Course Number and Name
BME502- THERMAL ENGINEERING-II
Credits and Contact Hours
3&45
Course Coordinator's Name
Mr.Manavalan
Text Books and References

TEXT BOOKS:

1. S.C.Somasundaram-Thermal Engineering-New Age International (P) Ltd, 1999.
2. C.P.Arora-Refrigeration & Air conditioning, 2000
3. R.K.Rajput-Engineering Thermodynamics-Laxmi Publications

REFERENCES:

1. Mathur and Mehta, Thermal Engineering-Jain brothers, 1998
2. Ramalingam-Internal combustion engines-SciTech publications, 2003
3. YahyaS.M-Fundamantals of Compressible flow,New Age International(P)NewDelhi, 2008
4. Cohen H, Rogers GFC, Saravanamuttoo HIH, Gas Turbine Theory, Addison Wesley Longman Ltd, 2007
5. www.allexamresults.net/.../download-pdf-textbook-of-**thermal-engineeri**...

Course Description
To apply the thermodynamic concepts into various thermal application like IC engines, Steam Turbines, Compressors and Refrigeration and Air conditioning systems

Prerequisites	Co-requisites
THERMAL ENGINEERING-I	Nil
required, elective, or selected elective (as per Table 5-1)	
Required	

Course Outcomes (COs)	
CO1	Learn the fundamental and concepts in IC engines
CO2	Learn Testing of IC engines
CO3	Learn types of air compressors
CO4	Study various principles of gas dynamics
CO5	Learn Air conditioning
CO6	Apply their learnt ideas in their field of work

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
CO1	H											
CO2		M										
CO3												
CO4										H	M	
CO5						L				H		M
CO6							H			H		

List of Topics Covered

UNIT I I.C. ENGINES **9**

S.I.Engines-Simple carburetor- Idling, cruising and power range-MPFI system, Principles of Turbo charging, Ignition systems-Battery ignition and magneto ignition systems-Combustion-detonation factors and remedy – Pollution control norms. C.I Engines-Fuel injection systems, Combustion knocking factors and remedies Rating of fuels, Cooling and lubrication of I.C Engines.

UNIT TESTING OF I.C. ENGINES **9**

Indicated power and Brake power, Mean effective pressure, Efficiencies, Morse test, Determination of torque, Brake power and Brake mean effective pressure, Specific fuel consumption, Brake thermal efficiency and different efficiencies, Performance curves and effect of various parameters on the performance of the engine.

UNIT III AIR COMPRESSORS **9**

Reciprocating compressor-Multistage compression-Effect of clearance, volumetric efficiency, Rotary compressors, vane type, Root blowers, Screw compressors, Centrifugal compressors.

UNIT IV PRINCIPLES OF GAS DYNAMICS **9**

Types of Jet engines, turbojet, ramjet, pulsejet. Aircraft propulsion theories, Parameters affecting flight performance, Thrust Augmentation, Types of Rocket engines.

UNIT V AIR CONDITIONING **9**

Introduction to Psychrometry-Psychrometric chart-Psychrometric processes-summer and winter air conditioning, SHF, RSHF, GSHF, ESHF, Simple calculations used in psychrometry, Components used in air conditioners.