

AART2001: 3D Prototype to Production

Newcastle City Precinct

Semester 1 - 2024



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

The School of Humanities, Creative Industries and Social Sciences is committed to providing an inclusive environment in which all cultures are accorded respect and all students and staff are expected to act with honesty, fairness, trustworthiness and accountability in dealings with others. The School recognises and respects the unique histories and cultures of Aboriginal and Torres Strait Islander peoples, their unbroken relationship with the lands and the waters of Australia over millennia, and the validity of Aboriginal ways of knowing. We are dedicated to reconciliation and to offering opportunities for Aboriginal and Torres Strait Islander peoples to access and succeed in higher education.

OVERVIEW

Course Description	This course introduces students to the techniques and processes used in the creation of 3D objects, models and artworks for a wide range of applications in the creative industries including animation, film, art and design. Students will design and make objects using production processes and techniques such as 3D printing, digital modelling and the application of digital techniques to traditional materials. The course will develop foundational skills in designing for rapid prototyping and the creative application of digital fabrication technologies such as laser cutting, CNC machining and/or 3D printing to contemporary object making.
Academic Progress Requirements	Nil
Requisites	Students who have successfully completed AART2330 or AART3330 cannot enrol in this course.
Assumed Knowledge	To enrol in this course students must have successfully completed 40 units at the 1000 level.
Contact Hours	Newcastle City Precinct Lecture Face to Face On Campus 1 hour(s) per week(s) for 2 week(s) starting Week 7 Lecture Face to Face On Campus 1 hour(s) per week(s) for 2 week(s) starting Week 1 Tutorial Face to Face On Campus 2 hour(s) per week(s) for 12 week(s)
Unit Weighting Workload	10 Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

COURSE OUTLINE

CONTACTS

Course Coordinator	Newcastle City Precinct Mr Jack McGrath Jack.Mcgrath@newcastle.edu.au Consultation: By appointment, please email to book a time.
Teaching Staff	Other teaching staff will be advised on the course Canvas site.
School Office	School of Humanities Creative Industries and Social Sciences NU Space, Level 4 409 Hunter Street Newcastle HCISS@newcastle.edu.au +61 4985 4500

SYLLABUS

Course Content	Topics will include: <ul style="list-style-type: none">• Makerspace techniques for creating digital and physical objects• Designing for additive and subtractive modelling processes• Theoretical contemporary practice, concepts and context;• Project research and documentation• Physical and digital 3D workflows for model and object making
Course Learning Outcomes	On successful completion of this course, students will be able to: <ol style="list-style-type: none">1. Employ technical knowledge and practical skills in 3D production;2. Determine the conceptual rationale for making works using applied processes;3. Apply 3D or 'spatial' research to production of objects;4. Undertake project-based research and documentation of work;5. Produce resolved and finished 3D material outcomes.
Course Materials	Course materials can be purchased on demand from the HCISS online store . More details on Canvas.

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	26 Feb	Introduction to course and CAD (Cardboard Aided Design)	Lecture - Introducing CAD (Cardboard Aided Design) Tutorial – Makerspace in class mini brief CAD	
2	4 Mar	CAD (Cardboard Aided Design) continued	Lecture – 3D Printing & CnC for Public Sculpture Tutorial - Makerspace in class mini brief	
3	11 Mar	Intro to Digital Modelling Software	Tutorial – Intro to Digital Modelling Software	Tutorial Exercise Due
4	18 Mar	Laser Cutting – Theory & Practice	Tutorial – Laser cutting pipeline	
5	25 Mar	Hard Surface Modelling	Tutorial – Box Modelling	
6	1 Apr	Organic Modelling	Tutorial – Sculpting	
7	8 Apr	Procedural Modelling	Lecture – Major Project Tutorial – Geo & modifiers	Tutorial Exercise Due

Mid-Semester Recess

Mid-Semester Recess

8	29 Apr	Scanning and Photogrammetry	Lecture - Introducing Laser Cutting & CNC theory & practice Tutorial – Photogrammetry Demo	
9	6 May	3D Printing workflows	Tutorial – 3D Printing Pipeline	
10	13 May	Class CNC workshop	Tutorial – CNC Milling workshop	
11	20 May	Advanced prototyping techniques	Tutorial – Advanced Workflows	
12	27 May	Work in Progress	Tutorial – Bringing it altogether – in class critique	Major Project Due
13	3 Jun	No Class		Research Journal Due
Examination Period				
Examination Period				

ASSESSMENTS

This course has 3 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Research Journal	Friday the 7 th of June by 5pm	Individual	20%	2, 3, 4
2	Process Studies	Fridays on Weeks 3 (15 th March) & 7 (12 th April) by 5pm	Individual	30% (2x15%)	1, 2, 3, 4
3	Major Project	Friday 28 th of May by 5pm	Individual	50%	1, 2, 3, 5

Late Submissions

The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Research Journal

Assessment Type	Journal
Description	Creation of a process journal that details the decision making, references, experiments, research, and technical process behind the designing and making of works each week. Students must be keeping notes and documenting their work throughout the course in preparation for this task. Detailed brief will be available on Canvas.
Weighting	20%
Length	15-20 A4 pages (Landscape)
Due Date	Friday the 7 th of June by 5pm
Submission Method	Online (Canvas)
Assessment Criteria	Rubric – See Canvas for details
Return Method	Online
Feedback Provided	Online

Assessment 2 - Process Studies

Assessment Type	Portfolio
Description	Two mini briefs to be completed and submitted based on tutorial exercises. Detailed briefs will be available on Canvas.
Weighting	30% (2x15%)
Length	3 x Photographs & 3 x 150-word statements
Due Date	Fridays on Weeks 3 (15 th March) & 7 (12 th April) by 5pm
Submission Method	Online (Canvas)

Return Method Rubric – See Canvas for details
Feedback Provided Online

Assessment 3 - Major Project

Assessment Type Project
Description Final 3D prototype and artist statement
Weighting 50%
Length 3 x photograph of 3D object, CAD project files and 200-300 word statement
Due Date Friday the 28th of May by 5pm
Submission Method Online Canvas
Assessment Criteria Rubric – See Canvas for details
Return Method Online
Feedback Provided Online

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face to face meetings or supervision

Course Evaluation

Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.

Oral Interviews (Vivas)

As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the [Oral Examination \(viva\) Procedure](#). In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the [Student Conduct Rule](#).

Academic Misconduct	All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35 .
Adverse Circumstances	<p>The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:</p> <ol style="list-style-type: none">1. the assessment item is a major assessment item; or2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;3. you are requesting a change of placement; or4. the course has a compulsory attendance requirement. <p>Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at: https://policies.newcastle.edu.au/document/view-current.php?id=236</p>
Important Policy Information	The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at https://www.newcastle.edu.au/current-students/respect-at-uni/policies-and-procedures that support a safe and respectful environment at the University.

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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