

Module/Unit of Learning	Taught During	What will students learn?	How does this develop expertise and challenge students?	Links to other Subjects
R038 Design Strategies and Design Requirements. OnShape: Intro To CAD.	Autumn Term	Students will learn the different design aspects that typically contribute to the design process. They will learn to investigate a design brief and develop a specification, as well as the types of drawings that are involved both on paper on using CAD. Students will learn the purpose of CAD, views, measurements, dimensions, part making and part assembly. They will learn to sketch, extrude, constrain, fillet, and hole. We will make several 3D models.	Students are supported to gain all of the knowledge required to be successful in their controlled assessments and the exam. Sketching and modelling is hard and they will learn to find solutions to problems themselves.	
R038 Communicating Design Outcomes. OnShape: Intro To CAD. R038 Evaluating Design Ideas	Spring Term	Students will learn oblique, isometric and orthographic drawing techniques using pencil and paper as well as CAD software. Students will create several 3D models that are challenging to make. Projects will include lego bricks, laptop holder and pucket board game.	Students are supported to gain all of the knowledge required to be successful in their controlled assessments. They are challenged to utilise all of this knowledge to independently respond to the assignment briefs.	
R039 Manual Production of Freehand Sketches and Engineering Drawings. R039 Use of CAD.	Summer Term	Students will learn to produce drawings that demonstrate designs and include a range of rendering methods. Sketches will be produced using freehand e techniques as well as tools e.g. square, ruler, Isosketch etc. Students will learn to recreate challenging objects with multiple parts in CAD.	Students will be guided to use CAD software at an industry standard, becoming experts on using this key approach to engineering design.	