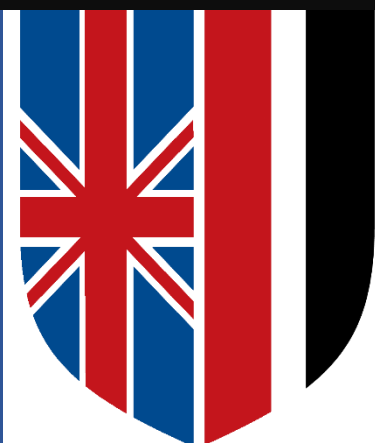


Construction Engineering and Management



January 2018

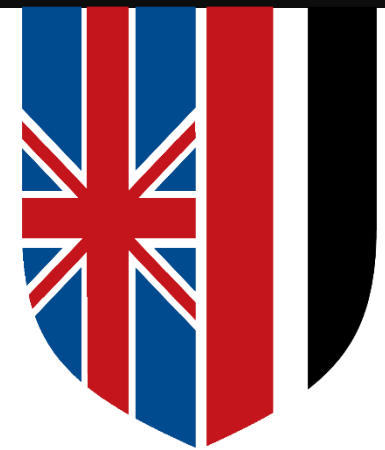
Undergraduate students
Programme Handbook

Undergraduate students

Programme Handbook for Construction Engineering and Management

The British University in Egypt

January 2018



Programme Handbooks are issued and maintained by the Faculty of Engineering, BUE. They are edited and designed by Dr Adham Naji (The Editorial Office, Faculty of Engineering, the British University in Egypt).

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Construction Engineering and Management

Programme Handbook contents are maintained by

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of Construction Engineering and Management Programme

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Welcome from the program's staff

Welcome to the Construction Engineering and Management programme, Civil Engineering Department, Faculty of Engineering at the British University in Egypt (BUE). We, the Program's staff, want to do everything we can to help you making your studies both fruitful and enjoyable. The main objective of the construction engineering and management program at the BUE is to provide the basic undergraduate education required for industrial and public practice in construction engineering, or for continued education.

The programme comprises 3 assistant professors, 2 associate professors, and 2 full professors. Support staff include 20 teaching assistants, 2 laboratory engineers, and an administrative assistant. The programme has 8 labs for academic experiments related to taught modules, project work, and research. We all work together as a friendly team, with the aim of achieving excellence in teaching, research, and student experience across all cohorts.

We hope that you will use this handbook as a guide during your four years in the department. We designed it to provide you with information our students often find useful. The handbook will help in:

- Familiarising you with the structure of the programme, its staff.
- Guiding you through the modules you need to pass in order for you to receive your degree.
- Providing you with useful information on topics such as the grading system, summer training internships, exchange programmes, academic misconduct policies, eLearning system, facilities, and other useful regulations and data.

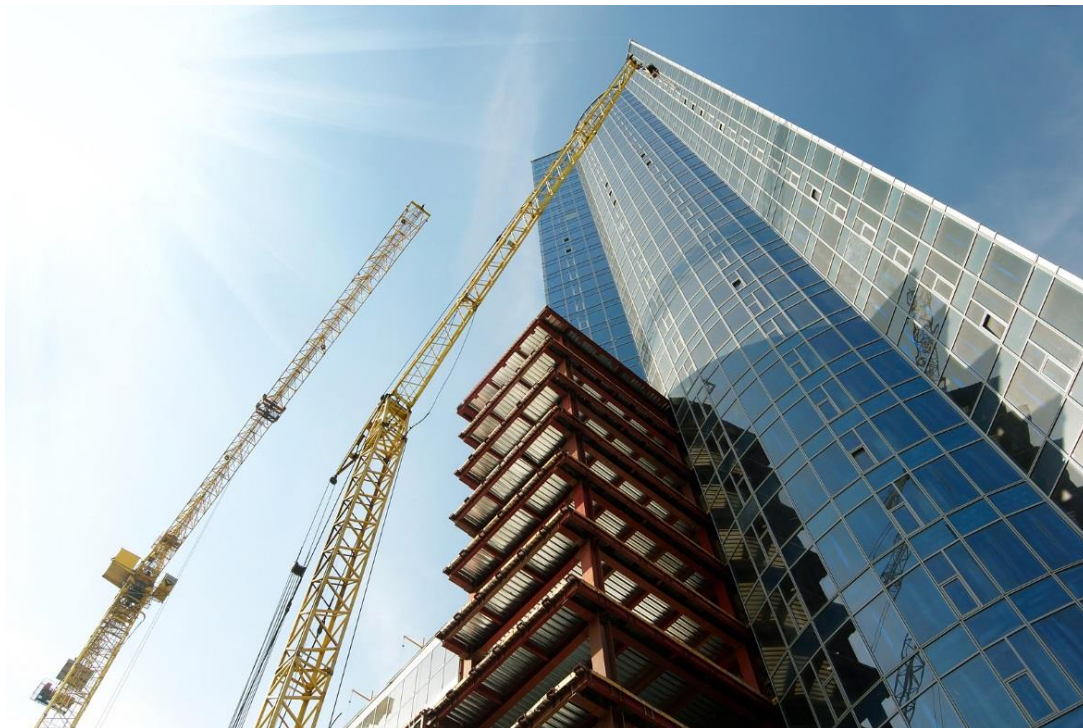


Why Choose Construction Engineering and Management?

The Construction Engineering and Management Programme (CEM) has a focus on the delivery of projects that compose the world's built environment. As construction managers, our graduates plan, organize, and control construction projects of various types and size. The major classifications of construction-commercial, residential, and infrastructure, as well as the associated specialties differ markedly from one another

Construction Engineering and Management concerns the planning and management of the construction process for different infrastructure projects such as high ways, bridges, airports, railroads, buildings, dams and reservoirs. Construction of such projects requires knowledge of management principles, business procedures and human behavior. Construction Engineers engage in the design of temporary structures, quality assurance and quality control, building and site layout surveys, on site material testing, concrete mix design, cost estimation, planning and scheduling, safety engineering, materials procurement, selection of equipment and cost engineering and budget.

The main objective of the CEM at the BUE is to provide the basic undergraduate education required for industrial and public practice in applying the design processes in the civil engineering area to the construction engineering field and industry. Also it helps students to grasp the idea of construction and project management or for continued education in the field of construction project and engineering management for those who want to pursue further postgraduate studies.



Module contents

In this programme, emphasis is placed on the basics of Construction Engineering principles and design techniques. Students learn the basic engineering and scientific concepts needed for this major through the required coursework in several areas of specialization (e.g. Project Planning, Cost Control, Construction Contracts, Value and Risk Management, Construction Equipment). Through a series of mandatory courses and a couple of elective courses, the students will be able to choose a specialization for their graduation project. Their area of specialization concludes in a capstone design experience.

Each module in the programme has a level. Levels at the BUE reflect the standards adopted by the UK's Higher Education Qualifications Framework (HEQF). They are as follows:

Level P (Preparatory).

Taught in the preparatory year at BUE.

Level C (Certificate).

Taught in degree year 1 at BUE and equivalent to a UK year 1 module.

Level I (Intermediate).

Taught in degree year 2 (and degree year 3 of engineering programmes) at BUE and equivalent to a UK year 2 module.

Level H (Honours).

Taught in degree year 3 (and degree year 4 of engineering programmes) at BUE and equivalent to a UK degree year 3 module.

The following listing provides a brief summary of the modules covered in each year of this programme, including information on module's weight, prerequisites, semester taught in, related keywords, a concise description of topics covered.

Note that each module has a unique code. We provide in the list below only the basic code of the module (e.g. CEM16I), but in practice this code will be prefixed with two digits indicating the current academic year. For example, if we are in academic year 2016–2017, then the code CEM16I will be prefixed by '17', to give 17CEM16I.

Degree Year One

Module code: CEM01C **Title:** Construction Technology & Management

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords:

Brief aim/scope: The aim of this module is to introduce the technological aspects, construction sequence, health and Safety issues and management procedures of simple, unframed buildings to the students. The module emphasises the basic components, subsystems and their functions. The module is considered an introductory course that builds the necessary construction-based knowledge necessary for all civil and architectural courses to follow.

Module code: CEM02C **Title:** Engineering Drawing

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:** ENGG02P

Keywords:

Brief aim/scope: The aim of this module is to provide the student with guidance and practice in the basic skills of drawing, especially those needed for professional construction and civil engineering work.

Module code: CEM04C **Title:** Geometrics in Surveying

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Levelling, maps, tachometry, theodolites, linear measurement, area computation, coordinates.

Brief aim/scope: For the student to obtain an understanding of surveying instrumentation together with observation techniques and limitations, and also for the student to acquire the practical skills necessary to observe geospatial components in the field.

Module code: CIVL01C **Title:** Construction Technology & Management

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Construction, concrete, steel, building, design.

Brief aim/scope: The aim of this module is to introduce the technological aspects, construction sequence, health and safety issues and management procedures of simple, unframed buildings to the students. The module emphasises the basic components, subsystems and their functions. The module is considered an introductory course that builds the necessary construction-based knowledge necessary for all civil and architectural courses to follow.

Module code: CIVL02C **Title:** Civil Engineering Drawing

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Steel, concrete, irrigation, roads.

Brief aim/scope: The aim of this module is to provide the student with guidance and practice in the basic skills of drawing, especially those needed for professional construction and civil engineering work.

Module code: CIVL04C **Title:** Geometrics in Surveying

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Levelling, maps, tachometry, theodolites, linear measurement, area computation, coordinates.

Brief aim/scope: The aim of this module is to obtain an understanding of surveying instrumentation together with observation techniques and limitations, and also for the student to acquire the practical skills necessary to observe geospatial components in the field.

Module code: CEM08C **Title:** Building Services

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Environmental design, green, passive.

Brief aim/scope: The aim of this module is to introduce students to the basic principles and theories used and applied to the Building services and climate control of buildings.

Module code: CEM12C **Title:** Introduction to Construction Engineering Materials

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Construction materials.

Brief aim/scope: The aim of this module is to provide first year students with basic knowledge of material science and engineering necessary for civil and construction engineers. This module emphasizes material mechanical properties of relevance to engineering applications.

Module code: SCIB01C **Title:** Calculus

Degree year: 1 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Differentiation, integration, several variables.

Brief aim/scope: The aim of this module is to ensure that all students have a basic knowledge and understanding of vector calculus and also provide basic cognitive and practical skills required for future study. This module extends the aims and content of the preparatory year mathematics.

Module code: CEM13C **Title:** Fluid Mechanics

Degree year: 1 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Fluid statics, kinematics, dynamics, pressure forces, energy principle.

Brief aim/scope: The aim of this module is to introduce students to the basic principles of fluid mechanics that are essential to civil engineering applications, basic fluid fundamentals such as fluid properties, fluid statics, kinematics and dynamics; and various types of fluid motion and the main forces that controls its behaviour.

Module code: CEM05C **Title:** Geotechnics and Engineering Geology

Degree year: 1 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Soil, rock, classification, consolidation, flow net, shear.

Brief aim/scope: The aim of this module is for the student to understand the basic concepts of Soil Mechanics and the fundamental principles of Engineering Geology, Seepage and Soil Shear Strength.

Module code: CEM06C **Title:** Construction Engineering Materials (1)

Degree year: 1 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Concrete, steel, masonry, cement, aggregates.

Brief aim/scope: The aim of this module is to provide students with an understanding of the nature of common construction materials, their constituents, and properties and how they are used in engineering applications and to show how this knowledge is applied to design.

Module code: CEM03C **Title:** Structural Analysis and Mechanics (1)

Degree year: 1 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Arches, stability, determinate, beams, frames, trusses.

Brief aim/scope: The aim of this module is for the student to understand the principles of structural behaviour and mechanics and to be shown how these apply to the design of structures. This module builds on the material learned in the mechanics modules in previous semesters.

Module code: CEM11C **Title:** Research and Communication Skills

Degree year: 1 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Technical writing, personal communications, visual presentation, research methods.

Brief aim/scope: The aim of this module is to present the tools necessary to research information and produce professional technical documents including office memoranda, business letters and detailed investigative and research reports and acquaint the students with the types of documentation particular to the engineering profession such as project proposals, project briefs and project specifications

Module code: SCIB02C **Title:** Differential Equations

Degree year: 1 **Semester:** 2 **Credits:** 10 **Prerequisites:** SCIB01P, SCIB03P, SCIB05P

Keywords: Differential equations, transforms, special functions; modelling.

Brief aim/scope: The aim of this module is to ensure that students have a basic knowledge and understanding of differential equations.

Degree Year Two

Module code: CEM07C **Title:** Structural Analysis and Mechanics (2)

Degree year: 2 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Stress, strain, torsion, deflection, rotation.

Brief aim/scope: The aim of this module is to extend the students' qualitative and quantitative understanding of the structural response to applied loads and external actions. This includes the stresses and strains caused by the different internal forces and the corresponding deformation of structures.

Module code: CEM09C **Title:** Computer Applications in Construction

Degree year: 2 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Structures, analysis, worksheet, sap, excel.

Brief aim/scope: The aim of this module is to provide the student with basic programming techniques, computer application packages and environments which are widely implemented in civil engineering.

Module code: CEM10C **Title:** Hydraulics (1)

Degree year: 2 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Pipes, pipelines, open channels.

Brief aim/scope: The aim of this module is to introduce the fundamentals of hydraulics with particular attention to open channel flows.

Module code: CEM16C **Title:** Law in Construction

Degree year: 2 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Local and international community law, misrepresentation, freehold, leasehold, nuisance, trespass, covenants, registration.

Brief aim/scope: The aim of this module is to provide the student with a foundation in the principles and practice of some aspects of English private law as it impacts on the construction and engineering industries.

Module code: SCIB03I **Title:** Statistics for Engineers

Degree year: 2 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Statistics, random, uncertainty, probability.

Brief aim/scope: The aim of this module is to provide necessary mathematical foundation in probability and statistics for engineers with particular emphasis on civil engineering applications.

Module code: CEM02I **Title:** Construction Equipment

Degree year: 2 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Road making, handling equipment, building plant, excavation, risk and control, review and audit, demolition, recording and reporting.

Brief aim/scope: The aim of this module is for the student a) to understand the operation of common items of construction plant and equipment, how they may be financed and managed, b) to understand the legislative and management responsibilities for health and safety in construction.

Module code: CEM04I **Title:** Structural Steel Design (1)

Degree year: 2 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Structures, connections, compression, tension, axial, steel.

Brief aim/scope: The aim of this module is to introduce the basic structural design methods of structural steel sections, employed in today's codes, emphasising the allowable stress method, as well as, the load and resistance factor approach and also introduce the behaviour & design of structural steel axial members, and the basic types of steel connections, their behaviour & design

Module code: CEM05I **Title:** Geomatics
Degree year: 2 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Contours, traverse, sections, error propagation, GNSS, Horizontal curves, precise levelling.

Brief aim/scope: The aim of this module is to consolidate and extend the student's knowledge of land surveying techniques applicable to civil engineering works.

Module code: CEM06I **Title:** Geotechnics
Degree year: 2 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Stability, settlement, investigation, compaction, dewatering.

Brief aim/scope: The aim of this module is for the students to understand the soil stability and settlement behaviour, design requirements of soils in relation to some common geotechnical problems.

Module code: CEM07I **Title:** Reinforced Concrete Design (1)
Degree year: 2 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Codes, reinforced concrete, beams, slabs, stairs.

Brief aim/scope: The aim of this module is to introduce students to the concepts and methodology of reinforced concrete structural design and their application to design problems in structural engineering.

Module code: CEM10I **Title:** Quantity Surveying, Estimation and Specifications
Degree year: 2 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Construction estimating, tendering, procurement.

Brief aim/scope: The aim of this module is to provide in-depth knowledge of current and emerging practices of the quantity surveyor, Introduce the manner in which construction contractors prepare estimates, tenders, bill of quantities and specifications.

Module code: CEM17I **Title:** Principles of Management
Degree year: 2 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Management, organization.

Brief aim/scope: The aim of this module is to introduce the fundamental principles of management with particular emphasis on the construction industry.

Degree Year Three

Module code: CEM03I **Title:** Construction Planning and Scheduling

Degree year: 3 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords:

Brief aim/scope: The aim of this module is to introduce students to the behaviour & design of structural steel beams and beam-column members and to introduce the detailing techniques for steel connections.

Module code: CEM09I **Title:** Water Distribution & Sewerage Systems

Degree year: 3 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Pipes, networks, water, sewerage systems.

Brief aim/scope: The aim of this module is to identify the most important aspects of how to design, construct and maintain water distribution networks, drainage and sewerage systems.

Module code: CEM11I **Title:** Reinforced Concrete Design (2)

Degree year: 3 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Slender columns, flat slabs, frames.

Brief aim/scope: The aim of this module is to extend the students' knowledge of reinforced concrete design to the analysis and design of concrete assemblages including simple frames and floor systems and covering slender columns.

Module code: CEM05H **Title:** Foundation Engineering

Degree year: 3 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Shallow, deep, mat, piles, retaining walls, caissons.

Brief aim/scope: The aim of this module is to present the behaviour and design of shallow and deep foundation systems and to present the behaviour, analysis and design of retaining structures.

Module code: CEM23H **Title:** Construction Contract Procedures

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Construction, contracts, health and safety.

Brief aim/scope: The aim of this module is to develop an understanding of the law and administration procedures used on construction contracts.

Module code: CEM12I **Title:** Transport Systems

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Transportation, networks, traffic, parking, signals.

Brief aim/scope: The aim of this module is for the students to develop an understanding of the principles of transportation planning and traffic engineering.

Module code: CEM13I **Title:** Irrigation Works Design (1)

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Canals, drains, synoptic, culverts.

Brief aim/scope: The aim of this module is to introduce students to hydraulic analysis and design of irrigation structures and various water structures.

Module code: CEM14I **Title:** Water & Wastewater Treatment

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Water, quality, sewage, treatment.

Brief aim/scope: The aim of this module is to enable students to develop an understanding of water quality and water treatment plants, and an identification of sewage properties and basic physical, as well as, biological treatment methods.

Module code: CEM09H **Title:** Project Management

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Finite element, analysis, flexibility, stiffness, matrix.

Brief aim/scope: The aim of this module is to introduce students to the matrix methods of analysis that are suitable for programming on a digital computer by representing the load/response relationships in a mathematical format which is readily programmable for electronic computers.

Module code: CEM03H **Title:** Structural Steel Design (2)

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Beam-columns, structures, steel, beams, bending, frames, detailing.

Brief aim/scope: The aim of this module is to introduce students to the behaviour & design of structural steel beams and beam-column members and to introduce the detailing techniques for steel connections.

Module code: CEM18I **Title:** Construction Economics and Financial Management

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Economics, construction, value engineering.

Brief aim/scope: The aim of this module is to introduce students to the concept of construction economics and the effect of design and cost monitoring as a pre-contract service providing "value for money" in buildings.

Module code: CEM19I **Title:** Management Information Systems

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: MIS, computer, construction.

Brief aim/scope: The aim of this module is to present Management Information Systems, (MIS), and their development within construction organisations.

Module code: ENGG07H **Title:** Industrial Training Placement (2)

Degree year: 3 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Industrial training, work experience.

Brief aim/scope: The aim of this module is to enable students to experience real-world engineering by spending an extended period working on a structured industrial placement with a suitable company. This module specification builds on skills developed in the first placement ENGG03I03. The student is expected, at this level, to have developed significantly since their last industrial placement. Thus, they will be expected to perform at a higher level. This will be reflected in their role and the assessment of their work.

Degree Year Four

Module code: CEM30H **Title:** Research Graduation Project

Degree year: 4 **Semester:** 1,2 **Credits:** 20 **Prerequisites:**

Keywords: Individual research, presentation, report.

Brief aim/scope: The aims of this module are to provide the student with experience in research process and methodology by defining and studying a problem on an individual basis in the construction and management area.

Module code: CEM07H **Title:** Advanced Irrigation Works Design

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Weirs, barrages, locks, dams, aqueducts, siphons, tunnels.

Brief aim/scope: The aim of this module is to extend the range of applications to types and operation of several irrigation structures.

Module code: CEM15H **Title:** Pavement Design

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Pavement, design, overlays, flexible pavements, rigid pavements.

Brief aim/scope: The aim of this module is to develop an understanding of the different pavement systems and their structural design procedures.

Module code: CEM08H **Title:** Highway & Airport Engineering

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Highway, base, sub-base, surface, geometric design, airport.

Brief aim/scope: The aim of this module is to enable students to develop an understanding of the principles of highway geometric and structural design, and to establish an introduction to airport engineering.

Module code: CEM27H **Title:** Construction Graduation Project

Degree year: 4 **Semester:** 1,2 **Credits:** 10 **Prerequisites:**

Keywords: Design, group project.

Brief aim/scope: The aim of this module is to present the students with the experience of the integral design process from preparation of the brief through to detailed design documents, in the construction engineering and management area. We would hope that students are able to draw on results of their individual research projects that relate to parts of the design project and integrate all individual components into a comprehensive viable design.

Module code: CEM18H **Title:** Advanced Strength of Materials

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: shear flow, shear centre, thin walled, elasticity, mechanics, torsion

Brief aim/scope: The aim of this module is to extend students' knowledge to some advanced topics in the strength and mechanics of materials including stress-strain relationships, unsymmetrical bending, torsion and theories of failure.

Module code: CEM21H **Title:** Earthquake Resistant Design

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Seismic, earthquake, design earthquake.

Brief aim/scope: The aim of this module is to develop a knowledge of the principles of seismic activity and risks; to develop an understanding of the basic philosophy and principles of earthquake resistant design of reinforced concrete and steel structures.

Module code: CEM25H **Title:** Strategic Management in Construction

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Strategic Management, International construction.

Brief aim/scope: The aim of this module is to introduce the strategic management environment in which the construction organisations operate. It explains the theoretical and practical aspects of strategy formulation and decision-making as they affect local, national and international firms in the construction industry.

Module code: CEM18H **Title:** Advanced Strength of Materials

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: shear flow, shear centre, thin walled, elasticity, mechanics, torsion

Brief aim/scope: The aim of this module is to extend students' knowledge to some advanced topics in the strength and mechanics of materials including stress-strain relationships, unsymmetrical bending, torsion and theories of failure.

Module code: CEM29H **Title:** Human Resource Management in Construction

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Management, construction, human resource.

Brief aim/scope: The aim of this module is to present students with the range of techniques and strategies for managing people within the context of the construction project environment.

Module code: CEM10H **Title:** Advanced Reinforced Concrete Design

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Tall buildings, wind loads, seismic loads, water tanks, cracking, deflections.

Brief aim/scope: The aim of this module is to introduce students to two special types of reinforced concrete structures which require special treatment in both their analysis and design, the first type deals with tall buildings in which lateral loads play an important role in their behaviour and design. The second type deal with water structures in which durability and water tightness require more attention.

Module code: CEM11H **Title:** Bridge Engineering

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Bridge, steel, concrete, truck, lane, bearings.

Brief aim/scope: The aims of this module are to provide the student with ample knowledge regarding the analysis and design of bridge structures and to provide the student with the necessary background knowledge to suggest a suitable bridge system, to provide the student with the insight necessary to select the suitable construction material for a given bridge application, i.e., steel or reinforced concrete

Module code: CEM16H **Title:** Transportation Planning

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Transportation, networks, urban, regional, planning, model.

Brief aim/scope: The aim of this module is to develop an understanding of the principles of urban and regional transportation planning.

Module code: CEM19H **Title:** Pre-stressed Concrete

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Pre-tension, post-tension, losses, anchorage, cable.

Brief aim/scope: The aim of this module is to introduce senior students to the concept of pre-stressing of concrete elements, the distinguishing features of pre-stressed concrete compared to normally reinforced concrete, the methods and types of pre-stressing, the use, the analysis and design of pre-stressed concrete and the applicable national and international Codes of Practice.

Module code: CEM26H **Title:** Value and Risk Management in Construction

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Value Management, Risk Management, Construction

Brief aim/scope: The aim of this module is to introduce the concepts of value and risk management through a detailed study of their theories, tools and techniques applied in construction projects. The two disciplines have been joined for the purpose of this module reflecting their common approach to problem recognition and strategies for their solution.

Module code: CEM28H **Title:** Rehabilitation and retrofitting of Structures

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: strengthening and repair, maintenance, non-destructive testing, concrete jackets, steel jackets, corrosion, FRP

Brief aim/scope: The aim of this module is for the student to understand the technology used in old buildings, common forms of defects in buildings and repair techniques used. The strategies and techniques used in maintaining, converting and refurbishing buildings will be explained.

Module code: CEM31H **Title:** Lean Construction

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Lean Theory; Lean Principles, Lean Construction, Lean Process Management, Waste, Value.

Brief aim/scope: The aim of this module is to introduce students to the principles, tools and techniques of Lean Construction in the construction industry.

Module code: CEM32H **Title:** Sustainability and the Built Environment

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: Sustainability, built environment.

Brief aim/scope: The aim of this module is to present students with the principles and practice of sustainability issues as they relate to the built environment and its many stakeholders.

Module code: CEM04H **Title:** Geoinformatics

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: GIS, GPS, map projections, geodetic datum, least squares adjustment.

Brief aim/scope: The aim of this module is to provide an identification of reference frames used in presenting geospatial data, and also to introduce the students to advanced techniques for determination of position, acquisition of thematic information and least squares techniques in data management.

Optional Modules

Module code: CEM018H **Title:** Advanced Strength of Materials

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: shear flow, shear centre, thin walled, elasticity, mechanics, torsion

Brief aim/scope: The aim of this module is to extend students' knowledge to some advanced topics in the strength and mechanics of materials including stress-strain

Module code: CEM025H **Title:** Strategic Management in Construction

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: Strategic Management, International construction,

Brief aim/scope: This module introduces the strategic management environment in which the construction organizations operate. It explains the theoretical and practical aspects of strategy formulation and decision-making as they affect local, national and international firms in the construction industry.

Module code: CEM021H **Title:** Earthquake Resistant Design

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: seismic, earthquake, design earthquake.

Brief aim/scope: The aims of this module are to develop a knowledge of the principles of seismic activity and risks; and to develop an understanding of the basic philosophy and principles of earthquake resistant design of reinforced concrete and steel structures.

Module code: CEM015H **Title:** Pavement Design

Degree year: 4 **Semester:** 1 **Credits:** 10 **Prerequisites:**

Keywords: pavement, design, overlays, flexible pavements, rigid pavements.

Brief aim/scope: The aim of this module is to develop an understanding of the different pavement systems and their structural design procedures.

Module code: CEM0011H **Title:** Bridge Engineering

Degree year: 4 **Semester:** 2 **Credits:** 10 **Prerequisites:**

Keywords: bridge, steel, concrete, truck, lane, bearings.

Brief aim/scope: The aims of this module are to provide the student with ample knowledge regarding the analysis and design of bridge structures; to provide the student with the necessary background knowledge to suggest a suitable bridge system; to provide the student with the insight necessary to select the suitable construction material for a given bridge application, i.e., steel or reinforced concrete.

Grading systems

At the BUE, we use both the Egyptian and the British grading systems. The following equivalence mapping table provides a useful tool to convert between the two systems.

Egyptian Standing	British Mark	Egyptian Mark	Letter Grade
Distinction	99	100	A+
	98	99	
	97	99	
	96	98	
	95	98	
	94	97	
	93	97	
	92	96	
	91	96	
	90	95	
	89	95	
	88	94	
	87	94	
	86	93	
	85	93	
	84	92	
	83	92	
	82	91	
	81	91	
	Very Good	80	
79		90	
78		89	
77		89	
76		88	
75		88	
74		87	
73		86	
72		86	
71		85	
Good	70	85	A-
	69	84	
	68	83	
	67	82	
	66	81	
	65	80	
	64	79	
	63	78	
	62	77	
	61	76	
Satisfactory	60	75	B+
	59	74	
	58	73	
	57	72	
	56	71	
	55	70	
	54	69	
	53	68	
	52	67	
	51	66	
Fail / Weak	50	65	B
	49	64	
	48	62	
	47	60	
	46	59	
	45	57	
	44	55	
	43	54	
	42	53	
	41	51	
Fail / Very Weak	40	50	D+
	39	49	
	38	48	
	37	46	
	36	45	
	35	44	
	34	43	
	33	41	
	32	40	
	31	39	
Fail / Very Weak	30	38	D
	29	36	
	28	35	
	27	34	
	26	33	
	25	31	
	24	30	
	23	29	
	22	28	
	21	26	
Fail / Very Weak	20	25	D-
	19	24	
	18	23	
	17	21	
	16	20	
	15	19	
	14	18	
	13	16	
	12	15	
	11	14	
Fail / Very Weak	10	13	F
	9	11	
	8	10	
	7	9	
	6	8	
	5	6	
	4	5	
	3	4	
	2	3	
	1	1	
Fail / Very Weak	0	0	F
	0	0	

Summer training internships

Each student in this programme undergoes two industrial placements in the summer of year 2 and year 3, which are a pass-or-fail requirement for graduation.

The field training placements (pass or fail, no credits, at level I and H) are the two modules **EUX_4_425** and **EUX_5_438**.

The field placement internship, required of all students, requires the attendance of a two-day health and safety workshop, on campus, before engaging in any on site activity. Professional publications of the Health & Safety Executive of the UK, in addition to other similar Egyptian and international governmental bodies, are introduced to students via the e-learning web page of the Construction Engineering and Management Programme.

These training opportunities support the development and recognition of career management skills through work placements or work experience.



School policies

Student attendance policy

Principles: BUE has obligations to students and their sponsors (usually parents or other family members) to provide a quality educational experience in a supportive learning environment.

Students have obligations to themselves, their families and the BUE, to ensure that they make best use of the learning opportunities provided by the University so that they may achieve a degree of high academic standing.

It is widely acknowledged across Higher Education, supported by experience and research evidence, that students who do not attend or participate in classes are more likely to achieve poor grades or fail. This is mainly because students who do not attend will not acquire the added value from their interactions with teaching staff and their peers in discussing and understanding a particular topic. Their absence is also a sign that they are distracted by other issues which can impede their learning.

The University monitors student attendance in accordance with the procedures below, to ensure that it fulfils its obligations and provides appropriate support to students.

Requirements and procedures: All students are expected to attend and participate in all teaching and learning sessions in order to benefit fully from their BUE education.

Students should contact the relevant Teaching Assistant and then Module Leader if they have any concerns about understanding the requirements and/ or content of a particular module.

3. Students should contact either their Personal Advisor (for Preparatory Year students) or their Head of Department (all other students) if they wish to seek advice in regard to their studies.

4. Module outlines on e-learning shall specify the core teaching sessions for modules for which student attendance shall be recorded and indicate that non-attendance shall be reported in accordance with paragraph.

5. Core teaching sessions shall be determined by Module Leaders in consultation with Heads of Department. For most modules, the core sessions will be tutorials and/or laboratory/practical classes. Lectures will be specified as core sessions for some modules, including all English modules. In the case of Final Year students, Module Leaders shall determine.

6. Once a student has missed three core teaching sessions specified for a particular module, Module Leaders shall arrange for a Student Absence flag to be inserted in a student's record on the Student Records System (SRS). This shall lead to the automatic generation of letters to students, copied to their parents (and to the Personal Advisors of Preparatory Year students), informing students that they are deemed "At Risk" of failing the modules concerned due to their poor attendance.

7. If students "At Risk" continue not to attend and miss a further three core teaching sessions as specified for a particular module (two core sessions in the case of English modules), Module Leaders shall arrange for a second flag to be inserted on the SRS. This shall lead to the automatic generation of second letters to students, copied to their parents (and to the Personal Advisors of Preparatory Year students), informing students that they are deemed "At Significant Risk" of failing the modules concerned due to their continued poor attendance. Where these letters relate to English modules, they shall indicate that students will be ineligible for further assessment in the Semester concerned, as specified in paragraph 10 below.

8. Letters to students and parents shall highlight the possible consequences, as specified in paragraph 10 below.

9. Students who have a genuine reason for their absence should use the Student Absence Procedures (as specified in the Student Handbook) in order to avoid the possibility of receiving "At Risk" letters.

Penalties for non-attendance: Students who do not fulfill the attendance requirements for a module shall receive letters which highlight the obligations of students in regard to their studies and confirm the following:

- That, if students fail modules, they have only a limited number of attempts to pass modules, as specified in the General Academic Regulations (GAR), if they are to meet the GAR requirements for award of a UK Degree;

- That students may be prevented from re-sitting modules during the Summer Assessment Period, depending on the number of credits failed, as specified in the GAR;

- That students who wish to remain on the UK degree will be required to repeat their studies in

the following academic year rather than progress, if they do not pass all their modules in a given programme year, provided that they have not exhausted their limited number of attempts in a given module;

- That students who have exhausted their limited number of attempts in a given module will be dismissed from the UK degree, in accordance with the GAR; attendance requirements that are consistent with the level and nature of study and with the requirements of projects and dissertations.
- That students will be dismissed from the BUE if they do not satisfy the regulations for the EG-only Degree.
- That students who do not satisfy English module attendance requirements will be prevented from taking the unseen examination/final paper for the English modules concerned, subject to approval of the Faculty Council, and that they may be ineligible to re-sit English modules during the Summer Assessment Period, as specified in the GAR;
- That student interim transcript will indicate "At Risk" flags for the module(s) concerned.

Academic Misconduct

1. It is academic misconduct for any student in the course of any assessment to engage in one or more of the following activities:
 - (i) Failing to comply with the Rules for the Conduct of Students in Assessments.
 - (ii) Failing to comply with the Rules for the Conduct of Students in Examination Halls.
 - (iii) Assisting another student to gain an advantage by unfair means, or receiving such assistance, for example by collusion, by impersonation or the passing off of one individual's work as another's. This includes undeclared failure to contribute to group coursework assignments.
 - (iv) Misleading the examiners by the fabrication or falsification of data.
 - (v) Plagiarism, which is defined by the University as 'submitting work as the student's own of which the student is not the author'. This includes failure to acknowledge clearly and explicitly the ideas, words or work of another person whether these are published or unpublished.
 - (vi) Engaging in other activity likely to give an unfair advantage to any student.
2. A student shall certify, when submitting work for assessment, that the work is his/her own.

Students are referred to the Coursework Submission Statement of (SP) An offence of academic misconduct will be defined as minor or major depending on its seriousness. Minor Offences shall be considered by the Head of Department of the Faculty of the student (the relevant Head of Department). Major Offences shall be considered by the Faculty Academic Misconduct Committee.

3. Any decision made in accordance with the regulations on academic misconduct shall not be overturned subsequently by a Programme Examination Board under any circumstances.

4. An incident shall be deemed to be a Minor Offence of academic misconduct if it relates to work for assessment not undertaken in an Examination Hall, and if the nature of the incident together with the circumstances of the student make appropriate a relatively limited penalty.

5. Except for the Preparatory Year, a student suspected of committing a Minor Offence will automatically be referred for action under the Major Offence procedure if s/he has previously been found guilty of any offence of academic misconduct. In the case of a Preparatory Year student, referral for action under the Major Offence procedure will be applied only exceptionally at the discretion of the relevant Dean.

6. The relevant Head of Department is empowered to consider charges of Minor Offences against students and to levy penalties.

7. An incident shall normally be deemed to be a Major Offence of academic misconduct if it relates to an assessment undertaken in an Examination Hall, or to other assessed work where the nature of the incident together with the circumstances of the student make appropriate a substantial penalty. Except for the Preparatory Year, if a student has been found guilty of a previous offence of academic misconduct, the case shall be designated a Major Offence. In the case of a Preparatory Year student referral for action under the Major Offences procedure will be applied only exceptionally at the discretion of the relevant Dean. Final interpretation of the offence of academic misconduct as a Major Offence shall be the responsibility of the Dean in consultation with the Registrar.

8. Major Offences shall be considered by the Faculty Academic Misconduct Committee of the student's home Faculty. The Committee shall be appointed by the Dean on an annual basis with the following constitution:

- Three academic faculty members, including Dean, shall act as Chair.
- One member of the BUE Students' Union (SU) Board nominated by SU
- Where requested, one member of any validating institute, except at P level.
- The Registrar has the right to attend the Committee.
- No individual has a conflict of interest with case to be heard may serve on Faculty Academic Misconduct Committee or act as its Secretary.

9. Offences committed in the Preparatory Year are cumulative (i.e. an offence in Semester One will affect the consideration of a further offence during the year – see 14.6) but do not carry into Degree Year 1. In Degree Year 1 and all other years offences are cumulative.

10. A case which appears to academic staff to suggest that a student has committed an act of academic misconduct shall be reported immediately to the Dean, through the Head of Department with a recommendation of whether it constitutes a minor or major offence. The Dean shall consider whether or not there is a prima facie case to answer. Where the Dean considers the incident to constitute a Major Offence, s/ he shall consult the Registrar. If it is considered the case is a Major Offence, the Dean shall refer the matter to the Faculty Academic Misconduct Committee. If it is considered the case is a Minor Offence, the Dean shall refer the matter to the relevant Head of Department.

11. The relevant Head of Department shall decide whether any action shall be taken under the procedures for Minor Offences.

12. Where the Registrar has been consulted, s/he shall advise the relevant Dean either to refer the case for action under the Major Offences procedure.

13. Students shall be notified in writing of alleged Minor Offences by the relevant Head of Department/Dean. Students shall be invited to admit or deny the allegation, Head of Department/Dean. Students shall be invited to admit or deny the allegation, have the right to see the evidence against them and to defend themselves in writing and/or in person, and may be accompanied by an individual of their own choosing. Any written defence or request to be heard in person, including the name and status of any accompanying individual, must be received by the relevant Head of Department within five working days of the notification of the alleged misconduct.

14. Having taken into account the evidence and the defense, if any, the relevant Head of Department shall decide whether the student is guilty of the offence, and if so, the appropriate penalty under paragraph 10.31 GAR. The student (and Q&V) shall be notified in writing of the relevant Head of Department's decision and of the penalty, if one is to be applied, within ten working days of the student being notified of the allegation.

Academic staff

Full time academic members, ordered alphabetically by surname:



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Dr. Amr Ibrahim Helmy
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Prof. Maguid Hassan
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Prof. Maged Morcos
Project Construction
Management
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Phone ext. 1405



Dr. Mariam Ehab
Structural Engineering
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Phone ext. 2403

Teaching assistants (Assistant Lecturers and Demonstrators) and lab engineers, ordered alphabetically by surname:



Mohammed El-Desoqi

Mohamed Ahmed





Amgad Alaa



Saleem Azzam



Peter Fakhry



Ahmed Gouda



Magdi El-Ananni



Amr Mohamed



Maha Mohamed



Mohamed El-Batal



Yahya Mohamed



Ahmed Torky



Mirna Yousry



Ahmed Youssef

Resources and Facilities

- **Laboratories:**
 - Reinforced Concrete & Materials lab
 - Surveying lab
 - Structural Analysis lab
 - Hydraulics & Hydrology lab
 - Soil Mechanics lab
 - Highway Engineering and pavement Design lab
 - Environmental Engineering lab
 - Civil Engineering computing facility lab.
 - Loading Frame

- **Library resources and databases:**
 - Scopus
 - Science Direct
 - Springer

- **Summer Training last year:**
 - Suez Canal Tunnels – Egypt
 - Wadi Degla Site –Geology
 - Ocean Blue Project-Construction
 - City Center Project - Construction

Useful students References

- **General Academic Regulations (GAR):**
<http://www.bue.edu.eg/pdfs/q&v/GAR.pdf>

- **Student Handbook:**
<http://www.bue.edu.eg/pdfs/q&v/SHB%2015-16%20-Sept%2015.pdf>

- **BUE library study, style and copyright guides:**
<http://lib.bue.edu.eg/index.php/information-skills-introduction/>

My Notes

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Undergraduate students

Programme Handbook for Construction Engineering and Management

The British University in Egypt

January 2018