COMPUTATIONAL ANALYSIS OF COMPOSITE AND STRUCTURES LAB

VII Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
A5AE31	**PCC**	-	-	3	1.5	30	70	100

COURSE OBJECTIVES
The purpose of this subject is
1. To train the students for structural analysis using ANSYS ACP.
2. To introduce the computational methods for structural analysis related to aircraft structures.
3. To introduce the problems and calculation methods in analysis of composite structures, as well as their application to solve real problems.

LIST OF EXPERIMENTS

1. Introduction to analysis of composite material using ANSYS ACP.

2. Bending analysis of composite laminate structure

3. Buckling analysis of composite laminate structure

4. Modal analysis of composite laminate structure

5. Introduction to writing MATLAB code for analysing composite laminate

6. Analysis of composite sandwich structure – Bending/Buckling

7. Analysis of Composite Cylindrical Tube

8. Nonlinear buckling analysis of stiffened plate

9. Optimization of stiffened plates against buckling

10. Nonlinear buckling analysis of sub-stiffened plate

11. Analysis of crack growth in plate

12. Analysis of composite joints – T joint/I joint

Note: Ten experiments should be performed.

Software's Required
ANSYS

Reference Books
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1.Barbero, Ever J, Finite Element Analysis of Composite Materials using ANSYS, CRC Press, 2013.

2.Divya Zindani, Apurba Kumafr Roy and Kaushik Kumar, Working with ANSYS: A Tutorial Approach, I K International Publishing House Pvt. Ltd, 2017.

COURSE OUTCOMES:
At the end of the course the students are able to:

1. Understand the basic features of ANSYS ACP software tools.
2. Design and analysis of Aircraft structures fabricated by composite/conventional material.
3. Understand the basics of writing MATLAB code for analysing composite structure.
4. Analyse the impact of crack growth/discontinuities in the Aircraft structures