

TQF. 3



Bachelor's Degree

Master's Degree

## **Course Specification**

**Course Code:** EDM2103

**Course Title:** Educational Innovation and Information Technology

**Credits:** 2(1-2-3)

**Programs:** Bachelor of Education Program in Mathematics  
(Bilingual Program)

**Semester:** 2      **Academic Year:** 2022

**College of Hospitality Industry Management**  
**Suan Sunandha Rajabhat University**  
**(CHM, SSRU)**

## Section 1 - General Information

### 1. Course code and course title

Course code: EDM2103

Course title (English): Educational Innovation and Information Technology

ชื่อวิชา (ภาษาไทย): นวัตกรรมและเทคโนโลยีสารสนเทศทางการศึกษา

### 2. Credits

2(1-2-3)

### 3. Curriculum and course category

Curriculum: Bachelor of Education Program in Mathematics

Course Category:

- General Education       Required Course  
 Elective Course       Cluster in Teaching Profession

### 4. Teacher in charge and lecturer

Teacher in charge: Dr.Pongrapee Kaewsaiha

Lecturer: Dr.Pongrapee Kaewsaiha

### 5. Contact

Room Number: 401

Email: pongrapee.ka@ssru.ac.th

### 6. Semester/Academic year

Semester: 2    Academic Year: 2022

Number of enrolled students: 19

### 7. Pre-requisite (if any)

None

### 8. Co-requisite (if any)

None

### 9. Venue

CHM Building, Nakhon-Pathom Campus

### 10. Last date for preparing and revising this course

August 2022

## Section 2 - Aims and Objectives

### 1. Course aims

At the end of this course, students will reach the desired learning outcomes based on six domains, as mentioned in the curriculum specification (TQF2), as follows:

#### 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 Regulation of Teachers Council of Thailand on Professional Standards and Ethics and National Education Act.

#### 1.2 Knowledge

- 1) Be able to use the basic knowledge of educational concept, theory, technology and innovation that promote the learning quality.
- 2) Be able to select, develop and produce media and instrument that promote learning.
- 3) Be able to demonstrate the relationship between the education standards and the new ways of learning.

#### 1.3 Cognitive skills

- 1) Be able to organize activities that promote learning and using creativity and thinking tools.
- 2) Be able to manage learning resources and network
- 3) Be able to prepare innovation design, creation, implementation, evaluation, and improvement

#### 1.4 Interpersonal skills and responsibility

- 1) Have responsibility for building positive attitude towards using educational innovation and information technology.
- 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.
- 3) Be able to design, create, implement, and evaluate innovation for improvement learning environment based on education quality.

### **1.6 Learning management skills**

- 1) Be able to design learning activities and learning environments for learner's development.
- 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 innovation and technology.
- 3) Be able to locate a variety of learning resources to promote the learning by learners.

## **2. Course objectives**

At the end of this course, students will be able to perform in the following areas of performance:

- 1) Locate a variety of learning resources, assess their quality, and select the information appropriately to promote student learning.
- 2) Develop learning materials suitable for learners in the digital age with different readiness and limitations.
- 3) Manage online classes effectively using information and communication technologies.

## **3. Purposes for developing and revising course**

According to TQF (Thailand Quality Framework: HEd.) and the Teachers' Council of Thailand with the standards of professional knowledge and experience for requirement courses, undergraduate students program in mathematics (bilingual program) should have essence of knowledge in educational innovation and information technology as follows:

Educational concept, theory, technology and innovation that promote the learning quality development;

- 1) Technology and Information;
- 2) Analysis of problems arising from use of technology and information innovation;
- 3) Learning sources and network;
- 4) Innovation design, creation, implementation, evaluation and improvement;
- 5) Information technology for teachers

## Section 3 - Characteristics and Operations

### 1. Course description

(English) Principles and concepts in educational innovation and information technology; Designing innovation and technology for thinking in 21st century learning; Learning resources and network; Computer-based learning in mathematics: Web-based learning and e-learning; Ethical and Legal in using technology.

(ไทย) หลักการและแนวคิดในนวัตกรรมและเทคโนโลยีสารสนเทศทางการศึกษา การออกแบบนวัตกรรมและเทคโนโลยีเพื่อการเรียนรู้ในศตวรรษที่ 21 แหล่งและเครือข่ายการเรียนรู้ คอมพิวเตอร์เป็นฐานการเรียนรู้ในคณิตศาสตร์ การเรียนรู้บนเว็บและการเรียนรู้แบบออนไลน์จริยธรรมและกฎหมายในการใช้เทคโนโลยี

### 2. Time length per semester (Lecture/Practice/Self-study hours)

Lecture	Practice	Self-Study	Remedial Class
16 hours	32 hours	48 hours	As needed

### 3. Individual consulting and guidance

#### Self-consulting at the lecturer's office:

Room Number 401, CHM Building, Nakhon-Pathom Campus  
Mon., 9 AM – 4 PM or by appointment

#### Consulting via office telephone/mobile phone:

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#### Consulting via email:

pongrapee.ka@ssru.ac.th

#### Consulting via social media platform:

DingTalk application

#### Consulting via a web forum:

Web forum on the course page (Moodle LMS)

## Section 4 - Developing Students' Learning Outcomes

Expected students' learning outcomes are categorized into five domains, developed from curriculum specification (TQF2), as follows:

### 1. Morals and ethics

#### 1.1 Learning outcomes to be developed

- 1) Have integrity, honesty and teaching profession ethics.
- 2) Have discipline, self and social responsibility.
- 3) Have knowledge and understanding of Regulation of Teachers Council of Thailand on Professional Standards and Ethics and National Education Act.

#### 1.2 Teaching strategies

- 1) Introduce content sources that can be used without infringing copyright.
- 2) Promote the production of teaching materials that support learners in a multicultural society who have different beliefs and needs.
- 3) Have students submit assignments on time.

#### 1.3 Assessment & evaluation strategies

- 1) Use attendance and participation as means of evaluation.
- 2) Use scoring criteria for assignments.
- 3) Evaluate students regarding moral misconduct.

### 2. Knowledge

#### 2.1 Learning outcomes to be developed

- 1) Be able to use the basic knowledge of educational concept, theory, technology and innovation that promote the learning quality development.
- 2) Be able to select, develop and produce media and instrument that promote learning.
- 3) Be able to demonstrate the relationship between the education standards and the new ways of learning.

#### 2.2 Teaching strategies

Assign students to produce learning materials using techniques introduced in class, techniques learned from external sources, and prior knowledge in teaching mathematics.

#### 2.3 Assessment & evaluation strategies

- 1) Use authentic assessment with criteria agreed by students and the teacher.
- 2) Use self and peer assessment.

### **3. Cognitive skills**

#### **3.1 Learning outcomes to be developed**

- 1) Be able to organize activities that promote learning and using creativity and thinking tools.
- 2) Be able to manage learning resources and network.
- 3) Be able to prepare innovation design, creation, implementation, evaluation, and improvement.

#### **3.2 Teaching strategies**

Assign students to design, implement and organize online learning management systems. Each student takes both instructor and learner roles.

#### **3.3 Assessment & evaluation strategies**

- 1) Use authentic assessment with criteria agreed by students and the teacher.
- 2) Use self and peer assessment.

### **4. Interpersonal skills and responsibilities**

#### **4.1 Learning outcomes to be developed**

- 1) Have responsibility for building positive attitude towards using educational innovation and information technology.
- 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) Promote the production of teaching materials that support learners in a multicultural society who have different beliefs and needs.
- 2) Each student takes both instructor and learner roles while working with the learning management system.

#### **4.3 Assessment & evaluation strategies**

- 1) Use authentic assessment with criteria agreed by students and the teacher.
- 2) Use self and peer assessment.
- 3) Participation in discussions and evaluations.

### **5. Numerical analysis, communication, and information technology skills**

#### **5.1 Learning outcomes 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.
- 3) Be able to design, create, implement, and evaluate innovation for improvement learning environment based on education quality.

### **5.2 Teaching strategies**

- 1) Introduce effective tools for teaching and learning mathematics in different situations.
- 2) Students suggest additional tools and discuss with the class.
- 3) Students implement those tools in the lessons they create.

### **5.3 Assessment & evaluation strategies**

- 1) Use authentic assessment with criteria agreed by students and the teacher.
- 2) Use self and peer assessment.
- 3) Participation in discussions and evaluations.

## **6. Learning management skills**

### **6.1 Learning outcomes to be developed**

- 1) Be able to design learning activities and learning environments for learner's development
- 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 innovation and technology.
- 3) Be able to locate a variety of learning resources to promote student learning.

### **6.2 Teaching strategies**

- 1) Assign students to design learning activities on the learning management system.
- 2) Suggest appropriate tools and resources for different learning settings.

### **6.3 Assessment & evaluation strategies**

- 1) Use authentic assessment with criteria agreed by students and the teacher.
- 2) Use self and peer assessment.

**Remark:** The symbol ● means “major responsibility.”

The symbol ○ means “minor responsibility.”

No symbol means “no responsibility.”



## Section 5 - Lesson Plan and Assessment

### 1. Lesson plan

Week	Content	Teaching Management	Program/Teaching Strategies	Material/Media	Assessment
1	<ul style="list-style-type: none"> <li>- Course introduction</li> <li>- Components of the LMS</li> </ul>	On-site, Online	<ul style="list-style-type: none"> <li>- Introduce course outlines.</li> <li>- Introduce the course LMS (Moodle) and have students attempt mock-up activities as they will create ones in this course.</li> <li>- Explain components of the LMS as students interact with them.</li> <li>- Discuss expected outcome and grading criteria.</li> </ul>	<ul style="list-style-type: none"> <li>- Presentation</li> <li>- Hand-on activity</li> </ul>	<ul style="list-style-type: none"> <li>- Participation record</li> </ul>
2	LMS content module	On-site, Online	<ul style="list-style-type: none"> <li>- Students replicate the first part of the sample online course, starting with static content.</li> <li>- Introduce some tools for creating equations and graphical content in a vector graphic format.</li> <li>- Students learn to manage an online course in the process.</li> </ul>	<ul style="list-style-type: none"> <li>- Hand-on activity</li> </ul>	<ul style="list-style-type: none"> <li>- Participation record</li> <li>- Assessment criteria for assignments</li> </ul>
3	LMS activity module	On-site, Online	<ul style="list-style-type: none"> <li>- Explain the requirement for having activity modules on Moodle.</li> <li>- Students replicate the first part of the sample online course, now with online activities.</li> </ul>	<ul style="list-style-type: none"> <li>- Hand-on activity</li> </ul>	<ul style="list-style-type: none"> <li>- Participation record</li> <li>- Assessment criteria for assignments</li> </ul>
4	Evaluation phase 1	On-site, Online	<ul style="list-style-type: none"> <li>- Learn to manage course participants.</li> </ul>	<ul style="list-style-type: none"> <li>- Assessment criteria</li> </ul>	<ul style="list-style-type: none"> <li>- Participation record</li> <li>- Authentic assessment</li> </ul>

Week	Content	Teaching Management	Program/Teaching Strategies	Material/Media	Assessment
			- Students enroll in courses created by peers and assess if the courses work properly.		- Self and peer assessment
5	Using external content	On-site, Online	- Students create the second part of the online course using external content. - Introduce legal requirements related to the reuse of online content. - Suggest content sources that allow reuse without copyright infringement. - Use a scaffolding technique to assist students as needed.	- Hand-on activity	- Participation record - Assessment criteria for assignments
6-7	External tools	On-site, Online	- Learn and practice using external tools to manage an online courses.	- Hand-on activity	- Participation record - Assessment criteria for assignments
8	Evaluation phase 2 (Mid-term week)	On-site	- Students assess and comment peers' works.	- Assessment criteria	- Participation record - Authentic assessment - Self and peer assessment
9-10	Production techniques	On-demand	- Learn media production techniques and choose the appropriate one base on the chosen topic and available resources. - Prepare materials and have them approved by the teacher.	- CHM Next	- Participation record - Authentic assessment
11	Pre-production 1	On-site, Online	- Prepare the lesson plan for the third part of the online course.	- Hand-on activity	- Participation record - Authentic assessment

<b>Week</b>	<b>Content</b>	<b>Teaching Management</b>	<b>Program/Teaching Strategies</b>	<b>Material/Media</b>	<b>Assessment</b>
12-13	Production	On-demand	- Record lesson videos.	- Hand-on activity	- Participation record - Authentic assessment
14	Post-production	On-site, Online	- Process videos and upload to YouTube. - Add subtitles. - Add other course components and activities. - Export the course to a third-party platform.	- Hand-on activity	- Participation record - Authentic assessment
15	Using a third-party Moodle	On-demand	- Learn how to create and operate own Moodle site using a third-party service. - Export the course to the newly-created site. - Submit the final project.	- Hand-on activity	- Participation record - Authentic assessment
16	<b>Make-up class</b>				
17	Evaluation phase 3 (Final week)	On-site	- Students assess and comment peers' works. - The teacher does the final assessment.	- Assessment criteria	- Participation record - Assessment criteria for assignments - Authentic assessment - Self and peer assessment

## 2. Learning assessment plan

Learning Outcomes	Assessment Activities	Schedule (Week)	Proportion for Assessment (%)
1.2, 4.2, 5.2	Participation record	1-17	10
1.3, 2.1, 4.3, 5.1, 6.1, 6.3	Assessment criteria for assignments	2, 3, 5, 6, 7, 17	40
1.1, 2.2, 2.3, 3.1, 3.2, 3.3, 4.1, 5.3, 6.2	1) Authentic assessment 2) Self and peer assessment	4, 8-17	40 10

## Section 6 - Learning and Teaching Resources

### 1. Required textbooks and materials

Li, K.C, Tsang E.Y.M & Wong, B.T.M. (2020). *Innovating education in technology-supported environments*. Singapore: Springer. ISBN 978-981-6591-5 (eBook).

### 2. Documents and important information

Documents suggested by the lecturer

### 3. Recommended resources for extra study

Information retrieved from search engines

## **Section 7 - Course Evaluation and Revising**

### **1. Strategies for evaluation of course effectiveness by students**

Students will complete the evaluation form for the instructor and guest speaker after the end of the course.

### **2. Strategies for course evaluation by the lecturer**

The lecturer observes the class and collects immediate feedback from students.

### **3. Teaching revision**

The lecturer revises the teaching and learning process based on the questionnaire results.

### **4. Feedback for achievement standards**

CHM administration committees collect data and analyze students' academic performance each semester.

### **5. Methodology and planning for course review and improvement**

Revise the curriculum, teaching methods, and learning methods by referring to the evaluation results from those involved. Meetings will be held to review the course's effectiveness and improve the curriculum.

### 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		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
EDM2103 Educational Innovation and Information Technology	○	●	○	○	●	○	○	●	○	○	●	●	○	●	●	○	●	●

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Expected learning outcomes are combined for all types of instructional activities.