

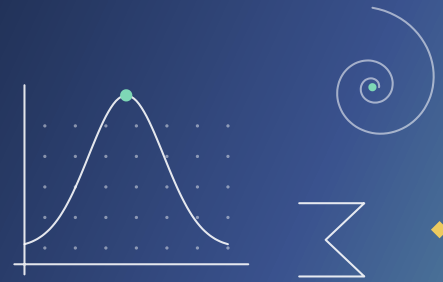
Module code

SPM-3420

Type of module

Undergraduate: Mathematical Sciences – Elective

History of Mathematics



Modular credits

4

Total student
engagement

56 hours

Prerequisite

**SPM-1201
Mathematical
Methods for the
Sciences**

Anti-requisite

None

Aims

To develop students' ability to analyse the historical development of mathematics across cultures, evaluate the evolution of mathematical ideas, and connect historical practices with modern mathematical thinking within their social and scientific contexts.

Module learning outcomes (MLO)

On successful completion of this module, a student will be expected to be able to:

MLO 1

Analyse mathematical problems faced by early civilisations and reconstruct their original methods of solution.

MLO 2

Evaluate the role of the axiomatic deductive method in shaping mathematical reasoning and its influence on modern mathematics.

MLO 3

Compare and contrast mathematical contributions from different cultures (e.g. Greek, Indian, Chinese, Islamic, European) and assess their historical significance.

MLO 4

Extend classical techniques to new problem classes and synthesise connections between historical and modern approaches.

MLO 5

Demonstrate autonomy by conducting independent research on historical mathematical topics and communicating findings effectively.

Module contents

Foundations of mathematics in ancient civilizations: Babylonian, Egyptian, Chinese, and Indian contributions

Greek mathematics: deductive method, Euclidean geometry, number theory, Platonic solids

Islamic Golden Age: algebra, trigonometry, and the transmission of Greek and Indian knowledge

Medieval and Renaissance Europe: mathematics in navigation, astronomy, and commerce

17th century revolutions: analytic geometry (Descartes), probability (Pascal, Fermat), calculus beginnings (Newton, Leibniz)

18th and 19th centuries: algebraic formalisation, the rise of analysis, number theory (Euler, Gauss), and non-Euclidean geometry

20th century developments: axiomatic systems (Hilbert), formal logic, the advent of set theory, and early computers

Global perspectives and modern connections: interplay between cultural contexts, technology, and mathematical innovation

Assessment

60%

Examination

40%

Coursework

Examination
60%

Class tests
40%

■ Examination — 60% ■ Class tests — 40%

Formative assessment

Weekly discussion
and feedback

Summative assessment

COMPONENT		WEIGHTING
Examination		60%
Coursework		40%
Individual		40%
Class tests		40%

Graduate attributes and skills

Programme learning objectives (PLO) addressed

1	PLO 1 (Core Mathematical Knowledge)	2	PLO 2 (Analytical Problem-Solving)
4	PLO 4 (Mathematical Communication)	6	PLO 6 (Adaptability And Lifelong Learning)

Sustainability concept addressed

4	SDG 4 Quality Education
10	SDG 10 Reduced Inequalities

Digital skills/software used (not limited to)

- Mathematical document preparation software (Microsoft Word, LaTeX)
- Learning management and collaboration platforms (e.g. Canvas)

Micro-credentialling option No	Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes No
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Document details

Office **ODVCE** Document date **27 June 2026** Status **New** Approval **GBF (12/02/2026)**