

## **ASU\_5\_SD1 Structural Design 1**

Introduction to stress and deformation of basic structural materials subjected to axial, torsional, bending, and pressure loads. Plane stress, plane strain, and stress-strain laws. Applications of stress and deformation analysis to members subjected to centric, torsional, flexural, and combined loading. Introduction to theories of failure.

## **ASU\_5\_AEM Advanced Engineering Mathematics**

This module covers advanced undergraduate engineering mathematics.

## **ASU\_5\_GT1 Geotechnics 1**

This module introduces to the students a number of simple concepts and models, which are used to describe soil and its mechanical behaviour. Standard laboratory tests are carried out, and soil properties are derived from the results.

## **ASU\_5\_DA1 Design Procedures for Architecture 1**

Personal student architectural design project embracing design studio and technology studio against a defined brief.

## **ASU\_5\_A3D AutoCAD-3D**

The module covers key command revision, 3D viewing, viewports and coordinate systems, wire-frame modelling, surface modelling and meshing, solid modelling, studio effects, materials and lighting, and Boolean operators.

## **ASU\_5\_EME Engineering Management and Economics**

This module helps to prepare students for their future roles as professional engineers in a number of ways. It includes:

- Detailed study of project planning techniques, including network techniques, with preparation for the student's individual projects
- An overview of the business functions which interact with engineering
- An introduction to systems thinking. A formal method for studying systems will be introduced.
- An introduction to recruitment, retention and equal opportunities in employment
- The use of published standards in engineering
- Use of the bsi website to access national and international standards
- An introduction to statistics and their use in managing engineering processes
- An introduction to quality management, with particular reference to the iso 9000 series
- An introduction to european directives and harmonised standards writing technical business reports, including the importance of acknowledging published sources and the use of formal methods for doing so.

## **ASU\_5\_SD2 Structural Design 2**

This module develops students' practice with structural engineering, introduces structural concepts, and provides an overview of specific techniques for analysing determinate structures, trusses, beams, and frames.

## **ASU\_5\_BIM Building Information Modelling**

This module introduces the concepts of Building Information Modelling (BIM) through the development of architectural 3D models on industry-standard parametric CAD systems. It covers the practical competence of architectural modelling and provides exposure to coordinating building information models.

## **ASU\_5\_EET Engineering Ethics**

This module introduces the theory and the practice of engineering ethics using a multi-disciplinary and cross-cultural approach. The theory includes ethics and the philosophy of engineering. Historical cases are taken primarily from the scholarly literature on engineering ethics, and hypothetical cases are written by students. Each student will write a story by selecting an ancestor or mythic hero as a substitute for a character in a historical case. Students will compare these cases and recommend action.

## **ASU\_5\_DA2 Design Procedures for Architecture 2**

Personal student architectural design project embracing design studio and technology studio against a defined brief.

## **ASU\_5\_AFS Architectural Engineering Field Studies**

This is substantially a project-based learning module. It seeks to bring together construction and materials needed for design, surveying for execution, and some geology. It emphasises the link between materials and site geological properties and their relationship with design and execution. There will be a block week devoted to a construction-type activity and others, including geological and site visits. Multimedia support will feature in the delivery.

## **ASU\_5\_ITS Internship**

This module provides the student with an opportunity to experience the industrial world and be part of a team working on real-world projects. The University assists each student in finding the most suitable industry.

## **ASU\_6\_PR1 Project 1**

To plan, execute, review and report upon a piece of project work related to the BEng programme being followed by the student. A Module Guide for the project is augmented by four lectures.

## **ASU\_6\_SA1 Structural Design and Analysis 1**

This module offers the knowledge and skills of reinforced concrete design to Eurocodes, analysis of structural form and the ability to design in both qualitative and quantitative directions.

## **ASU\_6\_ERM Engineering Research Methods**

The module studies the scope and significance of engineering research. It introduces students to the various aspects of engineering research; its types, tools and methods and students will learn how to apply research techniques to real-world situations. The module covers topics, such as the identification of a topic by the student, proposition of hypothesis, formulation of research inquiries, development of literature review, and select research design and methodologies. Additionally, students will learn data collection techniques; primary and secondary data with application to specific problems, scaling and research instrument design and sampling design.

## **ASU\_6\_ECB Energy Conservation in Building**

This module will provide students with the ability to quantify the energy available from the sun, wind, sea or river, or earth for a given application at a given site. Students will develop the skills to understand and analyse the potential and limitations of the available energy conversion devices and exercise basic engineering judgment in their application.

## **ASU\_6\_TDB Thermodynamics for Buildings**

This module provides students with relevant the principles of heat transfer, fluid flow and thermodynamics for application to buildings and their engineering systems.

## **ASU\_6\_FEC Forensic Engineering and Conservation**

This module uses mainly case studies to develop the principles design by looking at the influence of failures on the evolution of the professional practice. It teaches students an understanding of holistic design applications, conservation, and the role of regulations. It teaches, develops and assesses observational, deductive, creative and communications skills.

## **ASU\_6\_PR2 Project 2**

To plan, execute, review and report upon a piece of project work related to the BEng programme being followed by the student. A Module Guide for the project is augmented by four lectures.

## **ASU\_6\_SA2 Structural Design and Analysis 2**

This module offers the knowledge and skills of steel design to Eurocodes, analysis of structural form and the ability to design in both qualitative and quantitative directions.

## **ASU\_6\_GT2 Geotechnics 2**

This module is intended to provide an understanding of the application of theory to the analysis and design of geotechnical structures.

## **ASU\_6\_IEM Innovation, Enterprise and Management**

The module is intended to be practical, with students developing some appropriate ideas of their own in such a way that they become practical, profitable propositions. Students will practice ways of finding ideas, testing those ideas and developing them, and will write their own business strategies, risk assessments and scenario testing, so that they demonstrate the commercial viability of their ideas.

One of the assignments will require students to work in groups, typically to adopt a concept and develop it such that it could be commercially viable and sustainable. This might be a product or a service (such as consultancy or contract management).

Students will experience topics addressing intellectual property, market research, market placement, advertising and finance. They will be expected to reflect on what they can contribute to a group.

## **ASU\_6\_DPR Design Project**

Main architectural design project embracing design studio and technology studio against a defined brief.