



TQF.3

Bachelor's Degree

Master's Degree

Course Specification

Course Code: MTH 5101

Course Title: Thesis 1

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

Section 1 General Information

1. Code and Course Title :

Course Code: MTH 5101

Course Title (English): Thesis 1

Course Title (Thai): วิทยานิพนธ์ 1

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

3. Curriculum and Course Category :

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

3.2 Course Category:

General Education

Required Course

Elective Course

Others

4. Lecturer Responsible for Course and Instructional

Course Lecturer (s) :

4.1 Lecturer Responsible for Course:

Assoc.Prof.Chaweewan Kaewsaiha

4.2 Instructional Course Lecturer(s):

(1) Asst. Prof. Dr.Supotch Chaiyasang

(2) Dr.Kanokrat Kunasaraphan

5. Contact/Get in Touch

Building Number 21 Room Number 2121

Tel. 081-484-4361 E-mail chaweewan.ka@ssru.ac.th

6. Semester/ Year of Study

6.1 Semester: 2 Year of Study: 1

6.2 Number of the students enrolled: 3

7. Pre-requisite Course (If any)

Information on thesis requirements is found in the TQF2 of Master of Arts, Program in Mathematics Education (International Program) and the Graduate Handbook.

8. Co-requisite Course (If any)

None

9. Learning Location

Building Number: 21 Room Number: 2122

10. Last Date for Preparing and Revising this Course:

Date: 25 Month: November Year: 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 to be developed:

- (1) Have integrity, honesty and teaching profession ethics;
- (2) Have discipline, self and social responsibility;
- (3) Have awareness of actions affect other people.

1.2 Knowledge to be acquired:

- (1) Be able to compile courses to formulate a learning plan for teaching mathematics;
- (2) Be able to design a learning model appropriate to the learning outcomes;
- (3) Be able to select, develop and produce innovation and technology that promote learning.

1.3 Cognitive Skills to be developed:

- (1) Be able to analyze the components of Thesis;
- (2) Be able to organize activities that promote learning and classify the learners' levels based on evaluation. ;

- (3) Be able to manage learning resources and classroom environment for mathematics cluster standards

1.4 Interpersonal Skills and Responsibility to be developed:

- (1) Have responsibility for assignment;
- (2) Can adjust to work in team both as leader or follower;
- (3) Have self-management and social awareness.

1.5 Numerical Analysis, Communication and Information Technology Skills to be developed:

- (1) Have statistical and mathematical skills to present research finding on learning mathematics;
- (2) Can use correct language in oral and written presentations;
- (3) Can use computer and IT to follow the progress of learning mathematics.

1.6 Learning Management Skills to be developed:

- (1) Be able to design learning activities and learning environments within the context of a unit of mathematics and real world;
- (2) Be able to provide the learners with essential opportunities to enhance learning concepts and motivate active engagement in mathematical process in problem solving;
- (3) Be able to implement research-based, effective programs that prevent problems, enhance independence and promote optimal learning.

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

Using the Framework for 21st Century Learning process, students work to integrate supportive technologies, inquiry- and problem-based instructional approaches, and higher order thinking skills.

Section 3 Characteristics and Operation

1. Course Outline

Selection of framework and interesting topic, school-based study, self-study, literature reviews – texts, academic papers, and/or research ; setting research question, having methodology related to problem and fact finding; In-depth study, analysis on concepts, theories and review literature related to research; study results and conceptual framework leading to thesis framework, under the supervision of advisors.

การเลือกกรอบและหัวข้อที่น่าสนใจ การศึกษาที่ใช้โรงเรียนเป็นฐาน การศึกษาด้วยตนเอง การทบทวนวรรณกรรม—ตำรา เอกสารทางวิชาการ และ/หรืองานวิจัย การตั้งคำถามวิจัย วิธี การศึกษาที่สัมพันธ์กับปัญหาและข้อเท็จจริง การศึกษาเชิงลึก การวิเคราะห์แนวคิด ทฤษฎีและ ทบทวนวรรณกรรมที่เกี่ยวข้องกับการวิจัย ผลของการศึกษาและกรอบแนวคิดที่จะนำไปสู่กรอบการ ทำวิทยานิพนธ์ภายใต้การดูแลของอาจารย์ที่ปรึกษา

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	-	6

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

At least 1 hour per week

3.1 Self consulting at the lecturer’s office:

Building Number: 21 Room Number: 2121

3.2 Consulting via office telephone/mobile phone: 081-484-4361

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

Section 4 Developing Student's Learning Outcomes

According to TQF (Thailand Quality Framework: HEd.) and the Teachers' Council of Thailand with the standards of professional knowledge and experience for requirement courses, graduate students program in mathematics education should reach to six domains by applying the following teaching strategies and assessments:

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 awareness of actions affect other people.

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1.2 Teaching Strategies

(1) Encourage the students to have integrity, honesty, and discipline such as unselfishness and self-control.

(2) Train the students to have characteristics of good characteristics with the teaching profession ethics.

1.3 Assessment Strategies

- (1) Authentic Assessment
- (2) Portfolio Assessment
- (3) Performance Assessment

2. Knowledge

2.1 Knowledge to be acquired:

- (1) Be able to compile courses to formulate a learning plan for teaching mathematics;
- (2) Be able to design a learning model appropriate to the learning outcomes;
- (3) Be able to select, develop and produce innovation and technology that promote learning.

2.2 Teaching Strategies

(1) Using brainstorming to encourage students generate a large number of ideas and using higher order thinking skills.

(2) Using problem-based learning, research-based learning, and computer-based learning to enhance students' knowledge.

2.3 Assessment Strategies

(1) Using rubrics for complex authentic task

(2) Using report writing and presentation

3. Cognitive Skills

3.1 Cognitive Skills to be developed:

- (1) Be able to analyze the components of Thesis;
- (2) Be able to organize activities that promote learning and classify the learners' levels based on evaluation.
- (3) Be able to manage learning resources and classroom environment for mathematics cluster standards.

3.2 Teaching Strategies

(1) Encourage the students develop their higher thinking skills such as providing diversity environments for students to construct and implement their knowledge.

(2) Using problem-based learning, research-based learning, and computer-based learning to enhance student's thinking skills.

3.3 Assessment Strategies

(1) Using rubrics for complex procedures of problem solving

(2) Using report writing and presentation

4. Interpersonal Skills and Responsibilities

4.1 Interpersonal Skills and Responsibilities to be developed:

- (1) Have responsibility for assignment;
- (2) Can adjust to work in team both as leader or follower;

- (3) Have self-management and social awareness.

4.2 Teaching Strategies

(1) Using cooperative learning through interpersonal communication and interaction.

(2) Demonstrate the ability to apply appropriate interpersonal and teamwork skills in a variety of learning environments.

(3) Using problem-based learning, research-based learning, and computer-based learning to enhance students' experiences for further development their learning.

4.3 Assessment Strategies

(1) Using personality assessments

(2) Using rubrics for group work

(3) Using report writing and presentation

5. Numerical Analysis, Communication and Information Technology Skills

5.1 Numerical Analysis, Communication and Information

Technology to be developed:

- (1) Be able to design learning activities and learning environments within the context of a unit of mathematics and real world;
- (2) Be able to provide the learners with essential opportunities to enhance learning concepts and motivate active engagement in mathematical process in problem solving;
- (3) Be able to implement research-based, effective programs that prevent problems, enhance independence and promote optimal learning.

5.2 Teaching Strategies

(1) Using problem-based learning

(2) Using computer-based learning

5.3 Assessment Strategies

(1) Using interviewing and observation

(2) Using authentic task assessment

- (3) Using report writing and presentation

6. Learning Management Skills

6.1 Learning Management Skills to be developed:

- (1) Be able to design learning activities and learning environments within the context of a unit of mathematics and real world;
- (2) Be able to provide the learners with essential opportunities to enhance learning concepts and motivate active engagement in mathematical process for problem solving;
- (3) Be able to implement research-based, effective programs that prevent problems, enhance independence and promote optimal learning.

6.2 Teaching Strategies

- (1) Using real world problems within the classroom.
- (2) Using innovation approaches to reduce anxiety and negativity attitude in learning.
- (3) Using research-based learning to investigate the appropriate innovative in learning to prevent problems and promote optimal learning.

6.3 Assessment Strategies

- (1) Using authentic task assessment
- (2) Using report writing and presentation

Remark: Symbol ● means ‘major responsibility’
Symbol ○ means ‘minor responsibility’

Section 5 Lesson Plan and Assessment

1. Lesson Plan

Week	Topic/Outline	Periods	Learning Activities and Medias	Lecturer(s)
1	<ul style="list-style-type: none"> • Introduction to Thesis 1, • Selection of framework and interesting topic 	3	<ul style="list-style-type: none"> • Lecture and group discussion • Student-centered: Constructivist approaches and Cooperative learning 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat
2	<ul style="list-style-type: none"> • School-based study, • Self-study 	3	<ul style="list-style-type: none"> • Lecture and group discussion • Student-centered: Cooperative learning approaches • Self-study and E-learning through Moodle 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat
3-4	<ul style="list-style-type: none"> • Literature reviews – texts, academic papers, and/or research 	6	<ul style="list-style-type: none"> • Lecture and group discussion • Student-centered: Problem-Based learning and Cooperative learning approaches • Self-study and E-learning through Moodle 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat

Week	Topic/Outline	Periods	Learning Activities and Medias	Lecturer(s)
5	<ul style="list-style-type: none"> Setting research questions How to write research proposal 	3	<ul style="list-style-type: none"> Student-centered: Problem-Based learning and Cooperative learning approaches Self-study and E-learning through Moodle 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat
6	<ul style="list-style-type: none"> Research methodology related to problem and fact finding 	3	<ul style="list-style-type: none"> Cooperative learning: Jigsaw Using mathematics software program: The Geometer's Sketchpad Self-study and E-learning through Moodle 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat
7-8	<ul style="list-style-type: none"> In-depth study, analysis on concepts and theories 	6	<ul style="list-style-type: none"> Student-centered: Problem-Based learning Cooperative learning approach: Think-Pair-Share 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat
9	Mid-Term Examination	3	<ul style="list-style-type: none"> Presentation Concept Paper 	
10-11	<ul style="list-style-type: none"> In-depth study, analysis on concepts, theories and review literature related to research 	9	<ul style="list-style-type: none"> Lecture and group discussion Student-centered: Problem-Based learning and Cooperative learning 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat

Week	Topic/Outline	Periods	Learning Activities and Medias	Lecturer(s)
			<p>approaches</p> <ul style="list-style-type: none"> • Self-study and E-learning through Moodle 	
12	<ul style="list-style-type: none"> • Study results and conceptual framework leading to thesis framework 	3	<ul style="list-style-type: none"> • Student-centered: Problem-Based learning and Cooperative learning • Self-study and E-learning through Moodle 	<p>Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat</p>
13	<ul style="list-style-type: none"> • How to write conceptual framework leading to thesis framework? 	3	<ul style="list-style-type: none"> • Lecture and group discussion • Student-centered: Problem-Based learning and Cooperative learning approaches • Self-study and E-learning through Moodle 	<p>Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat</p>
14	<ul style="list-style-type: none"> • How to write research proposal 	3	<ul style="list-style-type: none"> • Lecture and group discussion • Student-centered: Problem-Based learning and Cooperative learning approaches • Self-study and E-learning through Moodle 	<p>Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat</p>

Week	Topic/Outline	Periods	Learning Activities and Medias	Lecturer(s)
15	<ul style="list-style-type: none"> Research Questions and Research methodology leading to thesis framework 	3	<ul style="list-style-type: none"> Lecture and group discussion Self-study and E-learning through Moodle 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat
16-17	<ul style="list-style-type: none"> Research Proposal and Assignment submission 	6	<ul style="list-style-type: none"> Oral Presentation 	Assoc.Prof. Chaweewan Asst.Prof.Dr.Su potch Dr.Kanokrat
Total		48		

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

2. Learning Assessment Plan

	Learning Outcomes	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
1	Morals and Ethics (1) Have integrity, honesty and teaching profession ethics; (2) Have discipline, self and social responsibility; (3) Have awareness of actions affect other people.	(1) Authentic Assessment (2) Portfolio Assessment (3) Performance Assessment	Throughout Semester	10 %

	Learning Outcomes	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
2	<p>Knowledge</p> <p>(1) Be able to compile courses to formulate a learning plan for teaching mathematics;</p> <p>(2) Be able to design a learning model appropriate to the learning outcomes;</p> <p>(3) Be able to select, develop and produce innovation and technology that promote learning.</p>	<p>(1) Using rubrics for complex authentic task</p> <p>(2) Using report writing and presentation</p>	Throughout Semester	40 %
3	<p>Cognitive Skills</p> <p>(1) Be able to analyze the components of Thesis;</p> <p>(2) Be able to organize activities that promote learning and classify the learners' levels based on evaluation;</p> <p>(3) Be able to manage learning resources and classroom environment for mathematics cluster standards.</p>	<p>(1) Using rubrics for complex procedures of problem solving;</p> <p>(2) Using report writing and presentation.</p>	Throughout Semester	30 %

	Learning Outcome	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
4	Interpersonal Skills and Responsibilities (1) Have responsibility for assignment; (2) Can adjust to work in team both as leader or follower; (3) Have self-management and social awareness.	(1) Using personality assessments (2) Using rubrics for group work (3) Using report writing and presentation	Throughout Semester	5 %
5	Numerical Analysis, Communication and Information Technology Skills (1) Have statistical and mathematical skills to present research finding on learning mathematics; (2) Can use correct language in oral and written presentations; (3) Can use computer and IT to follow the progress of learning mathematics.	(1) Using interviewing and observation (2) Using authentic task assessment	Throughout semester	10 %

	Learning Outcome	Assessment Activities	Time Schedule (Week)	Proportion for Assessment (%)
6	<p>Learning Management Skills</p> <p>(1) Be able to design learning activities and learning environments within the context of a unit of mathematics and real world;</p> <p>(2) Be able to provide the learners with essential opportunities to enhance learning concepts and motivate active engagement in mathematical process in problem solving;</p> <p>(3) Be able to implement research-based, effective programs that prevent problems, enhance independence and promote optimal learning.</p>	<p>(1) Using authentic task assessment</p> <p>(2) Using report writing and presentation</p>	<p>Throughout semester</p>	<p>20 %</p>

Section 6 Learning and Teaching Resources

1. Textbook and Main Documents

Stringer, E.T.(2007). *Action Research (Third Edition)*. London: SAGE Publication.

2. Important Documents for Extra Study

American Psychological Association.(2010). *Publication Manual of the American Psychological Association (6th edition)*. Washington, DC: American Psychological Association.

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

www.keycurriculum.com

<http://atcm.mathandtech.org>

<http://atcm.mathandtech.org/EP2012/pages/organizers.html>

[http://grad.ssrุ.ac.th/index.php/th/](http://grad.ssrु.ac.th/index.php/th/)

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 observe the class and discuss 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.

2.2 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 (TQF.5).

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-- Thesis	● Major Responsibility									○ Minor Responsibility									
Course Code: MTH5101	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
Course Code: MTH5101	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●