

DEPARTMENT OF ARCHITECTURE
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	M.ARCH (ENERGY EFFICIENT AND SUSTAINABLE ARCHITECTURE)		
Course Title	BUILDING ENERGY ANALYSIS STUDIO		
Course Code	AR: 709	No. of Credits	3
Course Code of Pre-requisite subject(s)	NONE		
Session	July 2020	Section (if, applicable)	A / B (NOT APPLICABLE)
Name of Faculty	Dr. T. SRINIVAS	Department	ARCHITECTURE
Email	srivas@nitt.edu	Telephone No.	04313555
Name of Course Coordinator(s) (if, applicable)	NONE		
E-mail		Telephone No.	
Course Type	<input type="checkbox"/> Core course <input type="checkbox"/>		
Syllabus (approved in BoS)			
Syllabus approved in 2015 -16.			
COURSE OBJECTIVES			
The course attempts to provide <ol style="list-style-type: none"> 1. Analytical approach to understand climate data and Thermal comfort assessment. 2. Knowledge to apply design of shading devices to be integrated into design. 3. Introduction to various commonly available software tools to evaluate performance of Architectural design. 4. Integration various of sustainable design and sizing mechanisms such as RWH, Water recycling, water treatment, solar panels, Waste recycling etc into architectural design. 5. Provides opportunities to apply Heat transfer concepts and terminology through software tools while evaluating performance of architectural design. 			
COURSE OUTCOMES (CO)			
Course Outcomes	Aligned Programme Outcomes (PO)		
1. Understanding climate& Comfort analysis and design of shading.			
2. Understand to use various software tools aimed at evaluation of building performance and design.			
3. Understand and apply concepts of Heat transfer and Insulation in Buildings through software tools			
4. Understand Sustainable design wrt water, Rain, Solar, Treatment of solid and liquid waste			

COURSE PLAN – PART II**COURSE OVERVIEW**

The course firms up on the fundamentals of Climate responsive architecture and extends to provide understanding of various concepts of Building science topics.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	2 weeks	Project stage 1: Preliminary design and Integration of sustainable elements	Studio design & Literature Review
3	6 weeks	Project stage 2: Analysis of design using software tools:	
4	1	Climate analysis, Comfort analysis, IMAC	
5	1	Tools to evaluate U factor, Insulation, Time-lag, and Decrement Factor	
6	1	Ecotect shading device design and analysis	
7	1	Efficiency of shading device, Radiation and Sunhour analysis by using Ladybug	
8	1	OTTV Calculation	
9	1	Comfen tool for façade optimization	
11	2 weeks	Project Stage 3: Integration of results and revision of design with GRIHA Project Report	
12	1 week	Review/Evaluation of final work.	

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assignment 1		2 weeks	15%
2	Assignment 2		2 weeks	15%
3	Assignment 3		4 weeks	30%
4	Assignment 4		2 weeks	
CPA	Compensation Assessment*			
5	Assignment 5		1 week	10%
6	Final Assessment *		1 week	30%

*mandatory; refer to guidelines on page 4

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

The survey may be conducted by NITT as per practice at the time of registration for final examination

COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)**MODE OF CORRESPONDENCE (email/ phone etc):**

A detailed program and project brief detailing various stages and tasks has been circulated in the first week.

Assignments will be explained in the class, students are required to make note of the same. In addition, communication will be made through the class representative and/ or email. Expert lectures will be held to introduce software tools.

COMPENSATION ASSESSMENT POLICY: For genuine delay in assignment submission extra time will be given. Other wise 10 to 30% of marks will be cut for late submission. Since it is a studio continuous assessment will be made, therefore Final assessment will consist of 20% of marks.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- **At least 75% attendance in each course is mandatory.**
- **A maximum of 10% shall be allowed under On Duty (OD) category.**
- Students with **less than 65% of attendance** shall be prevented from writing the final assessment and **shall be awarded 'V' grade.**

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION

Following books will be useful in addition to working literature about the software tools.

1. Hand book on Energy Conscious Buildings: By J.K. Nayak, MNRE 2006
2. Introduction to Architectural Science : The basis of Sustainable Design: by Steven V. Szokolay ; Elsevier Ltd., 2008
3. A Handbook of sustainable building design and engineering: An Integrated approach to energy, Health, and Operational performance: By Dejan Mumovic and Matt Santamouris.
4. Designing Rain water Harvesting systems: Integrating rain water into Building systems: By Celeste Allen Novak, Eddie Van Giesen and Kathy M Debusk,Wiley & Sons, 2014.
5. GRIHA volume 1, TERI, India

FOR APPROVAL



Course Faculty – T Srinivas



CC-Chairperson

HOD



Guidelines:

- a) The number of assessments for a course shall range from 4 to 6.
- b) **Every course shall have a final assessment on the entire syllabus with at least 30% weightage.**
- c) **One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered. Details of compensation assessment to be specified by faculty.**
- d) **The passing minimum shall be as per the regulations.**
- e) **Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.**
- f) **Absolute grading policy shall be incorporated if the number of students per course is less than 10.**
- g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.