

Syllabus of the course PEF-3110 Concepção, projeto e realização das estruturas: aspectos históricos

1. Introduction

The birth of architecture.

Materials used by prehistoric men in their constructions.

Qualitative notions of structural behaviour.

The master builder, the architect and the engineer.

2. Structures throughout History

2.1. Structures in Antiquity

Prehistoric Europe.

Mesopotamia and Egypt.

Greece.

Rome: the development of arches, vaults and domes; concrete.

2.2. The Middle Ages

Romanesque churches.

Gothic cathedrals.

2.3. Renaissance

Renaissance domes: Florence Cathedral, Saint Peter's Basilica, Saint Paul's Cathedral.

The beginnings of Mechanics of Materials.

2.4. The Age of Reason and the Industrial Revolution

The first iron structures.

The rebirth of concrete.

The development of Mechanics of Materials.

2.5. 19th Century

The large iron structures.

The first steel structures.

The first skyscrapers.

The beginnings of reinforced concrete.

2.6. 20th and 21st Centuries

The beginnings of reinforced concrete.

Bridges.

Tall buildings.

Large roofs.

The computer and the design of structures.

Modern trends in structural engineering.

3. Structural Engineering in Brazil

Colonial Brazil.

19th Century.

20th and 21st Centuries.

4. Conclusion: the Main Factors Responsible for the Evolution of Structures