



INTER-UNIVERSITY CENTRE FOR TEACHER EDUCATION

CERTIFICATE IN EDUCATIONAL RESEARCH METHODOLOGY (CERM)

A blended learning programme with a focus on educational research methods



Offered by the

**INTER UNIVERSITY CENTRE FOR TEACHER
EDUCATION**

REGIONAL INSTITUTE OF EDUCATION (NCERT)

Mysuru-570006

ABOUT THE PROGRAMME

The Certificate in Educational Research Methodology (CERM) is a programme designed for a target group of professionals working in formal or informal, government or private systems of education having a concern and responsibility for conducting research. This 16-credit programme, organised under four modular courses and a project work, can be completed in six months. However, registration for the programme is valid for a maximum period of eighteen months. The programme is designed as a Web-based blended learning programme, wherein the major instructional inputs and tests are provided online on a moodle platform. There would be an online contact programme at the beginning which is mandatory. Regular online lecture-cum-discussion sessions with mentors will be held for facilitation of learning. The certificate can be pursued on a part time basis, which is of particular relevance to those who are already working in various capacities under school and teacher education.

THE TARGET GROUP

This Certificate in Educational Research Methodology is meant for educational functionaries who have the responsibility to conduct research at various levels of education - primary, upper primary, secondary and senior secondary (preparatory, foundational, middle and secondary as per NEP-2020). They may also be trainers and teacher educators working at the block, district and state levels in institutions such as BRC, DIET, CTE, IASE and SIE/SCERT and Samagra Shiksha Abhiyan.

Apart from the functionaries in the government sector, this certificate programme is intended for educational researchers in the non-governmental and private institutions and agencies.

The programme also is meant for individuals who have an interest/stake in school and teacher education such as university faculty, educational consultants and those who wish to be independent researchers in the field of education.

OBJECTIVES

The objectives of the CERM are to improve the capacity of functionaries to (a) develop competencies in planning and execution of educational research, and (b) writing research reports, of both quantitative and qualitative nature. The certificate programme provides an opportunity to familiarize oneself with current methodological and theoretical understandings in the field of educational research. They will be provided with modalities necessary for conducting educational research.

DURATION

The programme is of six month duration. An online contact program of five days duration will be organised at the beginning of the programme. However, registration for the programme is valid for a maximum period of eighteen months.

ELIGIBILITY

The certificate programme will have both deputed and non-deputed candidates (in-service and pre-service). The candidates aspiring to join the certificate programme should have a master's degree in any subject with exposure to research methods and/or dissertation as a component of the master's degree programme.

PROGRAMME OUTLINE

The CERM is organised under 4 modular courses and a project work. Each modular course consists of four units and thus the programme has a total of 16 units and a project work. Each module is of 3 credits and the project work has 4 credits. Thus the total number of credits for the programme is 16 credits.

PANORAMA OF MODULAR COURSES, CREDITS AND TRANSACTION SCHEDULE

COURSE CODE	TITLE	Credits		Assessment*	Transaction Schedule
		Th	Pr		
CERM-1	Planning for Research	2	1	<ul style="list-style-type: none"> ▪ Unit End Formative Tests, ▪ Participation in online sessions and discussion forum, ▪ Practicum cum Assignments ▪ Summative Tests on the Modules, ▪ Term End Viva-voce 	First month after orientation
CERM-2	Methodology of Research	2	1		Second month after orientation
CERM-3	Collecting and Analysing Data	2	1		Third month after orientation
CERM-4	Proposal and Report Writing	2	1		Fourth month after orientation
CERM-5	Project work on Preparing Research Report	-	4	<ul style="list-style-type: none"> ▪ Assessment of the research report ▪ Viva-voce 	Sixth month after orientation
		8	8		

- Announcement of result will be on a 10 point grading system as recommended by the UGC

AWARD OF THE CERTIFICATE

Certificate shall be awarded at the end of the programme to those students who have fulfilled all conditions and requirements.

Award of grades and grade points shall be done in the following manner.

Letter Grade	Range	Grade Point
O (Outstanding)	Above 9.5	10
A+(Excellent)	8.5 to 9.5	9
A (Very Good)	7.5 to 8.5	8
B+(Good)	6.5 to 7.5	7
B (Above Average)	5.5 to 6.5	6
C (Average)	4.5 to 5.5	5
P (Pass)	3.5 to 4.5	4
F (Fail)	Below 3.5	0
Ab (Absent)	Absent	0

A candidate obtaining grade 'F' shall be considered failed and will be required to reappear in that course

SYLLABUS OF THEORY AND PRACTICUM

CERM-1: PLANNING FOR RESEARCH

Unit 1: Introduction to Research: Nature and Types

Sources of knowledge: experience, deductive reasoning, inductive reasoning; What is the nature of educational research: empiricism, systematic process of research, the validity of educational research, the reliability of educational research; Classification of educational research: basic research, applied research, action research; Quantitative research methods: descriptive survey research, correlational research, causal-comparative research, experimental research; Qualitative research methods; when to use qualitative methods; Steps and elements of research: planning - elements in each step of planning, execution- elements in each step of execution: instrumentation, sampling, coding, spread sheets preparation, data entry, data screening, data analysis, reporting- elements in each step of reporting, scheme of chapters, theoretical framework, research gaps and theoretical confusions, methodology, results, argumentation (discussion), conclusions, implications.

Unit 2: Identification of a Research Problem

What is a research problem, Identification of Research Problem, Things to note while selecting a research problem/topic: Practicability, Competencies, Usefulness, Theoretical framework, Research gap; Sources of research problems: Experience, Theory, Previous Research; Generating Empirically Testable Research Questions, Formulation of a Research Problem, Writing the title of your research, Evaluation of research problem: Contribution to the body of knowledge in education, Scope for further research, Researchability, Novelty, Suitability to particular researcher.

Unit 3: Review of Related Literature

What is literature review?, Reasons for doing literature review, Review of literature as an end in itself, Types of literature reviews: Narrative literature review, Systematic literature review; Learning to identify relevant studies for systematic review, Where to find the research literature, Noting down the bibliographic information, Synthesis of literature identified for review: Narrative synthesis, The quantitative synthesis (meta-analytical synthesis); Writing the review: Introduction, Main body, Conclusion; Relationship between review of related literature, research questions and hypotheses.

Unit 4: Variables and Formulation of Hypotheses

Nature of Variables, Demographic Variables, Types of Variables: Independent and Dependent Variables; Extraneous Variables; Relationship among Variables, Correlation does not imply causation, Variables and theoretical framework of the study, What is a hypothesis, The characteristics of a hypothesis: Prediction, Testable; Incorrect hypotheses; A research question is not a hypothesis; Forms of Hypotheses: the null hypothesis, the non-directional hypothesis, the directional hypothesis; How do researchers come up with a hypothesis, Operationizing the hypothesis, Hypothesis Formation in Qualitative Research.

PRACTICUM – 1 and ASSIGNMENT

1) Select a topic of research that you would work on further in this certificate programme and write the following after library work.

- a) Detailed Analysis of the problem being studied and the rationale for undertaking the study
- b) The theoretical/conceptual/empirical basis of the study
- c) Variables and their operational definition

2) On the topic detailed in practicum 1,

- a) Write a review of related literature
- b) Write the objectives/research questions
- c) Write the hypothesis, if any
- d) Method of research proposed (quantitative/qualitative and descriptive/experimental etc.

ASSESSMENT: Weightage of this module in the overall programme is 20 percent

Items of Assessment	Weightage
Participation in on-line classes and submissions	10
Unit End Formative Tests	20
Module End Summative Test	50
Term End Viva-voce on Theory and Practicum	20

CERM-2: METHODOLOGY OF RESEARCH

Unit 5: Methods of Research

What is the difference between Research Design and Research Method?; The Survey Method: Sample Surveys - *Longitudinal Survey and cross-sectional survey; Comparing Longitudinal and Cross-sectional Surveys*; Use of Questionnaire in a Survey; Use of Interview in a Survey. The Experimental Method: Characteristics of Experimental Research; *The Single-group Design, Parallel or Equivalent-Group Design, Rotation-Group Design, Factorial Designs*; Treatment of Extraneous Variables: *Equalization, Counterbalancing, and Randomization*. Correlational Research Method. Mixed Methods Research

Unit 6: Sampling

Main Concepts in Sampling: sampling, population, target population, accessible population, sampling frame; Need for sampling, Steps involved in sampling, Sampling methods, Types of sampling: Probability sampling, Non-probability sampling; Types of probability sampling: Simple Random Sampling, Systematic Sampling- Steps involved in systematic sampling, Stratified sampling- Steps in Stratified sampling; Cluster sampling, Types of Non-Probability Sampling: Convenience sampling, Purposive sampling, Quota sampling: Steps in quota sampling, Snowball sampling, Sample size, Sampling Error, Sampling in qualitative research.

Unit 7: Tools and Techniques of Research

Techniques and Tools of Data Collection: Interview- Tool, Preparation, Questionnaire: Types of Questions- Closed-ended question: Dichotomous questions, Multiple -choice questions, Scaled or rating questions, Open-ended question; Development & Administration; Check List, Rating Scale: Types of Rating Scales- Numerical Rating Scale, Graphic Rating Scale, Descriptive Graphic Rating Scale; Guidelines for Developing Good Rating Scales, Online Tools; Observation; Focus Group Discussion (FGD): Preparation, Identification, Facilitation, Summarization, Document Analysis, Testing, Summing Up, Tool Selection.

Unit 8: Scales of Measurement and Basics of Statistics

Classification of variables, Scales of measurement: Nominal scale, Ordinal scale, Interval scale, Ratio scale; Implications of scales of measurement for analysis and interpretation, Introduction to basic statistical ideas, Statistical concepts to summarise data: Frequency, Further Analysis of frequencies; Graphical representation of frequencies/percentages; Central Tendency: Mean, Median; Variability in the data: Standard deviation, Quartile deviation, Quartiles; Graphical representation of mean.

PRACTICUM - 2 and ASSIGNMENT

On the topic selected by you in module 1, write the methodological details consisting of the following:

- a) Population, Sample, Sampling procedure and Sample Size
- b) Decide the Tools to be used in the study and their nature (both selected and developed by the researcher) and develop/select the tools
- c) Delimitation of the study

ASSESSMENT: Weightage of this module in the overall programme is 20 percent

Items of Assessment	Weightage
Participation in on-line classes and submissions	10
Unit End Formative Tests	20
Module End Summative Test	50
Term End Viva-voce on Theory and Practicum	20

CERM-3: COLLECTING AND ANALYSING DATA

Unit 9: Managing Data Collection

Knowing the Data we seek, Accessing Data, Organising the data for analyses: Preparation of the Database, Preparing the Database for Statistical Analyses, Preparation to generate inputs for presenting results, Automating Data Entry; Quality and Integrity of Data, Protecting the Respondent.

Unit 10: Analysis of Quantitative Data: Parametric

Difference between parametric statistics and non-parametric statistics; t-test or independent samples t-test; analysis of variance (ANOVA); two way ANOVA; analysis of co-variance (ANCOVA); Difference between correlation and association; assumptions underlying partial correlation; Multiple correlation; Assumptions underlying multiple correlation; Regression analysis, Assumptions of linear regression analysis; Regression equation.

Unit 11: Analysis of Quantitative Data: Non-Parametric

Assumptions of chi-square test; Use of chi-square goodness of fit test; Mann Whitney U-test: introduction, assumptions of Mann- Whitney U-test; Kruskal-Wallis One Way Analysis of Variance by Ranks - introduction, assumptions.

Unit 12: Qualitative Data Coding, Authenticity and Analysis

Nature of Qualitative Data, Coding and Categorization of Qualitative Data: Attribute coding, Descriptive coding, Pattern coding; Authenticity, Iteration, Standards, Triangulation, Checking interpretation through Member Checks, Memoing, Holding Case Analysis Meetings, Weighting Evidence, Checking out alternative explanations, Analyzing for negative cases, Examining the audit trail, Ethical Issues, Qualitative Data Analysis.

PRACTICUM - 3 and ASSIGNMENT

Administer the tools on a sample and perform statistical analysis using a software for quantitative data and perform coding and analysis of qualitative data

ASSESSMENT: Weightage of this module in the overall programme is 20 percent

Items of Assessment	Weightage
Participation in on-line classes and submissions	10
Unit End Formative Tests	20
Module End Summative Test	50
Term End Viva-voce on Theory and Practicum	20

CERM-4: PROPOSAL AND REPORT WRITING

Unit 13: Writing a Research Proposal

Purpose of research proposal, Components of a research proposal: Front matter, Introduction, Conceptual framework, Review of related literature, Background and Significance, Statement of the problem, Definition of key terms, Research Questions, Objectives and Hypotheses, Methodology, Plan of Action, Budgeting, Reference List.

Unit 14: Ethics of Research

Areas of ethical issues in Research, What are research misconduct?, Need for ethical requirements in research, Documented research misconduct: Plagiarism, Data fabrication/cooked data, Data misinterpretation - data manipulation (adding or deleting data), Incompetence and faulty analysis and interpretation of data, Protection of research participants to prevent information to be made public, Pressure on researchers, Ethical Issues: Informed consent, Harm, Privacy, Deception, Code of Ethics developed by American Educational Research Association (AERA), AERA Ethical Standards

Unit 15: Writing a Quantitative Research Report

Importance of Research Report, Structure of Research Report: Introduction, Methodology, Results, Discussion, Reporting Results and Interpretation of Data: Use text and visual aids properly, Interpretation of results, Use headings and sub-headings, Use language of reporting appropriately, Refer to figures correctly, Formatting and Style of Research Report: American Psychological Association (APA) Style, General Format, Language, Aptness, Citation, Writing qualitative research reports

Unit 16: Writing a Journal Article

The Nature of a Journal Article - *theoretical/conceptual, empirical and policy relevant*; The Contents of an Article and Writing it: Title, Authors, Key word list, Abstract; The body of the text – Introduction, Method, Results, Discussion and Conclusion; Acknowledgements, References. How Dissertations differ from Journal Articles; Bowen's seven rules for writing, submitting, and revising papers for publication; Typical manuscript review format; Tips for academic publishing by Inquiries Journal; A typical author information from a journal; Reasons why a research article is rejected by journals.

PRACTICUM - 4 and ASSIGNMENT

- 1) Prepare a research proposal on a research problem selected in the earlier practicum. You can use the format of the research project suggested by ERIC (NCERT), or UGC, or ICSSR.
- 2) Prepare an executive summary including implications based on the results obtained in the analysis performed in Practicum 3.

ASSESSMENT: Weightage of this module in the overall programme is 20 percent

Items of Assessment	Weightage
Participation in on-line classes and submissions	10
Unit End Formative Tests	20
Module End Summative Test	50
Term End Viva-voce on Theory and Practicum	20

CERM-5: PROJECT WORK ON PREPARING RESEARCH REPORT (4 credits)

This module would take the candidates through the following activities which culminate into submission of a research report

- Selecting a research problem of one's own interest
- Undertaking a review of related literature
- Formulating objectives, research questions and hypotheses
- Deciding the method of research and Preparing a research desing
- Developing Instruments
- Selection of Sample
- Data collection and data analysis
- Preparing the research report
- Presentation of the findings of the research

Note: Course 5 pertaining to project work shall be completed within 6 months i.e. stipulated time of the Certificate programme. However, candidate may be allowed flexibility in submitting the project report to the maximum of 3 more months with prior approval of the programme coordinator.

SCHEME OF EVALUATION

Total Credits: 16 Credits

Mode of evaluation will be as stipulated for each modular course and following modes will be employed for deciding the CGPA for the entire programme.

Unit End Formative Tests

Participation in on-line classes and discussion

Module End Practicum and Assignments

Module End Summative Test

Term End Viva-voce

Unit End Formative Tests

Participation in on-line classes and discussion

Each modular course shall have 20 percent weightage in deciding the final grade.

TRANSACTION METHODOLOGY

The CERM is offered as an online programme with online contact programmes. The gap of time between the two contact programmes is meant for completing or undertaking assigned activities. A candidate who has enrolled for the CERM would be provided with an access to the learning material specially designed on all the units of the programme. The student has to complete the assigned activities under each of the units/modules as per instruction provided.

COURSE FEE

IUCTE conducts professional development programmes on a no profit and no loss basis. The fees charged are to meet the expenses on transacting the course and evaluation and certification. Each candidate will be charged Rs. 5000/- as course fee

HOW TO APPLY

Download the Application Form from the IUCTE Website. Fill-in the requisite details in the downloaded form. Enclose a DD on the name of “**Principal, RIE**” payable at Mysore and send both in an envelope by surface mail to the postal address given below. Applicants may also send a scanned copy of the filled-in application and the DD to the mail id principal@riemysore.ac.in to avoid any delay in receiving the surface mail.

CONTACT DETAILS

Prof. Yagnamurthy Sreekanth

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POSTAL ADDRESS:

INTER-UNIVERSITY CENTRE FOR TEACHER EDUCATION
REGIONAL INSTITUTE OF EDUCATION (NCERT)

Manasagangothri

Mysore - 570006

India

Instructions to the Candidates

1. Download and Print the Application form provided on the next page.
2. Fill-in the requisite details in the space provided
3. Attach a Demand Draft drawn in favour of “Principal, RIE” payable at Mysuru for Rs. 5000/- only. Write “CERM” overleaf (backside of the draft)
4. Post the filled-in Application form to the postal address:

INTER-UNIVERSITY CENTRE FOR TEACHER EDUCATION
REGIONAL INSTITUTE OF EDUCATION (NCERT)
Manasagangothri
Mysore – 570006 India
5. Scanned copy of the Application along with the copy of the DD be sent as

Advance Copy of the Application to : principal@riemysore.ac.in
6. Applications should reach the IUCTE on or before 30th September 2022
7. The List of Candidates enrolled for the programme along with register number will be placed on the IUCTE and RIE website
8. The Programme will commence from 10th October 2022
9. An Orientation programme of 5 days will be held from 10 – 14th October 2022 and participants will be informed about the schedule.
10. The orientation will be fully online and compulsory. The link for the programme will be sent to the email id given by you in the application form.



INTER-UNIVERSITY CENTRE FOR TEACHER EDUCATION
Regional Institute of Education (NCERT), Mysuru

APPLICATION FORM
CERTIFICATE IN EDUCATIONAL RESEARCH METHODOLOGY (CERM)

1. Full Name: Mr./Dr./Ms. _____
(in capital letters)
2. Date of Birth: DAY _____ MONTH _____ YEAR _____
3. State/UT : _____
4. Institution in which you are working: _____
5. Present Address: _____

6. Mobile: _____ WhatsApp No.: _____
7. E-Mail: _____

8. Qualifications: (Only Master's Degree onwards)

Degree with Subject	Institution awarding the degree	Grade or %	Year of Completion

9. For Master's degree, was there a research component in it? Yes / No
10. Category to which you belong(Tick): SC _____ ST _____ OBC _____ General _____
11. DD Number _____ Bank: _____ Date _____

Declaration: 1. I hereby declare that the above information is true to the best of my knowledge.
2. I hereby declare that I am fit in all respects to meet all the requirements of the course.
3. I have enclosed a DD for Rs. 5000/- in favour of "Principal, RIE" and written CERM overleaf

Place : _____ Date: _____ (Signature of the Applicant)