

Glossary [First version for authors- Jan 2025]

[TBD]

This section contains an alphabetical overview of all relevant terms used in this handbook, their definitions, and their source.

[Please provide suggestions for any terms you feel must be included to Gillian (G.N.Saunders@tudelft.nl) for inclusion in the next version and where possible provide a reference in APA 7ed. Style]

Adaptability for change/Change Management A learner's adaptability involves identifying qualities which are critical for future performance and being both willing and able to make personal changes in order to meet those needs in a proactive way (Hall & Chandler, 2005).

AHSS Arts, Humanities, and Social Sciences.

Autonomous Motivation Intrinsic motivation, doing something because it is inherently interesting or enjoyable or motivating oneself by focusing on positive external factors (Ryan & Deci, 2000).

Course A course may be a self-contained, formally structured learning experience with learning outcome but is used interchangeably with *seminar, lecture, classroom activity, MOOC, subject, module* or even *programme* (European Commission, 2015). As the word course is ill-defined, we will not use it in this handbook and use the word *module* for a self-contained, formally structured, credit-giving component of a programme, usually covering a specific topic or theme and the word *programme* to refer to a degree programme.

Curriculum refers to the design, organisation and planning of programme activities, content and teaching of the elements that make up a programme, including the content to be covered, intended learning outcomes, and the teaching and assessment methods. Derived from the European Centre for the Development of Vocational Training (2024) and the European University Association (2020).

ECTS - European Credit Transfer System is the European wide system to express the volume of learning based on the defined learning outcomes and their associated

workload. 60 ECTS credits are allocated to the learning outcomes and associated workload of a full-time academic year or its equivalent, which normally comprises a number of educational components to which credits (on the basis of the learning outcomes and workload) are allocated. ECTS credits are generally expressed in whole numbers. (European Commission, 2015). *For the handbook, please state the ECTS equivalent in brackets to explain non-European credits.*

Feedback – Giving Feedback Ability to give constructive feedback to improve team members' performance (Leandro Cruz & Saunders-Smiths, 2019).

Feedback – Receiving Feedback The understandings, capacities and dispositions needed to make sense of feedback information and use it to enhance work or learning strategies (Carless & Boud, 2018).

Information Literacy Skills Information Literacy empowers people in all walks of life to seek, evaluate, use, and create information effectively to achieve their personal, social, occupational and educational goal (UNESCO, 2023).

Initiative A new plan or process to achieve something or solve a problem (*INITIATIVE | English Meaning - Cambridge Dictionary, 2023*).

Interpersonal communication skills - Adaptive Communication Style Ability to communicate properly, adapting style and language to the purpose, context, and environment (Leandro Cruz & Saunders-Smiths, 2019).

Interpersonal communication skills - Interconnection/interrelation ability Ability to build and retain formal and informal relationships or networks (Leandro Cruz & Saunders-Smiths, 2019).

Interpersonal communication skills - Listening skills Ability to listen and understand verbal messages, and consequently act on what someone says or does (Leandro Cruz & Saunders-Smiths, 2019).

Leadership Skills Ability to create the environmental conditions conducive to good performance: support of shared understanding, innovation, problem-solving, resilience and learning (*Technical Leadership in Systems Engineering - SEBoK, 2024*).

Learning Beliefs A person's subjective judgments about a relation between learning and his or her values or attributes (Fishbein & Ajzen, 1977).

Learning outcome Statements of what a learner knows, understands and is able to do on completion of a learning process. The achievement of learning outcomes has to be assessed through procedures based on clear and transparent criteria. Learning outcomes are attributed to individual educational components and to programmes as a whole. They are also used in European and national qualifications frameworks to describe the level of the individual qualification. (European Commission, 2015).

Learning Strategies An individual's way of organizing and using a particular set of skills in order to learn content or accomplish other tasks more effectively and efficiently in school as well as in non-academic settings (Schumaker & Deshler, 1992).

Lifelong learning refers to Lifelong Learning encompasses all learning activities undertaken throughout life with the aim of improving knowledge, skills, and competences, within personal, civic, social, or employment-related perspectives (Commission of the European Communities, 2001).

Meeting Skills Ability to plan and run effective meetings by setting the agenda and appropriate audience ahead of time. Facilitating discussion, making decisions and setting actions during the meeting. Circulating minutes and following up on progress after the meeting (Institution of Engineering and Technology, 2015).

Module refers to a self-contained, formally structured, credit-giving educational component of a degree programme, usually covering a specific topic or theme. Derived from European Commission (2015).

MOOC MOOCs or Massive Open Online Courses allow open entry and are delivered online usually with peer or automated support. They often have large enrolment numbers (European Commission 2015).

Open Educational Resources (OER) Digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research; it includes learning content, software tools to develop, use and distribute content, and implementation resources such as open licenses; OER also refers to accumulated digital assets that can be adjusted and which provide benefits without restricting the possibilities for others to enjoy them (European Commission 2015).

Operational Awareness Knowledge and understanding of operational processes, with the ability to react accordingly whenever there are any unexpected changes. (Coates et al., 2004).

Oral Presentation and Reporting skills – Presentation Skills Ability to give a clear, organised and logical speech and answers questions adequately and with elaboration (Leandro Cruz & Saunders-Smiths, 2019).

Oral Presentation and Reporting skills - Quality of Presentation Method Ability to develop presentation methods and mediums depending on the topic and target group (Leandro Cruz & Saunders-Smiths, 2019).

Oral Presentation and Reporting skills - Pitching skills Ability to convey and persuade audiences within a short 1–3-minute speech (Leandro Cruz & Saunders-Smiths, 2019).

Programme refers to the degree programme that a student follows, leading to a formal qualification, usually at the bachelor's or master's level. In some contexts, this term can also refer to a fixed set of courses/subjects/modules covering a single discipline, whereas it is a more flexible concept in other contexts. *In this handbook, we use programme in the context of degree programmes only.*

Perseverance The quality or state of maintaining a course of action or keeping at a task and finishing it despite the obstacles (such as opposition or discouragement) or the effort involved (American Psychological Association, 2023).

Project management (on process level) Ability to apply processes, methods, skills, knowledge and experience to achieve specific project objectives according to the project acceptance criteria within agreed parameters. (Association for Project Management, 2024).

Resilience/Ability to cope with changes, failures and success The process and outcome of successfully adapting to difficult or challenging life experiences, especially

through mental, emotional, and behavioural flexibility and adjustment to external and internal demands (American Psychological Association, 2018a).

Risk analysis and risk management skills Ability to carry out a risk analysis and manage and mitigate identified risks in engineering design and operations (NASA, 2007).

SEFI Société Européenne pour les Formation des Ingénieurs - European Association for Engineering Education (www.sefi.be).

Self-direction An approach where learners are motivated to assume personal responsibility and collaborative control of the cognitive (self-monitoring) and contextual (self-management) processes in constructing and confirming meaningful and worthwhile learning outcomes (Garrison, 1997).

Self-reflection Examination, contemplation, and analysis of one's thoughts, feelings, and actions (American Psychological Association, 2018b).

Self-regulation Learners being proactive in their efforts to learn because they are aware of their strengths and limitations with learning and because they are guided by personally set goals and task-related strategies involving self-motivation and behavioural skill development and involves the selective use of specific processes that they will personally adapt to the learning task (Zimmerman, 2002).

STEM Science, Technology, Engineering, and Mathematics.

STEAM Science, Technology, Engineering, Arts, and Mathematics.

Subject can refer to a topic within a discipline, for instance, the subject of mathematics, but may also refer to a self-contained, credit-giving educational unit. In the latter meaning this handbook employs the term *module*.

Teamwork - Collaborative Goal Setting Demonstrates a collaborative working spirit towards common goals (Leandro Cruz & Saunders-Smits, 2019)

Teamwork - Diverse, intercultural, and inclusive teamwork (*including non-homogeneous, cross-cultural understanding and inclusive collaboration*) Ability to understand cultural differences, recognize their importance or benefit and stimulate cooperative teamwork among people of different cultures and the ability to work in teams with people of different abilities, gender, backgrounds, and across hierarchical frameworks (Leandro Cruz & Saunders-Smits, 2019).

Teamwork – Engagement Shares information and knowledge with team members and shows engagement with teamwork (Leandro Cruz & Saunders-Smits, 2019).

Teamwork - Goal Setting in Teams Ability to establish goals balancing self and team interests (Leandro Cruz & Saunders-Smits, 2019).

Teamwork - Multi-/Inter/Transdisciplinary teams (beyond STEM and including AHSS) Ability to collaborate with team members of engineering disciplines as well team members from other disciplines, including clients (Leandro Cruz & Saunders-Smits, 2019).

Transferable Skills and Competencies Skills and competencies that are needed to adapt to various life contexts and that people can potentially transfer to different social, cultural or work settings (UNICEF, 2022).

Visualisation Skills Ability to use and/or create of visual elements to convey ideas and information which include (but are not limited to) signs, typography, drawing, graphic design, illustration, industrial design, advertising, animation, and electronic resources ('Visual Communication', 2024).

Written Presentation and Reporting skills Ability to develop a logical, accurate, detailed, and organised written product using the appropriate language and style without grammar mistakes and with accurate references (Leandro Cruz & Saunders-Smits, 2019).

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Contributor Statement

Table 1.1 Credit Contributor Statement [Delete all unused rows in final version]

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Resources	N/A to be deleted

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