Scilab

Course Title	Scilab
Course Category	Pedagogy / Specialized Skills
Relevant Discipline(s)	Electronics Engineering/ Electrical Engineering/ Instrumentation / Industrial Engineering
Duration of course in equivalent integer no. of days (min 3 days, 1 day = 5 to 6 hrs of lectures/hands on sessions)	3 days 5 to 6 hrs of lectures/hands on session on each day
Proposed dates	4, 5 and 6 March 2021

Brief Course Description and Course Contents

Scilab is an open source numerical computation software. Scilab along with Xcos is an open source alternative to Matlab and Simulink. It can be used by students, teachers and industry professionals who are interested in solving numerical problems. Students from various domains studying mathematics, sciences, and all branches of engineering will find Scilab and Xcos to be very useful. The aim of this workshop is to work out a methodology to use this tool effectively at the undergraduate level. This will be extremely useful to researchers as well. As it can be used free of cost in the industry also, a knowledge of this tool will help increase the employment potential. The workshop also aims to familiarize the participants with Scilab and Xcos.

At the end of this workshop, participants will be able to:

- perform basic Matrix and Vector manipulation
- write scilab code utilising basic loops such as *if* and *for*
- write scilab functions
- do basic 2d plotting
- build and simulate basic Xcos models
- build GUI for Scilab functions
- solve differential equations
- etc.

In addition, the participants will be exposed to advanced topics, such as FOSSEE Optimization Toolbox, building a GUI in scilab and some advanced usages of Xcos.

The workshop will be conducted using a mix of pre-recorded spoken tutorial videos with side by side learning and live lectures. A number of practice problems will also be provided after every topic followed by discussions on them to get a good understanding of each topic.

All participants will get the Scilab software, Spoken Tutorials on Scilab, copies of our slides, video recording of all lectures and several Scilab code files. The participants will also get Scilab code to 75,000 solved examples from more than 600 textbooks in science and engineering. Using these all who are interested in conducting Scilab workshops by themselves can do so. They will also get exposed to the collaborative content creation activity of the FOSSEE Project.

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FOSSEE team members will help conduct the hands-on sessions.