



DEMAND

PAVIATH INTEGRATED SOLUTION

CIVIL ENGG

CIVIL UNIV

FINITE ELEMENT METHODS

Paviath ONLINE

◆ CIVIL UNIVERSITY ◆ FOURTH YEAR I SEMESTER ◆ CODE A70330

UNIT - I
INTRODUCTION TO FINITE ELEMENT METHOD -
BASIC EQUATIONS IN ELASTICITY - STRESS
STRAIN EQUATIONS - CONCEPT OF PLANE
STRESS - PLANE STRAIN - ADVANTAGES AND
DISADVANTAGES OF FEM.
ELEMENT SHAPES - NODES - NODAL DEGREE OF
FREEDOM - STRAIN DISPLACEMENT
RELATIONS.

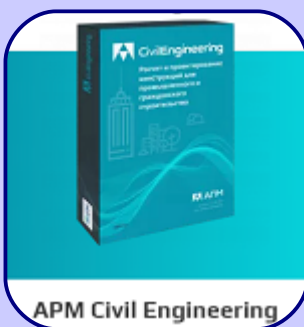
UNIT - II
FINITE ELEMENT ANALYSIS (FEA) OF - ONE
DIMENSIONAL PROBLEMS - BAR ELEMENT
- SHAPE FUNCTIONS STIFFNESS MATRIX
FEA BEAM ELEMENTS - STRESS STRAIN
RELATION- SHAPE FUNCTIONS -STIFFNESS
MATRIX-
CONTINUOUS BEAMS.

UNIT - III
FEA TWO DIMENSIONAL PROBLEM - CST - LST
ELEMENT - SHAPE FUNCTION -
STRESS - STRAIN.
LAGRANGIAN - SERENDIPITY ELEMENTS -
HERMITE POLYNOMIALS - REGULAR, IRREGULAR
2 D & 3D - ELEMENT -SHAPE FUNCTIONS.

UNIT - IV
ISOPARAMETRIC FORMULATION - CONCEPTS OF
ISOPARAMETRIC ELEMENTS FOR 2D
ANALYSIS -FORMULATION OF CST ELEMENT, 4 -
NODED AND 8-NODED ISO-PARAMETRIC
QUADRILATERAL ELEMENTS.

UNIT-V
SOLUTION TECHNIQUES: NUMERICAL
INTEGRATION, STATIC CONDENSATION, ASSEMBLY
OF ELEMENTS AND SOLUTION TECHNIQUES FOR
STATIC LOADS.

TEXT BOOKS:
1. INTRODUCTION TO FINITE ELEMENTS IN
ENGINEERING BY CHANDRUPATLA,
BELEGUNDU, PRENTICE HALL.
2. FINITE ELEMENT METHOD BY DARYL L. LOGAN,
CENGAGE LEARNING.
REFERENCES:
1. FINITE ELEMENT ANALYSIS BY S.S. BHAVIKATTI-
NEW AGE INTERNATIONAL
PUBLISHERS.
2. FINITE ELEMENT ANALYSIS BY P. SESHU, PHI.



STC APM

SYLLABUS COACHING
TRAINING - 2/UNIT TRAINING
SELF - 4/UNIT ASSIGNMENT
PRESENTATION - 2/UNIT
SHOWTIME - 2/UNIT



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SYLLABUS PERIOD
TRAINING - 2/2 HRS/UNIT
REMOTE - 2/2 HRS/UNIT
DURATION - SEMESTER
ONLINE/REMOTE ACCESS



ARCADIA BIM

FEATURES
TRAINING BY IND. PROFESSIONAL
INDUSTRY APPLICATION
TRAINER OPPORTUNITY
CERTIFICATION

info@paviathintegratedsolution.com -www.paviathintegratedsolution.com www.paviathjobportal.com