J.S. University, Shikohabad

Established by UP Govt. Act No. 07 of 2015
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Value Added Course

(Heat Reduce Structures)

Faculty of CIVIL ENGINEERING

	J.S. University, Shikohabad Faculty of Civil Engineering	Value Added Course AY: 2020-21

Heat Reduce Structures

Learning Objective:

This Course will provide knowledge of heat reduce structure.

Duration: 30 Hours. (Theory and Practical)

Course Outcomes: -

Maximum Exposure has to be given on Practical Oriented

On successful completion of the course students will have the:

1) Ability to understand and solve conduction, convection and radiation problems
2) Ability to design and analyze the performance of heat exchangers and evaporators
3) Ability to design and analyze reactor heating and cooling systems

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Syllabus Outline

1. **Module-1**

   Thermal Bridges in Building Structures.

   Introduction and Scope. Definition of Thermal Bridges and Common Consequences of Thermal Bridges. Types of Thermal Bridges and Most Common Locations. Thermal Bridges Generated by Building Geometry and Architectural Details

2. **Module-2**

   Thermal Bridges

   Characteristic of Building Materials and Construction Subsystems. Structural Thermal Bridges due to Construction. Combined Thermal Bridges. Durability Consequences of Thermal Bridging. Engineering Methods for Thermal Bridge Analysis. R-Value and U-Factor

3. **Module-3**

   Introduction of Parallel Path

   Method.Isothermal Planes (Series–Parallel Path) Method.Modified Zone Method . Linear Thermal Transmittance Method .Numerical Tools Used in Thermal Performance Analysis .Building Performance Standards Dealing with Building Thermal Bridging.Methods of Thermal Bridge Mitigation

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References:-

1) CRC Handbook of Thermal Engineering Second Edition by: Jan Kośny , David W. Yarbrough
2) Fundamentals of Vibrations by Leonard Meirovitch
3) Limiting Thermal Bridging and Air Leakage Robust Construction by Local Government and the Regions Great Britain: Department for Transport

(Name of Faculty)
Course Coordinator

Er. Chhavi Lal

(Name of Faculty)
Dean Academics

Dr. Akhilesh

(Name of Faculty)
Director/Principle/Dean of Faculty/Department

Er. Amit Kr. Yadav