



3 เมษายน 2552

เรื่อง หลักสูตรการฝึกอบรมของศูนย์เรคแคมประจำปี 2552 - 2553

เรียน ผู้ว่าราชการจังหวัด ทุกจังหวัด

ด้วยได้รับแจ้งจากกระทรวงศึกษาธิการว่าศูนย์ระดับภาคว่าด้วยการศึกษาวิทยาศาสตร์ และคณิตศาสตร์ซีมีโอ (เรคแคม) เมืองปีนัง ประเทศมาเลเซีย จะดำเนินการจัดหลักสูตรฝึกอบรม ประจำปี 2552 - 2553 ให้แก่ประเทศสมาชิกซีมีโอ จำนวน 2 รุ่น 7 หลักสูตร ดังนี้

รุ่นที่ 1 : วันที่ 6 - 31 กรกฎาคม 2552 มี 3 หลักสูตร ดังนี้

PS - 1444 : การหาปฏิสัมพันธ์ในการศึกษาระหว่างวิทยาศาสตร์ เทคโนโลยีสิ่งแวดล้อม และสังคมเพื่อการพัฒนาอย่างยั่งยืนในระดับชั้นประถมศึกษา

PS - 1420 : การพัฒนาทักษะทางวิทยาศาสตร์ เพื่อเพิ่มประสิทธิภาพการเรียนรู้วิทยาศาสตร์ในระดับชั้นประถมศึกษา

SM - 6522 : การเรียนรู้แบบสร้างองค์ความรู้ในวิชาคณิตศาสตร์ ระดับชั้นมัธยมศึกษาตอนต้น

รุ่นที่ 2 : วันที่ 5 - 10 เมษายน 2553 มี 4 หลักสูตร ดังนี้

SS - 5265 : การประเมินผล การจัดกระบวนการเรียนรู้ แบบสร้างองค์ความรู้ในวิชาวิทยาศาสตร์ ระดับชั้นมัธยมศึกษาตอนต้น

PM - 2265 : การศึกษาวิชาคณิตศาสตร์เชิงประจักษ์ เพื่อเพิ่มประสิทธิภาพการเรียนรู้วิชาคณิตศาสตร์ระดับชั้นประถมศึกษา

SM - 3050 : การนำข้อมูลสารสนเทศ และเทคโนโลยี มาใช้ในการประเมินผล การเรียนคณิตศาสตร์ ระดับชั้นประถมศึกษาตอนต้น

PS - 7112 : หัวข้อศึกษา : การเพิ่มประสิทธิภาพการสอนในห้องปฏิบัติการวิทยาศาสตร์ ระดับชั้นประถมศึกษา

ในการนี้ สำนักงานปลัดกระทรวงศึกษาธิการขอความร่วมมือกรมส่งเสริมการปกครองท้องถิ่นพิจารณาเสนอชื่อผู้มีคุณสมบัติเหมาะสมตามที่ศูนย์เรคแคมกำหนด เพื่อรับทุนฝึกอบรม หลักสูตรละ 1 คน และให้ส่งใบสมัครพร้อมทั้งสำเนา รวม 5 ชุด ไปยังสำนักความสัมพันธ์ต่างประเทศ สำนักงานปลัดกระทรวงศึกษาธิการ รุ่นที่ 1 ภายในวันที่ 1 พฤษภาคม 2552 และรุ่นที่ 2 ภายในวันที่ 15 ธันวาคม 2552 ทั้งนี้ สำหรับกำหนดการสอบข้อเขียน และสัมภาษณ์ผู้สมัครรับทุนกระทรวงศึกษาธิการจะแจ้งให้ทราบภายหลัง

/ กรมส่งเสริม...

กรมส่งเสริมการปกครองท้องถิ่น พิจารณาแล้วเห็นว่าโครงการฝึกอบรมของซีมีโอ (เรคแชม) เมืองปีนัง ประเทศมาเลเซีย ในหลักสูตรต่างๆดังกล่าวจะเป็นประโยชน์ต่อการพัฒนาความรู้ ทักษะ และประสบการณ์ด้านการจัดการเรียนการสอนวิทยาศาสตร์และคณิตศาสตร์ ของครูผู้สอนสังกัดองค์กรปกครองส่วนท้องถิ่น จึงขอให้จังหวัดแจ้งองค์กรปกครองส่วนท้องถิ่นที่มีสถานศึกษาในสังกัดได้ประชาสัมพันธ์ให้ครูผู้สอนที่มีคุณสมบัติครบถ้วนตามที่กำหนด และมีความประสงค์สมัครขอรับทุนฝึกอบรมได้กรอกข้อมูลตามแบบฟอร์มรายละเอียดเกี่ยวกับตัวผู้สมัครรับทุนเรคแชมให้ครบถ้วน แล้วให้จังหวัดรวบรวมแบบฟอร์มฯ ดังกล่าวจัดส่งให้กรมส่งเสริมการปกครองส่วนท้องถิ่นภายในวันที่ 22 เมษายน 2552 เพื่อกรมส่งเสริมการปกครองท้องถิ่นพิจารณาคัดเลือกผู้สมควรเสนอชื่อขอรับทุนฯ หลักสูตร ละ 1 คน รวม 7 หลักสูตร จำนวน 7 คน เสนอรายชื่อให้กระทรวงศึกษาธิการ

อนึ่ง สำหรับรายละเอียดหลักสูตรและแบบฟอร์มรายละเอียดเกี่ยวกับตัวผู้สมัครรับทุนเรคแชม สามารถดาวน์โหลดได้จากเว็บไซต์ [http : // www.thailocaladmin.com/](http://www.thailocaladmin.com/)

จึงเรียนมาเพื่อโปรดพิจารณาการดำเนินการต่อไป

ขอแสดงความนับถือ



(นายวันดี วรณารอง)

รองอธิบดี ปฏิบัติราชการแทน

อธิบดีกรมส่งเสริมการปกครองท้องถิ่น

สำนักประสานและพัฒนากิจการการศึกษาท้องถิ่น

ส่วนวิชาการและมาตรฐานการศึกษาท้องถิ่น

โทร: 0-2241-9021-3

โทรสาร : 0-2241-9021-3 ต่อ 112 , 113



11 กุมภาพันธ์ 2552

สำนักประสานและพัฒนากิจการการศึกษาท้องถิ่น
เลขที่ 1031
วันที่ 18 มี.ค. 52
เวลา

เรื่อง หลักสูตรฝึกอบรมของศูนย์เรคแคมประจำปี 2552 - 2553

เรียน อธิบดีกรมส่งเสริมการปกครองท้องถิ่น

สิ่งที่ส่งมาด้วย 1. รายละเอียดหลักสูตร จำนวน 1 ชุด

2. แบบฟอร์มรายละเอียดเกี่ยวกับตัวผู้สมัครรับทุนเรคแคม จำนวน 1 ชุด

3. แบบฟอร์มใบสมัครรับทุนเรคแคม จำนวน 1 ชุด

ด้วยศูนย์ระดับภูมิภาคว่าด้วยการศึกษาวิทยาศาสตร์และคณิตศาสตร์ของซีมีโอ (เรคแคม) เมืองปิ่นัง ประเทศมาเลเซีย แจ้งว่าจะดำเนินการจัดหลักสูตรฝึกอบรมประจำปี 2552 - 2553 ให้แก่ประเทศสมาชิกซีมีโอ จำนวน 2 รุ่น รวม 7 หลักสูตร ได้แก่ รุ่นที่ 1 ระหว่างวันที่ 6 - 31 กรกฎาคม 2552 และรุ่นที่ 2 ระหว่างวันที่ 5 - 30 เมษายน 2553 โดยขอให้ประเทศไทยเสนอชื่อผู้สมัครรับทุนฝึกอบรม รุ่นที่ 1 ภายในวันที่ 1 มิถุนายน 2552 และรุ่นที่ 2 ภายในวันที่ 15 กุมภาพันธ์ 2553 และหากมีผู้สนใจเพิ่มเติมสามารถเสนอชื่อเพิ่มได้อีก โดยผู้สนใจต้องรับผิดชอบค่าใช้จ่ายต่างๆ เอง รายละเอียดดังแนบ

ในการนี้ สำนักงานปลัดกระทรวงศึกษาธิการ ใ้ขอความร่วมมือจากหน่วยงานของท่าน พิจารณาเสนอชื่อผู้มีคุณสมบัติเหมาะสมตามที่ศูนย์เรคแคมกำหนด คือ ควรเป็นครูผู้สอนวิทยาศาสตร์ หรือคณิตศาสตร์ระดับประถมศึกษาและมัธยมศึกษา อายุไม่เกิน 50 ปี สำหรับสตรีไม่ควรอยู่ในระหว่างตั้งครรภ์ (โปรดศึกษารายละเอียดหลักสูตรตามเอกสารที่แนบ) โดยขอให้เสนอชื่อผู้สมัครรับทุนหลักสูตรละ 1 คน และขอให้ส่งใบสมัครพร้อมทั้งสำเนา รวม 5 ชุด ไปยังสำนักความสัมพันธ์ต่างประเทศ สป. โดยรุ่นที่ 1 ภายในวันที่ 1 พฤษภาคม 2552 และรุ่นที่ 2 ภายในวันที่ 15 ธันวาคม 2552 สำหรับกำหนดการสอบข้อเขียนและสัมภาษณ์ผู้สมัครรับทุน จะแจ้งให้ทราบภายหลัง

จึงเรียนมาเพื่อโปรดพิจารณาดำเนินการต่อไปด้วย จะขอบคุณมาก

ขอแสดงความนับถือ

(Signature)

(นางศรีวิภากร เมฆธวัชชัยกุล)

รองปลัดกระทรวง ปฏิบัติราชการแทน

ปลัดกระทรวงศึกษาธิการ

สำนักงานปลัดกระทรวง

สำนักความสัมพันธ์ต่างประเทศ

โทร. 02 281 0565 ต่อ 108

โทรสาร 02 281 0953

รายละเอียดเกี่ยวกับตัวผู้สมัครรับทุนเรคแฮม

ชื่อหลักสูตร _____

๑. ชื่อและนามสกุล _____

Name _____

วุฒิ _____

๒. วิชาเอก _____ วิชาโท _____

๓. อายุ _____ อายุราชการ _____

๔. ตำแหน่งและที่ทำงานปัจจุบันพร้อมหมายเลขโทรศัพท์ (เขียนให้ละเอียดและชัดเจน)

Office Address _____

๕. ความรู้ภาษาอังกฤษ ☐ ดี ☐ ปานกลาง ☐ พอใช้

๖. ความรู้ด้านคอมพิวเตอร์ ☐ ดี ☐ ปานกลาง ☐ พอใช้

๗. ประสบการณ์และพินความรู้ทางด้านวิทยาศาสตร์ คณิตศาสตร์ และวิชาอื่น
ที่เกี่ยวข้องกับหลักสูตรการอบรมที่เสนอขอรับทุนนี้

๖.๑ _____

๖.๒ _____

๖.๓ _____

๖.๔ _____

๖.๕ _____

๖.๖ _____

๖.๗ _____

๖.๘ _____

๖.๙ _____

๖.๑๐ _____



Southeast Asian Ministers of Education Organisation
Regional Centre for Education in Science and Mathematics

Our Ref. : RCP/GEN/157/V.20 (39)

2 January 2008

**Permanent Secretary / Director-General / Secretary-General / Undersecretary
Ministries of Education, SEAMEO Member Countries:**

The Permanent Secretary
Ministry of Education
Rajdamnern Avenue
Bangkok 10300
Thailand

Dear Sir,

RECSAM COURSES FOR FISCAL YEAR 2009 / 2010
Batch I : 6 to 31 July 2009 and Batch II: 5 to 30 April 2010

I have the honour to inform you that this Centre will be offering courses for senior educators and teacher trainers from SEAMEO member countries.

Herewith are the information and condition that will assist the various Ministries of Education in their selection of nominees to attend RECSAM courses.

2. Nomination of Participants

- 2.1 Please send the list of **Nominees, Participants' Application Forms and the Scholarship Agreements for all two batches as stipulated in the following table.** It is much appreciated if the Ministries of Education could cooperate to meet with the deadlines suggested. The participants may be nominated to the courses according to the allocations as stated below.

Title of Courses	No. of Scholarships Offered Per Country	Deadline for documents to reach RECSAM
<u>Batch I : 6 to 31 July 2009</u>		
PS-1444: Exploring Interactions in Science, Technology, Environment and Society (STES) Education for Sustainable Development at the Primary Level	1	1 June 2009
PS-4120: Developing Scientific Skills for Meaningful Learning in Primary Science	1	
SM-6522: Learning Mathematics in Constructivist Secondary Classrooms	1	
<u>Batch II : 5 to 30 April 2010</u>		
SS-5265: Assessment in a Constructivist Environment for Teaching and Learning in Secondary Science	1	15 February 2010
PM-2265: Realistic Mathematics Education (RME) for Meaningful Learning in Primary Mathematics	1	
SM-3050: Integrating Information and Communication Technology (ICT) on Students' Assessment in Secondary Mathematics Classrooms	1	
PS-7112: Lesson Study: Enhancing Instructional Practices in Primary Science Classrooms	1	

Member Countries are welcome to send fee-paying participants for the above courses (see #5 for conditions). Applications for places could be made earlier through telephone call or e-mail at director@recsam.edu.my followed by an official letter.

- 2.2 The qualifications required for the course participants are described in the annexures of the different courses. **Please follow the required qualifications as strictly as possible in your selection of participants for the respective courses.** This is to ensure active participation during the course and to allow participants to derive full benefit from the courses. In addition, to enhance the impact of these courses it is suggested that the nominated participants are key personnel who are/will be likely to effect considerable multiplier effects upon their return to their respective positions.

- 2.3 Nominations would normally be considered only upon receipt of the duly completed application forms of the nominees. Please notify RECSAM soonest possible if your country is unable to fill the number of scholarships specified. The vacant places may be offered to other member countries with due notice.
- 2.4 **Attention.** Completed application forms of the nominated candidates must be sent to RECSAM before the deadline given (see table). If this is not possible, then a list of the names of potential candidates with the certified copy of their qualifications in Science / Mathematics must be sent in advance to RECSAM. All member countries are expected to **NOMINATE AT LEAST THREE NAMES as candidates for each course.** RECSAM will select one candidate from these three nominees. If any of the candidate's qualification does not meet the requirements stated, RECSAM has the right to reject that particular candidate and the scholarship be given to candidates from other member countries.

3. **Course Information**

Details of the Courses: Please refer to attached booklet on course descriptions.

- 3.2 **Compulsory Requirement:** All participants must have a good working knowledge of spoken and written English in order to get the maximum benefit out of the courses.* **A certified copy of their proficiency in English must be attached with the participants' form.**

4. **General Information**

- 4.1 **Air Travel and Personal Accident Insurance:** Participants should secure their own air-travel and personal insurance themselves throughout the duration of the course. RECSAM will not be responsible for taking insurance to cover air-travel and personal insurance accidents. **No responsibility for any form of insurance or any other expenses such as passport fee, visa fee, exit fee, insurance premium, etc. will be assumed by RECSAM, SEAMEO Secretariat or the Government of Malaysia.**
- 4.2 **Health and Age Limit:** The nominated participant must be in excellent health and should not be more than 50 years of age.
- 4.3 **Expectant Mothers :** Because of the intensive nature of the training programme, it may not be advisable for female participants who are in the family way to attend these courses. Moreover, most airlines generally do not accept passengers who are in an advanced stage of pregnancy, normally around 7 months and above. As such, nominating Ministries should ensure that participants will not face this problem particularly on their homeward journey. RECSAM reserves the right to terminate the training programme of any participant who is likely to face such a problem. However, the termination procedure will, as usual, be made in consultation with the nominating Ministry.
- 4.4 **Terms of Scholarships:** Participants from SEAMEO countries on **SEAMEO Scholarships** will be provided with:
- (a) economy class air-ticket from capital city/or nearest International Airport from participant's work station to Penang and back.

As soon as nominations are received and accepted by RECSAM Office, airline tickets will be dispatched to the respective Ministries of Education unless otherwise requested by the Ministries of Education to be sent to the nearest city where the participants live.

- (b) an out-of-pocket allowance (including the day of arrival and departure).

Attention: Any fee incurred by a participant due to last minute cancellation of ticket or replacement of participant, after the ticket is issued, should be borne by the Ministry of Education of that nominating country. SEAMEO RECSAM will not take on the responsibility for such penalty charge or extra charge of any kind pertaining to the above.

- 4.5 Each participant is requested to complete and sign the "SEAMEO-RECSAM Scholar Agreement" Forms. Two fully completed copies are to be returned following the date as specified in 2.1
- 4.6 Accommodation, Food and Attire: Participants will be accommodated at RECSAM International House and food allowance will be provided. The rooms are of double occupancy with bathroom attached. RECSAM has the right to allocate room-mates to the participants. All participants are expected to be properly dressed for classes – no T-shirts and jeans during class sessions.
- 4.7 Early Issue of Exit Permits and Entry Visas to Malaysia: It is requested that the following be done as early as possible:
 - (a) Exit permit for nominated participants (except for Malaysians and Singaporeans) must be obtained from their own Government, and
 - (b) Entry visa for nominated participants (except for Malaysians, Singaporeans and Bruneians) into Malaysia must be obtained from the **Malaysian Embassy in the participants' own country.** The visa should be a minimum of 6 weeks to cover the 4-week period of the course, with multiple entries for the participants, should they require to go back in case of emergencies. RECSAM will send the participants a letter of offer to help expedite the visa application process when we receive the participants' names from the Ministries of Education.
- 4.8 National Costume for Closing Ceremony: It is requested that each participant from the various member countries bring along with him/her the **country's national costume to be worn during the Closing Ceremony.**
- 4.9 Cultural Night: It is a normal practice in RECSAM that at the end of every batch of courses, there will be a Cultural Night held. Participants from different SEAMEO countries are expected to give a cultural presentation (eg. dance, drama, and the like) that depicts the culture of their countries. It would certainly be very helpful if they could come prepared with the necessary items such as costumes, musical instruments, etc. related to their culture.
- 4.10 Gifts exchange: Before the participants leave for their home countries, there will

usually be the exchanging of souvenirs and gifts among participants. It is advisable that the participants bring along souvenirs for this purpose.

5. Participants from Member Countries on Fee-Paying Basis: The following are the conditions for participants from Member Countries on fee-paying basis:

- 5.1 they will also abide by the stipulations of the RECSAM Scholar Agreement and follow the requirements of the programme;
- 5.2 they are physically fit and meet the necessary qualifications to attend the course;
- 5.3 they pay a minimum course fee which do not cover airfare, medical expenses, insurance, and extension of visa fees. (For further enquiries kindly write to Director, SEAMEO RECSAM, Jalan Sultan Azlan Shah, 11700 Gelugor, Penang, Malaysia or email director@recsam.edu.my. Fax: 6-04-6572541; Tel: 6-04-6583266.)

Thank you.

Yours sincerely,



Dr AZIAN T. S. ABDULLAH
Centre Director
SEAMEO RECSAM

Encls.: Course descriptions for 2009 / 2010

- Copies to:
- * Chairman & Members of RECSAM Governing Board
 - * SEAMEO Affair Officers, Ministries of Education, SEAMEO Member Countries. **Enclosed please find the following documents for your perusal and action :**
 - (a) Participants' Application Forms;
 - (b) SEAMEO RECSAM Scholarship Agreements
 - * Director, SEAMEO Secretariat, Bangkok 10110, Thailand



SEAMEO Regional Centre for Education in
Science and Mathematics

SEAMEO RECSAM REGULAR COURSES

Fiscal Year 2009/2010

Brunei Darussalam
Cambodia
Indonesia
Laos PDR
Malaysia
Myanmar

Philippines
Singapore
Thailand
Timor Leste
Vietnam

Jalan Sultan Azlan Shah, 11700 Gelugor
Penang, Malaysia
Tel: 60 4 6583266/7 Fax: 60 4 6572541
Website: www.recsam.edu.my



***RECSAM'S REGULAR COURSES
FISCAL YEAR 2009 / 2010***

All courses are of 4 weeks duration.

<i>Batch I : 6 to 31 July 2009</i>	
PS-1444	Exploring Interactions in Science, Technology, Environment and Society (STES) Education for Sustainable Development at the Primary Level
PS-4120	Developing Scientific Skills for Meaningful Learning in Primary Science
SM-6522	Learning Mathematics in Constructivist Secondary Classrooms
<i>Batch II : 5 to 30 April 2010</i>	
SS-5265	Assessment in a Constructivist Environment for Teaching and Learning in Secondary Science
PM-2265	Realistic Mathematics Education (RME) for Meaningful Learning in Primary Mathematics
SM-3050	Integrating Information and Communication Technology (ICT) on Students' Assessment in Secondary Mathematics Classrooms
PS-7112	Lesson Study: Enhancing Instructional Practices in Primary Science Classrooms

Level: P : Primary
S : Secondary

Subject: S : Science
M : Mathematics

**PS-14443 EXPLORING INTERACTIONS IN SCIENCE, TECHNOLOGY,
ENVIRONMENT and SOCIETY (STES) EDUCATION
SUSTAINABLE DEVELOPMENT AT THE PRIMARY LEVEL**

Rationale:

Science is a way of looking at, and understanding, the world around us. Technology is a creative, purposeful activity, aimed at solving practical problems as well as meeting needs and opportunities through the development of products, systems or environments. Society is the understanding of our collective cultural, scientific and social institutions and us. Environment is the natural conditions, e.g. land, air and water, in which we live; the conditions, circumstances, etc. affecting people's lives. Sustainable development is concerned with meeting the needs of the present without compromising the ability of future generation to meet their own needs.

Technology is the application of science, and technological practice takes place within, and is influenced by, social contexts and various scientific principles. Societal aspirations and development affect the goals of science and the products of technology. In turn, science and technology have impacts on social, economic and environmental development for sustainability.

An introduction of these links and the concept of sustainable development to children at the primary level is important, as not only do they understand the relevance of science in their daily lives but also create an awareness of the effects of scientific and technological activities on the environment. It is also pertinent that children have an early start in developing the values of good citizenship by assuming responsibility towards sustainable development for a brighter future.

Objectives:

The main objective of this course is to portray the complex interrelationships that link science and technology to society and their impact on the environment, via various thematic studies and interactive teaching and learning activities.

At the end of the course, the participants should be able to:

- show an understanding of the nature and purpose of science education;
- gain an overview of the interactions among science, technology, environment and society;
- understand the concept of sustainable development for the well beings of all;
- develop scientific skills and techniques in helping students through the experimental process using enabling questions and planning sheets;
- use various teaching strategies incorporating ICT to promote lifelong learning in STES;
- assess/evaluate students' learning in STES;

- show appreciation of values, attitudes, interests and motivation in the learning of STES, and
- systematically plan and develop instructional materials and enrichment activities integrating the elements of STES in lessons.

Course Contents

This course is essentially activity-oriented and will explore issues arising from the interactions of STES, sharing of experiences, planning, development and implementation of science lessons.

The major areas include:

- The nature and purpose, values and attitudes in the study of STES education;
- Concept of sustainable development
- Strategies and practices for sustainable development
- The historical perspectives, scope and process of learning STES
- Understanding the interconnection and interrelationships among the elements of STES
- Integrating the teaching of special thematic issues relevant to STES education for sustainability with interactive teaching and learning strategies:
 - Scientific thinking and scientific (process/ manipulative) skills
 - Project/problem-based learning through contextual approach
 - Critical/creative thinking and decision making skills
 - Active teaching and learning approaches in science (ATLAS)
 - Creating multiple intelligence - inspired learning environment
- Assessment of students' performance;
- Planning, designing, developing and trying out sample lesson plans/activities/ materials with emphasis on the principles of instructional design for STES education; and
- Applications of ICT and other technological resources in STES education.

Duration: Four weeks

Participants: Primary science teachers or science educators

PS-120 DEVELOPING SCIENTIFIC SKILLS FOR MEANINGFUL
LEARNING IN PRIMARY SCIENCE

Rationale

Science in schools has always been equated with practical work. Many science teachers consider practical work as an important activity-based learning that emphasises the promotion of science processes and skills. Due to this, they now try to minimize the "transmission" mode of teaching because it is looked upon as equivalent to passive learning. Activity-based learning is therefore being encouraged because these teachers interpret "active doing" as effective learning. However, activity-based learning is not an effective form of learning if the pupils do not understand the concepts and principles behind the activities and experiments. Students carrying out the activities in a "robotic" manner and following some sort of "recipe science" are not engaged in meaningful science learning. This course will give an emphasis on developing science process skills in experimentation or investigative work. Planning and designing scientific investigations are important aspects of practical work that will not only promote scientific and thinking skills, but learning becomes more meaningful as well.

Objectives:

The main objective of the course is to develop participants' knowledge and skills in the proper conduct of investigative practical work so as to enable them to develop their pupils' scientific and thinking skills and make science learning more meaningful.

At the end of the course, participants should be able to:

- show an understanding of how practical work in science classrooms can promote meaningful learning;
- show an understanding of barriers to meaningful science learning and strategies to overcome them;
- assess students understanding of science concepts;
- develop instructional materials to promote meaningful science learning via practical work; and
- show a change in attitude towards practical work in science from illustrative to experimental work.

Course Contents

This course emphasises a good grounding of theory, classroom practice and action research. Emphasis will be given to discussions and activities to demonstrate the strategies involved in the teaching and learning of science to promote meaningful learning.

The major areas include:

- Barriers to meaningful science learning (e.g. teachers not aware of students' alternative conceptions, school science not relevant to daily lives, recipe science, teachers teach for test performance and not for understanding, assessment procedures limited, teachers lack content knowledge and pedagogical content knowledge etc);
- Strategies to promote meaningful science learning (e.g. metacognitive skills, higher order thinking skills, alternative assessments, multiple intelligence, etc);
- Types of practical work (illustrative work, experimental work, and teacher demonstrations);
- Enabling questions for teacher demonstrations;
- Planning and designing experimental work;
- Assessing understanding of science concepts (e.g. Interviews about Concepts, Predict-Observe-Explain, Concept Mapping etc); and
- Planning, designing, developing and trying out sample lesson plans/activities/materials with emphasis on the principles of instructional design to develop scientific skills.

Duration: Four weeks

Participants: Primary science teachers or science educators

SM-6522 LEARNING MATHEMATICS IN CONSTRUCTIVIST SECONDARY CLASSROOMS

Rationale

In traditional mathematics classrooms, teachers teach mathematics using direct instruction. Research findings show that students learn mathematics passively. As a result, students find mathematics uninteresting and they have a shallow understanding of the concept taught. When teachers employ constructivist teaching, students learn mathematics actively. Constructivist teaching will result in students learning mathematics in a more meaningful and interesting way. This is because constructivist teaching is based on the view that students learn by actively constructing new knowledge whereby they integrate the new knowledge received with their prior ones.

Objectives:

The main objective of the course is to help participants gain knowledge on constructivism and acquire skills in applying constructivist approaches in the classroom.

At the end of the course, the participants should be able to:

- understand the nature, purpose and philosophy of constructivism;
- gain knowledge on meaningful learning and student-centered learning;
- design instructional activities that address students' prior knowledge, motivation, and level of interest;
- gain skills in applying constructivist approaches in secondary mathematics classes;
- develop constructivists-based assessment tools;
- apply the action research on constructivist approaches in secondary mathematics; and
- develop and showcasing lessons / activities based on constructivist approaches in secondary mathematics classrooms.

Course Contents:

The course will be activity-oriented and allow active involvement of participants in group discussions, sharing of experiences, demonstrations, planning and developing sessions in the area of constructivism. Lectures will be kept to a minimum.

The major areas include:

- Philosophy of mathematics education
- Learning theories and activity theory
- How children learn mathematics
 - Conceptions and misconceptions
 - Learning difficulties in mathematics
- Teacher centered instruction and its limitations
- Constructivism in education:
 - Radical constructivism
 - Social constructivism
- Researches in constructivism in education & their findings
- Exemplars of constructivist approaches in teaching secondary mathematics
- Strategies to gather learner's conceptions and prior knowledge
- Constructivist-based assessment; and
- Planning / designing / developing and showcasing sample lessons / instructional materials with emphasis on constructivist approaches for secondary mathematics classrooms.

General Components

- Basic computer literacy
- Classroom-based action research
- Multiplier effect

Duration: Four weeks

Participants: Secondary mathematics teachers and mathematics educators

SS- 5265 : ASSESSMENT IN A CONSTRUCTIVIST ENVIRONMENT FOR TEACHING AND LEARNING IN SECONDARY SCIENCE

Rationale

Current trends in science education point towards philosophical thoughts, whereby students are perceived as active agents using their experiences to actively construct meaning and understanding in response to instructional situations, rather than acquiring understanding by having it presented in an organised form. Therefore, teachers need to be equipped with assessment techniques, which help them to discover what students know and do, and the difficulties that they are having so that learning activities could be planned to meet students' needs. Teachers need to be aware and be skillful in employing a continuous assessment of students' understanding and interest throughout each lesson or unit of teaching to improve teaching and learning.

Course Objectives

The main objective of this course is to familiarize and equip the participants with assessment methods that are constructivist in nature.

At the end of the course, the participants should be able to:

- Understand the concept and philosophy of constructivism;
- Identify the roles of science teachers in the practice of constructivism;
- Understand the nature and purpose of assessment;
- Understand a variety of assessment methods;
- Construct and use assessment instruments to gauge students' understanding of science concepts;
- Employ ICT in developing assessment instruments, and
- Initiate classroom-based action research.

Course Contents

This course emphasizes a sound grounding of theory, research and actual constructivist classroom practice of assessment methods.

The major areas include:

- The concept and philosophy of constructivism
- Roles of constructivist science teachers

- Alternative assessment methods
- Interpreting data and information gathered from assessment
- Assessment in various constructivist teaching and learning models
- ICT-based assessment tools (e.g. online assessment, data analysis software and 'reflection tools' such as blogs and forum)
- Planning, designing, developing and trying out sample activities/materials with emphasis on assessment in the constructivist environment

Duration : 4 weeks

Participants : Secondary science teachers or science educators

PM-2265 : REALISTIC MATHEMATICS EDUCATION (RME) FOR MEANINGFUL LEARNING IN PRIMARY MATHEMATICS

Rationale:

Teaching and learning primary mathematics must be connected to reality and should be seen as a human activity. Numerous research findings have proven that realistic mathematics education (RME) has opened avenues in the teaching of primary mathematics. RME refers to the approach of mathematics education where a real-world situation or a context problem is taken as the starting point of learning mathematics. In realistic approach students start out with situated, idiosyncratic, informal knowledge and strategies, then, students have to construct formal mathematics by mathematising contextual problems and solution procedures. The teaching and learning involves connecting the learning content with its context. This course provides the best opportunity for teachers to develop their own instructional materials using the realistic approach as a means to enhance the effectiveness of teaching and learning in primary mathematics.

Objectives:

The main objective of the course is to help participants gain knowledge and skills on the Realistic Mathematics Education approach in primary mathematics classroom.

At the end of the course, the participants should be able to:

- understand the nature, purpose and philosophy of mathematics education;
- understand the nature and philosophy of Realistic Mathematics Education;
- gain skills and abilities to develop tasks and instructional activities that address the use of Realistic Mathematics Education;
- implement RME approach in a variety of problems in primary mathematics;
- use manipulatives and ICT based tools for reasoning and solving realistic mathematical problems;
- develop assessment tools for RME;
- develop instructional materials for RME.

Course Contents:

The course will be activity-oriented and allow active involvement of participants in group discussions, sharing of experiences, demonstrations, planning and developing sessions in using the realistic mathematics education approach.

The major areas include:

- The nature, purpose, and philosophy of Mathematics Education
- Teaching Mathematics: State-of-the-Art and State-of- the- Practice
- The Nature and philosophy of Realistic Mathematics Education
 - The Importance of Realistic Mathematics Education
 - Research on Realistic Mathematics Education in primary mathematics
 - Realistic approach and Constructivist approach
- Overview of Realistic Mathematics Education
 - What is Realistic Mathematics Education?
 - The characteristics of Realistic Mathematics Education
 - Guided Reinvention in Realistic Mathematics Education
 - Teacher's role in the teaching-learning process
- Student-Centered Learning and Strategies in Primary Mathematics
 - The nature and philosophy of Student-Centred Learning
 - Individual and group learning:
 - Mathematical Problem Solving
 - Mathematical Investigation and Exploration
 - Mathematical Reasoning and Communication
 - Mathematical Representation
- Using manipulative and ICT to enhance learning in Primary Mathematics
- Alternative Assessment in Realistic Mathematics Education
- Designing Realistic Mathematics lesson
 - Components of lesson plan
 - Designing contextual problems
 - Designing activities
 - Designing assessment instrument
 - Planning, designing, developing, and trying lesson plans/activities/materials with emphasis on realistic mathematics education approach

Duration : Four weeks

Participants : Primary mathematics teachers/educators

SM-3050 : INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON STUDENTS' ASSESSMENT IN SECONDARY MATHEMATICS CLASSROOMS

Rationale:

Assessment is an integral part of teaching and learning mathematics. Assessment as a tool is not only to collect data, but also to influence and improve instruction. This requires developing and implementing assessment tasks that measure students' productivity, their performance on tasks that require mathematical thinking in pursuit of a result that has meaning to the student. ICT plays an important role in assessment. It can be used to assist with grading and record keeping, journals, self evaluations, performance tasks and portfolio. ICT enables the teachers and students to create new ways of thinking, communicating, teaching, and assessing.

Learning Outcomes:

The main objective of this course is to help participants gain knowledge and skills in assessing students' learning through the use of ICT.

At the end of the course, participants should be able to:

- describe the concept, nature and purpose of assessment in mathematics education;
- state the various techniques of mathematics assessment;
- develop a model of assessment using ICT in mathematics classrooms;
- use a variety of assessment methods to determine students' understanding of mathematics;
- acquire knowledge and skills in using ICT to monitor and assess students' learning in mathematics; and
- develop assessment instruments using ICT that can be used in mathematics classrooms.

Course Contents:

The course will be activity oriented and will stress the use of ICT in assessment. The participants will be provided with opportunities to develop the necessary skills for assessing students in secondary mathematics using ICT.

The major areas include:

- Assessment: concept, nature and purpose;
- Validity and reliability of assessment;
- Interpret and use assessment information;
- Alternative assessment: interview, observation, portfolio, student journal writing, rubrics;
- ICT literacy related to secondary mathematics assessment;
- Use of ICT such as data analysis softwares, reflection tools (blogs, chat, forums); and
- Planning, designing, developing and trying out sample lesson plans/activities/ materials with emphasis on integrating ICT in assessment of secondary mathematics.

General components:

- Basic computer literacy;
- Action research;
- Multiplier effect;
- The goal of mathematics education;
- Issues and trends in mathematics education;
- The nature and history of mathematics, and the philosophy of mathematics education;
- How children learn mathematics:
 - Concept development and misconception in mathematics
 - Learning difficulties in mathematics
 - Constructivism: Theory, practice and research

Duration: Four weeks

Participants: Secondary mathematics teachers and mathematics educators

PS-7112 : LESSON STUDY: ENHANCING INSTRUCTIONAL PRACTICES IN PRIMARY SCIENCE CLASSROOMS

Rationale:

Effective lesson requires teachers to spend a great deal of time reflecting on their teaching. In most cases the teachers' decisions to plan and implement the lessons are influenced by their reflections based on the results from previous classes taught. Lesson Study – a collaborative classroom action research - is powerful approach to harness a teacher's reflective skills more systematically. Lesson study involves series of steps described in the Lesson study process and function as a form of self-reflective inquiry widely used in school-based curriculum, professional development and school improvement. Thus, Lesson Study is a powerful method to bridge existing gaps between theory and practice in teaching science. Through Lesson Study educators are encouraged to develop their own theories and pedagogy from their classroom practices to enhance professional growth through collaborative efforts.

Objectives:

The main objective of this course is to provide educators the necessary knowledge and skills in conducting Lesson Study in their own classrooms.

At the end of the course, the participants should be able to:

- acquire the basic knowledge on the nature and philosophy of Lesson study;
- develop an awareness on the effectiveness and implication of Lesson Study in science education;
- demonstrate reflective skills in their teaching practice;
- understand and be able to use alternative methods/strategies in Science through Lesson Study;
- acquire skills necessary to improve the teaching and learning of Science through Lesson Study; and
- design and implement Lesson Study.

Course Contents:

The course will involve discussions, hands-on and minds-on activities that will enable participants to acquire skills involved in initiating Lesson Study projects in school settings. The participants shall design a small-scale Lesson Study projects aimed to improve classroom practice. The major topics included are:

- Introduction to Research in Education
- Overview of Action Research and Lesson Study
- Issues and Trends in Primary Science Education
- Strategy and approach for improving Teaching and Learning in Science
- The Essential Elements of Action Research and Lesson Study Process
- Lesson Study as Approach to Conduct Collaborative Classroom Action Research
- Designing and Implementing Lesson Study Projects in Schools
- Documenting lesson study project

Duration: Four weeks

Participants: Primary science teachers and science educators

Currency : RM

**FEE PAYING SCHEDULE FOR SEAMEO RECSAM REGULAR COURSES (w.e.f. 1 July 2008)
FOR RESIDENTIAL AND NON-RESIDENTIAL PARTICIPANTS**

All components provided are for a duration of 4 weeks

PACKAGE ITEM	A RESIDENTIAL WITH FOOD/POCKET ALLOWANCE RM	B RESIDENTIAL WITHOUT FOOD/POCKET ALLOWANCE RM	C NON-RESIDENTIAL WITH FOOD/POCKET ALLOWANCE RM	D NON-RESIDENTIAL WITHOUT FOOD/POCKET ALLOWANCE RM
Tuition fees	820.00	820.00	820.00	820.00
Accommodation (Twin-sharing)	980.00	980.00	-	-
Facilities	710.00	710.00	710.00	710.00
Food/Out-of-pocket allowance	840.00	-	840.00	-
Materials	360.00	360.00	360.00	360.00
Local travel	70.00	70.00	70.00	70.00
Medical	45.00	45.00	45.00	45.00
TOTAL	3,825.00	2,985.00	2,845.00	2,005.00

Note:

- 1) The fee excludes participant's airfares, in-patient medical and health expenses, and travel insurance.
- 2) Fee-paying participant are eligible for membership to RECSAM Alumni Association of the member country they represent and enjoy benefits such as discount on the Centre's journal/periodicals as well as discounts on fees for seminars, conferences conducted by the Centre.