

Curriculum Framework

The New Model Institute for Technology & Engineering (NMITE) will offer a new type of degree in Liberal Engineering Sciences[®] combining the traditional content of an engineering programme with humanities and social sciences, the latter delivered through a unique Human Interaction[®] course that engages students in studies in analytical and critical thinking, creativity, business, entrepreneurship, global employability, and social and ethical perspectives for science and technology. The curriculum will be further specialized by focusing on industry sectors toward the end of the course. The university will endeavor to admit an equal number of women and men to the programme, and are committed to a similar profile for faculty.

Curriculum development will be based on three concepts to be further developed in 2015/16:

1. Our certainty that applied engineering and related technological sciences will play a critical role in finding solutions to 21st Century problems and in grasping the opportunities the century will provide.
2. Our conviction that engineers must have an understanding of how their studies relate to and are integrated with the real world and society.
3. Our belief that the programme must cultivate lifelong learners, and that to do so students must have the tools and the capacity, determination and commitment, to confront and conquer the challenges of the future.

Throughout their study, students will be engaged in hands-on experience in projects connected to real-world problems, learning how to apply subject matter to the practice of engineering and related technological sciences. As such, the academic culture and curriculum itself will be collaborative and interdisciplinary. Employers and professional institutions will play an integral role in the process of curriculum development to ensure the right mix of theoretical development and practical engagement. Courses and the resulting degree programmes will be tailored to support the locally, nationally and globally essential sectors of:

- Defence and Resource & Data Security
- Advanced Manufacturing
- Agri-Technology
- Green & Renewable Technologies

The Developing Curriculum

In the tradition of liberal education, first year students will follow a foundation year of general engineering/technology fundamentals, from which they will craft their specialization or major area of study in the subsequent two/three years of the degree course. The foundation year will provide students with underpinning knowledge and techniques in mathematics, physics, and computer science.

Alongside the foundation year Engineering curriculum, first year students will also begin courses from NMITE's unique Human Interaction[®] programme:

- People, behaviour, management and leadership
- Science, technology and society – the historical, cultural, political and ethical context of technology and engineering
- Communication and global employability skills

A unifying theme through the Engineering and the Human Interaction[®] programmes will be experiential learning and problem solving project activity designed to develop skills in communication, critical thinking, collaborative interdisciplinary teamwork, project management, and leadership. At least one project undertaken by first year students will involve community service work. Students working in teams will identify specific challenges faced by real people in local communities, and design innovative and practical solutions that directly benefit lives.

In a form of extended try-out for employers and students, an industry internship will be required in the second or third year of study at NMITE. Reminiscent of “sandwich courses,” the NMITE experience will be similar, but the level of contact with employers will be deeper, reflecting the industry focused curriculum selected by the student. Students will work closely with industry partners, learning about their business and in return the industry partner has a say in the skills the student develops. Their Human Interaction[®] curriculum will continue in parallel, advancing the level of contextual understanding, business and employability skills, and communication experience of the student. Students opting for a more business/entrepreneurial focus to their studies will be required in their second year to establish and run a small business.

In their final year(s) at NMITE, students will work with university industry partners to strengthen their industry-focused engineering curriculum, using the power of educational technology and the tutoring of university faculty to customize their coursework, perhaps at this point even sponsored by a specific employer. Most will complete “capstone” projects comprised of real world industry problems or projects submitted and paid for by partners.

They will also continue to benefit from a range of Human Interaction[®] courses. Upon graduation NMITE students will be industry ready engineers, who see and approach the world differently. They will be able to present with confidence to an audience of colleagues or the general public. They will be able to write clearly and know how to target their audience whether in a blog for public consumption or a technical manual for a production process. They will be taught the classical skills of rhetoric and how to frame a persuasive argument. They will understand that effective communication is essential to success. They know what to say, how to say it and who to say it to. They will be problem framers and solvers, yet they will also understand that not all problems can be solved. NMITE students will be taught to think about and understand the context of what they do,

how to talk with people and understand what they need, and then apply that knowledge to find solutions that will work within the societies they live in.

A Unique Collaboration with Industry and Businesses

NMITE will build and maintain unusually close relationships with international, national, regional and Herefordshire businesses. We have already sought the input of businesses, both for the initial identification of the university's general courses of study, but also to more closely understand their workforce needs. These employers have helped guide us to focus on teaching vs. research and they have told us that they need engineers who how to apply what they learn, how to think and work across the engineering disciplines, how to target their skills for specific industries, and how to integrate productively and rapidly into the workplace.

NMITE will adopt a powerful, problem solving and experiential approach to teaching. This approach balances sound, high quality technical understanding with interdisciplinary humanities and social-science knowledge, enabled by critical thinking, analytical problem solving, innovation, entrepreneurship, effective communication, work readiness, business, team and leadership skills that support rapid productivity. Our academic partners, the [University of Warwick](#) and [Olin College of Engineering](#) will ensure the highest quality engineering tuition.

The result: a new model of highly skilled, emotionally intelligent, innovative, flexible, employment-ready graduate engineers, fit to tackle the problems of our age.