KURRI KURRI HIGH SCHOOL
Creating Futures

Year 11 Mathematics Advanced
Scope and Sequence 2022

Mathematics Faculty

Head Teacher: Mrs J. O'Neill

TERM 1

2	3	4	5	6	7	8	9	10	11
FUNCTIONS: **Working with Functions (MA-F1)** *MA11-1, MA11-2, MA11-8, MA11-9* Mathematical Skills: – Introduce students to the concept of a function and develop their knowledge of functions and their respective graphs. – Function notation is introduced, which is essential for describing the ideas of calculus. – Use mathematical language to describe functions, their properties, and respective graphs – Applying knowledge of functions to everyday problems and applications – Discover, recognise, and generalise connections between algebraic and graphical representations of the same expression – Describe interactions using both dependent and independent variables HSC Skills: – *Effective study skills for mathematics*								CALCULUS: **Introduction to Differentiation (MA-C1)** *MA11-1, MA11-5, MA11-8, MA11-9*	
						Assignment & Quiz = 30 %			

TERM 2

1	2	3	4	5	6	7	8	9	10
CALCULUS: **Introduction to Differentiation (MA-C1)** *MA11-1, MA11-5, MA11-8, MA11-9* Mathematical Skills: – Development of the basic concepts upon which differential calculus is built – Algebraic manipulative skills necessary for the effective use of differential calculus – Develop an understanding of the concept of a derivative as a function that defines the rate of change of a given function – Derivatives of power functions are found and used to solve simple problems – Calculating gradients and equations of tangents and normals – Develop an understanding of derivatives as representations of rates of change HSC Skills: – *Deconstructing multiple choice questions* – *Short response questions in timed conditions*						STATISTICAL ANALYSIS: **Probability & Discrete Probability Distributions (MA-S1)** *MA11-7, MA11-8, MA11-9* Mathematical Skills: – Conditional probability and independence – Understand discrete random variables and their uses in modelling random processes involving chance – Use skills in probability, its language, and visual representations to solve practical problems – Understand probability distributions and associated statistical analysis methods and their use in modelling binomial events HSC Skills: – *Recognising subject specific terminology in exam questions*			
					Investigation 30 %				

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TERM 3

1	2	3	4	5	6	7	8	9	10
TRIGONOMETRIC FUNCTIONS: Trigonometry & Measure of Angles (MA-T1); Trigonometric Functions & Identities (MA-T2) *MA11-1, MA11-3, MA11-4, MA11-8, MA11-9* Mathematical Skills: – Solve problems involving triangles using trigonometry – Understand and use angular measure expressed in radians and degrees – Develop techniques to solve problems involving triangles, and then extend these ideas to include the exact ratios for angles, and also to the study of non-right-angled triangles – Define the trigonometric ratios for obtuse angles and establish trigonometric ratios of angles of any size. – Solve problems involving periodic functions in geometric, algebraic, numerical, and graphical representations Use trigonometric identities and reciprocal relationships to simplify expressions, to prove equivalences and to solve equations HSC Skills: – – *Exam format and styles of questions*							**EXAMINATIONS**		**Exponential & Logarithmic Functions (MA-E1)** *MA11-6, MA11-8, MA11-9*
							Year 11 Exam 40 %		

TERM 4

1	2	3	4	5	6	7	8	9	10
EXPONENTIAL AND LOGARITHMIC FUNCTIONS: **Exponential & Logarithmic Functions (MA-E1)** *MA11-6, MA11-8, MA11-9* Mathematical Skills: – Introduce exponential & logarithmic functions and their properties, including the manipulation of expressions – Become fluent in manipulating logarithms and exponentials – Use their knowledge, skills and understanding to solve problems relating to exponentials and logarithms. – develop an understanding of numbering systems, their representations and connections to observable phenomena such as exponential growth and decay HSC Skills: – *Exam format and styles of questions*					*Year 12 course commences* *Refer to Year 12 Scope and Sequence document for 2022 – 2023*				