# MANU 3003 CREATIVE DIGITAL: ROBOTS AND AVATARS

**Credit Points** 10

**Legacy Code** 301307

**Coordinator** Mauricio Novoa (https://directory.westernsydney.edu.au/search/name/Mauricio Novoa/)

**Description** This is a project-based learning subject that assists students to creatively synthesise skills learned in previous subjects. Students are introduced to current problem solving in professional practice that negotiates between physical and digital components to form smart artefacts. That relation is represented with the development of an interactive robot and its digital mirror counterpart as its avatar. The subject also assists in the preparation of a professional portfolio show piece for job applications in the industry. Learning by experimentation, the subject links traditional skillsets including software and 3D printing with new forms of design, from engineering narratives to digital creativity within augmented and virtual environments.

**School** Eng, Design & Built Env

**Discipline** Manufacturing Engineering And Technology

**Student Contribution Band** HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

**Level** Undergraduate Level 3 subject

**Equivalent Subjects** MANU 3001 - Graphics 5 Creative Computing

**Assumed Knowledge**

Understanding of 3D CAD and basic programming is desirable.

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Create a project brief that challenges the normal or typical uses of an object.
2. Design and implement techniques for linking components in the virtual (avatar) and real worlds (robot).
3. Develop design solutions using an empathic human-centred approach.
4. Identify and use appropriate range of modalities of communication between user, real world and virtual world for the project.

## Subject Content

1. Augmented and Virtual Reality
2. Digital simulation of products and environments
3. Implementing Tangible Interaction between physical and virtual environments by manipulating physical artefacts (robot) that interact with 2D and 3D world objects (avatar, scenario)
4. Use of parametric and polygon CAD software together with cross-platform game engines
5. Visual analytics

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

| Type | Length | Percent | Threshold | Individual/ Group Task |
|---|---|---|---|---|
| Applied Project: Making the Robot Stage 3D Physical Design and Development | 300 words 3D Physicial Model and Professional Presentation Pitch (5 slides) | 15 | N | Individual |
| Applied Project: Making the Avatar Stage 3D Virtual Design and Development | 500 words 3D Digital/VR Model and Professional Presentation Pitch (10 slides) | 25 | N | Individual |
| Applied Project: The Smart System (bringing it all together): 3D Physical and Virtual Synchronization through programming | 850 words Final Product/ System Presentation and Professional Presentation Pitch (20 slides) | 40 | N | Individual |
| Process: E-Portfolio and Visual Diary | 30 pages | 20 | N | Individual |

Teaching Periods