# Things to be done for the project of Virtual Programming Lab

Note: our Web-based VPL can provide learners with not only an online programming environment in a chosen programming language, but also timely helps from tutors and their peers when needed. The tasks for you are as follows:

## Review of literatures

1. VCL/VPL technology and systems
2. VCL/VPL publications

Note: although our focus is on virtual programming labs, it is better to get a broad view of virtual computing lab for the technologies and ideas that can be used in our system.

## Design and implementation of VPL

1. System layout and functional modules are shown in the diagram below:

Enroll a new learner

Language references and tools

Online IDE

**List of class participants including tutors and other enrolled learners**

Program language selection

Text messaging module

Login/Logout

1. Requirements:
2. Language selection, we begin with HTML and JavaScript, and then add one more programming language of your choice but only if you want to challenge yourself – you may need to write an interpreter for that language in JavaScript or as Applet.
3. Online IDE – it can accept program code, run/test the program, it can save program on server.
4. The learner can choose a person from the list of class participants for help when needed, by clicking the photo or something else representing that person, and then that person shall be able to see that learner is asking for help (see next item). When the helper accepts the call for help, he will be able to view the program code within the caller’s IDE, and text messaging will be activated and carried out between the caller and the helper.
5. The list of class participants shall also be able to show who is calling for help. A helping session can then be invoked by clicking somewhere within an area representing the caller.
6. List of language references and tools should be changed in accordance with the program language that is selected. Those references and tools can be rendered in a separate browser window.
7. The system should be implemented using PHP, MYSQL, XHTML, CSS, Ajax and other Web technologies if necessary.

## Technical report and academic writing

The final outcome from this research includes a VPL system and at least one academic publication, and the technical report will be the base for academic research papers. The technical report should include a review of literatures, the technical details of the implemented VPL system, and its applications and uses in online course delivery. We will start to coauthor the academic research paper or papers after the technical report is done.

## Overall timeline

1. The VPL should be implemented before January 31 of 2011.
2. The technical report should be done before February 28, 2011.
3. We use March to write research paper or papers.