HASAN KALYONCU UNIVERSITY
Civil Engineering Department

CE 499 Project Proposal Form

Part I. Project Proposer

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Part II. Project Information

Starting Term	2019/2020
Title of the Project	Building Information Modelling (BIM)

Project Description

1. Students will study and design a structure in a BIM based parametric design tool. Students will draw an idealized model of the structure and identify any clashes in the design and compare it with the traditional practice. Design clashes for the elements such as slabs, beams, columns and foundations will be observed in the BIM model and accordingly advantages will be noted over the traditional methods.
2. Students will also study on the 4D time planning using related parametric tools such as Naviswork. All the details of construction planning will be based on the integration of the 3D Revit Model of the building design with the time schedules from MS project, leading to the 4D time simulation of the construction plan. Bill of Quantities and related cost analysis will also be studied as a construction management task.
3. Sustainable design and construction will be also studied with a lifecycle perspective to the construction projects using Building Information modelling addressing the lean principles in both design and construction practice including waste reduction and value generation and removing non-value adding activities.
4. Further, with the sustainable design focus, students can study also the energy efficiency and energy efficient building design and management and use in the buildings.

Finally, students will produce their analysis and evaluations in a comparative manner with traditional methods to introduce the final results of this project.

Project Justification

Novelty	
New aspects	Students will be able to deal with BIM based design and related construction planning, cost management, lean and sustainability aspects via initial literature review then hands-on case based project development using BIM tools. The methods and techniques of parametric modelling, clash analysis in the design solution, 4D time and 5D cost analysis, energy performance, sustainability and lean principles will be learned in an experiential manner as the way forward
Complexity	
Challenging problem and issues	The main challenge in this graduation project will be addressed as how to make students able to use the knowledge and skills from his theoretical background, according to his previous undergraduate courses such as engineering design, construction management and multidisciplinary integrated project courses. Students should improve their skills to know how to collect all required information from separated resources and how
Related civil engineering science fields and subfields	Engineering design, Construction Management, Multidisciplinary Integrated Project, Building Information Modelling for Sustainable Design and Construction.

Tools	Autodesk Revit, Autodesk Naviswork, MS Project, Design Builder or Green Building Studio
Risk involved	
Potential problems and alternative solutions	The availability of computer programs. University has made the educational version of the software tools available to the students with no cost
Minimum work required	• Sufficient knowledge and skills related BIM, Design methods and construction management. Therefore, to accept the student in this project he should be passed in: Engineering Design, Construction Management and Integrated Multidisciplinary Project courses • 1-3 Students can be accepted for this graduation project.