SAMSEN WITTAYALAI SCHOOL
ENGLISH PROGRAM

COURSE OUTLINE

Subject: Mathematics (MA22101) **Course Classification**: ☑Foundation ☐Additional
Learning Period: 3 Periods/Week **Credit Unit**: 1.5
Grade Level: Mattayomsuksa 2 (Grade 8) **Semester** 1, **Academic Year** 2022
Learning Area: Mathematics **Samsenwittayalai School** English Program
Teacher: Mr. Bybrum Lemana/Ms. Sarinya Teerawattananon

I. COURSE DESCRIPTION

The course is aimed at studying and practicing mathematical skills and problem-solving, and apply knowledge of *Pythagorean theorem, real numbers, exponents, prism and cylinder, Transformation Geometry, and polynomials*. The course has two components namely theory and applications, which are defined as follows: Theory develops students' knowledge and skills through the study of theorem, postulates, definitions and abstract problems. Application focuses on the essential concepts of the subject, and develop students' knowledge and skills through practical applications and concrete examples.

By providing authentic learning situations where learners can grasp the topic, have an in-depth understanding of its relation to other mathematical topics, students will realize the extent of the scope that math has in general. Varied examples from authentic situations will be discussed and explored for the students to grasp the value and practicality of learning mathematics. Experiences or situations will be set in the study with practice, exploration, experimentation, summarization, and report. Learning assessment and evaluation methods are diverse and authentic to correspond with the content and required skills.

For an in-depth appreciation of mathematics in real life situation, the course is designed to develop learners' skills in calculation, problem-solving, reasoning, mathematical communication, and application of experience on knowledge, thought, and obtained processes to learn things in daily life creatively. Furthermore, learners are trained to have appreciation with good attitude toward mathematics as well as ability to work systematically, orderly, carefully, responsibly, mindfully, and confidently. The course is intended to foster the development of the knowledge and skills students need to succeed in their subsequent mathematics courses, which will prepare them for the post-secondary destination of their choice.

II. INDICATORS

Standard MA1.1 **Understand diverse methods of number representation, number systems, number operations, results of number operations, properties of operations of numbers, and their applications**

MA1.1.1 Understand and use properties of exponents with integral powers to solve mathematical problems and in real life problems.

MA1.1.2 Understand real numbers and the relationship of real numbers, and use properties of real numbers to solve mathematical problems and real life problems.

Standard MA 1.2 **Understand and analyze patterns, relations, functions, sequences and series, and their applications.**

MA1.2.1 Understand the principle of operations of polynomials and use polynomials to solve mathematical problems.

Standard MA 2.1 **Understand the basics of measurement, measure and estimate the size of objects, and their applications**

MA 2.1.1 Apply the knowledge of surface area of prism and cylinder to solve mathematical problems and real life problems.

MA 2.1.2 Apply the knowledge of volume of prism and cylinder to solve mathematical problems and real life problems.

Standard MA 2.2 **Understand and analyze geometric figures, properties of geometric figures, relationship between geometric figures, geometric theorems, and their applications.**

MA2.2.3 Understand and use the knowledge of geometric transformation to solve mathematical problems and real life problems.

MA2.2.5 Understand and use Pythagorean theory and its converse to solve mathematical problems and real life problems.

III. TENTATIVE COURSE OUTLINE

Week	Leaning Unit	Topics	Periods
1-5	1. Pythagoras Theorem (T. Byb)		10
		1.1 Pythagoras Theorem	
		1.2 Converse of Pythagoras Theorem	
1-9	2. Introduction to Real Numbers (T. Sarinya)		9
		2.1 Rational Numbers	
		2.2 Irrational Numbers	
		2.3 Square Root	
		2.4 Cube Root	
6-9	3. Properties of Exponents (T. Byb)		8
		3.1 Operations with exponents	
		3.2 Other properties of exponents	
11-15	4. Transformation Geometry (T. Byb)		10
		4.1 Translation	
		4.2 Reflection	
		4.3 Rotation	
16--19	5.Prism and Cylinder (T. Byb)		8
		5.1 Surface area and volume of prism.	
		5.2 Surface area and volume of cylinder.	
11-19	6. Polynomials (T. Sarinya)		9
		6.1 Addition and subtraction of monomials	
		6.2 Addition and subtraction of polynomials	
		6.3 Product of polynomials.	
		6.4 Division of polynomials.	
10	Midterm Examination		3
20	Final Examination		3
	Total		60

IV. Teaching Methods and Management

☐ Experiment ☑ Lecture/Discussion ☑ Group work
☑ Individual work ☐ Game ☐ Song
☑ Self-learning ☑ Demonstration ☐ Role play
☑ Project ☐ Experience ☐ ICT
☐Local Wisdom based ☐ Others

V. Teaching Materials/ Supplements

☑ ☐ Handouts ☑ Worksheets ☐Teacher's text book
☑ Graphs/ Diagrams ☐ Maps ☐ Pictures
☑ Samples/ Models ☑ Exercises
☑Commercial Text Book …….. ……
☐DVD/VCD……..
☑ Website classroom.google.com, meet.google.com, drive.google.com, docs.google.com, www.deltamath.com
☐ Others ……

VI. Assessment and Evaluation

Indicators/ Learning Outcomes Score from SGS	**Formative I**				**Midterm**	**Formative II**						**Final**
	1	2	3	4		10	11	12	13	14	15	
Total Score	**10**	**5**	**10**		**15**	**10**	**10**	**10**	**10**			**20**
Learner's reading, analytical thinking and writing						10						
Learner's desirable characteristics							10					
MA2.2.5	10				5							2
MA1.1.2		5			5							2
MA1.1.1			10		5							2
MA2.2.3								5				3
MA2.1.1 , MA2.1.2									10			6
MA1.2.1								5				5

VII. Assignment

SGS #	Score (points)	Assignment	Deadline	Type		
				Test	Individual	Group
1	10	1. Submission of work on Pythagoras Theorem 2. Unit test on Pythagoras Theorem	Week 5	✓	✓	
2	5	1. Submission of work on real numbers. 2. Unit test on real numbers.	Week 9	✓	✓	
3	10	1. Submission of work on exponents. 2. Unit test on exponents.	Week 9	✓	✓	
Midterm	15	Midterm Exam	Week 10	✓		
10	10	Learners' reading, analytical thinking	Week 19			
11	10	Learners' desirable characteristics	Week 19			
12	5	1. Submission of work on transformation geometry. 2. Unit test on transformation geometry.	Week 15	✓	✓	
12	5	1. Submission of work on polynomials. 2. Unit test on polynomials.	Week 19	✓	✓	
13	6	1. Submission of work on prism and cylinder. 2. Unit test on prism and cylinder.	Week 19	✓	✓	
Final	20	Final Exam	Week 20	✓		

Note: *Should there be changes, students will be informed in a timely manner.*