Course Code: ME867

Course Title: Advanced Hydraulic and Pneumatic Circuits

Credit Hours: 3

Course Description

This course is a survey of principal concepts of Advanced Hydraulic and Pneumatic Systems. Topics include Introduction - Review of Hydraulic and Pneumatic Systems - Hydraulic Circuit Design and Analysis - Ancillary Hydraulic Devices - Maintenance of Hydraulic Systems - Pneumatics: Circuits and Applications - Basic Electrical Controls for Fluid Power Circuits - Fluid Logic Control Systems.

Course Objectives

- Presenting recent developments in the area of Hydraulic and Pneumatic Systems.
- Introduces students to Circuit Design and Analysis.
- Introduces students to Maintenance and Control of Hydraulic Systems.

Course Topics

Week No.1: Introduction.
Week No.2: Review of Hydraulic and Pneumatic Systems.
Week No.3: Hydraulic Circuit Design and Analysis.
Week No.4: Hydraulic Circuit Design and Analysis (Cont.).
Week No.5: Ancillary Hydraulic Devices.
Week No.6: Ancillary Hydraulic Devices (Cont.).
Week No.7: Maintenance of Hydraulic Systems
Week No.8: Maintenance of Hydraulic Systems (Cont.).
Week No.9: Pneumatics: Circuits and Applications.
Week No.10: Pneumatics: Circuits and Applications (Cont.).
Week No.11: Basic Electrical Controls for Fluid Power Circuits.
Week No.12: Basic Electrical Controls for Fluid Power Circuits (Cont.)
Week No.13: Fluid Logic Systems.
Week No.14: Fluid Logic Control Systems (Cont.).
Week No.15: Fluid Logic Control Systems (Cont.).

References

- Esposito, A., “Fluid Power with Applications”, Anthony Esposito, Latest Edition, Pearson Education, 2016.
- Daines, J.R., “Fluid Power: Hydraulics and Pneumatics”, 2nd Edition, The Good heart-Willcox Company, Inc., Tinley Park, Illinois, 2013.
- Hunt, T., and Vaughan, N., “The Hydraulic Handbook”, 9th Edition, ISBN 1 856172503, Elsevier Science LTD, Latest edition.
- Parr, A., “Hydraulics and Pneumatics, 3rd Edition: A Technician's and Engineer's Guide”, 3rd Edition, ISBN-13: 978-0080966748, ISBN-10: 0080966748, Latest edition.