BIC6022-A module descriptor	
Module Title	Computer Aided Engineering
Credit Level	10 credits (FHEQ Level 6)
Session	2026/7 academic year
BDA occurrence	Semester 1 available at University of Bradford
BDA occurrence	Semester 2 available at University of Bradford
BDA occurrence	Semester 3 available at University of Bradford
BDB occurrence	Semester 3 available at University of Bradford

Transparency notice

This specification for module code BIC6022-A has been generated automatically in advance of the academic year 2026/7. Every effort has been made to ensure that the information is accurate at the time of publication, but changes permitted by our Student Contract Terms and Conditions could be made in the interval between publishing and commencement of teaching; where changes impact the terms and conditions of an applicant's or student's offer, these are communicated to them as soon as possible.

BIC6022-A module aims

This module will develop your creative and technical skills and give you a practical understanding of the importance of computer-aided design (CAD) in the wider engineering design process.

As well as a theoretical understanding of relevant design principles and tools, you will develop the ability to apply CAD technology, modelling and analysis techniques in a laboratory setting and gain insights into the use and value of CAD in a real-world manufacturing environment.

BIC6022-A module learning outcomes

No.	Students completing the module will be able to:
01	Analyse an engineering design problem and formulate a solution whilst applying an understanding of the properties of materials within the context.
02	Produce an effective realisation and project management plan, taking into consideration time and budgetary constraints.
03	Show the ability to utilise specialised CAD software to produce sketches and blueprints of components.
04	Demonstrate an understanding of working as a team to visualise a finished article

BIC6022-A module outline syllabus

The module will cover the following topics:

Problem-solving skills - Analysing engineering problems and producing design solutions. Students will need to consider material choices to maximise suitability and effectiveness of their solution.

Conduct research from printed and on-line sources including the interpretation and referencing of their research.

Preliminary 2D sketches and 3D simulations utilising specialised CAD software, such as AutoCAD and SolidWorks to design and visualise a product relevant to a specific engineering discipline.

Project manage the design and realisation process, working within set parameters including timescale and budgetary considerations. While engaged in this process they will need to work collaboratively with a group of their fellow students and with a number of College and University staff.

Suitability of their product - its sustainability over time and its impact on the environment in production and use all need to be taken into account.

For more information, visit the VLE (**Canvas**) page, go to our **Reading Lists webpage for this module** or search **https://bradford.rl.talis.com** for this module.

BIC6022-A module notional learning hours

- 10 hours Lectures
- 50 hours Directed Study
- 40 hours Laboratories

The overall expected hours may include contact time, scheduled learning activity, directed and independent study and any minimum expectations for placement learning. Most learning at the University of Bradford has some online content and sessions which are delivered fully by virtual means are labelled as "online".

BIC6022-A module learning, teaching and assessment

Groups are small and classes are student-centred, task-based and interactive.

The classroom approach is explicitly designed to help international students acquire new knowledge and skills, to build their confidence and enable them to become more independent learners. By doing this consistently and across all modules, the programme provides them with a strong foundation for further study in their chosen subject area.

The approach is inclusive and recognises that students come from different backgrounds with a range of previous learning experiences and associated expectations, beliefs and behaviours. Teaching and learning methods are clearly explained so students understand why (where appropriate) they need to engage in new ways of learning and why those they have used or relied on up to this point may be less suited to supporting their ongoing development and their chances of success in UK Higher Education.

Formative work is an integral part of the approach. In class, students are set tasks that require them to apply their knowledge and skills, to think critically and to solve problems. The level of challenge is gradually increased as the students grow in confidence and Tutors help them to see that experimentation, trial and error are central to the learning process, providing constructive feedback on both what has been achieved and how.

Students are also expected to engage in independent study, to reflect on their own performance and to discuss this with their module tutor or personal academic tutor, who will provide support and advice and, when necessary, draw the attention of the Academic Management Team to a struggling student using the 'Students of concern' process.

Assessment reflects authentic engineering design practice and supports the development of technical, project management and teamwork skills.

The design proposal and project plan (30%) assesses Learning Outcomes 1-2 through the analysis of an engineering problem, evaluation of solutions and development of a project implementation strategy.

The team CAD project and presentation (70%) assesses Learning Outcomes 3-4 through collaborative development of a design solution using specialist CAD software and 3D visualisation techniques.

Formative opportunities include CAD workshops, design critiques, project reviews and peer feedback activities.

Success is demonstrated through effective engineering design, appropriate use of CAD tools, project planning and teamwork.

To pass the module, students must achieve the University pass mark overall. Students who do not pass the first time will be given an opportunity to complete equivalent assessments that address the failed learning outcomes.

BIC6022-A mode of assessment			
Type	**Mode**	**Assessment description**	**Weight**
Summative	Coursework - Written	Analyse a problem, develop a solution and produce a project management plan. LOs (LO1, LO2) (1000 words)	30%
Summative	Presentation	Work as a team to implement a design solution using 3D visualisation and CAD software. (LO3, LO4)	70%

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