Short Term Course

on

The Science & Art of Academic Writing, Publication & Protection

07 July 2025-11 July 2025

Organized by

Department of Technology Management

Defence Institute of Advanced Technology is organizing a Short-Term Course on The Science & Art of Academic Writing, Publication and Protection from 07 July 2025 to 11 July 2025. The Defence Institute of Advanced Technology (DIAT) is a premier Deemed University under the Department of Defence Research and Development, Ministry of Defence, Government of India. Over the past 60 years, DIAT has been dedicated to imparting technical education at the postgraduate and doctoral levels in specialized areas. The institute's primary focus is to evolve into an innovative, unique teaching and research university committed to developing cutting-edge indigenous defense technologies.

The Department of Technology Management was launched in the Academic Year 2014-15. It offers M. Tech in Technology Management and PhD in the following research areas: Innovation Management, R&D Management, Human Resource Management, Project Management, and AI & Data Analytics for Decision Making. The M. Tech and PhD programs are open to both civilian and sponsored candidates from the defense, academia, and industry. The Department has been engaged in the capacity building of Research Scholars, Faculties, Industry Professionals, Service officers, and Scientists through short-term training and action research programs dedicated to the development of innovative research, teaching, and techno-managerial skills since its inception.

Major topics to be covered in the short-term course are –

- Productive Thinking Skills for Research

- Research Idea Generation & Refinement Techniques

- Data Collection and Analysis - Best Practices

- Tools for Research Documentation

- Professional Ethics, Integrity & AI in Research

- Effective Oral Presentations & Conference Talks

- Technology Readiness Levels (TRLs) and Research Maturity

- Intellectual Property & Research Protections

- Technology Transfer & Commercialization Pathways

- Non-Disclosure Agreements (NDAs) and Confidentiality in Research

- Grants, Funding & Career Development in Research

- Time and Stress Management in Research

The short-term course will include sessions delivered by the world's top 2% of scientists and eminent faculty from DIAT. The entire course will be conducted offline, which will consist of engaging lectures and classroom activities. The short-term course is open to Research Scholars, Faculty members, Scientists, and Aspiring Researchers from the country. Registration is mandatory for all participants of the Short-Term Course. All those who meet the eligibility criterion are required to pay the non-refundable enrollment fee. The eligible participants who have made the payment are required to register online on or before 15 June 2025. The participants must make the prescribed payment through NEFT/IMPS or any online mode of payment to the following account:

Account Name	Defence Institute of Advanced Technology (DIAT)
Bank Name	State Bank of India
Branch	IAT Girinagar
IFSC Code	SBIN0002155
Account Number	30166494269
Registration Fee for Students (Graduate/Post Graduate/ Research Scholars)	3000 INR (Inclusive of GST)
Registration Fee for Scientists/Faculty/Working Professionals	6000 INR (Inclusive of GST)
Last date of Receipt of online application	15 June 2025
Confirmation mail to participants	20 June 2025

After payment, participants must complete the following online registration form with all necessary details.

Registration Form: https://forms.gle/3WCafuVZ5nDa23Kf9

Course Details
of
The Science & Art of Academic Writing, Publication & Protection
07 July 2025-11 July 2025
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Course Director: Prof. (Dr.) Balasubramanian Kandasubramanian
Course Co-Director: Dr. Sumati Sidharth
Course Coordinator: Dr. Amrita Nighojkar
Course Committee: Dr. Ganapati Joshi, Dr. Odelu Ojjela, Dr. Nilesh Ware, Dr. Rajesh Singh, Dr. Shyamal Mondal, Dr. Soumya S, Dr. Sushma Kumari, Dr. K Srinivasan, and Dr. Hariom Verma

Course Objectives:
- Equip participants with essential skills for academic research and publication.
- Enhance scientific thinking, research planning, and manuscript writing abilities.
- Develop communication and presentation skills for effective dissemination of research findings.
- Provide strategies for managing research efficiently while maintaining ethical integrity.

Day 1. Productive Thinking & Research Foundations
Session 1. Introduction to Productive Thinking in Research
- Understanding critical, creative, and lateral thinking in research.
- Cognitive biases and overcoming mental blocks in academic writing.
- Case studies of breakthrough research driven by productive thinking.

Session 2: Idea Generation & Refinement Techniques
- How to Read a Research Paper Effectively to Identify gaps in existing literature and formulate novel research questions.
- Identifying the key sections of a research paper (Title, Abstract, Introduction, Methods, Results, Discussion, Conclusion).
- Skimming vs. deep reading: Techniques for different research needs.
- Note-taking strategies: Annotating, summarizing, and extracting insights, and mind mapping for research problem identification.
- Hands-on exercise: Analyzing a sample research paper.

Session 3: Structuring Research Ideas for Maximum Impact
- From broad topics to specific research objectives.
- Research roadmaps: Aligning academic work with global trends.
- Practical exercise: Participants refine their research ideas.

Day 2: Scientific Method and Experimentation Skills
Session 4: The Scientific Method in Research
- Components of the scientific method and its role in academic writing.
- Designing experiments and structuring research methodologies.
- Common errors in research methodology and how to avoid them.

Session 5: Data Collection &Analysis Best Practices
- Primary vs. secondary data: Selection criteria and validation techniques.
- Introduction to qualitative and quantitative research methodologies.
- Statistical tools and software for research analysis and data visualization (e.g., SPSS, Python, R).

Session 6: Research Documentation and Lab Notebooks
- Importance of proper documentation in research.
- Best practices for maintaining reproducibility and transparency.
- Hands-on session: Structuring an experimental record and documentation with LaTeX

Day 3: Communication Skills and Ethical Integrity
Session 7: Principles of Academic Writing
- Structuring a research paper: Title, Abstract, Introduction, Methodology, Results, Discussion, Conclusion.
- Writing with clarity and precision: Avoiding jargon and redundancy.
- Common grammatical and stylistic errors in academic writing.
- Understanding journal requirements and selecting the right journal.
- Writing effective abstracts and introductions.
- Citation styles, referencing software (Zotero, Mendeley, EndNote).
- Manuscript Submission and Peer Review Process

Session 8: Effective Oral Presentations & Conference Talks
- Slide design and presentation structuring for academic conferences.

- Engaging storytelling techniques in scientific presentations.
- Handling Q&A sessions and responding to critical feedback.
  Session 9: Professional Ethics, Integrity & AI in Research
- Ethical Issues in Research: Plagiarism, data fabrication, authorship disputes, and conflicts of interest.
- AI in Academic Integrity: AI tools for plagiarism detection (Turnitin, Grammarly).
- Responsible use of AI in research

Day 4: Research Commercialization, NDAs & Technology Transfer
  Session 13: Technology Readiness Levels (TRLs) and Research Maturity
- Understanding TRLs and their significance in defense and industrial R&D.
- Mapping TRLs to different research stages: From concept to deployment.
- TRL assessment methods and case studies from DRDO-funded projects.
  Session 14: Intellectual Property & Research Protections
- Types of Intellectual Properties in Research
- Engineering Research (ER) & IPR Policies of DRDO
- Non-Disclosure Agreements (NDAs) and Confidentiality in Research
- Key components of NDAs: Scope, duration, and enforcement.
- NDAs in collaborative research with DRDO and industry.
- Case studies on NDA breaches and their impact.
  Session 15: Technology Transfer & Commercialization Pathways
- The role of technology transfer in academia and industry collaborations.
- Pathways for transferring defense technologies to private/public sector firms.
- Challenges and best practices in research commercialization.
- Case studies of successful technology transfers in defense and dual-use sectors.

Day 5: Management of Research & Career Development
  Session 16: Time & Stress Management in Research
- Setting SMART research goals and milestones.
- Productivity tools for researchers: Project management software, note-taking apps.
- Managing research pressure and academic workload.
- Psychological resilience techniques: Mindfulness, meditation, and cognitive reframing.
- Work-life balance strategies for long-term research success.
  Session 17: Grants, Funding & Career Development in Research
- Writing research proposals and securing funding.
- Career pathways in academia, industry, and beyond.
- Panel discussion: Experiences from senior researchers and journal editors.

Contact:
Dr. Amrita Nighojkar
Assistant Professor, Department of Technology Management
Email ID: amrita@diat.ac.in, Mob. +91-6350405715