STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
SOET 353 - Advanced Building Information Model (BIM) 2

Created by: Robert F. Burnett

Updated by:

Canino School of Engineering Technology

Department: Civil and Construction Technology

Semester/Year: Fall 2020

A.   **TITLE**: Advanced Building Information Model (BIM) 2

B.   **COURSE NUMBER:** SOET 353

C.   **CREDIT HOURS: (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)**

    # Credit Hours: 3
    # Lecture Hours: 1 **per week**
    # Lab Hours: 4 **per week**
      Other: **per week**

    Course Length: 15 **Weeks**

D.   **WRITING INTENSIVE COURSE**: Yes ☐ No ☒

E.   **GER CATEGORY: None:** ☒ **Yes:** GER
    If course satisfies more than one: GER

F.   **SEMESTER(S) OFFERED: Fall** ☒ **Spring** ☐ **Fall & Spring** ☐

G.   **COURSE DESCRIPTION:**

Students learn how to use BIM as a catalyst to improve collaboration, enhance shared ownership of project goals, and drive synergies between the project plan, design strategy and BIM strategy, thereby increasing the level of engagement in project teams. This course covers 3D (visusalication/clash detection), 4D (Time Simulation/Virtural construction/construction sequencing), 5D Estimating/cost simulization, 6d Sustainability and Energy analysis, 7D (Life cycle/Maintenance/Facilities management) components of BIM.

H.   **PRE-REQUISITES: None** ☐ **Yes** ☒ **If yes, list below:**

SOET 352 Advanced REVIT and BIM; or permission of the instructor

    CO-REQUISITES: None ☒ **Yes** ☐ **If yes, list below:**

I. **STUDENT LEARNING OUTCOMES:** (*see key below*)

By the end of this course, the student will be able to:

Course Student Learning Outcome [SLO]	Program Student Learning Outcome [PSLO]	GER [If Applicable]	ISLO & SUBSETS	
1. Execute the coordination process using BIM / BIM 360 and Navis works	SO 6		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
2. Create complex schedules in MEP utilizing BIM Level of Development (LOD) 100, 200, 300, 400 & 500	SO6		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
3. Utilize BIM as a catalyst to improve collaboration through virtural reality and various software applications	SO6		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
4. Demonstrate understaning of how shared ownership of project goals is enhanced with BIM	SO5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
5. Demonstrate understanding of protocols, contracts & addenda with BIM for quantity surveying.	SO5		5-Ind, Prof, Disc, Know Skills ISLO ISLO	Subsets Subsets Subsets Subsets
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				ISLO	Subsets
				ISLO	Subsets
				ISLO	Subsets
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KEY	Institutional Student Learning Outcomes [ISLO 1 – 5]
ISLO #	ISLO & Subsets
1	**Communication Skills** Oral [O], Written [W]
2	**Critical Thinking** *Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]*
3	**Foundational Skills** *Information Management [IM], Quantitative Lit,/Reasoning [QTR]*
4	**Social Responsibility** *Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]*
5	**Industry, Professional, Discipline Specific Knowledge and Skills**

*Include program objectives if applicable. Please consult with Program Coordinator

J.   <u>APPLIED LEARNING COMPONENT:</u>   Yes ☒   No ☐

If YES, select one or more of the following categories:

☒ Classroom/Lab
☐ Internship
☐ Clinical Placement
☐ Practicum
☐ Service Learning
☐ Community Service

☐ Civic Engagement
☐ Creative Works/Senior Project
☐ Research
☐ Entrepreneurship
   (program, class, project)

K.   TEXTS:

TBD

L.   REFERENCES:

https://www.nypl.org/ New York Public Library/ Autodesk Education community

M.   EQUIPMENT: None ☐ **Needed:** Mechanical (automatic) pencil, engineering computation paper, Flash drive/Memory Stick, Architects and engineers scales,

N.   GRADING METHOD: A-F

O.   SUGGESTED MEASUREMENT CRITERIA/METHODS:

quizzes, exam, drawing assignments; a major BIM project

P.   DETAILED COURSE OUTLINE:

I. Coordination process using BIM / BIM 360 and Navis works

II. Creating Material Takeoff Schedules using BIM software

III. BIM Level of Development (LOD) 100, 200, 300, 400 & 500 Creating Complex Schedules in MEP

IV. BIM as a catalyst to improve collaboration

V. enhance shared ownership of project goals

VI. Protocols, contracts & addenda W. BIM for quantity surveying, referred to as 5D BIM.

VII. 6D Sustainability and Energy Analysis, 7D Life cycle and Maintainace (Facilities Management)

Q.   LABORATORY OUTLINE: None ☐ **Yes** ☒

1. Using the REVIT MEP system, Struct/Arch for Coordination
2. Where are these systems going, and where did they come from
3 Group clashes together so you can see the bigger picture.
5. 4D-7D BIM projects how they are used and why
6. What to expect in a Commercial BIM project start to finish
7. Timeline of a quantity surveyor's role in the BIM Execution Plan,
8. What information quantity surveyors need from 3D digital models, quality assurance,
9. Legal issues to be aware of while working on BIM projects.