



SMIMS SIKKIM
MANIPAL
UNIVERSITY
SIKKIM MANIPAL INSTITUTE OF MEDICAL SCIENCES

DEPARTMENT OF ANAESTHESIOLOGY

**PhD COURSEWORK SYLLABUS – OPERATION THEATRE
TECHNOLOGY
(As per SMU PhD Regulations, UGC 2016/2022)**

Academic Year 2025-26.

Doctor of Philosophy (PhD) in Operation Theatre Technology

1. Programme Overview

The PhD in Operation Theatre Technology (OTT) offered under the Department of Anaesthesiology & Allied Health Sciences is designed in accordance with the Sikkim Manipal University PhD Regulations (based on UGC 2016/2022). This coursework aims to provide foundational research skills and advanced domain-specific knowledge to scholars pursuing doctoral research in perioperative sciences and allied health technology.

2. Programme Duration

- Minimum: 3 years (including coursework)
- Maximum: 6 years

3. Credit Structure

Component	Credits
Coursework (2 Papers)	8
Thesis Work & Publications	2 research publication.

4. Coursework Structure (Compulsory for All Scholars)

Semester	Paper	Course Title	Credits	Remarks
I	Paper I	Research Methodology and Biostatistics	4	Core (UGC/SMU-mandated)
I	Paper II	Advanced Concepts in Operation Theatre & Anaesthesia Technology	4	Department Core

5. Detailed Syllabus

Paper I: Research Methodology and Biostatistics

- Unit 1: Introduction to research, objectives, and hypothesis formulation
- Unit 2: Research design – experimental, observational, and qualitative methods
- Unit 3: Data collection tools, sampling techniques, and validity testing
- Unit 4: Descriptive and inferential statistics; t-test, chi-square, ANOVA, correlation, regression
- Unit 5: Statistical software (SPSS, R, Python basics), data presentation, and interpretation
- Unit 6: Scientific writing, referencing (APA/Vancouver), plagiarism and ethics in research

Paper II: Advanced Concepts in Operation Theatre & Anaesthesia Technology

- Unit 1: Modern operation theatre design, zoning, workflow, and air handling systems
- Unit 2: Infection control, sterilisation, and disinfection in perioperative settings
- Unit 3: Anaesthesia equipment – design, function, safety, and troubleshooting
- Unit 4: Energy sources in surgery – electrocautery, lasers, ultrasonic systems
- Unit 5: OT ergonomics, simulation, and perioperative safety management
- Unit 6: Quality assurance, NABH/JCI standards, and Green OT initiatives

6. Evaluation Scheme

- Each Paper: 100 Marks (50 Theory + 25 Assignment/Seminar + 25 Viva)
- Minimum Pass Requirement: 55% in each paper
- Scholars failing to achieve the minimum may reappear once in the next semester
- Confirmation Viva: Conducted after successful completion of coursework and approval of research proposal

7. Note on Compliance with SMU PhD Regulations

This coursework structure adheres to Clause 9.1 of the Sikkim Manipal University PhD Regulations, which specifies a minimum of one semester and 8–16 credits for coursework. The proposed two-paper model (8 credits) includes one compulsory paper on Research Methodology & Biostatistics and one subject-specific core paper, fulfilling all requirements prescribed by SMU and UGC.

