

Master of Science (Engineering) in Civil Engineering
MSc(Eng)(CivE)

A. University's Educational Aims and Institutional Learning Outcomes for Taught Postgraduate Curricula

Benchmarked against the highest international standards, the taught postgraduate curricula at HKU are designed to enable our students to develop their capabilities in:

Aim 1: Critical intellectual enquiry and acquiring up-to-date knowledge and research skills in a discipline / profession;

- Critically review, consolidate and extend knowledge, skills and practices and thinking in a discipline/profession
- Critically evaluate new knowledge and research skills of specialist disciplines and professions from a range of global sources
- Demonstrate enhanced analytical skills

Aim 2: Application of knowledge and research skills to practice or theoretical exploration, demonstrating originality and creativity;

- Apply disciplinary knowledge to practice or theoretical exploration creatively
- Employ research skills in practice or theoretical exploration in an original way
- Demonstrate critical awareness of the appropriate application of knowledge and research skills to practice or theoretical exploration
- Apply knowledge and skills in a broad range of professional work activities, drawing on relevant local, regional and international experience

Aim 3: Tackling novel situations and ill-defined problems;

- Respond positively to unanticipated situations and problems

- Identify and define problems in unfamiliar situations
- Generate and evaluate innovative solutions to problems
- Deal with complex issues and make informed judgements in novel situations

Aim 4: Collaboration and communication of disciplinary knowledge to specialists and the general public;

- Work with others in a constructive manner to complete tasks
- Negotiate with others in making a decision
- Communicate ideas professionally, making appropriate use of available technology
- Effectively communicate disciplinary knowledge with key stakeholders locally, regionally and internationally

Aim 5: Awareness of and adherence to personal and professional ethics;

- Maintain highest standards of personal integrity and ethical practice in academic and professional settings
- Demonstrate critical awareness of global best practice in personal and professional ethics

Aim 6: Enhancement of leadership and advocacy skills in a profession.

- Play a leading role in professional settings
- Articulate ideas effectively and motivate others to action
- Address critical issues and make contribution to change and development in the profession
- Attain familiarity with global best practice in the profession

(This educational aim applies only to professional curricula.)

B. Curriculum Objectives

1. Breadth - Graduates possess broad education, including problem-solving skills and knowledge of important current issues in engineering, necessary for productive careers in the public or private sectors, or for the pursuit of graduate education;
2. Depth - Graduates possess an understanding of the fundamental knowledge prerequisite for the practice of, or for advanced study in engineering, including its scientific principles, rigorous analysis, and creative design;
3. Professionalism - Graduates demonstrate skills for clear communication and responsible teamwork, and professional attitudes and ethics, so that they are prepared for the complex modern work environment and for lifelong learning.

C. Relationship between Educational Aims and Curriculum Objectives

Educational Aims for TPg Curricula	Curriculum Objective		
	1. Breadth	2. Depth	3. Professionalism
1	√	√	
2	√	√	
3	√	√	
4			√
5			√
6			√

D. Programme Learning Outcomes (PLO)

The Programme Learning Outcomes (PLO) of the Master of Science in Engineering curriculum included both the General Learning Outcomes (GLO) and the Specific Learning Outcomes (SLO) with reference to the standards of the UK Engineering Council.

	Science and mathematics (SM)
LO i	(a) A comprehensive understanding of the relevant scientific principles of the specialisation
LO ii	(b) A critical awareness of current problems and/or new insights much of which is at, or informed by, the forefront of the specialisation.
LO iii	(c) An understanding of concepts relevant to the discipline, some from outside engineering, and the ability to evaluate them critically and to apply them effectively, including in engineering projects.
	Engineering Analysis (EA)
LO iv	(a) Ability to apply appropriate engineering analysis methods for solving complex problems in engineering and to assess their limitations.
LO v	(b) Ability to use fundamental knowledge to investigate new and emerging technologies;
LO vi	(c) The ability to collect and analyse research data and use appropriate engineering tools to tackle unfamiliar problems, such as those with uncertain or incomplete data or specifications, by the appropriate innovation, use or adaptation of engineering analytical methods.
	Design (D)
LO vii	(a) Knowledge, understanding and skills to work with information that may be incomplete or uncertain, quantify the effects of this on the design, and where appropriate, use theory or experimental research to mitigate deficiencies.
LO viii	(b) Knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations.
LO ix	(c) Ability to generate an innovative design for products, systems, components or processes to fulfill new needs.
	Economic, legal, social, ethical and environmental context (EL)
LO x	(a) Awareness of the need for a higher level of professional and ethical conduct in engineering.

LO xi	(b) Awareness that engineers need to take account of the commercial and social contexts in which they operate.
LO xii	(c) Knowledge and understanding of management and business practices, and their limitations, and how these may be applied appropriately, in the context of the particular specialisation;
LO xiii	(d) Awareness that engineering activities should promote sustainable development and ability to apply quantitative techniques where appropriate.
LO xiv	(e) Awareness of relevant regulatory requirements governing engineering activities in the context of the particular specialisation.
LO xv	(f) Awareness of and ability to make general evaluations of risks issues in the context of the particular specialization, including health and safety, environmental and commercial risk.
	Engineering Practice (P)
LO xvi	(a) Advanced level knowledge and understanding of a wide range of engineering materials and components;
LO xvii	(b) A thorough understanding of current practice and its limitations, and some appreciation of likely new developments;
LO xviii	(c) The ability to apply engineering techniques taking account of a range of commercial and industrial constraints.
LOxix	(d) Understanding of different roles within an engineering team and the ability to exercise initiative and personal responsibility, which may be as a team member or leader.
	Additional General Skills
LO xx	Apply their skills in problem-solving, communication, information retrieval, working with others, and the effective use of general IT facilities.
LO xxi	Plan self-learning and improve performance, as the foundation for lifelong learning/CPD.
LO xxii	Monitor and adjust a personal programme of work on an on-going basis.
LO xxiii	Exercise initiative and personal responsibility, which may be as a team member or leader.

iii) Relationship between Educational Aims and Programmes Learning Outcomes

Educational Aims for TPg Curricula	MSc(Eng) in Civil Engineering Programme Learning Outcomes																						
	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx	xxi	xxii	xxiii
1	√	√	√	√	√	√	√	√			√	√	√	√		√	√				√		
2			√	√	√	√	√	√				√	√					√		√			
3				√	√	√	√	√	√						√							√	
4																			√	√			√
5										√									√				√
6		√			√							√	√				√		√	√			√