- Make users aware of the importance of circuit simulations.
- To recognise students and faculty who are good in this area.

Participate & earn attractive honorarium + certificate of internship from IIT Bombay.

Lab Migration

We help Colleges & Institutes shift their EDA labs based on proprietary tools to eSim.

The Lab Migration team helps in the following ways:

- Provide suggestions on the different ways eSim can be implemented in the lab.
- Coordinate lab migration.
- Provide solutions to the lab's problem statements.
- Provide support to the faculty and lab in charge.

Participate and earn attractive honorarium for your efforts.

Spoken Tutorials

The eSim team has created Spoken Tutorials on eSim. For self-learning, we recommend you to use the Spoken Tutorials available on our web site.

Forum

Forum is a place where one can post all their doubts and questions which users / developers get while using eSim. Please reach out to us with your queries on installation and use of eSim through our Forum page.

About FOSSEE

FOSSEE (Free and Open Source Software for Education) project is funded by the National Mission on Education through ICT, MHRD. The FOSSEE team works on 'Adaptation & development of Open Source simulation packages equivalent to proprietary software', and is based at Indian Institute of Technology Bombay.

Other Projects under FOSSEE

Scilab, Python, DWSIM, Osdag, R, OpenFOAM, Xcos, QGIS, OpenModelica, Focal and Open hardware, etc.

Activities of FOSSEE

- Textbook Companion
- Lab Migration
- Niche Software Activities
- Forum
- Workshops and Conferences

Weblinks

eSim:

https://esim.fossee.in

Circuit Simulation Project:

https://esim.fossee.in/circuit-simulation-project

Lab Migration:

https://esim.fossee.in/lab-migration-project

Forum:

https://esim.fossee.in/forum

Spoken Tutorials:

https://esim.fossee.in/downloads/tutorials

Github repository:

https://github.com/FOSSEE/eSim

https://github.com/FOSSEE/nghdl

Contact us:

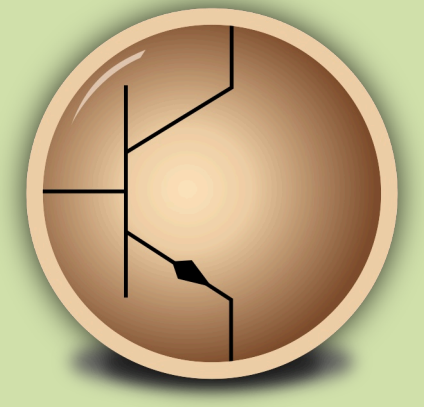
General help &, Queries:

Email: *contact-esim@fossee.in*

Sponsored by:

National Mission on Education through ICT, MHRD

http://sakshat.ac.in



eSim

A Free and Open Source EDA Tool

https://esim.fossee.in

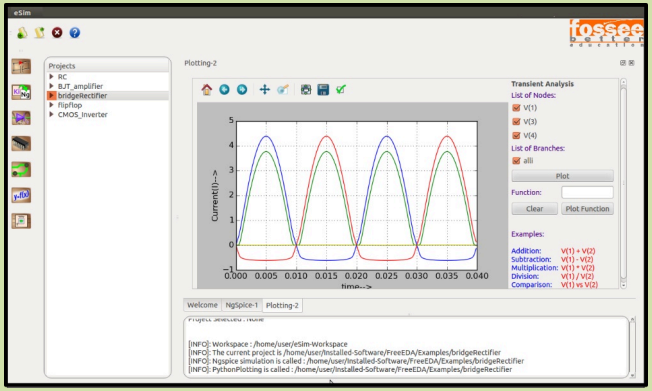
fossee better education

https://fossee.in

Introduction to eSim

eSim (previously known as Oscad / FreeEDA) is a free/ libre and open source EDA tool developed by the FOSSEE team at IIT Bombay. It can be used for circuit design, simulation, and PCB design. It also supports mixed-mode simulation.

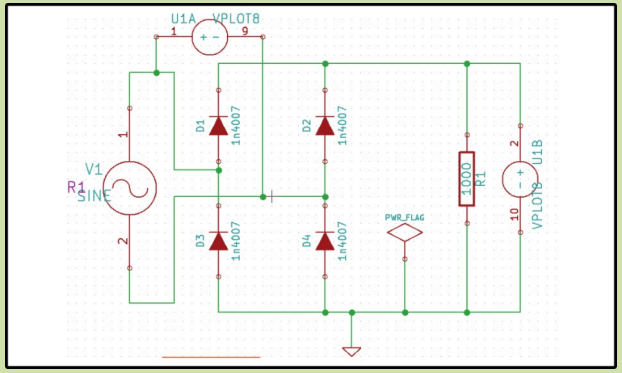
It is an integrated tool built using free/libre and open source software such as KiCad *(http://www.kicad-pcb.org)*, Ngspice *(http://ngspice.sourceforge.net/)* and GHDL *(http://ghdl.free.fr/)*. eSim is released under GNU GPL License and runs on Ubuntu Linux OS, Windows 7 and above versions of Windows OS.



Features

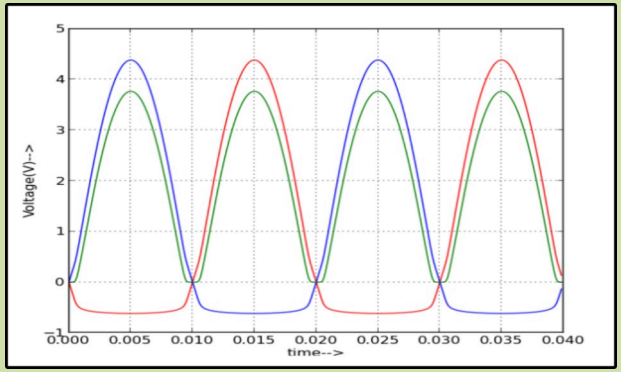
Create Circuit Schematic

- Generate netlists for simulation and PCB design.
- Perform Electric Rules Check (ERC).
- Create new components using Library Editor.



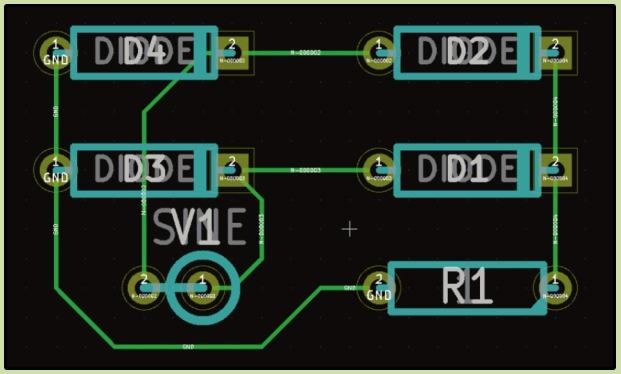
Perform Circuit Simulation

- Analog, digital and mixed signal circuit simulations.
- Perform AC, DC, DC operating point and Transient analyses.
- Interactive Python plotting.



Create PCB Layout

- Design multilayer PCB layouts.
- Create custom footprints or Modify the existing footprints per requirement.
- Export the design in formats such as Gerber, PDF, SVG and several other formats.



Advanced Features

Model Builder

- Create/upload spice model for semiconductor devices.
- Modify or edit existing spice models for semiconductor devices.

Subcircuit Builder

- Create a new subcircuit at schematic level.
- Edit existing subcircuits down to schematic level.

NGHDL

- Using NGHDL, user can create custom digital models using VHDL language. From simple multiplexers, counters to microcontrollers and ASICs, any custom component in the digital domain can be realized using the NGHDL tool.
- The created digital model can be used in either mixed-mode circuit or a standalone circuit operating in digital domain.
- NGHDL gives user the liberty to edit existing models supplied with eSim as per their needs, either for experimenting new ideas or to change the model as per their specific requirement.
- We are currently working towards including the support for simulations involving micro-controllers.

Circuit Simulation Project

FOSSEE, IIT Bombay, encourages students, faculty, and practitioners of electrical and electronics and allied fields to participate in the Circuit Simulation project using eSim. The Circuit Simulation project aims to port existing circuit designs and simulations using eSim.

The objectives of this project are to:

- Make available a large number of Circuit Simulation examples through crowdsourcing.
- Create a database of device models and subcircuits that can be distributed to other users.
- Form a community of users who can contribute and take advantage of the resources available.