Dealing with Material Data: Collection, Analysis and Interpretation
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Lecture 74
Fitting and Graphical Handling of Data: Introduction

Welcome to Dealing with Materials Data, this is a course on Collection Analysis and Interpretation of Data from Material Science and Engineering. We are using R to do the data manipulation and analysis and we have done several modules, so we had an introduction to R module, then we did a descriptive statistics module, then we looked at random variables, then we looked at data and from data how to get information about the properties of the underlying distribution, knowing the distribution and not knowing the distribution and so on.

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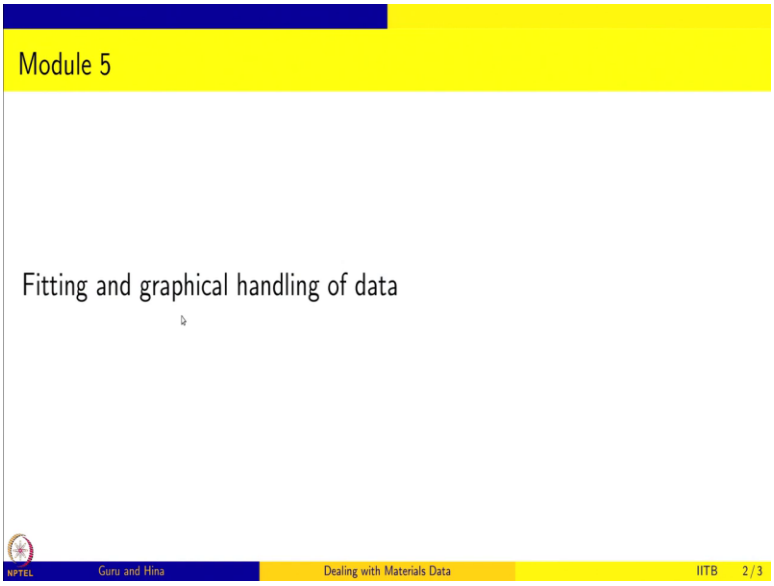

So, we are now entering into the next module, this is the fifth module and this module is on fitting and graphical handling of data. So, we have already done some amount of data analysis in terms of mean standard deviation et cetera, but we are going to do a little bit more involved analysis and that is basically fitting or regression and graphical handling of data.

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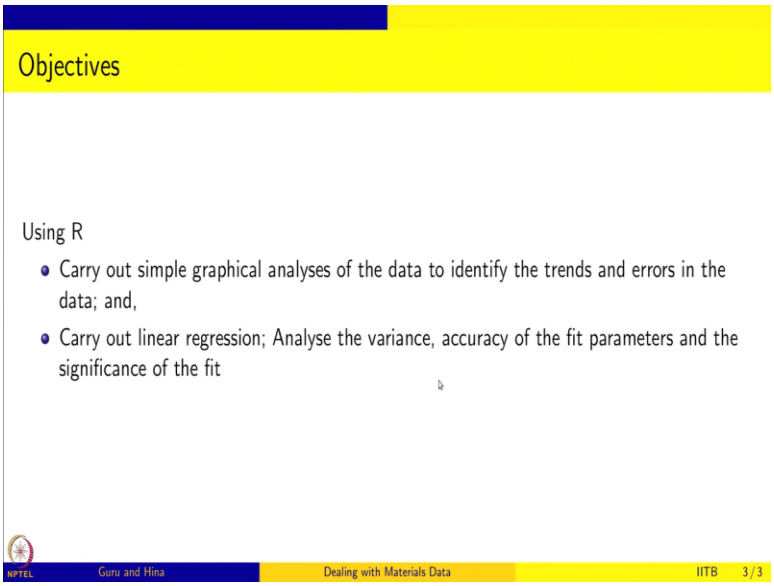

So, the objectives of this module are rather straightforward. So using R we want to carry out simple graphical analysis of data to identify trends and errors in the data and the second one is to carry out linear regression and in the process of which we are going to understand how to analyze the variance, how to look at the accuracy of the fit parameters and how to say whether our fit is significant and how good it is and so on and so forth.

So, in this session, we are going to use lots of data and each, with each of the data we are going to do some analysis, but I also welcome you to explore the data on your own and now that we have learnt a lot about the probability distributions as well as the descriptive data analysis, you should be able to do not just linear regression with this data, but also carry out other analysis, like for example fitting, taking the data and doing histogram plots or dot charts or trying to fit it to different distributions and so on and so forth. So, you are welcome to play with the data, but we are going to emphasize on fitting and graphical handling of data in this module. Thank you.