Self-Sponsored
Four Week Summer Internship
on
Open Source Software-SCILAB, e-SIM

June, 10- July, 10 2019

Registration Form

1. **Name(Mr./Ms.) _____**
2. **Organization: _____**
3. **Address:_____ __ ___**
4. **Tel. No. (Mob): _____ _____**
5. **E-mail ID: _____**
6. *Registration Fees Detail Draft No.___ ___ Date_____for Rs.___ _____in favour of Rajkiya Engineering College, Ambedkar Nagar payable at Akbarpur, Ambedkar Naga*

Signature of the Candidate

Signature of the Head of the Department/Institution

For Further Details, Contact: +91-8808517767, +91-8874743733

Course Registration Fee - 1500/-*

Fee shall be paid by Demand Draft in favour of "**Rajkiya Engineering College, Ambedkar Nagar**" payable at Akbarpur, Ambedkar Nagar or **NEFT/UPI/Paytm/IMPS transfer in account number-6257000100005758 (IFSC Code-PUNB0625700)**. Registration charges are non-refundable for selected candidates.

Accommodation

Accommodation is available in REC, Ambedkar Nagar Hostels for participants on nominal charge and first cum first serve basis. The participants will not be paid any TA/DA. Charges of institute hostels are approximately Rs.150/- per day including food and accommodation.

Applicants have to register by filling the form by using link https://tinyurl.com/y38wvzg5

Hard copy of duly filled Registration form in the prescribed format approved/sponsored by competent authority along with the DD should reach to the Coordinators Mr. Vikas Patel/ Mr. Lokesh Kr. Yadav on or before 07, June 2019

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Ms. Shikha Choudhary (Asst. Professor, EED)

****Note-This Internship is specially designed for first year B.Tech. Students. Only B.Tech. First Year Students are eligible.***

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Organized by

"Parikalpana" Start-Up Cell
Rajkiya Engineering College Ambedkar Nagar

Under the Aegis of

Dr. A. P. J. Abdul Kalam Technical University, Lucknow

About The Internship

The summer internship on "Open Source Software-SCILAB, e-SIM" is especially designed for the first year students. This programme will help to train the participants in basics of Open Source Software-SCILAB, e-SIM basic toolboxes. This internship promotes the use of free open source software (FOSS) tools to improve the quality of education and research. Free and open source software are alternative for engineering start-ups.

Networked or stand-alone computational environments that are available as free or open-source software are very useful for engineering courses. The cost of implementation of these environments is essentially that of the underlying personal computer (PC) hardware. The necessary software, of very high quality, is available free of charge through the Internet. Our purpose is to show that free or open source software can be used as a good alternative for engineering students. The main focus is on Scilab, a numerical software package. Often installed on machines running the Linux operating system, it is a powerful tool that is useful in teaching numerical methods or computationally intensive disciplines. Also, presented are other free software packages, GSL (GNU Scientific Library) and LaTeX, that can be useful to the student.

Course content:

- SCILAB Introduction and Vector Operations, Variables and Matrix Operations
- Conditional Branching, Iterations and Loops Scripts Functions
- Toolboxes and SCILAB Applications using Garuda Cloud
- 2D, 3D Graphs and Advanced Plotting Commands
- Image Processing Toolbox and Implementation
- Curve Fitting, Polynomials and Differential Equations
- Simulation using XCOS
- E-sim

Preamble Scilab is free and open source software for numerical computation providing a powerful computing environment for engineering and scientific aplications.

What does Scilab do ?

Scilab includes hundreds of mathematical functions. It has a high-level programming language allowing access to advanced data structures, 2-D and 3-D graphical functions.

A large number of functionalities is included in Scilab:

- **Maths & Simulation**
  For usual engineering and science applications including mathematical operations and data analysis.
- **2-D & 3-D Visualization**
  Graphics functions to visualize, annotate and export data and many ways to create and customize various types of plots and charts.
- **Optimization**
  Algorithms to solve constrained and unconstrained continuous and discrete optimization problems.
- **Statistics**
  Tools to perform data analysis and modeling
- **Control System Design & Analysis**
  Standard algorithms and tools for control system study
- **Signal Processing**
  Visualize, analyze and filter signals in time and frequency domains.
- **Application Development**
  Increase Scilab native functionalities and manage data exchanges with external tools.
- **Xcos - Hybrid dynamic systems modeler and simulator**
  Modeling mechanical systems, hydraulic circuits, control systems...

SCILAB as a platform

Thanks to its ability to interconnect with third-party technologies and applications, Scilab can also act as a unique platform to bring together codes written in different programming languages in a single, unified language, thus facilitating their distribution, their back-up and use.

eSIM

eSim (previously known as Oscad / FreeEDA) is a free/libre and open source EDA tool for circuit design, simulation, analysis and PCB design. It is an integrated tool built using free/libre and open source software such as KiCad (http://www.kicad-pcb.org) and Ngspice (http://ngspice.sourceforge.net/). eSim is released under GPL.

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. Hence it can be an affordable alternative to educational institutions and SMEs. It can serve as an alternative to commercially available/ licensed software tools like OrCAD, Xpedition and HSPICE.

Features of eSim

- Draw circuits using KiCad, create a netlist and simulate using Ngspice.
- Do PCB design and generate Gerber files using KiCad.
- Add/Edit device models and subcircuits using the Model Builder and Subcircuit Builder tools.
- Runs on Ubuntu Linux and Windows.

About the Institute Rajkiya Engineering College (REC) Ambedkar Nagar was established by Government of Uttar Pradesh. The college has started offering B.Tech. Programme in three disciplines – Information Technology (IT), Electrical Engineering (EE) and Civil Engineering (CE) with intake of 60 seats in each branch from the session 2010-11.

The students are extensively exposed to cross-cultural environment as candidates from various other State such as Jammu & Kashmir, Madhya Pradesh, Rajasthan etc. join REC for various undergraduate programs. REC Ambedkar Nagar is fully residential institution with four hostels for boys and one for girls.

"The most unfortunate thing is that India still seems to believe in proprietary solutions. Further spread of IT which is influencing the daily life of individuals would have a devastating effect on the lives of society due to any small shift in the business practice involving these proprietary solutions. It is precisely for these reasons open source software need to be built which would be cost effective for the entire society.
In India, open source code software will have to come and stay in a big way for the benefit of our billion people."

- Dr. A. P. J. Abdul Kalam