following appropriate training).
	Ability to use computer systems to access learning resources, receive communications regarding the degree programme, undertake assessments and submit assignments.

	Ability to use appropriate engineering software packages as an aid to research, analysis, problem solving and presentation.
	Ability to write code to produce computer programs to aid in solving engineering problems (following appropriate training)
	Ability to use symbolic and numerical mathematical software as part of practical computation (following appropriate training)
<b>Transferrable skills</b>	Ability to communicate, verbally and in writing, clearly and effectively.
	Ability to present ideas, key facts, problem solutions and results effectively, both orally and in writing, in a variety of settings including group/team work.
	Ability to work as part of a group/team in a range of roles, for the purposes of research, collective problem solving, development of ideas, production of objects and/or communication of results/findings. Ability to recognise and respect the contributions of other team members to promote successful team work.
	Ability to write group/team or individual written technical reports to a professional standard.
	Ability to respond to written material critically, effectively and efficiently.
	Ability to present written technical reports to others and to make oral presentations that are reasoned, logical and time-limited, to a variety of audiences.