

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/](https://directory.westernsydney.edu.au/search/name/Mauricio%20Novoa/))

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 fees 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 Physical 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 Synchronisation 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