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AT8301 SPARK IGNITION ENGINES

L T P C 3 0 0 3

UNIT I GASOLINE- AIR MIXTURE REQUIREMENT AND SUPPLY SYSTEM 9

Gasoline - air mixtures. Mixture requirements - Mixture formation - Carburettor, Choke, Carburettor systems for emission control- Secondary Air Injection.

UNIT II GASOLINE INJECTION AND IGNITION SYSTEMS 9

Petrol Injection - Pneumatic and Electronic Fuel Injection Systems, Ignition systems - requirements, Timing Systems, Energy requirement, Spark plug operation, Electronic & Distributor less Ignition Systems.

UNIT III COMBUSTION IN S.I. ENGINES 9

Stages of combustion, normal and abnormal combustion, knocking, Variables affecting Knock, Features and design consideration of combustion chambers. Flame structure and speed, Cyclic variations, Lean burn combustion, Stratified charge combustion systems. Heat release correlations.

UNIT IV LIQUID AND GASEOUS FUELS FOR S.I. ENGINES 9

Liquid fuel Requirements, Utilisation techniques – Blends, Neat form, Reformed Fuels, Storage and Safety, Performance and Emission Characteristics. Gaseous Fuel Utilisation of Hydrogen, Compressed Natural gas, Liquefied Petroleum gas, and Bio gas in SI engines.

UNIT V EMISSIONS FROM S.I ENGINES 9

Emission standards- Carbon Monoxide, Unburnt Hydrocarbons, Oxides of Nitrogen –sources, Emission control measures and measuring techniques for SI Engines.

TEXT BOOKS:

1. Ramalingam, K.K., Internal Combustion Engines, SciTech Publications (India) Pvt. Ltd., 2004.
2. Ganesan, V, Internal Combustion Engines, Tata McGraw Hill Book Co., 2003.

REFERENCES

1. B.P. Pundir Engine Combustion and Emission, 2011, Narosa Publishing House.
2. John B. Heywood, Internal Combustion Engine Fundamentals, McGraw Hill Book, 1998.
3. Mathur, M.L., and Sharma, R.P., A Course in Internal Combustion Engines, Dhanpat Rai Publications Pvt. New Delhi-2, 1993.
4. Obert, E.F., Internal Combustion Engine and Air Pollution, International Text Book Publishers,1983.