NPTEL

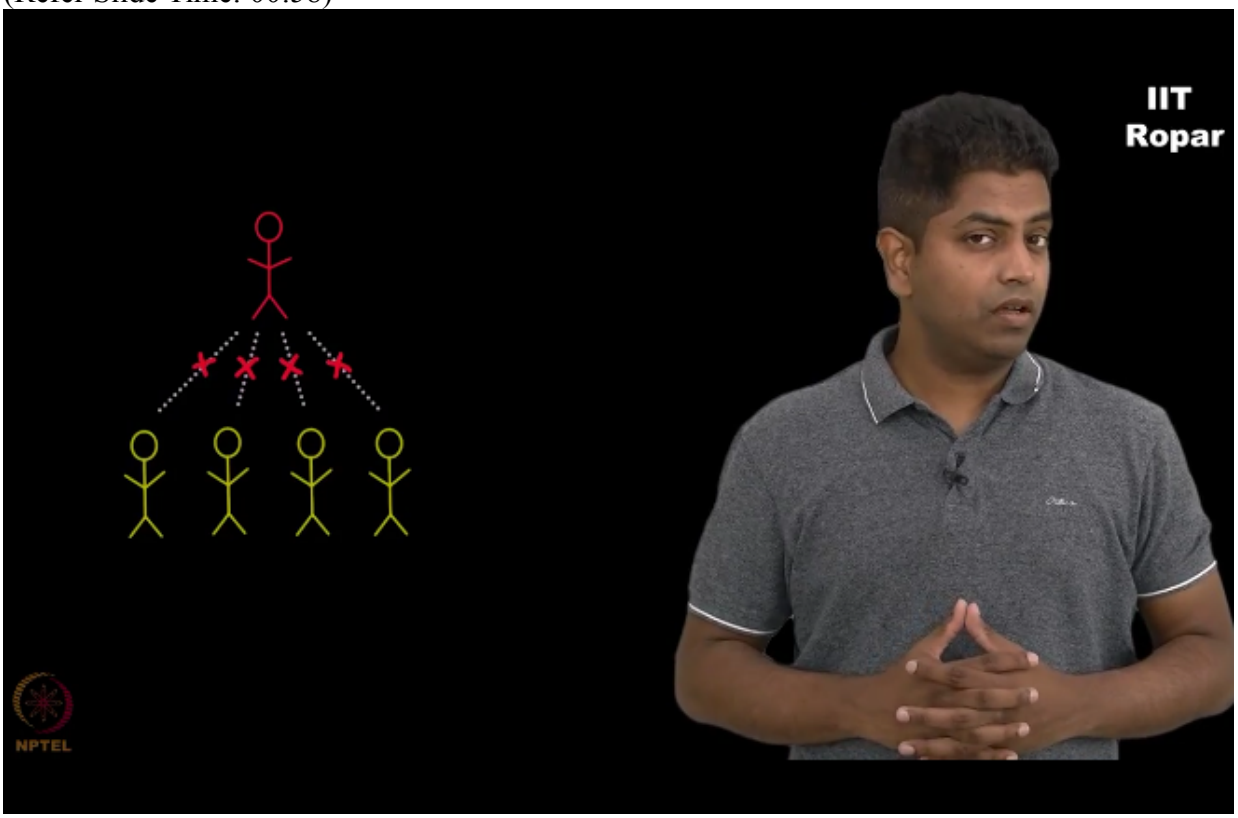
NPTEL ONLINE CERTIFICATION COURSE

Discrete Mathematics
Graph Theory – 2

Prisoners and cells

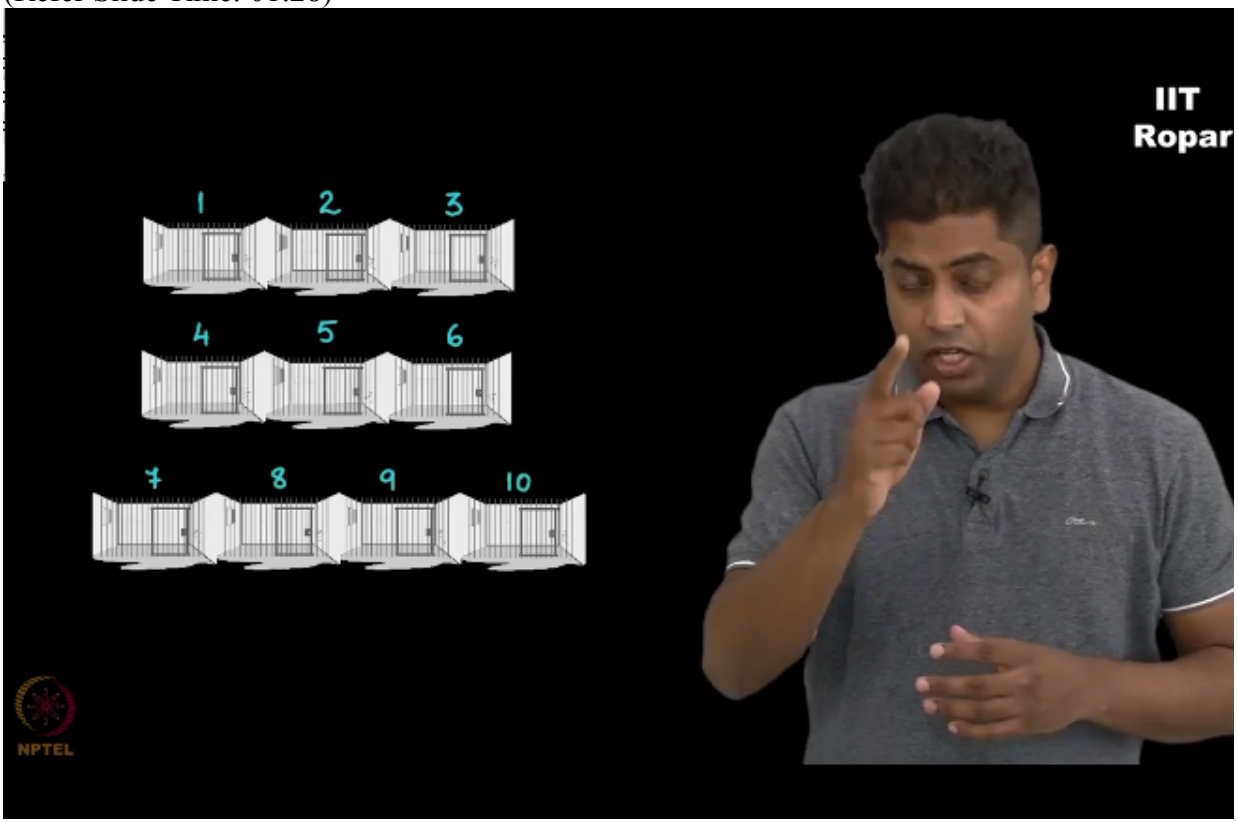
By
Prof. S.R.S Iyengar
Department of Computer Science

Let me tell you a puzzle in the form of a story, assume 30 criminals were captured recently, and they are very, very, they're notorious for their crimes and they have murdered a whole lot, and they're very dangerous people, okay, now 30 people should be kept in 30 different cells, prisons, right, they are all accused, so now they do not have so many prison cells, so some prisoners, some criminals may have to share the same cell, but then amongst these 30 prisoners there are a few people who do not like a few people, for example let's say this prisoner he doesn't like these four prisoners,
(Refer Slide Time: 00:58)



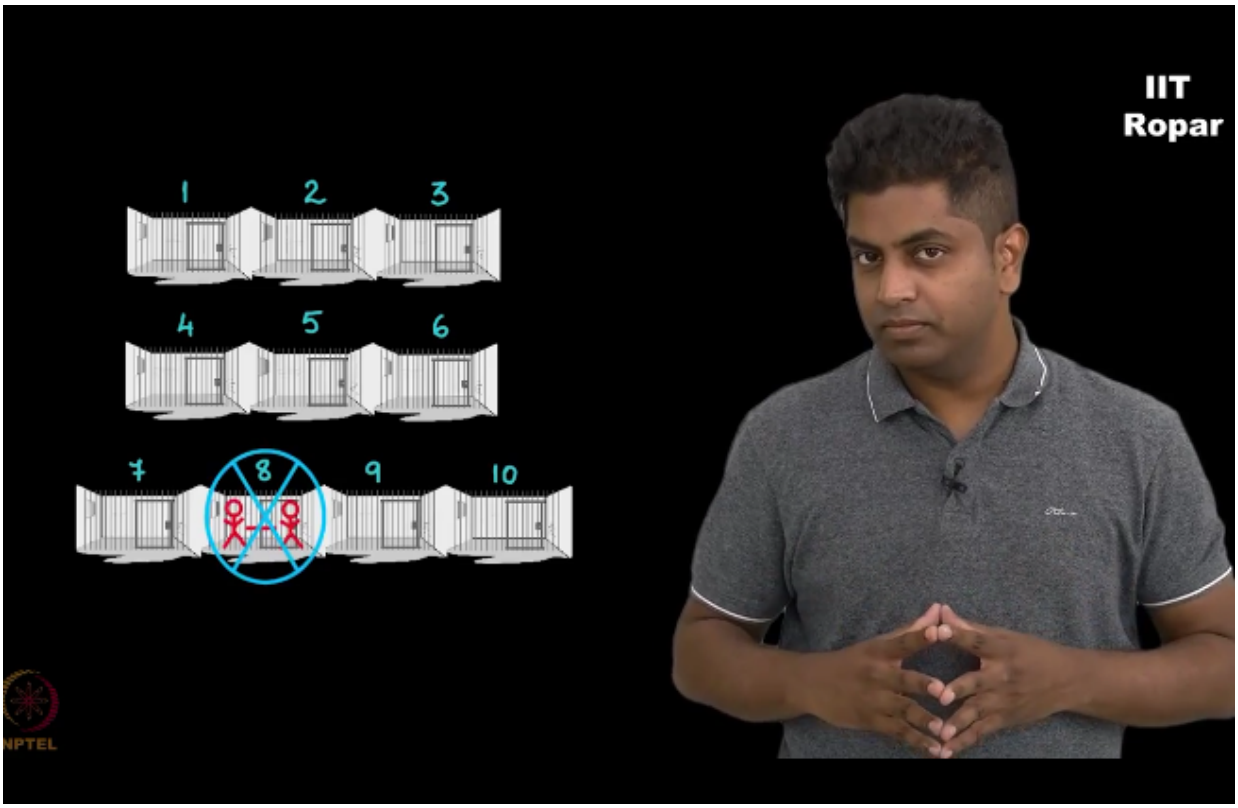
which means if you put him with these prisoners they will kill each other, assume and you have this information on who hates whom, and you know that these two people if they hate, they should not come in the same prison, do you observe that you are now given a graph, and all you're supposed to do is to assign prison cells, let's say you have 10 cells, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

(Refer Slide Time: 01:28)



you should assign this number to these people such that, no two vertices having an edge belong to the same cell, think about the problem.

(Refer Slide Time: 01:40)



IIT MADRAS PRODUCTION

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

www.nptel.iitm.ac.in