



University of Nicosia, Cyprus
ARCH-521 Bioclimatic Architecture

Course Code	Course Title	Credits (ECTS)
ARCH-521	Bioclimatic Architecture	10
Department	Semester	Prerequisites
Architecture	Fall	none
Type of Course	Field	Language of Instruction
Required for concentration: sustainable architecture	MA in Architecture	English
Level of Course	Year of Study	Lecturer
2 nd cycle	1 st	Markella Menikou
Mode of Delivery	Work Placement	Co-requisites
face-to-face	N/A	None
Objectives of the Course:		
<ul style="list-style-type: none">• To develop a foundational knowledge and understanding of key concepts of bioclimatic architecture and environmental modification.• To encourage students to appreciate the historic significance of bioclimatic principles in vernacular architecture.• To provide an overview of established passive environmental strategies and systems.• To identify reference texts to build understanding that will accumulatively mature into critical personalised theoretical positions on a range of issues of sustainability and generally the performance of buildings.• To explore case studies to test analytic capability and develop a vocabulary of bioclimatic architecture.• To develop the awareness of how materials, techniques in structure, construction and environmental modification are integrated in the generation and realisation of bioclimatic architectural designs.		
Learning Outcomes:		
After completion of the course students are expected to be able to: <ul style="list-style-type: none">• Demonstrate knowledge and understanding of key concepts of bioclimatic architecture and environmental modification.• Have developed an appreciation of historic and theoretical references underpinning bioclimatic architecture.• Take a critical personalised position in relation to issues of sustainability and		

<p>generally the performance of buildings.</p> <ul style="list-style-type: none"> • Acquire a large vocabulary of established passive environmental strategies, systems and the terminology used in these. • Evidence a developing 'analytic capability' through the ability to understand published text/ drawings in relation to bioclimatic architecture strategies and tactics. • Interpret how materials, techniques in structure, construction and environmental modification are integrated in the generation and realisation of bioclimatic architectural designs.
<p>Course Contents:</p>
<ul style="list-style-type: none"> • Theoretical and Ethical Positions of bioclimatic architecture • Climatic data: solar considerations, celestial geometries, wind, humidity, precipitation etc • Climate change • Resource and material usage • Macro/ meso/ micro scales of investigation • Microclimate • Environmental aspects of vernacular architecture • Key concepts of bioclimatic architecture • Passive environmental strategies; passive cooling/passive heating • Direct/indirect/isolated systems • Human comfort • Environmentally 'selective' vs 'exclusive' vs "hybrid" buildings • Introduction to the tool of building energy performance software (Ecotect and/or Energy Plus); possibilities and limitations • Autonomous / Living systems • Building Metabolism - introduction to integrative design • Cradle to cradle thinking
<p>Learning activities and Teaching Methods:</p>
<ul style="list-style-type: none"> • Lectures and presentations • Directed readings and writing assignments • Case studies analyses • Group discussions
<p>Assessment Methods:</p>
<p>The lecture course is assessed by the submission of coursework (assignments):</p> <ul style="list-style-type: none"> • Presentations and short writings that will accumulatively set personalised theoretical positions on a range of bioclimatic architecture concepts (as introduced via lectures, directed readings and research). • Analyses of seminal bioclimatic architecture case studies via diagrams and accompanying text as the main analytical tools. • The assignments will be submitted incrementally throughout the semester and collated into a holistic body of work as a final submission.

Recommended Textbooks/Reading:				
Authors	Title	Publisher	Year	ISBN
McDonough, W & Braungart, M.	Cradle to Cradle: Remaking the way we make things	North Point Press	2002	0099535475
Thomas, Randall	Environmental design	Taylor and Francis London	2005	0415363349
Gauzin-Muller, D.	Sustainable Architecture & Urbanism	Birkhauser.	2002	3764366591
EC Directorate General	A Green Vitruvius	London: James & James	1999	187393694X
Cofaigh, O	The Climatic Dwelling	London: James & James	2000	1873936397