## Subject: Analysis and Design of Composite Structures (2+0)

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## **<u>Course Plan:</u>** Week wise for Eighteen weeks

WEEK	Topic to be covered
1 <sup>st</sup>	<i>Introduction:</i> Basic Concepts and Terminology, different types of fibers and matrices, their properties and applications.
2 <sup>nd</sup>	Micromechanics of Composites: Prediction of properties,
3 <sup>rd</sup>	<i>Macromechanics of Lamina:</i> The theory of elasticity, Constitutive equations of a lamina, transformations,
4 <sup>th</sup>	<i>Failure theories</i> for composite lamina.
5 <sup>th</sup>	Numerical examples of lamina and failure theories.
6 <sup>th</sup>	I - Test
7 <sup>th</sup>	Mechanics of Laminated Composites: ABD matrices.
8 <sup>th</sup>	Numerical examples of laminates.
9 <sup>th</sup>	Hygrothermal Analysis and Numerical examples.
10 <sup>th</sup>	Bending Analysis of Beams and Numerical examples.
11 <sup>th</sup>	II - Test
12 <sup>th</sup>	Analysis of Laminated composite plates: Classical and first order theories, <i>Energy Method</i> , Numerical examples of Plates.
13 <sup>th</sup> & 14 <sup>th</sup>	Numerical examples of Plates.
15 <sup>th</sup>	Buckling analysis of plates and Numerical examples.
16 <sup>th</sup> & 17 <sup>th</sup>	<b>Design of laminates</b> using Carpet plots, AML plots and numerical examples on design of laminates.
18 <sup>th</sup>	Final Exam