BIM 341 – Revit Structure 1

Abbreviated Syllabus

**COURSE DESCRIPTION:**

This course is designed to teach, students with an interest in the real world structural aspects of building modeling and design including interaction with other disciplines about the resources available to them thru the program aspects of the Revit Structure software.

Students will learn, thru project-based exercises, how to develop a structural model of a commercial project from the very beginning of the project to completion of the final 3D model.

Topics will include the setting up a project for success, correctly modeling and placing key structural elements, and using correct modeling practices.

By the conclusion of the class, the student will gain valuable knowledge about the tools for modeling in Revit Structure and have an understanding of its intricacies.

**LEARNING OBJECTIVES:**

1. Create an accurate structure, for use in all program aspects of designing a project and the construction of a real-world model.
2. Design structural building systems which create buildings with structural integrity.
3. Develop building structures which limit or prevent accidental injury or death among users of the buildings.
4. Design and develop structural building systems.

**COURSE FORMAT:**

The courses are asynchronous meaning there are no set start times for class. Students complete the work at their convenience, but must complete one discussion forum and the midterm at the halfway point of the course. Students can practice and/or complete their course exercises at home.

Both online and onsite courses are taught in a combined lecture/lab/online environment. The majority of the time, the student will be working on the computer. A typical onsite class period involves the instructor's direct prompting the students on the computer through a series of steps until thorough comprehension of and execution of that command is demonstrated. The same exercises are accomplished online, where videos are used for the basis of course instruction.

The online videos guide all students through the project modeling and documentation process.

The length of time for the completion of the course is two weeks from the start day of the class. At the end of the two weeks, a final model submission will be required.

Student inquiries, questions, and requests for information are handled through our Student Information System. All inquiries will be handled within one business day.

**TEXTBOOK / REQUIRED BIBLIOGRAPHY:**

Please click here to see and/or purchase the textbook used in this course.
COURSE OUTLINE:

DISCUSSION FORUMS
Discussion forums for the course are located here. There are two, one for student to student interaction and one that is graded. The Graded Discussion Forum requires and initial post, due at the end of Week 1, and a response to another student’s post due by the end of the course.

LESSON 1
Students begin by linking in the architectural file; copy/monitoring grids and datum elements.

LESSON 2
Students create a grade beam family and begin constructing the foundation.

LESSON 3
Students load families and begin placing beams, columns and girders.

LESSON 4
Students complete structural elements and create sheets.

CLASS GRADING:
Class grades will be determined by the total number of points achieved in the following categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hands-On Assessments</td>
<td>20%</td>
</tr>
<tr>
<td>Reading Assessments</td>
<td>10%</td>
</tr>
<tr>
<td>Discussion Forums</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm</td>
<td>20%</td>
</tr>
<tr>
<td>Final</td>
<td>40%</td>
</tr>
</tbody>
</table>

Final grades are determined using the following scale:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percent</th>
<th>Grade Points</th>
<th>Letter Grade</th>
<th>Percent</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>98 - 100</td>
<td>4.00</td>
<td>C</td>
<td>73 - 76</td>
<td>2.00</td>
</tr>
<tr>
<td>A</td>
<td>94 - 97</td>
<td>3.67</td>
<td>C-</td>
<td>70 - 72</td>
<td>1.67</td>
</tr>
<tr>
<td>A-</td>
<td>90 - 93</td>
<td>3.50</td>
<td>D+</td>
<td>67 - 69</td>
<td>1.33</td>
</tr>
<tr>
<td>B+</td>
<td>87 - 89</td>
<td>3.33</td>
<td>D</td>
<td>63 - 66</td>
<td>1.00</td>
</tr>
<tr>
<td>B</td>
<td>83 - 86</td>
<td>3.00</td>
<td>D-</td>
<td>60 - 62</td>
<td>0.67</td>
</tr>
<tr>
<td>B-</td>
<td>80 - 82</td>
<td>2.67</td>
<td>F</td>
<td>0 - 59</td>
<td>0.00</td>
</tr>
<tr>
<td>C+</td>
<td>77 - 79</td>
<td>2.33</td>
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</tbody>
</table>

The weighted values will be summed into total points achieved.
AUTODESK CERTIFICATION OBJECTIVES:

The curriculum covered in this course includes the following Autodesk Certification objectives:

**COLLABORATION PROFESSIONAL** - Create and modify levels, Create and modify structural grids, Import AutoCAD files into Revit, Link Revit models, Control the visibility for linked objects, Control the visibility for linked objects

**MODELING** - Place and modify structural columns, Place and modify walls, Create custom wall types, Place footings, Create a concrete slabs and/or floors, Create and modify stepped walls in foundations, Place rebar, Add beams, Add beam systems, Add joists, Add cross bracing to joists, Create and use trusses, Create and modify floors, Create and modify custom floors, Create and modify sloped floors, Add floor openings for stairs, Create and modify stairs, Create and modify ramps, Model and use roofs

**VIEWS** - Create section views, Create framing elevations, Use callout views