PROF. RAVI KUMAR
Department of Mechanical and Industrial Engineering IIT Roorkee

TYPE OF COURSE : Rerun | Core | UG
COURSE DURATION : 8 weeks (26 Jul’ 21 - 17 Sep’ 21)
EXAM DATE : 26 Sep 2021

INTENDED AUDIENCE : UG & PG students of Mechanical & Civil Eng. and Architecture students
INDUSTRIES APPLICABLE TO : All HVAC Industries

COURSE OUTLINE :
This course provides a simple understanding of Refrigeration and Air-conditioning fundamentals. Ideally suited to those with a little or no knowledge of the subject. The course consists of different refrigeration cycles and understanding of psychrometry and psychrometric processes used for the purpose of air-conditioning. Further, the comfort air-conditioning and indoor environment health are also addressed in this course.

ABOUT INSTRUCTOR :
Dr. Ravi Kumar is a Professor in the Department of Mechanical & Industrial Engineering, Indian Institute of Technology Roorkee. He has been teaching thermal engineering courses in the Department and is actively involved in the research related with Solar Energy. He is a member of ASME, ASHRAE and IIFIIR.

COURSE PLAN :
Week 01 : Recapitulation of Thermodynamics, Introduction to Refrigeration, Air Refrigeration Cycle, Aircraft Refrigeration Cycles.
Week 02 : Aircraft Refrigeration Cycles, Vapour Compression Cycle, P-h Charts, Actual Vapour Compression Cycle.
Week 03 : Actual Vapour Compression Cycle, Compound Compression with Intercooling, Multiple Evaporator and Cascade System, Problem Solving.
Week 04 : Refrigerants, Vapour Absorption Systems.
Week 05 : Introduction to Air-conditioning, Properties of Moist Air, Psychrometric Chart, Psychrometric Processes.
Week 06 : Psychrometric Processes, Infiltration Design Conditions, Cooling Load.
Week 07 : Cooling Load, Air Distribution System, Problem Solving, Air-Conditioning Systems.
Week 08 : Human Physiology, Thermal Comfort, Indoor Environmental Health, Problem Solving.