REGULAR COURSES

FOR FISCAL YEAR 2023/2024

SEAMEO RECSAM, PENANG, MALAYSIA

COURSE INFORMATION

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REGULAR COURSES FOR FISCAL YEAR 2023/2024

COURSES INFORMATION

Course Code	Course Title	No. of Scholarships Offered per Country	Duration of Course
Regular Courses For Fiscal Year 2023/2024 (Batch 1)			
RC-PS-148-1	Embracing Inquiry-Based Science Education To Enhance Instructional Capacity Of Primary Science Teachers	2	7 August – 1 September 2023
RC-PM-148-2	Promoting Inquiry Learning In Primary Mathematics	2	7 August – 1 September 2023
Regular Courses For Fiscal Year 2023/2024 (Batch 2)			
RC-SS-148-3	Enhancing Secondary Science Education Through Professional Learning Community (PLC) Engaging In Classroom-Based Research	1	6 – 31 May 2024
RC-SM-148-4	Implementing School-Based Alternative Assessment In Secondary Mathematics Education	2	6 – 31 May 2024

IMPORTANT DATES

for Regular Courses for Fiscal Year 2023/2024 (Batch 1)

Date	Action
7 July 2023	Deadline to receive nominations from Ministries of Education
18 July 2023	Deadline to receive confirmation of participation, passport and medical report
7 August 2023	Course commences
1 September 2023	Course ends

IMPORTANT DATES

for Regular Courses for Fiscal Year 2023/2024 (Batch 2)

Date	Action
31 January 2024	Deadline to receive nominations from Ministries of Education
20 February 2024	Deadline to receive confirmation of participation, passport and medical report
6 May 2024	Course commences
31 May 2024	Course ends

SOUTHEAST ASIAN MINISTERS OF EDUCATION ORGANIZATION
REGIONAL CENTRE FOR EDUCATION IN SCIENCE AND MATHEMATICS
Jalan Sultan Azlan Shah, 11700 Gelugor, Penang, Malaysia
Telephone: 604-6522700 Fax: 604-6522737
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 for **Batch 1** must be sent by **7 July 2023** and for **Batch 2** by **31 January 2024**. 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 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.

1.8 With regards to COVID-19, all participant should observe the travelling regulation of their own local government in addition to the SOP by National Security Council Malaysia, Ministry of Health Malaysia and Malaysia Immigration Department.

2.0 GENERAL INFORMATION

2.1 Insurance

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

2.2 Other Expenses

SEAMEO RECSAM will NOT bear any other fees that may incur in preparation of the course such as passport fee, visa fee, exit fee, costs for medical checkup and 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.

ii) Airport transfer before and after the commencement of training courses

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-148-1

Course Title: EMBRACING INQUIRY-BASED SCIENCE EDUCATION TO ENHANCE INSTRUCTIONAL CAPACITY OF PRIMARY SCIENCE TEACHERS

Introduction:

Inquiry-Based Science Education (IBSE) emphasizes on allowing children the opportunity to explore “hands-on”, to experiment, to ask questions and to develop responses based on reasoning. Science should be innovative for finding new facts and developing technology. This method is based on students’ inquiry and they should find the procedure and solution. Students can get scientific knowledge and skill thorough IBSE.

Rationale:

Inquiry-based science education (IBSE) is widely believed as an inspiring way of learning science by engaging pupils in planning and conducting their scientific investigations. Ironically, today the number of students who are interested in studying science has decreased in many countries, including in SEAMEO region. This could be due to several negative factors, such as outdated methods of science teaching and learning in schools, lack of apparatus and science materials for hands-on activities, evolving new scientific and technological environments, and changing students’ learning styles. The IBSE approach which focuses on hands-on investigative process in learning is generally recognised as an innovative method to motivate young people in science learning as well as to prepare them for lifelong learning. To fulfil the aspiration of IBSE as an effective science learning method, the implementers at the ground level, clearly the school teachers, must understand and commit to actualise the principles of this educational method. Therefore, it is relevant and important to include IBSE in the development of science teacher professional skills for its application.

Objective:

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

Upon completion of this course, the participants will be able to:

1. acquire knowledge and philosophy of carrying-out inquiry-based science education;
2. use research-based innovative inquiry-based science education approaches;

3. adopt current teaching skills necessary to enhance students' learning and interest in science through inquiry-based science education;
4. identify various entities or organisations that can support inquiry-based science education; 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. Fundamental 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
1.6 Relationship of Inquiry and SDGs
1.7 Managing Science Inquiry Learning Environment

2. Experiencing Level 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
3.5 STEM approach in science education

4. Enhancing Inquiry-based Learning
4.1 Integrating ICT
4.2 Interdisciplinary Approaches in
4.2.1 Science Instruction, and
4.2.2 Science Content Knowledge

5. Assessing Inquiry-based Learning
5.1 Critical Thinking
5.2 Project Planning
5.3 Communication Skills

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. Workshop on Improvisation of Teaching Aids

8. Theory into Practice
8.1 Planning, Designing, Implementing and Improving Lesson 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 in English

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

References:

Ban chi, H., & Bell, R. (2008). The Many Levels of Inquiry. *Science and Children*, 46(2), 26-29

Bulba, D. (2019). *What is Inquiry-Based Science?* Smithsonian Science Education Center https://ssec.si.edu/stemvisions-blog/what-inquiry-based-science

Settlage, J., Southerland, S. A., Smetana L. K., & Lottero-Perdue P.S. (2018). Teaching Science to Every Child. *Using Culture as a Starting Point*, 179-181

MacKenize, T. (2016). *Bringing inquiry-based learning into your class*. https://www.edutopia.org/article/bringing-inquiry-based-learning-into-your-class-trevor-mackenzie

4.2 Course Code: RC-PM-148-2

Course Title: PROMOTING INQUIRY LEARNING IN PRIMARY MATHEMATICS

Introduction:

Mathematics has always been consider as a discipline to develop human minds. Generally, mathematics curriculum has been designed to nurture quality thinking ability among school students. However, in the current situations, many students are not happy in their mathematics classrooms and find learning of mathematics very difficult. Therefore, there is a crucial need to encourage these students to learn mathematics in a more engaging way that make sense to them.

Rationale:

Inquiry Learning is a broad base instructional approaches to teach and learn mathematics through mathematical investigation. This investigation encourages curiosity in students by asking questions that actively engage the minds and the hearts. When students are actively engaged in the process of inquiry, concepts are easily understood and learning becomes meaningful. In addition, mathematical thinking can be developed by challenging students' cognitive abilities through inquiry tasks in order to extend their learning.

In this course, participants are exposed to various approaches of carry out inquiry learning in mathematics. In order to effectively promote inquiry learning in mathematics, appropriate mathematical contents need to be cleverly embedded into inquiry tasks. Thus, the ability to design such tasks need to be developed among the participants for classroom practices. Furthermore, the participants are also guided to face the challenge of diversity of learners by designing different categories of inquiry tasks to suit different learning needs. As mathematics is an abstract subject to many students, therefore it is crucial to support their learning by using relevant and interesting resources such as ICT.

The process of inquiry in learning mathematics is as important as the mathematical ideas. Hence the assessment of inquiry learning need to be diversified to capture the different outcomes of learning. Performance assessment and tools will be used to gauge the success of inquiry learning that involves active engagement of the learners.

Objective:

This course intends to provide the participants with necessary knowledge and skills required to carry out inquiry learning in mathematics.

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

1. gain insights on the beliefs, principles, and the essential elements of inquiry learning in mathematics;
2. design mathematical tasks with various challenging levels that will enhance conceptual learning through inquiry;
3. acquire knowledge and skills of carrying out various motivating approaches of inquiry learning in mathematics;
4. apply information communication technology (ICT) to enhance inquiry learning in mathematics;
5. assess the process and product of inquiry learning in mathematics; and
6. collaboratively plan, implement and evaluate a lesson on inquiry learning in mathematics.

Course Contents:

This course highlights the exemplary instructional approaches on developing conceptual understanding of mathematics through inquiry learning. Participants will have the opportunity to actively engage with mathematical tasks in an inquiry-oriented environment. A brief introduction to assessment of inquiry learning based on both process and product (Danielson & Marquez, 2016) will also be presented to the participants.

The major areas include:

1. Fundamentals of Inquiry in Mathematics

1.1 Beliefs in Inquiry Learning
1.2 Principles of Inquiry Learning
1.3 Essential Elements of Inquiry Learning
1.4 Inquiry Learning to Promote Conceptual Understanding

2. Designing Mathematical Inquiry Tasks
2.1 Embedding Mathematics Contents in Inquiry Tasks
2.2 Categories of Inquiry Task: Open, Guided, Structured, Confirmative

3. Various Motivating Approaches of Inquiry Learning in Mathematics
3.1 Mathematical Investigation
3.2 Teaching Through Problem Solving
3.3 Problem-Based Learning
3.4 Realistic Mathematics Education
3.5 Outdoor Mathematics

4. Enhancing Inquiry Learning in Mathematics
4.1 Resources to Support Inquiry Learning
4.2 Supporting Inquiry Learning through ICT
4.3 Workshop on enhancing Inquiry Learning in Mathematics

5. Assessing Inquiry Learning in Mathematics
5.1 Assessing the Processes and Products of Inquiry Learning
5.2 Performance Assessment
5.3 Assessment Tools

6. Theory into Practice: Planning, Implementing, Evaluating and Improving a Lesson on Inquiry Learning in Mathematics

Duration: Four weeks

Participants: Mathematics Educators or Key Primary Mathematics Teachers

English Proficiency: Able to communicate in English

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

References:

Danielson, C. & Marquesz, E. (2016). *Performance tasks and rubrics for middle school mathematics. Meeting rigorous standards and assessments*. New York, NY: Routledge.

Erickson, H. L.; Lanning, L. A. & French, R. (2017). *Concept-based curriculum and instruction for the thinking classroom*. (2nd ed.). Thousand Oaks, CA: Corwin.

Isoda, M. & Katagiri, S. (2012). *Mathematical thinking: How to develop it in the classroom*. World Scientific. Singapore.

Mitchell, K. L. (2019). *Experience inquiry: 5 powerful strategies, 50 practical experience*. Corwin. USA.

Wathall, J. T. H. (2016). *Concept-based mathematics. Teaching for deep understanding in secondary classrooms*. Thousand Oaks, CA: Corwin.

4.3 Course Code: RC-SS-148-3

Course Title: ENHANCING SECONDARY SCIENCE EDUCATION THROUGH PROFESSIONAL LEARNING COMMUNITY (PLC) ENGAGING IN CLASSROOM-BASED RESEARCH

Introduction:

The notion of professional learning community (PLC) in school is to embrace teachers in professional development that can improve pupil learning. This seems to be a widely accepted postulation, based, perhaps on 'empirical consensuses' that PLC as a vehicle for 'teacher learning' practice would attribute to better classroom instruction and enhanced pupil achievement. Hence forth, the more the effectiveness of PLC, there would have more positive impact associating with pupil success. This course is to expose participants with various pedagogical strategies, focusing on the classroom-based research of promoting sustainable capacity building in teacher professional development.

Rationale:

A PLC in a school is usually made up a small group of teachers who practice collaborative learning with their colleagues to foster professional development with the aim on improving student learning. PLC requires its members to focus on professional learning rather than teaching. In which everyone must contribute by engaging collectively to undertake activities and reflection in order to improve students' achievement. The effectiveness of PLC lies in shared values and vision coupled with mutual trust, respect and support among its members (Bolam, et al. 2005). The practical implications for developing an effective PLC should look beyond daily classroom teaching routines. This means, teachers should observe, reflect, and analyse their daily lessons to meet the ultimate goal of improving the quality of teaching, serving the needs of students, and enhance better learning. Bearing in mind that every teaching situation is unique: what works well in one class may be completely ineffective, or even counterproductive, for a different group of learners (Kostoulas & Lammerer, 2015). As

responsible teachers we have to try to find out more about the teaching contexts in which we work. Hence, it is certainly appropriate to regard teachers as researchers.

Naturally, embracing classroom-based research would be most appropriate way to find out what works best in our classrooms, so that we might improve our practice making learning more effective for the benefit of our students. With the establishment of PLC, teachers work collaboratively, to carry out the systematic study in learning about themselves, their learners and the classes they teach. Findings would be grounded on data rather than teacher reflection, and certainly considerably less abstract than the kind of research that is carried out by professional educational researchers. The strength of the findings generated by classroom-based research are more personally relevant to teachers, and of much more direct practical impact (Kostoulas & Lammerer, 2015).

Objectives:

The aim of this course is to provide participants with the knowledge and skills required to conduct classroom-based research within the reign of professional learning community (PLC) in their own schools to enhance secondary science teaching and learning.

Upon completion of the course, participants will be able to:

1. narrate the current trends and issues in teaching and learning of secondary science;
2. relate some strategies or approaches to enhance the teaching and learning of secondary science;
3. describe the basic procedures for conducting classroom-based educational research, such as action research, case study and lesson study;
4. implement classroom-based educational research methods to enquire the effectiveness of instructional practices for improving teaching and learning of secondary science;
5. apply simple qualitative or/and quantitative techniques for data analysis gathered from classroom-based research; and
6. plan, design, implement, analyse and make conclusion collaboratively on a secondary classroom-based research study.

Course Contents:

This course focuses on methodology of practical implementation of a classroom-based research inquiry in promoting teacher professional development leading to enhancing student learning. Participants are expected to engage actively and collaboratively in course activities and discussions, as well as fostering team work in designing and carrying out a small-scale classroom-based research study. The knowledge and skills acquired would enable them to initiate classroom-based research and form PLC for improving secondary science classroom instructional practices in their respective schools upon returning to their own countries.

The major areas in the Core Components include:

1. Secondary Science Education

1.1 Trends and Issues in 21st Century Secondary Science Education

1.2 Selected Strategies/Approaches in Teaching and Learning of Secondary Science

- Inquiry-based learning (IBL)

- Problem-based learning
- Project-based learning
- Outdoor science learning
- Using ICT (digital tools & web-based resources) to enhance learning in secondary science
- Questioning techniques

1.3 Assessment *as, for* and *of* Learning in the Secondary Science Classrooms

2. Introduction to Classroom-based Research Methodologies
2.1 Nature and Elements of Educational Research
2.2 Types of Research: Qualitative, Quantitative and Mixed-mode Research
2.3 Examples of classroom-based research on teaching and learning of secondary science

3. Workshop on a Classroom-based Research on Secondary Science Education
3.1 Probing deeper into a specific classroom-based research on teaching and learning of secondary science
3.2 research, lesson study or case study. Workshop on the classroom-based research may be in the form of an action

4. Data Analysis and Interpretation
4.1 Qualitative data analysis and interpretation
4.1.1 Methods of qualitative data collection: observation, interviews, field notes, reports, audio and video materials, etc.
4.1.2 Techniques in qualitative data analysis: to describe, summarise, discover patterns, present, explore
4.2 Quantitative data analysis
4.2.1 Introduction Descriptive Statistics and Inferential Statistics
4.2.2 Exposure to Software Programmes/Statistical Packages (e.g. EXCEL, SPSS) for Data Analysis

5. Professional Learning Community
5.1 Teachers as Researchers
5.2 What, Why and How: Establishing PLC

6. Theory into Practice: Implementing a small-scale Classroom-based Research
6.1 Research Question and Design
6.2 Data Collection and Analysis
6.3 Interpretation, Conclusion and Report Writing

Duration: Four weeks

Participants: Science Educators or Key Secondary Science Teachers

English Proficiency: Able to communicate in English

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

References:

Bolam, R., McMahon, A., Stoll, L., Thomas, S., & Wallace, M., Greenwood, A., Hawkey, K., Ingram, M., Atkinson, A., & Smith, M. (2005). Creating and Sustaining Effective Professional Learning Communities, *DfES Research Report RR637*, University of Bristol. Retrieved from http://www.lcll.org.uk/uploads/3/0/9/3/3093873/plc_source_materials_summary.pdf

Cohen, L., Manion, L. & Morrison, K. (2011). *Research methods in Education*. 7th ed. New York: Routledge.

DuFour, R. (2004). *Schools as learning communities*. Educational Leadership 61-8 (p.6-11). Retrieved from http://www.ascd.org/publications/educational-leadership/may04/vol61/num08/What-Is-a-Professional-Learning-Community%C2%A2.aspx

Gay, L.R. Mills, G.E. & Airasian, P. (2012). *Educational research competencies for analysis and applications* (10th edition). Boston: Pearson

Hard, S.M., Roussin, J.L. & Sommers W.A. (2010). *Guiding professional learning communities : inspiration challenge surprise, and meaning*. U.K.: Corwin

Kanageswari, S.S.S. & Lee, S.M. (2017). Barriers of implementing action research among Malaysian teachers. Pertanika J. Soc. Sci. & Hum. 25 (4): 1651 - 1666 (2017). ISSN: 0128-7702 © Universiti Putra Malaysia Press

Kostaulas, A. & Lammeter, A. (2015). *Classroom-based research materials created for ELT Connect 2015*. Craz: University of Craz

Lee, S.M. (2010). *Strengthening Collaborative Efforts between CRICED University of Tsukuba and SEAMEO RECSAM for Uplifting Science Education in Developing Countries through South-South Cooperation*, in South-South Cooperation of SEAMEO RECSAM A Program Report by Visiting Foreign Research Fellows No. 22. Japan: CRICED, University of Tsukuba

Lee, S.M. & Oyao, S.G. (2013). Establishing Learning Communities among science teachers through lesson study. *Journal of Science and Mathematics Education in Southeast Asia*, Vol.36 No.1, 1-22. Malaysia: SEAMEO RECSAM

4.4 Course Code: RC-SM-148-4

Course Title: IMPLEMENTING SCHOOL-BASED ALTERNATIVE ASSESSMENT IN SECONDARY MATHEMATICS EDUCATION

Introduction:

Assessment is a systematic process of gathering information about what a student knows, is able to do, and is learning to do. Assessment information provides the foundation for decision-making and planning for instruction and learning. The traditional form of student assessment often involves paper and pencil tests to gather average grading of a cumulative set of work for a given time period. However, alternative assessment allows a more holistic approach to student assessment in the form of student performance. With alternative assessments, students are able

to provide their responses to the intended assessment which are more varied in nature that can indicate a broader range of their learning competency.

Rationale:

The primary purpose of classroom assessment is to obtain information to inform teachers' teaching and improve students' learning. Hence the role of assessment must be meaningful and holistic in presenting students' performance accurately. In the teaching and learning of mathematics, assessment must be closely linked to its contents, pedagogies used and classroom instructional practices. The various perspectives assumed by assessment *as* learning, assessment *of* learning, and assessment *for* learning are fundamentals of assessment for effective mathematics teaching and learning.

Alternative assessment gives students the opportunity to demonstrate the depth and scope of what they have learned rather than being limited to traditional tests or examinations. In logical perspectives, alternative assessment should be used to determine the cognitive, affective, and psychomotor abilities of students in their learning. In other words, alternative assessment measures applied proficiency more than measuring knowledge. Therefore it is important that teachers know the latest trend of assessment and how to use various assessment methods and tools to gauge the students' progress in learning mathematics.

Objective:

This course aims to equip participants with the notion of classroom assessment as an integral part of mathematics instruction. As such, participants will be engaged in activities that would enable them to acquire knowledge, attitude, skills and habits to operationalise the integration of various methods and tools of alternative assessment that align to their instructional strategies as routine classroom practices.

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

1. gain understanding on the principles, purposes, and practices of the various types of classroom assessment;
2. explain the interrelationships of classroom assessment with pedagogy and curriculum in the teaching and learning process;
3. discuss the potential influences of national and school-based assessments to classroom teaching and curriculum development;
4. enhance skills to align current active mathematics teaching and learning approaches that promote mathematical thinking;
5. develop tasks, assessment methods and tools to gauge students' achievement in learning mathematics;
6. integrate technology in mathematics assessment; and
7. plan, design and implement mathematics lesson by adapting an instructional design with emphasis on assessment as well as congruency to content and pedagogy.

Course Contents:

The course focuses on the significance of assessment in planning mathematics lessons and the coherence of the essential components that align to assessment procedures. These aspects will ensure quality of student learning and teaching effectiveness. The course activities are designed to cater for discussions, presentations, mathematical discourse, and hands-on and mind-on session.

The major areas include:

1. Trends and Issues of Educational Assessment in the 21st Century
    - 1.1 21st Century Skills in Mathematics Teaching and Learning
    - 1.2 Assessment in Mathematics Teaching and Learning

2. Fundamental of Assessment
    - 2.1 Principle, purposes and practices
    - 2.2 Aligning Assessment with Learning Standards in a Curriculum

3. Potential Influence of National and School-based Assessment in Student Learning
    - 3.1 National, Classroom-based and School-based Assessment in Practices
    - 3.2 Construction of Classroom-based Assessment Plan

4. Aligning Mathematics Pedagogy and Assessment Criteria
    - 4.1 Developing Assessment Criteria for Student Learning
    - 4.2 Constructivism and its Implications to Assessment
    - 4.3 Formative and Summative Assessment in Mathematics Classroom
    - 4.4 Self-Assessment and Peer Assessment

5. Enhancing Teacher's Understanding and Practices on the Role of Assessment
    - 5.1 Questioning Techniques
    - 5.2 Performance Tasks
    - 5.3 Marking Rubrics
    - 5.4 Importance of Feedback
    - 5.5 Observation Skills
    - 5.6 Analyses of Students' Work and Homework
    - 5.7 Developing Student Motivation for Learning

6. The Use of Information and Communications Technology (ICT) in Assessment
    - 6.1 Computer-based Test Items
    - 6.2 Online/Web-based Resources for Assessment

7. Theory into Practice
    - 7.1 Planning, Implementing and Improving the Adopted Appropriate Strategies, Skills and Assessment Practices, through the Lesson Quality Improvement Processes.

Duration: Four weeks

Participants: Mathematics Educators or Key Secondary Mathematics Teachers

English Proficiency: Able to communicate in English

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

References:

Dix, P. (2010). *The essential guide to classroom assessment*. Great Britain: Ashford Colour Press Ltd.

Gareis, C. R. & Grant, L. W. (2012). *Teacher-made assessments: How to connect curriculum, instruction, and student learning*. (3nd ed.). New York and London: Routledge.
Gardner, J. (2006). *Assessment and learning*. London: SAGE Publication.
Irons, A. (2008). *Enhancing learning through formative assessment and feedback*. New York and London: Routledge.
Mulvahill, E. (2018) 25 alternative assessment ideas. Retrieved from https://www.weareteachers.com/alternative-assessment-ideas/
Rousseau, P. (2018). Best practices in alternative assessment. Ryerson University. Retrieved on Jun.1, 2019 from https://www.ryerson.ca/content/dam/lt/resources/handouts/Alternative_Assessments.pdf
Waugh, K. C. & Gronlund, N. E. (2013). *Assessment of student achievement.* (10th ed.). USA: Pearson.
Wyatt-Smith, C. & Cumming, J. (2009). (Ed.) *Educational assessment in the 21st century: Connection theory and practice*. New York: Springer.

5.0 SEAMEO GOOGLE EDUCATION WORKSHOP DURING REGULAR COURSES

Google for Education, in partnership with SEAMEO RECSAM, will be training 2 cohorts a year for the next 3 years to use Google Workspace for Education technology in designing learning for their students and sharing their knowledge with other educators in their home countries. Google Workspace for Education includes Docs, Slides, Sheets, Sites, Classroom and more. When combined with other Google products such as Google CS First and the Applied Digital Skills curriculum, teachers completing the course will be prepared to design great learning for their students. Participants will also start to understand the role of the Artificial Intelligence and Machine Learning built into many of the Google products and how that can support learning and the streamlining of administrative tasks and assessment.

Learning Outcomes:
By the end of this course, participants will;

- Have developed a deeper knowledge of the different applications of the Google Workspace for Education cloud based learning platform
- Have completed training in the use and application of the tools to positively impact teaching and learning and to streamline administrative processes and assessment
- Have completed a certification appropriate to their level (Level 1 or Level 2) and for those participants feeling confident in their skills, they will create STEM focused lessons using the technology to share with other educators

Course Description:
Pre-course - complete the 'Introduction to Google Workspace for Education' MOOC

Day 1

- Introduction to the Google Workspace for Education platform and the broader Google Learning ecosystem

- Skills workshops for Level 1 and Level 2 participants
- Hybrid session on the application of technology in designing STEM learning
- Complete Level 1 and/or Level 2 examination
- Explore Augmented Reality with Google Arts & Culture and Computer Science with Google CS First

Day 2

- Level 2 skills workshops for those taking the Level 2 exam today
- Workshop on Be Internet Awesome and Google Applied Digital Skills Curriculum
- Level 2 Examination
- STEM Hybrid Learning Design Challenge - applying new digital skills to create STEM learning experiences and lessons to be shared with other educators
- Certificate Ceremony and Celebration

6.0 CONTACT US

For further information, please contact:

Centre Director
SEAMEO RECSAM
Jalan Sultan Azlan Shah
11700 Gelugor
Penang, Malaysia

Tel: +604 6522 700 l Fax: +604 6522 737 l Email: director@recsam.edu.my

Officer in-charge:
Ms. Tiana Mohamad l Email: tiana@recsam.edu.my l Tel: +604 6522 764

Appendix 1

Please affix passport photograph

APPLICATION FORM

REGULAR COURSES FOR FISCAL YEAR 2023/2024

Please type or write clearly in capital letters. Do not leave any space blank. Use "NIL" or "N/A" where applicable

Please tick √ your choice. Kindly note that you are NOT allowed to change once you indicated your subject of choice

Application for:

☐ RC-PS-148-1 ☐ RC-PM-148-2
☐ RC-SS-148-3 ☐ RC-SM-148-4

Course Code:	**Duration of the Course:**
Title Of Course:	**Country:**

1. PERSONAL DATA

Family Name (surname) :	Date of birth : Day | Month | Year
First Name :	Nationality (citizenship) :
Other Names :	Gender : Male / Female #
City and country of birth :	Marital status : Single / Married #
Passport No : Type of Passport: Expiry Date:	Religion :

Delete accordingly

2. COMMUNICATION AND MAILING ADDRESS

Applicant's Office Address :		Applicant's Postal / Home Address :
Mobile Phone Number Country | Area | Number		Home telephone | Country | Area | Number
Office telephone Country | Area | Number	Telefax Country | Area | Number	Email

Person to be contacted **in case of emergency** :
Name :_____
Telephone :_____ Mobile Phone Number:_____
Address :_____
Email :_____

3. EDUCATION (list from highest qualification)

Name of Colleges/ Institutions/ University & Country	Major Field of Study	Years of study : from - to	Degree

4. EMPLOYMENT RECORD (list from current position onwards)

Name of Institution/Employer	Position	Years of work: from – to

Delete accordingly

Describe your work and responsibility:

5. REASONS FOR APPLYING THIS COURSE

Please state briefly the reasons for applying to this course and how you hope to benefit from the course.

6. OVERSEAS COURSES/ CONFERENCES/ SEMINARS ATTENDED INCLUDING PROGRAMME OF SEAMEO RECSAM

Name of Conference/ Seminar	Venue	Date: from – to

Delete accordingly

7. ENGLISH LANGUAGE PROFICIENCY

	Excellent	Good	Fair	Basic	Remarks
Listening					
Speaking					
Writing					
Reading					

8. INFORMATION, COMMUNICATION AND TECHNOLOGY (ICT) SKILLS PROFICIENCY

	Excellent	Good	Fair	Basic	Remarks
Microsoft Office					
Email					
Internet					

9. GOOGLE EDUCATOR CERTIFICATE

None	☐
L1	☐
L2	☐
Trainer	☐
Coach	☐

Tick √ accordingly

Applicant Acknowledgement	
…… Date	…… Signature of Applicant/Participant
Recommended by Ministry of Education	
…… Date	…… Signature & Name of Official on behalf of Minister of Education

IMPORTANT: THIS FORM SHOULD BE COMPLETED IN DUPLICATE. A COPY IS TO BE SENT THROUGH YOUR MINISTRY OF EDUCATION BY REGISTERED AIRMAIL TO REACH THE FOLLOWING ADDRESS

DIRECTOR

SEAMEO RECSAM, JALAN SULTAN AZLAN SHAH,

11700 GELUGOR, PENANG, MALAYSIA

Appendix 2

SEAMEO RECSAM SCHOLAR AGREEMENT

THIS DEED is made the_____day of_____Two Thousand and Twenty Three/Four (2023/2024) between_____of _____

(hereinafter called 'the Scholar') of the first part and the Southeast Asian Minister of Education Organization (hereinafter called 'SEAMEO') of the second part.

WHEREAS the Scholar will pursue the course of training specified in the Schedule hereto (hereinafter called 'the Course') at the SEAMEO Regional Centre for Education in Science and Mathematics in Penang, Malaysia under a scholarship granted by SEAMEO. AND WHEREAS the Scholar has expressed his willingness to accept the Scholarship upon the terms hereafter set out:

NOW THIS DEED witnessed as follows:

1. In this deed unless the context of otherwise requires:

   Words importing the masculine gender include females;

   Words in the singular include the plural and words in the plural include the singulars;

2. The Scholar hereby covenants:

   (i) that he will enter upon and diligently continue in the Course and that he will complete the Course within the prescribed time specified in the Schedule hereto;

   (ii) that he will devote his whole time to the Course and will, to the best of his ability apply himself to the Course to the satisfaction of the supervisors, tutors or instructors associated therewith;

   (iii) that he will follow all the sessions of the Course and sit for all the assessment tests prescribed, if any, for the Course within the limits of time prescribed in the Schedule hereto;

   (iv) that he will conform to the regulations and discipline in force from time to time at his place of study or training and at his place of residence;

   (v) that he will reside in SEAMEO RECSAM's hostel, or other place as directed by the Director of the SEAMEO Regional Centre for Education in Science and Mathematics (hereafter called 'the Director');

   (vi) that all rights, including title, copyright and patent rights, in any work produced by him as part his course/project of SEAMEO RECSAM shall be vested in the Course;

   (vii) that he will not undertake any occupation, either remunerative or otherwise, outside the course except with prior approval of the Director;

   (viii) that he will, if in receipt of any remuneration, whether in money or money's worth for any work or service which he is required to undertake or perform as part of the Course or any award gained during the Course, report the same to the Director and shall if so required by the Director surrender to the Director all or such proportion of any such remuneration or award as the Director may determine, retaining any remainder thereof for himself;

   (ix) that he will refrain from participation in political activities not normally permitted in the institutional in which the Course is taken;

   (x) that he will not change his subjects of study or programme of training or take any additional courses without the prior written permission of the Director; and

   (xi) that he will not leave the country unless with the joint approval of his Ministry of Education as well as that of the Centre Director.

3. If the Scholar shall:-

(i) be idle or grossly misbehaves himself towards the supervisors, tutors, or instructors associated with the Course or commit a breach of his obligations under this deed; or

(ii) by reason of illness or injury be unable to carry out his obligations under this deed;

Then in either of those cases SEAMEO may forthwith terminate the scholarship by giving notice to the Scholar but without prejudice to the rights of the parties hereunder in respect of any antecedent breach of the covenants and stipulations herein contained.

4. The Scholar for himself and his/her personal representative hereby further undertakes:-

(i) to absolve SEAMEO including its servants from any liability to the Scholar for loss of life or injury to his person or damage or loss to his property arising from the negligence of the servants of SEAMEO; and

(ii) to indemnity and keep harmless SEAMEO against all proceedings, suits, actions, claims, demands, costs and expenses whatsoever which may be taken or made against SEAMEO or incurred or become payable by SEAMEO in respect of injury (whether fatal or otherwise) to any person of damage or loss to any property occasioned directly of indirectly by any act, omission or other default by the Scholar while on or otherwise in relation to or arising out of the Course.

5. It is hereby agreed that any right, function or power conferred on SEAMEO under this deed may be exercised by the Director or any person duty authorised by him in that behalf.

IN WITNESS WHEREOF the Scholar and SEAMEO by its duty authorised representative have set their hands and seals hereunto the day and year first above written.

THE SCHEDULE ABOVE REFERRED TO

Signed, sealed and delivered by)
The SCHOLAR in the presence of:)
)
)
Signature .....) .....
(Witness)) (Signature of SCHOLAR)
)
Name .....)
Address .....)
.....)

Signed, sealed and delivered by the DIRECTOR of the SEAMEO)
Regional Centre for Education in Science and Mathematics in Penang)
Malaysia, who has been duty authorised to act in that behalf for the)
)
Signature .....) .....
(Witness)) (Signature of DIRECTOR, SEAMEO RECSAM)
Name .....)
Address .....)
.....)

Appendix 3

MEDICAL FORM

(to be completed by an authorised physician and required to be submitted after notification of successful selection)

<table>
<tr><td colspan="4">Name of Applicant:</td></tr>
<tr><td>Age:</td><td>Gender:</td><td>Height: cm</td><td>Weight: kg</td></tr>
<tr><td colspan="4">Blood Pressure:</td></tr>
<tr><td colspan="4">Blood Group: ☐ A ☐ B ☐ AB ☐ O ☐ Other ( )</td></tr>
<tr><td colspan="2">Is the person examined at present in good health?</td><td colspan="2">Is the person free of infectious diseases (AIDS, tuberculosis, trachoma, skin diseases etc.)?</td></tr>
<tr><td colspan="2">List any abnormalities indicated in the chest X ray.</td><td colspan="2">List any other sickness (diabetic, high blood pressure etc.)</td></tr>
<tr><td colspan="4">I certify that the applicant is medically fit to undertake a course in Malaysia.

Name of Physician:

Address of Clinic:

Telephone:

Email:

Signature of Physician: Date:

Seal of Clinic:</td></tr>
</table>

Appendix 4

CHECKLIST

Name: _____

Country: _____

No	ITEM	QUANTITY	YES/NO
1	**APPLICATION FORM**	**1**	
2	**PHOTOCOPY OF PASSPORT*** (Only the front page with participants' particular are required)	**1**	
3	**SCHOLAR AGREEMENT**	**1**	
4	**MEDICAL REPORT** (*upon notification of successful selection)	**1**	

*Note: Deadline for nomination form submission is **7 July 2023 (Batch 1) and 31 January 2024 (Batch 2)***