Foundation to Computer Systems Design

Indian Institute of Technology Madras

Professor V. Kamakoti

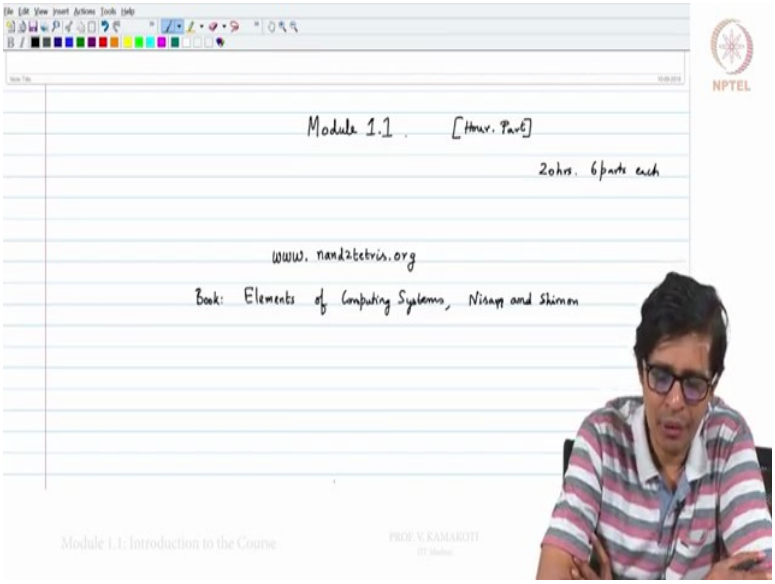
Department of Computer science and Engineering

Module 1.1 Introduction to the course.

So welcome to this course on foundation to computing systems so this course is for 20 hours duration and we will have 6 parts per hour and so totally 120 part each parts will be approximately 10 minutes so we will follow this nomenclature module hour dot path so this is module 1.1 this is module first hour first part so will go to model 1.2 to 1.6 then 2.1 to 2.6 and so on.

So totally there will be 120 parts each hour 6 parts and each parts going to 10 minutes. In the first part and I will be introducing you to this course I hope you have seen the introduction video I'm not be repeating that again so if you have not seen my introduction video in full please do see that.

(Refer Slide Time: 1:24)



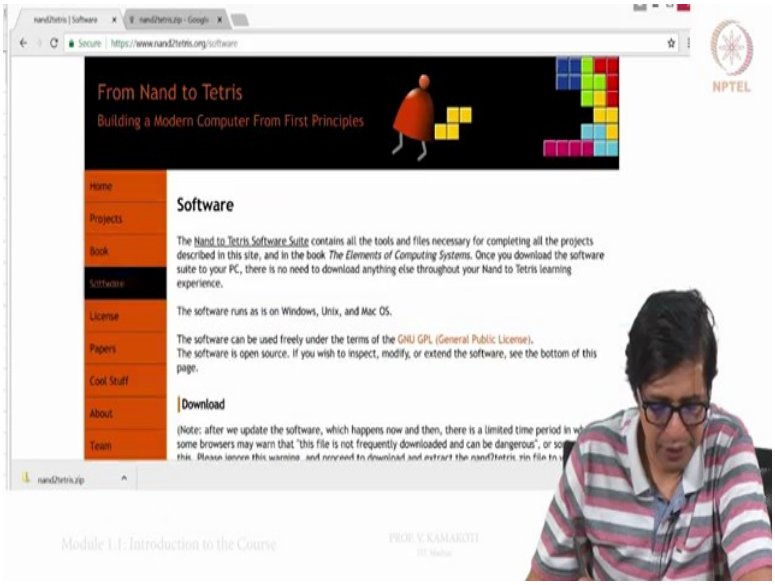
But what we will be following in this course is closely this particular book Elements of computing systems by Nizan and Shimon You can get the details of this book at this

particular website www.2tetris.org. I'd like to spend a couple of minutes to explain what 2 Tetris is.

All of you know that Tetris is a game, its an application, software. "" you might have studied in your + 2, is actually a Gate it is it is also a Universal Gate meaning that any gate in the world can be actually constructed using gate right. So is a gate. Now what will be doing in this course in 20 hours we attempt to use a gate and build a entire computer and the related software on which you can execute Tetris. You can play the Tetris game so you use a gate which is the basic gate using that gate we build we use several such gates to build a hardware we will write software layers on top of it and finally we will compile and execute a Tetris game on that stimulated hardware so that is why this course is called to Tetris.

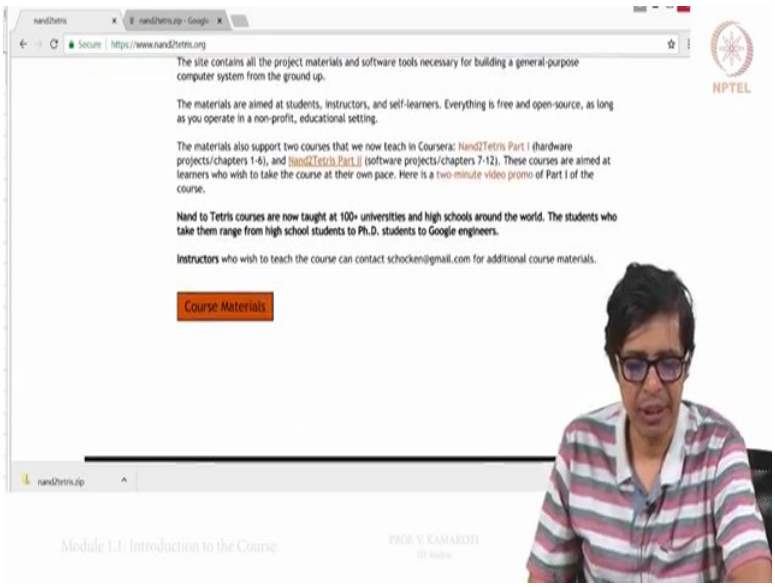
I hope this very exciting to you right so in the first module first part of the first module I will be introducing you to this website www.nand2tetris.org.

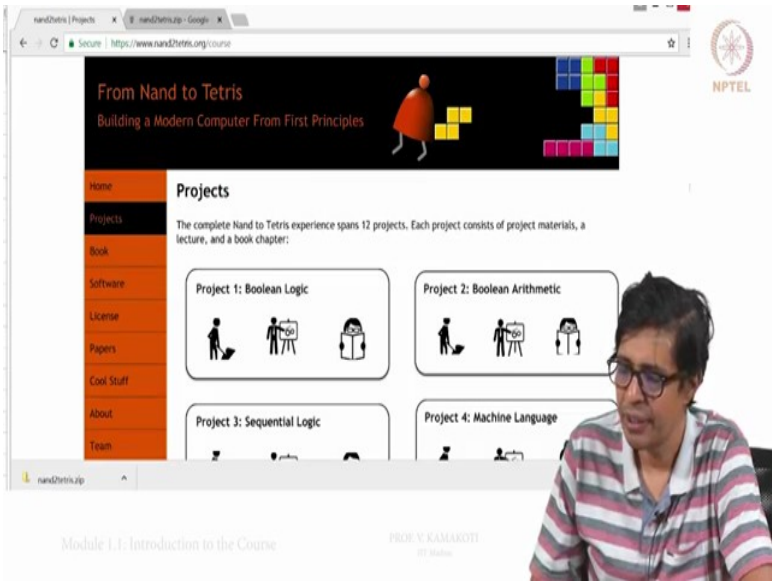
(Refer Slide Time: 3:27)



So if you go to this website this is the homepage and you can see a window here which basically explains you the entire book it also has course materials here.

(Refer Slide Time: 3:47)



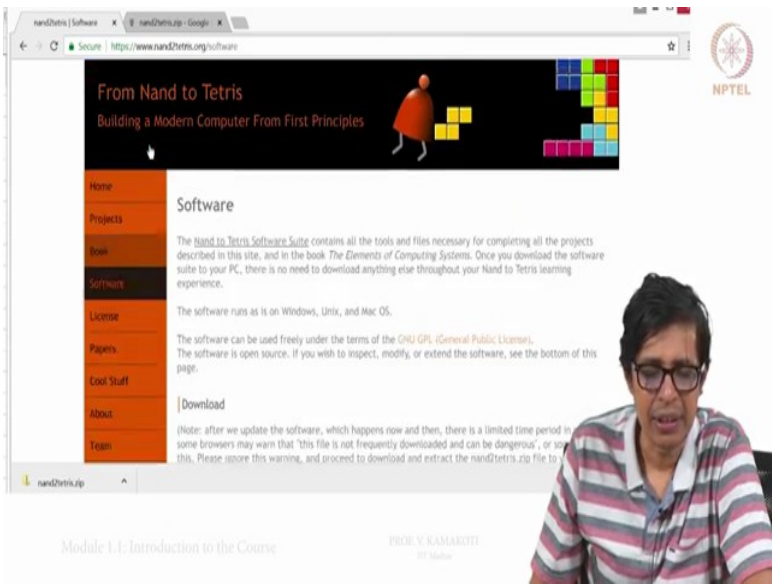


You can look at this course materials where in these are all the 12 different projects are 12 different steps involved in converting or building a complete computer from gate so that its capable of executing the Tetris game and then there are projects these are the projects

(Refer Slide Time 4:13)

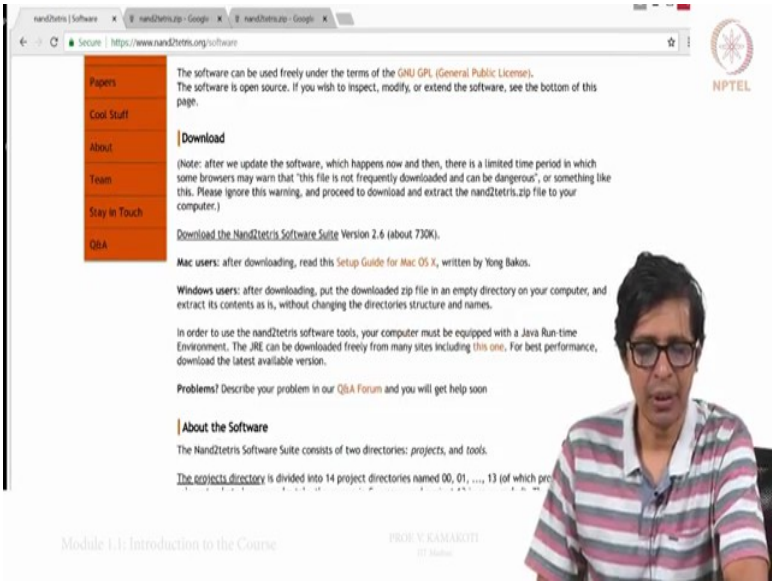
And this is about the book I there is an Amazon paperback, Amazon Kindle and MIT press books are there so you can I strongly suggest that you buy this book because its very useful and you can use this book it will be very exciting thing to read.

(Refer Slide Time: 4:16)



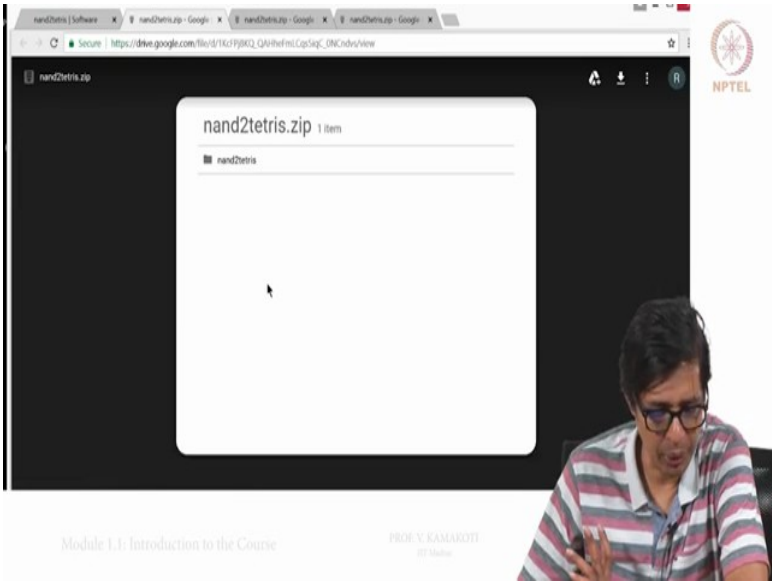
And the entire software that we will be using in this course they are very practical course so everything is in the project has nothing in basically in the lecturers that we will be doing the project and so you need to understand this course.

(Refer Slide Time: 4:48)



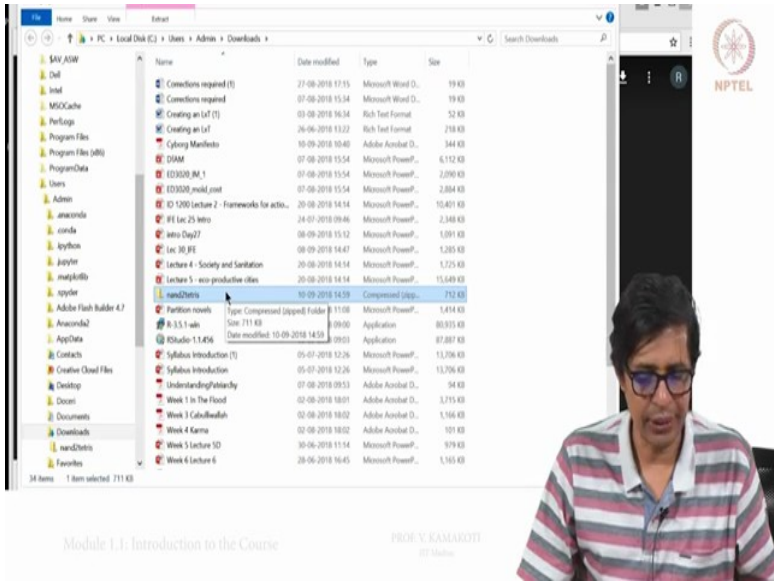
Now we go to this website 2Tetris dot ORG now we now look at the software which we will be using for all the assignments that will be doing this is a very practical course it is extremely dependant on the software and entire course will be based on the software so the software can be executed by on a windows, Unix and MAC OS machine how to execute on the windows and Unix are similar for MAC OS there is a setup guide for MAC OS X that we will be using now I will first go and click this.

(Refer Slide Time: 5:33)



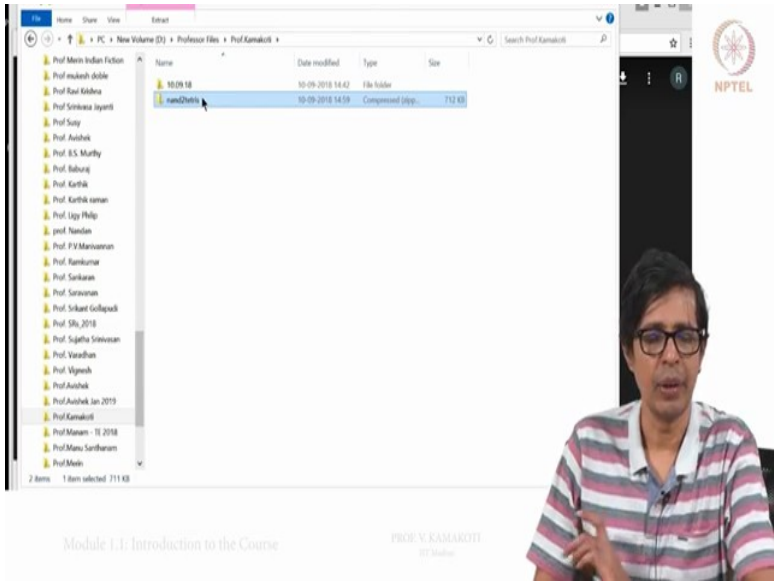
So I am just downloading it so click full download yes so this is downloaded now.

(Refer Slide Time: 5:46)



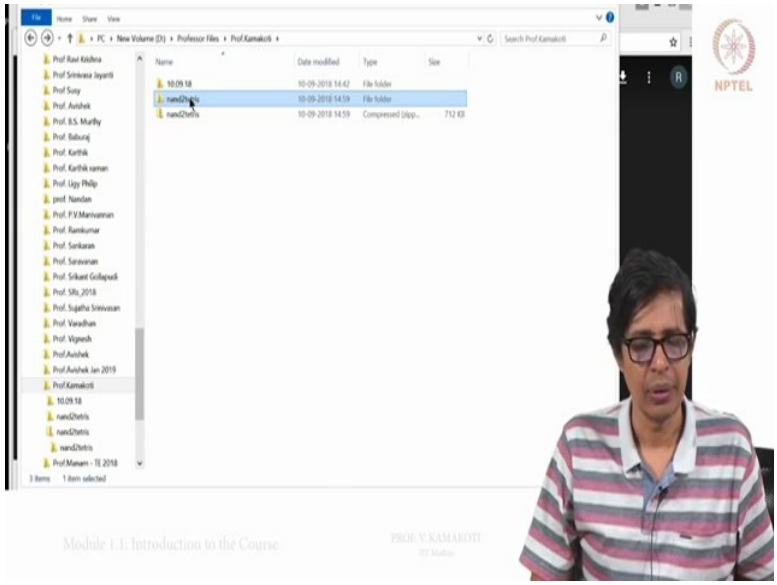
Now copy this I am just trying to copy.

(Refer Slide Time: 6:07)



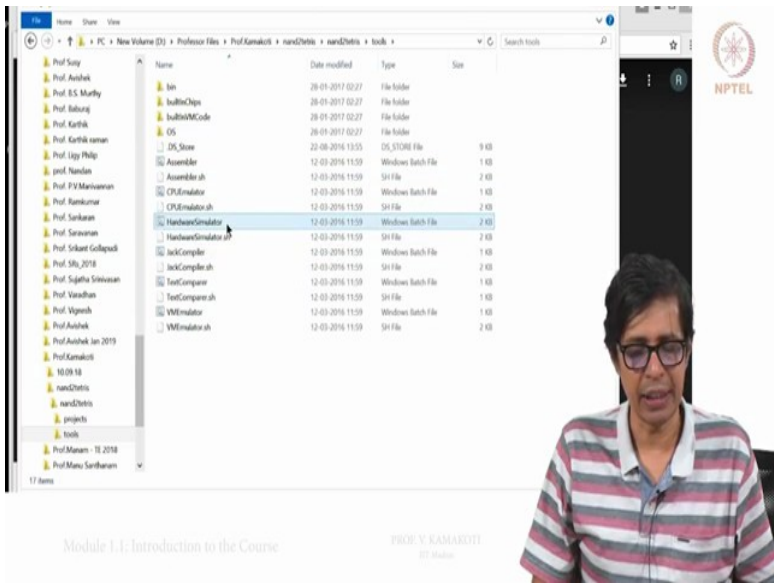
And I'm posting it here now I will extract this.

(Refer Slide Time: 6:27)



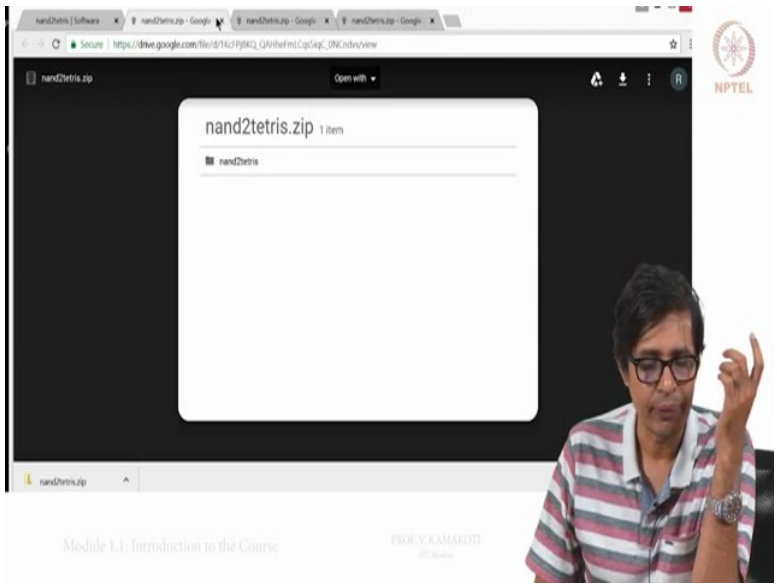
Okay now after extracting I delete the original zip file compress file now I have 2Tetris as a directory now I go into that.

(Refer Slide Time: 6:46)



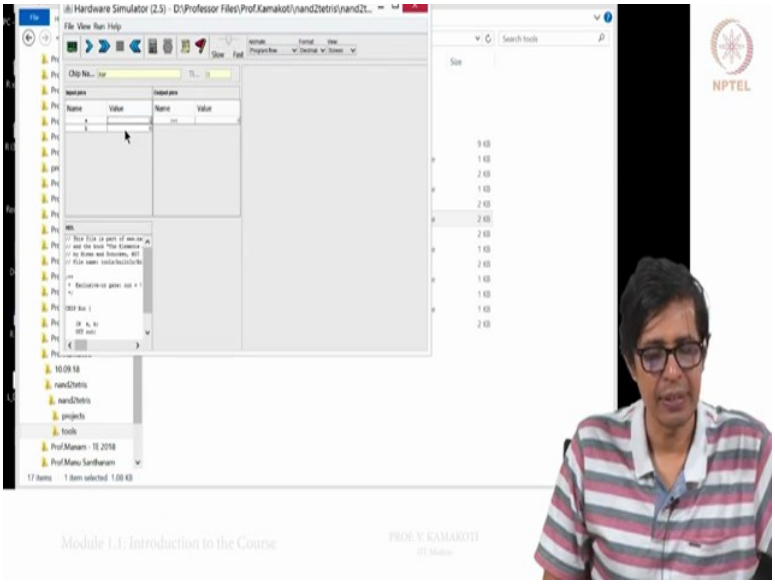
I click on tools and I get hardware simulator If you are using windows use the hardware simulator Windows batch file. If you are using Linux use hardware simulator dot SH, the shell file if you are using MAC OS please do go to this part.

(Refer Slide Time: 7:06)



And used this setup guide for Mac OS X as given in the website 2tetris dot org and find out how we can use it.

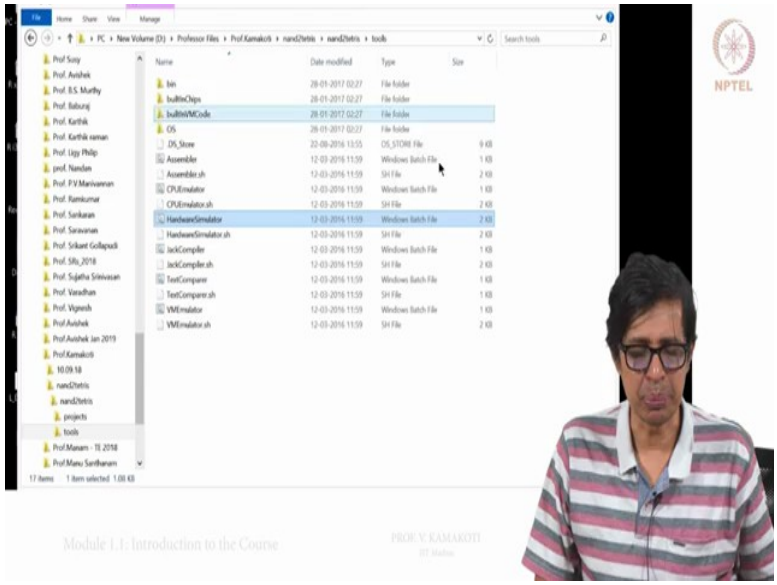
(Refer Slide Time: 7:30)



Right so now let us click double click on this and this will open so once the screen opens we sure that your hardware simulator is running right now just to test everything is Pakka we will just load one chip just say file load chip go to built-in chips click on .sdl click load chip now you just go here this is an gate we will be explaining what is an gate shortly just change this to 1.

Click on this A and change it 1 press enter now press this run. The double arrow here checks if this has become 1. Make the B as 1 press that enters key now you press this run here check if this is becoming zero. So these are a very simple test that you can do to basically check whether you are hardware simulator is working.

(Refer Slide Time: 9:11)



So this is pretty much once you have done this I think you have finished the installation of the software very straight forward for any clarification please do a post on the website there is an discussion forum and we will try and answer these questions. Thank you!