

# Some ideas on how to improve the efficiency of modern engineering education

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# Some ideas on how to improve the efficiency of modern engineering education

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4. Making the accent on teaching the new advanced technologies and modern materials;
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# Some ideas on how to improve the efficiency of modern engineering education

## 1. Introduction

During the last decades the engineering education suffers some problems, the main of which is the decrease of youth motivation to join the engineering profession.

This is global trend which is caused mainly by the increasing humanization of the society (increasing interest to business, law, management, art, etc.). The situation is quite similar for different countries but for post soviet countries it has more dramatic character.

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## 2. Harmonizing the theoretical and practical teaching of engineers

Now – the main accent on the theoretical data but minimum practical teaching

(in former time at KPI – Sikorsky, Korolev, etc., Nikita Khrushchev's initiative), symbiosis of German universities with Fraunhofer Institute, Missouri-Rolla University in US, Waterloo University –cooperative study (Canada), Osaka University (Japan), etc.

- To great regret such experience is lost now days in many universities.

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## 3. Finding the balance between laboratory and virtual teaching

- This drawback is disclosed quite recently when lecturer is exaggerating the role of modern virtual presentation of material thus decreasing the direct contact with real equipment (machines and devices). That is why in his activity as a designer student is not able “to feel” the specificity of machining processes or peculiarities of different materials used for components manufacturing.
- One of the alternatives is the development of the system of augmented virtual reality education.

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## 4. Making the accent on teaching the new advanced technologies and modern materials

- specific course may be introduced into the curricula like, for example, “The latest developments in laser technology”, “New achievements in nanomanufacturing”, “Simulation in scientific and technological developments”, etc.

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### 5. Making available the distance education alongside with traditional system of teaching;

- Very prospective initiative is the development of the LASTED.net “Laser Technology Educational Network”
- The European program “Virtual Research Laboratory” which is now under development in many countries

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### 6. Developing the new strategy to attract young pupils to engineering studies;

The interesting initiative was proposed and useful experience was gained by Bremen University (Germany). They equipped the special trailer with advertising materials, different booklets and flyers and created the professionally oriented movies and videos

- The main motto of such improvised performances was: “Engineers will save the future of the world!”



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## 7. Improving the social prestige of engineers in society and increasing their financial status correspondingly.

One of the most important factors which must be stressed is the direct dependence of the society safety of different technical accident and technogene catastrophes from the level of qualification of engineers and their status in the society (Chernobyl catastrophe , catastrophe at Fucushima Atomic Station, etc).

Engineer's role in society is very important and engineer's activity will improve the quality of life for human being.

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## 8. CONCLUSIONS

- 1. The improvement in engineering education may be reached by further harmonizing the theoretical and practical teaching, by balancing the conventional and virtual teaching, by wider spreading the distance education.
- 2. The new strategy to attract youth to engineering profession must be used and the engineer's prestige and status in the society has to be increased by all means.

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**THANK YOU VERY MUCH FOR YOUR  
KIND ATTENTION**