

Course outline

Sl.no	Lecture title	No. of hours
1	Introduction & Fundamental concepts in air conditioning	1
2	Psychrometry, Wetted surface heat transfer, Analogy between momentum, heat & mass transfer, Psychrometers, Estimation of true air temperature & humidity ratio, Psychrometry of air conditioning processes	6
3	Cooling towers, cooling coils & evaporative coolers	5
4	Selection of Inside design conditions Thermal Comfort models, Comfort charts Adaptive Thermal Comfort models	4
5	Indoor Air Quality and Ventilation	4
6	Heat transmission through buildings a) Heat transfer under steady state b) Transient heat transfer through opaque components of the building c) Heat transfer through fenestration	5
7	Solar radiation	3
8	Infiltration & ventilation	4
9	Cooling and heating load calculations	3
10	Air conditioning systems	2
11	Transmission and distribution of air	5
12	Air conditioning controls	2
13	Noise level and acoustic control	1
	Total Hours	45

Evaluation: Class Tests, Assignments - 20 marks
Mid Semester - 30 marks
End Semester - 50 marks

Books for reference:

1. Heating, Ventilating, and Air Conditioning- Analysis and Design, F.C. McQuiston, J.D. Parker and J.D. Spittler, 6th Ed., John Wiley & Sons, 2005.
2. Air Conditioning Engineering, W.P. Jones, 5th Ed., Butterworth & Heinemann, 2001.
3. Air conditioning and ventilation of buildings, D.J. Croome and B.M. Roberts, Pergamon Press.
4. Thermal Environmental Engineering, J.L. Threlkeld, 2nd Ed., Prentice-Hall, Inc., 1970
5. ASHRAE Handbooks : Fundamentals, HVAC Applications, HVAC Systems & Equipment
6. Refrigeration & Air conditioning, R.C. Arora, 1st Ed., PHI, 2010