DEMAND

PAVIATH INTEGRATED SOLUTION

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PRESTRESSED CONCRETE STRUCTURES

Paviath ONLINE

◆ CIVIL UNIVERSITY ◆ FOURTH YEAR I SEMESTER ◆ CODE A80150

UNIT I:
INTRODUCTION: HISTORIC DEVELOPMENT- GENERAL PRINCIPLES OF PRESTRESSING PRETENSIONING AND POST TENSIONING- ADVANTAGES AND LIMITATIONS OF PRESTRESSED CONCRETE- GENERAL PRINCIPLES OF PSC- CLASSIFICATION AND TYPES OF PRESTRESSING- MATERIALS- HIGH STRENGTH CONCRETE AND HIGH TENSILE STEEL THEIR CHARACTERISTICS. METHODS AND SYSTEMS OF PRESTRESSING: PRETENSIONING AND POSTTENSIONING METHODS AND SYSTEMS OF PRESTRESSING LIKE HOYER SYSTEM, MAGNEL BLATON SYSTEM, FREYSSINET SYSTEM AND GIFFORD-UDALL SYSTEM- LEE MCCALL SYSTEM.

UNIT II:
LOSSES OF PRESTRESS: LOSS OF PRESTRESS IN PRETENSIONED AND POST-TESNIONED MEMBERS DUE TO VARIOUS CAUSES LIKE ELASTIC SHORTAGE OF CONCRETE, SHRINKAGE OF CONCRETE, CREEP OF CONCRETE, RELAXATION OF STRESS IN STEEL, SLIP IN ANCHORAGE, FRICTIONAL LOSSES.

UNIT III:
FLEXURE: ANALYSIS OF SECTIONS FOR FLEXURE- BEAMS PRESTRESSED WITH STRAIGHT, CONCENTRIC, ECCENTRIC, BENT AND PARABOLIC TENDONS- STRESS DIAGRAMS- ELASTIC DESIGN OF PSC BEAMS OF RECTANGULAR AND I SECTIONS- KERN LINE – CABLE PROFILE AND CABLE LAYOUT.SHEAR: GENERAL CONSIDERATIONS- PRINCIPAL TENSION AND COMPRESSION- IMPROVING SHEAR RESISTANCE OF CONCRETE BY HORIZONTAL AND VERTICAL PRESTRESSING AND BY USING INCLINED OR PARABOLIC CABLES- ANALYSIS OF RECTANGULAR AND I BEAMS FOR SHEAR – DESIGN OF SHEAR REINFORCEMENTS- BUREAU OF INDIAN STANDARDS (BIS) CODE PROVISIONS.

UNIT IV:
TRANSFER OF PRESTRESS IN PRETENSIONED MEMBERS : TRANSMISSION OF PRESTRESSING FORCE BY BOND – TRANSMISSION LENGTH – FLEXURAL BOND STRESSES – IS CODE PROVISIONS – ANCHORAGE ZONE STRESSES IN POST TENSIONED MEMBERS – STRESS DISTRIBUTION IN END BLOCK – ANALYSIS BY GUYON, MAGNEL, ZIELINSKI AND ROWE'S METHODS – ANCHORAGE ZONE REINFORCEMENT- BIS PROVISIONS

UNIT V
COMPOSITE BEAMS: DIFFERENT TYPES- PROPPED AND UNPROPPED- STRESS DISTRIBUTION- DIFFERENTIAL SHRINKAGE- ANALYSIS OF COMPOSITE BEAMS- GENERAL DESIGN CONSIDERATIONS.
DEFLECTIONS: IMPORTANCE OF CONTROL OF DEFLECTIONS- FACTORS INFLUENCING DEFLECTIONS – SHORT TERM DEFLECTIONS OF UNCRACKED BEAMS- PREDICTION OF LONG TIME DEFLECTIONS- BIS CODE REQUIREMENTS.

TEXT BOOK:
1) PRESTRESSED CONCRETE BY N.KRISHNA RAJU, 5TH EDITION,TATA MCGRAW HILL BOOK EDUCATION PVT. LTD.
REFERENCES :
1) DESIGN OF PRESTRESS CONCRETE STRUCTURES BY T.Y. LIN AND BURN, JOHN WILEY, NEW YORK.
2) PRESTRESSED CONCRETE BY S. RAMAMRUTHAM, DHANPAT RAI & SONS, DELHI.
3) PRESTRESSED CONCRETE BY N. RAJAGOPALAN, NAROSA PUBLISHING HOUSE

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

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

FEATURES
TRAINING BY IND. PROFESSIONAL
INDUSTRY APPLICATION
TRAINER OPPORTUNITY
CERTIFICATION

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