

ZCE 111

Computational Approach in Physics Learning

Instructor

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Elearning portal

- All course materials are to be made available in the ZCE 111 E-learning portal.
- Assignment submissions
- Lecture materials
- Assignment materials.
- Coursework grades
- Etc.

Problem-based learning

- Wil try to make ZCE 111 a problem-based learning process
- Expect to do a lot of self-learning
- Use 'HELP' in Mathematica – this will be your major reference.
- Lecture materials and reference codes are given, and you are expected to write your own lines of Mathematica code to solve physics and mathematical problems.
- Peer-assisted learning and group discussions are strongly encouraged.

Linux compute nodes

- Log in to the Linux compute nodes using your username
- You may need to reset your password upon login
- For your username, see
<http://comsics.usm.my/tlyoon/teaching/ZCE111/1617SEM2/users.dat>
- We will refer to the computers (PC) in the Rocks Computer Cluster as “compute nodes”.

Using Linux Terminal

- In your Linux computer, open a terminal
- Syntax: Use “top” to check out the processes in your compute node (local PC).
- Syntax: Use “hostname” to check out the name your compute node.
- Syntax: Use “whoami” to check out your username.
- Syntax: Use “pwd” to check out your current directory
- Syntax: Use “ls” to check out the names of files and folders in your current directory.

What to do if your compute node hangs?

- Remedy 1: Press ctrl+alt+delete
- Remedy 2: Log in to your node (say compute-0-10 in anicca) from another compute node using your current username. Type “ps - u *username*”, where *username* stand for your username (e.g., human2). Then kill off the process you think is causing the problem in compute-0-10 by typing “kill -9 XXXX”, where “XXXX” stands for the process id (e.g., 334320). Alternatively, kill the processes by typing “pkill -9 *process*”, where *process* stands for the name of the process you want to kill, e.g., Mathematica or MathKernel.
- Remedy 3: Log in to your node (say compute-0-10 in anicca) from another compute node using your current username. Then type “/usr/sbin/gdm-restart”
- Remedy 4: Yell “SOS”.

Software installation in your own Windows PC

- You need to install the following software in your Windows PC
 1. Mathematica 8 or 11
 2. WinSCP
 3. Putty
 4. Xming
 5. Anaconda (for Python).

Go to <http://www2.fizik.usm.my/tlyoon/Downloads/> to install 2,3,4.

Mathematica installation

For legal installation of Mathematica, see the instruction in http://www2.fizik.usm.my/configrepo/Mathematica_installation.txt

Mathematica installation

- Bring your own laptop to class.
- Due to some reasons, Mathematica license has not been renewed until today.
- So we can't install them legally in the PCs in the computer lab.
- Mathematica 8 for Windows can be downloaded at http://www2.fizik.usm.my/tlyoon/Downloads/Mathematica_8.0.1_WIN.zip
- You can also download other versions of Mathematica at <http://www2.fizik.usm.my/tlyoon/Downloads/>
- <https://drive.google.com/open?id=0BwK3dd2e0P7wVXZPRFRZNDEtNUE>
(For version 8.0.1)
- <https://keygens.github.io/mathematica11.html> (For Version 11.X)

Assessment

- 100% coursework
- 2 + 2 hours contact hours per week
- Continuous assessment in terms of on-the-spot assignments and weekly assignments
- Special assignment(s) – for more challenging tasks
- Online tests on general and theoretical topics
- All assignments and tests are ‘open-book’

Assessment

- Every 2-hour lecture slot will occasionally be ended with an 'on-the-spot exercise' (OTSE). A very short exercise will be given at the end of occasional lecture slot. You have to submit them 'on the spot' via online submission to E-learning before going back home.

VERY IMPORTANT RULES TO OBEY

- All the pc in the computer lab are used for running research projects by the researchers from computational research groups when the ZCE 111 classes are not being conducted.
- So they must always be switched on 24 hours.

VERY IMPORTANT RULES TO OBEY

- NEVER SWITCH OFF THE PC
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- NEVER UNPLUG THE PC'S POWER POINT SOCKET
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- PLUG OUT ONLY THE MONITOR'S POWER POINT SOCKET WHEN YOU WANT TO USE IT
- FOR YOUR OWN LAPTOPS.
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