

Mechanical Engineering:

Library support for education, skills and resources

This profile provides an overview of the Library's current engagement with Mechanical Engineering, bringing together a summary of embedded teaching activity, the use of library resources within taught modules, student feedback, and key challenges encountered by students in relation to information literacy, academic skills, and resource access. The aim is to inform preparation for Curriculum Transformation, identify opportunities to balance or enhance skills scaffolding within the curriculum, and ensure Library information resources continue to align with programme needs.

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Library embedded teaching

Our approach aims to:

- work with programme teams to embed academic and information skills development within all taught programmes, at key points in the student journey, tailored to the discipline and cohorts.
- support active and scaffolded learning, creating online learning that enhances any timetabled sessions.
- be formally situated in student timetables for context and engagement.

Academic Engagement team expertise:

- **Developing independent learning and critical approaches**, setting learning goals, using information critically including Generative AI, and taking responsibility for the learning journey.
- **Developing and communicating ideas** from seminar participation and collaboration, written and verbal communication, to reading and note-taking,
- **The writing process**, sustainable writing habits and different styles of writing - academic, technical, scientific and reflective.
- **Assessment literacy and the assessment mix** - presentations, videos, posters, group assignments, exams and revision, essays and reports.
- **Dissertations and research projects** from writing assessed research proposals to finding and evaluating the quality of the information, primary sources and data that underpin research, creating critical literature reviews and discussion.
- **Planning effective searches**, selecting information resources, using specialist databases, archival materials, understanding and interpreting primary sources, assessing the quality and impact of information, and approaches to Systematic Reviews.
- **Managing information** including referencing, integrating sources, reference management software and using information with integrity.

Embedded teaching 2025-26

This summary is provided as an illustration of where embedded teaching has been previously integrated into the current programme to inform consideration of whether Library teaching input may be valuable in the new programme design.

Module	Session summary	Team	Notes
ENG1009 Professional Skills	Assignment skills for stage 1 and beyond – lecture	Academic Engagement and Academic Skills	Core module for stage one students. Focus is on assessment literacy, as this is an area identified by academic team as needing development as students move into stage two.
MEC3098 Mechanical Engineering Project	Finding and using information in your project - lecture	Academic Engagement and Academic Skills	Core capstone module for all stage three students. Introduces research skills for the early stages of capstone project.
	Finding information for your project – PC cluster workshop	Academic Engagement	Session support students in finding good quality academic and technical information for their capstone project.
	Writing a literature review - lecture	Academic Skills	Supports students in writing and editing their capstone project.
MEC8095 MSc Project: mechanical and Systems Engineering	Getting started with your literature review - lecture	Academic Engagement and Academic Skills	Core capstone module for PGT students. Session supports research skills for capstone project.

Student support

One-to-one appointments

23 Engineering students attended appointments with the Library's Academic Skills and Engagement team in 2025-26. Proportionally uptake of appointments is low, and it is hoped that signposting through Academic Advising will improve this.

Within the booking process, students are asked to reflect on their skills need and the purpose of their tutorial.

Topics identified were:

- writing the dissertation
- revision
- time management
- learning to edit / proofread work
- planning and structuring work
- critical appraisal and critical writing
- managing information and referencing
- identifying where to search for information
- using databases and specialist resources

Common feedback and challenges for students in Mechanical Engineering

- How to work collaboratively, including making effective use of digital collaboration tools rather than meeting in-person, how to make group submissions cohesive and navigating group dynamics.
- Readiness for writing particularly with earlier opportunities to practice low stakes writing before completing a longer narrative piece or research project.
- Effective use of reputable data sources including material property data, technical literature and standards within assessed work and to inform lab work.
- Integrating sources into work including understanding academic misconduct, plagiarism and acceptable use of AI.
- Understanding of assessment literacy, being able to interpret marker's expectations and developing strategies to work toward them.
- Undertaking and structuring literature reviews including expectations of reading for research activity and critical discussion of sources.
- Communicating for different audiences or styles for example reflective writing, technical writing and presentations to non-specialists.

Library resources: challenges and opportunities

Reading Lists

- 42 modules with a Reading List
- 16 modules without a Reading List
- 27 highest number of citations
- 1 lowest number of citations
- 8 average number of citations

Out of print titles and old editions

A review of Mechanical reading lists has identified numerous out-of-print titles (e.g. **Carryer, *Introduction to Mechatronic Design***, core text for MEC3033) and editions no longer available for purchase, limiting the Library's ability to provide access for students. We encourage colleagues to review reading lists regularly, use current editions where possible, and work with the Academic Engagement Librarians to identify alternative resources when key texts are unavailable.

AI enhancements

AI features are being added to many core Engineering databases, transforming the ways students can discover and use information. It is important to be aware that AI is not only helping students engage with more challenging specialist resources but is also presenting information in innovative ways that may impact on students' critical use of information, including what may be included in assessments.

Engineering Village (Compendex)

Elsevier is deploying *Engineering Village AI* which includes 'enhanced search' and the search results page includes an AI-powered summary of a topic that draws on the information indexed within the database.

Knovel

Basic search now offers search using natural language, Boolean, or a combination of both. Natural language search is converted into advanced Boolean and shared with the user. The search results page now includes an AI-powered summary of a topic that draws on the technical documents, material property data and academic references.

IEEE Xplore

AI enhancements are currently in pilot with selected partners and we understand that when additional functionality (including agentic AI) is released to subscribers, this will be as an additional subscription. This will present a budgetary challenge and will require evaluation of the resource.

E-textbook model

There are key titles such as Hibbeler *Engineering Mechanics. Statics* and Meriam, *Engineering Mechanics. Dynamics* that are only available via e-textbook model – where an annual fee is calculated using module student numbers. This may present a challenge for large cohorts and increased module size. The usage and cost effectiveness is reviewed regularly. If the e-textbooks were not to be renewed based on value for money, access would be limited to print holdings.

Standards and material property data

The licences associated with standards and technical literature (SAE Mobilus, IEEE and [British Standards Online](#)) and material property ([Knovel](#)) databases are especially restrictive, including being for education use only, about how materials can be shared, and/or used with AI tools. When building module content, it is best practice to link students to the resources platform to avoid breach of licence.

Things to consider in programme and module design

Skills for learning and embedded teaching

- What non-discipline skills (such as information literacy, digital skills or communication) do students need to successfully complete the assessment tasks being designed?
- How can the development of these skills be scaffolded and embedded within a module or across the programme of study and stages?
- What are the skills for learning that are implicit in the programme design, and have any assumptions been made about students' current skill level?
- Which modules are best suited to the sustainable embedding of information and academic skills?
- Are there online learning materials that can be drawn from the Academic Skills Kit, or provided by the Library teams to provide scaffolding for students?

Resources

- What information resources are essential for the successful design and delivery of the module or programme? For example, is design based on having access to the e-textbooks, or a new resource not currently held?
- Are there resources within the Library collections which would no longer be needed because of programme and module changes?

Things to consider in the module development:

Reading lists

Using the online Reading lists system to present materials to students does far more than provide students with easy access to resources. It helps the Library identify and purchase essential materials, respond to demand across modules, and ensure sufficient access for large cohorts. Using Reading List links also ensures content is accessed through the Library's licensed resources, allowing us to manage copyright compliance, access usage data for value for money assessment, and ensure all students have reliable access.

E-book licences vs cohort size and availability

Securing cost-effective institutional licences for multi-user e-book access can be challenging. Some publishers impose restrictions on access and usage or may only offer the latest edition of a title in print. Often, a book may be available for individual purchase (e.g. Kindle) but not sold in a way that is suitable for institutional access. Therefore, it is important you alert the Library of e-book requirements as early as possible, so we can investigate availability of titles.

Licence restrictions

Library resources are licensed for educational use only, creating challenges when materials are used in assessments involving external partners or when outputs are shared beyond assessment purposes. Material property data, statistics, and standards are particularly affected.

Discuss your programme needs with us

Find out more about:

- [Embedding skills in the curriculum with the Library](#)
- [Reading lists for Academic staff](#)

Emily Dott

Faculty Engagement Librarian (SAgE)

libengagement@newcastle.ac.uk

