**Major Topics**

Microstructure of cement paste;

special cements; concrete-environment interactions;

time-dependent effects

Creep and shrinkage

durability of concrete

corrosion of reinforced concrete

use of marginal and recycled aggregate

polymers and polymer concrete systems

properties and use.

Fiber reinforced concretes

properties and use.

Nano Concrete

**Introduction to Concrete**

Introduction

Importance and Reasons for Success

Constituents of Concrete

Components of Modern Concrete

Plain & Reinforced Concrete

Properties of Concrete

Curing of Concrete

Mix Proportions

Mix Design Relations

Workability

W/C Ratio

Slum Test

Consolidation

Types of Cement

Aggregates

Admixtures

Traditions and Advanced Concrete

High Performance Concrete

Structural Requirements

Concrete-Structure System

Construction Equipment

Concrete Joints

Testing of Concrete

Code Speciation

**Durability Related Issues of Concrete**

Different Forms of Deterioration

Corrosion of Steel in Concrete

Concrete Cracking

Alkali-Silica Reaction

Sulfate Attack

Chloride Attack

Carbonation

Calcium Leaching

   Code Provisions

Conclusion

**Hot Weather Concreting**

Introduction

Precautionary Measures

Effect of Hot Weather on Fresh and Hardened Properties of Concrete

Effect of Chemical Admixtures

Plastic Shrinkage Cracking

Saudi Building Code (SBC) Code Provisions

Conclusion

**Developments in Concrete Technology**

Concrete-The Material of Choice

Examples of Significant Developments

Concrete with Superplasticizers

High-Strength Concrete

High Performance Concrete

Ultra High Performance Concrete

Silica-Fume Concrete

Self-Compacting Concrete

High-Volume Fly Ash Concrete

Slag Concrete

Nano-Concrete and its Applications

Future of Concrete Technology Developments

Driving Forces of the Future

Concrete Technology of 22nd Century

Prediction of Performance

Simulation Authenticity

Changing Trends

Future Concrete

Sustainability Issues

Future Durability Requirements

Availability of Resources

Eco-Friendliness

Significance for Education in Concrete Technology

**Advanced Concrete Technology**

Need for Materials

New Criteria

Concrete Facts

Structure & Properties

Various Influencing Factors

Durability Issues

Environmental Actions

Conclusion