SAMSEN WITTAYALAI SCHOOL
ENGLISH PROGRAM

COURSE OUTLINE

Subject: Additional Mathematics (MA31202)
Learning Period: 3 Periods/Week
Grade Level: Mattayomsuksa 4 (Grade 10)
Learning Area: Mathematics
Teacher: Mr. Methawee Wajasat

Course Classification: Additional
Credit Unit: 1.5
Semester 1 **Academic Year** 2022
Samsenwittayalai School English Program

I. COURSE DESCRIPTION

This course has 2 major goals. The first is to study polynomial equations and inequalities. Students will understand the methods and be able to find the roots of all polynomial equations and inequalities with one variable that has degree less than 4. The second goal is to learn the concept of matrices. Students will be able to compute basic algebra of matrices, find the transpose, determinant and both additive and multiplicative inverses of matrices and apply matrices to solve systems of linear equations. Moreover, the brief concept of logic and reasoning will also be taught in this course.

By using the scientific processes, searching data, discussion, analyzing, comparing, presentation, testing, prediction, investigation and experimenting.

For improving the scientific knowledge, thoughts and understanding so that the students can make use of the knowledge to make decision, use the 21st century skills in information technology, critical thinking and problem– solving, communicating. They can also use the knowledge in every day's life, leading to scientific mind, ethics, virtues and appropriate attitudes.

II. LEARNING OUTCOMES

1. Learners' reading, analytical thinking and writing skills meet the criteria prescribed by the educational institutions.
2. Learners' desirable characteristics meet the criteria prescribed by the educational institutions.
3. Have the concept of real numbers and be able to solve problems by using the properties of real numbers
4. Solve polynomial equations and inequalities with one variable (degree less than 4) and its applications.

5. Solve rational equations and inequalities with polynomial denominators and its applications.
6. Solve polynomial equations and inequalities containing absolute values and its applications.
7. Understand the concept of matrices, properties of matrices and be able to find determinants of nxn matrices when n is less than 3.
8. Find the inverse of 2x2 matrices.
9. Apply the inverse and row operations to solve systems of linear equations.
10. Understand elementary mathematical logic.

III. TENTATIVE COURSE OUTLINE

Week	Topic	Indicators	Period(s)
1	Real Numbers	3	3
2	Polynomials and Factorization of Polynomials	4	3
3-4	Polynomial Equations and its application	4	4
4-5	Polynomial Equations with Fraction and its application	5	4
5-6	Polynomial Equations with Absolute Values its application	6	4
7	Inequalities	4-6	3
8	Unit Test and Review for Midterm		3
Week	**Topic**	**Indicators**	**Period(s)**
9	**Mid-term Examination**		
10	Introduction to Matrices	7	3
11	Properties of Matrices	7	3
12	Determinants	7	3
13	Inverses	8	3
14-15	System of Equations and Row Operations	9	6
16	Elementary Mathematical Logic	10	3
17	Unit Test and Review for Final		3
18	**Final Examination**		

IV. TEACHING METHODS AND MANAGEMENT

☑ Individual work ☑ Lecture/Discussion ☑ Demonstration

☑ Self-learning ☑ Game

V. TEACHING MATERIALS/SUPPLEMENTS

☑ Handouts ☑ Worksheets ☑ Pictures

☑ Samples/ Models ☑ Exercise

☑ Website https://khanacademy.org

VI. ASSESSMENT AND EVALUATION

Learning Outcome Score from SGS	Formative I		Midterm	Formative II				Final
	1	2		10	11	12	13	
Total score	**5**	**15**	**15**	**10**	**10**	**10**	**5**	**30**
Learners' reading, analytical thinking				10				
Learners' desirable characteristics					10			
Learning Outcome 3	5		5					5
Learning Outcome 4-6		15	10					10
Learning Outcome 7-9						10		10
Learning Outcome 10							5	5

VII. ASSIGNMENT

SGSNo.	Score (points)	Assignment	Deadline	Type			Remark
				Test	Individual	Group	
1.	5	Homework	Week 3		✓		
2.	10	Homework	Week 7		✓		
	5	Quiz	Week 8	✓			
Midterm	15	Midterm Exam	Week 9	✓			
10.	10	Learners' reading, analytical thinking and writing	Week 18		✓		

11.	10	Learners' desirable characteristics	Week 18		✓		
12.	10	Homework	Week 13		✓		
	5	Quiz	Week 15	✓			
13.	5	Homework	Week 17		✓		
Final	30	Final Exam	Week 18	✓			

Note: The details in assessment and evaluation are tentative.