Module Code	MEP55B22
Module Name	**PROJECT RISK MANAGEMENT AND SAFETY RISK MANAGEMENT**
ECTS Weighting[1]	5 ECTS
Semester taught	Semester 1
Module Coordinator/s	Professor Garret O'Donnell (Garret.ODonnell@tcd.ie), Professor Kevin O'Kelly (okellyk@tcd.ie)
Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline	1. Understanding the role of risk in decision making in major projects 2. Risk quantification techniques for techno-economic evaluation of projects 3. Develop a conceptualization of System Safety Engineering considering an historical perspective 4. Know the main references in relation to legislative framework requiring Risk Assessment and Safety Management System in industry 5. Be able to use the main engineering methods for Risk Assessment (e.g. HAZID, HAZOP, FAULT TREES, EVENT TREEs, BOW TIES etc.)
Module Content	The aim of the module is to expose the students to the issue of risk and the impact of risk in two main aspects of engineering. First the domain of project management and the role risk plays in engineering decision making. Second is the evaluation of fundamental criteria and the methodological approaches for the design and management of system safety approaches for industrial operations, for production and service, in the view of minimization of operational risks. Project • Contextualising project risk in terms of impact on delivery of large scale infrastructure/capital projects • Organisational and human factor aspects to risk perception in project and task planning • Quantification of risk in project planning and delivery • Case studies in impact of poor risk management in projects Safety • Operational Risk Management from an historical and legislative perspective (Fundamentals and Principles of Industrial Safety and Health Occupational, Compliance and laws on prevention of occupational risks/standards CE etc.) • System Safety Engineering in Industrial applications examples • Hazard identification, according to the activity and the workplace • Engineering methods for risk assessments (HAZID, HAZOP, FT, ET, BOWTIE)

[1] TEP Glossary

	Graduate Attributes: levels of attainment To act responsibly - Attained To think independently - Enhanced To develop continuously - Enhanced To communicate effectively – Attained
Teaching and Learning Methods	This module is typically a modest group size environment and may be sub divided as necessary for group project activity/discussion. Hence the class forms the basis for discussion on topics, as well as more formal podium style lectures. Examples related in the class are often research led through discussion on leading research projects. Visiting/guest lectures include industry domain specialists e.g safety managers as well as visiting researchers specialising in risk in industrial systems. This model will be used as much as possible using online tools such as Blackboard, but attendance is mandatory as discussion topics are critical to the learning outcomes. There is continuous assessment for both elements of the course.

Assessment Details[2]
Please include the following:

- **Assessment Component**
- **Assessment description**
- **Learning Outcome(s) addressed**
- **% of total**
- **Assessment due date**

Assessment Component	Assessment Description	LO Addressed	% of total	Week due
Examination	Individual	all	60%	Wk12
Assignments	Topical, independent work	all	40%	Wk12

Reassessment Requirements	Examination only
Contact Hours and Indicative Student Workload[2]	**Contact hours: 33 Hours** **Independent Study (preparation for course and review of materials):33** **Independent Study (preparation for assignment, incl. completion):33**
Recommended Reading List	System Safety Engineering and Risk Assessment: A Practical Approach, Second Edition Engagement with topics and up-to-date sources such as HSA (Health and Safety Association), CCPC (Competition and Consumer Protection Commission)
Module Pre-requisite	**Recommended: Advanced Manufacturing modules, Supply Chain Management or equivalent from visiting institutions**
Module Co-requisite	Na
Module Website	Blackboard TCD
Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.	No
Module Approval Date	28-08-2026
Approved by	Nicole Byrne
Academic Start Year	2026
Academic Year of Date	2026-2027

[2] TEP Guidelines on Workload and Assessment