Competencies

The following provides an indication of competencies required to deliver the four key principles of globally responsible engineering. Active participation in the Engineers Without Borders UK movement will support the development of these competencies.

Responsible
To meet the needs of all people within the limits of our planet. This should be at the heart of engineering.

Mindset

Commitment. Dedication to the principles of globally responsible engineering, with a strong desire to bring about sustainable and inclusive change.
Technology Stewardship. Behaviour that recognises our responsibility to address the growing complex societal, environmental, and ethical impacts of technology that we create.
Professional humility. Strong ethics and respectful understanding of the impact of the engineering community's work on people's lives.

Knowledge

Ethics. Past, present and future issues, ethical responsibilities and how to navigate ethical debates and integrate ethical conditions.
How to apply **multi-criteria assessment tools** and the importance of these in decision making.
Impact assessment tools to make significant, quantifiable progress towards understanding and improving the impact of actions.

Skillset

Professional judgement. Taking a strong evidence-based approach to solutions, combined with considerate reflection, upholding the principles of globally responsible engineering.
Communication and leadership. Able to effectively communicate ideas, knowing when to listen and learn and when to lead.
Ethics. Able to navigate ethical debates and integrate ethical conditions

Purposeful
To consider all the impacts of engineering, from a project or product's inception to the end of its life. This should be at a global and local scale, for people and planet.

Mindset

Sense of justice. Constructively challenging convention and calling out social and environmental inequities.

Knowledge

Design and development. Design process, multi-criteria assessment tools, biomimicry, human factors and more.

Skillset

Dealing with uncertainty and complexity. Handling broad, partial and subjective evidence, complicated interactions, identifying and verifying assumptions, and making whole-life assessments.

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Inclusive
To ensure that diverse viewpoints and knowledge are included and respected in the engineering process.

Mindset

Creativity and inclusivity. A willingness to share, listen and work collaboratively with a range of groups, particularly marginalised voices, to ensure representation, accelerate progress and find evidence-based and innovative solutions.
Be open and comfortable with the importance of receiving **feedback**, and considering feedback loops as critical.
Self-awareness and the need for self-development. Willingness to test new things, learn from failure and keep going.

Knowledge

Multi-disciplinary insights. Learning through multi-disciplinary approaches, including working with those in related fields (e.g. Science, Mathematics, Computer Science), and those in other fields including business, humanities and the social sciences.
Diversity, inclusion and social justice. Holding a good understanding of power structures, bias, vulnerability, adversity and privilege, and how engineering can disadvantage certain groups
Different models of engineering implementation. Including decentralised/centralised, community-led/top down and shared value/shareholder value.

Skillset

Empathy. Respects and understands other perspectives, across a diverse range of demographic and expertise backgrounds. Ability to create trusted relationships. Track record of co-production, creating spaces and encouragement for others to take their ideas forward.
Contextual listening and learning. Exploring and understanding how multiple social, environmental and economic factors affect an engineering decision, and acting accordingly.
Facilitation. Able to ensure that relevant stakeholders and communities are included in and contribute to the engineering journey. Motivated and engaging style.

Regenerative
To actively restore and regenerate ecological systems, rather than just reducing impact.

Mindset

Creativity and inclusivity. A willingness to share, listen and work collaboratively with a range of groups, particularly marginalised voices, to ensure representation, accelerate progress and find evidence-based and innovative solutions.
Ability to draw connections to areas required under other principles, and using these as a basis for Regeneration.
To **drive change** going beyond building knowledge to actively opening up tangible opportunities for regeneration to be integrated into work.

Knowledge

Human development. Being well versed in how engineering plays a role in the doughnut economics model and the SDGs, to deeply understand how engineering affects human progress.
Alternative engineering. Sustainable, inclusive and regenerative technologies, systems, infrastructure and materials.
Ecosystems and environmental justice. Natural resource cycles, ecosystems and engineering relationships, impact of resource consumption, the SDGs and the environmental ceilings of the doughnut.

Skillset

Creative exploration and forecasting. Able to forecast and predict future impact of work, allowing for inaccuracies in data at early stages. Visioning exercises, and ability to Identify best practice when considering future-proofing and resilience.
Strategic thinking and **planning** skills to think about the bigger picture and work towards long-term goals with achievable milestones.

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