Wessels (2024) highlights that Neurodivergent individuals often approach problems from unique angles, leading to innovative solutions that might elude neurotypical thinkers. Many neurodivergent individuals exhibit heightened attention to detail, which is crucial in engineering where precision is paramount. Cherewick and Matergia, (2024) reported neurodiverse individuals have strengths in pattern recognition which can be especially beneficial in identifying trends and anomalies in data, a common requirement in engineering tasks. iBid also highlight strength in having the capacity for intense concentration, which can significantly boost productivity and progress in complex engineering tasks. Engineering Council (2000) defined the UK Standard for Professional Engineering Competence and Commitment (UK-SPEC) is Engineering Council definition of the competence requirements for engineers to become registered as Engineering Technician (EngTech), Incorporated Engineer (IEng) or Chartered Engineer (CEng). Table 1 demonstrates autistics strengths against UK-Spec competence requirements for engineers.

Table 1: UK-Spec Competence requirements for engineers, Engineering Council (2000), mapped to neurodiverse (Autistic) strengths

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| --- | --- | --- | --- |
| Engineering Technician (EngTech)  | Incorporated Engineer (IEng)  | Chartered Engineer (CEng) | Neurodiverse Strength Aggregated by codes by Cherewick and Matergia, 2024.  |
| A. Knowledge and understandingEngineering Technicians shall use engineering knowledge and understanding to apply technical and practical skills.The applicant shall demonstrate that they:1. Review and select appropriate techniques, procedures and methods to undertake tasks
2. Use appropriate scientific, technical or engineering principles.
 | A. Knowledge and understandingIncorporated Engineers shall use a combination of general and specialist engineering knowledge and understanding to apply existing and emerging technology.The applicant shall demonstrate that they: 1. Have maintained and extended a sound theoretical approach to the application of technology in engineering practice
2. Use a sound evidence-based approach to problem-solving and contribute to continuous improvement.
 | A. Knowledge and understandingChartered Engineers shall use a combination of general and specialist engineering knowledge and understanding to optimise the application of advanced and complex systems.The applicant shall demonstrate that they: 1. Have maintained and extended a sound theoretical approach to enable them to develop their particular role
2. Are developing technological solutions to unusual or challenging problems, using their knowledge and understanding and/or dealing with complex technical issues or situations with significant levels of risk.
 | * Reasoning: Logical reasoning/thinking; analytical reasoning; problem solving; systematizing; hyperlexia; attention to detail; pattern recognition
* Expertise: Special interests; preferred interests; in-depth knowledge; deep focus
* Cognitive: Self-determination; empowerment; job readiness; cognitive flexibility; coping flexibility; self-efficacy; executive functioning; identity
* Wellbeing: Self-advocacy; enhanced learning;
 |
| B. Design, development and solving engineering problems Engineering Technicians shall contribute to the design, development, manufacture, construction, commissioning, decommissioning, operation or maintenance of products, equipment, processes, systems or services.The applicant shall demonstrate that they: 1. Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions
2. Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environental impact.
 | B. Design, development and solving engineering problemsIncorporated Engineers shall apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and recycle engineering processes, systems, services and products.The applicant shall demonstrate that they: 1. Identify, review and select techniques, procedures and methods to undertake engineering tasks
2. Contribute to the design and development of engineering solutions
3. 3Implement design solutions for equipment or processes and contribute to their evaluation.
 | B. Design, development and solving engineering problemsChartered Engineers shall apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.The applicant shall demonstrate that they:1. Take an active role in the identification and definition of project requirements, problems and opportunities
2. Can identify the appropriate investigations and research needed to undertake the design, development and analysis required to complete an engineering task and conduct these activities effectively
3. Can implement engineering tasks and evaluate the effectiveness of engineering solutions.
 | * Perceptual : Visual, auditory, tactile acuity/discernment; sensory differences (sensory seeking and sensitivities); memory
* Reasoning: Logical reasoning/thinking; analytical reasoning; problem solving; systematizing; hyperlexia; attention to detail; pattern recognition
* Expertise: Special interests; preferred interests; in-depth knowledge; deep focus
* Cognitive: Self-determination; empowerment; job readiness; cognitive flexibility; coping flexibility; self-efficacy; executive functioning; identity
* Affective: Sense of belonging/inclusion; self-esteem/perception; confidence; positive affect; intrinsic motivation
* Character: nonjudgement; justice; fairness; integrity; honesty; kindness; creativity; curiosity
* Physiological: neuroplasticity; motor skills; physical development; neuroconnectivity;
* Wellbeing: Self-advocacy; enhanced learning; quality of life;
 |
| C. Responsibility, management and leadershipEngineering Technicians shall accept and exercise personal responsibility.The applicant shall demonstrate that they: 1. Work reliably and effectively without close supervision, to the appropriate codes of practice
2. Accept responsibility for the work of themselves or others
3. Accept, allocate and supervise technical and other tasks.
 | C. Responsibility, management and leadershipIncorporated Engineers shall provide technical and commercial management.The applicant shall demonstrate that they: 1. Plan the work and resources needed to enable effective implementation of engineering tasks and projects
2. Manage (organise, direct and control), programme or schedule, budget and resource elements of engineering tasks or projects
3. Manage teams, or the input of others, into own work and assist others to meet changing technical and management needs
4. Take an active role in continuous quality improvement.
 | C. Responsibility, management and leadershipChartered Engineers shall provide technical and commercial leadership.The applicant shall demonstrate that they: 1. Plan the work and resources needed to enable effective implementation of a significant engineering task or project
2. Manage (organise, direct and control), programme or schedule, budget and resource elements of a significant engineering task or project
3. Lead teams or technical specialisms and assist others to meet changing technical and managerial needs
4. Bring about continuous quality improvement and promote best practice.
 | * Perceptual : Visual, auditory, tactile acuity/discernment; sensory differences (sensory seeking and sensitivities); memory
* Reasoning: Logical reasoning/thinking; analytical reasoning; problem solving; systematizing; hyperlexia; attention to detail; pattern recognition
* Cognitive: Self-determination; empowerment; job readiness; cognitive flexibility; coping flexibility; self-efficacy; executive functioning; identity
* Affective: Sense of belonging/inclusion; self-esteem/perception; confidence; positive affect; intrinsic motivation
* Behavioural: management; social capital/relationships; family relationships/functioning; inhibitory control; communication skills; social skills/engagement; social support; adaptive behaviours
* Character: nonjudgement; justice; fairness; integrity; honesty; kindness; creativity; curiosity
* Physiological: neuroplasticity; motor skills; physical development; neuroconnectivity;
* Wellbeing: Self-advocacy; employment; enhanced learning; quality of life; daily living skills
 |
| E. Personal and professional commitmentEngineering Technicians shall demonstrate a personal commitment to an appropriate code of professional conduct, recognising obligations to society, the profession and the environment.The applicant shall demonstrate that they: 1. Understand and comply with relevant codes of conduct
2. Understand the safety implications of their role and apply safe systems of work
3. Understand the principles of sustainable development and apply them in their work
4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice 5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.
 | E. Personal and professional commitmentIncorporated Engineers shall demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.The applicant shall demonstrate that they: 1. Understand and comply with relevant codes of conduct
2. Understand the safety implications of their role and manage, apply and improve safe systems of work
3. Understand the principles of sustainable development and apply them in their work
4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice 5. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.
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2. Understand the safety implications of their role and manage, apply and improve safe systems of work
3. Understand the principles of sustainable development and apply them in their work
4. Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.
 | * Perceptual : Visual, auditory, tactile acuity/discernment; sensory differences (sensory seeking and sensitivities); memory
* Reasoning: Logical reasoning/thinking; analytical reasoning; problem solving; systematizing; hyperlexia; attention to detail; pattern recognition
* Cognitive: Self-determination; empowerment; job readiness; cognitive flexibility; coping flexibility; self-efficacy; executive functioning; identity
* Affective: Sense of belonging/inclusion; self-esteem/perception; confidence; positive affect; intrinsic motivation
* Behavioural: management; social capital/relationships; family relationships/functioning; inhibitory control; communication skills; social skills/engagement; social support; adaptive behaviours
* Character: nonjudgement; justice; fairness; integrity; honesty; kindness; creativity; curiosity
* Physiological: Sleep duration/quality; neuroplasticity; motor skills; physical development; neuroconnectivity;
* Wellbeing: Self-advocacy; employment; enhanced learning; quality of life; daily living skills
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Engineering Council (2000) The UK Standard for Professional Engineering Competence and Commitment (UK-SPEC) 4th Edition, Engineering Council, [on-line at] https://www.engc.org.uk/standards-guidance/standards/uk-spec/

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