



REGULAR COURSES

FOR FISCAL YEAR 2019/2020 (BATCH 1)

5 - 30 AUGUST 2019
SEAMEO RECSAM, PENANG, MALAYSIA

COURSE INFORMATION

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COURSE CODE AND TITLE

Course Code	Course Title	No. of Scholarships Offered per Country
RC-PS-144-1	Inquiry-Based Learning in Primary Science Education	2
RC-SM-144-2	Mathematical Problem Solving in Real-World Situation for Secondary Mathematics Classrooms	2

IMPORTANT DATES

Date	Action
14 June 2019	Deadline to receive nominations from Ministries of Education
21 June 2019	Selection of participants by SEAMEO RECSAM
24-26 June 2019	Notification of acceptance to successful applicants (via email) <i>*Please ensure email ID provided in participation form are valid.</i>
5 July 2019	Deadline to receive confirmation of participation, passport and medical report
5 August 2019	Course commences
30 August 2019	Course ends



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 Website: <http://www.recsam.edu.my/>

1.0 QUALIFICATIONS

- 1.1 The **qualifications** required for the course participants are described in the annexures of different courses (refer to item 4.0). Please follow required qualifications strictly in your selection of participants. This would maximise impact of the courses and the nominated participants are expected to carry out multiplier effect training upon return to their country.
- 1.2 The selected participants must be in good health both physically and mentally. They should be certified medically fit to qualify for the course and should not be more than 50 years of age (applicants must submit **medical form** upon our notification of successful selection).
- 1.3 Due to the nature of the course which involves travels, outdoor learning and field trips, pregnant nominees will NOT be considered for the course.
- 1.4 Applicants should also submit copy of the **passport** (front page) together with the application. Applicants who do not have a passport at the time of application are required to submit this document **two weeks** after notification of successful selection.
- 1.5 Completed application form, scholar agreement, copy of passport and other relevant documents of the nominated candidates must be sent to SEAMEO RECSAM by **14 June 2019**. OR, a list of the names of potential nominees with the certified copy of their qualifications in Science/Mathematics must be sent.
- 1.6 Ministries of Education are encouraged to nominate at least **THREE CANDIDATES** for each course for selection purposes. SEAMEO RECSAM will only shortlist **TWO CANDIDATES** for each course. SEAMEO RECSAM has the right to reject candidates that do not match the requirement of the course. Please notify us if your country is unable to fill the number of the scholarships specified. The vacant places may be offered to other member countries.
- 1.7 All participants must have at least a moderate knowledge of written and spoken English.

2.0 GENERAL INFORMATION

2.1 Personal Accident Insurance

Participants should secure their own personal insurance themselves throughout the duration of the course. SEAMEO RECSAM will not be responsible to cover personal insurance.

2.2 Other Expenses

SEAMEO RECSAM will NOT bear any other fees such as passport fee, visa fee, exit fee, insurance premium, etc.

2.3 Terms of Scholarships

Participants on scholarships will be provided with:

- i) Return economy class air-ticket from nearest International Airport from participant's work station. As soon as nominations are received and accepted, air-tickets will be dispatched to the respective Ministries of Education.

Attention: After the ticket is issued, any fee incurred by a participant due to last minute cancellation or replacement of participant, should be borne by the Ministry of Education of that nominating country OR by the nominees themselves. SEAMEO RECSAM will not bear the cost of air ticket or penalty charge or extra charge.

2.4 Accommodation, Food and Attire

Participants will be accommodated at SEAMEO RECSAM International House with food provided during the course. Food allowance will be reimbursed on occasions when meals are not catered. The rooms are of double occupancy with bathrooms attached. SEAMEO RECSAM has the right to allocate room-mates to the participants. All participants are expected to be formally dressed for classes, T-shirts and jeans are NOT allowed during class sessions. Participants should also wear proper attire while traveling to and from Malaysia.

2.5 Exit Permits and Entry Visas to Malaysia

Visa is **NOT required** for a stay of less than a month for nationals of ASEAN countries except Myanmar. The following is required to be done as early as possible:

- i. Exit permit for nominated participants must be obtained from their own Government; and
- ii. Entry visa for nominated participants into Malaysia must be obtained from the Malaysian Embassy in the participants' own country. SEAMEO RECSAM will send offer letter to help expedite the visa application process when participation of nominee is confirmed. *(Myanmar only)*

2.6 Certificate Presentation Ceremony and Cultural Show

Participants are requested to bring along their country's national costume to be worn during the Certificate Presentation Ceremony and Cultural Show. There will be cultural performances by the participants during the ceremony at the end of the course. Please bring along necessary items to support this event.

2.7 Gifts Exchange

It is advisable that participants bring along own souvenirs to exchange among other participants.

3.0 PARTICIPANTS FROM SEAMEO MEMBER COUNTRIES ON FEE-PAYING BASIS

The following are conditions for participants from SEAMEO Member Countries on fee-paying basis:

- i. They will also abide by the stipulations of the SEAMEO RECSAM Scholar Agreement and follow the requirements of the programme;
- ii. They are physically fit and meet the necessary qualifications to attend the course, and
- iii. They pay a minimum course fee which does NOT include 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: +604-6522737).

4.0 COURSE DESCRIPTION

4.1 Course Code: RC-PS-144-1

Course Title: INQUIRY-BASED LEARNING IN PRIMARY SCIENCE EDUCATION

Rationale:

Science educators are confronted with great challenge and responsibility especially in making students learn. A considerable number of students are not motivated towards science learning hence the low academic achievement. There is a need to re-orient the way science teaching and learning is done. Inquiry-based science education (IBSE) is one of the effective researched-proven teaching and learning approach. It is an innovative educational method which has strong motivational impact on students and teachers (Trma, 2014). Also, it emphasizes the development of higher-order cognitive skills that have been identified as critical for the development of scientific thinking (Hughes, 2014). As such, students generally do not learn by memorizing the facts but instead it is about working with living things, observing natural phenomena, formulating investigable questions, giving explanation with evidence and providing suitable solutions to explain observed phenomenon and address questions and problems. Thoron and Burleson (2014) confirmed the work of Gibson and Chase (2002) that students who learn science using an inquiry approach score higher on science achievement tests, have improved science process skills, and have more positive attitudes towards science.

Objectives:

The main objectives of this course are to provide the participants with necessary knowledge and skills required to carry out inquiry-based learning in science.

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

1. acquire knowledge and philosophy of carrying-out inquiry-based science learning;
2. use research-based innovative inquiry-based learning approaches;
3. adopt current teaching skills necessary to enhance students' learning and interest in science through inquiry-based learning;
4. identify various entities that can support inquiry-based learning; and
5. collaboratively plan, design and implement inquiry-based science lesson.

Course Contents:

This course highlights the exemplary pedagogy and good classroom practices. Participants will have the opportunity to actively immerse into the philosophy of inquiry-based science education. Participants are encouraged to participate actively in the intellectual discourse and collaboration in designing and carrying-out an inquiry-based lesson. Furthermore, it will provide a platform for the participants to practice good global citizenship in learning together with fellow Southeast Asian citizens.

The major areas include:

1. Fundamentals of Science Inquiry
 - 1.1 What is Inquiry-based Science Education
 - 1.2 Hands-on Science Learning: Inquiry versus Non-Inquiry
 - 1.3 Science Process Skills
 - 1.4 Formulating Investigable Questions

- 1.5 Relationship of Inquiry and HOTS Encompassing Education for Sustainable Development and Education for Intra and International Understanding
- 1.6 Managing Science Inquiry Learning Environment
2. Experiencing Levels of Inquiry-based Learning for Diverse Learners
 - 2.1 Confirmation
 - 2.2 Structured
 - 2.3 Guided
 - 2.4 Open
3. Adopting Inquiry-based Learning Approaches
 - 3.1 Problem-based Learning
 - 3.2 Project-based Learning
 - 3.3 Socio-Scientific Issues-based Learning
 - 3.4 Research-based Learning
 - 3.5 STEM Education
4. Enhancing Inquiry-based Learning
 - 4.1 Integrating ICT
 - 4.2 Cross-Disciplinary Approaches
 - 4.2.1 Science Inquiry and Language Learning
 - 4.2.2 Science Inquiry and Citizenship Education
5. Assessing Inquiry-based Learning
6. Inquiry-based Learning Support and Resources
 - 6.1 Scientific Community Involvement
 - 6.2 Science Resource Centres
 - 6.3 Science Research Projects
 - 6.4 Online Resources
7. Theory into Practice
 - 7.1 Planning, Designing, Implementing and Improving Lessons Plans and Strategies with Emphasis on Inquiry-based Learning Using the Lesson Quality Improvement Processes

Duration: Four Weeks

Participants: Science Educators or Key Primary Science Teachers

English Proficiency: Able to communicate moderately in English

- Expected Output:**
1. Group Project Work Report
 2. Individual Multiplier Effect Action Plan

References:

- Hughes, P. W. (2014). *Teaching Scientific Inquiry: Inquiry-based Training for Biology Graduate Teaching Assistants Improves Undergraduate Learning Outcomes*. Toronto: Higher Education Quality Council of Ontario.
- Thoron, A. C. & Burleson, S. E. (2014). Students' Perceptions of Agriscience When Taught through Inquiry-based Instruction. *Journal of Agricultural Education*, 55 (1), 66-75.
- Trna, J. (2014). IBSE and Gifted Students. *Science Education International*, 25 (1), 29-39.

4.2 Course Code: RC-SM-144-2

Course Title: MATHEMATICAL PROBLEM SOLVING IN REAL-WORLD SITUATION FOR SECONDARY MATHEMATICS CLASSROOMS

Rationale:

Problem solving is the heart of mathematics. It is an activity where students are given the opportunities to do mathematics: to construct, conjecture, explore, test, and verify (Lester, Masingila, Mau, Lambdin, Santon, & Raymond, 1994). It has a long history in the teaching and learning of mathematics. It is also an instructional approach, which provides a context for students to learn and apply mathematics in the real-world situation.

A student's mathematical education is simply not complete if that student has not experienced the usefulness of mathematics in the real world. This experience comes through real-world problem solving. This course focuses on teaching and learning mathematics through problem solving in the real-world context and enquiry-oriented environment which are characterised by the teacher who facilitates students to construct a deep understanding of mathematics ideas and processes by engaging them mathematically in real-world situations.

Objectives:

The main objectives of this course are to provide the participants with the necessary knowledge and skills required to carry out problem solving in the real-world context and enquiry-oriented environment in the learning of mathematics.

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

1. acquire basic knowledge and philosophy of carrying out mathematical problem solving in real-world situations during the process of learning mathematics;
2. use creative and innovative problem solving strategies;
3. adopt current teaching skills necessary to enhance students' learning and interest in mathematics through problem solving in real-world situation;
4. develop skills to utilise problem solving strategies and approaches necessary to create mathematics lesson that promote and enhance mathematics learning using real-world situation;
5. assess the learning of mathematics; and
6. collaboratively plan, design and implement problem solving in the real-world context and enquiry-oriented environment lesson.

Course Contents:

This course highlights exemplary problem solving strategies and approaches, and effective classroom practices. It is activity-oriented and participants are encouraged to engage actively in initiating activities that facilitate discussions, sharing of experiences, demonstrations, designing and carrying out a problem solving inquiry-based lesson. Furthermore, it provides a platform for the participants to practice good global citizenship in learning together with fellow Southeast Asian teacher educators.

The major areas include:

1. Fundamentals of Problem Solving in Mathematics Education
 - 1.1 Nature and Basics of Mathematics Education
 - 1.2 Problem Solving, Real-World Context and Enquiry-oriented Environment

- 1.3 Sustainable and Life-long Learning
- 1.4 Learner-centred Learning
2. Strategies and Approaches to Enhance and Promote Mathematics Learning Utilising Real-World Context
 - 2.1 Problem Solving
 - 2.2 Structured Problem Solving and the Management of the Blackboard (Bansho)
 - 2.3 Model and Heuristics approaches
 - 2.4 Problem-based Learning (PBL4C)
 - 2.5 Realistic Mathematics Education
 - 2.6 Questioning Techniques and Facilitation
3. Assessment for Mathematics Learning
 - 3.1 Assessment for Learning
 - 3.2 Observation Skills
 - 3.3 Instruments and Techniques of Assessment for Learning
4. Theory into Practice
 - 4.1 Planning, Designing, Implementing and Improving Lessons Plans and Strategies with Emphasis on Promoting and Enhancing Mathematical Thinking using the Lesson Quality Improvement Processes.

Duration: Four Weeks

Participants: Mathematics Educators or Key Secondary Mathematics Teachers

English Proficiency: Able to communicate moderately in English

Expected Output: 1. Group Project Work Report
 2. Individual Multiplier Effect Action Plan

References:

Lester, F.K.Jr., Masingila, J.O., Mau, S.T., Lambdin, D.V., dos Santon, V.M. and Raymond, A.M. (1994). 'Learning how to teach via problem solving'. inAichele, D. and Coxford, A. (Eds.) *Professional Development for Teachers of Mathematics* , pp. 152-166. Reston, Virginia: NCTM.

5.0 CONTACT US

For further information, please contact:

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