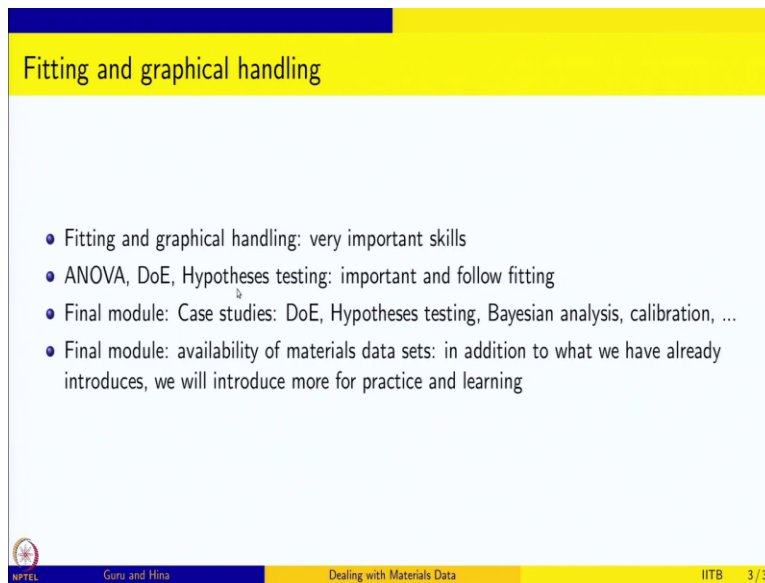**Dealing with Material Data: Collection, Analysis and Interpretation**
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Lecture 80
Summary: Fitting and Graphical Handling of Data

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Welcome to Dealing with Materials Data, we are looking at the Collection Analysis and Interpretation of Data for Material Science and Engineering. This is the fifth module on fitting and graphical handling and let us just summarize what is that we have learnt. Fitting and graphical handling are very important skills.

So, even if you are not going to do any statistical analysis on your data, typically you are expected to fit the data or calculate averages or give error bars and plot them for easy understanding of other people, so fitting and graphical handling skills are very important and they are very useful. And we have seen several ways of plotting the data and hence analyzing it, in the beginning as well as in this exercise.

And we have also seen in this module how to do fitting for different functional forms. And from fitting there are other things that are important which naturally flow, that is ANOVA, Design of Experiments and Hypothesis testing and so on. And we will do some case studies to fix some of these ideas and some of it we have already done ANOVA, for example we have seen one example.

And Hypothesis testing is something that we have been doing on and off, so we will continue with it and in the case study part, we will look at those aspects. And the final module will be the case studies and in addition to DoE and Hypothesis testing, we will also look at Bayesian analysis, calibration and such other problems or error analysis, so those are also things that we will discuss in the case studies.

One more thing that is very important that you might have realized in our study so far is that for doing the data analysis it is very important to have reliable and useful data sets and which are in the raw format so that you can actually take it up and do further analysis, like for example the NIST monograph, not only list all the numbers it also does the analysis and gives you the number so you can take the data and you can for yourself confirm that the numbers are okay for example.

So, this is very important mainly as a pedagogical tool for us, also as a research tool because once the raw data is available different people can do different types of analysis and try to see if there is more information that one can get from the data. So, it is very important to have such curated data sets, we hope that after going through this course you will generate such data and you will also make it available for everybody and there are ways of curating the data sets and keeping it online for other's use.

So, one of the purposes of this course is also to put the data that we have used in this course so far to be in the public domain and to make it available to all of you, several PhD students have contributed to the data, so we will share the complete data sets that we have used and what we are going to use in the case studies, wherever it is available in the literature we will point to the literature and wherever we have used our own data set, we will also have these datasets be available to you. So, this brings us to the end of the fitting and graphical handling module, so we will do the final module on case studies in the next session to come. Thank you.