JECRC Foundation

JAIPUR ENGINEERING COLLEGE AND RESEARCH CENTRE

JAIPUR ENGINEERING COLLEGE AND RESEARCH CENTER

Class – 2nd Year - IV Semester: B.Tech. (Civil Engineering)
Subject – Building Planning
Chapter – Climatic and comfort Consideration - UNIT- 4
Presented by –Hetram Sharma (Assistant Professor)

VISSION AND MISSION OF INSTITUE

Vision

To become a renowned centre of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities.

Mission

M1. Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.
M2. Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide platform to gain knowledge and solutions.
M3. Offer opportunities for interaction between academia and industry.
M4. Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

VISSION AND MISSION OF DEPARTMENT

Vision

To become a role model in the field of Civil Engineering for the sustainable development of the society.

Mission

M1. To provide outcome base education.

M2. To create a learning environment conducive for achieving academic excellence.

M3. To prepare civil engineers for the society with high ethical values.

COURSE OUTCOME

CO-1 STUDENTS WILL BE ABLE TO UNDERSTAND TYPES OF BUILDING & APPROPRIATE SELECTION OF SITE WITH SUN CONSIDERATION.

CO-2 STUDENTS WILL BE ABLE TO UNDERSTAND ABOUT BYE-LAW AND NBC REGULATION ALONG WITH ORIENTATION, CLIMATE&COMFORT CONSIDERATION.

CO-3 STUDENTS WILL BE ABLE TO UNDERSTAND BUILDING PLANNING. STUDENTS WILL ABLE TO USE PRINCIPALS OF OF VASTU SHASTRA

CO-4 STUDENTS WILL BE ABLE TO UNDERSTAND FUNCTIONAL DESIGN AND ACCOMMODATION REQUIREMENTS OF RESIDENTIAL BUILDING AND NON-RESIDENTIAL BUILDING WITH PROVIDING DIFFERENT SERVICES

CO-PO MAPPING

Subject Code	COs	Program Outcomes (POs)											
		PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
4CE4-07	CO-1	3	1	3	3	2	3	3	2	1	1	3	2
	CO-2	3		3	2	2	2	3	2	1	1	2	2
	CO-3	3	1	2	1	1	2	3	2	2	1	3	1
	CO-4	3	2	2	2	2	2	3	1	2	1	2	2

CONTENTS

Climatic and comfort Consideration:

1. Elements of climate

2. Global climate

3. Climatic zones of India, thermal comfort, biclimatic chart,

Climate :-

Climate means the usual condition of the temperature, humidity, atmospheric pressure, wind, rainfall, and other meteorological elements in an area of the Earth's surface for a long time. In simple terms climate is the average condition for about thirty years. Climate and weather are different.

Climate is the average of that weather. For example, you can expect snow in the Northeast in January or for it to be hot and humid in the Southeast in July. This is climate. The climate record also includes extreme values such as record high temperatures or record amounts of rainfall.

Elements of climate :-

Various elements make up the climate of a region, but the following are the most common:

1. Temperature
2. Precipitation
3. Humidity.
4. Atmospheric pressure
5. Cloudiness
6. Wind
7. Solar radiation

1. Temperature:-

Temperature is the amount of heat energy that is in the air. Its measure unit is Celsius degrees or Fahrenheit degrees in some countries. Heat is the energy radiated from the Sun to the Earth in the form of light. Clouds, water vapor, and atmospheric dust deflect about half of the solar energy back into space, while the rest is absorbed by the soil and water and becomes heat.

The temperature is characterized by its variation during a day due to Earth's rotation and during the annual seasons due to the translational motion of the Earth around the sun.

2. Precipitation.

It is a process that ends with the fall of water, in liquid or solid form, to the earth's surface. A large percentage of rainfall drains into lakes and rivers while the rest evaporates from the earth's surface or passes through plants. The latter process is known as evapotranspiration and is part of the water cycle.

3. Humidity.

It is the water vapor contained in the air. Its amount varies according to to the amount of rainfall and solar radiation in a zone. Water vapor is present in any region of the world, even the hottest ones. As the temperature increases, so does the possibility of having water vapor.

4. Atmospheric pressure.

It is the force exerted on a given surface due to the weight of the atmosphere. It varies vertically; the values decrease as you ascend in altitude.

5. Cloudiness.

The number of clouds in the atmosphere is also an element of climate. Clouds form when humid air cools down to its dew point, and water droplets or ice attach to small particles of dust, ash, or other contaminants.

6. Wind.

The Wind is the moving air. It causes variations in climate by drying humidity, causing storms, and contributing to water evaporation.

7. Solar radiation.

Although it is an unseen element, it significantly impacts climate by providing heat. The amount of sunlight the ground receives is called insolation.

Global climate:-

The long-term distribution of heat and precipitation on Earth's surface is called global climate. ... The term climate is reserved for regional patterns of temperature and precipitation that persist for decades and centuries.

Climatic zones of India:-

7 Most Important Climatic Regions of India

1. Tropical Rain Forest (Am): It is found in west Coastal Plains, Sahyadris and parts of Assam. ...
2. Tropical Savanna (Aw): ...
3. Tropical Semi-Arid Steppe Climate (Bs): ...
4. Tropical and Sub-Tropical steppe Climate (BSn): ...
5. Tropical Desert (BWn): ...
6. Humid Sub-Tropical Climate with Dry Winters (CWa): ...
7. Mountain Climate:

THERMAL COMFORT :-

THERMAL COMFORT is the outcome of a well-balanced combination of building systems adapted to both the location of the building as well as the type of activity performed within the building or the room of the building. One of the first steps to consider is the design of an efficient building envelope.

Bioclimatic chart:-

A bioclimatic chart is a preliminary analysis tool used during the early planning stages of a building project. Known as bioclimatic architecture, an architect uses the bioclimatic chart to design buildings that include the most efficient passive cooling and heating strategies based on the climate and location of a building site, according to the Center for Renewable Energy Sources and Saving.

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Thank you!

STAY HOME, STAY SAFE