

GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for M. Arch - 2019
FIRST SEMESTER
Subject: Sustainable Architecture Studio-I

Course Code: X16101

Credits: 13

Course Objective: Solar passive envelope design

Course Contents:

This Module concentrates on Passive Solar Designs, Comfort zone, Effective Temperature, Optimum Orientation, Buffers and Fenestration on a Unicellular Block, Indirect lighting and Ventilation strategies on a Multicellular Block.

Climate and Comfort Global, macro and micro level climate (global warming, greenhouse effect etc.) Elements of climate and its quantification Earth's energy balance Climatic data and its interpretation. Building Physics Energy balance of human and built environment Thermal Environment Aqueous Environment Adaptive model of thermal comfort and its application to sustainable design of buildings

References:

1. Manual of Tropical Housing and Climate by Koenisberger
2. Brown G.Z., 'Sun, Wind & Light'
3. Climate responsive architecture by Arvind Krishnan
4. Bansal Narendra, K., Hauser Gerd and Minke Gernot, "Passive Buildings Design: A
5. Hand book of Natural Climatic Control", Elsevier Science, Amsterdam, 1994.
6. Givoni, B., "Man, Climate and Architecture", Elsevier, Amsterdam, 1986.
7. Sodha, M. et al , "Solar Passive Buildings", Pergamon Press, Oxford, 1986.
8. Bansal Narendra, K., Hauser Gerd and Minke Gernot, "Passive Buildings Design: A
9. Hand book of Natural Climatic Control", Elsevier Science, Amsterdam, 1994.
10. Goulding, John, R., Lewis, Owen, J., and Steemers, Theo, C., "Energy in Architecture", Bastford Ltd., London, 1986.