



Re-Accredited 'B++' 2.85 CGPA by NAAC

VEER NARMAD SOUTH GUJARAT UNIVERSITY

University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.

વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી

યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.

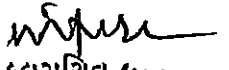
Tel : +91 - 261 - 2227141 to 2227146, Toll Free : 1800 2333 011, Digital Helpline No.- 0261 2388888
E-mail : info@vnsgu.ac.in, Website : www.vnsgu.ac.in

-: પરિપત્ર :-

યુનિવર્સિટી સંલગ્ન તમામ બી.એડ. કોલેજોનાં આચાર્યશ્રીઓને જણાવવાનું કે, શૈક્ષણિક વર્ષ ૨૦૨૬-૨૭ થી અમલમાં આવનાર Ph.D. કોર્સ વર્કના અભ્યાસક્રમને મંજૂર કરવા એજ્યુકેશન ફેકલ્ટી તથા એજ્યુકેશન વિષયની અભ્યાસ સમિતિઓની (ત્રણેય બોર્ડ) ની સંયુક્ત સભાની તા.૧૦/૦૮/૨૦૨૬નાં ઠરાવ ક્રમાંક:૨ થી કરેલ ભલામણને એકેડેમિક કાઉન્સિલની તા.૧૪/૦૮/૨૦૨૬ની સભાનાં ઠરાવ ક્રમાંક:૪૦ થી મંજૂર કરેલ છે. જેનો અમલ કરવા આથી જાણ કરવામાં આવે છે.

(બિડાણ: ઉપર મુજબ)

ક્રમાંક:ઓથો./પરિપત્ર/૨૧૭૬૦/૨૦૨૬
તા.૧૮-૦૮-૨૦૨૬


કુલસચિવ

પ્રતિ,

૧) યુનિવર્સિટી સંલગ્ન તમામ બી.એડ. કોલેજોનાં આચાર્યશ્રીઓ.

.....આપશ્રીની કોલેજના સંબંધિત શિક્ષકોને જાણ કરી અમલ કરવા સારું.

૨) ડીનશ્રી, શિક્ષણ વિદ્યાશાખા.

૩) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.

.....તરફ જાણ તેમજ અમલ સારું.

સા. 40
૨૫. 12

મહાનિર્ણય નં. 14-09-2026
બાબદ. 4.0.....પાનાવરિત્તે.....12

Faculty of Education

Veer Narmad South Gujarat University, Surat



Syllabus

For

Ph.D. Course Work

Effective From: 2026

Contributers

- (1) Dr. Anandbhai Y. Bhatt
Dean, Faculty of Education.
V.N.S.G. Uni, Surat
- (2) Dr. Rajendrabhai B. Patel
Professor and Head,
Department of Education.
V.N.S.G. Uni, Surat
- (3) Dr. Patralekhaben K. Chavda
Principal,
V.T. Choksi Sarvajanic College of Education, Surat
- (4) Dr. Kirtiben D. Thakar
Professor,
Department of Education.
V.N.S.G. Uni, Surat
- (5) Dr. Intekhab K. Ansari
I/C Principal,
College of Education, Kharod.

Course Work Structure

Ph.D. Degree Program in Education

Paper No.	Paper Name	Credit		Total	Examination			Total Marks
		T	P		Internal Marks		External Marks	
					Practical	Attendance & CP		
1	Research Methodology in Education	3	1	4	30	20	50	100
2	Research and Publication Ethics and Review of Literature	3	1	4	30	20	50	100
3	Statistics in Educational Research & Computer Application	3	1	4	30	20	50	100
	Total	9	3	12	90	60	150	300

Credit: There are two types of credits 1.Theory Credit 2.Practical Credit

- 1. Theory Credit = 15 Hour of Classroom Teaching
- 2. Practical Credit = 30 Hour of Practical work as per given in Subject Level.

Standard of Passing:

- Obtain Minimum 55 % Marks in Internal assessment as well as External assessment

Format of External Question Paper:

Q-1: Answer briefly in 30 to 40 Words (any 10 out of 12) Mark-10

Q-2: Answer briefly in 150 to 180 Words (any 4 out of 6) Mark-20

Q-3: Answer briefly in 300 to 400 Words (any 2 out of 3) Mark-20

Programme Outcomes (PO)

PO Code	Programme Outcome (PO)
PO1	Demonstrate advanced knowledge of educational theories, research methodologies, and contemporary educational practices.
PO2	Apply qualitative, quantitative, and mixed research methods to solve educational problems.
PO3	Analyze educational data using statistical techniques and ICT tools for evidence-based decision making.
PO4	Demonstrate ethical values, professional integrity, and responsible conduct in educational research and publication.
PO5	Develop innovative educational interventions and research-based solutions for educational issues.
PO6	Communicate research findings effectively through academic writing, presentations, publications, and professional collaboration.

Programme Specific Outcomes (PSO)

PSO Code	Programme Specific Outcome (PSO)
PSO1	Demonstrate comprehensive knowledge of educational research methodologies and apply appropriate research designs, sampling techniques, and research tools to investigate educational problems.
PSO2	Apply qualitative, quantitative, and mixed-method research approaches to collect, analyze, interpret, and report educational data using appropriate statistical techniques.
PSO3	Demonstrate ethical research practices by adhering to academic integrity, publication ethics, intellectual property rights, and responsible conduct of research.
PSO4	Utilize ICT, statistical software (SPSS, Excel), digital libraries, e-resources, and educational technologies for data management, analysis, and dissemination of research findings.
PSO5	Prepare research proposals, dissertations, research papers, and scholarly publications using appropriate academic writing styles, referencing techniques, and documentation standards.
PSO6	Develop critical thinking, problem-solving, leadership, innovation, and lifelong learning skills to address contemporary educational issues and contribute to educational policy and practice.

PO-PSO Mapping

PO\PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
PO1	3	2	1	2	2	2
PO2	3	3	1	2	2	2
PO3	2	3	1	3	2	2
PO4	1	1	3	1	2	2
PO5	2	2	2	2	2	3
PO6	1	2	2	2	3	3

(Scale: 3-High, 2-Medium, 1-Low)

PAPER: 01
RESEARCH METHODOLOGY IN EDUCATION

Credit: Theory: 03 Practical: 01 Total Credit: 04

Objectives:

At the end of course the students will be able:

1. To understand the theory and practical of research work
2. To acquaint with terms, concepts, hypothesis and definitions of research
3. To acquaint with methodology of research of various types
4. To design and conduct a scientific inquiry
5. To conduct a research review on the selected subject/area
6. To develop a research tool
7. To understand sample, population and its role in research
8. To write a research proposal
9. To write a research paper
10. To write a research report necessary for university degree

Course Outcomes (COs)

After completing the course, the students will be able to:

CO1	Explain concepts, nature, principles and types of educational research.
CO2	Formulate research problems, objectives, variables and hypotheses.
CO3	Select appropriate sampling techniques and develop standardized research tools.
CO4	Prepare research proposals and research reports using accepted academic formats.
CO5	Critically evaluate educational research and apply research methodology to solve educational problems.

CO\PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	1	1	1	2
CO2	3	3	1	1	1	2
CO3	3	2	1	2	2	2
CO4	2	2	2	1	3	2
CO5	3	2	2	2	2	3

Unit: I CONCEPT OF RESEARCH

1. Research: Meaning, Concept, Nature, Basic Principles
2. Types of Research: Classical, Applied, Quantitative, Qualitative, Experimental, Survey,
3. Developmental Correlation, Historical Qualitative: Case Study, Ethnography Narratives, and Phenomenology
4. Selection of Research Problem: Originality, Necessity, Creativity, Innovation
5. Variables and Hypothesis: Meaning, Types, Construction, Testing

Unit: II SAMPLING AND TOOL DEVELOPMENT

1. Population and Sample and its types, Sample size, Sampling Error, Representative and Biased Sample
2. Characteristics of Good Sample
3. Tools of research: Characteristics, Types, Uses
4. Research tools: Questionnaire, Opinionnaire, Interview, Observation, Rating Scale, Attitude Scale, Check List.
5. Concept and Norms of Standardization of Tools:
6. Types of Data: Primary, Secondary and Tertiary Data

Unit: III REPORT WRITING

1. Research Proposal Preparation and Presentation
2. Research Paper Writing
3. Report Writing: Divisions of a Research Report,
4. Supplementary Part: Appendices, References, Abstract, Glossary
5. Format of Research Report: Format, Style, Typing, Quotations, Footnotes, Bibliography, Pagination, Tables, Figures and Graphics
6. Evaluation of Research Report

Mode of Content Delivery:

Classroom Discussion, Lecture, Library Study, Panel Discussion, Field Work.

Practical Works:

[Each Practicum = 15 Marks, Any Two Practicum]

1. Construct a research tool using standard procedure.
2. Develop a research proposal and present it in front of the class.
3. By develop a research design by selecting a problem of present if before the class.
4. Study an official research document and prepare a paper interpreting graphical representation of data.
5. A critical presentation of the use of statistical technique in testing hypothesis in a research report.
6. Prepare and present a sample research article.
7. Any related to subject.

REFERENCES:

1. Bajpai S. R. (1975) Methods of Social Survey and Research, Kitabghar, Kanpur
2. Banerjee, N. P.(1993). Strategies of Educational Research. Ambala Cantt: The Associated blication.
3. Best, J. W. and Kahn, J.(1997). Research in Education(7th ed.) New Delhi: Prentice-Hall of India Ltd.
4. Black Thomas (2001) Understanding Social Research, New Delhi: Saga Publications.
5. Borg, B. L.(2004). Qualitative Research Methods. Boston: pearson.
6. Borg, W. R. & Gall, M. R. (1983). Educational research: An Introduction(4thEd.). New York : Longman.

7. Bogdan, R.C. and Biklen, S. K.(1998). Qualitative Research for Education : An Introduction to Theory and Methods. Boston MA : Allyn and Bacon.
8. Bryman, A.(1988). Quantity and Quality in Social Science Research. London : Routledge.
9. Chandra, S. S. & Sharma R. K.(2002). Research in Education. New Delhi: Atlantic Publishers & Distributors.
10. Charles, C. M. and Merton, C. A.(2002). Introduction to Educational Research. Boston: Allyn and Bacon.
11. Cohen, L. & Manion, L.(1994). Research Methods in Education. London : Routledge.
12. Correy, S. M. (1953). Action Research to Improve school Practices.Columbia University.
13. Cohen, L & Manion, L.(1994). Research Methods in Education. London:Routledge.
14. Creswell, J. W.(2002). Educational Research. New Jersey:Upper Saddle River.
15. Creswell,J. W.(1994). Research Design. London: Sage Publications.
16. Creswell, J. W.(2003).Research Design: Qualitative, quantitative, and mixed methods approaches. (2nd ed.) Thousand Oaks: Sage.
17. Denzin, N. K. & Lincoln, Y. S. (Editors).(2000). Handbook of Qualitative Research(2thEd.). Thousand Oaks: Sage publication.
18. Diener, E.and Crandall, R. (1978). Ethics in Social and Behavioral Research. Chicago:University of Chicago Press.
19. Dill, W. R. and Goldstein, M.(1984). Multivariate Analysis Methods and Applications. New York: John Wiley and Sons.
20. Entwistle, N. J.(1974). The Nature of Educational Research, Educational Studies, A Third Level Course, Method of Educational Inquiry-Block I:, Milton Kenya: The open University Press.
21. Gay, L. R. and Airasian, P.(2003). Educational Research. New Jersey Upper Saddle River.
22. Ghosh B. N. (1999) Scientific Method and Social Research, New Delhi.
23. Good, C. V. (1972). Essentials of Educational Research. New York : McGraw Hill Book Co.
24. Gupta, S. (2005). Research Methodology and Statistical Techniques. New Delhi : Deep & Deep Publication.
25. Keesee J. P. (ed) (1988)., Educational Research Methodology and Measurement:An International Handbok. Oxford : Pergamon.
26. Kelly, A. & Lesh, R.(2000). Handbook of Research Design in Education.Erlbaum Associates.
27. Kerlinger, F. N.(2002).Foundations of Behavioural Research(10th Ed.) Delhi : Surjeet Publication.
28. Koul, L.(2002). Methodology of Educational Research(3rd Ed.). New Delhi : Vikas

Publishing House.

29. Mangal, S. K. (2002). Statistics in Psychology and Education(2nd Ed.) New Delhi : Prentice Hall.
30. McMillan, J. H. and Schumacher, S. (2001). Research in Education, New York : Longman.
31. O'Leary, Z. (2004). The essential guide to doing research. London : Sage.
32. Saxena, N. R. Mishra, B. K. & Mohanty, R. K. (2003). Fundamentals of Educational Research, Meerut : Surya Publication.
33. Sharma, B. (2004). Methodology of Educational Research. New Delhi : Vohra Publishers & Distributors.
34. Trow, M. S. (1988) : Analysis, in Keevs, J. P. (ed) 'Educational Research Methodology and Measurement : An International Handbook.' Pergamon Press Plc.
35. ઉચાટ, ડી. એ. (૧૯૯૨). વિચરણ પૃથ્થકરણ. રાજકોટ: સ્વ ડોક્ટર એચ. જી. મેમોરિયલ એજ્યુકેશનલ ટ્રસ્ટ.
36. પટેલ આર.એસ. (૨૦૦૮). શૈક્ષણિક સંશોધનો માટે આંકડાશાસ્ત્રીય પદ્ધતિઓ અમદાવાદ: જય પબ્લીકેશન.
37. ત્રિવેદી, એમ. ડી. અને પારેખ, બી. યુ. (૧૯૯૪). શિક્ષણમાં આંકડાશાસ્ત્ર. અમદાવાદ: યુનિવર્સિટી ગ્રંથ નિર્માણ બોર્ડ, ગુજરાત રાજ્ય.
38. શાહ, ડી. બી. (૨૦૦૯). શૈક્ષણિક સંશોધન. અમદાવાદ: પ્રમુખ પ્રકાશન.

PAPER: 02
RESEARCH AND PUBLICATION ETHICS AND REVIEW OF
LITERATURE

Credit: Theory: 03 Practical: 01 Total Credit: 04

Objectives:

At the end of course the students will be able:

1. To understand the concept and foundations of ethics.
2. To develop awareness of ethical principles in science and research.
3. To identify and critically analyze forms of scientific misconduct.
4. To familiarize students with publication ethics.
5. To understand conflicts of interest and ethical responsibilities of authors, reviewers, and editors in the publication process.
6. To recognize and prevent publication misconduct.
7. To develop the ability to identify, report, and respond to ethical violations.
8. To cultivate a culture of academic integrity and ethical decision-making.

CO Code	Course Outcomes
CO1	Explain research ethics, scientific conduct, intellectual honesty, and integrity.
CO2	Identify publication misconduct, plagiarism, conflicts of interest, and predatory journals.
CO3	Apply publication ethics guidelines while preparing scholarly publications.
CO4	Conduct systematic literature reviews using print and electronic resources.
CO5	Prepare references and review literature using accepted citation styles and ethical

CO\PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	1	1	3	1	1	2
CO2	1	1	3	1	2	2
CO3	1	2	3	2	2	2
CO4	2	2	2	3	2	2
CO5	2	2	2	2	3	2

Unit: I ETHICS AND SCIENTIFIC CONDUCT

1. Ethics: definition, moral philosophy, nature of moral judgements and reactions
2. Ethics with respect to science and research
3. intellectual honesty and integrity
4. Scientific misconduct- including Falsification, Fabrication and plagiarism(FPP)+
5. Reductant, publications: duplicate and overlapping publications, salami slicing,
6. selective reporting, misinterpretation of data

Unit: II PUBLICATION ETHICS

1. Publication ethics: definition, introduction and importance
2. Best Practices and guideline COPE, OASPA, WAME ETC
3. Conflicts of interest
4. Publication misconduct - Definition, concept, problem that lead to unethical behavior and vice versa, types.

5. Violations of publication of ethics, authorship and contributorship
6. Identification of publication misconduct, complaints, appeals.
7. Predatory publishers and journal.

Unit: III Use of Reference material and Review of Literature

1. Use of Reference material: Using Library; Card Catalogue, Library classification- Dewey decimal system of classification.
2. Encyclopedias, Handbooks of research on teaching, Research of surveys in Education, Journals and research abstracts.
3. Review of Literature; Concept and purpose
4. Conducting a review of the literature; Listing key words, check preliminary sources, reading and noting selected references.
5. Preparing references at the time of review of literature
6. Strategies for undertaking and writing review of research literature.

Mode of Content Delivery:

Classroom Discussion, Lecture, Library Study, Panel Discussion, Field Work.

Practical Works:

[Each Practicum = 15 Marks, Any Two Practicum]

1. Open access publications and initiatives
2. SHERPA/RoMEO online resource to check publisher copyright and self-archiving policies
3. Software tool to identify predatory publications developed by SPPU
4. Journal finder/journal suggestion tools viz. JANE, Elsevier journal finder, springer journal suggested etc.
5. Group discussions relating to specific ethical issue FFP, authorship, conflicts of interest, complaints and appeals
6. Software tools for plagiarism like Turnitin, Urkund and other open source software tools
7. Indexing database and citation database - web of science, Corpus etc.
8. Impact factor of journal and Metrics h-index, g-index, i10 index, altmetrics.
9. To make review of two research paper published in refereed journal
10. Conduct a review on area of your choice using Shodhganga
11. Review a doctoral thesis in Education.
12. Any related to subject.

REFERENCES:

1. **Scientific Integrity: An Introductory Text with Cases** *Author:* Francis L. Macrina
Publisher: ASM Press
2. **Responsible Conduct of Research** *Authors:* Adil E. Shamoo & David B. Resnik *Publisher:* Oxford University Press
3. **The Ethical Dimensions of the Biological Sciences** *Authors:* Robert E. Bulger, Elizabeth Heitman, Stanley Joel Reiser *Publisher:* Cambridge University Press
4. **ORI Introduction to the Responsible Conduct of Research** *Author:* Nicholas H. Steneck
5. **Handbook of Research and Publication Ethics (UGC 2 Credit Course)** *Editors:* Nimit Chowdhary & Sarah Hussain *Publisher:* Amazon India

6. **Research Ethics: Text and Readings** *Authors:* David R. Barnbaum & Michael Byron
Publisher: Prentice Hall
7. **Teaching the Responsible Conduct of Research through a Case Study Approach**
Authors: Korenman SG & Shipp AC *Publisher:* Association of American Medical Colleges
8. <https://vjec.ac.in/crm/public/uploads/phd/PhD%20course%20Research%20and%20Publication%20Ethics-Autonomous.pdf>

PAPER: 03
STATISTICS IN EDUCATION & COMPUTER APPLICATION

Credit: Theory: 03 Practical: 01 Total Credit: 04

COURSE WORK OBJECTIVES

At the end of course the students will be able:

1. To Know the Fundamental of Statistics.
2. To Study the Statistical Measures.
3. To Study the Parametric & Non Parametric Tests.
4. To Study the Computer applications in Education.

CO1	Explain statistical concepts and organize educational data using graphical methods.
CO2	Calculate and interpret measures of central tendency, variability, correlation, and regression.
CO3	Apply parametric and non-parametric statistical tests in educational research.
CO4	Use statistical software and ICT tools for educational data analysis.
CO5	Utilize electronic research resources and statistical techniques for educational research

CO\PSO	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	3	1	2	1	2
CO2	2	3	1	3	1	2
CO3	3	3	1	3	1	2
CO4	2	2	1	3	2	2
CO5	2	2	2	3	2	3

Unit: I Fundamental of Statistics & Statistical Measures

- 1 Concept of Statistics & Role of Statistics in Education
- 2 Organization & Graphical Representation of Data
- 3 Some Measures: Concepts & Uses, Percentage, Measures of Central Tendency and Variability
- 4 Coefficient of Correlation: Concepts & Uses, Item Analysis
- 5 Regression Equation: Concepts & Uses

Unit: II Parametric & Nonparametric Tests & Computer Application

- 1 Parametric & Nonparametric Data: Concepts & Scales of Measurement, Uses of Parametric & Non Parametric Tests
- 2 Parametric Test: t test, F test (One Way & Two Way ANOVAs)
- 3 Non Parametric Test: Chi Square Test, Sign Test & Median Test
- 4 Application of Normal Distribution
- 5 Concepts of Reliability and Validity, its Type and Uses
- 6 Computer Applications in Educational Research: Word, Excel, SPSS
- 7 E-Resources for educational researches: Shodhganga, e-journals, types of e-journals and its importance. etc.

Practicum

[Each Practicum =15 Marks, Any Two Practicum]

1. A Critical Assessment of Statistical Techniques used by Ph.D. Student in his research Subject.
2. A Critical Assessment of Statistical techniques used in a research report at Ph.D. level.
3. Analysis of data using SPSS or Excel.
4. A Critical Assessment of the use of graphical techniques in research report at Ph.D. level.
5. Graphical Presentation of the data.
6. E-recourses related to research subject of Ph.D. Student.
7. Any related to subject.

References:

1. Anderson T.R. & Morris, Zelditch.(1968). A Basic Course in Statistics. New York : Holt, Rinehart and Winston.
2. Blommers, Paul and Lindquist (1965). Elements of Statistics Methods. London : University of London press ltd.
3. Edward, A. L. (1963). Statistical Methods for the Behaviour Science. New York : Holt, Rinchar & Winstons.
4. Fruchter, B. (1967). Introduction to Factor Analysis, New Delhi : Affiliated East West Press Pvt. Ltd.
5. Garrette, H. E. (1981). Statistics in Psychology and Education. Bombay : Vakils, Feffer & Simons Pvt.Ltd.
6. Guilford, J. P. (1965). Fundamental Statistice in Psychology & Education. New York : McGraw Hill.
7. Gupta, S. (2005). Research Methodology & Statistical Techniques.New Delhi : Deep and Deep Publication.
8. Hays, W. L. (1965). Statistics for Psychologists. New York : Holt Rinehart & Winston.
9. Hays, A. K. & Mayo, S. T. (1980) Statistical Methods in Education & Psychology. New Delhi : Marosa Publishing House.
10. Harry, H. Harman (1976). Modern Factor analysis. London : The University of Chicago Press.
11. Levin,jack. (1977) Elementary Statistics in Social Research. New York : Harper & Row Publishers.
12. Lindquist, E. F. (1970). Statistical Analysis in Educational Research. New Delhi : Oxford & I.B.H. Publishing Co.
13. Lynch, M. D. & Hundruberger, D. V. (1996). Element of Statistical Inferences for Education & Psychology. London : Allwayn & 19 Bacon, Inc.
14. Mangal, S. K. (2002). Statistics in Psychology & Education. New Delhi : Prentice Hall.
15. Popham. W. James & Sirethink, K. A. (1973). Educational Statistics. New York : Harper & Row.
16. Siegal, Sidney. (1956). Non-Parametric Statistics for the Behavior Sciences. New York : McGraw Hill.
17. Tate, M. V. (1967).Statistics in Education & Psychology. New York : The McMillan Co.
18. Winer, B. J. (1971). Statistical Principales in Experimental Design. New York : McGraw Hill
19. પારેખ, સુરેશ. (૧૯૯૮). ઈ અપ્રાયલીય આંકડાશાસ્ત્ર. જુનાગઢ: એસ. પારેખ પ્રકાશક.

20. પરીખ અને પરીખ (૧) મનોવિજ્ઞાનમાં આંકડાશાસ્ત્ર (ભાગ-૧, ૨). રાજકોટ.
21. પટેલ આર.એસ. (૨૦૦૮). શૈક્ષણિક સંશોધનો માટે આંકડાશાસ્ત્રીય પદ્ધતિઓ અમદાવાદ: જય પબ્લીકેશન.
22. શાહ. એચ. ડી. (૧૯૯૪). ગાણિતિક આંકડાશાસ્ત્ર. અમદાવાદ: યુનિવર્સિટી ગ્રંથ નિર્માણ બોર્ડ, ગુજરાત રાજ્ય
23. ત્રિવેદી, એમ. ડી. અને પારેખ, બી. યુ. (૧૯૯૪). શિક્ષણમાં આંકડાશાસ્ત્ર. અમદાવાદ: યુનિવર્સિટી ગ્રંથ નિર્માણ બોર્ડ, ગુજરાત રાજ્ય.
24. ઉચાટ, ડી. એ. (૧૯૯૨). વિચરણ પૃથ્થકરણ. રાજકોટ: સ્વ ડોક્ટર એચ. જી. મેમોરિયલ એજ્યુકેશનલ ટ્રસ્ટ.
25. ઊચાટ, ડી. એ. (૨૦૦૪). માહિતી પર સંશોધન વ્યવહારો. રાજકોટ: લેખક.