



## Department of Electronics & Communication Engineering

In Association with

Spoken Tutorial IIT Bombay

Organizes Six Days Remote Skill Development Programme on



15<sup>TH</sup> - 20<sup>TH</sup> JUNE, 2020

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### ABOUT CVMU

One of the oldest and most influential education trusts of Central Gujarat – the Charutar Vidya Mandal has got approval from Gujarat government for establishing a self-financed state private university called Charutar Vidya Mandal University (CVMU). Owing to the unique teaching approach adopted by the highly qualified faculties at CVMU, along with providing students with a conducive environment that promotes qualitative education, CVMU has accreditations from prestigious organizations.

### ABOUT THE INSTITUTE & DEPARTMENT

G H Patel College of Engineering & Technology (GCET) is one of the premier SFI located at V. V. Nagar established in 1996 and managed by Charutar Vidya Mandal. Currently the institute is running with eight disciplines at graduate level and nine at post graduate level.

Department of Electronics & Communication started in 1997. Also, Post Graduate courses were started in Communication Engineering and Embedded Systems in 2007 and 2013 respectively. The Department has been accredited by NBA for 6 years since 2015.

### ABOUT eSim

eSim is an open source EDA tool for circuit design, simulation, analysis and PCB design. It is an integrated tool built using open source software such as KiCad and Ngspice. eSim offers similar capabilities and ease of use as any equivalent proprietary software for schematic creation, simulation and PCB design, without having to pay a huge amount of money to procure licenses.

### OUTCOME OF FDP

- Overview of eSim, Schematic creation & Simulation
- Model Editor, Creation of a sub circuit in eSim
- Creation of a sub circuit in eSim
- Device Model creation and Simulation

**\* All Engineering branch students can attend.**

### IMPORTANT NOTES

- Limited seats, Registration will on first come first serve basis.
- Register yourself with new email id which must not be associated with any of the other courses of spoken tutorials before.
- Confirmation of Registration is subject to verification done by Spoken Tutorials.

**Last Date of Registration: 12<sup>th</sup> June, 2020, 11:00 AM**



<https://bit.ly/2zOGwud>



## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

### G H PATEL COLLEGE OF ENGINEERING AND TECHNOLOGY CVM UNIVERSITY

ONE WEEK SKILL DEVELOPMENT PROGRAM ON e-SIM  
(15<sup>TH</sup> JUNE 2020 – 20<sup>TH</sup> JUNE 2020)

### SCHEDULE

S.No.	Date	Topic
1	15/06/2020	a) Getting started with e-Sim Linux Installation
2	16/06/2020	b) Getting started with e-SIM Windows Installation c) Schematic Creation and Simulation
3	17/06/2020	d) Simulating an Astable Multivibrator e) Mapping Components with Footprints
4	18/06/2020	f) Setting Parameters for PCB Designing g) Laying Tracks on PCB
5	19/06/2020	h) PCB Layout for Astable Multivibrator Device i) Model Creation and Simulation
6	20/06/2020	<b>QUIZ</b>

### ORGANISING COMMITTEE

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ONE WEEK SKILL DEVELOPMENT PROGRAM ON e-SIM  
(15<sup>TH</sup> JUNE 2020 - 20<sup>TH</sup> JUNE 2020)

## INSTALLATION SHEET

### 1 The procedure to install eSim in Ubuntu Linux 16.04 or 14.04

#### 1.1 Getting ready for eSim installation

1. To follow the installation procedure, you need to be connected to the Internet.
2. Following system requirements should be met:
  - i. At least 5GB disk space should be available.
  - ii. Minimum of 2GB RAM.
  - iii. 2 GHz dual-core processor or above.
3. Locate the the tutorial Getting Started with eSim Linux Installation.
4. To follow our tutorial, eSim can be downloaded from the link: <https://esim.fossee.in/downloads> as shown at 1:25.

#### 1.2 Installing eSim on your machine

1. At 1:32 the tutorial shows to download the eSim Linux installer.
2. At 1:55 the tutorial shows to extract the downloaded zip file.
3. At 2:36 the tutorial shows which script to run in order to start installation process.
4. At 2:50 the tutorial shows what response to enter for a message depending upon your network connectivity.
5. At 3:18 the tutorial shows what response to enter for ngnd1 installation.
6. At 3:56 the tutorial shows how to do a test run.

### 2 The procedure to install eSim in Windows 7/8/10 (32-bit/64-bit)

#### 2.1 Getting ready for eSim installation

1. To follow the installation procedure, you need to be connected to the Internet.
2. Following system requirements should be met:
  - i. At least 5GB free space should be available in your C:/ Drive.
  - ii. Minimum of 2GB RAM.
  - iii. 2 GHz dual-core processor or above.
3. Locate the the tutorial Getting Started with eSim Windows Installation.

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4. To follow our tutorial, eSim can be downloaded from the link: <https://esim.fossee.in/downloads> as shown at 1:19.
5. Disable any anti-virus running on your system (e.g., Norton, Kaspersky, AVG, Avast etc.).

## 2.2 Installing eSim on your machine

1. At 1:32 the tutorial shows to download the eSim Windows installer.
2. At 1:51 the tutorial shows to extract the downloaded zip file.
3. At time 1:57 the tutorial shows to create a folder FOSSEE in C drive.
4. At 2:06 the tutorial shows to right click on Setup file to start installation process.
5. At 2:08 the tutorial shows to run the Setup file as Administrator.

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6. At 2:12 click on `browse` and select location as `FOSSEE`.
7. Recreate rest of the steps as demonstrated in the tutorial.
8. At 2:45 the tutorial shows acknowledgement message for completed installation.
9. At 2:55 the tutorial shows how to do a test run.

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### INSTRUCTION SHEET

#### 1 Online / Offline content

1. The online content of Spoken Tutorials can be accessed from: <https://spoken-tutorial.org/tutorial-search/>
2. You can also download the Spoken Tutorials for offline learning from :<https://spoken-tutorial.org/cdcontent/>
3. From this link download the FOSS categories in the language you wish to learn.
4. The Spoken Tutorial content will be down-loaded as a zip file on your machine.
5. Extract the contents of the zip file & access them.

#### 2 The procedure to practise

1. You have been given a set of spoken tutorials and files.
2. You will typically do one tutorial at a time.
3. You may listen to a spoken tutorial and re-produce all the steps shown in the video Side-by-Side learning.
4. If you find it difficult to do the above, you may consider listening to the whole tutorial once and then practise during the second hearing.

#### 3 eSim

1. Click on "Select FOSS Category" drop-down and choose "eSim".
2. Click on "Select Language" drop-down and choose the language (English).
3. Click on "Search" button.
4. You will see a list of tutorials based on your selection.
5. Start with the first/second tutorial based on the OS you are using from the displayed list.

#### 4 General Instructions for eSim:

1. Always select components from the libraries starting with eSim for precise simulation re- sults.
2. Whenever the Missing libraries pop-up window appears, click on Close.
3. Whenever the Project Rescue Helper dialog box appears, click on OK

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4. At the end of each tutorial, close the schematic by pressing Ctrl and Q keys together on the eSim schematic editor window.

5. At the end of each tutorial, remove the project selected from the Projects window, by clicking right on the Project and select the Remove Project option.

6. To see all the files listed under a particular project, right click on that project's name from the Projects window and select refresh option.

**5 First Tutorial: Linux installation**

1. If you are using Linux, locate the topic "Getting started with eSim Linux installation", and click on it.

2. If eSim is already installed, start from 3:55 minutes onwards to learn to use eSim.

3. Examples folder of eSim is present under Downloads/eSim-1.1.2/

**6 Second Tutorial: Windows Installation**

1. If you use Windows, locate the topic "Getting started with eSim Windows installation", and click on it.

2. Learn how to launch eSim and try to run a sample example shown in the tutorial Getting started with eSim Windows Installation from 2:55 minutes onward.

3. Examples folder of eSim is present under C:/FOSSEE/eSim/

4. The Open button will appear in Windows OS as Select Folder button.

**7 Common instructions**

1. To view the tutorial, click on the Play icon which is located in the player.

2. The Pre-requisite will be visible below the player (only for Online contents).

3. Outline, Assignments and Code Files are available below the player.

4. Adjust the size of the browser in such a way that you are able to practise in parallel

5. Instructions to use Code files in any tutorial:

(a) Click on the link "Code files" located below the player and save it in your folder.

(b) Extract the downloaded zip file.

(c) You will see all the code/source files used in the particular tutorial.

(d) Use these files as per the instructions given in the particular tutorial.

6. Play-pause-practise the whole tutorial.

7. Attempt the Assignments as instructed.

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8. Once the tutorial is complete, choose the next tutorial from the playlist which is located on the right side or below the player.

9. Follow all the above instructions, till you complete all the tutorials in the series.

**8 Third tutorial: Schematic Creation and Simulation**

1. Select components only from the libraries starting with eSim.
2. When assigning a new value to any component or changing the existing value, follow the exact method demonstrated at time 7:11. Do NOT change the field reference.
3. If you have changed values of components in the schematic, follow the procedure mentioned from time 9:17 to 11:32 to reflect those changes in the simulation compatible netlist.
4. Analysis parameters and source details should be the same as explained in time 9:52 to 11:20.
5. If you are using Windows OS, at time 14:32 in the tutorial, please go to C:/FOSSEE/eSim/src/deviceModelLibrary/Diode/ and select D.lib from there.

**9 Fourth Tutorial: Simulating an Astable Multivibrator**

1. When assigning a new value to any component or changing the existing value, follow the exact method demonstrated at time 6:52. Do NOT change the field reference.
2. If you have changed values of components in the schematic, follow the procedure mentioned from time 8:16 to 10:00 to reflect those changes in the simulation compatible netlist.
3. Make sure the analysis parameters, source details and device modelling tab values are same as mentioned from time 8:37 to 9:47.

If you are using Windows OS:

1. At time 9:14 in the tutorial, please go to C:/FOSSEE/eSim/src/deviceModelLibrary/Diode/ and select LED.lib from there.
2. At time 9:36 in the tutorial, please go to C:/FOSSEE/eSim/src/deviceModelLibrary/Transistor/ and select BC547B.lib from there.

**10 Fifth Tutorial: Mapping components with Footprints**

1. Examples folder of eSim is present under C:/FOSSEE/eSim/

**11 Sixth Tutorial: Setting Parameters for Designing PCB**

1. Download code files provided for this tutorial and extract the downloaded folder.

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2. Place the extracted folder 7805VoltageRegulator on your Desktop.

**12 Seventh Tutorial: Laying Tracks on PCB**

1. Try this tutorial only after you have per-formed Setting Parameters for Designing PCB tutorial.
2. Use the same project that was used for the Setting Parameters for Designing PCB tutorial, i.e. 7805VoltageRegulator, which is saved on Desktop.

**13 Eighth Tutorial: PCB Layout for Astable Multivibrator**

1. Download code files provided for this tutorial and extract the downloaded folder.
2. Please select total of 6 layers for which the Gerber files are to be generated, as men-tioned at time 8:21 onward. These layers are: B.Cu, F.Silks, Edge.Cuts, F.Mask, B.Mask and F.Cu.

**14 Ninth Tutorial: Device Model Cre-ation and Simulation**

1. If you are using Windows OS, download and install the application Notepad++ to view and edit files with .lib extension.
2. If you are using Windows OS, at time 2:44 in the tutorial, please go to C:/FOSSEE/eSim/src/deviceModelLibrary/ Diode/ and select diode test.lib from there.

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