



S P E E D

Student Platform For Engineering Education Development

Written Inputs for the Preparation of the Zero Draft of the Pact for the Future

World Student Platform for Engineering Education Development (SPEED)

<https://www.worldspeed.org/about-us>

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In an era dominated by rapid technological and engineering advancements, we stand at a crossroads between immense potential for progress and significant challenges. The global crises we face today – pandemics, climate emergencies, and conflicts – are not just tests of our technological capabilities, but also of our ethical and social resilience. As we approach the midpoint of the 2030 Agenda, the role of engineering and technology becomes pivotal, raising profound ethical, social, and existential questions. The insights and innovations from the engineering research and student community worldwide are more important than ever. This document, shaped by contributions from young leaders in engineering and technology, responds to the United Nations Secretary-General's 'Our Common Agenda'. It underscores the urgency of incorporating diverse generational perspectives, particularly from the engineering sector, in shaping our technological future. This effort is exemplified by the World SPEED Platform, highlighting the crucial role of youth in developing evidence-informed policies and inclusive scientific cooperation.

As we progress towards the 'Pact for the Future', our focus extends beyond representation to ensure the active participation of diverse voices, especially from the engineering field. This includes women, Persons with Disabilities, Indigenous Peoples, LGBTI+ persons, and the broader STEM community. Their expertise is vital in forming inclusive policies and practices that resonate with the complex tapestry of human experience. This document advocates for a future where technology and engineering are not just tools for advancement, but also for empowerment, equity, and global solidarity. It aims to lay the groundwork for a sustainable and harmonious world, where the contributions of young engineers and technologists are recognized and integrated into our collective journey towards a better future.

The World Student Platform for Engineering Education Development (SPEED) exemplifies this integration by fostering youth involvement in science and policy discussions at the UN. We are a globally recognized non-profit student organization dedicated to enriching STEM education and careers. Our mission focuses on humanizing STEM fields by fostering a holistic approach in students and young professionals, enabling them to contribute significantly to local, regional, and global issues.

We structure our efforts around five core pillars: Education, Mental Health and wellbeing, Peace Engineering, Climate Action and Sustainability, and Inclusion, Diversity, Equity, and Access (IDEA). As a vibrant community, SPEED plays a crucial role in facilitating dialogue among students, academia, civil society, and industry. Our members' dedication has positioned SPEED as a key player in children and youth initiatives within the United Nations system. We actively participate in groups like the Major Group for Children and Youth (MGCY), YOUNGO, SDG4Youth, and UNEP MGCY. Our accreditation by the United Nations Environment Programme (UNEP) and involvement in significant events like Stockholm+50, the UN Water Conference, the High-Level Political Forum on Sustainable Development, ECOSOC Youth Forum, the Transforming Education Summit, the UN General Assembly, and COP 27, showcases pathways for youth advocacy and global engagement. Furthermore, our strategic alliance with the International Federation of Engineering Education Societies (IFEES)

and position as an umbrella organization for engineering student organizations across the world amplifies our impact. This synergy underscores our dedication to creating a dynamic platform for engineering education and sustainable development.

In summary, as we stand at this pivotal moment, it is clear that the path forward must embrace inclusivity and diversity in the realm of technology, science, and engineering. This path should not only respond to immediate crises but also lay the groundwork for a future where engineering serves as a tool for empowerment, equity, and global solidarity, ensuring a sustainable and harmonious world for all.

Chapter I. Sustainable development and financing for development

Engineering plays a vital role in achieving sustainable development goals (SDGs) by innovating solutions for local and global challenges. Engineers can focus on developing and implementing sustainable infrastructure and renewable energy projects, contributing to a more equitable and environmentally conscious world. This area demands active collaboration between governments, private sectors, NGOs, environmental experts, and local communities alongside engineers. Financial institutions and international donors play a pivotal role in providing necessary funding. Civil society organizations can drive grassroots initiatives, while policymakers can create conducive environments for sustainable projects. International bodies like the United Nations Development Programme (UNDP) and the World Bank are essential for coordinating global efforts and resources. Moreover, the inclusion of engineers from diverse backgrounds, especially from low- and middle-income countries, is critical for creating solutions that address a wide range of global development challenges. Additionally, the integration of youth engineers in these initiatives can bring fresh perspectives and innovative solutions.

- Engineering societies can develop guidelines for sustainable construction practices. Implement through partnerships with local governments and businesses.
- Establish funding platforms where engineers can propose solutions for climate resilience, focusing on diverse and equitable community involvement.
- Formulate interdisciplinary teams combining engineers, financiers, and policymakers to address local environmental challenges, ensuring diverse representation.
- Engineering universities and industries can jointly research renewable technologies, prioritizing grants for underrepresented groups.
- Local engineering groups to lead small-scale, sustainable community projects, emphasizing inclusive participation and training.

Chapter II. International peace and security

Engineering communities and members can contribute significantly to international peace and security through the discipline of Peace Engineering. This involves using engineering skills to support conflict resolution, build resilient infrastructures in conflict zones, and develop technologies for humanitarian aid and crisis management. Collaboration with organizations such as Engineers Without Borders can aid in these efforts. Moreover, engineering education should integrate peacebuilding concepts to prepare future engineers for roles in promoting global peace and security. Young engineers and students can engage in developing and applying technologies for peacekeeping and conflict resolution. They can work with NGOs like the International Red Cross and collaborate with the United Nations Peacekeeping Forces to design and implement technology-based solutions for crisis areas. Participation in academic research on conflict trends and security technologies is also vital. They can volunteer or intern with defense organizations or peacekeeping missions to gain practical experience.

- Develop Peacekeeping Technology which involves implementing advanced engineering solutions in peacekeeping, with a focus on technologies that prevent conflict and protect diverse populations.
- Cross-border Engineering Projects that encourage international engineering collaborations that promote peace, prioritizing projects in conflict zones with diverse participant representation.
- Ethical Defense Technologies that Integrate ethics in engineering curricula, focusing on the impact of defense technologies on diverse populations.

- Conflict Resolution Collaboration which involves hosting international engineering summits focusing on technology's role in peacebuilding, ensuring diverse voices are heard.
- Secure Communication Technologies where Engineers develop secure communication tools for conflict zones, focusing on accessibility and cultural sensitivity.

Chapter III. Science, technology, and innovation, and digital cooperation

Engineers have a pivotal role in advancing science, technology, and innovation for sustainable development. This includes developing digital technologies for better connectivity, particularly in underserved areas, and ensuring digital inclusion. Engineers can also contribute to ethical AI development, focusing on digital security and privacy. Collaborative efforts between academia, industry, and governments are essential for fostering innovation. Initiatives like UNESCO's World Engineering Day for Sustainable Development highlight the importance of engineering in sustainable development and the need for more inclusive representation in engineering fields, especially for women and gender-based minorities. Engineering students and young professionals can contribute to this field by participating in tech startups and innovation hubs. They can collaborate on international projects through forums like the World Economic Forum and the ITU. Engaging in academic and government research programs, they can develop new digital technologies and promote global digital cooperation. They can also contribute to open-source projects and participate in hackathons or tech challenges that address global issues.

- Engineers should drive the development of digital infrastructure in underserved areas, ensuring equitable access.
- Foster innovation in sustainable technology through international engineering collaborations, emphasizing equitable and inclusive practices.
- Create global forums for engineers to discuss digital cooperation, with a strong focus on diversity and inclusion.
- Establish international R&D programs in engineering, prioritizing projects that promote equity and inclusivity.
- Develop digital literacy programs led by engineers, targeting underrepresented communities.

Chapter IV. Youth and future generations

Engineers can engage youth in sustainable development and engineering projects. This can be achieved through educational programs in STEM fields, promoting engineering as a career among young people, and providing platforms for youth to contribute to engineering solutions. The participation of youth in engineering is crucial for addressing future global challenges. Engineering youth can partner with educational institutions and youth organizations to advocate for policies that support STEM education and youth development. Young engineers can engage with international organizations and think tanks to understand and contribute to the discourse on global governance. They can intern or work with entities like the UN, WTO, and IMF to gain insights into policy-making processes. Participation in civil society organizations and leveraging media platforms to raise awareness about the importance of engineering perspectives in governance is also key. They can participate in initiatives like the United Nations Youth Envoy or collaborate with NGOs like UNESCO to promote educational and technological access for underprivileged youth. Engineering students can also lead or be part of mentorship programs, guiding younger students in developing their engineering skills. Organizations like the Mahatma Gandhi Institute of Education for Peace and Sustainable Development can support these efforts by fostering educational initiatives that integrate engineering and sustainable development concepts.

- Launch engineering programs for youth focused on sustainability, ensuring they are accessible to diverse demographics.
- Provide scholarships specifically for underrepresented youth in engineering fields.
- Develop mentorship programs that connect diverse engineering professionals with students from various backgrounds.

- Support youth-led engineering projects that address the needs of future generations, ensuring equitable participation.
- Reform engineering education to include future-oriented studies, with a focus on diversity and inclusivity.

Chapter V. Transforming Global Governance

Engineers have a critical role in transforming global governance by developing infrastructure and technologies that support efficient governance models. They can contribute to policy discussions on global challenges like climate change, urbanization, and digital transformation. Collaborations between engineering societies, government agencies, and international organizations are vital for integrating engineering perspectives into global governance policies. This approach ensures that engineering solutions are aligned with global governance objectives, promoting sustainable and equitable development.

- Encourage the inclusion of engineers in global policy-making, focusing on diverse representation.
- Ensure participation of international engineering bodies in global governance dialogues, with an emphasis on diversity and equity.
- Advocate for ethical engineering standards in global governance, prioritizing justice and equity.
- Engineers to contribute to global regulatory frameworks, ensuring they address diverse needs and are equitable.
- Foster collaboration between engineers and global governance institutions, ensuring diverse perspectives are included.

The "Our Common Agenda Policy Briefs" underscore the vital role of young people and the engineering community in addressing global challenges and shaping a sustainable future. Engineers, leveraging their technical prowess and innovative thinking, can significantly contribute to these agendas. They have the potential to create platforms and tools that enable youth engagement in policymaking, contribute to sustainable development, and address the challenges of future generations. Their expertise is also critical in responding to global crises through disciplines like 'peace engineering' and in transforming education by integrating technology and advocating for relevant curricula. Moreover, engineers are instrumental in developing digital technologies that close the digital divide, ensuring a future that is inclusive, secure, and beneficial for all. In all these areas, engineering youth can bring innovative perspectives, apply their technical skills to real-world problems, and collaborate with diverse stakeholders to make a tangible impact. Engaging in these activities not only contributes to their personal and professional development but also enables them to play a critical role in shaping a sustainable and equitable future. This collective effort of engineers, in collaboration with diverse stakeholders, is pivotal in achieving the objectives laid out in the policy briefs, fostering more inclusive, sustainable, and forward-thinking policies and solutions.