YEAR TWO

SEMESTER ONE

CMG 2102 Construction Materials

Hours Per Week			Hours per Semester	Weighted Total Mark	Weighted Exam Mark	Weighted Continuous Assessment	Credit Units
LH	PH	TH	CH	WTM	WEM	WCM	CU
3	1	4	60	100	60	40	4

Rationale/Course Description

There are different materials used in construction. These materials have different properties that influence their application. The materials also respond differently when subjected to different conditions. The course provides knowledge of all these aspects which is important for all construction professionals.

Objectives/Aims

- To introduce the student to the basic properties of construction materials
- To examine the behavior and performance of construction materials under different conditions
- To understand constituent components and preparation of different construction materials

Course Outline

1. Introduction to the properties of materials [15 CH]

1.1 plasticity,

1.2 elasticity,

1.3 density,

1.4 porosity,

1.5 hardness.

1.6 Optical, electrical, thermal and acoustic properties.

2. Manufacture of building materials: [15 CH]

2.1 wood and wood products,

2.2 bricks,

2.3 fibre cement,

2.4 ceramics,

2.5 plastics,

2.6 sealants and mastics,

2.7 stones.

3. Concrete technology: [10 CH]

3.1 cement,

3.2 aggregates,

3.3 water and admixtures,

3.4 properties of fresh concrete;

4. Metals in buildings: [10 CH]

4.1 structural ferrous alloys,

4.2 corrosion and protection,

4.3 welding,

4.4 failure

5. Behavior of building materials and structures under fire exposure. [10 CH] **Learning Outcomes**

Understanding of the materials used in the construction, their manufacture, properties, and performance.

Method of Teaching/Delivery

The course will be conducted through lectures, tutorials and assignments. Basic lecture materials provided by the Lecturer will be supplemented by individual reading effort by students.

Assessment Method

Continuous assessment through assignments and tests, and final written examination. The final examination will carry 60% of the total mark, while continuous assessment will carry a total of 40%.

Reference books and materials.

1. Illston, J. Inwoodie, J.M. and Smith, A.A. ***Concrete. Timber and Metals.*** Pitman, London.

2. Neville, A.M. (1975), ***Properties of Concrete.*** Pitman, London

3. Everett, A. 1975. ***Materials. Mitchell's Building Construction*** B.T. Batsford Ltd, London and Sydney.

4. Schoner, W. Brunner, M.Y./Sway, A. (1987), ***Building Materials. Separate Manuscripts: General Introduction, Steel, Mineral Binders, Concrete, Bricks and Blocks, Timber, -*** Publications of Faculty of Engineering, University of Dar Es Salaam.