

*Course Code: MED3TEC01**Teacher Education Course***M. Ed. DEGREE PROGRAMME****Semester - III****TEACHER EDUCATION: THEORY AND PRACTICES**

(4 credits – 120 hours)

Preface

This course provides a foundational understanding of the multifaceted role of a Prospective Teacher Educator. It explores the historical, philosophical, and sociological underpinnings of teacher education, while examining contemporary challenges and opportunities in the field. The course delves into the complexities of teaching and learning, emphasizing the importance of effective pedagogy, classroom management, and student assessment.

COURSE OUTCOMES

On successful completion of the course, the Prospective Teacher Educator

1. Traces the historical development of Teacher Education in India
2. Analyzes the recommendations of various commissions and committees on Teacher Education
3. Discusses the different agencies of Teacher Education and its significance
4. Enumerates the roles and functions of various agencies of Teacher Education
5. Assesses the impact of innovative practices in Teacher Education
6. Identifies the problem of Teacher Education in India
7. Proposes remedies to overcome the issues and challenges in teacher education
8. Discusses Teacher Education in various developed countries
9. Familiarizes with Teacher Education in different countries
10. Estimates the professional, social and economic status of teaching profession

Unit- I: PERSPECTIVES OF TEACHER EDUCATION IN INDIA (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Traces the historical development of Teacher Education in India. 2. Identifies Teacher Education and teacher training. 3. Analyses the reports of various commissions and committees.	1.1 Development of Teacher Education in pre and post independent India- objectives, policies and recommendations 1.2 Teacher Education –Teaching, Teacher, Training, Education, Teacher Training and Teacher Education. 1.3 Nature, concept and aims of Teacher Education. 1.4 Contributions of various committees and commissions on teacher education, special emphasis to NEP 2020.	<ul style="list-style-type: none"> • Lecture • Discussion • Visual presentation • Assignment

**Unit – II: INSTITUTIONS AND AGENCIES FOR MANAGING TEACHER
EDUCATION (20 Hours)**

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Enumerates the roles of various agencies of Teacher Education 2. Compares the functions of various agencies	2.1 Role and functions of National and State level agencies for managing Teacher Education.: University Grants Commission (UGC). National Council of Educational Research and Training (NCERT) National Council for Teacher Education (NCTE) Centre of Advanced Studies in Education (CASE) National Institute of Education(NIE) Regional Institute of Education(RIE) National Institute of Educational Planning and Administration(NIEPA) State Councils of Educational Research and Training (SCERT) University Department of Education (UDE) PMMM Teacher Training Centre (UGC-HRDC) Institute of Advanced Studies in Education(IASE) College of Teacher Education (CTE) District Institute of Education and Training (DIET)	<ul style="list-style-type: none"> • Lecture • Field survey • QA session • Group discussion • Study of documents

Unit-III: INNOVATIONS IN TEACHER EDUCATION (20 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Discusses the innovative practices in Teacher Education 2. Analyses and discusses the possibilities and challenges of ITEP	3.1 Innovative practices -Tutorial, Self-study, Peer tutoring, Focus Group Discussion (FGD), Induction programme, Reflective practice, Study circle, Self and Peer assessment 3.2 Internship programme: Concept, aims and objectives. Planning and Organization activities: Pre-internship, internship and Post-internship 3.3 Integrated Teacher Education programme (ITEP) - Possibilities and challenges	<ul style="list-style-type: none"> • Discussion • Lecture • Seminar • Peer Learning • Brain storming • QA Session

Unit-IV: TEACHER EDUCATION IN GLOBAL CONTEXT (12 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Analyses the status of teacher education in different countries 2. Compares teacher education in India with reference to teacher education in France, Sweden, Finland, UK and USA.	4.1 Teacher Education in developed countries Sweden Finland U.K USA 4.2 Comparison of Teacher Education in India with reference to History, Types of institutions, Levels, Curriculum, and Service conditions of teachers of the above countries.	<ul style="list-style-type: none"> • Lecture cum discussion • Peer learning • Seminar with visual presentation • Assignment

Unit-V PROFESSIONALISM AND TEACHER COMPETENCY (13 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Defines professionalism. 2. Analyzes the problems and issues in professional development for teachers. 3. Selects suitable programmes for professional development. 4. Assesses the professional, social and economic status of teacher education.	5.1 Teaching as a profession- Performance appraisal of teachers 5.2 Need for Continuous Professional Development (CPD) Professional Association Membership, Activities for professional development 5.3 Professional Organizations: objectives and activities of Local, State, National and International organizations for teacher educators 5.4 Status of Teacher Educators- Professional, Social and Economic. Online Professional Development (OPD) Quality Assurance; Capacity Building, Code of Ethics 5.5 State and National level Eligibility Tests for teachers	<ul style="list-style-type: none"> • Lecture cum • discussion • Peer learning • Seminar with visual presentation • Assignment

ASSESSMENT

1. Tests
2. Discussion
3. Seminar
4. Assignment
5. Debate

TASKS /PRACTICUMS (Any two)

1. Compare Teacher Education curricula of developed and developing countries
2. List out the professional organizations of secondary school teachers and assess the programmes carried out for professional enhancement.
3. Visit any Agency/Regulatory body of Teacher Education and prepare a report on its functioning.
4. Prepare a report on Best Practices prevailing in teacher education institutions
5. Conduct an interview with an expert in the field of teacher education regarding latest trends and challenges in teacher education.

 **PRESCRIBED READINGS**

- Balarumulu, D., Pameela, J. A., & Chory, N. (2023). *Education in contemporary Indian society*. Neelkamal Publications.
- Bhatt, P. D. (2017). *Effective teaching and teacher education*. Neelkamal Publications.
- Chary, O. (2012). *Effective teaching methods*. Paarios Education, Inc.
- Chowdhury, A. (2019). *Teacher education*. Adhyayan Publishers.
- Chowdhury, A., & Mete, J. (2019). *Teacher education in pre-independence period*. Kunal Books.
- Dash, B. N., & Chary, V. (2022). *A new approach to teacher and education in contemporary India*. Neelkamal Publications.
- Halse, S. V., & Rathod, R. (2022). *National education policy 2020: Guidelines, application, and implementation strategies (Vol. 1)*. Current Publication.
- Halse, S. V., & Rathod, R. (2023). *National education policy 2020: Guidelines, application, and implementation strategies (Vol. 2)*. Current Publication.
- Kaul, P. (n.d.). *Teacher education: Company perspectives*. Adhyayan Publishers.
- Kumar, P. (2012). *Teacher education*. APH Publishing.
- Kumar, P. (2018). *Contemporary issues in teacher education*. Solution Publishers.

- Lungsang, Z. (2014). *Teacher education: Quality elevations, quality colors*. Ideal Publishing.
- Maitreya, B. (2022). *New education policy and development challenges*. Kansha Publications.
- Mete, J., & Roy, J. (2019). *Teacher education: Modern period*. Kunal Books.
- Mohan, R. (2023). *Teacher education*. PHI Learning Pvt. Ltd.
- Mohanty, J. (2003). *Teacher education*. Deep and Deep Publication Pvt. Ltd.
- National Council for Teacher Education (NCTE). (2006). *Curriculum framework for teacher education for quality enhancement*. NCTE.
- National Council for Teacher Education (NCTE). (2009). *Curriculum framework for teacher education*. NCTE.
- Nehru, R. S. S., & Suryanarayanan, N. V. S. (2018). *Teacher education in India*. APH Publishing Corporation.
- Rahman, H. (2005). *Key issues in teacher education: Teachers for secondary schools*. Sanjay Prakash.
- Ram, S. (1999). *Current issues in teacher education*. Surup & Sons Publications.
- Rao, B. (2022). *A new approach to teacher education in contemporary India*. DAP Venkata & B. N. Dash et al. Neelkamal Publications.
- Rathan, M. (2013). *Doll learning drive*. Educat Balsata Maitreya.
- Saxena, M., Mishra, M., & Mohanty, J. (2000). *Teacher education*. Surjeet Publications.
- Sharma, R. A. (2003). *Teacher education: Theory and practices*. Prentice Hall India Pvt. Ltd.
- Sharma, S. P. (2003). *Teacher education: Principles, theories, and practices*. Kanishka Publishers.
- Subramanyam, H. (2024). *National education policy 2020: Reforms in education*. Suankete Publications.
- Surganarayana, D. N. V. S. (2018). *Teacher education*. APH Publishing Corporation.

SUGGESTED READINGS

- Beck, C., & Kosnik, A. (2006). *Innovations in teacher education: A social constructive approach*. State University of York.
- Jangira, N. K. (1979). *Teacher training and teacher effectiveness: An experiment in teacher behavior*. National Publishing House.
- Jayaprasad, R. (2005). *National curriculum framework for school education*. In *Innovation in education* (published by SRC Kerala).
- Kundu, C. L. (1998). *Indian yearbook of teacher education*. Sterling Publishing Private Ltd.

- Loughran, J. (2006). *Developing a pedagogy of teacher education: Understanding teaching and learning about teaching*. Routledge.
- Louis, C., Lawrence, M., & Keith, N. (2004). *A guide to teaching practice* (5th ed.). Routledge Falmer.
- Martin, D. J., & Loomis, K. S. (2006). *Building teachers: A constructivist approach to introducing education*. Wadsworth Publishing.
- Millman, J., & Hammond, L. D. (1990). *The new handbook of teacher evaluation: Assessing elementary and secondary school teachers*. Corwin Press, Inc.
- Yadav, M. S., & Lakshmi, T. K. S. (2003). *Conceptual inputs of secondary teacher education: The instructional role*. NCTE.

Course Code: MED3TC003

Tool Course

**M.Ed. Degree Programme
Semester – III**

ADVANCED RESEARCH METHODOLOGY AND STATISTICS

(4 credits- 120 hours)

Preface

This course is designed to equip with advanced research skills and methodologies to conduct rigorous and impactful educational research. Building upon foundational research knowledge, students will delve into advanced research designs, data collection techniques, analysis methods, and interpretation of findings. The course emphasizes critical thinking, problem-solving, and ethical considerations in research.

 COURSE OUTCOMES

On successful completion of the course, the Prospective Teacher Educator

1. Identifies the basic concepts in hypothesis testing
2. Discriminates type I error and type II errors with examples
3. Enumerates the characteristics of a good dissertation
4. Practices in writing various components of dissertations
5. Carries out the various aspects of ethics in research
6. Selects suitable software for checking plagiarism
7. Identifies suitable parametric or nonparametric tests for a hypothetical data
8. Interprets the results of various measures of data
9. Uses suitable statistical softwares for analysis of data
10. Analyses the various components of qualitative research data analysis

Unit- I: TESTING OF HYPOTHESIS (15 Hours)

Learning Outcomes	Content	Suggested strategies and Approaches
1. Identifies the basic concepts in testing hypothesis. 2. Analyses the procedure for hypothesis testing. 3. Compares between Type I and Type II error 4. Differentiates between one tailed and two tailed tests	1.1 Basic concepts in testing hypothesis 1.2 Procedure for hypothesis testing Null hypothesis Level of Significance Rejection and Non rejection regions Calculation of Statistical Powers Calculation of sample size- Effect Size 1.3 Type I and Type II errors 1.4 One tailed and Two tailed tests	<ul style="list-style-type: none"> • Lecture • Discussion • Digital Presentation

Unit - II: REPORT WRITING AND REFERENCING STYLES (13 Hours)

Learning Outcomes	Content	Suggested strategies and Approaches
1. Explains the characteristics of a good research report 2. Familiarizes the aspects of Dissertation writing 3. Uses various reference management soft wares	2.1 Dissertation – characteristics of a good dissertation 2.2 Dissertation – Format, Research language, Style, Content, References & Appendices Reference style(APA Style), 2.3 Reference Management soft wares : Mendeley & Zotero	<ul style="list-style-type: none"> • Lecture • Discussion • Digital Presentation • Simulated writing • Work shop

Unit-III: RESEARCH ETHICS (14 hours)

Learning outcomes	Content	Suggested activities and approaches
1. Explains the concept of research ethics 2. Identifies different types of scientific misconduct 3. Familiarizes with publication mis conduct 4. Uses different plagiarism softwares	3.1 Ethics, Definition 3.2 Intellectual honesty and research integrity Quality and Visibility of Publication & Citation Index 3.3 Scientific misconducts: Falsification, Fabrication and plagiarism: Types of Plagiarism 3.4 Publication misconduct Redundant Publications, duplicate and overlapping publications 3.5 Selective reporting and misrepresentation of data 3.6 Use of plagiarism software like Turnitin, DrillBit and other open source software tools	<ul style="list-style-type: none"> • Lecture • Digital presentation • Discussion • seminar

Unit-IV: PARAMETRIC STATISTICS (18 Hours)

Learning Outcomes	Content	Strategies and Approaches
1. Describes concept and uses of Parametric tests 2. Uses parametric tests 3. Familiarizes with the tables of parametric tests	4.1 Parametric test-Concept and uses of Parametric tests 4.2 Test of significance of difference between means for independent and correlated sample: (large and small sample) Concept, characteristics, assumptions and Application 4.3 Analysis of Variance:(ANOVA)Concept, basic assumptions and uses 4.4 Analysis of Co-variance (ANCOVA) 4.5 Factorial design (computation not required) Concept, basic assumptions and uses	<ul style="list-style-type: none"> • Introductory lecture • Small group discussion • Peer teaching • Hands on experience • Drill and assignments • Mindmaps

Unit-V: NON PARAMETRIC STATISTICS (20 Hours)

Learning Outcomes	Content	Strategies and Approaches
1. Describes concept, features and uses of Non-Parametric tests 2. Practices non parametric tests 3. Utilises various software for data analysis 4. Explains the role of computers in Statistical analysis	5.1 Non parametric test: Concept, features and uses of Non-Parametric tests 5.2 Chi square test Concept and application 5.3 Sign test: Concept and application 5.4 Mann Whitney U- test, Concept and application 5.5 Qualitative data analysis: Concept, features, and application Qualitative data analysis Process Classifying and Interpreting Data 5.6 Role of computers in Statistical analysis	<ul style="list-style-type: none"> • Introductory lecture • Small group discussion • Peer teaching • Hands on experience • Drill and assignments • Mindmaps

ASSESSMENT

- Critical analysis
- Problem sheets
- Seminars
- Study report
- Tests

TASKS /PRACTICUMS (Any two)

1. Compare five Colleges of Education in terms of students who graduated in the previous year and secured jobs in school. Conduct a chi square goodness of fit test.
2. Write the references of any article using management tools
3. Use any open source Anti Plagiarism software to check the plagiarism of any article prepared by you.
4. Conduct a programme on ethical issues in research in your institution.
5. Participate in research conferences and submitting a report.

📖 PRESCRIBED READINGS

- Aggarwal, J. C. (2002). *Educational research: An introduction*. Arya Book Depot.
- Best, J. W., Kahn, J. V., & Jha, A. K. (2017). *Research in education*. Pearson India Education Services Pvt. Ltd.
- Best, J. W., & Kahn, J. V. (2008). *Research in education* (10th ed.). Prentice Hall of India Private Limited.
- Bhandarkar, K. M. (2006). *Statistics in education*. Neelkamal Publications Pvt. Ltd.
- Creswell, J. W. (2012). *Educational research*. Pearson India Education Services Pvt. Ltd.
- Das, L. D. K., & Bhaskaran, V. (2018). *Research methods for social work*. Rawat Publications.
- Flick, U. (2023). *Introducing research methodology*. Sage Publications India Pvt. Ltd.
- Gouri, K., Bhattacharyya, & Johnson, R. A. (1977). *Statistical concepts and methods*. John Wiley and Sons Inc.
- Hooda, R. P. (2002). *Introduction to statistics*. Macmillan and Co. Ltd.
- Kothari, C. R., & Garg, G. (2024). *Research methodology: Methods and techniques*. New Age International Publishers.
- Koul, L. (2007). *Methodology of educational research*. Vikas Publishing House Pvt. Ltd.
- Mangal, S. K. (2000). *Statistics in psychology and education*. Ludhiana Publications.
- Mangal, S. K., & Mangal, S. (2022). *Research methodology in behavioral sciences*. PHI Learning Private Limited.
- Mohan, R. (2006). *Research methods in education*. Neelkamal Publications.
- Rajamanickam, M. (2001). *Statistical methods in psychological and educational research*. Concept Publishing Company.
- Reynolds, C. R., Livingston, R. B., Willson, V., & Jha, A. K. (2017). *Measurement and assessment in education*. Pearson India Education Services Pvt. Ltd.
- Saxena, N. R., et al. (2012). *Fundamentals of educational research*. R. Lal Book Depot.
- Sharma, R. A. (2006). *Parametric and non-parametric tests in education and psychology*. R. Lal Book Depot.
- Sharma, R. N. (2003). *Statistical techniques in educational research*. Surjeet Publications.
- Sidhu, K. S. (1985). *Methodology of research in education*. Sterling Publishers Pvt. Ltd.

- Singh, A. K. (2019). *Tests, measurements, and research methods in behavioral sciences* (6th ed.). Bharati Bhawan.
- Thamararsseri, I. (2018). *Introduction to educational research*. Wisdom Press.

SUGGESTED READINGS

- Argyrous, G. (2011). *Statistics for research*. Sage Publications.
- Borg, W. R., & Gall, M. D. (1983). *Educational research: An introduction*. Longman, Inc.
- Borse, M. N. (2012). *Handbook of research methodology: Modern methods and new techniques*. Shree Niwas Publications.
- Cohen, L., & Manion, L. (1994). *Research methods in education*. Routledge.
- Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education* (7th ed.). Routledge Taylor and Francis Group.
- Gay, R. L., Mills, E. G., & Airasian, P. W. (2011). *Educational research: Competencies for analysis and application* (10th ed.). Pearson Education Ltd.
- Johnson, B., & Christensen, L. (2012). *Educational research* (4th ed.). Sage Publications.
- King, W. H. (1969). *Statistics in education*. Macmillan & Co. Ltd.
- Kothari, C. R. (2009). *Research methodology: Methods and techniques* (2nd ed.). New Age International Publishers.
- Lindquist, E. F. (1968). *Statistical analysis in educational research*. Oxford and IBH Co Pvt. Ltd.
- Mangal, S. K., & Mangal, S. (2013). *Research methodology in behavioural sciences*. PHI Learning.
- Mridula. (n.d.). *Educational statistics at a glance*. Association of Indian Universities.
- Opie, C. (2004). *Doing educational research: A guide for first-time researchers*. Vistar Publication.

*Course Code: MED3TC004**Tool Course***M.Ed. DEGREE PROGRAMME****Semester – III****ADVANCED EDUCATIONAL TECHNOLOGY**

(4 credits– 120 hours)

Preface

This course delves into the advanced applications of technology in education, equipping Prospective Teacher Educators with the knowledge and skills to be innovative and effective educators in the digital age. It explores the theoretical foundations of Educational Technology, emerging trends, and practical applications to enhance teaching and learning processes. It provides Prospective Teacher Educators with a comprehensive understanding of various ICT-enabled programmes and policies, their design, implementation, challenges, and potential for enhancing teaching and learning outcomes.

 COURSE OUTCOMES*On successful completion of the course, the Prospective Teacher Educator*

1. Investigates the recent innovations in educational technology
2. Appraises the contributions of major institutions of Educational Technology
3. Practices different online resources in teaching and learning
4. Utilizes different online learning platforms and courses
5. Appraises the role of various ICT initiatives in enhancing life-long learning
6. Constructs various online testing devices for assessment
7. Designs innovative technology-integrated learning experiences.
8. Uses various AI tools in Education and Research
9. Analyses the various information storage system
10. Identifies various cyber security strategies

Unit- I: INTRODUCTION TO EDUCATIONAL TECHNOLOGY (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
<p>1. Describes the concept and scope of Educational technology</p> <p>2. Differentiates hardware, software and system approaches</p> <p>3. Identifies the major institutions of educational technology in India.</p> <p>4. Appreciates the role of major institutions of educational technology in education</p>	<p>1.1 Educational Technology : Concept, scope and approaches Hardware, Software and System approach.</p> <p>1.2 Technology-Enabled Learning (TEL)-Benefits</p> <p>1.3 Major institutions of Educational Technology in India: Central Institute of Educational Technology (CIET) Audio-Visual Resource Centre(AVRC) Educational Multimedia Research Center (EMRC), Media Campaign Resource Center (MCRC), Consortium for Educational Communication (CEC) Centre for Development of Advanced Computing (C-DAC), National Institute of Electronics and Information Technology (NIELIT)</p>	<ul style="list-style-type: none"> • Seminar with visual presentation • Online Assignment • Lecture • Peer learning • Hands on experience

**Unit-II: INFORMATION AND COMMUNICATION TECHNOLOGY IN
EDUCATION (15 Hours)**

Learning Outcomes	Contents	Suggested Strategies and Approaches
1. Explains the meaning and importance of ICT 2. Discusses the advantages and disadvantages of E-learning 3. Differentiates Blended learning and Flipped learning 4. Appreciates the functions and uses of major ICT initiatives in India	2.1 ICT in Education: Meaning and Importance E- Learning: meaning, characteristics and types e content design and development -ADDIE model 2.3 Blended learning- meaning and importance 2.4 Flipped learning- meaning and importance 2.5 ICT Initiatives in India: Study Webs of Active-Learning for Young Aspiring Minds(SWAYAM) National Mission on Education through Information and Communication Technology (NMEICT) National Digital Library (NDL) National Repository of Open Educational Resources (NROER) National Programme on School Standards and Evaluation(NPSSE), Vikaspedia	<ul style="list-style-type: none"> • Seminar • Assignment • Lecture • Lecture • Peer learning • Hands on experience

Unit-III: ICT RESOURCES FOR TEACHING AND LEARNING (20 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies online resources, tools and application 2. Uses online resources and blogs 3. Familiarises with the virtual learning environment and online platforms for learning 4. Embraces MOOCs as a space for continuous learning	3.1 Gamification 3.2 Educational Videos, 3.3 Podcasts. 3.4 E content design and Development ADDIE model 3.5 Blogs and other Social Networking platforms 3.6 Open Educational Resources (OER) and Creative Commons meaning and importance 3.7 Free and Open Source Software in Education(FOSSEE) 3.8 MOOCs as a pace for continuous learning. 3.9 Learning Management System (LMS), MOODLE	<ul style="list-style-type: none"> • Seminar • Assignment • Lecture • Seminar with visual presentation • Lecture • Peer learning • Hands on Experience

Unit-IV: DIGITAL PEDAGOGY AND ADAPTIVE LEARNING (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
<p>1. Analyzes the need of technologies for the present generation of teaching fraternity with emerging technologies.</p> <p>2. Justifies the use of personalization and adaptive learning using digital pedagogy.</p> <p>3. Uses the emerging learning technologies to fulfill the requirements of digital pedagogy practices.</p> <p>4. Practises Artificial intelligence tools in education and research</p>	<p>4.1 Innovations in Pedagogy : Components, Processes and Performances</p> <p>4.2. New Principles of Digital Pedagogy</p> <p>4.3 Digital tools – Web 2.0 tools</p> <p>4.3 Intelligent Tutoring System (ITS)</p> <p>4.4 Personalization and Adaptive Learning: Concept, Benefits, Limitations and Future Prospects</p> <p>4.5 Artificial Intelligence – Definition, Nature and Scope Important AI tools in Education and Research- (Grammarly, QuillBot, Jasper.ai, Elicit, Research Rabbit, Khan Academy, Duolingo, Coursera and edX. ChatGPT, MSynthesis), Application of Artificial Intelligence in education</p>	<ul style="list-style-type: none"> • Seminar • Assignment • Lecture • Seminar with visual presentation • Lecture • Peer learning • Hands on experience

UNIT-V: INFORMATION STORAGE AND SECURITY (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Discusses the meaning, scope and significance of cloud storage 2. Explains the service modals of cloud computing 3. Explains the role of ICT in Educational Administration and Management. 4. Suggests cyber security strategies	5.1 Cloud Storage meaning, significance and types of cloud storage, 5.2 Data Sharing services and softwares 5.3 Cloud Computing in Education Definition, characteristics and service modals 5.4 Management Information System (MIS) :Meaning, function, types and applications 5.5 Cyber attacks - types and cyber security strategies	<ul style="list-style-type: none"> • Seminar • Assignment • Lecture • Seminar with visual presentation • Lecture • Peer learning • Hands on experience

ASSESSMENT

- Assignment
- Preparation of Learning Materials
- Group discussion
- Tests
- Video presentation
- Seminar

TASKS /PRACTICUMS (Any two)

1. Preparation of educational blogs with focus on the ability of the blogs to allow interaction.
2. Prepare Audio Podcasts.
3. Prepare a reflective report on various cyber attacks and ways for cyber safety.

4. Design and develop an online course using a Learning Management System (LMS) or authoring tool.
5. Construct technology-based assessment tools.

PRESCRIBED READINGS

- Ahmad, J., Ahmad, Md. S., & Khan, A. (2012). *Computer applications in education*. Neelkamal Publications Pvt. Ltd.
- Semenov, A. (2005). *Information and communication technologies in schools: A handbook for teachers*. UNESCO.
- Arulsamy, S., & Siva Kumar, P. (2012). *Applications of ICT in education*. Neelkamal Publications Pvt. Ltd.
- Barton, R. (2004). *Teaching secondary science with ICT*. McGraw Hill International.
- Conrad, K. (2001). *Instructional design for web-based training*. HRD Press.
- Chee, K. N., & Sanmugam, M. (2024). *Embracing cutting-edge technology in modern educational settings*. IGI Global. <https://doi.org/10.4018/979-8-3693-1022-9>
- Dangwal, K. L. (2004). *Computers in teaching and learning*. ShreVinodPustakManir.
- Chadha, G., S. M., & NafayKumail. (2002). *E-learning: An expression of the knowledge economy*. Tata McGraw-Hill Publication.
- Barrett, H. (2012). *ICT resources for assessment: 'mPortfolios, step-by-step model'*. Available at <https://sites.google.com/site/mportfolios/home/step-by-step-model>.
- Imison, T., & Taylor, P. H. (2001). *Managing ICT in the secondary schools*. Heinemann.
- Kirwadkar, A., & Karanam, P. (2010). *E-learning methodology*. Sarup Book Publishers Pvt. Ltd.
- Leon, A., & Leon, M. (2000). *Information technology*. Vikas Publishing House Pvt. Ltd.
- Mangal, S. K., & Mangal, U. (2011). *Essentials of educational technology*. PHI Learning Pvt. Ltd.
- Mason, R., & Frank, R. (2006). *E-learning: The key concepts*. Routledge.
- Norton, P. (2011). *Introduction to computers* (7th ed.). Tata McGraw-Hill Education Private Limited.
- Phillips, R. (1997). *The developer's handbook to interactive multimedia: A practical guide for educational applications*. Kogan Page.
- Rejeseakaran, S. (2007). *Computer education and educational computing*. Neel Kamal Publishing Pvt. Ltd.

- Richardson, W. (2009). *Blogs, wikis, podcasts, and other powerful web tools for classrooms* (2nd ed.). Corwin Press.
- Roblyer, M. D. (2006). *Integrating educational technology into teaching*. Pearson Prentice-Hall Inc.
- Simmons, C., & Hawkins, C. (2009). *Teaching ICT*. Sage Publications.
- Sinha, P. K., & Sinha, P. (2011). *Computer fundamentals* (6th ed.). B.P.B. Publications.
- Vaughan, T. (1999). *Multimedia: Making it work*. Tata McGraw Hill.

SUGGESTED READINGS

- Aldrich, C. (2023). *The complete guide to simulations and serious games: How to put gamification into practice*. John Wiley & Sons.
- Bishop, M. J., Boling, E., & Elen, J. (Eds.). (2023). *Handbook of research in educational communications and technology* (5th ed.). Springer.
- Khemani, D. (2013). *A first course in artificial intelligence*. McGraw Hill Education Pvt. Ltd.
- Lee, W. W., & Owens, D. L. (2001). *Multi-media-based instructional design*. Pfeiffer.
- Mallik, U., et al. (2001). *Learning with computers Level III*. NCERT.
- Phillips, R. (1997). *Interactive multimedia*. Kogan Page.
- Premkumar, & Ghosh, A. K. (1991). *Management information and communication system*. Manas Publications.
- Rosenberg, M. J. (2001). *E-learning*. McGraw Hill.
- Siemens, G., & Downes, S. (2023). *Learning analytics in higher education: Bridging the gap between data and pedagogy*. Routledge.
- Suguna, S., Kanimozhi, D. M., & Paiva, S. (2021). *Artificial intelligence: Recent trends and applications*. CRC Press.
- Taylor, B. (Ed.). (2024). *World yearbook of education 2024: Digitalisation of education*. Routledge. <https://www.routledge.com/World-Yearbook-of-Education-2024/Taylor/p/book/9780367621432>

*Course Code: MED3SD001**Specialisation Based on Discipline***M.Ed. DEGREE PROGRAMME****SEMESTER – III****ADVANCED METHODOLOGY IN LANGUAGE EDUCATION**

(4 credits – 120 hours)

Preface

This course delves into the complexities of language teaching and learning, equipping Prospective Teacher Educators with advanced methodologies to enhance language acquisition. It explores contemporary theories, research-based practices, and innovative approaches to language education. The course emphasizes critical thinking, problem-solving, and the ability to adapt teaching strategies to diverse learners and contexts.

 COURSE OUTCOMES*On successful completion of the course, the Prospective Teacher Educator*

1. Explains the meaning, nature and scope of language
2. Defines various theories of language learning
3. Analyses various methods and techniques in teaching Language
4. Identifies the innovative strategies in classroom teaching
5. Enumerates the barriers in oral and written communication
6. Embraces the different digital technology for teaching language
7. Selects the appropriate resources for teaching Language
8. Analyses the role of teacher as a Techno- pedagogue
9. Justifies the need for professional development
10. Analyses researches done in Language Education

**Unit- I: PERSPECTIVES IN TEACHING AND LEARNING OF LANGUAGE
(20 Hours)**

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Explains nature and scope of language 2. Identifies various ways of language acquisition 3. Analyses various theories of language learning	1.1 Language: Nature, Functions and Scope, Aims and Principles 1.2 Language acquisition: L1,L2 Language acquisition processes Language Input Language Interaction Language Production Language Comprehension Language Acquisition Devices 1.3 Theories in Language Learning: Psycho-linguistic Theories Behaviorist Theory Interactionism Theory Neuro- Linguistic Theories Language Acquisition Device (LAD) Connectionism Emergentism	<ul style="list-style-type: none"> • Lecture • Brain storming • Group Discussion • Seminar • Written Assignment • Lecture • Invited Talks

Unit-II: APPROACHES AND TECHNIQUES IN LANGUAGE TEACHING
(15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Analyses various approaches and methods in teaching English 2. Practices innovative strategies in classroom teaching 3. Analyses the language and literary elements in English language	2.1 Approaches and Methods in Teaching Language Natural Approach Humanistic Approaches Humanistic Methods: Suggestopedia,TPR, CLL,Silent Way Cooperative Learning 2.2 Language Elements (Vocabulary, Structures, Discourses) Literary Elements : Plot, Character, Theme, Setting, Imagery, symbolism, foreshadowing, figurative language, style, tone etc 2.3 Differentiating the Instructional process-Graphic organizers, Integration of Arts, Co-teaching Approach	<ul style="list-style-type: none"> • Lecture • Digital presentation • Written Assignment • Peer /Group Learning and consolidation • Lecture briefing by student teachers

Unit-III: ENHANCING PROFICIENCY IN LANGUAGE SKILLS (20 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies the basic language skills 2. Discusses the barriers in oral and written communication 3. Explains the different strategies for effective communication	3.1 Developing Basic Language Skills [LSRW] Listening: casual, intensive, passive, active top down-bottom-up listening, listening with purpose and listening for comprehension Speaking – Conversational, oratory and presentation skills Reading – Literal, Inferential, Critical Creative, Intensive, Extensive, Supplementary, Skimming, Scanning Writing graphic and creative, expository 3.2 Barriers in oral and written communication 3.3 Strategies for Effective – communication 3.4 Teacher as an effective communicator.	<ul style="list-style-type: none"> • Lecture • Peer Learning • Digital presentation • Multimedia Approach • Seminar • Invited Talk

Unit-IV: DIGITAL TECHNOLOGY IN LANGUAGE EDUCATION (10 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
<p>1. Demonstrates multimedia presentation in English language</p> <p>2. Analyses the role of language teacher as a techno pedagogue</p> <p>3. Uses innovative technologies in teaching English</p> <p>4. Identifies the various future technologies for language learning</p>	<p>4.1 Role of teacher and learner in digital era</p> <p>4.2 Teacher as techno – pedagogue</p> <p>Multimedia labs</p> <p>Blended learning</p> <p>e-Learning</p> <p>m-Learning</p> <p>Online tutoring</p> <p>Video Conferencing</p> <p>4.3 Open Educational Resources</p> <p>4.4 Virtual class rooms, e-Library, e-journals, Audio podcasts, online Language Games, Film clips</p>	<ul style="list-style-type: none"> • Lecture • Group Discussion • Seminar • Group Assignment • Lecture • Literature review • Portfolio

Unit-V: PROFESSIONAL DEVELOPMENT FOR LANGUAGE TEACHERS
(15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
<p>1. Identifies the changing roles of teacher and competencies</p> <p>2. Explains the concept and strategies of CPD(Continuous Professional development) of English teacher</p> <p>3. Categorizes the various programmes of professional development</p> <p>4. Discusses the role and responsibilities of language teacher</p> <p>5. Analyses important researches done in Language Education</p>	<p>5.1 Changing role of teachers Professional competencies Pre-service and In-Service Training</p> <p>5.2 CPD & Strategies of Professional Development- Orientation Programmes, Refresher courses, Seminars/Workshops/ Conferences/ Symposiums, Panel Discussion, writing articles or blog posts, Participating in professional organisations, Self-study, Study Groups, Study circles/mentoring, Online courses, Research Net working,</p> <p>5.3 Roles and Responsibilities of Language Teacher: Teacher as a reflective practitioner Exploring the impact of reflective practice on English teachers and their students</p> <p>5.4 Areas of research in Language Education, Researches done in Language Education in India and in other countries</p>	<ul style="list-style-type: none"> • Group tasks by assigning specific roles • Brain storming • Group discussion • Seminars • Digital Presentation • Written assignment • Invited talks

ASSESSMENT

- Tests
- Seminar
- Discussion
- Group projects
- Assignments
- Digital presentation
- Brainstorming
- Interactive session/learning
- Collection of reviews
- Film reviews

TASKS /PRACTICUMS (Any two)

1. Analyze the current pedagogic practices in language teaching with special reference to schools under state syllabus in Tamil Nadu and submit a report.
2. Keep a reflective journal where you document successes, challenges, and thoughts about your teaching practice
3. Design an innovative strategy to enhance language learning.
4. Prepare any one audio podcast.
5. Use language lab facilities for teaching and learning and submit a report.

📖PRESCRIBED READINGS

- Amritavalli, R. (1999). *Language as a dynamic text: Essays on language, cognition and communication*. CIEFL Akshara series.
- Arora, S., & Pandey, J. (2021). *English language education in India: Theory and practice*. Bloomsbury India.
- Babu, M. S. (Ed.). (2023). *Contemporary English language education in India: Issues and challenges*. Orient Blackswan.
- Bhattacharya, I. (2002). *An approach to communication skills*. Dhanpat Rai & Co. Books.
- Bond, L. G., et al. (1980). *Reading difficulties: Their diagnosis and correction*. Appleton-Century Crafts.
- Brewster, J., Ellis, G., & Giraf, D. (1992). *The primary English teacher's guide*. Penguin Books.
- Cameron, L. (2001). *Teaching language to young learners*. Cambridge University Press.
- Chaudhary, S. (2022). *Teaching and learning English in India: Key aspects of pedagogy and research*. Sage Publications.
- Choudhary, N. R. (2002). *English language teaching*. Himalaya Publishing House.

- Dave, P. S. (2002). *Communicative approach to the teaching of bachelor of education English as a second language*. Himalaya Publishing House.
- Dutta, A. (2022). *English language teaching in India: The dynamics of the changing roles of English*. Routledge India.
- Kohli, A. L. (2001). *Techniques of teaching English language in the new millennium*. Dhanpat Rai.
- Thousand, J. S., Villa, R. A., & Nevin, A. I. (2007). *Differentiating instruction*. Corwin Press.

SUGGESTED READINGS

- Choudhary, N. R. (2002). *English language teaching*. Himalaya Publishing House.
- Dave, P. S. (2002). *Communicative approach to the teaching of English as a second language*. Himalaya Publishing House.
- David, E. (1977). *Classroom techniques: Foreign languages and English as a second language*. Harcourt Brace.
- Joseph, A. (2022). *English for education: Academic and professional purposes*. Cambridge University Press India.
- Kumar, M. (2023). *Multilingualism and English education in India: The changing landscapes*. Routledge India.
- Mohanty, A. K., & Mishra, R. (2022). *English language education in India: Multilingual perspectives*. Sage Publications.
- Nunan, D. (1989). *Syllabus design: Language teaching*. Oxford University Press.
- Nunan, D., & Choudhury, S. (Eds.). (2021). *Language teaching methodology and curriculum in India*. Springer India.
- Ramanathan, V. (2023). *English in multilingual India: Language ideologies and practices*. Multilingual Matters.
- Richards, J., & Rogers, T. (n.d.). *Approaches and methods in language teaching*. Cambridge University Press.
- Roberts, M., & Griffiths, C. *Errors correction and good language learners*. Language Teaching Library.
- Sharma, M. (2023). *Pedagogies of English in India: Towards a socio-cultural approach*. Viva Book.
- Sharon, A. R., & Trina, L. V. (2008). *Constructivist strategies for English language learners*. Crown Press.
- Tickoo, M. L. (2004). *Teaching and learning English: A source book for teachers and teacher trainees*. Orient Longman.
- Ur, P., & Wright, A. (1992). *Five minute activities: A resource book for language teachers*. Cambridge University Press.

*Course Code: MED3SD002**Specialization Based on Discipline*

M.Ed. DEGREE PROGRAMME
SEMESTER – III
ADVANCED METHODOLOGY IN MATHEMATICS EDUCATION
(4 credits– 120hours)

Preface

This course delves into the complexities of teaching and learning mathematics, equipping Prospective Teacher Educators with advanced methodologies to enhance students' mathematical thinking, problem-solving, and critical reasoning skills. It explores contemporary theories, research-based practices, and innovative approaches to mathematics education, emphasizing the integration of technology, inquiry-based learning, and real-world applications.

COURSE OUTCOMES

On successful completion of the course, the Prospective Teacher Educator

1. Explains the nature and scope of Mathematics Education
2. Analyzes the factors influencing Mathematics
3. Employs innovative strategies in classroom situations
4. Designs effective Mathematics curriculum and instructional materials.
5. Selects the appropriate technological resources for teaching Mathematics
6. Explores the integration of technology in Mathematics teaching and learning.
7. Analyses the importance of professional development
8. Recommends various programmes for professional development of Mathematics teachers
9. Analyzes the importance of research in Mathematics Education
10. Identifies various areas of research in Mathematics Education

Unit-I: PERSPECTIVES OF MATHEMATICS EDUCATION (20 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies the nature and scope of Mathematics Education 2. Describes the structure of Mathematics 3. Identifies the factors influencing Mathematics Education 4. Analyses the recommendations of various commissions on Mathematics Education development of Mathematics	1.1 Structure of Mathematics – axioms, postulates, propositions 1.2 Scope of Mathematics – applied and pure Mathematics, modern Mathematics 1.3 Factors influencing the direction of Mathematics education – societal need factor, learner need factor and psychological aspects of mathematical education 1.5 Psychological bases of teaching Mathematics – implications of theories of Piaget, Bruner, Gagne and Vygotsky 1.6 Philosophy of teaching Mathematics with reference to idealism, realism, experimentalism and existentialism 1.7 Recommendations of various commissions on Mathematics Education	<ul style="list-style-type: none"> • Lecture • Digital presentation • Seminar • Discussions • Assignment

Unit-II: TRENDS AND PRACTICES IN MATHEMATICS EDUCATION
(15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies various approaches in teaching Mathematics 2. Explains various techniques in teaching Mathematics 3. Uses innovative strategies in classroom teaching 4. Proposes various assessment tools related to cognitive, affective and Psycho motor domains	2.1 Mathematics Curriculum at different stages – Elementary and Secondary 2.2 Development of curriculum materials – textbooks, workbooks, handbooks, lesson transcripts, digital books 2.3 Approaches in teaching and learning of Mathematics Behaviouristic approach Constructivist approach Heuristic approach 2.4 Innovative strategies – Experiential learning, problem-based learning, brain-based learning, mind mapping, concept mapping 2.5 Differentiating the Instructional process – STEAM Education 2.6 Diagnosis and Remedial teaching in mathematics 2.7 Assessment of cognitive, affective and psychomotor outcomes – use of tools and techniques – Alternative assessment – Rubrics for evidence based performance Evaluation and portfolios in learning	<ul style="list-style-type: none"> • Lecture • Digital presentation • Seminar • Discussions • Assignment

Unit-III: INTEGRATING ICT IN MATHEMATICS EDUCATION (20 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
<p>1. Analyses the role of Mathematics teacher as a techno pedagogue</p> <p>2. Integrates innovative technologies in teaching Mathematics</p> <p>3. Identifies the various technological resources for teaching Mathematics</p> <p>4. Creates blog and e-content in Mathematics</p>	<p>3.1 Techno Pedagogic Content Knowledge (TPCK)</p> <p>3.2 Technology Integrated Taxonomy of Educational Objectives</p> <p>3.3 Technological resources for Mathematics Education – open learning resources, e-books, e-journals, e-projects, multimedia presentations, virtual labs</p> <p>3.4 Web 2.0 tools and web 3.0 tools for teaching and learning Mathematics</p> <p>3.5 ICT integrated approaches – Smart classrooms, Computer Assisted Instruction, Computer Managed Instruction</p> <p>3.6 Blogging – concept, format, and steps for developing blog</p> <p>3.7 E-content – concept and procedure for developing e-content in Mathematics</p>	<ul style="list-style-type: none"> • Lecture • Digital presentation • Seminar • Discussions • Assignment

Unit-IV: PROFESSIONALISING MATHEMATICS TEACHER (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
<p>1. Identifies the importance of professional development of Mathematics teacher</p> <p>2. Discusses the role and responsibilities of Mathematics teacher</p> <p>3. Categorizes the various programmes of professional development</p>	<p>4.1 Professionalism – concept and importance</p> <p>4.2 Conditions that necessitates professionalism among mathematics teachers and teacher educators</p> <p>4.3 Nature of professionalism demanded by technology - Updating knowledge of learning material and technology of instruction</p> <p>4.4 Continuing education for teachers and teacher educators – orientation programmes, refresher courses, workshops, seminars, symposiums, conferences</p> <p>4.5 Active participation in co-curricular activities related to mathematics education</p> <p>4.6 Active participation in professional bodies</p> <p>4.7 Reflective practices in professional development</p> <p>4.8 Role of national and state level agencies and professional organizations in providing professional development</p>	<ul style="list-style-type: none"> • Lecture • Digital presentation • Seminar • Discussion • Assignment

Unit-V: RESEARCH IN MATHEMATICS EDUCATION (10 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies the importance of research in Mathematics Education 2. Identifies areas of research in Mathematics education 3. Demonstrates research skills	5.1 Importance of research in Mathematics Education 5.2 Implications of research in Mathematics on classroom practices 5.3 Methods of research in Mathematics Education 5.4 Areas of research in Mathematics Education 5.5 Action research in Mathematics Education 5.6 Research in Mathematics Education in India and other countries	<ul style="list-style-type: none"> ● Lecture ● Digital presentation ● Seminar ● Discussions ● Assignment

ASSESSMENT

- Reports
- Tests
- Assignment
- Digital presentation
- Brainstorming
- Debate
- Review presentations

TASKS /PRACTICUMS (Any two)

1. Prepare a report on the development of Mathematics in the 21st century.
2. Prepare a lesson transcript in Mathematics based on any approach.
3. Conduct an action research on any aspect in Mathematics education and prepare a report
4. Prepare a blog for any topic in Mathematics.
5. Develop a module on any topic in Mathematics.

📖 PRESCRIBED READINGS

- Aggarwal, J. C. (2008). *Teaching of mathematics*. Vikas Publishing House.
- Bhatia, K. K. (2001). *Foundations of teaching learning process*. Tandon Publications.
- Bruce, J., & Weil, M. (2004). *Models of teaching*. Prentice Hall of India.
- James, A. (2005). *Teaching of mathematics*. Neelkamal Publications.
- Kulshreshtha, A. K. (2008). *Teaching of mathematics*. R. Lall Books Depot.
- Mangal, S. K., & Mangal, S. (2023). *Learning and teaching*. PHI Learning Private Limited.
- Mangal, S. K., & Mangal, U. (2022). *Essentials of educational technology*. PHI Learning Private Limited.
- Mrunalini, T., & Ramakrishna, A. (2016). *Information and communication technology (ICT) in education*. Neelkamal Publications.
- Ramakrishna, A., Sujatha, M., & Arjunand, A. (2018). *ICT mediation in teaching learning*. Neelkamal Publications.
- Sharma, R. D. (2008). *Technological foundation of education*. R. Lall Books Depot.
- Shastri, V. K. (2017). *Emerging technologies in education*. Authors Press.
- Sivarajan, K., & Wahid, A. A. (2022). *Teaching of mathematics*. Lal Book Depot.
- Soman, K., & Sivarajan, K. (2014). *The methodology of teaching mathematics*. Lal Book Depot.
- Thousand, J. S., Villa, R. A., & Nevin, A. I. (2007). *Differentiating instruction*. Croqin Press.
- Wadhwa, S. (2008). *Modern methods of teaching mathematics*. Karan Papers.

📖 SUGGESTED READINGS

- Costello, J. (1991). *Teaching and learning of mathematics*. Routledge Publications.
- Ediger, M., & Rao, D. B. (2000). *Teaching mathematics successfully*. Discovery Publishing House.
- Mustafa, M. (2005). *Teaching of mathematics*. Deep and Deep Publications.
- Passi, B. K. (1991). *Moderns of teaching*. NCERT.
- Pratap, N. (2008). *Teaching of mathematics*. R. Lall Books Depot.
- Siddiqui, M. H. (2005). *Teaching of mathematics*. APH Publications.

Course Code: MED3SD003

Specialisation Based on Discipline

M.Ed. DEGREE PROGRAMME

Semester III

ADVANCED METHODOLOGY IN SCIENCE EDUCATION

(4 credits – 120 hours)

Preface

This course is designed to equip Prospective Teacher Educators with advanced knowledge and skills in science education. It delves into the complexities of teaching and learning science, exploring contemporary theories, research-based practices, and innovative approaches. The course emphasizes critical thinking, problem-solving, and the ability to adapt teaching strategies to diverse learners and contexts, fostering inquiry-based learning and scientific literacy.

COURSE OUTCOMES

On successful completion of the course, the Prospective Teacher Educator

1. Analyses the development of science education over centuries
2. Explores the various process skills in science
3. Identifies the national and international goal of science education
4. Examines the various taxonomy of science education
5. Suggests strategies for developing thinking skills
6. Examines the role of science in maintaining peace
7. Prioritizes the various curricular development approach
8. Recommends various strategies for curricular evaluation process
9. Predicts the importance of social networking sites in science education
10. Analyses the research in science education in India and abroad

Unit-I: PERSPECTIVES IN SCIENCE EDUCATION (15 hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
<ol style="list-style-type: none"> 1. Explains the national and international goal of science education 2. Analyses the contributions of Learning theories in Science 3. Suggests strategies for developing thinking skills 4. Designs programmes for fostering scientific creativity 5. Examines the role of Science in maintaining peace 6. Proposes ways to develop process skills 	<ol style="list-style-type: none"> 1.1 Science -Nature, Scope and Functions of Science 1.2 International Goals of Science Education-Science Technology and Society Goals (STS) 1.3 National Goals of Science Education given by NEP 2020 1.4 Revised Blooms Taxonomy (Anderson & Krathwohl) 1990 1.5 Contributions of Learning theories in Science Education- Skinner, Ausubel, Gagne, Vygotsky, Piaget, Bruner and Gardener's Multiple Intelligence Theory- Applications in Science Education 1.6 Cognitive skills - Thinking skills - types, strategies for developing thinking skills, think differently-extrapolated learning Scientific and technological literacy leading to innovations and creativity in Science. Science Education for peace and sustainable development 1.7 Process Skills in Science- Basic Processes-Integrated Processes 	<ul style="list-style-type: none"> • Small group discussion • Lecture-discussion • Digital presentation • Peer learning

**Unit-II: CURRICULUM TRENDS AND PRACTICES IN SCIENCE
EDUCAION (20 Hours)**

Learning Outcome	Content	Suggested Strategies and Approaches
<p>1. Explains the various curricular development approaches</p> <p>2. Identifies the various correlated patterns for science education</p> <p>3. Analyses the various curricular materials for teaching Science education</p> <p>4. Suggests curricular evaluation strategies</p>	<p>2.1 Science Curriculum at Different Stages (Elementary and Secondary) Australia and Finland</p> <p>2.2 Development of Curricular materials- Textbooks, Learning supplements, Teacher texts, other enrichment materials.</p> <p>2.3 Constructivist approaches to Science Teaching</p> <p>2.4 Innovative strategies – Experiential learning, problem-based learning, brain-based learning, mind mapping, concept mapping</p> <p>2.5 STEAM Education-Concept and significance</p> <p>2.6 Diagnosis and Remedial teaching in Science</p> <p>2.7 Assessment of cognitive, affective and psychomotor outcomes-Use of appropriate tools and techniques Alternative assessment - Rubrics for evidence based performance evaluation and portfolios in Science learning</p>	<ul style="list-style-type: none"> • Digital presentation • Discussion • Assignment • Lecture

**Unit-III: TECHNOLOGICAL RESOURCES FOR SCIENCE EDUCATION
(15 Hours)**

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies various ICT based resources for teaching science 2. Integrates the various social networking settings in science education 3. Generates e-content 4. Employs the user generated content in science education 5. Examines the role of ICT in professional development of teachers	3.1 Techno Pedagogic Content Knowledge(TPCK)- Interrelation of different areas of TPCK 3.2 Technology Integrated Taxonomy – Peck & Wilson (1999) 3.3 ICT based resources-, e-book reader, open learning resources, online repositories, virtual libraries, e- journals, e- projects, webinar, m-learning, web 2.00 tools- web 3.00 tools 3.4 IT Based strategies-web based learning and multimedia 3.5 Blog- Concept- Steps in preparation of Blog- Development of Blog. e- Content- Steps in developing e-content in Science classroom 3.6 ICT and professional development of teachers- online forums, web conferences, interacting with social network - e-twinning	<ul style="list-style-type: none"> • Digital presentation • Discussion • ICT resource • Peer learning • Hands on experience • Lecture

Unit-IV: PROFESSIONALISING SCIENCE TEACHER (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies the importance of professional development of Science teacher 2. Explains the importance of continuing education for teachers 3. Explores the role of State, National and State level agencies and professional organizations in professional development	4.1 Professionalism – concept and importance 4.2 Factors influencing professionalism among Science teachers and teacher educators 4.3 Nature of professionalism demanded by technology 4.4 Updating knowledge of learning material and technology of instruction 4.5 Continuing education for teachers and teacher educators – orientation programmes, refresher courses, workshops, seminars, symposiums, conferences 4.6 Role of National and State level agencies and professional organizations in providing professional development 4.7 Reflective practices in professional development	<ul style="list-style-type: none"> • Lecture • Digital presentation • Seminar • Discussions • Assignment

Unit V: RESEARCH IN SCIENCE EDUCATION (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies the importance of classroom research in science education 2. Illustrates the ethics of research in science education 3. Analyses the research in science education in India and abroad	5.1 Research in Science Education 5.2 Need of research for improving educational practices 5.3 Case –study as a research method 5.4 Action research- Meaning and Definition- Steps in Action research- Advantages 5.5 Research in Science Education in India and other countries	<ul style="list-style-type: none"> • Discussion • Lecture • Peer learning

ASSESSMENT

- Report writing
- Tests
- Seminar
- Assignment
- Science text Book analysis
- Blogs

TASKS /PRACTICUMS (Any two)

1. Conduct a panel discussion on development of Science over centuries.
2. Write a report on research in science education (Indian and abroad).
3. Critically analyze the higher secondary school Science syllabus in Tamil Nadu.
4. Prepare a BLOG of your own and submit the hard copy of the same.
5. Conduct hands-on experiments and investigations to deepen understanding of scientific concepts and maintain a record.

📖PRESCRIBED READINGS

- Bhatt, B. D., & Sharma, S. R. (1993). *Methods of science teaching*. Kanishka Publishing House.
- Gupta, S. K. (1985). *Teaching of physical science in secondary schools*. Sterling Publication Pvt Ltd.
- Mariamma, Mathew. (2023). *Instructional strategies and techniques in science education*. By the author.
- Nivek, P. S. (1993). *Science and social change*. Himalaya Publishing House.
- Radha, Mohan. (2022). *Teaching of physical science*. Neelkamal Publishers.
- Sharma, H. L. (1989). *School science education in India*. Common Wealth Publishers.
- Sharma, R. C. (2006). *Modern science teaching*. Dhanpat Rai Publications.
- Sivarajan, K., & Faziluddin, A. (2006). *Science education*. Central Co.
- Vanaja, M. (2010). *Educational technology*. Neelkamal Publishers.

📖SUGGESTED READINGS

- Abruscato, J. (1992). *Teaching children science*. Allyn and Bacon.
- Bhatt, P. C. (1988). *Science process skills in teaching and learning*. Common Wealth Publishers.
- Biehler, R. F., & Snowman, J. (1993). *Psychology applied to teaching*. Houghton Mifflin Company.
- Chamberlain, K., & Crane, C. C. (2009). *Reading, writing, and inquiry in the science classroom*. Corwin Press.

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- Dembo, M. H. (1990). *Applying educational psychology in the classroom*. Longman.
 - Devereux, J. (2007). *Science for primary and early years*. Sage Publications.
 - Ediger, M., & Rao, D. B. (1996). *Science curriculum*. Discovery Publishing House.
 - Eggen, P. D., et al. (1979). *Strategies for teachers*. Prentice Hall.
 - Hegarthy, E. (1999). *The student laboratory and science curriculum*. Routledge.
 - Martin, D. J. (2006). *Elementary science methods: A constructive approach*. Wadsworth Publishing.
 - Parkinson, J. (1994). *The effective teaching of secondary science*. Longman.
 - Petrina, S. (2007). *Advanced teaching methods for the technology classroom*. Information Science Publishing.
 - Singh, V. K., & Nayak, A. K. (1997). *Teaching of science*. Common Wealth Publishers.
 - Trowbridge, N. L., & Bybee, W. R. (1996). *Teaching secondary school science*. Prentice Hall.

Course Code: MED3SD004

Specialization based on Discipline

M.ED. DEGREE PROGRAMME

Semester-III

ADVANCED METHODOLOGY IN SOCIAL SCIENCE EDUCATION

(4 credits–120 hours)

Preface

This course delves into the complexities of teaching and learning social sciences, equipping Prospective Teacher Educators with advanced methodologies to enhance students' critical thinking, civic engagement, and understanding of the world. It explores contemporary theories, research-based practices, and innovative approaches to social science education, emphasizing the integration of technology, inquiry-based learning, and project-based approaches.

✍ COURSE OUTCOMES

On successful completion of the course, the Prospective Teacher Educator

1. Explains the nature and scope of social science emphasizing the recent trends in the discipline
2. Adopts modern instructional strategies in teaching of social science
3. Uses different media, materials and resources for teaching Social Science
4. Analyses different theories of teaching Social Science Education
5. Justifies the need for professional development of social science teachers
6. Identifies various programme for professional development
7. Selects appropriate resources for teaching social sciences
8. Designs effective social science curriculum and instructional materials
9. Proposes various areas of research in social science education
10. Analyzes the importance of research in social science education

Unit- I: PERSPECTIVES IN SOCIAL SCIENCE EDUCATION (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Explains the, nature and scope of social sciences 2. Correlates the interdisciplinary approaches in social sciences 3. Traces the evolution of social sciences 4. Discusses the various dimensions of social sciences.	1.1 Nature and Scope of Social Science with special emphasis on the recent trends in the discipline 1.2 Interdisciplinary approach of Social Science education 1.3 Evolution of the Concept of Social Science: Individual, Social, Cultural 1.4 Dimensions of Social science: Social thought, Social change, Social continuity and Social progress	<ul style="list-style-type: none"> • Lecture • Group discussion • Interactive session • Self Learning • QA Session

**Unit-II: TRENDS AND PRACTICES IN SOCIAL SCIENCE EDUCATION
(20 Hours)**

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Discusses the contributions of various theories in social science education 2. Explores self-learning strategies in curriculum transaction 3. Identifies the need for diagnostic testing and Remedial instruction 4. Explains STEAM education.	2.1 Pedagogical consideration of Social Science: Fusion, integration and Correlation approach 2.2 Curriculum evaluation: need, nature and aspects of curriculum 2.3 Psychological considerations of Social Science instruction- Contributions of Behaviorist, Cognitivist and Constructivist theories in Social Science Education 2.4 Self-learning Strategies and Differential learning- Classroom applications 2.5 Innovative strategies – Experiential learning, Problem-Based Learning, Brain-Based Learning, Mind Mapping, Concept Mapping 2.6 Diagnosis and Remedial teaching 2.7 STEAM Education-Concept, characteristic features and significance	<ul style="list-style-type: none"> • Lecture • Discussion • Seminar • Assignment • QA Session

**Unit-III: INTEGRATION OF ICT IN SOCIAL SCIENCE EDUCATION
(15 Hours)**

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Integrates the various social networking settings in social science education 2. Identifies various ICT based resources for teaching social science 3. Employs the user generated content in social science education 4. Analyze the role of social science teacher as techno-pedagogue.	3.1 Social networking sites in Social science education - You tube, flicker, virtual field trips, virtual labs, virtual classrooms 3.2 ICT based resources - multimedia, internet, e- book, reader, open learning resources, Online repositories, Virtual class rooms, Virtual libraries, virtual lab. e-journals, e-projects, m-Learning, online learning community 3.3 Digital Taxonomy- Peck and Wilson 3.4 Teacher as a techno pedagogue	<ul style="list-style-type: none"> • Digital presentation • Discussion • ICT resource • Peer learning • Hands on experience • Lecture

Unit-IV: PROFESSIONALISING SOCIAL SCIENCE TEACHER (15 Hours)

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Infers the importance of professional development 2. Discusses the role and responsibilities of social science teacher 3. Categorizes various programmers for professional development. 4. Identifies the role of national and state level agencies and organizations in professional development.	4.1 Professionalism: Concept and Strategies 4.2 Skills, Competencies, Role and responsibilities of Social Science teacher 4.3 Professional development of social science teachers - Continuing education for Social science teachers- Orientation and Refresher courses 4.4 Role of National and State level agencies and organizations in professional development 4.5 ICT and professional development of teachers- professional development through ICT - E-twinning for professional development.	<ul style="list-style-type: none"> • Lecture • Discussion • Seminar • Assignment • QA Session

**Unit- V: RESEARCH PERSPECTIVES IN SOCIAL SCIENCE EDUCATION
(15 Hours)**

Learning Outcomes	Content	Suggested Strategies and Approaches
1. Identifies the different methods of research in social sciences 2. Correlates different methods of research 3. Integrates the interdisciplinary nature of social science research 4. Analyses various problems of social science research 5. Appraises applications of research findings in solving social issues.	5.1 Research in Social Science Education Need and Importance 5.2 Social Science Teacher as a researcher. 5.3 Areas of research in Social Science education. 5.4 Method of Research in social sciences – analytical, synthesis, inference, model building and prediction Interdisciplinary nature of social science research Problems in various social science research with reference to Indian situation 5.5 Applications of research findings in solving social issues.	<ul style="list-style-type: none"> • Lecture • Discussion • Seminar • Assignment • QA Session

ASSESSMENT

- Assignment
- Blog preparation
- Tests
- Group projects
- Digital presentation
- Brainstorming
- Seminars

TASKS /PRACTICUMS (Any two)

1. Prepare a report on various professional programme for social science teachers.

2. Conduct a survey in the neighborhood and prepare a brief report on resource for teaching Social Studies.
3. Analyze existing social science curricula and propose improvements.
4. Explore and utilize various digital tools and resources for teaching and learning social sciences.
5. Prepare a research abstract of any five studies related to Social science education conducted in India and abroad.

PRESCRIBED READINGS

- Aggarwal, J. C. (1982). *Teaching of social studies*. Vikas Publishing House.
- Arora, G. L. (1988). *Curriculum and quality in education*. NCTE.
- Hunt, F. E., & Colander, C. D. (2012). *Social science: An introduction to the study of society* (13th ed.). Pearson.
- Joyce, B., & Weil, M. (1985). *Models of teaching* (2nd ed.). Prentice Hall of India.
- Kohila, A. S. (1996). *Teaching of social science*. Anmol Publications Pvt. Ltd.
- Leslie, W. T., & Bybee, W. R. (1996). *Teaching secondary school science*. Allyn and Bacon.
- NCTE. (2001). *National curriculum framework for school education, report edition*. NCERT.
- Sharma, S. P. (2011). *Teaching of social studies*. Kanishka Publication Distributions.
- Sivarajan, K., Thulaseedaran, & Vijayan, N. K. (2007). *Social science education: Methods and techniques of teaching*. Calicut University Cooperative Store.
- Talla, M. (2012). *Curriculum development: Perspectives, principles, and issues*. Pearson Pvt. Ltd.

SUGGESTED READINGS

- Aggarwal, J. C. (1982). *Teaching of social studies*. Vikas Publishing House.
- Arora, G. L. (1988). *Curriculum and quality in education*. NCTE.
- Haroon, S., & Nasleer, A. (2012). *Teaching of social science*. Dorling Kindersley.
- Joyce, B., & Weil, M. (1985). *Models of teaching* (2nd ed.). Prentice Hall of India.
- Kohila, A. S. (1996). *Teaching of social science*. Anmol Publications Pvt. Ltd.
- Leslie, W. T., & Bybee, W. R. (1996). *Teaching secondary school science*. Allyn and Bacon.
- Martin, D. J. (2006). *Elementary social science methods: A constructive approach*. Wordsworth Publishing.
- NCTE. (2001). *National curriculum framework for school education, report edition*. NCERT.

- Ronis, D. (2007). *Brain compatible assessment*. Corwin Press, Sage Publications.
- Sharma, S. P. (2011). *Teaching of social studies*. Kanishka Publication Distributions.
- Talla, M. (2012). *Curriculum development: Perspectives, principles, and issues*. Pearson Pvt. Ltd.