Category	Code	Description
Science and mathematics	SM1i	Knowledge and understanding of the scientific principles underpinning relevant current technologies, and their evolution.
Science and mathematics	SM1p	Knowledge and understanding of scientific principles and methodology necessary to underpin their education in their engineering discipline, to enable appreciation of its scientific and engineering context, and to support their understanding of relevant historical, current and future developments and technologies.
Science and mathematics	SM1m	A comprehensive knowledge and understanding of scientific principles and methodology necessary to underpin their education in their engineering discipline, and an understanding and know-how of the scientific principles of related disciplines, to enable appreciation of the scientific and engineering context, and to support their understanding of relevant historical, current and future developments and technologies.
Science and mathematics	SM1fl	A comprehensive understanding of the relevant scientific principles of the specialisation.
Science and mathematics	SM2i	Knowledge and understanding of mathematics and an awareness of statistical methods necessary to support application of key engineering principles.
Science and mathematics	SM2p	Knowledge and understanding of mathematical and statistical methods necessary to underpin their education in their engineering discipline and to enable them to apply mathematical and statistical methods, tools and notations proficiently in the analysis and solution of engineering problems.
Science and mathematics	SM2m	Knowledge and understanding of mathematical and statistical methods necessary to underpin their education in their engineering discipline and to enable them to apply a range of mathematical and statistical methods, tools and notations proficiently and critically in the analysis and solution of engineering problems.
Science and mathematics	SM2fl	A critical awareness of current problems and/or new insights most of which is at, or informed by, the forefront of the specialisation.
Science and mathematics	SM3p	Ability to apply and integrate knowledge and understanding of other engineering disciplines to support study of their own engineering discipline.
Science and mathematics	SM3m	Ability to apply and integrate knowledge and understanding of other engineering disciplines to support study of their own engineering discipline and the ability to evaluate them critically and to apply them effectively.
Science and mathematics	SM3fl	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.
Science and mathematics	SM4m	Awareness of developing technologies related to own specialisation.
Science and mathematics	SM5m	A comprehensive knowledge and understanding of mathematical and computational models relevant to the engineering discipline, and an appreciation of their limitations.
Science and mathematics	SM6m	Understanding of concepts from a range of areas including some outside engineering, and the ability to evaluate them critically and to apply them effectively in engineering projects.
Engineering analysis	EA1i	Ability to monitor, interpret and apply the results of analysis and modelling in order to bring about continuous improvement.
Engineering analysis	EA1p	Understanding of engineering principles and the ability to apply them to analyse key engineering processes.
Engineering analysis	EA1m	Understanding of engineering principles and the ability to apply them to undertake critical analysis of key engineering processes.
Engineering analysis	EA1fl	Ability both to apply appropriate engineering analysis methods for solving complex problems in engineering and to assess their limitations.

Category	Code	Description
Engineering analysis	EA2i	Ability to apply quantitative methods in order to understand the performance of systems and components.
Engineering analysis	EA2p	Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques.
Engineering analysis	EA2m	Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques.
Engineering analysis	EA2fl	Ability to use fundamental knowledge to investigate new and emerging technologies.
Engineering analysis	EA3i	Ability to use the results of engineering analysis to solve engineering problems and to recommend appropriate action.
Engineering analysis	EA3p	Ability to apply quantitative and computational methods in order to solve engineering problems and to implement appropriate action.
Engineering analysis	EA3m	Ability to apply quantitative and computational methods, using alternative approaches and understanding their limitations, in order to solve engineering problems and to implement appropriate action.
Engineering analysis	EA3fl	Ability to collect and analyse research data and to use appropriate engineering analysis tools in tackling unfamiliar problems, such as those with uncertain or incomplete data or specifications, by the appropriate innovation, use or adaptation of engineering analytical methods.
Engineering analysis	EA4i	Ability to apply an integrated or systems approach to engineering problems through know-how of the relevant technologies and their application.
Engineering analysis	EA4p	Understanding of, and the ability to apply, an integrated or systems approach to solving engineering problems.
Engineering analysis	EA4m	Understanding of, and the ability to apply, an integrated or systems approach to solving complex engineering problems.
Engineering analysis	EA5m	Ability to use fundamental knowledge to investigate new and emerging technologies.
Engineering analysis	EA6m	Ability to extract and evaluate pertinent data and to apply engineering analysis techniques in the solution of unfamiliar problems.
Design	D1i	Be aware of business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics.
Design	D1p	Understand and evaluate business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics.
Design	D1m	Understand and evaluate business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics.
Design	D1fl	Knowledge, understanding and skills to work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies.
Design	D2i	Define the problem, identifying any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards.
Design	D2p	Investigate and define the problem, identifying any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards.
Design	D2m	Investigate and define the problem, identifying any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards.

Category	Code	Description
Design	D2fl	Knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations.
Design	D3i	Work with information that may be incomplete or uncertain and be aware that this may affect the design.
Design	D3p	Work with information that may be incomplete or uncertain and quantify the effect of this on the design.
Design	D3m	Work with information that may be incomplete or uncertain, quantify the effect of this on the design and, where appropriate, use theory or experimental research to mitigate deficiencies.
Design	D3fl	Ability to generate an innovative design for products, systems, components or processes to fulfil new needs.
Design	D4i	Apply problem-solving skills, technical knowledge and understanding to create or adapt design solutions that are fit for purpose including operation, maintenance, reliability etc.
Design	D4p	Apply advanced problem-solving skills, technical knowledge and understanding, to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance and disposal.
Design	D4m	Apply advanced problem-solving skills, technical knowledge and understanding to establish rigorous and creative solutions that are fit for purpose for all aspects of the problem including production, operation, maintenance and disposal.
Design	D5i	Manage the design process, including cost drivers, and evaluate outcomes.
Design	D5p	Plan and manage the design process, including cost drivers, and evaluate outcomes.
Design	D5m	Plan and manage the design process, including cost drivers, and evaluate outcomes.
Design	D6i	Communicate their work to technical and non-technical audiences.
Design	D6p	Communicate their work to technical and non-technical audiences.
Design	D6m	Communicate their work to technical and non-technical audiences.
Design	D7m	Demonstrate wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations.
Design	D8m	Demonstrate the ability to generate an innovative design for products, systems, components or processes to fulfil new needs.
Economic, legal, social, ethical and environmental context	ET1i	Understanding of the need for a high level of professional and ethical conduct in engineering and a knowledge of professional codes of conduct.
Economic, legal, social, ethical and environmental context	ET1p	Understanding of the need for a high level of professional and ethical conduct in engineering and a knowledge of professional codes of conduct.
Economic, legal, social, ethical and environmental context	ET1m	Understanding of the need for a high level of professional and ethical conduct in engineering, a knowledge of professional codes of conduct and how ethical dilemmas can arise.
Economic, legal, social, ethical and environmental context	ET1fl	Awareness of the need for a high level of professional and ethical conduct in engineering.

Category	Code	Description
Economic, legal, social, ethical and environmental context	ET2i	Knowledge and understanding of the commercial, economic and social context of engineering processes.
Economic, legal, social, ethical and environmental context	ET2p	Knowledge and understanding of the commercial, economic and social context of engineering processes.
Economic, legal, social, ethical and environmental context	ET2m	Knowledge and understanding of the commercial, economic and social context of engineering processes.
Economic, legal, social, ethical and environmental context	ET2fl	Awareness that engineers need to take account of the commercial and social contexts in which they operate .
Economic, legal, social, ethical and environmental context	ET3i	Knowledge of management techniques that may be used to achieve engineering objectives.
Economic, legal, social, ethical and environmental context	ET3p	Knowledge and understanding of management techniques, including project management, that may be used to achieve engineering objectives.
Economic, legal, social, ethical and environmental context	ET3m	Knowledge and understanding of management techniques, including project and change management, that may be used to achieve engineering objectives, their limitations and how they may be applied appropriately .
Economic, legal, social, ethical and environmental context	ET3fl	Knowledge and understanding of management and business practices, their limitations, and how these may be applied in the context of the particular specialisation.
Economic, legal, social, ethical and environmental context	ET4i	Understanding of the requirement for engineering activities to promote sustainable development.
Economic, legal, social, ethical and environmental context	ET4p	Understanding of the requirement for engineering activities to promote sustainable development and ability to apply quantitative techniques where appropriate.
Economic, legal, social, ethical and environmental context	ET4m	Understanding of the requirement for engineering activities to promote sustainable development and ability to apply quantitative techniques where appropriate.
Economic, legal, social, ethical and environmental context	ET4fl	Awareness that engineering activities should promote sustainable development and ability to apply quantitative techniques where appropriate.
Economic, legal, social, ethical and environmental context	ET5i	Awareness of relevant legal requirements governing engineering activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues.

Category	Code	Description
Economic, legal, social, ethical and environmental context	ET5p	Awareness of relevant legal requirements governing engineering activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues.
Economic, legal, social, ethical and environmental context	ET5m	Awareness of relevant legal requirements governing engineering activities, including personnel, health & safety, contracts, intellectual property rights, product safety and liability issues, and an awareness that these may differ internationally.
Economic, legal, social, ethical and environmental context	ET5fl	Awareness of relevant regulatory requirements governing engineering activities in the context of the particular specialisation.
Economic, legal, social, ethical and environmental context	ET6i	Awareness of risk issues, including health & safety, environmental and commercial risk.
Economic, legal, social, ethical and environmental context	ET6p	Knowledge and understanding of risk issues, including health & safety, environmental and commercial risk, and of risk assessment and risk management techniques.
Economic, legal, social, ethical and environmental context	ET6m	Knowledge and understanding of risk issues, including health & safety, environmental and commercial risk, risk assessment and risk management techniques and an ability to evaluate commercial risk.
Economic, legal, social, ethical and environmental context	ET6fl	Awareness of and ability to make general evaluations of risk issues in the context of the particular specialisation, including health & safety, environmental and commercial risk.
Economic, legal, social, ethical and environmental context	ET7m	Understanding of the key drivers for business success, including innovation, calculated commercial risks and customer satisfaction.
Engineering practice	EP1i	Knowledge of contexts in which engineering knowledge can be applied (eg operations and management, application and development of technology, etc).
Engineering practice	EP1p	Understanding of contexts in which engineering knowledge can be applied (eg operations and management, application and development of technology, etc).
Engineering practice	EP1m	Understanding of contexts in which engineering knowledge can be applied (eg operations and management, application and development of technology, etc) with extensive knowledge and understanding of a wide range of engineering.
Engineering practice	EP1fl	Advanced level knowledge and understanding of a wide range of engineering materials and components.
Engineering practice	EP2i	Understanding of and ability to use relevant materials, equipment, tools, processes, or products.
Engineering practice	EP2p	Knowledge of characteristics of particular materials, equipment, processes, or products.
Engineering practice	EP2m	Knowledge of characteristics of particular equipment, processes, or products, with extensive knowledge and understanding of a wide range of engineering materials and components.
Engineering practice	EP2fl	A thorough understanding of current practice and its limitations, and some appreciation of likely new developments.

Category	Code	Description
Engineering practice	EP3i	Knowledge and understanding of workshop and laboratory practice.
Engineering practice	EP3p	Ability to apply relevant practical and laboratory skills.
Engineering practice	EP3m	Ability to apply relevant practical and laboratory skills.
Engineering practice	EP3fl	Ability to apply engineering techniques, taking account of a range of commercial and industrial constraints.
Engineering practice	EP4i	Ability to use and apply information from technical literature.
Engineering practice	EP4p	Understanding of the use of technical literature and other information sources.
Engineering practice	EP4m	Understanding of the use of technical literature and other information sources.
Engineering practice	EP4fl	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.
Engineering practice	EP5i	Ability to use appropriate codes of practice and industry standards.
Engineering practice	EP5p	Knowledge of relevant legal and contractual issues.
Engineering practice	EP5m	Knowledge of relevant legal and contractual issues.
Engineering practice	EP6i	Awareness of quality issues and their application to continuous improvement.
Engineering practice	EP6p	Understanding of appropriate codes of practice and industry standards.
Engineering practice	EP6m	Understanding of appropriate codes of practice and industry standards.
Engineering practice	EP7i	Awareness of team roles and the ability to work as a member of an engineering team.
Engineering practice	EP7p	Awareness of quality issues and their application to continuous improvement.
Engineering practice	EP7m	Awareness of quality issues and their application to continuous improvement.
Engineering practice	EP8p	Ability to work with technical uncertainty.
Engineering practice	EP8m	Ability to work with technical uncertainty.
Engineering practice	EP9p	Understanding of, and the ability to work in, different roles within an engineering team.
Engineering practice	EP9m	A thorough understanding of current practice and its limitations, and some appreciation of likely new developments.
Engineering practice	EP10m	Ability to apply engineering techniques taking account of a range of commercial and industrial constraints.
Engineering practice	EP11m	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.