8 of the Greatest Challenges Facing Engineering

Engineers are, by definition, problem solvers and innovators. Whether it's to do with transportation, buildings, medical devices or energy sources, engineers are always looking for ways to make everyday life better for their fellow human beings. With the rapid rate at which changes are taking place in the world today, we all have to keep on our toes to stay ahead of the curve, and this is especially true in the engineering world. To this end, here are 8 of the greatest challenges engineers can expect to face in the next decade.

1. The climate crisis

With climate change becoming a growing topic that demands immediate attention, engineers are going to have to up their game to help mitigate potential catastrophe. The problems of climate change are becoming ever clearer, with scientists linking things like food shortages (of which more later) and even the 2018 California wildfires to the fact that we haven't been treating our world as we should have been. Engineers will be at the forefront of this life-or-death struggle, be it by helping offset pollution created by large companies and corporations, finding sustainable solutions to the energy problem, or ensuring future generations of engineers are more environmentally conscious than any who have come before. This is top of our list of the challenges engineers will face because it's not something that only affects a portion of society - it's something we will all have to deal with. Because we are all a part of the problem, it's only fair that we all become part of the solution.

2. Making water clean and accessible

Water remains one of our most pressing needs and the shocking truth is that the lack of clean water causes more deaths worldwide than wars. According to statistics more than 16% of the world's population still does not have sufficient access to clean water every day. It's not that there isn't enough water available – it's more a matter of how to channel the water where it is most needed. Some countries (like Canada) have abundance, while others (in Africa or the Middle East) never have enough. And then there is the question of all the salt water in the oceans, waiting to be desalinated.

3. Providing enough food

After the need for water comes the desperate need for a steady food supply. This challenge facing engineers of the present and future is an ongoing one which tends to grow along with the expanding world population. As the number of mouths to be fed increases, so does the need for nutritious food. Through effective bioengineering and agricultural innovations, engineers can look forward to making a difference in this everyday challenge of alleviating hunger and malnutrition.

4. Personalised and relevant education

Without a doubt, the kind of education our children and grandchildren receive is going to determine the way they will shape and influence the world when they grow up. The days of one-method-for-all are long gone in the world of learning. Whether it's learning to read or learning to do long division calculations, each child is unique and has a personal style. The challenge for engineers would be to develop more personalised and relevant methods of learning, whether it is computer programs or modular work that caters for the individual needs and preferences of the learner.

5. Improving health care

Medicine and healthcare is another challenging area that is always going to be with us. Engineers have an open invitation when it comes to developing new systems of processing genetic information. More understanding is needed regarding how individuals differ in response to drugs and treatments. Personalised medicines and strategies for overcoming drug resistant infections are just two of many important challenges for engineers to face in the next decade.

6. The refugee crisis

An overwhelming percentage of the world's population is displaced, living in conflict zones, or constantly fleeing from danger. This is as a result of political conflicts and wars as well as natural disasters, droughts and famines. Increasing refugee populations calls for engineers to find new and improved ways of meeting the unique challenges of relief work by working with both host governments and organizations seeking to provide humanitarian aid.

7. Cyber security

The use of computer systems is now so pervasive to every area of our daily lives that most of us cannot imagine how we would manage without them. Those who have been victims of cyber crime have felt the crippling effect that this can have, especially at a business or government level. Certainly engineers would do well to tackle the challenge of cyber safety and find the best ways of securing both data and wealth from unscrupulous cyber criminals.

8. Enlisting the youth

One of the greatest challenges that engineers will face in the next decade is to ensure that their honourable profession is continued into future generations. It is essential to attract and enlist youngsters into engineering careers in order to leave a legacy that will keep on improving the standard of living for all the inhabitants of this world.

As you can see, the opportunities are endless. With hard work, focus and dedication in these areas and others, engineers stand to make a big difference in the world. The challenges are there to be solved, and the role of the engineer in society certainly isn't going away anytime soon.