UNIVERSITI TEKNOLOGI MARA | Cawangan Johor Kampus Pasir Gudang

**ECS358**

**CIVIL ENGINEERING DESIGN PROJECT**

# REINFORCED CONCRETE BUILDING DESIGN PROJECT & PROJECT BASED LEARNING

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In the name of Allah, the Most Gracious and Most Merciful.

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The Uniform Building By-Law (UBBL) is published documentation that is utilized and accentuated by the federal government as a mandatory benchmark of safety protection. UBBL is a statutory code that prescribes and regulates the design and construction of construction in Malaysia.

UBBL is the building code of Malaysia, which is based on the 1974 Street, Drainage and Building Act (Act 133) and its subsidiary, the Uniform Building by Laws 1984, revised as Uniform Building By-Laws 2006 (UBBL 1984) (all amendments up to May 2006). (all amendments up to May 2006). That kind of legal instruments provides for the approval of building plans and other planning and construction management procedures, such as the specifications for firefighting services prescribed by the Fire Service Department in Part VII and Part VIII of the UBBL. Certain Malaysian requirements are now made compulsory under unique legislation.

## Part II - *Submission of plans for approval*

### 1. Submission of plans for approval

(1) All plans for buildings submitted to the local authority for approval under section 8 of the Ordinance shall:

(a) be deposited at the office of the local authority together with the fees prescribed for the submission of such plans under the First Schedule to these By-laws;

(b) bear upon them a statement showing for what purpose the building, for which the plans are submitted, is to be erected and used;

(c) bear the certification of the qualified persons on these plans together with Form A as set out in the Second Schedule to these By-laws for which they are respectively responsible; and

(d) have attached thereto a stamped copy of the relevant site plan approved by the competent planning authority and certified within twelve calendar months

Before the beginning of the semester, students are required to find sample of architectural drawing to be used as reference for this design project. From the architectural drawing, structural key plans compromising the ground floor layout, first floor layout and roof layout are derived to define the location of structural members in the reinforced building including reinforced concrete slab, beam and column.

After drawing structural key plans, manual designs of each structural members are done to evaluate required dimensions and specifications of structures to sustain load imposed on them. By using the manual design, the results are then compared with output from PROKON software.

Next, the total cost of project is estimated by using Bill of Quantities method. In this method, taking-off are done for each structural members to enumerate number of construction materials needed to construct the reinforced concrete building such as reinforcement bar, concrete mix and sawn timber. The quantities of materials from the taking-off are then summed up and multiplied with the respective price of item provided in the Schedule of Rate by Jabatan Kerja Raya Malaysia to obtain the total cost of materials for this particular project.