

Chemical Engineering Tripos: Transferable Skills

The University and Colleges have identified a set of skills and attributes ("transferable skills") which all undergraduates can expect to acquire during their university career. These skills, as well as enhancing academic performance, can be used beyond the university, and are sought after by employers. Students are encouraged to make use of the opportunities afforded to them to develop these skills which will stand them in good stead in later life.

This document sets out the way in which these transferable skills can be acquired through the teaching programme offered by the Department of Chemical Engineering and Biotechnology; it also identifies ways in which College-based activities may contribute to the acquisition of these skills. The list does not mention any skills which may be gained through first year studies in Engineering or Natural Sciences.

The transferable skills aspects of individual teaching activities are listed in the Department's Syllabus Document(s).

<i>Department-based activities</i>	<i>College-based activities</i>
Intellectual Skills	
Lectures Laboratories — experiments, drawing, assembly of equipment Exercises — extended, open ended projects Design Optimisation — model and finance based decision making Examinations	Supervisions (problem solving, discussion, critical analysis) College learned societies and seminars Chemical Engineering Society technical events
Communication Skills	
<i>Written</i> Design and Research Project reports Laboratory reports (different types) Literature reviews and critical essays Writing minutes from project meetings	Supervisions (written explanation and essays) Extra-curricular activities — e.g. as an officer of a club or society Student politics (e.g. student unions)
<i>Oral</i> CET IIA and IIB Project Presentations CET IIB Product Design Seminars Discussion of laboratory and exercise work Debate in lectures Brainstorming in Part IIB Product Design	Supervisions (oral explanations and discussions) Extra-curricular activities — participating in public meetings Representation on committees
<i>Non verbal</i> (e.g. development of an argument using mathematical or symbolic language) Lectures CET I Fluids lab reports CET I and IIA Exercises	Supervisions (problem solving)

Research Project Examinations	
Organisational Skills	
<p>Management of the balance between work and extra-curricular activities — particularly regarding generation of reports or Exercise/Project deadlines.</p> <p>CET IIA Design Project — teamwork</p> <p>CET I Fluids lab and CET I/IIA Exercises — meeting deadlines</p> <p>CET I Skills Classes — teamwork, task management, planning</p> <p>CET IIB Research Project and Product Design — planning, teamwork</p>	<p>Leadership roles in a College or University extra-curricular body or society</p> <p>Chemical Engineering Society events, and committee posts</p> <p>Management of balance between work load and extra-curricular activities</p>
Interpersonal Skills	
<p>Laboratories — working with others</p> <p>CET IIA Design Project and CET IIB Product Design — group dynamics</p>	<p>Living, working and socialising in a diverse community;</p> <p>Positions of responsibility in societies/clubs</p>
Research Skills	
<p>Literature Projects (Exercises and CET IIB Projects) — finding, summarising, critiquing texts and papers</p> <p>Laboratories — data handling in all years</p> <p>Exercises — calculations, scheduling effort</p> <p>CET IIB Research Project (specific skills, planning experiments, analysis, critique and review)</p>	<p>Use of College libraries</p>
Numeracy	
<p>Lectures</p> <p>Data handling in experiments and projects</p> <p>Project and Exercise calculations (including risk analysis and economic evaluations)</p>	<p>Handling finances — personal affairs, treasurer of a society/club, organising events</p>
Computer Literacy	
<p>Using software applications to solve problems in CET I and IIA Exercises and Projects</p> <p>Software applications - databases, word processing, data analysis, process simulation, mathematical programming.</p> <p>Computer-controlled or linked equipment</p> <p>Departmental internet communication</p> <p>Department website resources</p>	<p>Computer resources</p> <p>E-mail and internet access</p>
Foreign Language Skills	

Opportunity to study a foreign language in CET IIB at the Engineering Department's Language Unit	University Language Centre Support for self-access language teaching
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Other Topics

The Department believes that the Chemical Engineering course gives students opportunities to develop a wide range of transferable skills.

The Department offers annual in-house, voluntary workshops on a number of topics, including examination skills, supervision teaching, IT skills, experimental methods and research planning. The Department also maintains links to a wide range of teaching and learning resources from [Moodle](#).

Transferable skills are also learnt during industrial placements. These are not compulsory, but are taken up by many students in the summer vacation between their third and fourth years at University. Such summer internships are actively facilitated by the Department, but it cannot be guaranteed that all students wanting such a placement will get one.

External Benchmarks

Comparison with other Chemical Engineering Departments in the UK indicates that the Department's practices are in line with several others.