

Module code

SPM-3410

Type of module

Undergraduate: Mathematical Sciences – Elective

General Topology



Modular credits

4

Total student
engagement

56 hours

Prerequisite

**SPM-2201 Advanced
Mathematical
Methods for the
Sciences**

Anti-requisite

None

Aims

To develop students' ability to analyse and evaluate topological spaces and their properties, including continuity, compactness, connectedness, and separation axioms, in order to construct rigorous mathematical arguments in topology.

Module learning outcomes (MLO)

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

MLO 1

Analyse the topology on a set, topological spaces and subspaces while interrelating closure, interior, frontier and limit point of a set.

MLO 2

Analyse the relationships between bases, sub-bases, neighbourhood systems, and countability properties in topological spaces.

MLO 3

Evaluate separation axioms, T_0 -, T_1 -, Hausdorff, regular and normal spaces and interpret products of topological spaces.

MLO 4

Evaluate compactness and connectedness properties of topological spaces using appropriate mathematical examples and reasoning.

MLO 5

Construct and justify examples of topological spaces exhibiting properties such as total disconnectedness.

Module contents

Introductory concepts on point-set topology and a topological space

Interpretation of countability, continuity and product space

Separation axioms and respective generated spaces

Detailed analysis of compactness in topological spaces

Advanced topics such as connectedness in topological spaces

Assessment

60%

Examination

40%

Coursework

Examination
60%

Class tests
30%

■ Examination — 60% ■ Class tests — 30% ■ Assignment — 5% ■ Tutorial Participation — 5%

Formative assessment	Summative assessment	
Weekly discussion and feedback	COMPONENT	WEIGHTING
	Examination	60%
	Coursework	40%
	Individual	40%
	Class tests	30%
	Assignment	5%
	Tutorial Participation	5%

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)		

Sustainability concept addressed

4	SDG 4 Quality Education
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Digital skills/software used (not limited to)

- Learning management and collaboration platforms (e.g. Canvas)
- Mathematical and computational software (e.g. MATLAB, Mathematica)

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)**