

Degree Requirements of MSc (Safety, Health and Environmental Technology) **(for cohorts AY2018/2019 and prior)**

The Master of Science (Safety, Health and Environmental Technology) programme, or M.Sc. (SHE), is hosted by the Department of Chemical and Biomolecular Engineering. The programme accepts both full time and part time students. To qualify for the M.Sc. (SHE) degree with or without an area of specialisation, a candidate must successfully complete a programme of study consisting of at least 40 Units. Of the 40 Units, at least 30 Units must be at graduate level within the subject or in a related discipline, the remaining units may be from other levels in the same or other disciplines as approved by the Department. In addition, a student must obtain a minimum GPA of 3.0 (Grade B-) for the best courses equivalent to 40 Units (inclusive of compulsory courses, where required). A student may choose to graduate with one of the following:

- M.Sc. (SHE)
- M.Sc. (SHE) with specialisation in Industrial Hygiene
- M.Sc. (SHE) with specialisation in Process Safety

Courses for the M.Sc. (SHE) programme *

Programme courses are presented in the following four groups.

(i) Foundation Courses

SH5002	Fundamentals in Industrial Safety
SH5003	Fundamentals in Environmental Protection
SH5101	Industrial Toxicology
SH5108	Chemical Hazard Management

(ii) Core Courses in Industrial Hygiene

SH5004	Fundamentals in Industrial Hygiene
SH5102	Occupational Ergonomics
SH5103	Biosafety and Biosecurity
SH5104	Occupational Health
SH5105	Noise and Other Physical Hazards
SH5106	Radiation Safety
SH5107	Industrial Ventilation
SH5109	Biostatistics and Epidemiology
SH5110	Chemical Hazard Evaluation

(iii) Core Courses in Process Safety

SH5001	Fundamentals in Process Safety
SH5201	Process Hazard Analysis <i>(name change effective Sem 1, AY2022/2023)</i>
SH5202	Quantified Risk Analysis
SH5203	Resilience and Emergency Planning
SH5204	Industrial Safety Engineering
SH5205	Crisis and Incident Management
SH5206	Human Factors in Process Safety
SH5207	Process Safety Engineering
SH5208	Functional Safety for Process Industries
SH5209	Process Safety Digitalization [#]
SH5401	Safety, Health, Environment & Quality Management System or ESE5602 Environmental Management Systems

(iv) Elective Courses

SH5005	Risk Analysis & Safety Analytics
SH5402	Safety Leadership and Management Practices (<i>name change effective Sem 1, AY2023/2024</i>)
SH5403	Independent Study [#]
SH5404	Safety Health and Environmental Project (8 Units) [#]
SH5405	Fire and Explosion Safety
SH5406	Research Methodology [#]
SH5407	Sustainable Energy and Environment
SH5408	Electrical Safety
SH5409	Sustainability & Environmental Analysis (<i>coming soon</i>)
SH5666	Industrial Safety, Health and Environment Practices (8 Units) [#]
SH5880	Topics in Industrial Hygiene
SH5881	Topics in Process Safety
SH5882	Topics in Environment Protection
ESE5202	Air Pollution Control Technology
ESE5204	Toxic and Hazardous Waste Management
ESE5205	Sludge and Solid Waste Management
ESE5402	Industrial Wastewater Control
ESE5403	Water Reclamation & Reuse
ESE5603	Pollution Minimization and Prevention

To be awarded with a specialisation, the student must also meet the requirements for that specialisation as stipulated below.

M.Sc. (SHE) without specialisation

A candidate (full-time and part-time) must successfully complete a programme of study consisting of:

- the 4 foundation courses listed in part (i) Foundation Courses, and
- any 6 courses from part (ii) Core Courses in Industrial Hygiene, (iii) Core Courses in Process Safety, (iv) Elective Courses and/or any other 2 courses subjected to the approval of the Department.

Depending on the background of the candidate, the Department may allow the waiver of foundation courses on a case-by-case basis. In such instances, the candidate must makeup for these courses from part (ii) Core Courses in Industrial Hygiene, (iii) Core Courses in Process Safety, (iv) Elective Courses and/or other courses subjected to the approval of the Department.

M.Sc. (SHE) with specialisation in Industrial Hygiene

A candidate (full-time and part-time) must successfully complete a programme of study consisting of:

- the 4 foundation courses listed in part (i) Foundation Courses,
- any 5 courses from part (ii) Core Courses in Industrial Hygiene, and
- any 1 course from part (ii) Core Courses in Industrial Hygiene, (iii) Core Courses in Process Safety, (iv) Elective Courses, or any other course subjected to the approval of the Department.

Depending on the background of the candidate, the Department may allow the waiver of foundation courses on a case-by-case basis. In such instances, the candidate must make up for these courses from part (ii) Core Courses in Industrial Hygiene, (iii) Core Courses in Process Safety, (iv) Elective Courses and/or other courses subjected to the approval of the Department.

M.Sc. (SHE) with specialisation in Process Safety

A candidate (full-time and part-time) must successfully complete a programme of study consisting of:

- a) the 4 foundation courses listed in part (i) Foundation Courses,
- b) any 5 courses from part (iii) Core Courses in Process Safety, and
- c) any 1 course from part (ii) Core Courses in Industrial Hygiene, (iii) Core Courses in Process Safety, (iv) Elective Courses, or any other course subjected to the approval of the Department.

Depending on the background of the candidate, the Department may allow the waiver of foundation courses on a case-by-case basis. In such instances, the candidate must make up for these courses from part (ii) Core Courses in Industrial Hygiene, (iii) Core Courses in Process Safety, (iv) Elective Courses and/or other courses subjected to the approval of the Department.

Note: All courses are worth 4 Units each except SH5404 Safety Health & Environmental Project and SH5666 Industrial Safety, Health and Environment Practices which are worth 8 Units each.

** Not all courses are necessary available in any one year.*

100% Continuous Assessment course (no final exam)