

Computer Aided Engineering

Module Code:	ENB4002-B
Academic Year:	2018-19
Credit Rating:	20
School:	(OUT OF USE FROM 2018/9) School of Engineering
Subject Area:	Engineering Business
FHEQ Level:	FHEQ Level 4

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	4
Tutorials	69
Directed Study	131

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Semester 2 (Feb - May)

Module Aims

The module aims to provide a working understanding of computer aided design, analysis and simulation techniques applicable to Chemical, Civil, Mechanical and Biomedical Engineering through the use of industry standard Computer Aided Engineering software. The developed knowledge and understanding forms the foundation in computer aided engineering methods which will be utilised throughout all stages of study in all engineering disciplines.

Outline Syllabus

The syllabus is divided into 2 core areas (Computer Aided Design and Computation Analysis) which are common to all disciplines. Some discipline specific learning is also included.

Computer Aided Design (AutoCAD and SolidWorks)

1. Understanding engineering drawings
2. Fundamentals of 3D geometry modelling
3. Modelling of assemblies
4. Simulation

Computational Analysis (MATLAB)

1. Solving engineering mathematical problems
2. Creation and display of graphs and data plots
3. Matrices and vector analysis
4. Data fitting

Discipline Specific

1. Chemical Engineering - Plant Design and Plant Arrangement
2. Civil Engineering - Building Information Management (BIM)
3. Mechanical and Medical Engineering - Enhanced discipline specific examples

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 Select and apply appropriate computational method for the description, analysis and visualisation of engineering problems.
- 2 Communicate engineering information through appropriate visual means
- 3 Demonstrate IT and problem solving skills as applied to engineering analysis

Learning, Teaching and Assessment Strategy

Computer aided engineering (CAE) tools are introduced through the use of practical examples delivered either as live demonstrations, tutorial classes or personal and group directed study. Examples are designed to give students a broad experience of the use of CAE tools across all disciplines (Mechanical, Civil, Chemical and Biomedical) as well as methods for selecting appropriate CAE tools for a given engineering problem.

Our virtual learning environment (VLE) Canvas will provide access to substantial tutorial material and examples which students complete during directed study time outside of timetabled sessions.

Individual and group directed study activities will be formatively assessed during tutorial sessions. Feedback and guidance will be given to students on an informal basis.

There are 2 formal assessments.

Assessment 1 (Coursework) - 2 and 3D modelling of parts, assemblies, processes and structures (60%)

Assessment 2 (Lab Test) - Data analysis and visualisation (40%)

Additionally, there are formative assessments throughout the module during timetabled tutorial sessions.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Referral	Coursework	3D modelling of systems with data analysis		100%	No
Summative	Coursework	2 and 3D Modelling of Systems	0 hours	60%	No
Summative	Classroom test	Data analysis and visualisation	0 hours	40%	Yes

Legacy Code (if applicable)

ENG1300L

Reading List

To view Reading List, please go to [rebus:list](#).