

# **AMCE22 PRESTRESSED CONCRETE & ADVANCED DESIGN OF STRUCTURE**

## **UNIT-1 INTRODUCTION TO PRESTRESSED CONCRETE**

- 1.1 Reinforced Concrete Versus Prestressed Concrete, Prestressing System,
- 1.2 Loss Of Prestress, Steel For Prestressing,
- 1.3 Basic Concepts Of Prestressed Concrete, Homogeneous Beam Concept,
- 1.4 Pressure Line, Load Balancing Concept, Shear And Principal Stresses

## **UNIT-2 SYSTEMS OF PRESTRESSING**

- 2.1 Classifications Of Prestressed Concrete Members, Hoyer System,
- 2.2 The Freyssinet System, The Magnel Balton System, Gifford Udall System,
- 2.3 P.S.C.Monowire System,
- 2.4 C.C.L Standards System, LEE-McCall System

## **UNIT-3 PRESTRESSED CONCRETE BEAMS**

- 3.1 Limit State Of Collapse , Limit State Of Collapse In Shear ,
- 3.2 Limit State Of Serviceability , Prestressed Concrete Poles,
- 3.3 Other Design Considerations,
- 3.4 Selection Of Sectional Dimensions,
- 3.5 Detailing Of Reinforcement, Limits State Of Serviceability For Deflection

## **UNIT-4 END BLOCK**

- 4.1 Magnel's Method, Guyon's Method, Beam with Two Anchor Plates
- 4.2 Symmetrically Placed On The Face Of The Beam,
- 4.3 Cable At An Eccentricity

## **UNIT-5 PRESTRESSED CIRCULAR TANKS AND PIPES**

- 5.1 Principles of Circumference central Prestressing,
- 5.2 Methods Of Design

## **UNIT-6 SMALL PRESTRESSED CONCRETE DAMS**

- 6.1 Introduction, Design Requirements, Design

## **UNIT-7 PRESTRESSED CONCRETE PILES**

- 7.1 Introduction, Convenient Ways of Lifting A Pile,
- 7.2 Maximum Length Of Pile

### **Reference Books:**

1. Design of Prestressed Concrete Structures by T Y Lin and Ned H Burns
2. Prestressed Concrete and Advance Design of Structure by Asheesh Kumar
3. Design of Prestressed Concrete by Arthur H Nilson