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## FACULTY OF ENGINEERING, SCIENCE AND THE BUILT ENVIRONMENT

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Unit title:	Construction Technology 2
Unit number:	BUG/2/201
Unit Level:	2
Unit value:	1.0
Unit co-ordinator:	M Dunkeld
Contact time:	45 hours
Private study time:	105 hours
Total study hours:	150 hours
Unit pre-requisites:	BUG/1/101

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### SHORT DESCRIPTION

This unit further develops the students understanding of construction technology by focusing on larger more complex structures, particularly multi-storey and wide span buildings.

### AIMS

This unit further develops the students understanding of construction technology by focusing on larger more complex structures, particularly multi-storey and wide span buildings.

An elemental analysis is undertaken of these building types including foundation systems, alternative floor structures, cladding systems and roof structures and membranes. Each element will be assessed in terms of its performance requirements and design solutions.

The unit also addresses service provision for the above building types by focusing on key issues such as building service design, water supply, sanitary provision, building management systems, natural ventilation and air conditioning, electrical supply, cable, IT and support systems.

### LEARNING OUTCOMES

By the end of this unit students should be able to understand:

- Substructure work including coffer dams, sheet piling and deep basements
- Soil testing
- The design and construction of deep foundation systems
- The major structural systems for larger buildings including steel and concrete frames, tension structures, portal frames and pneumatic structures
- Floor systems for larger buildings
- Cladding systems for commercial and wide-span buildings including the structural use of glass, precast concrete cladding panels and profiled steel sheet
- Roofing systems for larger buildings
- Building services for commercial and industrial buildings

## **INDICATIVE CONTENT**

20<sup>th</sup>/21<sup>st</sup> developments in structural form

Site and laboratory testing of soil

Ground stabilisation techniques

Deep foundations and basements

Design of steel frame buildings

Design of concrete frame buildings (insitu and precast)

Floor systems for larger buildings

Roof systems for larger buildings

Building services for commercial buildings

Intelligent buildings

## **ASSESSMENT METHOD**

(1) Individual Construction Analysis Project	50%
(2) 1½ hour Multiple Choice Assessment Test	50%

Each element contributes 50% of the unit mark. The Construction Analysis Project will be the equivalent of a 2500 word essay. To successfully complete the course, a student should achieve a minimum of 35% for each element and an overall average mark of 40%.

## **INDICATIVE SOURCES**

### Essential

Blanc, A. (Ed.), Architecture and Construction in Steel, 1993

Boughton, B., Reinforced Concrete Detailers Manual, 2000

CIBSE, Natural Ventilation in Non-Domestic Buildings - Applications Manual, 1997

Compagno, A., Intelligent Glass Facades, 1995

Harris, J.B. & Li, K.P., Mastered Structures in Architecture, 1996

Jones, A., Air Conditioning Applications and Design, 1997

Steward & Stubbs, Modern Wiring Practice, 1998

Tomlinson, M.J., Foundation Design and Construction, 2001

### Background

Foster, J., Structure and Fabric Part Two, 2000

Schodek, D.L., Structures, 2001

Steel Construction Yearbook 2001