Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	Erbil Technical Engineering College	
Department	Civil Engineering Department	
Module Name	Computer Aided Structural Analysis and Design	
Module Code		
Degree	Technical Diploma ☐ Bachler ☐ High Diploma ☐ Master ■ PhD ☐	
Semester	Two	
Qualification	Ph.D. in Structural Engineering & BIM	
Scientific Title	Lecturer	
ECTS (Credits)	7	
Module type	Prerequisite ☐ Core ☐ Assist. ☐	
Weekly hours		
Weekly hours (Theory)	(1)hr Class	( )Total hrs Workload
Weekly hours (Practical)	(2)hr Class	( )Total hrs Workload
Number of Weeks	15	
Lecturer (Theory)	Dr. Aras Jalal JalyZada	
E-Mail & Mobile NO.	aras.jalyzada@epu.edu.iq- 07504830509	
Lecturer (Practical)		
E-Mail & Mobile NO.		
Websites		

Course Book

Course Description	This course focuses on the skills and information needed to effectively use Building Information Modelling (BIM) in the structural engineering. This is an object based parametric modelling where students gain knowledge on the implementation of BIM concepts throughout the lifecycle of a building, from planning and design, to construction and operations.
Course objectives	Define BIM in the building lifecycle Describe workflow in using BIM in the structural engineering Demonstrate Revit and ETABS software and export and import models between them Explain analyse and design BIM model
Student's obligation	Students Must attend the lectures Preparing a paper review
Required Learning Materials	

Evaluation

Task		Weight (Marks)	Due Week	Relevant Learning Outcome
Paper Review		50%	1-15	1-4
Assignments	Homework	3	3,7	
	Class Activity	2	8	
	Report	5	10	
	Seminar	5	11	
	Essay			
	Project	5	4, 9	
Quiz		10	5,12	
Lab.				
Midterm Exam		20	7	
Final Exam		50	15	
Total				

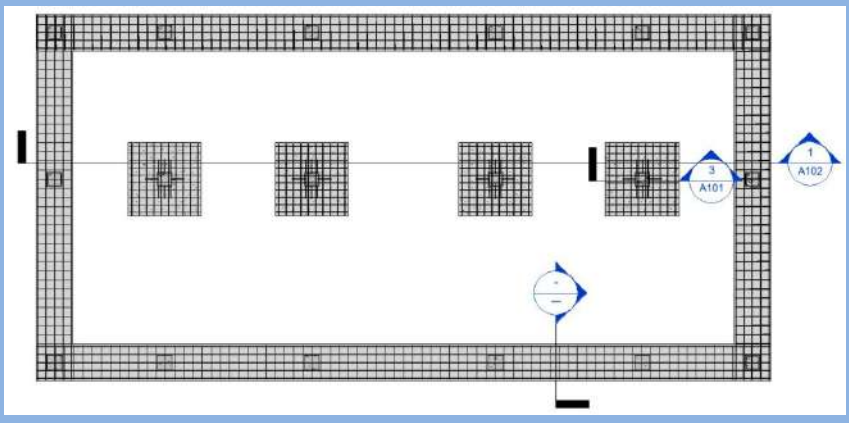
Specific learning outcome:	• Using BIM philosophy to prepare structural BIM model. • Export and import the BIM model to one of the structural analysis and design software (ETABS) to analyse and design the model. • Prepare full structural BIM model in Revit software.
Course References:	BIM handbook , 2nd edition, Chuck Eastman , Paul Teicholz, Rafael Sacks, 2018 BIM Content Development "Standard, Strategies and Best Practices" , Robert S. Weygant, 2011 Building Information Modelling: Framework for Structural Design, 1st Edition, by Nawari O. Nawari & Michael Kuenstle The Impact of Building Information Modelling, 1st Edition, By Ray Crotty Exploring Autodesk Revit 2020 for Structure, 10th Edition, by Sham Tickoo.

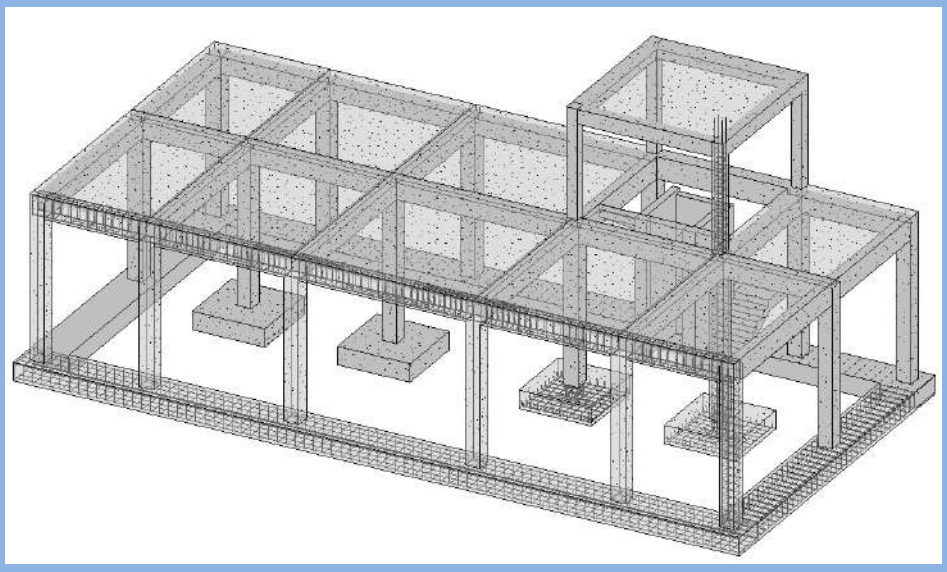
Course topics (Theory)	Week	Learning Outcome
Introduction to BIM philosophy in general	1	1
Introduction to BIM in the structural engineering	2	1
Modelling and Interoperability in the BIM Environment	3	1-2
Introduction to Revit and Working with Revit tools	4	2-3
Modelling structural BIM model in Revit	5-8	4-5
Export the structural BIM model to ETAB to analyses and design the BIM model	9-10	2-3
Import the ETAB model to Revit for the structural BIM detailing	10-12	3-4
Cloud BIM, BIM with Virtual and Augmented Reality	13	1-2
Extra Examples	14-15	3-4

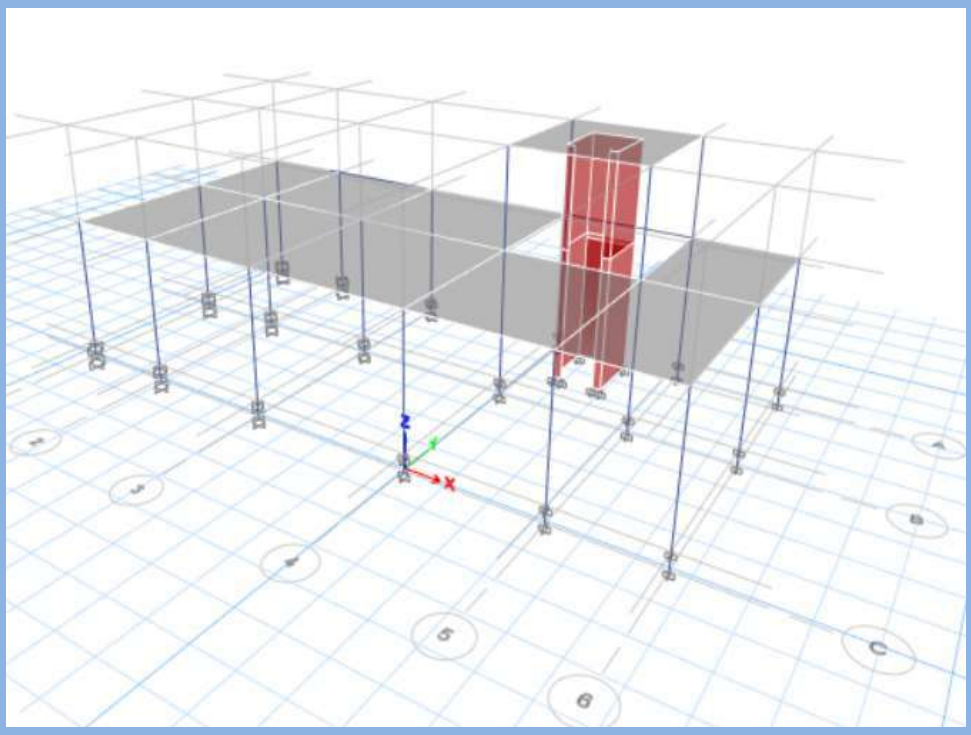
Practical Topics	Week	Learning Outcome

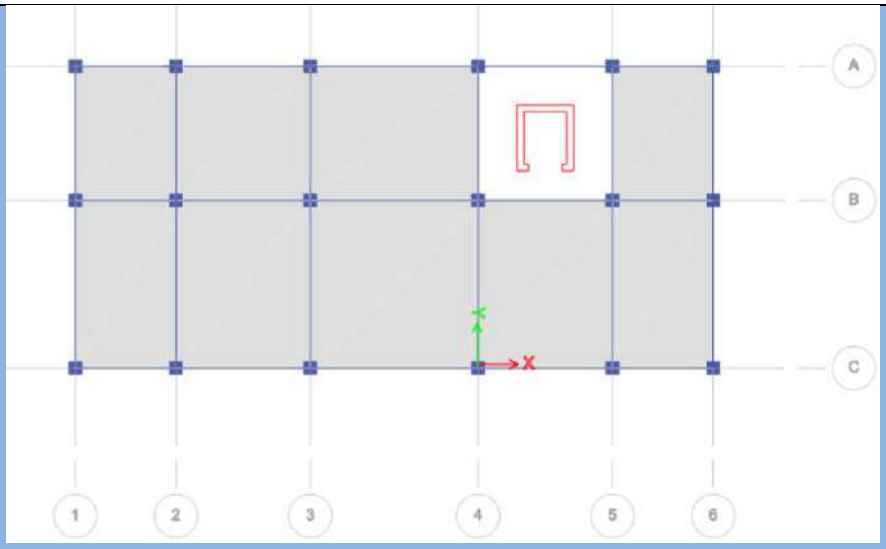
Questions Example Design

Q1/ Export the Structural BIM model from Revit to ETAB to analyse and design the model.









Extra notes:

External Evaluator