Year 11 Mathematics Extension 1
Scope and Sequence 2022

KURRI KURRI HIGH SCHOOL — Creating Futures

Mathematics Faculty

Head Teacher: Mrs J. O'Neill

	2	3	4	5	6	7	8	9	10	11
TERM 1	COMBINATORICS: **Working with Combinatorics (ME-A1)** *ME11-5, ME11-6, ME11-7* Mathematical Skills: – Understand and achieve proficiency with permutations and combinations – Understand the relevance to binomial coefficients – Use ordering and counting techniques in both restricted and unrestricted situations – Introduce binomial expansion – Construct and use Pascal's triangle to prove related identities HSC Skills: – *Effective study skills for mathematics*					FUNCTIONS: **Further Work with Functions (ME-F1)** *ME11-1, ME11-2, ME11-6, ME11-7* Mathematical Skills: – Explore functions in a variety of contexts including reciprocal and inverse functions, manipulating graphs of functions, and parametric representation of functions – Study inequalities as an application of functions and use to express domains and ranges as inequalities – Identify solutions to equations both algebraically and graphically HSC Skills: – *Deconstructing multiple choice questions*				

	1	2	3	4	5	6	7	8	9	10
TERM 2	FUNCTIONS: **Further Work with Functions (ME-F1)** *ME11-1, ME11-2, ME11-6, ME11-7* Mathematical Skills: – Graphical relationships – Inequalities – Inverse functions – Parametric form of a function or relation HSC Skills: – *Short response questions in timed conditions*			FUNCTIONS: **Polynomials (ME-F2)** *ME11-1, ME11-2, ME11-6, ME11-7* Mathematical Skills: – Explore the behaviour of polynomials algebraically – Use the remainder and factor theorems – solve problems related to the sums and products of roots – Develop knowledge, skills and understanding to manipulate, analyse and solve polynomial equations HSC Skills: – *Short response questions in timed conditions* – *Sketching functions and interpreting diagrams*				CALCULUS: **Rates of Change (ME-C1)** *ME11-1, ME11-4, ME11-6, ME11-7* Mathematical Skills: – Rates of change with respect to time – Exponential growth and decay – Related rates of change HSC Skills: – *Exam question interpretation & analysis* – *Recognising subject specific terminology in exam questions*		
			Investigation 30 %							

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TERM 3	CALCULUS: **Rates of Change (ME-C1)** *ME11-1, ME11-4, ME11-6, ME11-7* Mathematical Skills: – Solve problems involving the chain rule and – Solve problems involving differentiation of the exponential function – Understand how these concepts can be applied to the physical and natural sciences – Develop the ability to study motion problems in an abstract situation HSC Skills: – *Exam format and styles of questions*			TRIGONOMETRIC FUNCTIONS: **Inverse Trigonometric Functions (ME-T1)** *MA11-1, MA11-3, MA11-6, MA11-7* Mathematical Skills: – Determine and work with the inverse trigonometric functions – Explore inverse trigonometric functions – Sketch the graphs of inverse trigonometric functions – Apply a range of properties to extend knowledge and understanding of the connections between algebraic and geometrical representations of functions HSC Skills: – *Exam format and styles of questions*				EXAMINATIONS		**Inverse Trig Functions (MA-T1)** *MA11-1, MA11-3, MA11-6, MA11-7*
		Online Quiz Series = 30 %							Year 11 Exam 40 %	

	1	2	3	4	5	6	7	8	9	10
TERM 4	TRIGONOMETRIC FUNCTIONS: **Further Trigonometric Identities (ME-T2)** *MA11-1, MA11-3, MA11-6, MA11-7* Mathematical Skills: – Define and work with trigonometric identities to both prove results and manipulate expressions – Manipulate trigonometric expressions to solve equations and to prove results – Solve trigonometric equations involving the use of trigonometric identities HSC Skills: – *Exam format and styles of questions*				*Year 12 course commences* *Refer to Year 12 Scope and Sequence document for 2022 – 2023*					