

# MATH 1039 ENGINEERING MATHEMATICS AND STATISTICS (WSTC)

**Credit Points** 10

**Coordinator** Abbas Ranjbar (<https://directory.westernsydney.edu.au/search/name/Abbas.Ranjbar/>)

**Description** This subject will introduce you to fundamental mathematical concepts crucial for comprehending, interpreting, and resolving contemporary engineering problems. By developing their numeracy skills, you will enhance your problem-solving abilities, critical thinking, and creativity, all of which are transferrable to your future careers and ongoing educational pursuits. Moreover, a grasp of these fundamental principles in mathematics and statistics will empower you to navigate our ever-evolving, complex world.

**School** Eng, Design & Built Env

**Discipline** Mathematics

**Student Contribution Band** HECS Band 1 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 1 subject

## Restrictions

Students must be enrolled in an existing Destination College Diploma program listed below:

- 7188 Diploma in Culture, Society and Justice
- 7189 Diploma in Health Science
- 7190 Diploma in Business
- 7191 Diploma in Information and Communication Technologies
- 7192 Diploma in Building Design and Construction
- 7193 Diploma in Engineering Studies
- 7194 Diploma in Creative Industries and Communications
- 7195 Diploma in Arts
- 7196 Diploma in Science
- 7197 Diploma in Education Studies

## Learning Outcomes

After successful completion of this subject, students will be able to:

1. Perform operations with numbers and use them to process and analyse measurements and quantitative data.
2. Apply statistical methods to estimate uncertainties and errors using statistical software.
3. Use algebra, elementary functions and equations to model and solve problems in engineering.
4. Use geometry and trigonometry to solve problems in engineering.
5. Apply mathematical concepts and procedures to select and justify problem-solving strategies.

## Subject Content

- Arithmetic (numbers, operations with numbers including whole numbers, fractions, decimal and percentages, properties of real numbers)

- Measurements and units, estimates, scientific notation and rounding, uncertainties.
- Statistics, descriptive statistics, histograms, normal distribution
- Algebra (algebraic rules and techniques, equations, and identities, working with formulas)
- Functions (definition, translation, and notation, domain and range, graphs, the inverse function, linear and quadratics functions and equations; linear systems of 2 equations)
- Basic geometry and trigonometry; trigonometric functions
- Exponential and log functions and their applications

## 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	Mandatory
Portfolio	300 words or equivalent	15	N	Individual	N
Portfolio	300 words or equivalent	15	N	Individual	N
Report	1000 words or equivalent	40	N	Individual	N
Numerical Problem Solving	90 minutes	30	N	Individual	N

## Teaching Periods

### Autumn Block 3 (2025)

#### Penrith (Kingswood)

##### On-site

**Subject Contact** Abbas Ranjbar (<https://directory.westernsydney.edu.au/search/name/Abbas.Ranjbar/>)

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MATH1039\\_25-AB3\\_KW\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1039_25-AB3_KW_1#subjects))

### Spring Block 3 (2025)

#### Penrith (Kingswood)

##### On-site

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