Module (Course Syllabus) Catalogue

2022-2023

College/ Institute	Erbil Polytechnic University
Department	Civil Engineering
Module Name	Estimation
Module Code	EST303
Degree	Technical Diploma ● Bachler ☐ High Diploma ☐ Master ☐ PhD ☐
Semester	3

Qualification	I have experience in lecturing about 6 years and my Education and Academic certificates as below
	    1- Master in Civil Engineering (Structure and Material) 2014
	    2- Bachelor in Civil Engineering 2007
	    3- Diploma in Road Construction Engineering 2002
	 Teaching subjects in the last few years:
	 • Mathematic . Undergraduate
	 • Estimation. Undergraduate
	 • Computer applications. Undergraduate
	 • Construction Technology. Undergraduate
	 • Mechanics. Undergraduate

Scientific Title	Assist Lecturer
ECTS (Credits)	5
Module type	Prerequisite ☐ Core ● Assist. ☐
Weekly hours	3	
Weekly hours (Theory)	(3) hrs Class	(162)Total hrs Workload
Weekly hours (Practical)	( )hr Class	()Total hr Workload
Number of Weeks	20	

Lecturer (Theory)	Saad Talaat Ridha BILBAS
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Lecturer (Practical)	Jalal Mohammed Fadhil
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Websites	N/A

Course Book

Course Description	It is important to note that estimated amount may be different from the actual cost of the project. Estimated amount should not be differing than 5% to 10% of the actual cost of the project. Also, estimation requires thorough knowledge of construction procedure, labor and material. It requires knowledge of drawing specifications and prevailing market rates. Moreover, this course will be covering such as estimation cost, measurement of works, Rules of measurement, Method of taking quantities (Long wall- Short wall method, Centerline method and Partly center line and partly cross wall method). Estimating of items such as Excavation, Concrete casting foundation, Concrete Wall under DPC, DPC, Bearing Wall above DPC, Slab Casting. Furthermore, estimating structure frame both types (Steel Structure and Concrete Structure).
Course objectives	The main aim and purpose behind the study of Estimation: ▪ To provide the student with the ability to estimate the quantities of item of works involved in buildings, water supply and sanitary works, road works and irrigation works ▪ to equip the student with the ability to do rate analysis, valuation of properties and preparation of reports for estimation of various
Student's obligation	The students are required to: - Attend all the lectures and participate in the discussion and the class work; - Reading and practicing on the problems given in previous lectures before attending a new one. -Participate in all tests and exams
Required Learning Materials	The different types of teaching-learning materials are, video TLMs, textbooks, overhead projector, Power Point slides, computers and other reading materials. Other Reading Materials: The other reading materials are referred to articles, documents, reports, assignments, projects, newspapers, magazines and books.

		Task	Weight (Marks)	Due Week	Relevant Learning Outcome
Evaluation		Paper Review			
	Assignments	Homework	9%	5, 8	1
		Class Activity	2%	1-20	1,2
		Report			
		Seminar	14%	13	1,2,3
		Essay			
		Project	14%	12	
	Quiz		5%	3,6,14	2,3
	Lab.				
	Midterm Exam		16%	10-12	2,3
	Final Exam		40%	18-19	1-3
	Total		100%		

Specific learning outcome:	1- Possess a basic knowledge on methods and types of estimation and its merits and demerits 2- Have knowledge on specifications and tendering process for contracts. 3- Have the knowledge of rate analysis of different item of work and bill of quantities. 4- Have able to value a property, price escalation recommendations and auditing. 5- Have the ability to understand the types, formation, terms and conditions in contracts and arbitration.
Course References:	* CONSTRUCTION TECHNOLOGY "ROY CHUDLEY and ROGER GREENO". * BUILDING DESIGN AND CONSTRUCTION HANDBOOK "FREDERICKS & JONATHAN six edition". * The construction of building "R. BARRY 1-5".

| **Course topics (Theory)**	**Week**	**Learning Outcome**
DEFINITION OF ESTIMATING AND COSTING an Introduction: - Estimating is the technique of calculating or Computing the various quantities and the expected Expenditure to be incurred on a particular work or project	1,2	1,2
MEASUREMENT OF MATERIALS AND WORKS: The units of measurements are mainly categorized for their nature, shape and size and for making payments to the contractor and also	3,4	1,2,3
Earthworks: To calculate the earthwork estimate requires multiplying the area by the difference between the average	5,6,7	1,2,3,4

of two sets of levels. Formula: Volume = Area * Difference between the average of two sets of levels.		
Concrete Quantity: will compute accurately estimate concrete costs. Using a real set of drawings, students will perform a complete concrete take off and will apply material and labor costs to that take off to assemble a complete estimate	8,9	1,2,3,4
Rate Analysis: In order to determine the rate of a particular item, the factors affecting the rate of that item are studied carefully and then finally a rate is decided for that item. This process of determining the rates of an item is termed as analysis of rates or rate analysis.	11,12,13	1,2,3,4,5
Estimating Steel Reinforcement in a Concrete member: Determine number of steel rebar based on spacing between rebar and then calculating total weight based on rebar diameter size.	14,15,16	1,2,3,4,5
Shuttering Work: Formwork is a mold including all supporting structures, used to shape and support the concrete until it attains sufficient strength to carry its own weight	17,18	1,2,3,4,5
Practical Topics	**Week**	**Learning Outcome**

Questions Example Design
the question sheet for this course will be formatted like find out the quantity of items as below

Q1/ From the given figure below calculate the details and abstract estimate for the double roomed building (Load bearing type structure) by
a) long wall & short wall method
b) Centre Line Method
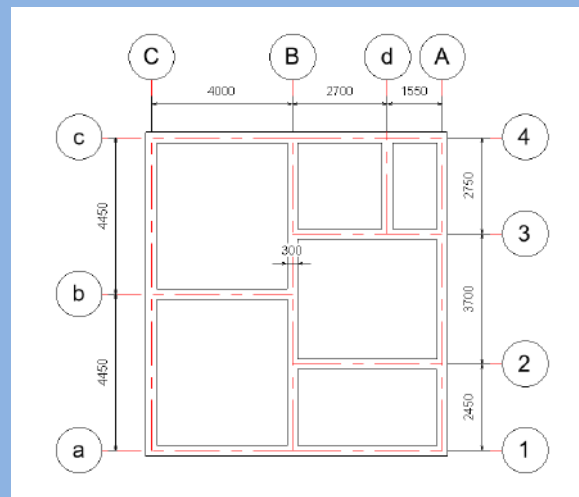
Answer/

S. No.\	Particulars of item	Unit	No.	L (m)	B (m)	H (m)	Q m³
1.	Excavation	m³	1	53.45	1	0.9	48.105
2.	Plain Concrete	m³	1	53.45	1	0.1	5.345
3.	Block Wall under DPC						
3-i	Width 1m	m³	1	53.45	1	0.4	21.38
3-ii	Width 0.6m	m³	1	55.45	0.6	0.4	13.308
	Total						34.688
4.	Block Wall above DPC	m³	1	56.95	0.3	3	51.255
5.	Parapet Wall	m³	1	40.5	0.15	0.8	4.86
6.	DPC	m³	1	56.95	0.3	0.3	5.1255
7	RC Slab	m³	1	10.6	9.95	0.2	21.094

Extra notes:

Lecturing will be kept to a level necessary to create greater comprehending of the principles and techniques described in the PDF lecture. Students will be actively involved in learning during the class. Also, it is preferred to have your own PC to make more searching for any given subject.

Because each class builds on previous classes, it is necessitating to keep up with assignments. Collaboration on homework is allowed for the purpose of improving learning. Any student may be called upon at any time to present a homework to the class. Homework will be checked for completion. Also late homework will not be possible.

Also having PC will get easy access to homework, report, assignment, and quiz in Moodle

External Evaluator

As a lecturer I have reviewed the Course Book related to the subject of Estimation for second year, Department of Architectural Technique, Shaqlawa Technical College, I found that the course Book is very good describing the aim and objectives of the subject. Moreover, it is covering all the required syllabus and contents of the course and describes satisfactorily the aspects related to the course.

Dr. Bahman Omar Taha
    Assist Prof.
Ph.D. in Structural Engineering.