



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

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Course Code	: RC-SM-144-4
Course Title	: Purposeful Assessment in Secondary Mathematics Classrooms
Duration	: 15 February – 12 March 2021; 4 Weeks (2 Weeks Online Classes & 2 Weeks Online Project Supervision)
Participants	: Secondary Mathematics Teachers / Mathematics Educators
Course Supervisor	: Warabhorn Preechaporn

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## 1. RATIONALE

Assessment is a fundamental practice in mathematics education that is perceived to be the driving force in curriculum development, implementation, teaching and learning process in the classroom. The new generation of students are expected to think critically, justify, evaluate, synthesise, and apply knowledge in new contexts, as well as solving non-routine problems (Brookhart, 2010), and communicate effectively in a mathematical discourse. As such the structure of the assessment system inevitably needs a deeper look.

In addition, accountability for student achievement, emphasis on national and international assessment programmes (TIMSS & PISA), and global competition are some high stakes activities that contribute to the increased demands for assessment.

Purposeful assessment practices steer teachers and students to understand where they have been, where they are at present, and where they are heading. There is a need to consider the meaningful role of assessment even during the process of teaching and learning rather than considering assessment only upon completion of the teaching and learning process.

Thus, the link between mathematics assessment, pedagogies used and instructional practices adopted in the classroom has to be well defined and well established. The various perspectives assumed by assessment namely, assessment as learning, assessment of learning, and assessment for learning are integral for effective mathematics teaching and learning.

Even though they take different forms, overlap and interact, no one assessment can provide sufficient information to cause positive changes in teaching and learning (Stiggins, 2007). The key to purposeful assessment is to align the assessment to the teaching objectives and the instructional approach used and to use different types of assessments as part of instruction results in providing useful information about student understanding and progress.

## 2. OBJECTIVES

The course aims to equip participants with the knowledge, attitude, skills and habits to operationalise the important role of purposeful assessment in the teaching and learning process in mathematics. It is hoped that the participants will gain exposure to current and effective research-based assessment strategies and practices that are aligned with

established educational theories and routine classroom practices in mathematics education.

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

- i. gain understanding on the nature, purposes, types, and practices of assessment in mathematics;
- ii. explain the interrelationships of assessment with pedagogy and curriculum in the mathematics teaching and learning process;
- iii. discuss the potential influences of international, national and school-based assessments to mathematics classroom teaching and curriculum development;
- iv. enhance skills to align current active mathematics teaching and learning approaches that promote higher-order thinking, creative thinking and critical thinking skills to assessment;
- v. develop tasks and assessment instruments to gauge students' achievement in mathematics;
- vi. integrate ICT in mathematics assessment; and
- vii. plan, design, and implement mathematics lesson by adapting an instructional design with emphasis on assessment as well as congruency to content and pedagogy.