

NPTEL

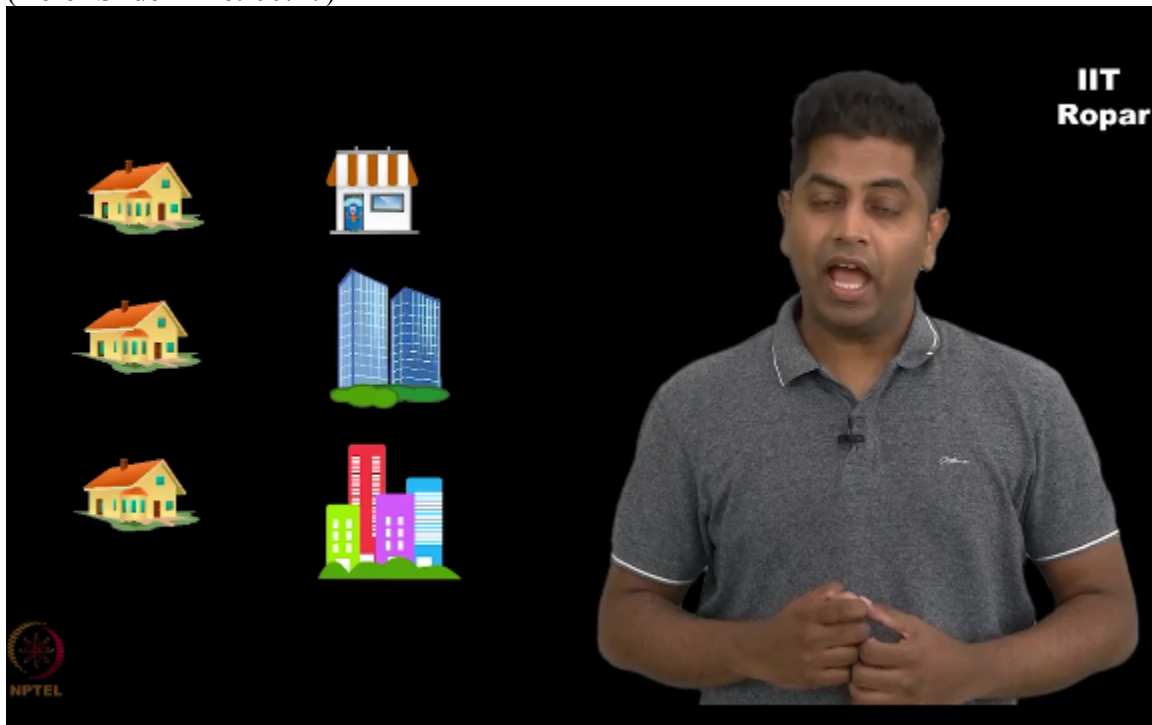
NPTEL ONLINE CERTIFICATION COURSE

**Discrete Mathematics
Graph Theory – 2**

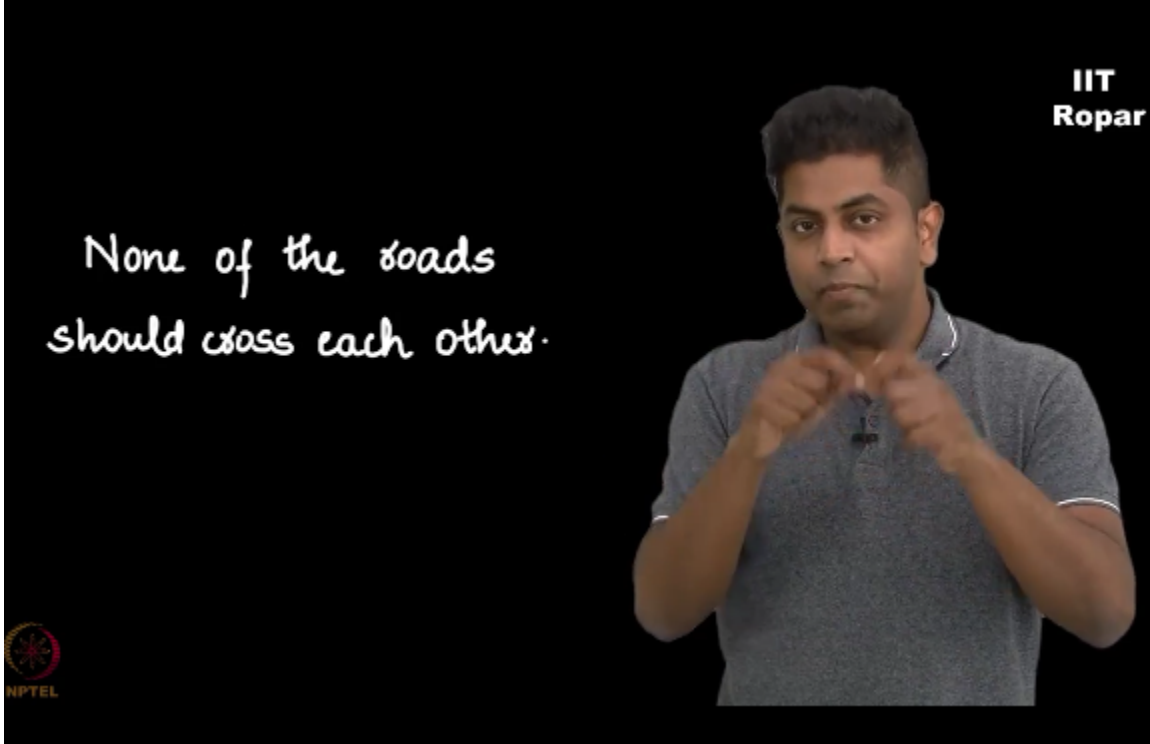
Constructing non-intersecting roads

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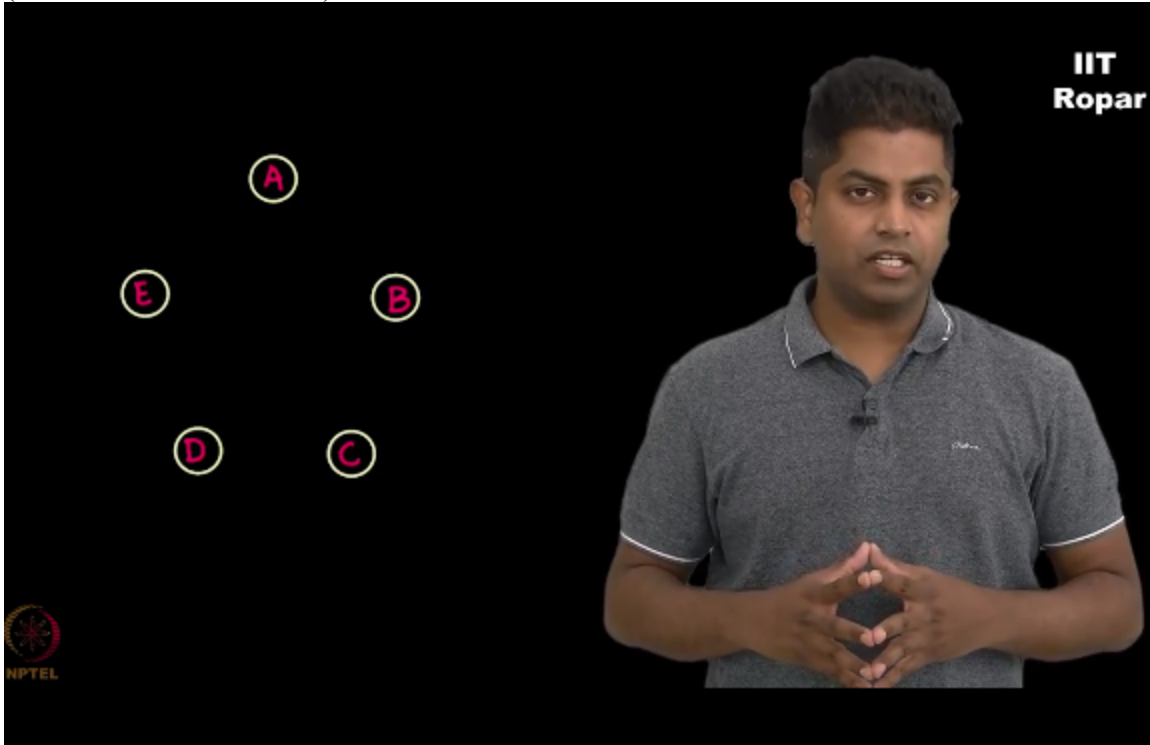
Let us revisit the problem we were discussing a while back, given 3 houses and 3 utilities how do we end up constructing roads between these houses and the utilities,
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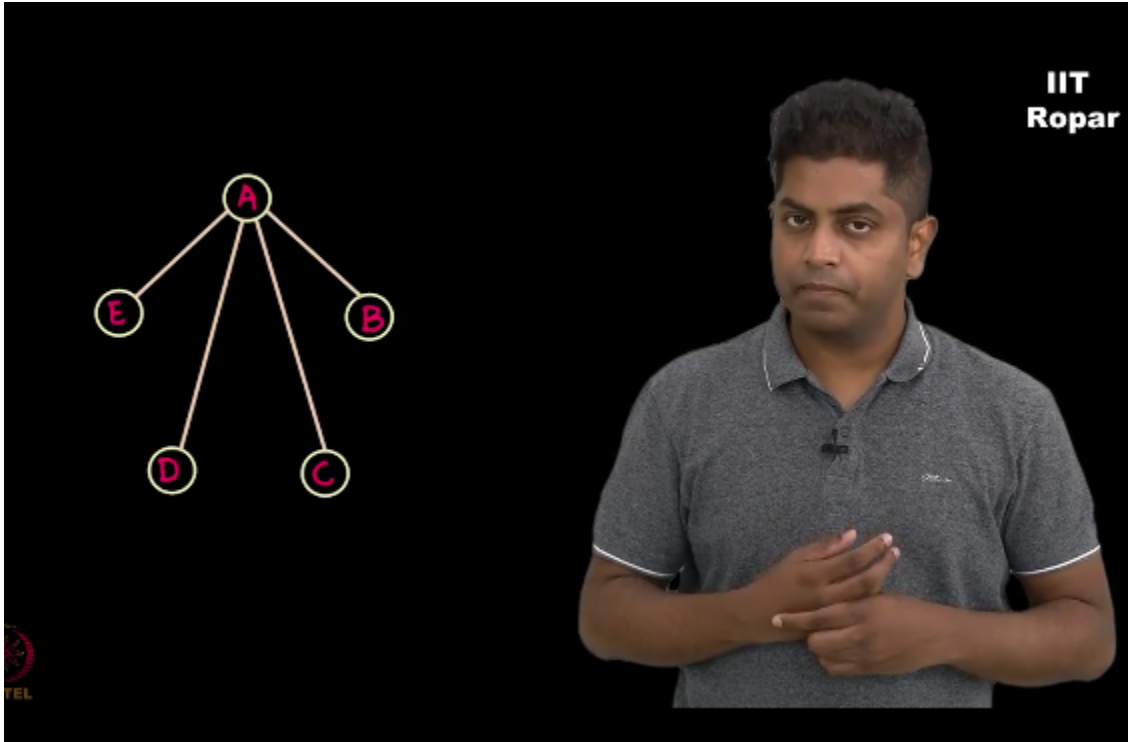
the point is every single house should have 3 roads emanating from them to 3 different utilities, but we must ensure that none of these roads cross each other,
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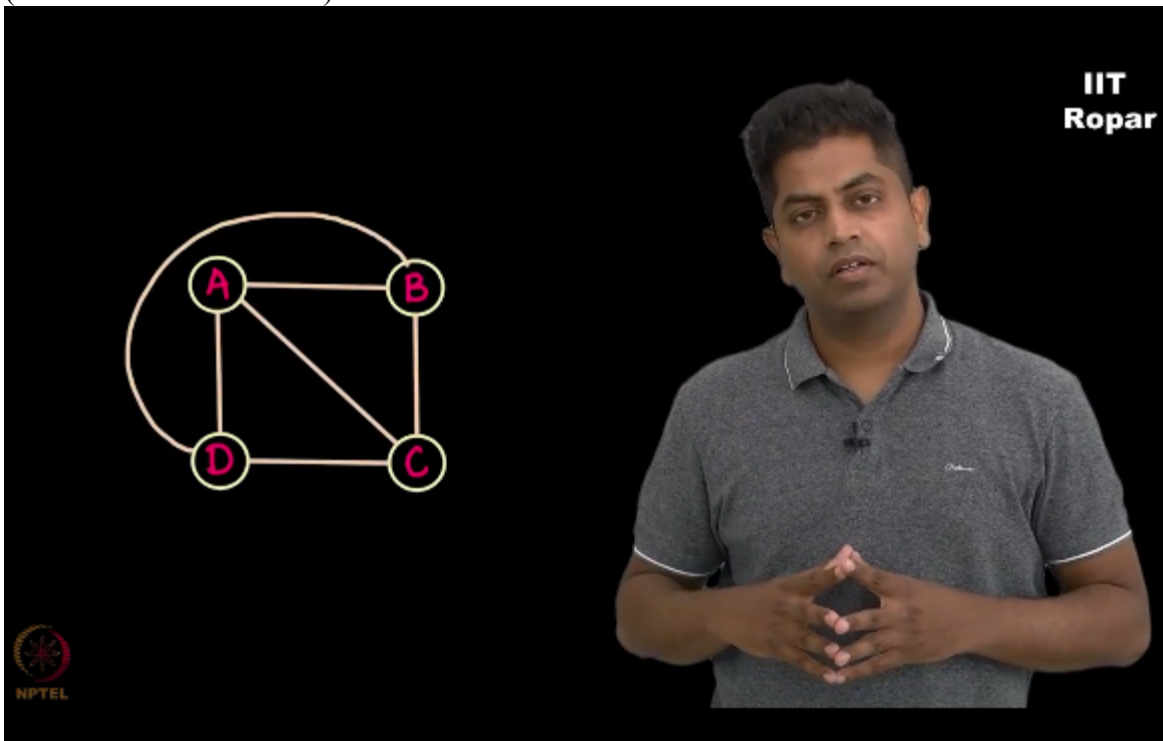
you see, you keep trying this you will realize that it is, it seems impossible we cannot do this, problem 1, problem 2, assume these are the 5 friends, (Refer Slide Time: 00:45)



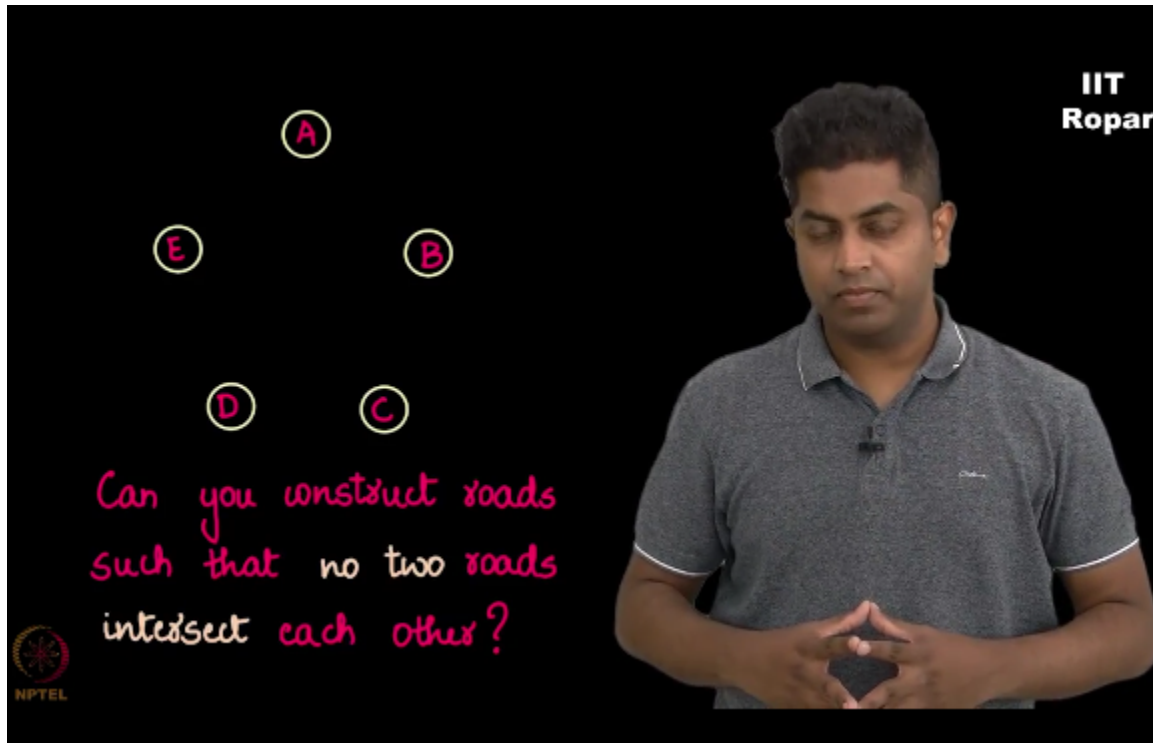
and they want to construct roads from their house to the others house, so this one person wants to construct 4 roads to each of his friends' houses, (Refer Slide Time: 00:59)



and everyone wants to do it, let's say if they had, if they were only 4 friends it's very easy to do this you see,
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this is the way to do it, with 5 friends can you construct roads such that no two roads intersect each other, they should not cross each other, is it possible?
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So try in a sheet of paper, write 5 dots and try to put roads between these dots in two dimensionally you should not construct flyovers, right, and see if you can construct roads between these 5 people without the roads crossing each other.

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**Founded by
Department of Higher Education
Ministry of Human Resources Development
Government of India**

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