Mathematics Exam Syllabus

Grades 9-10

1. **Number Systems and Algebraic Structure**
   - Real numbers
   - Rational and irrational numbers
   - Powers and exponent laws
   - Scientific notation
   - Surds/radicals in introductory algebraic and numerical contexts
   - Numerical estimation, rounding, and introductory bounds
   - Algebraic manipulation and equivalence
   - Rearranging formulae
   - Precision, units, and reasonableness in calculations

2. **Equations, Inequalities, and Systems**
   - Linear equations
   - Quadratic equations
   - Linear inequalities
   - Compound inequalities
   - Simultaneous equations
   - Graphical solution methods
   - Equations from contextual situations
   - Checking and interpreting solutions
   - Constraints and solution sets in practical contexts

3. **Functions and Graphs**
   - Function concept
   - Domain and range
   - Linear functions
   - Quadratic functions
   - Exponential functions at an introductory level
   - Function notation
   - Graph transformations
   - Comparing functions from tables, graphs, equations, and contexts
   - Rates of change, intercepts, roots, and key graph features

4. **Geometry and Coordinate Geometry**
   - Congruence and similarity
   - Transformations
   - Coordinate geometry
   - Distance, midpoint, and gradient/slope
   - Equations of straight lines
   - Circles and geometric relationships
   - Geometric measurement and dimension
   - Modelling with geometry
   - Scale, spatial reasoning, and practical design contexts

5. **Statistics and Probability**
   - Data collection and sampling
   - Data displays
   - Measures of centre
   - Measures of spread
   - Comparing distributions
   - Correlation and association

- Probability of simple and compound events
- Interpreting statistical claims
- Bias, data quality, and limitations

6. **Mathematical Modelling and Quantitative Reasoning**
   - Modelling with equations
   - Modelling with graphs and tables
   - Financial mathematics
   - Rates and compound units
   - Constraints and assumptions
   - Multi-step problem solving
   - Evaluating reasonableness
   - Communicating and justifying solutions
   - Practical contexts involving science, finance, measurement, design, and data