SEMESTER S4

CIVIL ENGINEERING MODELLING LAB

(Common to C Group)

Course Code	**PCCEL408**	**CIE Marks**	50
Teaching Hours/Week (L: T:P: R)	0:0:3:0	**ESE Marks**	50
Credits	2	**Exam Hours**	2 Hrs. 30 Min.
Prerequisites (if any)	PCCEL208 / Equivalent	**Course Type**	Lab

Course Objectives:

1. The course is designed to introduce the fundamentals of Civil Engineering Drawing and understand the principles of planning.
2. The students will be able to learn the drafting of buildings manually and using drafting software such as AutoCAD.

KTU SPECIAL

Expt. No.	Experiments
1	Review of drafting software: Plan a single storeyed residential building with flat roof for given requirements and draw the site plan, plan, section and elevation.
2	Plan a double storeyed residential building with sloped roof for a set of given requirements for a given plot and draw the site plan, plan, section and elevation. Prepare a file with hardcopies of drawings ready to submit for approval from the authorities.
3, 4	Plan a public building–office complex, public health centre, commercial, educational, post office, bank and draw the plan, section and elevation: Any two.
5	Plan and prepare plumbing and sanitary drawings of a building.
6	Plan and prepare electrical drawings of a building.
7	Introduction to BIM Software: Draw plan, section & elevation of a single storied residential building (Expt 1or 2)
8	Introduction to Project Planning Software: Schedule the construction sequence of a single storied residential building
9	Preparation of a contour map of a site from the provided total station survey data
10	Earthwork estimation from the provided total station survey data
11	Simulation of a small water supply pipe network using EPANET
12	Land use data preparation using GIS

- Do a minimum of 10 experiments. All experiments are expected to be completed with the help of computers.

Course Assessment Method
(CIE: 50 marks, ESE: 50 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	Preparation/Pre-Lab Work experiments, Viva and Timely completion of Lab Reports / Record (Continuous Assessment)	Internal Examination	Total
5	25	20	50

End Semester Examination Marks (ESE):

Procedure/ Preparatory work/Design/ Algorithm	Conduct of experiment/ Execution of work/ troubleshooting/ Programming	Result with valid inference/ Quality of Output	Viva voce	Record	Total
10	15	10	10	5	50

KTU SPECIAL

- ***Submission of Record: Students shall be allowed for the end semester examination only upon submitting the duly certified record.***
- ***Endorsement by External Examiner:*** *The external examiner shall endorse the record*

Course Outcomes (COs)

At the end of the course students should be able to:

Course Outcome		Bloom's Knowledge Level (KL)
CO1	Illustrate the ability to organize civil engineering drawings systematically and professionally.	K3
CO2	Apply the building bye-laws and principles of planning for residential and public building design.	K3
CO3	Apply the learned skills to Plan and prepare drawings of building services like plumbing, wiring etc.	K3
CO4	Utilize computer aided techniques for civil engineering applications including survey, pipe network simulations, planning etc.	K3

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

CO- PO Mapping (Mapping of Course Outcomes with Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2								2		2
CO2	3	3	3					3		2		2
CO3	3	3	3					2		2		2
CO4	3	3	3		3					2	2	2

1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation

Text Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Building Drawing and Detailing	Dr. Balagopal T.S. Prabhu	Spades Publishers, Calicut	Revised Edition 2022
2	Building Drawing With An Integrated Approach to Built Environment	Shah, M.G., Kale, C. M. and Patki, S.Y.	Tata McGraw Hill Publishing Company Limited, New Delhi	5th edition 2017
3	Building Planning and Drawing	M.V. Chitawadagi S.S. Bhavikatti	Dreamtech Press	2019

KTU SPECIAL

Sl. No	**References**
1	National Building Code of India (refer the latest updates)
2	Kerala panchayat building rules (refer the latest updates)
3	Kerala Municipality building rules (refer the latest updates)

Continuous Assessment (25 Marks)

1. **Preparation and Pre-Lab Work (7 Marks)**

   - Pre-Lab Assignments: Assessment of pre-lab assignments or quizzes that test understanding of the upcoming experiment.
   - Understanding of Theory: Evaluation based on students' preparation and understanding of the theoretical background related to the experiments.

2. **Conduct of Experiments (7 Marks)**

   - Procedure and Execution: Adherence to correct procedures, accurate execution of experiments, and following safety protocols.
   - Skill Proficiency: Proficiency in handling equipment, accuracy in observations, and troubleshooting skills during the experiments.
   - Teamwork: Collaboration and participation in group experiments.

3. **Lab Reports and Record Keeping (6 Marks)**

KTU SPECIAL

   - Quality of Reports: Clarity, completeness and accuracy of lab reports. Proper documentation of experiments, data analysis and conclusions.
   - Timely Submission: Adhering to deadlines for submitting lab reports/rough record and maintaining a well-organized fair record.

4. **Viva Voce (5 Marks)**

   - Oral Examination: Ability to explain the experiment, results and underlying principles during a viva voce session.

Final Marks Averaging: The final marks for preparation, conduct of experiments, viva, and record are the average of all the specified experiments in the syllabus.

Evaluation Pattern for End Semester Examination (50 Marks)

1. **Procedure/Preliminary Work/Design/Algorithm (10 Marks)**

- Procedure Understanding and Description: Clarity in explaining the procedure and understanding each step involved.
- Preliminary Work and Planning: Thoroughness in planning and organizing materials/equipment.
- Algorithm Development: Correctness and efficiency of the algorithm related to the experiment.
- Creativity and logic in algorithm or experimental design.

2. **Conduct of Experiment/Execution of Work/Programming (15 Marks)**

- Setup and Execution: Proper setup and accurate execution of the experiment or programming task.

3. **Result with Valid Inference/Quality of Output (10 Marks)**

KTU SPECIAL

- Accuracy of Results: Precision and correctness of the obtained results.
- Analysis and Interpretation: Validity of inferences drawn from the experiment or quality of program output.

4. **Viva Voce (10 Marks)**

- Ability to explain the experiment, procedure results and answer related questions
- Proficiency in answering questions related to theoretical and practical aspects of the subject.

5. **Record (5 Marks)**

- Completeness, clarity, and accuracy of the lab record submitted