

I Year M.Tech. CAD/CAM/CAE	Semester - II	L	T	P	Tot.	C
		3	1	-	4	4

(ME519)INDUSTRIALHYDRAULICS&PNEUMATICS

Objective of the course:

This course equips the students with know how of hydraulic systems and pneumatic systems required for selection, design, operation and maintenance.

UNIT-I

Basic Principles: Principles of Hydraulics, Hydraulic pumps and their characteristics, pump selection, pumping circuits, Hydraulic actuators both linear & rotary, selection & characteristics of pumps, Hydraulic valves, pressure & Flow direction controls, applications, Hydraulic fluids, symbols.

UNIT-II

Hydraulic Circuits: Reciprocating, Quick Return, Sequencing, Synchronizing and Accumulator, Safety circuits.

UNIT-III

Design & Selection: Design of Hydraulic circuits and selection of components.

UNIT-VI

Pneumatic fundamentals, control elements, logic circuits, sensing of position and pressure, switching. Electro-pneumatic and Electro Hydraulic circuits Robotic circuits.

UNIT-V

Design of pneumatic circuits: Classic, cascade, step counter and combination methods PLC, Microprocessors, uses, selection criteria for pneumatic components, Installation and maintenance of Hydraulic and pneumatic power packs–fault finding, principles of low cost automation and case students.

TEXTBOOKS:

1. J.Michael and G.Ashby, "Power Hydraulics", 2nd Edition, Prentice Hall, 1989.
2. Andrew Parr, "Hydraulics & Pneumatics", 2nd Edition, Elsevier Publications, 2006.

REFERENCEBOOKS:

1. Dudley and Pippenger, "Basic Fluidic Power", 2nd Edition, Prentice Hall, 1987.
2. Anthony Esposito, "Fluid Power with applications", 6th Edition, Prentice Hall, 2010.