SUBJECT NO-AR23304, SUBJECT NAME- INDIGENOUS TECHNOLOGIES AND INNOVATIONS WORKSHOP

LTP- 1-0-3,CRD- 3

SYLLABUS :-

Course Overview:This course explores the study of natural environment, ecosystem, traditional cultural systems, and organic materials through logical and scientific rules with an intention to learn and apply such principles and systems in architectural design. The students are also exposed to learn from mimicking, modelling, prototype development and analysis. It will also allow the student to come up with new ideas of product development using modern technology, gadgets and sensors. The course will give the preliminary steps to understand architectural research philosophy in the context of nature and its vast array of creations. The course will also enable the students to apply their young and creative minds to generate new ideas, systems and products. Methodology:Students may be divided in to appropriate groups for development of a certain system, model or product or process development. The idea is to culminate to learning in a Do It Yourself (DIY) mode project done in-group. The guest lectures, Expert Design studios, workshops may be organised before the development of model / product / documentation etc. Students may be given some specific natural objects and asked to Biomimic the process. Onsite visits of local cultural sites, study of rural building and architecture may be organised. Learning Objectives:1. Understand the system development through model making, prototyping by deep observation of nature. 2. Initiation of architectural product development and use of alternative concepts.3. Develop the skill to analyse the character of real life natural object and apply in building systems.4. Get acquainted with the local traditional cultural system and learning from them and improvising/development of such to suit specific requirement of today's world.5. Examine the different types organic products used in buildings and enhanced the further application; study, observation, analysis and interpretation.Course Curriculum:Module 1 : Model Making ExerciseBasic carpentry joinery and timber model, Modelling to study 3D form and structural stability, Use of bamboo as an alternative building material. Sensor based models for product developmentModule 2 : Study of Cultural SystemStudy and live documentation of local art and craft, cultural and built heritage. Concepts, communicational mediums including concretised cultural settings.eg: Naya Pingla Pattachitra Module 3 : Biomimicry and its applicationObservation and analysis of natural objects, plants, trees, animals and exploring principles f structural, circulatory, adaptation principles and its application in building systems, products of various requirements. Module 4 : Study of organic system of built environmentVisual study and analysis of organic materials and building components, scientific interpretation and exploring the possibilities of large scale application through re-use, re-cycle concepts. Multi-objective approach to sustainable design using natural environment and species as inspiration.Reading List:1. Benyus, J.M., (2012) Biomimicry: Innovation Inspire by Nature, New York: Harper Collins Publisher

Inc.2. Driscoll, M., (2013). Model Making for Architects, Crowood Publisher3. Melendez, F., (2019). Drawing form the Model. London: Wiley Publication4. Pawlyn, M., (2011). Biomimicry in Architecture, London: RIBA Publishing.5. Pohl, G, and Nachtigall, W., (2015). Biomimetics for Architecture and Design: Nature - Analogies - TechnologyConstruction, New York: Springer