GRAND CHALLENGES FOR ENGINEERING
IN THE EYES OF 21ST CENTURY STUDENTS
New Findings from an Ongoing Global Survey | 3rd Edition 2015
Since 2010, clean water, affordable solar energy, and energy provided by fusion top the importance rank. Fusion energy which was perceived essential in the northern hemisphere is now globally.

Up-to-date knowledge and teamwork have passed creativity in the ranking of skills needed to address the challenges. International students exchange programs are now seen as most efficient learning method.

As in 2010, Europe and North America are considered the best places to solve the challenges. Governments and educational institutions are still first in line to tackle them.
THIS THIRD SURVEY OF STUDENT OPINION AIMS AT TRIGGERING A DIALOGUE ADDRESSING THE GRAND CHALLENGES AS WELL AS DEVELOPING AWARENESS AND CURiosity AMONG THOSE WHO WILL HAVE TO PROVIDE ANSWERS IN THEIR PROFESSIONAL LIVES.

Do You Feel that Your Professors Posses the Appropriate Awareness and Knowledge to Address Grand Challenges?

Please Rank the Following Learning Opportunities According to their Relevance for Acquiring Specific/Additional Skills to Address the Global Challenges

Please Rank the Following Professional Domains According to the Importance for Addressing the Challenges

North America and Europe are Globally Seen as the Most Capable Areas to Deal with Grand Challenges

Blue circles indicate the percentage of students in regions who believe this region is well placed to address the challenges. Blue arrows point to the areas which is best placed to address the challenges.

Which of the Following Areas, from a Geo-Economically Point of View, are Best Positioned to Contribute in Solving These Challenges?

Please Rank the Challenges That, in Your Mind, Will Drive the Largest Number of Jobs in the 21st Century

The ranking of challenges as job opportunities strongly correlates with the perception of their potential to transform or re-shape our future.

Please Rank the Following Professional Domains According to the Importance for Addressing the Challenges

The ranking of stakeholders to address the challenges is almost unchanged since the 2010 survey.

International Student Exchange Programs
Advanced Research Projects in Your University
Internships within Companies
Projects or Research in Cooperation with Students from Other Universities
Engineering/Project-Based Competitions in Related Fields
Summer Schools
Being a Full-time Employee

Make Solar Energy Economical
Provide Access to Water
Provide Energy from Fusion
Restore and Improve Urban Infrastructure
Develop Carbon Sequestration Methods
Engineer Better Medicines
Advance Health Informatics
Manage the Nitrogen Cycle
Secure Cyberspace
Engineer the Tools of Scientific Discovery
Enhance Virtual Reality
Reverse-Engineer the Brain
Advance Personalized Learning
Prevent Nuclear Terror

National/State/Provincial Governments
Educational Institutions
International Organizations (UN)
Private Businesses
Non-Governmental Organizations/Charities
Social Scientists
Medical Professionals
Urban Planners/City Managers
Military/Polic
Artists
How Needed Are the Following Skills Needed to Address Grand Challenges?

- Up-to-Date Knowledge
- Ability to Work in a Team
- Creativity
- Responsibility & Ethics
- Practical Experience
- Effective Communicator
- Knowledge of Fundamentals (e.g. Calculus)
- Ability to Take Risks
- Knowledge of Theory
- Ability to Apply Digital Technologies
- Technical Prowess
- Technical Intuition
- Knowledge of Multiple Engineering Disciplines
- Understanding of Non-Engineering Disciplines
- Multi-Cultural Sensitivity

About SPEED

The purpose of SPEED (Student Platform for Engineering Education Development) is to advance engineering education (EE) by providing a platform for global communication among students and other stakeholders. Building a support network for students and empowering students interested in EE to take action locally and globally to improve their own educational environments.

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About BEST

BEST (the Board of European Students of Technology), seeks to develop students and increase their ability to work in an international environment. It offers a wide range of quality services for 1,000,000 future engineers in 33 countries, including: technological courses, engineering competitions, career support and educational involvement. The latter aims to make students’ voices heard through annual symposia and fora. Students have a chance to express their ideas related to engineering education in a discussion with academics and companies. BEST facilitates these discussions and brings the outcomes to the European level.

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