School of Engineering and Materials Science Skills Matrix January 2020

Areas	revised skill number	By the end of their degree (BEng) our graduates will be able to, or will have:		average priority scored by IAB	By the end of their degree (BEng) our graduates will be able to, or will have:
Resilience	1	developed a growth mind-set approach, appreciating life-long learning, self-development and self-sustainability for personal and professional reasons	1	1.85	develop a growth mind-set approach through self-reflection, self-management, personal growth and personal effectiveness.
			4	2.35	an appreciation of the importance of life-long learning, self-development and self-sustainability for personal and professional reasons.
	2	confidence built through active engagement in activities that take the student out of their comfort zone.	2	2.10	confidence built through active engagement in activities that take the student out of their comfort zone.
	3	an appreciation of the criticality of their personal wellbeing, work and lifestyle habits	3	2.11	an appreciation of the criticality of their personal wellbeing, work and lifestyle habits.
Creativity	4	a range of critical thinking and problem solving techniques to develop, assess, and prioritise multiple creative solutions to problems	5	1.67	a range of critical thinking and problem solving techniques to develop, assess, and prioritise multiple creative solutions to problems.
			7	2.53	been exposed to creative thinking approaches and entrepreneurial cultures.
			8	2.68	had the opportunity to assess and take creative risks in projects.
	5	an understanding of the development of product requirements	6	2.15	an understanding of the development of product requirements.
	6	think and analyse strategically in order to manage large amounts of information /data sets	9	1.95	think and analyse strategically in order to manage large amounts of information /data sets
Working collaboratively	7	worked with different communities in order to develop a global pespective	10	2.17	worked with different communities in order to develop a global pespective.
	8	worked in a team and developed an appreciation of team roles and characteristics	11	1.44	worked in a team and developed an appreciation of team roles and characteristics.
			12	1.30	demonstrate skills to work collaboratively.
			13	2.37	taken a leadership role.
	9	provided and received constructive feedback	14	1.85	provided and received constructive feedback.
Effective communication	10	communicate and disseminate using a variety of digital resources for different audiences	15	2.00	communicate and disseminate using a variety of digital resources to persuade and connect with different audiences.
			16	2.39	share their ideas and work with confidence using a variety of digital resources.
	11	convey technical and other information in a written form appropriate for the audience and media use	17	1.45	convey technical and other information in a written form appropriate for the audience and media use.
	12	undertake critical assessment of information	18	1.85	undertake critical assessment of information
	13	understand and implement careful communication	19	1.95	understand and implement careful communication, incuding relevance of IP and security.
Project management	14	an awareness and use of common project management tools, methodologies and processes used in industry and research	20	1.75	develop process steps for a project, including develop key milestones and deliverables for stages of a project.
			24	2.50	an awareness of common project management tools, methodologies and processes used in industry and research
	15	evaluate required resource, time, risks and strategy for a project.	21	2.06	evaluate required resource, time, risks and strategy for a project.
			23	2.22	appreciate value of time, people, risk, innovation and information management.
	16	apply integrated or systems approaches to the solution of complex problems	22	2.33	apply an integrated or systems approach to the solution of complex problems
Professional practice	17	an awareness of the importance of health and safety, from both a personal and corporate responsibility standpoint.	25	1.80	an awareness of the importance of health and safety, from both a personal and corporate responsibility standpoint.
			27	3.44	familiarity with research governance, H&S and responsible work practices.
	18	commercial awareness	26	3.16	commercial awareness and technology foresighting, including company finances.
			30	3.05	appreciation of IP laws and patents, spin out companies, data protection, confidentiality, attribution and data privacy.
	19	understanding of code of ethic	28	2.76	understanding of code of ethics.
	20	appreciation of Quality Assurance processes, GLP, regulatory frameworks	29	2.50	appreciation of Quality Assurance processes, GLP, regulatory frameworks.
Technical	21	sketching and drawing - hand and computer generated	31	3.00	sketching and drawing - hand and computer generated, Auto CAD
	22	practical awareness of prototyping and manufacture	32	3.19	practical use of hand tools, soldering, metal work
			33	3.06	practical use of manufacturing machine tools, CNC etc.
			35	2.65	ability to rapid prototype designs
	23	practical and laboratory skills	36	2.17	relevant practical and laboratory skills
	24	appreciation of and ability to work with technical uncertainty and apply appropriate statistical methods	37	2.22	appreciation of and ability to work with technical uncertainty
			38	1.82	understand and apply basic statistical concepts
	25		39	2.24	apply the techniques associated with the design of experiments
			42	2.50	critically evaluate inputs and outputs (sense check)
	26	perform quantitative, semi-quantitative and qualitative analysis	44	2.06	perform quantitative, semi-quantitative and qualitative analysis
	27	numerical and computational modelling skills, FEA & CFD	40	2.75	computational modelling skills, FEA & CFD
			41	2.65	simulation & numerical modelling skills
	28	coding	34	2.74	coding
	29	proficiently use commercial software	45	2.27	proficiently use commercial software
	30		43	2.21	run appropriate performance tests