

## Competence Standards: Electrical and Electronic Engineering (UG Programmes)

These competence standards highlight the core skills students should be able to demonstrate by the end of their programme of study in the Electrical and Electronic 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. These competence standards apply to the following degree programmes:

- H600 BEng in Electrical and Electronic Engineering
- H604 MEng in Electrical and Electronic Engineering
- H6N2 MEng in Electrical and Electronic Engineering with management
- H601 MEng in Electrical and Electronic Engineering with a Year Abroad

Admissions policy for all streams can be found on: <http://www3.imperial.ac.uk/electricalengineering/courses/undergraduate/entryreq>

Students seeking admission to Faculty of Engineering degrees should also be 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/ukspec.aspx> and for Electrical and Electronic Engineers specifically: <http://www.theiet.org/membership/profreg/about/>. These documents provide insight into the expectations of the Engineering Council and IET 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.
<b>Intellectual skills</b>	Psychological ability to cope with full-time study in an city environment
	Excellent arithmetic ability
	Ability to prepare, process, and interpret data and/or observations using appropriate techniques.
	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 use appropriate equipment competently and safely (following appropriate training) to conduct a range of electrical and electronic measurements safely.
	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 log data in field books or electronically, to ensure that they are able to process the raw data to analyze properties using appropriate software and then present that data in a report.
	Ability to use chemicals (e.g. solder) 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). To include, but not limited to, Python, C, C++ and Matlab.
	Ability to use symbolic and numerical mathematical software as part of practical computation (following appropriate training). To ensure students are able to use specific mathematical software to include, but not limited to LaTeX, Linux.
	For students on the Year Abroad programme the ability to undertake travel and field trips as organised by the host institution.
<b>Fieldwork specific skills</b>	Ability to safely perform physical activity, whether individually or in a group/team of two students or more, in all types of weather conditions and terrain, which may include underground working where appropriate.
	Ability to make notes, record data and sketch visual representations in hard copy by hand, in potentially adverse weather conditions.
	Ability to communicate, verbally and in writing, clearly and effectively.
<b>Transferrable skills</b>	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.