

<b>Air Conditioning</b>	
<b>School</b>	Built Environment
<b>Module Leader</b>	Dr Fan Wang
	Dr George Alexis
<b>Module Number</b>	D19SH
<b>Credits</b>	12
<b>Assignments</b>	YES
<b>Exams</b>	YES
<b>Student Effort ours</b>	120
<b>Pre-reading/Other Program-related Activities</b>	12 hours
<b>Formal Lectures/Workshop</b>	26 hours
<b>Discussions/Group Activities/Case Studies/Demonstrations</b>	6 hours
<b>Laboratory work</b>	4 hours
<b>Independent Study &amp; Coursework</b>	72 hours
<p><b>Objectives</b></p> <p>The aim of this module is to introduce students to the basic principles associated with the provision of air conditioning in buildings.</p> <p>On completion of this module students should be able to:</p> <ul style="list-style-type: none"> <li>Select appropriate external and internal design criteria</li> <li>Undertake load assessment and system design calculations</li> <li>Understand the use of the psychrometric chart and the processes used in air conditioning systems</li> <li>Select appropriate air conditioning systems for a variety of applications</li> <li>Select appropriate refrigerant and heat rejecting equipment</li> </ul>	
<p><b>Subjects</b></p> <ul style="list-style-type: none"> <li>• Thermal comfort and design criteria</li> <li>• Load Assessment</li> <li>• Psychrometry</li> <li>• Air Conditioning Systems</li> <li>• Refrigeration and heat rejection</li> </ul>	
<p><b>Content</b></p> <p>Fundamentals of air and water vapour mixtures, psychrometric charts and air conditioning</p>	

processes, cooling load calculations.

Selection of supply design conditions, calculation of heat gains, sensible and latent, influence of building design, orientation, materials etc.

Refrigeration cycles and heat rejection equipment, cooling towers, condensers, cooler coils and air handling plant.

Allocation of plant space in buildings, network design. Air distribution and movement in rooms.

Air conditioning systems, room units, induction units, fan coil units, dual duct systems, multizone and VAV systems. Control and monitoring of systems.