



# STRUCTURE -A

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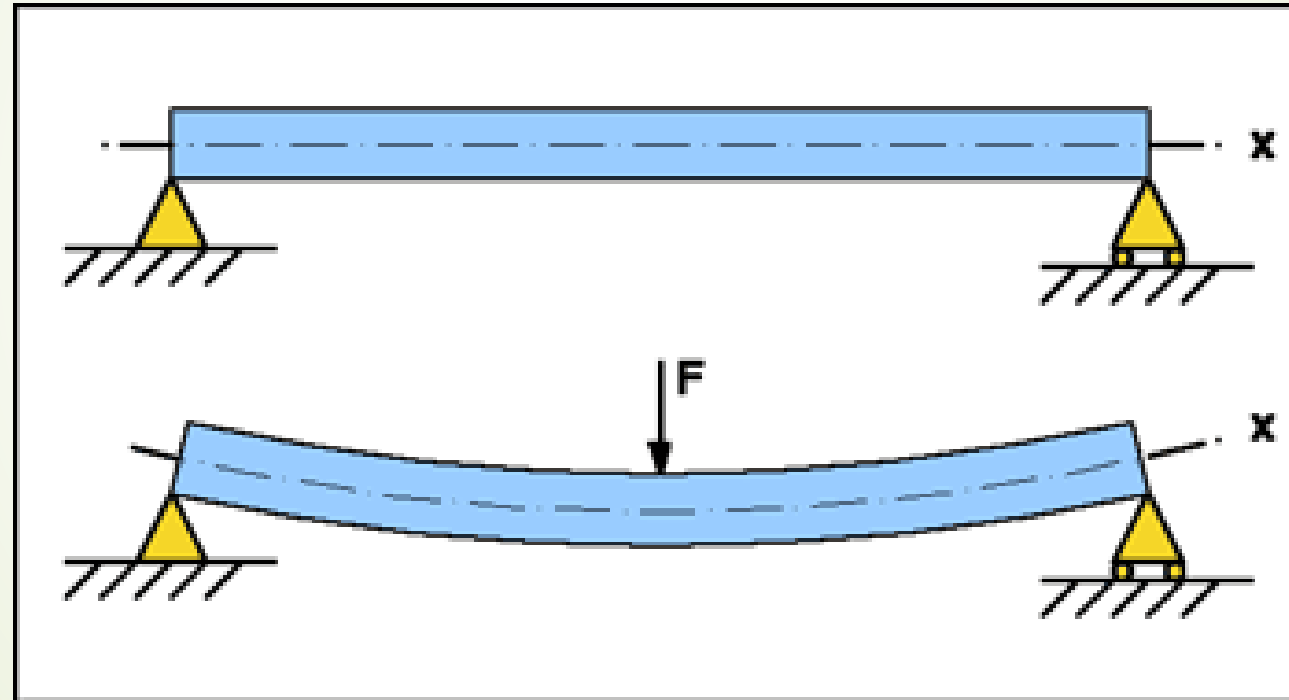
# SYLLABUS

## 1. Bending Moment and Shear Force:

Concept of a beam, and supports (Hinged, Roller and Fixed). Types of Beams: Simply supported, cantilever, fixed overhang and continuous beams, types of loads (distributed, point and varying). Concept of Bending Moment & Shear Force. Sign conventions. Bending moment and shear force diagrams for cantilever, simply supported and overhanging beams subjected to uniformly distributed, concentrated and uniformly varying loads. Relationship between load, shear force and bending moment. Point of maximum B.M. and contraflexure, concept of fixed and continuous beams.

# BEAM

Beam is a structural member which is acted upon by a system of external loads at lateral to the axis.



# TYPES OF BEAM



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graph TD; A[TYPES OF BEAM] --> B[Based on Support Conditions]; A --> C[Based on Construction Materials]; B --> D[Simply Supported Beam]; B --> E[Fixed Beam]; B --> F[Cantilever Beam]; B --> G[Continuous Beam]; C --> H[Reinforced Concrete Beams]; C --> I[Steel Beams]; C --> J[Timber beams]; C --> K[Composite Beams];
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The diagram is a hierarchical flowchart titled 'TYPES OF BEAM'. It branches into two main categories: 'Based on Support Conditions' and 'Based on Construction Materials'. The first category lists four types: Simply Supported Beam, Fixed Beam, Cantilever Beam, and Continuous Beam. The second category lists four types: Reinforced Concrete Beams, Steel Beams, Timber beams, and Composite Beams. Arrows indicate the flow from the main title to the categories and then to the specific beam types. A decorative red arrow points right from the left edge, and a vertical line with arrows on the left side points to the 'Based on Support Conditions' category.

## Based on Support Conditions

Simply Supported Beam

Fixed Beam

Cantilever Beam

Continuous Beam

## Based on Construction Materials




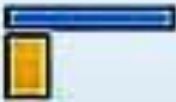
Reinforced Concrete Beams

Steel Beams


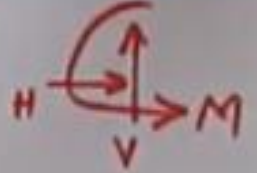




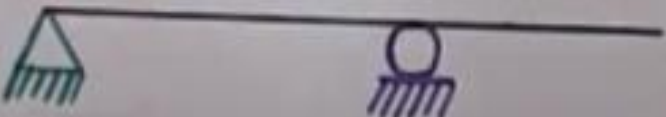


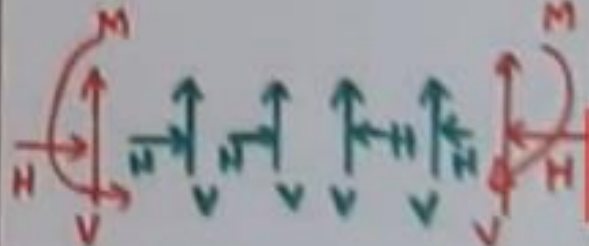
Timber beams

Composite Beams

# SUPPORT CONDITIONS

S.no	Types of Support	Representation by	Reaction Force	Resisting Load
1.	Roller Support		Vertical	Vertical loads
2.	Pinned Support		Horizontal and vertical	Vertical and horizontal loads
3.	Fixed Support		Horizontal, vertical and moments	All types of loads Horizontal, vertical and Moments
4.	Simple Support		Vertical	Vertical loads

# Based on Support Conditions

CANTILEVER BEAM		
SIMPLY SUPPORTED BEAM		
FIXED BEAM		
SINGLE OVERHANG BEAM		
CONTINUOUS BEAM		



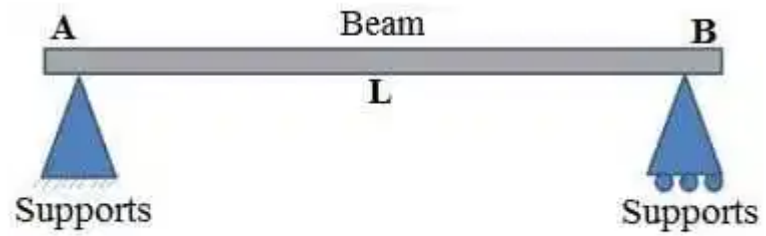


Fig. 1: Simply supported beam

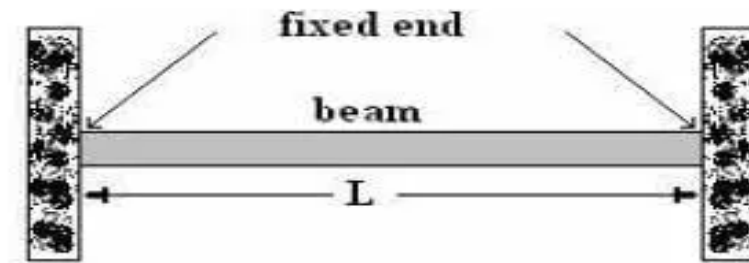


Fig. 2: Fixed beam



Fig. 3: Cantilever beam

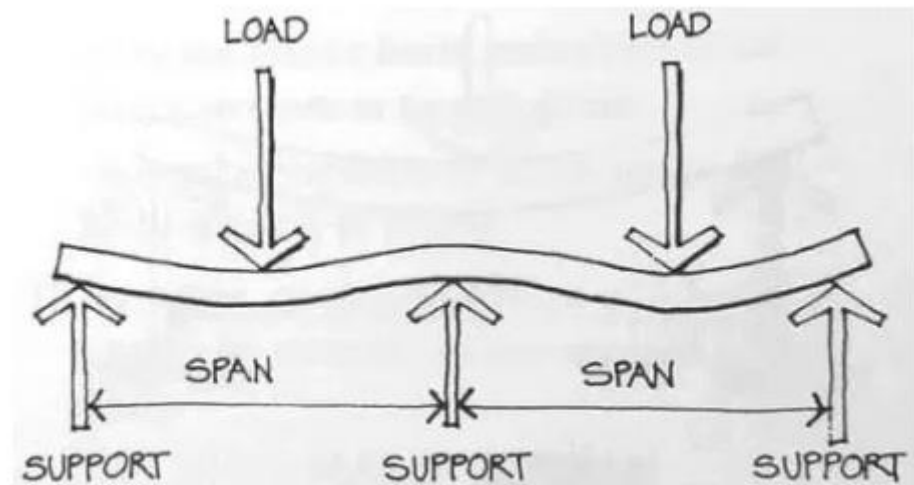


Fig. 4: Continuous beam

# Based on Construction Materials



Fig. 5: Reinforced concrete beam



Fig. 6: Steel beam





Fig. 7: Timber Beam

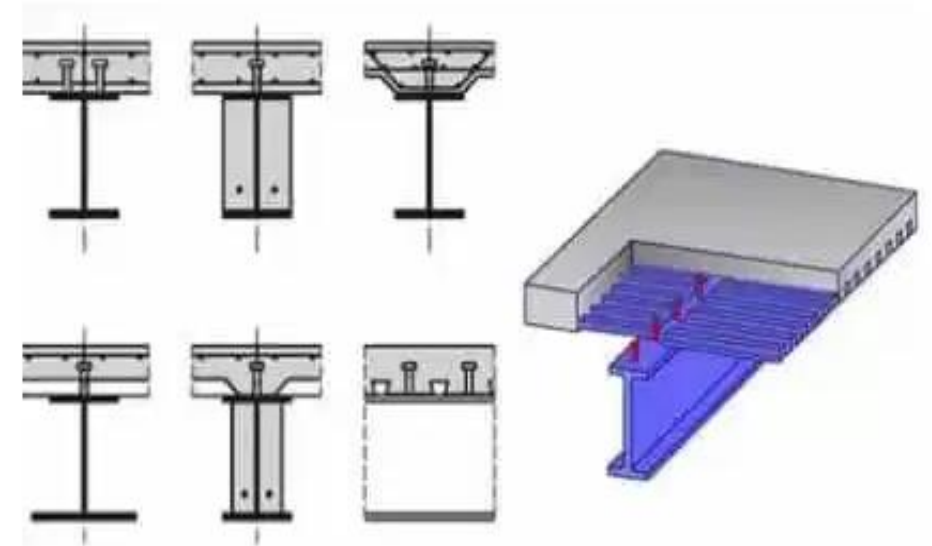


Fig. 8: Composite beam



**THANKYOU**