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# **ST5014 DESIGN OF STEEL CONCRETE COMPOSITE STRUCTURES**

## **DETAILED SYLLABUS**

### **UNIT I INTRODUCTION**

Introduction to steel - concrete composite construction – Codes – Composite action – Serviceability and Construction issues in design.

### **UNIT II DESIGN OF COMPOSITE MEMBERS**

Design of composite beams, slabs, columns, beam – columns - Design of composite trusses.

### **UNIT III DESIGN OF CONNECTIONS**

Shear connectors – Types – Design of connections in composite structures – Design of shear connectors – Partial shear interaction.

### **UNIT IV COMPOSITE BOX GIRDER BRIDGES**

Introduction - behaviour of box girder bridges - design concepts.

### **UNIT V CASE STUDIES**

Case studies on steel - concrete composite construction in buildings - seismic behaviour of composite structures.

### **REFERENCES:**

1. Johnson R.P., "Composite Structures of Steel and Concrete Beams, Slabs, Columns and Frames for Buildings", Vol.I, Blackwell Scientific Publications, 2004.
2. Oehlers D.J. and Bradford M.A., "Composite Steel and Concrete Structural Members, Fundamental behaviour", Pergamon press, Oxford, 1995.
3. Owens.G.W and Knowles.P, "Steel Designers Manual", Steel Concrete Institute(UK), Oxford Blackwell Scientific Publications, 1992.

### **OBJECTIVE:**

To develop an understanding of the behaviour and design concrete composite elements and structures.

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