Universiti Tun Hussein Onn Malaysia

## FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING

# REINFORCED CONCRETE STRUCTURE DESIGN I
# (BFC32102)
# SEMESTER 1 2018/2019

### PROJECT

This project must be carried out by group of **maximum five (5) members** only. This project contributes 20% to the coursework mark.

### TOPIC: MODERN HOUSE DESIGN

Your group is assigned to conduct detail design for two structure components which is slab and beam from architecture drawing. The analysis of architecture plan must be conducted to identify the dimension of the building, location of columns, position of beams and slabs as well as the type of slabs. After identifying the structure component, you have to produce Engineering layout which must consist of key-plan of ground floor, first floor and roof beam. All variables and permanent actions must follow the recommendation of Eurocode. Specification of nominal cover must be calculated using the standard of practice. The use of characteristic strength and size of reinforcement must follow the actual practice. The preliminary beam dimension and slab thickness must follow the L/d and fire resistance requirement. Report containing the following scope must be prepared;

a) Introduction –Description of buiding, objective and purpose of the project
b) Layout – Architecture and Engineering layout of ground floor, first floor and roof
c) Analysis of action – Determining permenant and variable action
d) Specification, parameters and assumption
e) Design calculation;
    i. Simply Supported – 2 beams
        -simple design (UDL)
        -complicated design (multiple loads – UDL & Point Load)
    ii. Continuous beam – 2 beams
        - Simplified Method
        - Modified Stiffness Method
    Iii Slab – 2 types
i) Detailing of beams and slabs

**2.0 Report:**

a) Report should include all information/parameters, analysis, design and drawing of structure and structure plan arrangement.

b) Calculation and analysis of structural can be manually performed using the provided template.

c) The use of software such as Beamax and StaadPro to analyse shear forces and bending moments is highly encouraged.

d) All engineering layouts and detailing must be produced using a CAD system. No manual drawing shall be used.

e) A compile report must be submitted upon completing the course. Report must be submitted in MS Word format, except the part of analysis and design.

f) Work processes and submission preliminary reports should be conducted as following schedule

**2.0 Submission:**

a) Submission of complete report and design is before **WEEK 14**

b) If the project is submitted late without sufficient cause, a penalty shall be applied. A deduction of 15% of the maximum mark available from the actual mark achieved by the group shall be imposed upon expiry of the deadline. A further deduction of 5% of the maximum mark available from the actual achieved by the group shall then be imposed of the next subsequence days.

c) Plagiarism and academic dishonesty can have some severe penalties and repercussions.

**4.0 Assessment:**

The assessment of this project will be based on three concepts, cognitive, psychomotor and affective. Brief criteria of the assessment are:

-Structural system and idealization, concept and assumptions
- Plan and layout
-Analysis, design and detailing
- Report and organization of report
- Professionalism, ethic and creativity

Please refer the evaluation rubrics for details of assessment