



ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

(A Unit of Alva's Education Foundation)

Shobhavana Campus, Mijar-574225, Moodbidri, D.K

Phone: 08258-262725, Fax: 08258-262726

Affiliated to VTU Belagavi and Approved by AICTE, New Delhi, Recognized by Govt. of Karnataka

ATTENDANCE BOOK

Academic Year : 2019-20.
Semester : 7th Section: C
Period of the Semester : From 29/07/19 to 30-11-2019
Subject with Code : Fluid power system [15ME72]
Name of the Faculty : Ganesh. M.R.
Department : Mechanical.

VISION OF THE INSTITUTE

"Transformative education by pursuing excellence in Engineering and Management through enhancing skills to meet the evolving needs of the community"

MISSION OF THE INSTITUTE

- To bestow quality technical education to imbibe knowledge, creativity and ethos to students community.
- To inculcate the best engineering practices through transformative education.
- To develop a knowledgeable individual for a dynamic industrial scenario.
- To inculcate research, entrepreneurial skills and human values in order to cater the needs of the society.

VISION OF THE DEPARTMENT

Impart Quality Technical Education to excel in mechanical Engineering to meet the needs of the Community.

MISSION OF THE DEPARTMENT

1. Empower student knowledge in basic and applied areas of mechanical Engineering.
2. Strengthening collaborations with industries, Research Organisations & institutes for internship, joint research and Consultancy.
3. To inculcate entrepreneurial skills and human values in order to cater the needs of society.
4. Exposure to industrial practices for managerial skill & professionalism.

COURSE OUTCOMES

CO1	Identify and analyse the functional requirements of a fluid power transmission system for given application.
CO2	Visualise how a hydraulic/pneumatic circuit will work to accomplish the function.
CO3	Design an appropriate hydraulic or pneumatic circuit or Combination circuit like electro-hydraulic, electro pneumatics for a given ap
CO4	Select and size the different components of the circuit
CO5	Develop a Comprehensive circuit diagram by integrating the components selected for the given application.
CO6	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	2	1				2	2						1			
CO2	1	1											2	1		
CO3	2	3								1			2	2		
CO4	2	2								1			2	1		
CO5	2	2				2				1			2	1		
CO6										1			2	1		

AIET	Lesson Plan & Execution			Format/No.	ACD 08	
				Issue No.	01	
				Rev. No.	00	
Name of the faculty			Ganesh. m. R.			
Semester and Section			7 th . C. Section.			
Date of Commencement			29/07/2019			
Last Working Day of the Semester			30-11-2019			
Source Materials List						
1. Dr. H. D. Ramachandra.			Fluid power System.			
2. Anthony Resposito.			"Fluid power with applications.			
3. Majumdar. S. R.			"Oil Hydraulics", Tata McGraw Hill 2002			
4. A. C. Niranjani.			Hydraulics & Pneumatics			
5.						
Subject Name Fluid power System. [15 ME 72]						
Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
1	29/07	Module 1: Fluid power System, Components, adv and application	1, 2, 3	Module 1: Fluid power System, Components, adv & application	29/07	1, 2, 3
2	30/07 31/07	Transmission of power at static & dynamic states. pascals law & its applications.	1, 2, 3	Transmission of power, at static & dynamic states, Pascals law & its appli.	31/07	1, 2, 3
3	01/08	Fluids for hydraulic Systems: types, Properties.	1, 2, 3	Fluid for Hydraulic Systems. Types Properties	1/08	1, 2, 3
4	03/08	Hydraulic fluid Selection, Additives.	1, 2, 3	Hydraulic fluid Selection Additives.	3/08	1, 2, 3

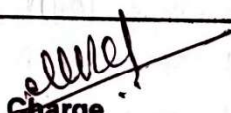
Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
5	5/08	Effect of temp ^r and pressure on hydraulic fluids, seals.	1, 2 3	Effect of temp ^r & pr on hydraulic fluids, seals.	05/08	1, 2 3
6	06/08 07	Sealing materials, Compatibility of seal with fluids.	1, 2 3	Sealing materials Compatibility of seals with fluids	07/08	1, 2 3
7	08/08	Types of pipes, hoses.	1, 2 3	Types of pipes, hoses	08/08	1, 2 3
8	10/08	Quick acting Couplings, pr. drops in hoses / pipes.	1, 2 3	Quick acting Couplings, pr. drops in hoses, / pipes.	10/08	1, 2 3
9	13/08 14	Fluid Conditioning through filters	1, 2 3	Fluid Conditioning through filters	14/08	1, 2 3
10	17/08	Strainers, types of Strainers.	1, 2 3	Strainers, types of Strainers.	17/08	1, 2 3
11	19/08	Sources of Contamination & Contamination Control.	1, 2 3	Sources of Contamination & Contamination Control.	19/08	1, 2 3
12	20/08 21	Heat Exchangers.	1, 2 3	Heat Exchangers.	20/08	1, 2 3
13	22/08	<u>Module 2: pumps:</u> Class ⁿ of pumps, priming theory of the displacement, Construction & working Gear pump.	1, 2 3	<u>Module 2: pumps</u> class ⁿ of pumps, priming theory, the displacement.	21/08	1, 2 3
14	24/08	Construction and working of Gear pumps.	1, 2 3	Construction and working of Gear pumps	26/08	1, 2 3
15	26/08	Vane pumps, piston pumps, fixed & variable displacement pumps.	1, 2 3	Vane pumps, piston pumps, fixed & variable displacement pumps	28/08	1, 2 3
16	28/08 29	Pump performance Characteristics, Pump Selection factors, problems on pumps.	1, 2 3	Pump performance Characteristics, pump selection factors, problems on pumps.	29/08	1, 2 3
17	29/08	Accumulators: Types Selection / design procedure appli of accumulator.	1, 2 3	Accumulators: Types Selection / design procedure appli of accumulator.	4/09	1, 2 3

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
18	31/08	Types of Intensifiers, pr Switches/Sensors, Temp Switches/sensors.	1, 2, 3, 4	Types of intensifiers, pr switches/sensors, Temp switches/sensors.	5/09	1, 2, 3, 4
19	04/09	Level Sensors, Actuators class ⁿ of Cylinders, Hyd motors, Hyd Cylinders.	1, 2, 3, 4	Level sensors, Actuators class ⁿ of cylinders, Hyd motors, Hyd cyl.	7/09	1, 2, 3, 4
20	05/09	Single & double acting Cylinder, Mounting arrangements, Cushioning.	1, 2, 3, 4	Single & double acting cyl. mounting arrangements, cushioning.	9/09	1, 2, 3, 4
21	07/09	Special types of Cylinders, Problems on Cylinders, Constr. & working of Rotary actuators such as gears.	1, 2, 3, 4	Special types of cyl. problems, constr. & working of rotary actuators, gears.	9/09	1, 2, 3, 4
22	09/09	Vane, piston motor and Hydraulic motors.	1, 2, 3, 4	Vane, piston motor, & Hydraulic motors.	11/09	1, 2, 3, 4
23	11/09	Theoretical torque, Power.	1, 2, 3, 4	Theoretical torque, power.	11/09	1, 2, 3, 4
24	12/09	Flow rate, & Hyd motor performance.	1, 2, 3, 4	Flow rate & Hyd motor performance.	12/09	1, 2, 3, 4
25	14/09	Problems, Symbolic representation of Hyd actuator (Cylinder & motors).	1, 2, 3, 4	Problems, Symbolic represent of Hyd actuator (cyl & motor).	14/09	1, 2, 3, 4
26	16/09	Module 3 class ⁿ of Control valves, DCV :- Symbolic representation; Constructional features of poppet valve.	1, 2, 3, 4	Module 3 class ⁿ of control valve, DCV :- Symbolic represent, Constr. features of poppet valve.	16/09	1, 2, 3, 4
27	18/09	Sliding spool, Rotary type valves, Solenoid, Pilot operated DCV, Shuttle Valve.	1, 2, 3, 4	Sliding spool, Rotary type valves, Solenoid Pilot operated DCV, Shuttle valve.	18/09	1, 2, 3, 4
28	23/09	Check valve, PCV - types, direct operated, pilot operated types.	1, 2, 3, 4	Check valve, PCV, types, direct operated, pilot operated types.	21/09	1, 2, 3, 4
29	25/09	FCV - Compensated & Non-Compensated FCV Needle Valve.	1, 2, 3, 4	FCV - compensated & Non compensated FCV Needle valve.	23/09	1, 2, 3, 4
30	26/09	Temp ^r compensated, pr Compensated. FCV	1, 2, 3, 4	Temp ^r compensated pr compensated FCV	23/09	1, 2, 3, 4

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
31	30/09	Pr & Temp ^r Compensated FCV, Symbolic representation	1.2 3.4	Pr & Temp ^r Compensated, FCV, Symbolic representation.	26/09	1.2 3.4
32	03/10	Hyd Circuit design. Control of Single & double acting Hyd Cylinder. Regenerative Circuit	1.2 3.4	Hyd circuit design control of single & double acting Hyd cyl. Regenerative circuit	27/09	1.2 3.4
33	05/10	Pump unloading circuit, double Pump Hyd system.	1.2 3.4	Pump unloading circuit, double Pump Hyd system.	30/09	1.2 3.4
34	09/10	Counter balance Valve appli, Hyd Cylinder. Sequencing circuit.	1.2 3.4	Counter balance Valve, appli, Hyd Cylinder Sequencing circuit.	3/10	1.2 3.4
35	10/10	Cylinder Synchronizing circuit using diff methods Hyd circuit for force multiplication	1.2 3.4	Cylinder Synchronizing circuit, using diff methods Hyd circuit for force multiplication.	10/10	1.2 3.4
36	12/10	Speed Control of Hyd Cyl. Metering in and out and Bleed off circuits.	1.2 3.4	Speed Control of Hyd cyl. Metering in & out & Bleed off circuit.	11/10	1.2 3.4
37	14/10	Pilot pr operated circuit, Hyd circuit ex with accumulator.	1.2 3.4	Pilot pr operated circuit, Hyd circuit ex with accumulator	12/10	1.2 3.4
38	16/10	Module 4:- Introduction to pneumatic Systems pneumatic power system, Adv, Limitation.	1.2 3.4	Module 4 Introduction to pneumatic system, pneumatic power system, Adv, Limitation	14/10	1.2 3.4
39	17/10	Appli, Choice of working medium, Characteristics of compressed air, air compressors.	1.2 3.4	Appli, Choice of working medium, characteristics of compressed air, air compressors	15/10	1.2 3.4
40	19/10	Structure of pneumatic control system, fluid conditioners, dryers, FRU unit, Linear Cylinders, types of cylinders.	1.2 3.4	Structure of pneumatic control system, fluid conditioners, dryers, FRU unit.	16/10	1.2 3.4
41	21/10	Working of End positioning Cushioning, Seals,	1.2 3.4	FRU unit. Linear cylinder, types of cylinders.	17/10	1.2 3.4
42	23/10	Mounting arrangements, appli, Rotary Cylinders types.	1.2 3.4	Working, end position, cushioning seals,	18/10	1.2 3.4
43	28/10	types of Rotary cylinders.	1.2 3.4	Mounting arrangements appli, Rotary cyl. types	19/10	1.2 3.4

Period	Plan			Execution		
	Date	Topics to be covered	Source Material needed	Topics Covered	Date	Source Material Referred
44	30/10	Construction & appli symbols.	1.2 3.4	e types of Rotary cylinders.	21/10	1.2 3.4
45	31/10	Pneumatic Control valve DCV such as poppet, spool valves.	1.2 3.4	construction & application symbols.	22/10	1.2 3.4
46	02/11	Suspended Seat type slide valve, PCV.	1.2 3.4	pneumatic control valve, DCV such as poppet, spool valve	23/10	1.2 3.4
47	04/11	FCV, types and construction.	1.2 3.4	Suspended seat type, slide valve, PCV.	28/10	1.2 3.4
48	06/11	use of memory valve, Quick exhaust valve.	1.2 3.4	FCV, types & construction.	31/10	1.2 3.
49	07/11	time delay valve. Shuttle valve.	1.2 3.4	use of memory valve, Quick exhaust valve	2/11	1.2 3.4
50.	09/11	twin p. valve, symbols.	1.2 3.4	time delay valve & Shuttle valve	2/11	1.2 3.4
51.	11/11	module 5 Direct & indirect actuation pneumatic cylinders, speed control of cyl.	1.2 3.4	module 5. Direct & indirect actuation pneumatic cylinder.	4/11	1.2 3.4
52.	13/11	supply air throttling, exhaust air throttling, use of logic gates OR and AND gate pneumatic appli.	1.2 3.4	speed control of cylinder, supply air & exhaust air throttling.	12/11	1.2 3.4
53.	14/11	practical ex involving the use of logic gates multi-cyl appli. Coordinated & Sequenced motion control.	1.2 3.4	use of logic gates OR and AND gates pneumatic appli. practical ex involving.	12/11	1.2 3.4
54.	16/11	Motion and motion control diagram.	1.2 2.4	practical ex involving use of logic gates.	13/11	1.2 3.4
55.	18/11	signal elimination methods.	1.2 3.4	multi-cylinder, appli Coordinated & Sequenced motion control.	13/11	1.2 3.4
56	20/11	Cascading method, principle.	1.2 3.4	motion & motion Control diagram	14/11	1.2 3.4

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Others	Planned	Actual	Remarks :	
Special Classes	—	—		
Tutorials	—	—		
Assignments	05	05		
Seminars	—	—		
IA Tests	03	03		
Portions Covered in the entire Semester	100 % portions Covered.			
Course Effectiveness				
Students Feedback				
Students Response				
Result	No. of Students AP	No. of Students Passed	% of Result	
Faculty in Charge  Signature of Principal (& Remarks if any)  HOD's Signature 