

## Module (Course Syllabus) Catalogue 2023-2024

College/ Institute	Erbil Polytechnic University		
Department	Civil Engineering		
Module Name	Building Construction Technique and Equipment Practical		
Module Code	BCT301		
Degree	Technical Diploma <input type="checkbox"/>	Bachelor <input checked="" type="checkbox"/>	
	High Diploma <input type="checkbox"/>	Master <input type="checkbox"/>	PhD <input type="checkbox"/>
Semester	3		
Qualification	<p>I have experience in lecturing about 6 years and my Education and Academic certificates as below</p> <ol style="list-style-type: none"> <li>1- Master in Civil Engineering (Structure and Material) 2014</li> <li>2- Bachelor in Civil Engineering 2007</li> <li>3- Diploma in Road Construction Engineering 2002</li> </ol> <p><b>Teaching subjects in the last few years:</b></p> <ul style="list-style-type: none"> <li>• Mathematic Undergraduate</li> <li>• Estimation. Undergraduate</li> <li>• Computer applications. Undergraduate</li> <li>• Construction Technology. Undergraduate</li> <li>• Mechanics. Undergraduate</li> </ul>		
Scientific Title	Assist Lecturer		
ECTS (Credits)	5		
Module type	Prerequisite	Core	Assist. <input checked="" type="checkbox"/>
Weekly hours	4		
Weekly hours (Theory)	( 2 )hr Class	(135)Total hrs Workload	
Weekly hours (Practical)	( 2 )hr Class	( )Total hrs Workload	
Number of Weeks	12		

<b>Lecturer (Theory)</b>	<b>Saad Talaat Ridha BILBAS</b>
<b>E-Mail &amp; Mobile NO.</b>	<a href="mailto:Saad.ridha@epu.edu.iq">Saad.ridha@epu.edu.iq</a>
<b>Lecturer (Practical)</b>	<b>Mr Dyar Kak resh &amp; Mr Mohammed Diaa</b>
<b>E-Mail &amp; Mobile NO.</b>	
<b>Websites</b>	<b>N/A</b>

## Course Book

<b>Course Description</b>	<p>This course will start with Engineering fundamentals and job layout. Also earthworks and the student will be familiar with different construction equipment that used in excavations such as tractors, bulldozers, scrappers, etc. and calculating the cost of owning and operating an equipment with different examples in order to be able to make the correct choice among the different types of equipment regarding cost and productivity with different examples. Also teaching soil stabilization methods. The course also covers concrete plant and concrete production, its transport and casting, with detailed examples about concrete mixer and calculating production. Also different activities that are done by construction equipment such as drilling, lining, grouting, mucking and tunnelling. Also pumping equipment and calculations for its output. The students will be familiar with the types of manufactured buildings and the different system that used in precast units and manufactured construction. The course will cover building brickworks and types of foundations, also, Joint in concrete Structure and, pointing. The students will learn the frameworks, reinforced slabs and their types.</p>
<b>Course objectives</b>	<p>The main aim and purpose behind the study of Building Construction Technique are:</p> <ul style="list-style-type: none"> <li>• To enable students to learn fundamentals regarding building construction progress.</li> <li>• To enhance skills of selecting appropriate technique of equipment and machines to be suitable to the specific construction purpose.</li> <li>• To enable students to know about construction stages and estimating cost of each stage, constructing duration period as well.</li> </ul>
<b>Student's obligation</b>	<p>The students are required to:</p> <ul style="list-style-type: none"> <li>- Attend all the lectures and participate in the discussion and the class work</li> <li>- Reading and practicing on the problems given in previous lectures before attending a new one.</li> <li>-Participate in all tests and exams</li> </ul>

<b>Required Learning Materials</b>	The different types of teaching-learning materials are, videos, 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.				
<b>Evaluation</b>	<b>Task</b>	<b>Weight (Marks)</b>	<b>Due Week</b>	<b>Relevant Learning Outcome</b>	
	Paper Review				
	Assignments	Homework	#2@%2.5 each=%5	5,9	1,2,3,4
		Class Activity	%2	1-18	1,2
		Report	#7=%10	7# reports	
		Seminar	#1@%10	14	1-9
		Essay			
		Project	#1@%10	13	1-10
	Quiz		#2@%4 each=%8	2# quizzes	2,3,4,5,6,7
	Lab.				
	Midterm Exam		%10 theo. + %15 Prct.	10-12	2,3,3,4
	Final Exam		%15 theo. + %15 Prct.	18-19	1-10
Total		%100			
<b>Specific learning outcome:</b>	<ol style="list-style-type: none"> <li>1. Learn fundamentals regarding construction technique.</li> <li>2. Enhance skills of selecting appropriate technique of equipment and machines to be suitable to the specific construction purpose and how to storage them.</li> <li>3. Adopting knowledge and effective skills in the development and presentation of team working in an engineering project.</li> <li>4. Generate creative and realistic solutions to defined problems and projects</li> <li>5. Apply knowledge as well as the technical, administrative and communication skills necessary to succeed in any engineering construction project.</li> </ol>				
<b>Course References:</b>	<p>* Fundamentals of Building Construction: Materials and Methods 7<sup>th</sup> Edition by Edward Allen &amp; Joseph Iano, 2014</p> <p>* Print Reading for Construction: Residential and Commercial 7<sup>th</sup> Edition by Walter C. Brown, Daniel P. Dorfmueller, 2018</p> <p>* Home Repair and Improvement</p>				

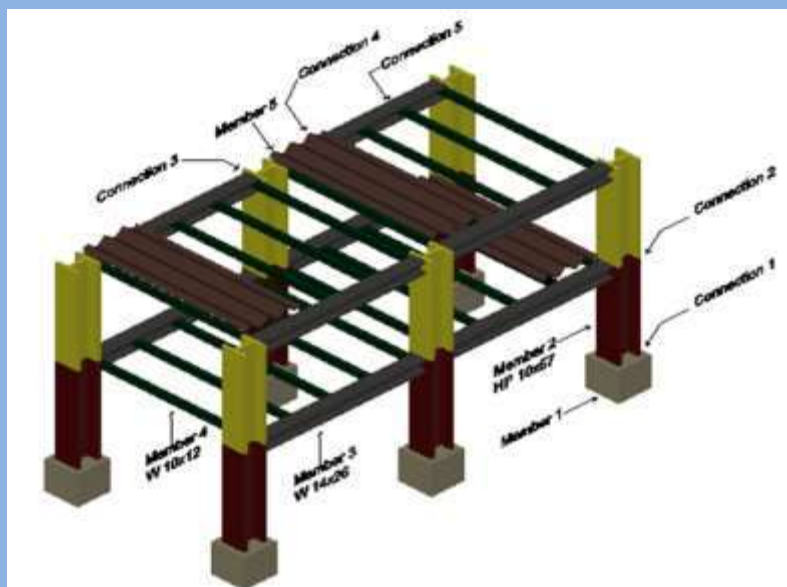
Course topics (Theory)	Week	Learning Outcome
<b>Job Layout Module:</b> can be defined as a site drawing of the proposed construction showing the location of entry, exit, temporary services, material stores and stocks, plant or equipment and site offices.	1,2	1&2
<b>Building Layout and Elevation Module:</b> Layout of a building or a structure shows the plan of its foundation on the ground surface according to its drawings, so that excavation can be carried out exactly where required and position and orientation of the building is exactly specified.	3,4	1,2,&3
<b>Sewage, Sewer System, and Elevations Module:</b> A sewerage system, or wastewater collection system, is a network of pipes, pumping stations, and appurtenances that convey sewage from its points of origin to a point of treatment and disposal.	5,6	1,2,&3
<b>Earthworks Module:</b> Earthworks are engineering works carried out in and with granular soils, i.e. the movement of earth by means of excavation and filling. Earthworks are one of the cornerstones of civil engineering and form the basis for other fields of construction.	7,8	1,2,&3
<b>Foundation Module:</b> Foundation, Part of a structural system that supports and anchors the superstructure of a building and transmits its loads directly to the earth. To prevent damage from repeated freeze-thaw cycles, the bottom of the foundation must be below the frost line.	9,11,12	1,2,&3
<b>Reinforced Concrete Structure and Detailing Module:</b> The reinforced concrete structure refers to the members, such as beams, boards, columns, roof trusses, consisting of concrete and steel bars. In these structures, the steel bars are wrapped by concrete, but their mechanical properties will still lose due to the fire to destroy the whole structure. Detailing is the drawing of a reinforced concrete structure, which includes showing the size, location, type, placement, splices, and termination of the reinforcement.	13,14	1,2,3,&4
<b>Building with Constructions Units (Block, Brick, Stone...) and Concrete Joint Module:</b> Masonry, the art and craft of building and fabricating in stone, clay, brick, or concrete block. Construction of poured concrete, reinforced or unreinforced, is often also considered masonry.	15,16	1,2,3,&4
<b>Formwork Module:</b> Formwork is the general term given to the mold into which concrete is poured. It is generally made of timber or steel, the surface in contact with the concrete being selected to give the required finish. The strength of the formwork and its associated falsework must be sufficient to	17,18	1,2,3,4,&5

support the weight of the wet concrete without significant distortion, consider the bar, which has a cross-sectional area that gradually varies along its length $L$		
<b>Steel Structure Module:</b> Steel structure is a metal structure which is made of structural steel* components connect with each other to carry loads and provide full rigidity.	19	1,2,3,4,&5
<b>Practical Topics</b>	<b>Week</b>	<b>Learning Outcome</b>

### Questions Example Design

**Q1/** Figure 2 below, there are 5 different types of Connection as assigned, there are 5 diverse members as well.

- A.** Draw and mention name technically all the 5 different kinds of Connection.
- B.** Write down the names of all members those participated in Figure 2 above.



**Q2/** Describe the Photos 1 and 2 below that were taken from GULLAN TOWER project.



### **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 Strength of Materials for second year, Department of Civil Engineering, College of Technology, I found that the Course Catalogue 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.



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