

## EFFECTIVE USE OF GEOGEBRA IN THE CLASSROOM: A WORKSHOP FOR GEOGEBRA USERS

### INTRODUCTION:

GeoGebra is a free, multi-platform, open-source dynamic mathematics software with rapidly increasing worldwide popularity. It is suitable for the learning and teaching of mathematics at all levels of education.

The basic idea of GeoGebra is to combine dynamic geometry, algebra, and calculus, which other packages treat separately, into a single easy-to-use package for learning and teaching mathematics. It offers multiple representations of objects in graphics, algebra and spreadsheet views that are dynamically linked.

Participants of this workshop will be introduced to the versatility of GeoGebra in hands-on activities on geometry, algebra, statistics and calculus. They will learn how to use GeoGebra as a visualisation tool for teaching and to create student-engaging interactive materials.

### OBJECTIVES:

At the end of this workshop, participants will acquire the skills to demonstrate:

- Familiarity with available GeoGebra Views, geometric tools, as well as the use of basic commands;
- Ability to change the properties of objects in order to create appealing instructional materials;
- Use of GeoGebra to create ggb files, export static images and insert them into a word processing document, as well as to create interactive web pages, i.e., Dynamic Worksheets;
- Knowledge about the use of the GeoGebra Help document in order to find out about information about unfamiliar tools, commands, and features of the software;
- Knowledge of the dynamic capabilities of GeoGebra, in particular of the potential of interconnected multiple and dynamic representations for mathematics teaching and learning;
- Use of GeoGebra as a demonstration and presentation tool with existing and self-made instructional materials;
- Selection and use of existing GeoGebra materials from the GeoGebraWiki or other sources; and
- Confidence in the use of GeoGebra to facilitate students working with prepared materials

At the end of the workshop, participants who demonstrated the above stated skills will be certified by the Institute GeoGebra of Malaysia as "**GeoGebra User**" level.

### STRATEGIES/APPROACHES:

This is a hands-on and minds-on workshop on using GeoGebra Version 3 in the Secondary Mathematics Classrooms. Participants will be guided to use the basic features of GeoGebra and its effective use of dynamic worksheets. Free software and materials will be provided. No special computer experience is required.

### TARGET PARTICIPANTS:

Secondary mathematics teachers & teacher educators

## SCHEDULE

DAY 1 MONDAY (26 SEP 2011)	
0800 - 0830	Registration
0830 - 1030	Getting started with GeoGebra
1030 - 1100	Tea Break
1100 - 1300	Constructing Square/Triangle/Circle
1300 - 1430	Lunch Break
1430 - 1630	Transformation with GeoGebra
1630	Tea Break
DAY 2 TUESDAY (27 SEP 2011)	
0830 - 1030	Basic Algebraic Input, Command & Functions
1030 - 1100	Tea Break
1100 - 1300	Spreadsheet Views & Basic Statistics Concepts
1300 - 1430	Lunch Break
1430 - 1530	What else can GeoGebra do?
1530 - 1645	Project Work Presentations
1645	Tea Break

*Note: This programme schedule may be subjected to minor changes without prior notice*

### INTRODUCING THE WORKSHOP FACILITATOR:



Dr. Leong Chee Kin, a Mathematics Education Specialist (Training Programme Division) and Chair of the GeoGebra Institute of Malaysia, SEAMEO RECSAM, Penang, has more than 26 years of Mathematics teaching experience in both the primary and secondary levels. He has conducted GeoGebra workshops for Teachers' Development Programmes and has presented papers on GeoGebra at international conferences. Since 2009, he has trained teachers, teacher educators and mathematics education officers from the SEAMEO member countries, countries from the African continent and the Colombo Plan's countries as part of RECSAM's training programmes. Dr. Leong is presently translating GeoGebra Version 4.0 into the national language with the objective of promoting the use of GeoGebra among teachers in Malaysia and enhancing active and meaningful learning in mathematics.

### PARTICIPATION FEES:

- Type 1: **RM 490.00 per participant** (Without Accommodation)
- Type 2: **RM 630.00 per participant** (Twin Sharing at RECSAM International House)
- Type 3: **RM 760.00 per participant** (Single occupancy at RECSAM International House)

### ACCOMMODATION AT RECSAM INTERNATIONAL HOUSE:

For Type 2 & 3 participants boarded at the RECSAM International House

- Check in** A Day Before 1400 to 1800
- Check out** A Day After by 1200

### FOOD:

Morning tea, lunch and afternoon tea will be provided by SEAMEO RECSAM during the workshop sessions. For stay-in participants (Type 2 & Type 3), breakfast and dinner will be provided.

### SUBMISSION AND CLOSING DATE:

All participation forms are to be submitted to the following latest by **15 September 2011**:

Director, SEAMEO RECSAM,  
Jalan Sultan Azlan Shah,  
11700 Gelugor, Penang.  
or by fax 04-6522742

### LOCAL ORDER INFORMATION:

Pay to: SEAMEO RECSAM  
Bank: MAYBANK GELUGOR BRANCH, PENANG  
Account Number: 5571 5700 0647

### FOR ENQUIRIES:

Dr. Leong / Ms. Deng Mee Cheng  
email: ckleong@recsam.edu.my / deng@recsam.edu.my  
Telephone: 04-6522741 / 04-6522746

## PARTICIPATION FORM

Name: \_\_\_\_\_

School / Organisation: \_\_\_\_\_

Gender: Male  Female

Telephone: Office: \_\_\_\_\_

Home: \_\_\_\_\_ Mobile: \_\_\_\_\_

Email: \_\_\_\_\_

Do you need accommodation at RECSAM International House?

Yes Date : \_\_\_\_\_  No

I enclose a Cheque / Local Order / Postal Order

No: \_\_\_\_\_ bearing the sum of RM \_\_\_\_\_ as payment for the workshop.

(Please make cheque/local order/postal order payable to: **SEAMEO RECSAM**)

Note: To enrol please complete the PARTICIPATION FORM and send/fax it to:

**Director, SEAMEO RECSAM, 11700 Gelugor, Pulau Pinang.**  
**Fax: 04-6522742**

Closing date for registration is **15 SEPTEMBER 2011**.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



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*Facilitator:*

Dr. Leong Chee Kin  
Mathematics Education Specialist (Training Programme Division)  
and Chair of GeoGebra Institute of Malaysia  
SEAMEO RECSAM, Penang

*Date:*

26 & 27 September 2011

*Venue:*

Maths Lab 1, SEAMEO RECSAM, Penang

Organised by  
Southeast Asian Ministers of Education Organisation  
Regional Centre for Education in Science and Mathematics  
Jalan Sultan Azlan Shah  
11700 Gelugor, Penang, Malaysia  
Website: www.recsam.edu.my