

**Introductory Organic Chemistry**  
**Dr. Neeraja Dashaputre**  
**Department of Chemistry**  
**Indian Institute of Science Education and Research, Pune**

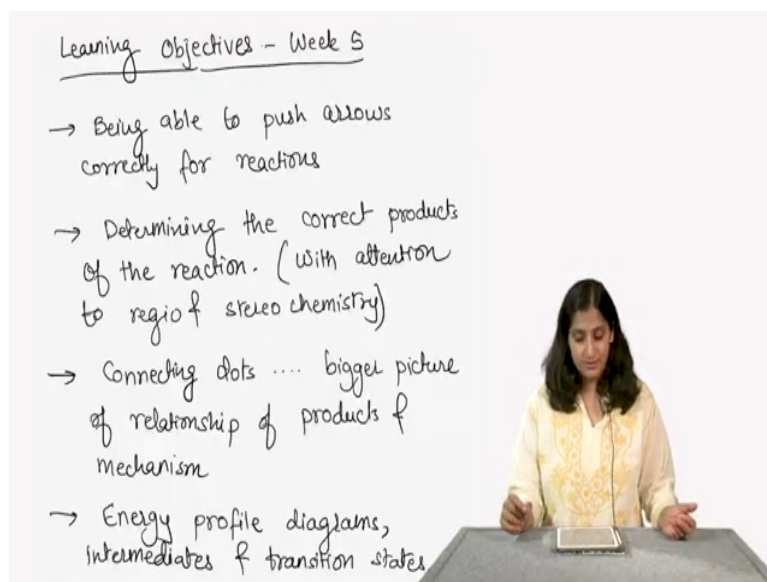
**Lecture - 23**  
**Learning Objectives for Week - 5**

Welcome to week-5. Now, we are going to begin with an actual functional group that is Alkenes and study its reactions. But in this whole journey, we have paid a lot of attention previously to how the structure really determines the reactivity and we are going to do the same here. We are going to focus more on the connection between structure and reactivity rather than religiously remembering the reactions because really telling you that there are thousands and thousands of organic chemistry reactions, and it is pretty difficult to remember all of them. So, if we understand the connectivity of the structure and reactivity, it is going to be very important. So, in this whole week pay attention to that.

Arrow pushing is the first thing we are going to start with, and in fact there is a tutorial on just how to push arrows in a chemical reaction. Why arrow pushing becomes important is that, once you understand the correct arrow pushing, once you understand the correct mechanism of a chemical reaction, you do not need to memorize how the products are formed.

Once it starts flowing, just like solving a mathematics example; so all of you must have taken some math's courses and in maths, you do not remember what the next step is gonna be, in fact you think what could be the next step and how could I use the knowledge of my current mathematical operators on this particular equation and you are able to solve that equation, right.

(Refer Slide Time: 01:52)



So, the same way in chemistry also, the trick is not to memorize but to really just be able to understand what could be the next step and that is what I want you to focus on as we start with the reactivity. So, if I have to pinpoint the objective, the Learning Objectives of Week-5, first one is of course being able to push arrows in a correct manner. What I mean by correct manner is we have to follow all the rules of arrow pushing.

Every subject has its own language, for example, in maths again if you just invert the plus sign, it becomes a multiplication sign and the whole thing changes, right. So, in the same way the direction of the arrow or the placement of the arrows in a chemical reaction also matters, because each arrow has a meaning, has a particular meaning. So, pay attention to that.

Secondly, determine the correct products of the reactions. Now, when we are looking at the products of the reactions, we have to understand the mechanism such that we look at the reaction mechanism not in just 2D form, but in the 3D form such that you can also correlate it with the stereochemistry and the regiochemistry of the products that are being formed.

The third thing is really connecting the dots and looking at the bigger picture; why we are doing a particular reaction and how is this reaction going to be useful in my whole tool set of Organic Chemistry reactions. And the fourth one is going to be the energetics of the reaction. So, we are also going to talk about the energy profile diagrams of reactions; we are going to talk about what intermediates are, we are going to talk about what transition states are, and all of these things play an important role in the way the mechanism is established.

So, please pay attention to the connection, the bigger picture of reaction mechanism, the energetics of the reaction, and the stereochemistry and regiochemistry of the products that is being formed. So, when we put all of these things in one picture, things become much more easier. So, welcome to week-5, let us start learning Alkenes.