NPTEL

NPTEL ONLINE CERTIFICATION COURSE
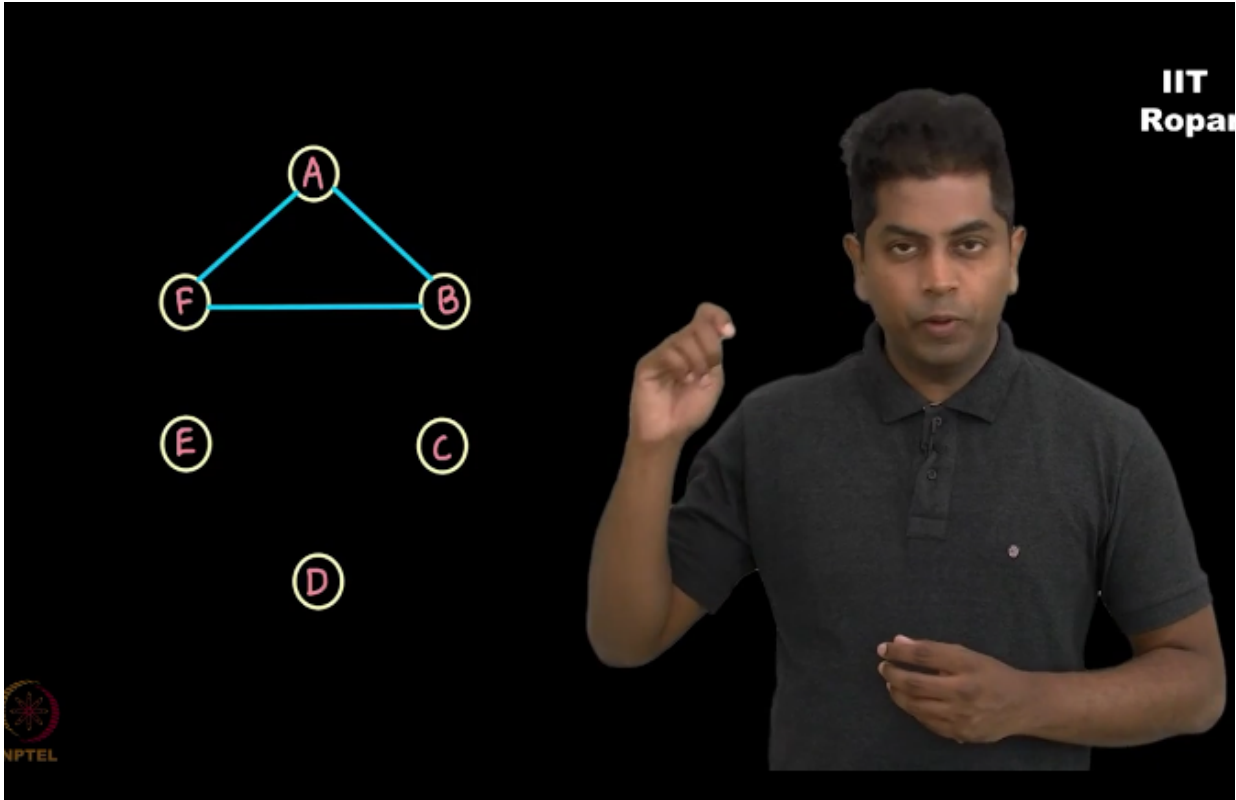
Discrete Mathematics
Graph Theory - 1
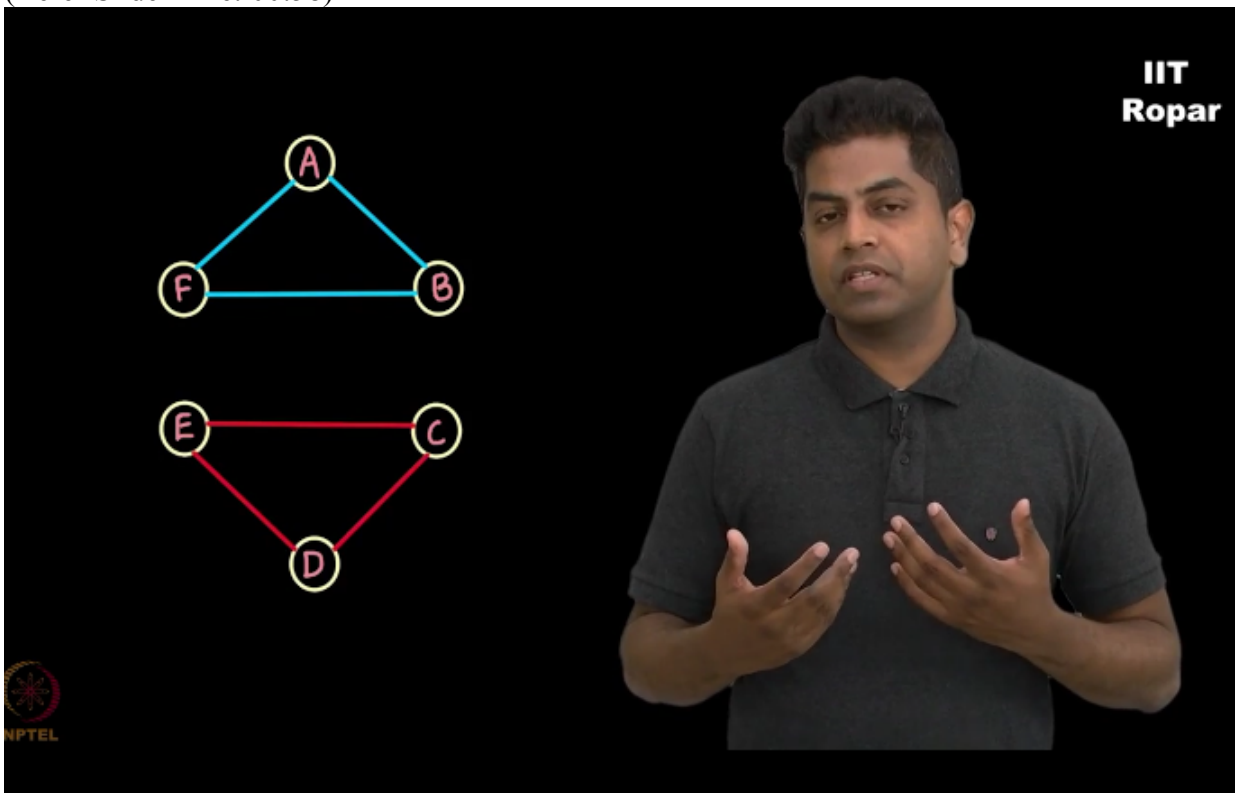
Friendship – An Interesting Property

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As an always let us kick start a brand new chapter with a lot of motivational questions, take any six people in the world, random six people you would suspect they don't know each other, right, or take six people in a classroom you will have a hunch that they all know each other because they are for the same classroom.
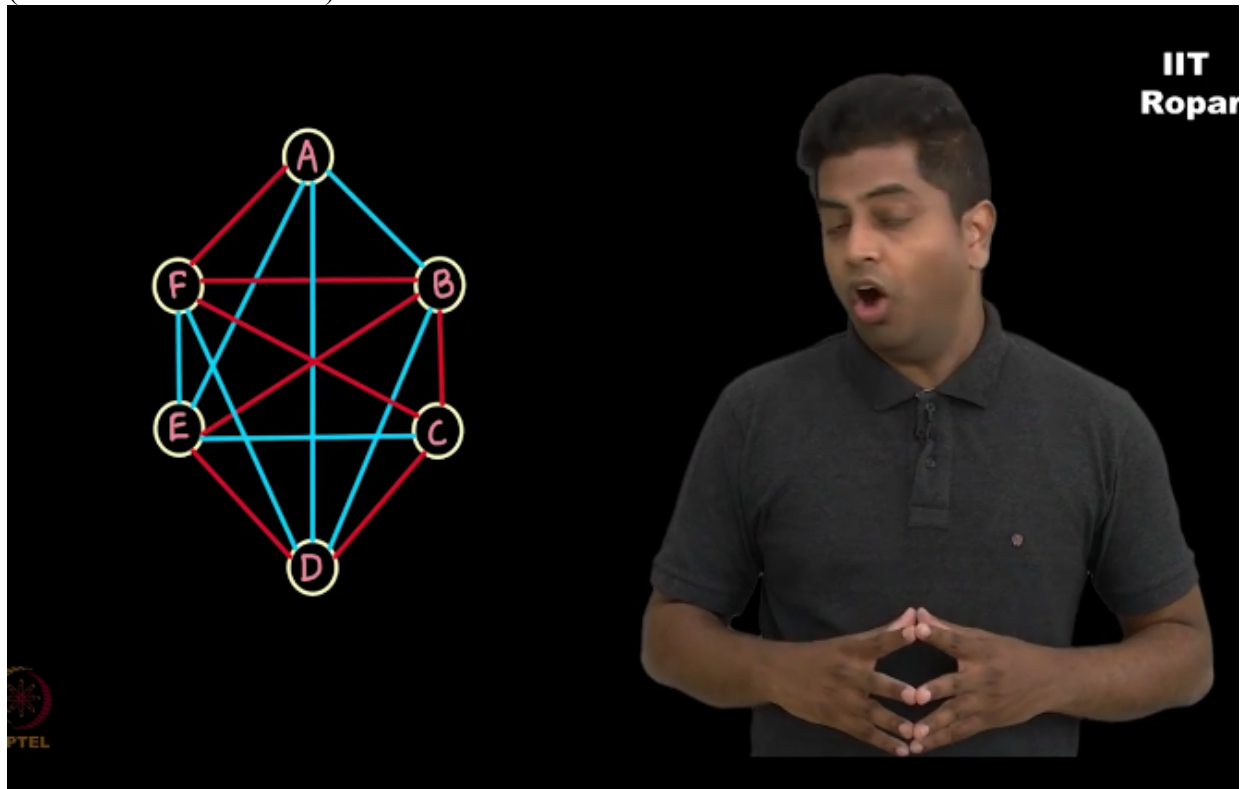
What if you took some six people randomly and what if you are guaranteed that you will certainly find three people who know each other, or three people who do not know each other, what do I mean by this? Look at this,
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this is one configuration where blue lines represent knowing each other, and a red line represents not knowing each other,

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between six people there are obviously 15 possible friendships, 15 lines between people and you will observe that amongst these lines you will find a red triangle
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or a blue triangle always.

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