

ASSIGNMENT SPECIFICATION

Student name:		Student P number:	
Programme:	MDes[Hons] BSc[Hons] Product Design & Technology	Faculty/School:	FAD/SD&AA
Module:	Digital Product Development	Module Level (4, 5, 6, 7):	5
Module code:	M5X01242	Contribution to Overall Module Assessment (%):	A1: 40% A2: 60%
Lecturer:	I Williams	Internal Verifier:	MA
Assignment Title:	Digital Technology Capture	Assignment No (x of x):	1 of 1

Hand Out Date:	21.03.18	Submission Date:	AC1 -09.05.18 AC2 – 09.05.18	Feedback Date:	Wk beginning 30.05.18
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Referencing:	Written coursework submissions: In the main body of your submission you must give credit to authors on whose research your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have read or quoted in order to complete this assignment (e.g. for books: surname of author and initials, year of publication, title of book, edition, publisher: place of publication). Harvard or APA referencing systems is accepted. Practical coursework submissions: You must give credit to designers or artists whose work you have used to inspire your own. Where specific designs or images have been used in your development work you must indicate the name of the ‘author’ and details of the source of the work (e.g. book, journal, website etc.).			
Disclosure:	I declare that this assignment is all my own work and that I have acknowledged all materials used from the published or unpublished works of other people. All references have been duly cited.			
Student’s Signature:	Assignments will not be accepted without a signature here and date >		Date of submission:	
Turnitin: Lecturer to tick to indicate if an electronic version of the assignment must be submitted to Turnitin. If both electronic and hard copy submissions are required then both versions MUST be submitted by the same deadline. No marks will be released until both submissions are received. Note: the Turnitin version is the primary submission and acts as a proof of receipt for the student. A paper receipt must be completed for hard copy submissions, including portfolios and other design work.			YES	
			NO	✓

**Penalties for late submission: Up to ONE week late, maximum mark of 40% for first attempt.
Work cannot be accepted after ONE week and will be recorded as a non-submission, 0%.**

- The Assignment Specification Form **MUST** be at the front of all assignment submission. Assignments will not be accepted without this form, as it is a requirement that you sign the disclosure regarding referencing conventions.
- DO NOT** include this form in your Turnitin submission or it will match many similarities with other students' submissions.

This form must be signed and submitted with your assignment

ASSIGNMENT DESCRIPTION

Learning Outcomes

Module Learning Outcomes being Assessed:

1. Proficiently and competently use digital replication and reproduction technologies to output design solutions;
2. Understand how digital time compression technologies can influence the design workflow.

Task

The module will introduce students to digital workflows in 3D scanning and additive technologies. Students will develop practical knowledge and application of time compression technologies and develop an understanding of how advanced digital design assisting technologies and their implementation can accelerate product development.

Assignment Component 1 (AC1) –40% = 3D scan and data clean up

Task is to create bespoke orthotic insoles using digital capture tools, CAD and additive technologies.



Assessment Criteria:

The assignment will be assessed in relation to the specified deliverables as follows:

- LO1 using the common assessment & marking criteria 2,3: Stl or obj file of raw scan data, Stl or obj file of cleaned up data. (Name each file with Student Surname in CAPITALS)
(All criteria are weighted equally).

Task 1

Capture 3D scan data using photogrammetry techniques. Use photogrammetry software (Autodesk recap photo or similar). Add a measurement to the images to scale capture data correctly. Orientate data to align with a work plane. Think about creating an impression of the feet using an appropriate material.

Task 2

Using Autodesk Meshmixer or recap photo clean up the scan data. Remove unwanted surfaces and fill missing surfaces to make the scan mesh watertight. Export the model as .stl or .obj file.

Assignment Component 2 (AC2) –60% = Edit, create and 3D Print

Assessment Criteria:

The assignment will be assessed in relation to the specified deliverables as follows:

- LO2 using the common assessment & marking criteria 2, 3, 4, 5: memory stick containing all data from AC1 and AC2 including G-code file, 3D Printed part, Fusion360 file. (Name each file with Student Surname in CAPITALS)
Illustrated report to include each step taken plus 3d printed orthotics
(All criteria are weighted equally).

Task 1

Import the scan data into Fusion 360. Using the toolsets in Fusion 360 generate a solid model and design the orthotic from the data. Think about the orthotic template and wall thickness. Further refinements can be done in Autodesk meshmixer to optimize design for 3D printing.

Task 2

Import the file into CURA or Autodesk Print Studio Using CURA or print studio software. Prepare the 3D model and save as G-Code for printing on Ultimaker. Think best orientation for surface finish, speed of printing, density of part layer height and support structure. Print time should be no longer than 7 hours.

Task 3

Prepare Ultimaker for printing. Perform checks and heat up Nozzle. Print part on Ultimaker and remove from platform and break off any support structure for presentation.

Submission: A1 & A2 – 1.00pm 09.05.18

Feedback: During the week beginning 30.05.18