



TQF.3

Bachelor's Degree

Master's Degree

Course Specification

Course Code : MTP5106

Course Title: Measurement and Evaluation in Mathematics

Credits: 3(3-0-6)

Program : Master of Arts Program in Mathematics Education
(International Program)

International College

Suan Sunandha Rajabhat University

(SSRUIC)

Semester: 2 Academic Year: 2017

Content

Section		Page
Section 1	General Information	2
Section 2	Aims and Objectives	3
Section 3	Characteristics and Operations	5
Section 4	Developing Student's Learning Outcomes	6
Section 5	Lesson Plan and Assessment	12
Section 6	Learning and Teaching Resources	17
Section 7	Course Evaluation and Improvement	18

Section 1 General Information

1. Code and Course Title:

Course Code: MTP5106

Course Title (English): Measurement and Evaluation in Mathematics

Course Title (Thai): การวัดและการประเมินผลวิชาคณิตศาสตร์

2. Credits:3(3-0-6)

3. Curriculum and Course Category :

3.1 Curriculum: Master of Arts Program in Mathematics Education

3.2 Course Category:

General Education

Required Course

Elective Course

Cluster in International
Teaching Profession

4. Lecturers Responsible for Course and Instructional:

Course Lectures:

4.1 Lecturer Responsible for Course: Dr.Boonthong Boontawee

4.2 Instructional Course Lecturers:

(1) Dr.Boonthong Boontawee

(2) Assoc.Prof. Chaweewan Kaewsaiha

5. Contact / Get in Touch:

Room Number 2121 Tel. 02-160-1200

E-mail: boonthong.boontawee@gmail.com

6. Semester / Year of Study:

6.1 Semester: 2/2017 Year of Study: Graduate Student Year 1

6.2 Number of students enrolled: 3

7. Prerequisite Course

None

8. Co-requisite Course:

None

9. Learning Location

Building Number:21 Room No. 2122

Tuesday 9.00 – 12.00

10. Last Date for Preparing and Revising this Course:

December 15, 2017

Section 2 Aims and Objectives

1. Course Aims

At the end of this course, the student will reach to six domains in the following areas of performance:

1.1 Morals and Ethics

- (1) Have integrity, honesty and teaching profession ethics;
- (2) Have discipline, self and social responsibility;
- (3) Have knowledge and understanding of National Curriculum Assessments Regulation.

1.2 Knowledge

- (1) Be able to apply concepts, principles and theories of knowledge and competencies for teachers accordance with the standards of assessment and evaluation;
- (2) Be able to select, develop the measurement and evaluation tools appropriate to learning outcome standards;
- (3) Be able to integrate all of knowledge of educational assessment to design assessment tools for developing learners.

1.3 Cognitive Skills

- (1) Be able to search and study on knowledge for development of learning management process;

- (2) Be able to use analytical and creative thinking to select, design, create and improve learners to achieve good learning, etc. ;
- (3) Have Academic and professional skills to design tools and processes for assessment and evaluation to improve the learning and curriculum management, etc.

1.4 Interpersonal Skills and Responsibility

- (1) Have responsibility for building positive attitude towards the assessment and evaluation;
- (2) Have knowledge and understanding of human relations to work in team both as leader or follower;
- (3) Be able to identify problems and seek best solutions to strengthen teachers' potentiality and capabilities in academic and professional career.

1.5 Numerical Analysis, Communication and Information

Technology Skills

- (1) Be able to apply numerical analysis in problem solving;
- (2) Have concepts, principles, and theories of technology and innovation that promote the learning quality development;
- (3) Be able to design, create, implement, evaluate innovation for improvement learning environment.

1.6 Learning Management Skills

- (1) Be able to design learning activities and learning environments for authentic assessment and evaluation
- (2) Be able to provide the learners with essential opportunities to enhance learning concepts and motivate active engagement in mathematical process for problem solving through assessment and evaluation processes..
- (3) Be able to develop the assessment and evaluation for learners' performance growth.

2. Objectives for Developing / Revising Course (content / learning process / assessment / etc.)

According to TQF (Thailand Quality Framework: HEEd.) and the Teachers' Council of Thailand with the standards of professional knowledge and experience for requirement courses, graduate students program in mathematics education should have essence of knowledge in educational measurement and evaluation as follows:

Essence of knowledge:

- (1) Principles and techniques of educational measurement and evaluation;
- (2) Creation and implementation of educational measurement and evaluation tools;
- (3) Authentic assessment;
- (4) Portfolio assessment;
- (5) Performance assessment;
- (6) Formative and summative evaluation.

Competencies:

- (1) Able to perform the authentic assessment and measurement;
- (2) Able to use the evaluation results to improve the learning and curriculum management.

Section 3 Characteristics and Operations

1. Course Outline

Assessment and evaluation of teaching and learning; Principles and techniques of educational assessment / measurement and evaluation; Educational assessment / measurement and evaluation tools; Types of assessment and evaluation: Authentic assessment, Portfolio assessment, Performance Assessment, Formative, summative and process evaluation.

การวัดและการประเมินผลการเรียนและการสอน หลักการและเทคนิคของการวัดและการประเมินผลทางการศึกษา/การวัดและการประเมินเครื่องมือในการวัดและการประเมินผลทางการศึกษา ชนิดของการวัดและการประเมินผลทางการศึกษา การประเมินผลแฟ้มสะสมงาน การประเมินสมรรถภาพ การประเมินย่อย การประเมินรวม และกระบวนการประเมิน

2. Time Length per Semester (Lecture – hours / Practice – hours / Self Study – hours)

Lecture (hours)	Remedial Class (hours)	Practice/Field Work/Internship (hours)	Self-Study (hours)
48	3+ (if any)	9 (if any)	96

3. Time Length per Week for Individual Academic Consulting and Guidance

3.1 Self consulting at the lecturer's office: Building 21 Room 2121 Suan Sunandha Rajabhat University

3.2 Consulting via office telephone: Tel. 02-160-1200 or lecturer's mobile phone: Tel. 081-484-4361

3.3 Consulting via E-Mail: chaweewan.ka@ssru.ac.th

Section 4 Developing Student's Learning Outcomes

1. Morals and Ethics

1.1 Morals and Ethics to be developed

- (1) Have integrity, honesty and teaching profession ethics;
- (2) Have discipline, self and social responsibility;
- (3) Have knowledge and understanding of National Curriculum Assessments Regulation.

1.2 Teaching Strategies

- (1) Work in group to build up team work skills and attitudes;
- (2) Discussion all aspects of National Curriculum Assessments Regulation.

1.3 Assessment Strategies

Group discussion Report

2. Knowledge

2.1 Knowledge to be developed

- (1) Have knowledge and understanding of standards for educational measurement and evaluation;
- (2) Be able to apply concepts, principles and theories of knowledge and competencies for teachers accordance with the standards of assessment and evaluation;
- (3) Be able to select, develop assessment tools that evaluate learning performance for developing learners.

2.2 Teaching Strategies

- (1) Directed Instruction
- (2) Group Work
- (3) Service-Learning

2.3 Assessment Strategies

- (1) Term papers
- (2) Group report presentation
- (3) Case Study of students' results taken O-NET, TIMSS, PISA

3. Cognitive Skills

3.1 Cognitive Skills to be developed

- (1) Have knowledge and understanding of standards for educational measurement and evaluation;
- (2) Be able to apply concepts, principles and theories of knowledge and competencies for teachers accordance with the standards of assessment and evaluation;
- (3) Be able to integrate all of knowledge of educational assessment to design assessment tools for developing learners.

3.2 Teaching Strategies

- (1) Research-based learning
- (2) Discussion
- (3) Group Work

3.3 Assessment Strategies

- (1) Individual portfolio
- (2) Term papers
- (3) Group report presentation

4. Interpersonal Skills and Responsibilities

4.1 Interpersonal Skills and Responsibilities to be developed :

- (1) Have responsibility for building positive attitude towards the assessment and evaluation;
- (2) Have knowledge and understanding of human relations to work in team both as leader or follower;
- (3) Be able to identify problems and seek best solutions to strengthen teachers' potentiality and capabilities in academic and professional career.

4.2 Teaching Strategies

- (1) Problem-Based Learning
- (2) Service-Learning

4.3 Assessment Strategies

Group report presentation

5. Numerical Analysis, Communication and Information Technology Skills

5.1 Numerical Analysis, Communication and Information

Technology to be developed:

- (1) Be able to apply numerical analysis in problem solving;
- (2) Have concepts, principles, and theories of technology And innovation that promote the learning quality development through assessment and evaluation processes;

- (3) Be able to design, create, implement, and evaluate innovation for improvement learning environment.

5.2 Teaching Strategies

- (1) Research-based learning
- (2) Technology-Based Learning

5.3 Assessment Strategies

- (1) Individual portfolio
- (2) Term papers
- (3) Group report presentation

6. Learning Management Skills

6.1 Learning Management Skills to be developed:

- (1) Be able to design learning activities and learning environments for authentic assessment and evaluation
- (2) Be able to provide the learners with essential opportunities to enhance learning concepts and motivate active engagement in mathematical process for problem solving through assessment and evaluation processes.
- (3) Be able to design, create, implement, and evaluate innovation for improvement learning environment.

6.2 Teaching Strategies

- (1) Research-based learning
- (2) Service-Based Learning

6.3 Assessment Strategies

- (1) Individual portfolio
- (2) Term papers
- (3) Group report presentation

Section 5 Lesson Plan and Assessment

1. Lesson Plan

Week	Topic/Outline	Hours	Learning Activities and Medias
1-2	Unit 1 Assessment and Evaluation of Teaching and Learning	6	<ol style="list-style-type: none"> 1. Introduce the purpose of assessment and evaluation. 2. Study some examples of testing in mathematics. 3. Students work with a small group to discuss about the relevance of learning outcomes and assessment.
3 - 4	Unit 2 Principles and Techniques of Educational Assessment	6	<ol style="list-style-type: none"> 1. Introduce principle of learning assessment and techniques. 2. Students work with a small group to discuss about learning outcomes, activities and assessment.
5	Unit 3 Educational Measurement and Evaluation	3	<ol style="list-style-type: none"> 1. Introduce national standards and framework for educational measurement and evaluation. 2. Students work with a small group to discuss about standards of O-NET, TIMSS, and PISA.
6 - 7	Unit 4 Measurement and Evaluation Tools	6	<ol style="list-style-type: none"> 1. Introduce tools for measurement and evaluation. 2. Students discuss about students' results in taking O-NET, TIMSS, and PISA.
8	Mid-Term Test		

Week	Topic/Outline	Hours	Learning Activities and Medias
9 - 10	Unit 5 Types of Assessment : Authentic Assessment	6	1. Introduce types of assessment in mathematics. 2. Students discuss about how to design authentic assessment.
11	Unit 6 Portfolio Assessment	3	1. Introduce portfolio assessment in mathematics. 2. Students discuss about how to design portfolio assessment.
12-13	Unit 7 Performance Assessment	6	1. Introduce principles, procedures, and elements of performance assessment. 2. Students work in a small group to discuss about performance assessment.
14 – 15	Unit 8 Formative and Summative Evaluation	9	1. Introduce principles of formative and summative evaluation. 2. Students work in a small groups to design formative and summative evaluation.
16	Final Examination	3	Paper-Test
Total of Hours		51	

Remark: Reserve 1 – 2 weeks for searching related topics.

2. Learning Assessment Plan

Learning Outcomes	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
<p>1. Ethics and Morals</p> <p>(1) Have integrity, honesty and teaching profession ethics; (2) Have discipline, self and social responsibility; (3) Have knowledge and understanding of National Curriculum Assessments Regulation.</p>	<p>1. Individual portfolio 2. Group discussion</p>	<p>Throughout semester</p>	<p>5 %</p>
<p>2. Knowledge</p> <p>(1) Be able to apply concepts, principles and theories of knowledge and competencies for teachers accordance with the standards of assessment and evaluation; (2) Be able to select, develop the measurement and evaluation tools appropriate to learning outcome standards;</p>	<p>1. Term papers 2. Group report presentation</p>	<p>Throughout semester</p>	<p>40 %</p>

Learning Outcomes	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
(3) Be able to integrate all of knowledge of educational assessment to design assessment tools for developing learners.			
<p>3. Cognitive Skills</p> <p>(1) Be able to search and study on knowledge for development of learning management process;</p> <p>(2) Be able to use analytical and creative thinking to select, design, create and improve learners to achieve good learning, etc. ;</p> <p>(3) Have Academic and professional skills to design tools and processes for assessment and evaluation to improve the learning and curriculum management, etc.</p>	<p>1. Term papers</p> <p>2. Group report presentation</p>	<p>Throughout semester</p>	<p>30 %</p>

Learning Outcomes	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
development; (3) Be able to design, create, implement and evaluate innovation for improvement learning environment.			
4. Interpersonal Skills and Responsibilities (1) Have responsibility for building positive attitude towards the assessment and evaluation; (2) Have knowledge and understanding of human relations to work in team both as leader or follower; (3) Be able to identify problems and seek best solutions to strengthen teachers' potentiality and capabilities in academic and professional career.	1. Checklists 2. Interviews	Throughout semester	5 %

Learning Outcomes	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
<p>5. Numerical Analysis, Communication and Information Technology Skills</p> <p>(1) Be able to apply numerical analysis in problem solving; (2) Have concepts, principles, and theories of technology and innovation that promote the learning quality development; (3) Be able to design, create, implement, and evaluate innovation for improvement learning environment.</p>	<p>1. Individual portfolio 2. Term papers 3. Group report presentation</p>	<p>Throughout semester</p>	<p>10 %</p>
<p>6. Learning Management Skills</p> <p>(1) Be able to design learning activities and learning environments for authentic assessment and evaluation; (2) Be able to provide the learners with essential opportunities to enhance learning concepts and motivate active engagement in mathematical process for problem solving through assessment and evaluation</p>	<p>1. Individual portfolio 2. Term papers 3. Group report presentation</p>	<p>Throughout semester</p>	<p>10 %</p>

Learning Outcomes	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
processes; (3) Be able to develop the assessment and evaluation for learners' performance growth.			

Section 6 Learning and Teaching Resources

1. Textbook and Main Documents

Rani, J.S. (2004). *Educational Measurement and Evaluation*. New Delhi: Discovery Publishing House Private Limited.

2. Important Documents for Extra Study

Stenmark, J.K. (1989). *Assessment alternatives in Mathematics: An Overview of Assessment Techniques that Promote Learning*. Berkeley: University of California.

3. Suggestion Information (Printing Materials/Website/CD/Others)

Keywords for searching: educational measurement, educational evaluation, educational assessment

Section 7 Course Evaluation and Revising

1. Strategies for Course Evaluation by Students

Using survey questions to collect information from the students' opinions to improve the course and enhance the curriculum. Examples of statements:

- (1) Content objectives were made clear to the students.
 - (2) The content was organized around the objectives.
 - (3) Content was sufficiently integrated.
 - (4) Content was sufficiently integrated with the rest of the first year curriculum.
 - (5) The instructional materials used were effectively.
 - (6) The learning methods appropriate assessed the students' understanding of the content.
 - (7) Overall, Students are satisfied with the quality of this course
- etc.

2. Strategies for Course Evaluation by Lecturer

2.1 Lecturers team observes the class and discusses the results as

follow:

- (1) The lecturer is well prepared for class sessions.
- (2) The lecturer answers questions carefully and completely.
- (3) The lecturer uses examples to make the materials easy to understand.
- (4) The lecturer stimulated interest in the course.
- (5) The lecturer made the course material interesting.
- (6) The lecturer is knowledgeable about the topics presented in this course.
- (7) The lecturer treats students respectfully.
- (8) The lecturer is fair in dealing with students.
- (9) The lecturer makes students feel comfortable about asking question.
- (10) Course assignment are interesting and stimulating.
- (11) The lecturer's use of technology enhanced learning in the classroom.

..... etc.

1.2 The director / head of program construct assessment items to evaluate four dimensions of lecturer's competencies : teaching skills, organization and presentation of materials, management of the learning environment, and teaching attitudes.

3. Teaching Revision

Lecturer revises teaching / learning process based on the results from the students' survey questions, the lecturer team's observation, and classroom research.

4. Feedback for Achievement Standards

International College Administrator Committee monitor to assessment process and Grading.

5. Methodology and Planning for Course Review and Improvement

(1) Revise and develop course structure and process every two years.

(2) Assign different lecturers teach this course to enhance students' performance.

Curriculum Mapping Illustrating the Distribution of Program Standard Learning Outcomes to Course Level

Courses	1. Morals and Ethics			2. Knowledge			3. Cognitive Skills			4. Interpersonal Skills and Responsibility			5. Numerical Analysis, Communication and Information Technology Skills			6. Learning Management Skills		
Course Category: Requirement Course-- Teaching Profession Core Course	● Major Responsibility									○ Minor Responsibility								
Course Code: MTP5106 Course Title: Measurement and Evaluation in Mathematics	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●