

TME 602

I C ENGINES

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Unit-1

Introduction to I.C Engines:

Engine classification, Air standard cycles, Otto, Diesel, Stirling, Ericsson cycles, Actual cycle analysis, Two and four stroke engines, SI and CI engines, Valve timing diagram, Rotary engines, stratified charge engine. [5]

Fuels:

Fuels for SI and CI engine , important qualities of SI engine fuels, Rating of SI engine fuels, Important qualities of CI engine fuels, Dopes, Additives, Gaseous fuels, LPG, CNG, Biogas, Producer gas, Alternative fuels for IC engines. [3]

Unit-2

SI Engines:

Carburetion, Mixture requirements, Carburetor types Theory of carburetor, MPFI. [3]
Combustion in SI engine, Flame speed, Ignition delay, Abnormal combustion and it's control, combustion chamber design for SI engines. [2]
Ignition system requirements, Magneto and battery ignition systems, ignition timing and spark plug, Electronic ignition. [2]

Unit-3

CI Engine:

Fuel injection in CI engines, Requirements, Types of injection systems, Fuel pumps, Fuel injectors, Injection timings. [4]
Combustion in CI engines, Ignition delay, Knock and it's control, Combustion chamber design of CI engines. [2]
Scavenging in 2 Stroke engines, pollution and it's control. [2]

Unit-4

Engine Cooling: Different cooling systems, Radiators and cooling fans. [2]
Lubrication: Engine friction, Lubrication principal, Type of lubrication ,Lubrication oils, Crankcase ventilation. [2]
Supercharging: Effect of altitude on power output, Types of supercharging. [2]
Testing and Performance: Performance parameters, Basic measurements, Blow by measurement, Testing of SI and CI engines. [4]

Unit-5

Compressors:

Classification, Reciprocating compressors, Single and multi stage, Intercooling, volumetric efficiency. [3]
Rotary compressors, Classification, Centrifugal compressor, Elementary theory ,Vector diagram efficiencies, Elementary analysis of axial compressors, Surging and stalling, Roots blower, Waned compressor, Performance analysis. [4]

BOOKS:

Fundamentals of Internal Combustion Engine by Gill, Smith,Ziurs, Oxford & IBH Publishing C
IC Engines, by Rogowsky, international Book Co.
A Course in International Combustion Engines, by Mathur & Sharma, Dhanpat Rai & Sons.
Reciprocating and Rotary Compressors, by Chlumsky, SNTI Publications Czechoslovakia .
I.C Engine Analysis & Practice by E.F Obert.
I.C Engine, by Ganeshan, Tata Mc Graw Hill Publishers.
I.C Engine, by R. Yadav, Central Publishing House, Allahabad

