IMMANUEL LUTHERAN COLLEGE

S5 NSS Mathematics Teaching Outline (2010 - 2011)

Textbook: New Century Mathematics – Book 5A, 5B (Oxford)

Teachers:

Class A	Class B	M1	Core 1	Core 2	Core 3
Ho KC	**Ho KC**	Young KM	Lok CF	Chan KF	Lo SK

Course Outline:

Bk.	Ch.	Topics	Test / Exam
4B	13	Trigonometry (2 sep – 10 sep)	
5A	1	More about Equations (13 sep – 30 sep)	
5A	2	Inequalities in One Unknown (4 oct – 13 oct)	Test (1)
5A	3	More about Graphs of Functions (14 oct – 26 oct)	First Term UT
5B	7	Variations (2 nov – 15 nov)	
5B	8	Equations of Circles (15 nov – 6 dec)	Test (2)
5B	9	Locus (7 dec – 21 jan)	First Term Exam (I) & (II)
		Revision (3 jan – 5 jan)	
5B	10	Solving Triangles (24 jan – 15 feb)	
5B	11	Applications in Trigonometry (16 feb – 2 mar)	Test (3)
5A	4	Permutation and Combination (3 mar – 22 mar)	Second Term UT
5A	5	More about Probability (23 mar – 15 apr)	
5B	12	Measures of Dispersion (28 apr – 18 may)	Test (4)
5B	13	More about Dispersion (19 may – 8 jun)	Second Term Exam – (I-A1); (I-A2); (I-B); (II)

Schedule:

4B Chapter 13 – Basic Trigonometry

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
2 sep to 10 sep	● Solve the trigonometric equations $a\sin x = b$, $a\cos x = b$, $a\tan x = b$ ● Solve other trigonometric equations	Graphs of Trigonometric Functions	4	
		Solving Trigonometric Equations	5	Exercise 13C
		Total:	9	

5A Chapter 1 – More about Equations

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
13 sep to 30 sep	● Solving Simultaneous Equations by Graphical Method ● Solving Simultaneous Equations by Algebraic Method ● Equations Reducible to Quadratic Equations	Solving Simultaneous Equations by Graphical Method	4	Exercise 1A
		Solving Simultaneous Equations by Algebraic Method	3	Exercise 1B
		Fraction Equations	2	Exercise 1C
		Exponential Equations	2	
		Logarithmic Equations	2	
		Trigonometric Equations	3	
		Total:	18	

5A Chapter 2 – Quadratic Equations in One Unknown

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
4 oct to 13 oct	● Compound Linear Inequailies in One Unknown ● Solve Quadratic Inequalities in One Unknown by Graphical Method ● Solve Quadratic Inequalities in One Unknown by Algebraic Method	Review	1	
		Compound Linear Inequalities in One Unknown	4	Exercise 2A
		Solve Quadratic Inequalities in One Unknown by Graphical Method	3	Exercise 2B
		Solve Quadratic Inequalities by Algebraic Method	4	Exercise 2C
		Total:	12	

Quiz (1)

5A Chapter 3 – More about Graphs of Functions

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
14 oct to 26 oct	● Some Common Functions and Their Graphs ● Solving Equations by Using Graphs of Functions ● Solving Inequalities by Using Graphs of Functions ● Transformations of Functions	Review	1	
		Common Functions and their Graphs	3	Exercise 3A
		Solving Equations by Using Graphs of Functions	3	Exercise 3B
		Solving Inequalities by Using Graphs of Functions	3	Exercise 3C
		Translation	1	Exercise 3D
		Enlargement and Reduction	2	
		Reflection	2	
		Total:	15	

First Term Uniform Test

5B Chapter 7 – Variations

Date	Objectives	/ Content	Periods	Teaching Materials / Ex./ Remarks
2 nov to 15 nov	● Review: Rate and Ratio, Percentages Linear Equations in Two Unknowns ● Direct Variations and Inverse Variations ● Joint Variations and Partial Variations ● Real-life Applications of Variations	Review	2	
		Direct Variations	2	Exercise 7A
		Inverse Variations	2	Exercise 7B
		Joint Variations	2	Exercise 7C
		Partial Variations	2	Exercise 7D
		Real-life Applications of Variations	4	Exercise 7E
		Total:	14	

5B Chapter 8 – Equations of Circles

Date	Objectives	/ Content	Periods	Teaching Materials / Ex./ Remarks
16 nov to 6 dec	● Review: Equations of Straight Lines, Nature of Roots of Quadratic Equations, Circle Geometry ● Different Forms of the equations of Circles ● Features of Circles from the equations ● Equations of Circles from Different Given Conditions ● Intersection of a Straight Line and a Circle	Review	2	
		Standard Form of the equations of Circles	2	Exercise 8A
		General Form of the equations of Circles	2	
		Features of Circles from the Equations	4	Exercise 8B
		Equations of Circles	4	Exercise 8C
		Intersection of a Straight Line and a Circle	2	Exercise 8D
		Equations of Tangents	2	
		Total:	18	

Quiz (2)

5B Chapter 9 – Locus

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
7 dec to 21 jan	● Review: ■ Distance between a Point and a Line ■ Distance between 2 Parallel Lines ● Concept of Locus ● Sketching Simple Locus ● Describing Locus with an Algebraic Equation	Review	2	
		Concept of Locus	1	Exercise 9A
		Sketching Simple Locus	3	
		Describing Locus with an Algebraic Equation	4	Exercise 9B
		Harder Problems	4	Supp. Ex. 9
		Total:	16	

Revision Period

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
3 jan to 5 jan	● Revision for First Term Exam		4	Workbook 5A and 5B
		Total:	4	

First Term Exam – (I), (II)

SECOND TERM

5B Chapter 10 – Solving Triangles

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
24 jan to 15 feb	● Concept of Solving Triangles ● Sine Formula ● Cosine Formula ● Areas of Triangles	Review	1	
		Concept of Solving Triangles	2	Exercise 10A
		Sine Formula	2	
		Cosine Formula	4	Exercise 10B
		Areas of Triangles with 2 sides and Included Angle Given	3	Exercise 10C
		Heron's Formula	3	
		Total:	15	

5B Chapter 11 – Applications in Trigonometry

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
16 feb to 3 mar	● Review ● Problems in 2 Dimensions ● Angles and Lines in 3-D Figures ● Problems in 3 Dimensions	Review	1	
		Problems in 2 Dimensions	5	Exercise 11A
		Angles and Lines in 3-D Figures	4	Exercise 11B
		Problems in 3 Dimensions	4	Exercise 11C
		Total:	14	

Quiz (3)

5A Chapter 4 – Permutation and Combination

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
4 mar to 22 mar	● The Counting Principle ● Permutation ● Combination	Addition Rule in the Counting Principle	3	Exercise 9A
		Multiplication Rule in the Counting Principle	3	
		Definition of Permutation	2	Exercise 9B
		Factorial Notation	2	
		Problems Involing ${}_nP_r$	3	
		Combination	2	Exercise 9C
		Harder Problems	4	Supp. Ex. 9
		Total:	19	

Second Term Uniform Test

5A Chapter 5 – More about Probability

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
23 mar to 15 apr	● The Concept of Set ● Addition Law of Probability ● Multiplication Law of Probability ● Solve Problems on Probability Using the Addition Law and Multiplication Law	Definition of Set and Some Basic Set Notation	2	Exercise 5A
		Empty Set and Univeral Set	1	
		Intersection, Union and Complement of Sets	2	
		Venn Diagram	2	
		Mutually Exclusive Events	2	Exercise 5B
		Addition Law of Non-mutually Exclusive Events	3	
		Complementary Events	1	
		Multiplication Law of Probability	1	Exercise 5C
		Independent Events	1	

		Conditional Probability	2	Exercise 5D
		Harder Problems on Probability	3	Exercise 5E
		Total:	18	

5B Chapter 12 – Measures of Dispersion

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
28 apr to 18 may	● Review: Stem-and-leaf Diagram, Representation of Continuous Data, Cumulative Frequency, Measures of Central Tendency, Percentiles ● Basic Concepts of Dispersion ● Range and Inter-quartile Range ● Box-and-whisker Diagrams ● Standard Deviation	Review	3	
		Basic Concepts of Dispersion	1	Exercise 12A
		Range and Interquarttile Range	3	
		Box-and-whisker Diagrams	3	Exercise 12B
		Standard Deviation	3	Exercise 12C
		Harder Problems	2	Exercise 12F
		Total:	15	

Quiz (4)

5B Chapter 13 – More about Dispersion

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
19 may to 31 may	● Applications of Standard Deviation ● Effects of Changing Data on Dispersion	Comparing Precision and Consistency	2	Exercise 13A
		Standard Score	2	
		Normal Distribution	2	Exercise 13B
		Adding and Subtracting a Common Constant	2	Exercise 13C
		Multiplying by a Common Constant	2	
		Other Change of Data	2	
		Total:	12	

Revision Period

Date	Objectives	Content	Periods	Teaching Materials / Ex./ Remarks
1 jun to 8 jun	● Revision for Second Term Exam		9	Workbook 5A and 5B
		Total:	9	

2nd Term Exam: (I-A1), (I-A2), (I-B); (II)

~End of Schedule~