POUYALAB This file can be accessed through: http://www.tomcad.com/labs/POUYAlabs.pdf

1. POWER SYSTEMS LAB.

Power system analysis Lab. is great aid for B.sc. and M.Sc. students to explore the power system basics. The Lab. is designed for the students who are passed power systems or they are having this course.

The followings courses names might be the equivalent of this course:

POWER SYSTEM ANALYSIS
POWER SYSTEM ANALYSIS I
POWER SYSTEM ANALYSIS II
POWER SYSTEM OPERATION
POWER SYSTEM LOAD FLOW
POWER SYSTEM FAULT ANALYSIS
POWER SYSTEM TRANSIENT STABILITY

You may also use other labs, please refer to section 2.
You may also examine engineer's knowledge on power system analysis by using our labs, please refer to section 2.

1.1 Lab. Facility

Picture shows a Lab. with the computer facility needed for all the students to do the Lab. The student might also take their unfinished tutorial to home in their own computer. If the computer facility is not enough for the number of students who took the Lab. we suggest the educational university to increase their space and computer facilities. We recommend each student do the Lab. by himself, and not more than two students in one computer shall do the Lab. in one Lab's computer.

1.2 Software installation

Please refer to the following site for how to install POUYA software. There is also trouble shooting guide there, if you have any trouble to install the software on your own computer, please visit the related web page.

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For installation guide visit:
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http://www.tomcad.com/n/a.php

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For trouble shooting visit:
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http://www.tomcad.com/n/troubleshootings.php

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It is the responsibility of the student to install the software on his/her computer. If for any reason, you cannot install the software on your own computer, please use the department facility, where the software is already installed there.

1.3 POUYA version

You should always use the latest version of POUYA software. Please see the version at the bottom of POUYA main menu where it is in red it shows you that this is not the latest version of the software and you need either to upgrade the software or re-download and install the software. (In the latter case please use your registered email, that will generate your old Ref. Code). The examples are shown below:
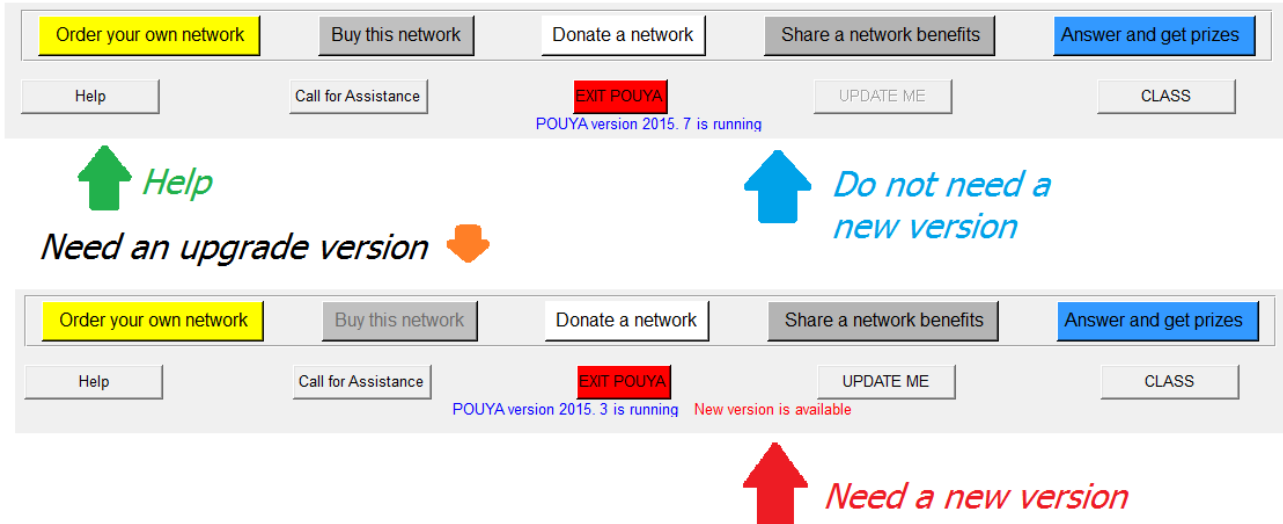
Please make sure that you are always using the latest version of POUYA, because there might be some changes in the program that affect your answer sheet grade.

1.4 MESSAGE BOX

POUYA message box is the most important that you should always have a look at this box. All the messages from POUYA will be written in POUYA message box. Some of them will help you to find out your next action (for example open the list) and some will show you how the simulation is going on (for example Governor set point has increased to 24MW) and so.

As stated, you always need to have a look at this box:

1.5 TUTORIAL FILES

The tutorial files are located under the LAB from the main menu of POUYA software. For example POWER SYSTEMS LAB. for power systems course. However, the teacher might ask you to go to some other directory or to bring the Chemical Plant under the root directory.

Each LAB.assignment has an associated LAB NOxx as shown in the following picture (section four with blue arrow). However, if anassignment comes from an ordinary directory of POUYA, LAB NOxx might not be existed. In these

cases there might not be an associated number to the LAB and the file number will be used as LAB number as shown in section four with pick arrow.

Once you entered POUYA software you must select the required file related to your assignment. Bringing a network from file menu is described in the Help of POUYA. Please select help to find out how you can access a particular file name. However, a brief process is shown in the following picture:
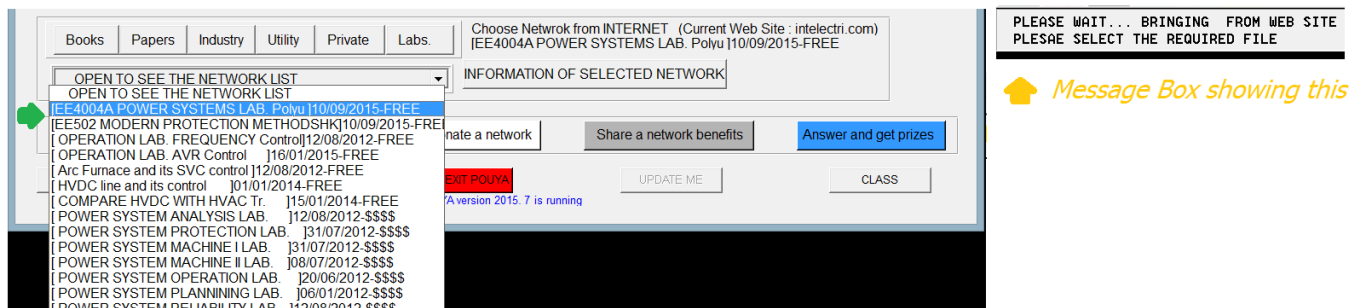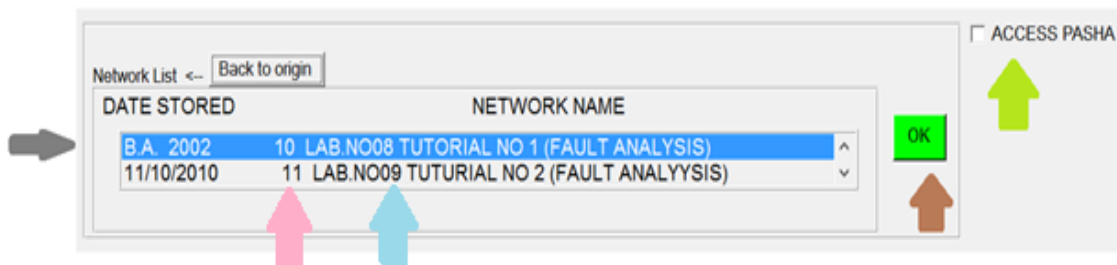
1- Click on Labs.
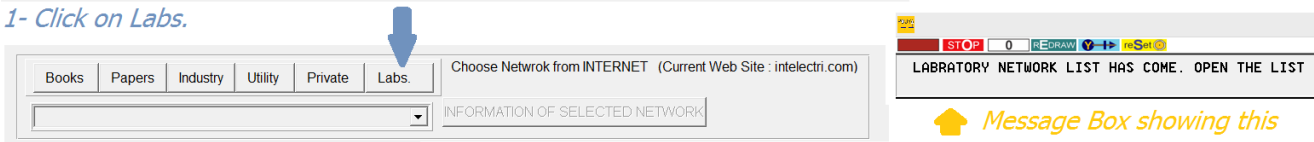
2- Click on the List
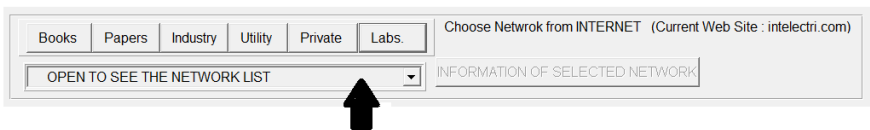
3- Select the associated course Lab.

4- Tab the list and Select the required file

5- Press OK if you need to simulate it with POUYA.

   TAP ACCESS PASHA before OK if you need to simulate it with PASHA

6- While in the simulation either in PASHA or in POUYA select LAB to bring the answer sheet

Note that: a set of tutorial is associated with each file. The student must select the tutorial number that is related to his assignment. For, example LAB NO08 as has been brought in the above figure.

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Before bringing the answer sheet POUYA asks you for student ID and your email. The email <u>is not</u> necessary to be the same as the email that you have installed POUYA. Simply enter your student email address.

1.6ANSWER SHEETS

When you enter a LAB by selecting the LAB button the computer will ask you to enter your STUDENT No and Your Email, as stated before, the email is not necessary to be the same email as you have installed POUYA. Simply enter an email, we recommend to enter the university email address.
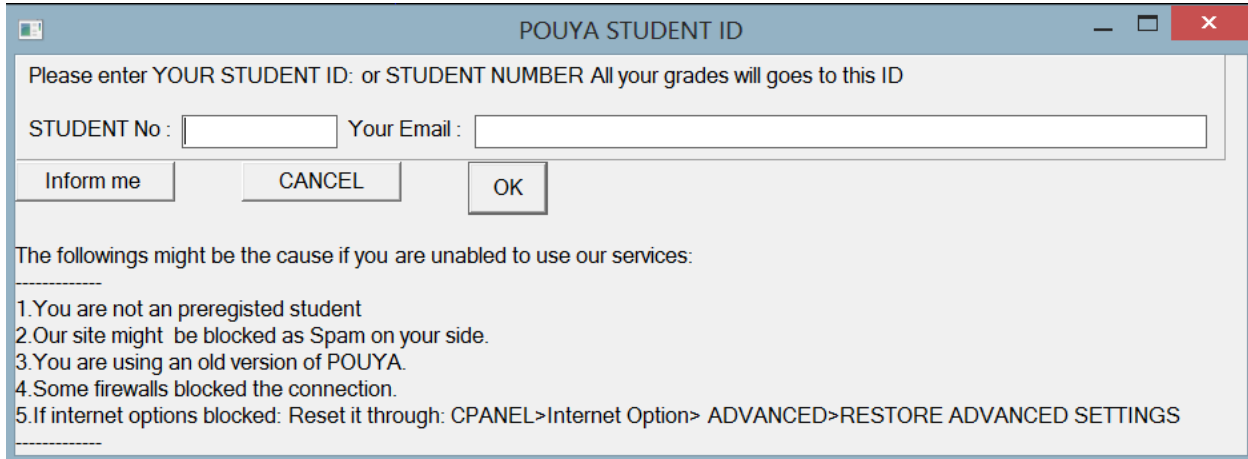
A unique answer sheet is associated with each file of Lab. For example the LAB NO03 will bring such as the below answer sheet:
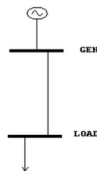

The students need to answer the questions. The score for each answer is different. The teacher can pass the scores of each question to the students. Pressing submit will submits your grade to a database (after a questionaries' confirmation). The teacher has access to this data base or it will be sent to him by email. At the present time, no negative score is associated with the answers.

1.7 Gradings

The grade for the associated answer sheet will be issued automatically for each student and the teacher can access the results with a unique password. Please ask for password from info@tomcad.com .They will give you the password, if you are the teacher of the course. The result may also be posted to the teacher by mail.

Each student must fill the answer sheet on its own. If you are working with another student in one computer, remember that each of you must fill your own answer sheet.

1.8 POUYA and PASHA Manuals

While POUYA has just 11 pages of manual and the student are encouraged to read this manual by selecting the Help, PASHA has about 700 pages of manual listed in 25 chapters. They can be accessed by selecting the required chapter from PASHA main menu as shown below. Please bear in mind that PASHA is an addition to POUYA software and so the manual is as it is written for standalone PASHA software.
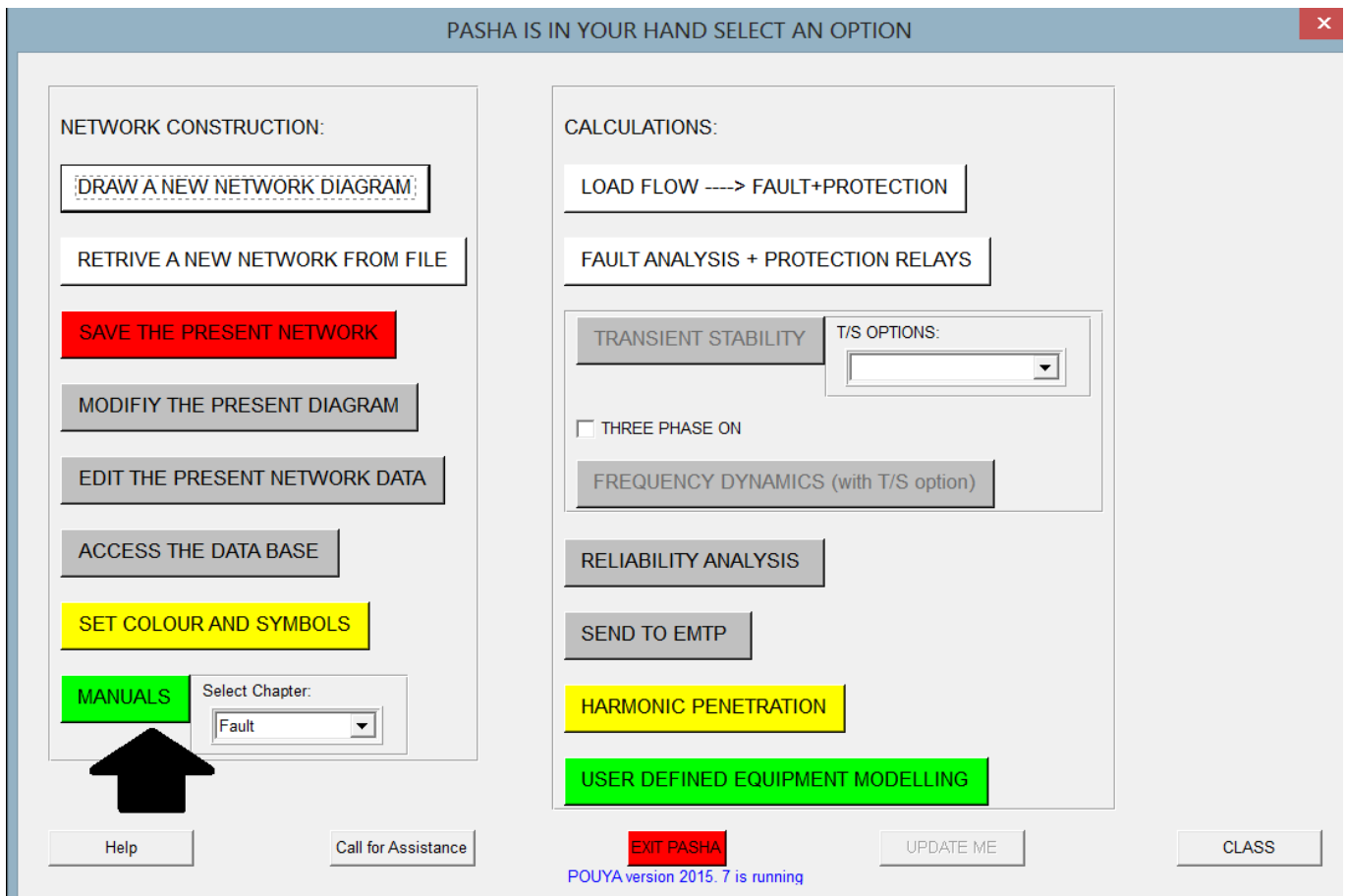
There is no need to read PASHA manual, just you may refer to the chapters and the sections that can help you to solve the problem in hand.

2. POWER SYSTEM ANALYSIS LAB.

The teacher may also arrange the following lab. by selecting POUYA files and setting up a series of file together to provide a set of new assignments.

a) Relay Setting and Coordination Lab. For course Power System Protection

b) Dynamic Analysis Lab. For course Power System Dynamics
c) Transmission and Distribution Lab. For course Power System Planning
d) Reactive control Lab. For course Power System reactive Control
e) Reliability Analysis Lab. For course Power System Reliability Evaluation.
f) Harmonic Lab. For course Power System Harmonics
g) Industrial System Operation. For course Power System Industrial grids
h) Real Time Operation Lab. (please ask for the extra modules required).

Apart from these labs there is a LAB for testing the overall knowledge of a power system engineer who would like to work on power system analysis. This is designed for the chemical plant network (originally comes with POUYA). By pressing the blue LAB button while simulating the chemical plants a set of lab sheet as below will be available. As other labs it asks you for student ID and email. Apart from what you enters POUYA REF. ID and registered email will be used for the grading. The merit of using the following test will be:

1- Testing engineer knowledge when you need to hire one.
2- Testing student knowledge when they need to do graduate projects
3- Test your own knowledge on power system analysis
4- Earning a certificate on power system analysis

The test under examine your knowledge on power system analysis:
Test no.1 GENERAL
Test no.2 POWER SYSTEM CONTROLLER
Prerequisite: The person under test need to obtain a minimum test mark of 75% for test number 1 to proceed to this test.
Test no.3 POWER SYSTEM FAULT
Prerequisite: The person under test need to obtain a minimum test mark of 75% for test number 1 to proceed to this test.
Test no.4 POWER SYSTEM ECONOMY
Prerequisite: The person under test need to obtain a minimum test mark of 75% for test number 1 to proceed to this test.
Test no.5 POWER SYSTEM PROTECTION
Prerequisites: The person under test need to obtain a minimum test mark of 75% for test number 1 and 75% at test number 3 to proceed to this test.
Test no.6 AC-DC NETWORK IN POWER SYSTEM
Prerequisites: The person under test need to obtain a minimum test mark of 75% for test number 1 and 75% at test number 2 to proceed to this test.
Test no.7 AC-DC MACHINES IN POWER SYSTEM
Prerequisites: The person under test need to obtain a minimum test mark of 75% for test number 1 to proceed to this test.
Test no.8 WIND GENERATION
Prerequisites: The person under test need to obtain a minimum test mark of 75% for test number 1 and 75% at test number 2 to proceed to this test.
Test no.9 MICRO GRIDES
Prerequisites: The person under test need to obtain a minimum test mark of 75% for test number 8

Besides, some network examples from classical books are located under the option "Books". You can use these network to further enhance your knowledge. Other options like "Papers" and others contain more networks. You may use these networks to get familiarize with power system utility or plants networks.

3. On Line Teachers.

We can connect you to the on line teaching and demonstration facility. Please ask info@tomcad.com