ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ
ವಿಟಿಯು ಅಧಿನಿಯಮ ೧೯೯೪ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ ರಾಜ್ಯವಿಶ್ವವಿದ್ಯಾಲಯ
VISVESVARAYA TECHNOLOGICAL UNIVERSITY
State University of Government of Karnataka Established as per the VTU Act, 1994"JnanaSangama" Belagavi-590018

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CIRCULAR

Subject: Updated Syllabus of BCVL657A-Building Information Modelling regarding..

Reference:

1. Email from Chairperson BoS in Civil engineering VTU Belagavi dated:23.01.2025
2. The Hon'ble Vice-Chancellor's approval dated: 24.01.2024

With reference to the subject mentioned above, the syllabus for the 6th-semester Civil Engineering subject, **BCVL657A—Building Information Modelling**, has been updated by the Board of Studies in Civil Engineering, VTU Belagavi. The revised syllabus, as submitted by the Chairperson of the Board of Studies, is attached to this circular for the reference of students and staff concerned.

All principals of engineering colleges are hereby instructed to disseminate the contents of this circular to all concerned without fail.

Encl: Updated Syllabus of BCVL657A

25/01/25

REGISTRAR

Copy to,

- Registrar (Evaluation) VTU Belagavi for information and needful
- The Special Officer, QPDS Section, VTU Belagavi for information and needful
- The Director, ITI SMU, VTU Belagavi for information and make arrangements to upload the circular on the VTU web portal
- Office copy

Building Information Modelling - Advanced		Semester	6
Course Code	BCVL657A	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0:0:2	SEE Marks	50
Credits	01	Total SEE+CIE	100
		Exam Hours	2 Hours
Examination type (SEE)	**Practical**		

Course objectives:

- To understand the concepts of Building Information Modelling (BIM) and its role in the construction industry.
- To enable students to create structural models, coordinate with architectural models, and generate cost estimations.
- To provide hands-on experience in BIM workflows, detailing, and clash detection using Autodesk Revit.

Sl.NO	Experiments
1	**Overview of BIM:** Introduction to Building Information Modelling (BIM), Importance and Benefits of BIM in the Construction Industry, Role of Autodesk Revit in BIM Workflows
2	**BIM Levels, Dimensions, and LOD:** BIM Levels (0, 1, 2, and 3) – Concepts and Applications, Key BIM Dimensions – 3D (Modelling), 4D (Time), 5D (Cost),
3	**Introduction to LOD (Level of Development)**: LOD 100 to LOD 500, Practical: Understanding LOD through Revit components
4	**Structural Modeling:** Introduction to Revit Structural Module, Modeling structural elements (Beams, Columns, Slabs, Walls, Foundations), Basic and advanced modeling techniques for structures, Hands-on activity: Creating a basic structural model with beams, columns, and slabs
5	**Coordination of Structural and Architectural Models:** Linking and coordinating structural models with architectural models, Identifying and resolving inconsistencies, Practical: Linking and aligning structural models with architectural models
6	**Cost Estimation, Detailing, and Documentation:** Generating cost estimations using schedules in Revit, Customization of cost estimation reports, Detailing of structural components (e.g., annotations, callouts, and section details), Preparation and customization of project documentation, Practical: Generate a cost estimation and prepare detailed documentation using Revit
7	**Introduction to Clash Detection:** Concept of clash detection and its role in reducing errors, Introduction to Revit's Interference Check for clash detection, Hands-on session: Identify and resolve basic clashes in a project
8	**Students work on a mini-project that involves:** Creating structural models, Coordinating with architectural models, Generating cost estimations and detailed documentation, Clash detection and resolution, Final review and feedback on student projects
	Demonstration Experiments (For CIE)
9	Model of a building foundation with different types foundations
10	Model of building elements above foundation
11	Model of different types of roof slabs
12	Model of a complete building with all detailing

Course outcomes (Course Skill Set):
At the end of the course the student will be able to:

- Prepare, read, and interpret BIM-based structural models.
- Coordinate architectural and structural models for construction workflows.
- Develop detailed cost estimation and create detailed documentation.
- Identify and resolve clashes in BIM models using clash detection tools.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation (CIE):
CIE marks for the practical course are **50 Marks**.
The split-up of CIE marks for record/ journal and test are in the ratio **60:40**.

- Each experiment is to be evaluated for conduction with an observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments are designed by the faculty who is handling the laboratory session and are made known to students at the beginning of the practical session.
- Record should contain all the specified experiments in the syllabus and each experiment write-up will be evaluated for 10 marks.
- Total marks scored by the students are scaled down to **30 marks** (60% of maximum marks).
- Weightage to be given for neatness and submission of record/write-up on time.
- Department shall conduct a test of 100 marks after the completion of all the experiments listed in the syllabus.
- In a test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce.
- The suitable rubrics can be designed to evaluate each student's performance and learning ability.
- The marks scored shall be scaled down to **20 marks** (40% of the maximum marks).

Semester End Evaluation (SEE):

- SEE marks for the practical course are 50 Marks.
- **SEE shall be conducted by the two examiners. One from the same institute as an internal examiner and another from a different institute as an external examiner, appointed by the university.**
- The examination schedule and names of examiners are informed to the university before the conduction of the examination. These practical examinations are to be conducted between the schedule mentioned in the academic calendar of the University.
- All laboratory experiments are to be included for practical examination.
- (Rubrics) Breakup of marks and the instructions printed on the cover page of the answer script to be strictly adhered to by the examiners. **OR** based on the course requirement evaluation rubrics shall be decided jointly by examiners.
- Students can pick one question (experiment) from the questions lot prepared by the examiners jointly.
- Evaluation of test write-up/ conduction procedure and result/viva will be conducted jointly by examiners.
- General rubrics suggested for SEE are mentioned here, writeup-20%, Conduction procedure and result in -

60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (however, based on course type, rubrics shall be decided by the examiners)

- Change of experiment is allowed only once and 15% of Marks allotted to the procedure part are to be made zero.

The minimum duration of SEE is 02 hours

Suggested Learning Resources:

- **BIM Handbook**: A Guide to Building Information Modeling for Owners, Designers, Engineers, Contractors, and Facility Managers
- **Autodesk Revit User Manual** and official tutorials
- Online learning platforms (Autodesk Learning Hub.)
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Activity-Based Learning (Suggested Activities in Class)

- Create a plan for a residential building and practice BIM tools.
- Work on a mini-project involving coordination, structural modeling, cost estimation, and clash detection.