Techno India NJR Institute of Technology

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Course File

Subject Title/Subject Code: Building Planning
(4CE4-07)

Semester: IV Year: II

Name of the Faculty: Mr. Gourav Purbia

E-mail id: gourav.purbia@technonjr.org

Class Schedule

Total Number of Lectures: 28

i) Course Objective

This course provides a comprehensive overview of building design and planning, focusing on site selection, sun considerations, and climatic factors. Students will learn about building regulations, planning principles, and Vastu Shastra integration. The course also covers the design of non-residential buildings and essential services such as lighting, ventilation, acoustics, and fire safety. By the end, students will be able to design functional, comfortable, and compliant buildings.

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Techno India NJR Institute of Technology

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VISSION & MISSION OF INSTITUTE

Vision

Empowering student with recent and emerging technologies to create innovative technical leaders capable of contributing to industrial and societal needs for betterment of mankind across the globe.

Mission

M1: To provide dynamic learning environment to students by providing constant exposure to latest technologies by linking closely with the industries.

M2: To establish effective interface with industry to obtain live problems to enhance critical thinking and problem-solving skills among students and consultancy projects for faculty.

M3: To provide avenues and opportunities to faculty for domain specific trainings and qualification upgradation.

M4: To develop ethical leaders with strong communication skills.

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VISION & MISSION OF DEPARTMENT

Department Vision

To increase students learning of fundamentals for designing and planning of buildings and latest technologies through industry-aligned project-based learning which will help in transforming students to be good civil engineering professionals leading to innovation and incubation of new ideas.

Department Mission

M1: To create experimental learning through solving problems of Government, Society, Smart Cities, Industry and other entities.

M2: To teach the latest technologies to the students as beyond the syllabus activity so that they are updated and industry ready.

M3: To enable engineering students, understand industry-aligned technologies and learn to find solutions from their early engineering days and this is the only way to produce globally relevant engineers solving real-life problems applying current technologies.

M4: To enable students to generate projects through problem faced by and requirement of Smart cities, industry, Government and other entities whereby those outlined problem statements are to be studied deeply by a group of faculty members to convert them into real-time project format.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEOs 1: To provide an in-depth understanding of the fundamentals of Civil Engineering and create a foundation for lifelong learning to facilitate a progressive career in the construction Industry, as an entrepreneur and in pursuit of higher studies.

PEOs 2: To equip the students with technical and analytical skills to develop innovative solutions to complex real-life problems using existing and novel technologies. To equip the students with good communication and interpersonal skills, inter-disciplinary teamwork and leadership skills to enable them to fulfill professional responsibilities.

PEOs 3: To expose them to various contemporary issues which will enable them to become ethical and responsible towards themselves, co-workers, Society and the Nation.

PEOs 4: To make the student's industry ready by imparting education related to the latest technologies so that they can grab future industry jobs.

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PROGRAM SPECIFIC OUTCOMES (PSO's)

PSO1: To be aware of and initiate some-work on future technologies and new developments which may impact the future Industry 4.0.

PSO2: Hands on training on upcoming technologies and project-based learning.

PSO3: Get exposure to BIM (Building Information Modeling).

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PROGRAMME OUTCOMES (POs)

A student will develop:

PO01. ENGINEERING KNOWLEDGE: An ability to apply knowledge of Mathematics, Science and Engineering Fundamentals in Electronics and Communication Engineering.

PO02. PROBLEM ANALYSIS: Ability to analyze and interpret data by designing and conducting experiments. Develop the knowledge of developing algorithms, designing, implementation and testing applications in electronics and communication related areas.

PO03. DESIGN/ DEVELOPMENT OF SOLUTION: An ability to Design a system Component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

PO04. CONDUCTION OF INVESTIGATION OF COMPLEX PROBLEMS: Ability to Identify, formulate and solve engineering problems.

PO05. MODERN TOOL USAGE: An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

PO06. THE ENGINEERING AND SOCIETY: Broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.

PO07. ENVIRONMENT & SUSTAINABILITY: Understand the impact of professional engineering solution in societal and environmental contexts, and demonstrate the knowledge of, and need of sustainable development.

PO08. ETHICS: An ability to understand the professional, social and ethical responsibility.

PO09. INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. COMMUNICATION: An ability to Communicate effectively in order to succeed in their profession such as, being able to write effective reports and design documentation, make effective presentations.

PO11. PROJECT MANAGEMENT & FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in team, to manage projects and in multidisciplinary environment.

PO12. LIFE-LONG LEARNING: Recognize the need and an ability to engage in life-long learning.

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COURSE OUTCOMES (COs) OF THE SUBJECT

CO No.	Mapping	Statement
CO24407.1	**Remembering**	Remember the key concepts and terminology related to building design, site selection, and regulatory requirements.
CO24407.2	**Understanding**	Understand the principles of sun considerations, climatic factors, and orientation criteria for tropical climates, and explain their impact on building design.
CO24407.3	**Applying**	Apply building by-laws, NBC regulations, and planning principles to create site plans and design functional layouts for both residential and non-residential buildings..
CO24407.4	**Analyzing**	Analyze the effects of different sun shading devices, Vastu Shastra principles, and climatic conditions on building comfort and efficiency.
CO24407.5	**Evaluating**	Evaluate and Create effective design solutions for various building types, incorporating aspects such as lighting, ventilation, acoustics, and fire safety, ensuring they meet regulatory standards and comfort requirements.

COS MAPPING WITH POs AND PSOs

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO24407.1	1	0	0	0	0	1	2	1	0	0	1	1	2	2	2
CO24407.2	1	0	0	0	0	1	2	1	0	0	2	1	2	2	2
CO24407.3	1	0	0	0	0	1	2	1	0	0	1	1	2	2	2
CO24407.4	1	0	0	0	0	1	3	1	0	0	1	2	2	2	2
CO24407.5	1	0	0	0	0	1	1	1	0	0	1	2	2	2	2
CO24407 (AVG)	1	0	0	0	0	1	2	1	0	0	1.2	1.4	2	2	2

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UNIVERSITY ACADEMIC CALENDAR

Academic Calendar for Even Semester for Session

Course: Bachelor of Technology (B.TECH.)				
Course: Bachelor of Technology (B.TECH.)				
Semester	II	IV	VI	VIII
Commencement of Classes	26.02.2024	15.02.2024	15.02.2024	02.01.2024
First Mid Term	02.04.2024	20.03.2024	20.03.2024	15.02.2024
Second Mid Term	03.06.2024	06.05.2024	06.05.2024	21.03.2024
Last Working Day	10.06.2024	31.05.2024	31.05.2024	20.04.2024
Commencement of Practical Exams	01.07.2024	03.06.2024	03.06.2024	22.04.2024
Commencement of Theory Exams	19.06.2024	14.06.2024	15.06.2024	02.05.2024
Project (VIII)	06.05.2024 to 15.05.2024			
Practical Training (After II Sem.)	15.07.2024 To 31.07.2024			
Practical Training (After IV Sem.)	01.07.2024 To 17.08.2024			
Practical Training (After VI Sem.)	01.07.2024 To 17.08.2024			
Commencement of Classes for next Odd Semesters (2023-24)	I	III	V	VII
	01.08.2024	01.08.2024	20.08.2024	20.08.2024

Academic Calendar of Institute

Academic Calendar for Even semester for session 2023-24

Academic Calendar for even Semester for Session 2023-24 (Even Semester)

Course: Bachelor of Technology (B.TECH.)				
Semester	**II**	**IV**	**VI**	**VIII**
Commencement of Classes	26-02-2024	15-02-2024	15-02-2024	2-01-2024
Commencement of First Mid Term	20-04-2024	25-03-2024	25-03-2024	15-02-2024
Commencement of Second Mid Term	05-06-2024	24-05-2024	24-05-2024	21-03-2024
Last Working Day	15-06-2024	31-5-2024	31-5-2024	20-04-2024
Commencement of Practical Exams	01-07-2024	04-6-2024	03-6-2024	22-04-2024
Commencement of Theory Exams	19-6-2024	15-6-2024	14-6-2024	02-05-2024
Project (VIII)	06.05.2024 to 15.05.2024			
Practical Training (After II Sem.)	15.07.2024 To 31.07.2024			
Practical Training (After IV Sem.)	01.07.2024 To 17.08.2024			
Practical Training (After VI Sem.)	01.07.2024 To 17.08.2024			

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Evaluation Scheme

FACULTY DETAILS:

Name of the Faculty	:	Gourav Purbia
Designation	:	Technical Assistant
Department	:	Civil Engineering

1. TARGET

a) Percentage Pass: 100%
b) Percentage I class: 60 %

2. METHOD OF EVALUATION

- [x] Continuous Assessment Examinations (Mid-Term 1, Mid-Term 2)
- [x] Assignments / Seminars
- [ ] Mini Projects
- [x] Quiz
- [x] Semester Examination

Others_____

3. List out any new topic(s) or any innovation you would like to introduce in teaching the subject in this Semester.
4. Take the help of creative tools to stimulate creativity. Include slide presentations, demonstration or forms of visual exercises that will excite the young minds and capture their interest.

Signature of Faculty: **Signature of HOD**

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UNIVERSITY SYLLABUS

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

SYLLABUS

II Year-IV Semester: B.Tech. (Civil Engineering)

4CE4-07: BUILDING PLANNING

Credits: 2 **Max. Marks: 100 (IA:30, ETE:70)**

2L+0T+0P **End Term Exam: 2 Hours**

SN	CONTENTS	Hrs.
1	**Introduction**: to scope, objective and outcome of subject	1
2	**Introduction**: Types of buildings, criteria for location and site selection, site plan and its detail.	2
3	**Sun Consideration** : Different methods of drawing sun chart, sun shading devices, design of louvers.	3
4	**Climatic and comfort Consideration**: Elements of climate, global climate, climatic zones of India, thermal comfort, biclimatic chart,	3
5	**Orientation**: Meaning, factors affecting orientation, orientation criteria for tropical climate.	1
6	**Building Bye Laws and NBC Regulations**: Objective of by-laws, regulation regarding; means of access, lines of building frontages, covered area, floor area ratio, open spaces around buildings, height & sizes of rooms, plinth regulation.	3
7	**Principles of Planning**: Different factors affecting planning viz-aspect, prospect, furniture requirement,roominess, grouping, circulation, elegance, privacy etc.	3
8	**Vastu Shastra In Modern Building planning**: Factors considered in Vastu, site selection, orientation,planning and design of residential buildings, school/hospital	3
9	**Functional Design And Accommodation Requirements Of Non Residential Buildings**: viz-school buildings, rest house, primary health centers, post office etc.	3
10	**Services in Buildings** (A) Lighting and ventilation, doors and windows, lifts. (B) Acoustics, sound insulation and noise control. (C) Fire fighting provisions	6
	TOTAL	28

PRESCRIBED BOOKS

1. Building Drawing by M.G.Shah, C.M. Kala, S.Y.Patki , Tata Mc Graw Hills.
2. Manual of Tropical Housing and Buildings by Koenigs Berger Orient and Longman.
3. SP.41 (S&T)- Handbook on functional Requirements of Buildings Part-I National Building Code, BIS.

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WEEKLY TIME TABLE OF THE TEACHER

First Time Table: with effect from (Date):

Day	1	2	3	4	5	6	7
Monday				B.P.			
Tuesday		B.P.					
Wednesday				B.P.			
Thursday							
Friday							
Saturday				B.P.			

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COURSE-PLAN

UNIT	Lect. No.	TOPICS	Teaching Methods/ Teaching Aids
1	1.	Introduction to the Scope, Objectives, and Outcomes of the Course	White Board
2	2.	Types of Buildings and Their Uses	White Board
2	3.	Criteria for Location and Site Selection	White Board
2	4.	Site Plans and Detailed Site Analysis	White Board
2	5.	Site Plan Exercise and Discussion	White Board
3	6.	Introduction to Sun Charts and Solar Path	White Board
3	7.	Methods for Drawing Sun Charts	White Board
3	8.	Designing Sun Shading Devices	White Board
3	9.	Design of Louvers and Their Applications	White Board
3	10.	Case Studies on Sun Shading Solutions	White Board
4	11.	Climatic Zones of India and Their Characteristics	White Board
4	12.	Elements of Climate and Global Climate Patterns	White Board
4	13.	Understanding Thermal Comfort and Its Importance	White Board
4	14.	Biclimatic Charts and Their Use in Design	White Board
4	15.	Practical Applications of Climatic and Comfort Considerations	White Board
5	16.	Orientation: Definition and Importance	White Board
5	17.	Factors Affecting Building Orientation	White Board
5	18.	Orientation Criteria for Tropical Climates	White Board
6	19.	Introduction to Building By-Laws and NBC Regulations	White Board
6	20.	Regulations on Means of Access, Building Frontages, and Covered Areas	White Board
7	21.	Principles of Planning: Aspect, Prospect, and Roominess.	White Board
7	22.	Planning Factors: Grouping, Circulation, and Privacy	White Board

8	23.	Introduction to Vastu Shastra and Its Principles	White Board
8	24.	Applying Vastu Shastra in Residential Building Design	White Board
8	25.	Vastu Shastra in Non-Residential Buildings: Schools and Hospitals	White Board
9	26.	Functional Design and Accommodation for Non-Residential Buildings	White Board
10	27.	Essential Building Services: Lighting, Ventilation, and Acoustics	White Board
10	28.	Fire Fighting Provisions and Final Review	White Board

Signature of Faculty: **Signature of HOD**

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Assignment – 1

B. TECH 2nd – YEAR (IV SEM.)

Subject: - *Building Planning*

1. Define the scope and objectives of the course on building design and planning.
2. List and describe the different types of buildings and the criteria for their location and site selection.
3. Explain the methods used to draw sun charts and their importance in building design.
4. Discuss the different sun shading devices and the design considerations for louvers in relation to solar control.
5. Describe the key elements of climate and how they influence building design. Include the concept of thermal comfort and its relevance.
6. Outline the orientation criteria for buildings in tropical climates and explain why these criteria are important.
7. Summarize the building by-laws and NBC regulations related to means of access, building frontages, and covered areas.
8. Explain the principles of planning a building with respect to aspect, prospect, furniture requirements, and circulation.
9. Discuss how Vastu Shastra principles can be applied to the design of residential buildings and other structures such as schools or hospitals.
10. Identify and describe the essential building services required for functional design, including lighting, ventilation, acoustics, and fire fighting provisions.

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Assignment – 2
B. TECH 2nd – YEAR (IV SEM.)
Subject: - *Building Planning*

1. Illustrate and explain the concept of a site plan and its significance in building design.
2. Describe the different methods for determining sun angles and their impact on architectural design.
3. Compare and contrast different types of sun shading devices and their effectiveness in reducing solar heat gain.
4. Analyze the impact of global climate patterns on building design, focusing on specific climatic zones of India.
5. Create a detailed example of a biclimatic chart and discuss its application in designing buildings for varying climates.
6. Discuss the factors influencing building orientation and how they can affect energy efficiency and comfort.
7. Review the regulations concerning floor area ratio and open spaces around buildings as per building by-laws.
8. Assess the importance of privacy and circulation in building planning and provide examples of how these factors are addressed in design.
9. Evaluate the application of Vastu Shastra in modern residential and non-residential building designs, including its impact on functionality and aesthetics.
10. Design a basic layout for a small office building that incorporates essential services like lighting, ventilation, and acoustics, and outline the fire fighting provisions required.

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SAMPLE QUIZ QUESTIONS

1. **What is the primary purpose of a site plan in building design?**
   A) To show the architectural style of the building
   B) To outline the location and layout of the building on the site
   C) To determine the construction materials required
   D) To design the interior layout of the building
   Answer: B) To outline the location and layout of the building on the site
2. **Which method is commonly used to determine sun angles for building design?**
   A) Barometric Pressure Chart
   B) Sun Chart
   C) Wind Rose Diagram
   D) Temperature Profile
   Answer: B) Sun Chart
3. **What is a common sun shading device used to reduce solar heat gain in buildings?**
   A) Skylight
   B) Louver
   C) Curtain Wall
   D) Green Roof
   Answer: B) Louver
4. **Which climatic zone in India is characterized by high temperatures and low rainfall?**
   A) Tropical Wet
   B) Tropical Dry
   C) Temperate
   D) Cold Desert
   Answer: B) Tropical Dry
5. **What does a biclimatic chart illustrate in building design?**
   A) Different types of construction materials
   B) The impact of two different climates on building design
   C) The architectural styles suitable for different climates
   D) The geographical distribution of buildings
   Answer: B) The impact of two different climates on building design
6. **Which factor is critical when orienting a building in a tropical climate?**
   A) Maximizing north-facing windows

B) Minimizing exposure to the south

C) Ensuring maximum solar gain from the east

D) Aligning with prevailing winds

Answer: B) Minimizing exposure to the south

7. **What does the floor area ratio (FAR) regulation in building by-laws determine?**

   A) The maximum height of the building

   B) The ratio of the building's floor area to the site area

   C) The minimum number of floors in a building

   D) The number of parking spaces required

   Answer: B) The ratio of the building's floor area to the site area

8. **In planning a building, which principle focuses on ensuring a building's functionality and flow?**

   A) Aspect

   B) Prospect

   C) Circulation

   D) Privacy

   Answer: C) Circulation

9. **Which aspect of Vastu Shastra is commonly considered in the design of residential buildings?**

   A) Building height regulations

   B) Site selection and orientation

   C) Fire safety provisions

   D) Acoustic treatment

   Answer: B) Site selection and orientation

10. **What is an essential consideration when designing lighting and ventilation in a building?**

    A) Aesthetic preferences of the architect

    B) Compliance with local zoning laws

    C) Functionality and user comfort

    D) Availability of construction materials

    Answer: C) Functionality and user comfort

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TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY, UDAIPUR

B. TECH 2nd – YEAR (IV SEM.) CIVIL ENGINEERING – MT-I (April 2024)

BUILDING PLANNING (**4CE4-07**)

Time: 3 Hr **Max. Marks:** 70

Note:

1) The paper is divided into 2 parts: Part-A and, Part-B.
2) Part-A contains 10 questions and carries 2 mark each.
3) Part-B contains 5 questions. Each question is having two options and carries 10 marks each.

Part- A (20 Marks)

A.	Classify the building on the basis of types of construction	CO1
B.	Name 4 modes of vertical transportation in building.	CO1
C.	What is meant Bioclimatic Chart?	CO1
D.	What are Louvers?	CO1
E.	Write about climate zones in India.	CO2
F.	Explain Thermal comfort.	CO2
G.	Discuss the uses of sun-path diagram	CO2
H.	What is orientation of a building?	CO2
I.	Name any 4 factors affecting the planning of a building.	CO3
J.	What do you understand by Floor Area Ratio	CO3

Part- B (50 Marks)

1. Write down the information given by a site plan.	CO1
OR	
1. Write down the factors to be considered in selection of site	CO1

2. What is sun path diagram? Discuss any one method of drawing it.	CO1
OR	
2. Describe the criteria for thermal comforts. Explain the use of bi-climatic chart.	CO1

3. Discuss different climate conditions.	CO2
OR	
3. Explain any two types of climate zones	CO2

4. Discuss the different types of building in detail?	CO2
OR	
4. Explain Green House Effect?	CO2

5. Discuss various Objective of Building Bye Laws?	CO3
OR	
5. What are the principles of Building Bye Laws?	CO3

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Marks and Gap Analysis of Mid-Term I

S.No.	University Roll No.	Name of Student	Mid-Term 1 MM-70	Remark (Remedial Class need or not – Y/N)
1.	22ETCCE001	ANKIT KUMAR	54	N
2.	22ETCCE002	ARMAAN CHAUHAN	38	N
3.	22ETCCE003	AYUSH SINGH JHALA	43	N
4.	22ETCCE004	PARIDHI NINAMA	58	N
5.	22ETCCE005	PRAVEEN DANGI	41	N
6.	22ETCCE006	ROSHNI TABIYAR	58	N

(Y, if obtained marks are <50%)

Signature of Faculty: **Signature of HOD**

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Remedial Action Taken to Remove the Gaps (After Mid-Term 1)

S.no.	University Roll no.	Name of Student	Topics to be discussed in Remedial Class	Schedule Date of Remedial Class	Outcome Achieved
1.	NIL				
2.					

Signature of Faculty: **Signature of HOD**

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Mid Term Paper-II

TECHNO INDIA NJR INSTITUTE OF TECHNOLOGY, UDAIPUR

B. TECH 2nd – YEAR (IV SEM.) – MT-II

Building Planning (**4CE4-07**)

Time: 3 Hr **Max. Marks:**70

Note:

1) The paper is divided into 2 parts: Part-A and, Part-B.
2) Part-A contains 10 questions and carries 2 mark each.
3) Part-B contains 5 questions. Each question is having two options and carries 10 marks each.

Part- A (20 Marks)

A.	Classify the building on the basis of types of construction	CO1
B.	Name 4 modes of vertical transportation in building.	CO1
C.	What is meant Bioclimatic Chart?	CO2
D.	Explain Thermal comfort.	CO2
E.	What do you understand by Vastu?	CO3
F.	What is circulation in planning of residential building?	CO3
G.	What is the use of bubble diagram?	CO4
H.	What do you understand by FAR?	CO4
I.	Discuss the uses of sun-path diagram	CO5
J.	Define ventilation.	CO5

Part- B (50 Marks)

1. Write down the information given by a site plan.	CO1
OR	
1. Write down the factors to be considered in selection of site	CO1

2. Discuss different climate conditions.	CO2
OR	
2. Explain any two types of climate zones	CO2

3. Discuss various Objective of Building Bye Laws?	CO3
OR	
3. What are the principles of Building Bye Laws?	CO3

4. Name & explain ten requirements of a residential building.	CO4
OR	
4. What are NBC provision for a office building?	CO4

5. Discuss in detail, sound insulation of a building.	CO5
OR	
5. Write a short note on fire-fighting provision of a building.	CO5

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Marks and Gap Analysis of Mid-Term II

S.No.	University Roll No.	Name of Student	Mid-Term 2 MM-70	Remark (Remedial Class need or not – Y/N)
1.	22ETCCE001	ANKIT KUMAR	53	N
2.	22ETCCE002	ARMAAN CHAUHAN	37	N
3.	22ETCCE003	AYUSH SINGH JHALA	42	N
4.	22ETCCE004	PARIDHI NINAMA	57	N
5.	22ETCCE005	PRAVEEN DANGI	40	N
6.	22ETCCE006	ROSHNI TABIYAR	57	N

(Y, if obtained marks are <50%)

Signature of Faculty: **Signature of HOD**

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Remedial Action Taken to Remove the Gaps (After Mid- Term 1I)

S.no.	University Roll no.	Name of Student	Topics to be discussed in Remedial Class	Schedule Date of Remedial Class	Outcome Achieved
1.	NIL				
2.					

Signature of Faculty: **Signature of HOD**

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Model Question Paper

4E1210

Roll No. _____ Total No of Pages: 3

4E1210

B. Tech. IV - Sem. (Main) Exam., May - 2019

PCC Civil Engineering

4CE4 – 07 Building Planning

Time: 2 Hours **Maximum Marks: 80**

Instructions to Candidates:

Attempt all five questions from Part A, four questions out of six questions from Part B and two questions out of three from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. half size sheet 2. NIL

PART – A

(Answer should be given up to 25 words only) **[5×2=10]**

All questions are compulsory

Q.1 Define the term: - [2]

(a) Built of area

(b) Carpet area

(c) Super built up

Q.2 Write the different methods of drawing the sun chart. What is the utilization of sun chart? [2]

Q.3 What are the acoustical defects in buildings? Explain in brief. [2]

Q.4 Write short notes on:- [2]

(a) Grouping

(b) Roominess

(c) Circulation

Q.5 Write a short essay on Hot arid Zones. [2]

PART – B

(Analytical/Problem solving questions) **[4×10=40]**

Attempt any four questions

Q.1 Discuss the criteria for site selection for a building. How functions of a building affects site selection. [10]

Q.2 Write short notes on:- [2.5×4=10]

(a) Biclimatic chart

(b) Elegance

(c) Plinth regulation

(d) Global climate

Q.3 What are the objectives of building by laws? [10]

Q.4 Describe briefly the general principles underlying the noise control and various constructional measures adopted for achieving sound insulation in buildings. [10]

Q.5 Which factors should be considered while purchasing a residential building according to the Vastu Shastra? Why we move towards Vastu? [10]

Q.6 Explain how do you classify doors and windows from their operational point of view. [10]

PART – C

(Descriptive/Analytical/Problem Solving/Design Questions) **[2×15=30]**

Attempt any two questions

Q.1 Design and draw the plan of a residential building on a plot of 15m × 25m. Road is on the north side of the plot. [15]

Q.2 Classify the buildings based on occupancy and types of construction. [15]

Q.3 Discuss acoustical design of a cinema hall. Support your answer with neat sketch. [15]

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STUDENT PERFORMANCE REPORT

Roll No.	Name of Student	I Mid-Term	II Mid-Term	Average
22ETCCE001	ANKIT KUMAR	54	53	53.5
22ETCCE002	ARMAAN CHAUHAN	38	37	37.5
22ETCCE003	AYUSH SINGH JHALA	43	42	42.5
22ETCCE004	PARIDHI NINAMA	58	57	57.5
22ETCCE005	PRAVEEN DANGI	41	40	40.5
22ETCCE006	ROSHNI TABIYAR	58	57	57.5

Signature of Faculty: **Signature of HOD**

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RESULT ANALYSIS

S.NO.	RTU ROLL NUMBER	NAME OF STUDENT	END TERM MARKS	SESSIONAL MARKS	TOTAL
		MAX MARKS	**70**	**30**	**100**
1.	22ETCCE001	ANKIT KUMAR		24	
2.	22ETCCE002	ARMAAN CHAUHAN		17	
3.	22ETCCE003	AYUSH SINGH JHALA		19	
4.	22ETCCE004	PARIDHI NINAMA		26	
5.	22ETCCE005	PRAVEEN DANGI		18	
6.	22ETCCE006	ROSHNI TABIYAR		26	

TOTAL	PASS	FAIL	ABSENT	PASS %
6	0		0	0%

Indirect Assessment:

Overall Teacher Self-Assessment (at the completion of course) in terms of course objective and outcomes

Course Objectives:

This course provides a comprehensive overview of building design and planning, focusing on site selection, sun considerations, and climatic factors. Students will learn about building regulations, planning principles, and Vastu Shastra integration. The course also covers the design of non-residential buildings and essential services such as lighting, ventilation, acoustics, and fire safety. By the end, students will be able to design functional, comfortable, and compliant buildings

Course Outcomes:

At the end of this course students will be able to:

CO1: Remember the key concepts and terminology related to building design, site selection, and regulatory requirements.

CO2: Understand the principles of sun considerations, climatic factors, and orientation criteria for tropical climates, and explain their impact on building design

CO3: Apply building by-laws, NBC regulations, and planning principles to create site plans and design functional layouts for both residential and non-residential buildings..

CO4: Analyze the effects of different sun shading devices, Vastu Shastra principles, and climatic conditions on building comfort and efficiency.

CO5: Evaluate and Create effective design solutions for various building types, incorporating aspects such as lighting, ventilation, acoustics, and fire safety, ensuring they meet regulatory standards and comfort requirements.

Methodology to identify bright student

It is done by considering a range of criteria, including academic performance, creativity, critical thinking, problem-solving skills, and enthusiasm for learning. Bright students often excel in multiple areas. Observed how students perform in the classroom. In terms of active participation, engagement in discussions, leadership, and the ability to grasp complex concepts.

Efforts to keep students engaged

1. Active Learning:

   Incorporate active learning strategies, such as group discussions, problem-solving activities, and hands-on projects. Active participation keeps students engaged and encourages critical thinking.

2. Varied Teaching Methods:

   Use a variety of teaching methods, including lectures, group work, multimedia presentations, and interactive activities to cater to different learning preferences.

3. Technology Integration:

   Leverage technology, such as online platforms, educational apps, and interactive software, to make lessons more engaging and interactive.

Methodology to identify weak student

It is done by considering a range of criteria, including classroom observation, formative assessment, summative assessment, assignment review etc. Weak students are struggling students with sensitivity and a desire to support their learning. Some measures, such as additional tutoring, personalized assignments, or alternative assessment methods, to help students succeed.

Targeted inventions for weak student

1. Additional Resources

Offer supplementary learning materials, such as textbooks, online resources, or multimedia content, to provide alternative explanations and reinforce key concepts.

2. Remedial classes

Establish a tutoring program where students can receive extra help from teachers.

3. Flipped classroom

Students are assigned pre-class learning materials, often in the form of videos, readings, or online modules, to cover the foundational concepts before coming to class.