BIC4026-B module descriptor

Module Title	Thermofluids
Credit Level	20 credits (FHEQ Level 4)
Session	2026/7 academic year
BDA occurrence	Academic Year available at University of Bradford
BDA occurrence	Non Standard Year available at University of Bradford

Transparency notice

This specification for module code BIC4026-B 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.

BIC4026-B module aims

The aim of this module is to provide students with a clear understanding of the concepts of Thermofluids, which comprises two branches of engineering science - Thermodynamics and Fluid Mechanics. This is to be achieved through lectures, tutorials and also practial lab sessions.
Thermodynamics is the study of energy and energy transformation and is widely applicable to all branches of engineering involving work being done or heat being transferred. Fluid mechanics is the study of fluid behaviour at rest and in motion, and has a wide range of applications in mechanical, chemical, civil and biomedical systems.

BIC4026-B module learning outcomes	
No.	**Students completing the module will be able to:**
01	Demonstrate knowledge of fluid flow and energy balances in a range of engineering contexts and components.
02	Explain the principles of thermodynamics and fluid mechanics and apply these to the analysis of simple processes.
03	Demonstrate data collection and interpretation and problem-solving skills in an engineering context.

No.	Students completing the module will be able to:
04	Present laboratory reports containing results and offering critical analysis

BIC4026-B module outline syllabus

* Properties of fluids
* Hydrostatics and buoyancy forces
* Fluids in motion - laminar and turbulent flows
* Introduction to energy thermodynamics
* Systems, energy, work, heat, properties.
* First Law of Thermodynamics.
* Mass continuity
* Energy conservation - Bernoulli's equation
* Conservation of momentum
* Ideal gases; thermodynamic tables, compressibility
* Analysis of closed systems
* Analysis of open systems

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.

BIC4026-B module notional learning hours

- 40 hours Lectures
- 20 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".

BIC4026-B module learning, teaching and assessment

Students are taught this course in a group of up to 18. Delivery is divided between tutor-led seminars which are classroom-based and focus on theory, and laboratory-based sessions, where theory can be illustrated and tested through practical work. The teaching approach places considerable emphasis on interactivity between teacher and students and between individual students within the group. This is facilitated by the range of activities introduced into classes, the use of group and pair work, particularly in practical work, and of the further opportunities for interactivity provided by Smart Board technology.

Students are encouraged throughout to reflect on their own performance and skills development. Within the practical element of the course students are able to learn about the laboratory environment and the importance of following laboratory rules and procedures so that everyone can work safely.

Student progress is closely monitored by both subject staff and each student's personal tutor. Tutors hold one to one sessions with students during which they are encouraged to reflect on their own progress in meeting their objectives which is particularly valuable in the context of this particular course. Out of this monitoring comes the provision, as necessary, of learner support in specific, identified weaker areas or where students are making limited, unsatisfactory progress.

In terms of summative assessment, lab reports are submitted after two practical sessions. At the end of the course students sit an unseen examination covering all aspects of the course.

The lab reports and final examination are spread through the term of study and supplemented by a range of shorter-term preparatory exercises. These do not contribute to the final course assessment but are marked and used to provide detailed feedback to assist the students to prepare for the lab reports and examination which contribute to the summative assessment.

During the course students are encouraged to reflect on their own progress in the theoretical and practical elements of their studies, and the level of formative assessment with which they are provided is intended to support them in this. It also gives the information required by tutors to provide the students with additional support in areas of weakness and to signpost them towards more challenging tasks in stronger areas.

BIC4026-B mode of assessment

Type	Mode	Assessment description	Weight
Summative	Coursework - Written	Lab reports testing LOs 1, 2, 4, 5 are submitted during the course following two practical sessions	40%
Summative	Examination - Closed Book	Examination drawing together all theoretical aspects of the course and testing LOs 1, 2, and 3	60%

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