

## **New graduate profiles for engineering postgraduate study**

**Dr Tatyana Micic**  
**Associate Dean for PG education**

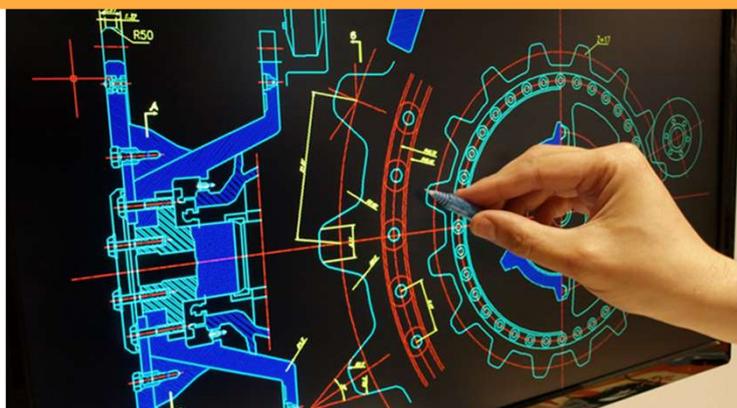
The engineering is considered a significant pillar of the society that impacts everybody's daily life. However, the entry to UG engineering programmes is not keeping up with demands of the industry so efforts are needed to grow entry at PG level as well. Opportunities are plentiful for graduates with diverse backgrounds to enter the profession.

### **Opportunities**

- *Emerging technologies*
- *Sweeping digitisation*
- *Increasing automation*
- *Performance based thinking*
- *Need for effective communication*

### **Barriers**

- *Perceptions about required technical and numeracy standards*
- *Perceptions that there is no creative element in engineering*
- *Lack of understanding for meaning of design in engineering*
- *Perception of low income*
- *Negative perception of working environment*





The common approach to enable access to engineering education at PG level has been through 'all inclusive' module or offer of final year modules on an UG course. Both options represent inadequate solution as they expose potential entrants to extremely challenging environment where terminology is unfamiliar and prior knowledge that is assumed formidable.

## Needed skills

### Degrees allied to engineering, say architecture

- Numeracy
- Physics
- Technical topics

### Cognate degrees

- Numeracy
- Technical topics
- Creative ideas (problem solving)

### Non-cognate degrees

- Numeracy
- Physics
- Technical topics
- Creative ideas (problem solving)

## Available Skills

Graduates with non-engineering degrees bring their own expertise

Specific technical skills

Strong communication skills

High level presentation skills

Research skills



# Engineering Studio

It has been an established practice in design oriented programmes to engage students in Studio environment to develop creative skills. Such approach could be implemented for graduates that wish to enter engineering programmes at PG level to develop specific technical skills. PG programmes are normally technically focused on a relatively narrow area and support is needed to enable engagement on the programme.

Complex task provides focus on a specialist area that is studied in depth → The Studio environment facilitates self study and investigation → With already developed prior skills technical expertise is built in the specific area

The number and diversity of potential solutions is self discovered therefore representing deep learning

Technical aspects are formulated and solutions proposed

Familiarity and proficiency in deployment of the specific tools/techniques supports further learning



## Sample Task **'Micro garden for urban environment'**

*To create and communicate three dimensional and spatial proposals*

*To define design brief that reflects the context by looking at precedents and practice*

*To make plausible proposals that respond to the brief*

*To evaluate proposals in a consistent and technical manner*

*To develop technical details for a sample proposal*