DEMAND

PAVIATH INTEGRATED SOLUTION

ENGG ALLIED

MECHANICAL

DESIGN OF MACHINE ELEMENTS

Paviath ONLINE

◆ MECHANICAL ENGINEERING ◆ SEMESTER VI (THIRD YEAR) ◆ ENGINEERING CODE PCC-ME 308

COURSE OBJECTIVE

THIS COURSE SEEKS TO PROVIDE AN INTRODUCTION TO THE DESIGN OF MACHINE ELEMENTS COMMONLY ENCOUNTERED IN MECHANICAL ENGINEERING PRACTICE, THROUGH

1. A STRONG BACKGROUND IN MECHANICS OF MATERIALS BASED FAILURE CRITERIA UNDERPINNING THE SAFETY-CRITICAL DESIGN OF MACHINE COMPONENTS
2. AN UNDERSTANDING OF THE ORIGINS, NATURE AND APPLICABILITY OF EMPIRICAL DESIGN PRINCIPLES, BASED ON SAFETY CONSIDERATIONS
3. AN OVERVIEW OF CODES, STANDARDS AND DESIGN GUIDELINES FOR DIFFERENT ELEMENTS
4. AN APPRECIATION OF PARAMETER OPTIMIZATION AND DESIGN ITERATION
5. AN APPRECIATION OF THE RELATIONSHIPS BETWEEN COMPONENT LEVEL DESIGN AND OVERALL MACHINE SYSTEM DESIGN AND PERFORMANCE

COURSE OUTCOME

▪ UPON COMPLETION OF THIS COURSE, STUDENTS WILL GET AN OVERVIEW OF THE DESIGN METHODOLOGIES EMPLOYED FOR THE DESIGN OF VARIOUS MACHINE COMPONENTS.

COURSE CONTENT

◆ DESIGN CONSIDERATIONS ◆ LIMITS, FITS AND STANDARDIZATION ◆ REVIEW OF FAILURE THEORIES FOR STATIC AND DYNAMIC LOADING (INCLUDING FATIGUE FAILURE) ◆ DESIGN OF SHAFTS UNDER STATIC AND FATIGUE LOADINGS ◆ ANALYSIS AND DESIGN OF SLIDING AND ROLLING CONTACT BEARINGS ◆ DESIGN OF TRANSMISSION ELEMENTS SPUR, HELICAL, BEVEL AND WORM GEARS; BELT AND CHAIN DRIVES ◆ DESIGN OF SPRINGS HELICAL COMPRESSION, TENSION, TORSIONAL AND LEAF SPRINGS ◆ DESIGN OF JOINTS: THREADED FASTENERS PRELOADED BOLTS AND WELDED JOINTS ◆ ANALYSIS AND APPLICATIONS OF POWER SCREWS AND COUPLINGS ◆ ANALYSIS OF CLUTCHES AND BRAKES

REFERENCE BOOKS

[1] SHIGLEY, J.E. AND MISCHKE, C.R., MECHANICAL ENGINEERING DESIGN, FIFTH EDITION, MCGRAW-HILL INTERNATIONAL: 1989.
[2] DEUTSCHMAN, D., MICHELS, W.J. AND WILSON, C.E., MACHINE DESIGN THEORY AND PRACTICE, MACMILLAN, 1992.
[3] JUVINAL, R.C., FUNDAMENTALS OF MACHINE COMPONENT DESIGN, JOHN WILEY, 1994.
[4] SPOTTES, M.F., DESIGN OF MACHINE ELEMENTS, PRENTICE-HALL INDIA, 1994.
[5] R. L. NORTON, MECHANICAL DESIGN – AN INTEGRATED APPROACH, PRENTICE HALL, 1998

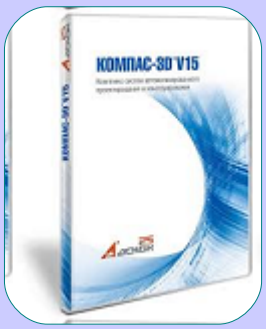
COURSE SOFTWARE

◆ APM WINMACHINE (MULTIPHYSICS)
◆ KOMPAS 2D/3D/PDM/BOM
◆ VARICAD 2D/3D/PDM/BOM
◆ UNIVERSAL MECHANISM(MBD).
◆ SAM (MECHANISM DESIGN)
◆ SALTIRE SOFTWARE
◆ DOCUMENTATION & PRINTING

APM WINMACHINE

APM CAM/APM PLAIN/APM SCREW/APM STRUCTURE3D/APM DYNAMICS/APM BEAM/APM GRAPH/APM STUDIO APM DRIVE/APM TRANS/APM SHAFT/APM BEAR/APM JOINT/APM SPRING/APM BASE/APM MECHANICAL DATA/APM MATERIAL DATA/APM SECTION DATA/APM CONSTRUCTION DATA/APM BOOK

APM WINMACHINE



KOMPAS 3D

VARICAD

DESCRIPTION	ONLINE	TRAINING CENTRE	WEBINAR	REMARKS
DESIGN OF MACHINE ELEMENTS	REGISTRATION	DOCUMENTS	COUNSELLING	OWN LAPTOP
ONLINE	2/UNIT TRAINING	4/UNIT ASSIGNMENT	2/UNIT ASSIGNED	SHEDULE
PRESENTATION	WEBINAR	NETWORK	PRESENTATION	2/UNIT ASSIGNED
PERIOD	2 HRS/1/UNIT IN SEQUENCE	NETWORKING/HRS*	PRESENTATION	* BROWSING FEE
PRICE (SEMESTER)	BY MAIL	* BROWSING FEE	NO COST	CERTIFICATE

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