

<b>Module Code</b>	<b>MA4012</b>	<b>Title</b>	<b>Linear Models and Multivariate Statistics</b>			
<b>Credits</b>	<b>03</b>	<b>Hours/Week</b>	<b>Lectures</b>	<b>02</b>	<b>Pre-requisites</b>	MA 3012
			<b>Lab/Tutorials</b>	<b>-</b>		

### **Learning Objectives**

This course is a follow up course of MA3012 to introduce the advance concepts of applied statistics. Main aim is to introduce detail multiple regression methods, model validation of regression models using residual analysis. Introduce the concepts of analysis of variance in applied statistical analysis.

Another aim of this course to introduce four important techniques in multivariate statistics and its applications.

Most of the techniques in this course would be introduced with appropriate softwares.

### **Learning Outcomes**

- To fit multiple regression model using MINTITAB
- To Validate the model using residual analysis
- To use Analysis of variance techniques in the Experimental Design.
- To select the appropriate multivariate statistical methods to analyze the give data obtained in an experiment.
- To select the suitable statistical modeling technique in a given experimental situation.

### **Outline Syllabus**

#### **Linear Models**

Multiple linear regression, One-way analysis of variance. Analysis of covariance. Two way models. Practical course work will include use of appropriate statistical computing packages.

#### **Multivariate Statistics**

The data matrix, finding underlying variables, grouping in Multivariate data, Principal component analysis, Factor analysis, Discriminant analysis, Cluster analysis. Use of suitable statistical computing package.