MATH 0010 MATHEMATICS 3 (WSTC PREP)

Credit Points 10

Legacy Code 700203

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Description This subject is designed to prepare students for further mathematical study at first year university level. It provides a comprehensive introduction to the study of calculus and its applications in the real world. The concepts studied also include arithmetic and geometric series, trigonometry, inverse trigonometric functions, vectors and matrices.

School Western Sydney The College

Discipline Mathematics

Student Contribution Band HECS Band 1 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 0 Preparatory subject

Pre-requisite(s) MATH 0008

Equivalent Subjects MATH 0011 - Mathematics 3 (UWSC)

Restrictions

Students must be enrolled at Western Sydney University, The College.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Apply the main concepts of arithmetic and geometric series to solve problems.
2. Manipulate algebraic expressions involving trigonometric identities.
3. Choose and apply appropriate techniques of differential and integral calculus to solve a variety of problems, including real-life problems.
4. Solve problems involving inverse trigonometric functions including those involving derivatives and integrals.
5. Demonstrate an understanding of the basic concepts of vectors and perform basic operations on vectors and matrices.
6. Demonstrate an ability to solve problems by identifying interrelationships between ideas from different areas of mathematics.
7. Communicate abstract mathematical ideas and relationships using appropriate notation and logical arguments.

Subject Content

1. Series (arithmetic and geometric progressions, limiting sum of infinite series)
2. Trigonometry (revision of basic identities, sum and difference of two angles, double angles, and in terms of
3. Differentiation (gradient of a curve; differentiation from first principles; differentiating powers of x; differentiating trigonometric, exponential and logarithmic functions; rules of differentiation: sums and differences of functions, product rule, quotient rule, chain rule)
4. Applications of differentiation (determining stationary points and their nature; inflection points, curve sketching, problem solving)
5. Integration (indefinite and definite integrals, rules of integration, area under and between curves, volumes of solids of revolution)
6. Inverse trigonometric functions (and , derivatives and integrals involving inverse trigonometric functions)
7. Vectors (scalars and vectors, addition and subtraction of vectors, problem solving)
8. Matrices (terminology, basic operations on matrices, determinants of 2x2 and 3x3 matrices)

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Numerical Problem Solving	1 hour	10	N	Individual
Numerical Problem Solving	1 hour	25	N	Individual
Numerical Problem Solving	1 hour	25	N	Individual
Final Exam	2 hours	40	N	Individual

Prescribed Texts

- Breach, M 2011, Fundamental Maths for Engineering and Science, Palgrave Macmillan

Teaching Periods