

**L J UNIVERSITY**  
**L J SCHOOL OF DESIGN**  
Syllabus for Bachelors of Design  
Second Year I Semester 4

CODE	SUBJECT	CREDIT
10180404	Building Services II	2
<b>AIM</b>		
	<p>To expose the students to the basic principles of air conditioning, acoustics, electrification and mechanical services.</p> <p>To understand the need and applications of airconditioning, acoustics, electrification and mechanical services in buildings with exposure to various systems, methods and fixtures.</p>	
<b>CONTENT:-</b>		
	<p><b>BASIC CONCEPTS AND SYSTEM COMPONENTS IN AIR CONDITIONING</b></p> <ul style="list-style-type: none"> <li>Vapour compression cycle – Compressors – Evaporators – Refrigerant control devices – Electric motors - Air handling units – Cooling towers.</li> </ul> <p><b>AIR-CONDITIONING SYSTEM AND APPLICATIONS</b></p> <ul style="list-style-type: none"> <li>Window type and packaged air conditioners – Chilled water plants – Fan coiled systems – Water piping – Cooling load.- Air-conditioning systems for different types of buildings – Duct lay out etc.</li> </ul> <p><b>FIRE SAFETY</b></p> <ul style="list-style-type: none"> <li>Mechanism of fire spread in building and prevention – Fire safety standards – Concepts in fire protection-Fire fighting installation and requirements - Heat sensitive detectors – Smoke detectors – Automatic water sprinkler system- Foam systems.</li> </ul> <p><b>ACOUSTICS AND SOUND INSULATION</b></p> <ul style="list-style-type: none"> <li>Room acoustics- resonance, reverberation, echo, reverberation time, simple exercise using Sabine’s formula.- Acoustical requirements of different types of building. -Sound absorption, absorption co-efficient and their measurements, Absorbing materials used and their choices, exercises involving reverberation time and absorption co-efficient. Sound insulation materials</li> </ul> <p><b>ELECTRICAL SYSTEMS</b></p> <ul style="list-style-type: none"> <li>Single/Three phase supply – Protective devices in electrical installation — ISI Specifications - Types of wires, Wiring systems and their choice – Planning electrical wiring for building interiors – Main and distribution boards- Typical Electrical layout for interiors.</li> </ul>	
<b>METHODOLOGY:-</b>		
	Lectures, Case Studies , Market Survey & Visits	
<b>REFERENCE BOOK:-</b>		
	<ul style="list-style-type: none"> <li>M.H.Lulla, Air conditioning</li> <li>V.K.Jain, Fire Safety in Buildings.</li> <li>Peter templeton &amp; Saunders – Detailing for architectural acoustics – Architectural press, 1994</li> <li>4. R.G.Hopkinson and J.D.Kay, the Lighting of Buildings, Faber and Faber, London, 196</li> </ul>	