अवधेश प्रताप सिंह विश्वविद्यालय, रीवा

(पीएच.डी. पूर्व पाठ्यक्रम)

संशोधित **पीएच.डी. अध्यादेश 30।** के प्रावधानानुसार प्रत्येक शोधार्थी को एक प्री पीएच.डी. कोर्स (एक सेमेस्टर पाठ्यक्रम) करना अनिवार्य है। इस कोर्स वर्क में एक सैद्धान्तिक प्रश्न पत्र शोध प्रविधि तथा दूसरा संबंधित विषय के शोध क्षेत्र में प्रकाशित शोध पत्रों पर एक समीक्षात्मक लेखन से संबंधित है। शोध प्रविधि प्रश्न पत्र की लिखित परीक्षा उत्तीर्ण करने हेतु 36 प्रतिशत अंक तथा समीक्षात्मक लेखन में 50 प्रतिशत अंक अर्जित करना आवश्यक है। संबंधित विषयों के शोध प्रविधि का पाठ्यक्रम निम्नानुसार है।–

विषय–हिन्दी

शोध प्रविधि

अनुसंधान : स्वरूप, पद्धति एवं प्रविधि–

इकाई–1

अनुसंधान का स्वरूप – अवधारणा, अर्थ एवं परिभाषा, अनुसंधान के पर्याय एवं अर्थगत भेद, अनुसंधान की प्रकृति, अनुसंधान के तत्व, अनुसंधान का प्रयोजन, अनुसंधाता की योग्यता, हिन्दी अनुसंधान का विकास।

इकाई–2

अनुसंधान की पद्धति– ऐतिहासिक, तुलनात्मक, भाषा वैज्ञानिक, साहित्यशास्त्रीय, समाजशास्त्रीय, पाठालोचन, अन्तर अनुशासनिक, सर्वेक्षण, वैयक्तिक अध्ययन, व्यवहारिक शोध।

इकाई–3

अनुसंधान की पद्धति– विषय चयन, स्त्रोत सामग्री संकलन, अनुक्रमणिका निर्माण, भूमिका लेखन, शीर्षक, उपशीर्षक, उपसंहार पाठ, टिप्पणी, परिशिष्ट, सन्दर्भ ग्रंथ सूची, प्रश्नावली, साक्षात्कार कार्ड–पद्धति, अन्तर्वस्तु विश्लेषण, पाण्डुलिपि अवलोकन, अशुद्धियों का निर्मूलन, प्रबंध प्रस्तुतिकरण, प्रबंध–प्रविधि।

इकाई–4

शोध कार्य का आंकलन– परिमापन, शोध आंकड़ा वर्गीकरण एवं सारणीयन, सांख्यिकी विश्लेषण–माध्य, माध्यिका (औसत), बहुलक(तरीका/ढंग) शोध परियोजना प्रतिवेदन (रिपोर्ट)।

इकाई–5

फन्डामेण्टल ऑफ कम्प्यूटर्स–– कम्प्यूटर फन्डामेण्टल, हार्डवेयर एण्ड साफ्टवेयर, डिफरेन्ट आपरेटिव सिस्टम, एप्लीकेशन प्रोग्राम्स, प्रोग्रामिंग लैग्वेजेज कांसेप्ट्स।

अवधेश प्रताप सिंह विश्वविद्यालय, रीवा

(पी.एच.डी. पूर्व पाठ्यक्रम)

विषय–संस्कृत

शोध प्रविधि

इकाई–1

अनुसंधान का स्वरूप – अवधारणा, अर्थ एवं परिभाषा, शोध क्षेत्र एवं प्रकार, शोध के अधिकारी, शोध का प्रयोजन, संस्कृत में शोध की प्रकृति।

इकाई–2

शोध आंकलन– विश्लेषणात्मक विधि, द्वन्द्वात्मक विधि, आलोचनात्मक एवं तुलनात्मक विधि, शोध सामग्री का संकलन और वर्गीकरण।

इकाई–3

अनुसंधान की पद्धति– निगमनात्मक एवं आगमनात्मक पद्धति, प्राक्कल्पना एवं वैज्ञानिक विधि, प्रयोगात्मक विधि।

इकाई–4

पाण्डुलिपि विज्ञान, पाण्डुलिपि संकलन के स्त्रोत, उसका आकलन तथा संरक्षण।

इकाई–5

फन्डामेण्टल ऑफ कम्प्यूटर्स–– कम्प्यूटर फन्डामेण्टल, हार्डवेयर एण्ड साफ्टवेयर, संस्कृत में कम्प्यूटर की भूमिका।

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT-ENGLISH

Research Methodology

OBJECTIVES-

1. To equip the students with the tools and materials of research
2. To acquaint them with the research process
3. To train them in preparing and presenting their research

CONTENT-

Unit-1

COMPUTER APPLICATION-

a. E-learning and research in literature

b. Use of internet in material collection

c. Use of MS Word, Excel, Power- Point and other relevant software

d. Consulting e-journals, Web references, research sites, web indexes, e-mail discussion groups, virtual libraries and web search engines.

Unit-2

BASICS OF RESEARCH-

a. Research : definition, meaning, objectives and types.

b. The philosophy of research : nature of inquiry in physical sciences, social sciences and humanities.

c. Research procedure in literature and linguistics.

d. Broad principles of research.

Unit-3

PREPARATION FOR RESEARCH-

a. Choice of subject : identification of a topic.

b. Survey of relevant literature and critical material.

c. Preparation of a research/project proposal.

d. Presentation of a research/project proposal.

Unit-4

RESEARCH, DOCUMENTATION, FORMATS-

a. Consulting libraries, collecting material, preparing bibliographies, primary and secondary sources.

b. Actual preparation of a research/term paper, dissertation and thesis.

c. The mechanics of research writing.

d. Norms, conventions and formats of research writing.

e. The style suitable for a literary thesis : narration, argumentation, exposition and description.

f. From the first draft to the final copy.

Unit-5

NUANCES OF LITERARY RESEARCH-

a. Contemporary literary theories : a curtain-raiser.

b. Ethics of research.

c. The challenges faced by a research scholar in the Indian scenario and ways to handle them.

Reference Books-

1. Abdul Rahim, F. (2005), Thesis Writing : A Manual for Researchers (New Delhi : New Age International).
2. Adam Sirjohn (2004), Research Methodology : Methods & Techniques, Delhi : New Age International Ltd.
3. Altick, R.D. (1963, The Art of Literary Research, New York : Norton.
4. Brown, James Dean (2006), Understanding Research in Second Language learning, New York : Cambridge university Press.
5. Caivary R., Nayak V.K. (2005), Research Methodology, S. Chand.
6. Chindhade, S. and A. Thorat (2009), An introduction to research, Mumbai: CUP.
7. Eliot, Simon and W.R. Owens (4th edn. 1998), A Handbook to Literary Research, London : Routledge & Open University.
8. Gupta, R.K. (1971), American Literature Fundamentals of research, ASRC Hyderabad.
9. Harner, James L. (2002) Literary research Guide : An annotated listing of reference sources in English literary studies, New York : MLA of America.
10. Kothari, C.R. (1985), Research Methodology : Methods & Techniques, Delhi : New Age international Ltd.
11. Lenburg, Jeff (2007), Guide to Research, Viva Books.

12. Oakman, Robert L. (1984), Computer Methods for Literary research, Athens : University of Georgia Press.

13. Rahim, F. Abdul (1996), Thesis writing a manual for researchers, New Delhi : New Age international Ltd.

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अवधेश प्रताप सिंह विश्वविद्यालय, रीवा

(पी.एच.डी. पूर्व पाठ्यक्रम)

विषय–दर्शनशास्त्र

शोध प्रविधि

इकाई–1

अनुसंधान का स्वरूप – अवधारणा, अर्थ एवं परिभाषा, अनुसंधान के पर्याय एवं अर्थगत भेद, अनुसंधान की प्रकृति, अनुसंधान के तत्व, अनुसंधान का प्रयोजन, दर्शन में शोध की प्रकृति।

इकाई–2

शोध आंकलन– विश्लेषणात्मक विधि, द्वन्द्वात्मक विधि, आलोचनात्मक एवं तुलनात्मक विधि, भारतीय एवं पाश्चात्य दर्शन की अवधारणा।

इकाई–3

अनुसंधान की पद्धति– निगमनात्मक एवं आगमनात्मक पद्धति, प्राक्कल्पना एवं वैज्ञानिक विधि, प्रयोगात्मक विधि।

इकाई–4

दार्शनिक शोध की समसामायिक प्रवृत्तियाँ– के.सी. भट्टाचार्य, राधाकृष्णन, श्री अरविन्द, सन्दर्भ ग्रंथ सूची की अवधारणा।

इकाई–5

फन्डामेण्टल ऑफ कम्प्यूटर्स–– कम्प्यूटर फन्डामेण्टल, हार्डवेयर एण्ड साफ्टवेयर, दर्शनशास्त्र में कम्प्यूटर की भूमिका।

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अवधेश प्रताप सिंह विश्वविद्यालय, रीवा

(पी.एच.डी. पूर्व पाठ्यक्रम)

विषय–संगीत

शोध प्रविधि

1. शोध प्रविधि–शोध का शाब्दिक अर्थ, परिभाषा, शोध का उद्देश्य, हिन्दुस्तानी संगीत में शोध कार्य का स्वरूप, शोध के क्षेत्र, शोध कार्य की विधि, शोध विषय का चयन, शोध सामग्री संकलन, शोध की उपयोगिता।
2. कम्प्यूटर का प्रारम्भिक ज्ञान, महत्व एवं शोध में उपयोगिता, संगीत विषय में कम्प्यूटर की प्रायोगिकता, नेट द्वारा संगीत के विभिन्न क्षेत्रों (ऐतिहासिक, सांस्कृतिक, प्रायोगिक, वैज्ञानिक तथा अत्याधुनिक) की जानकारी, कम्प्यूटर द्वारा टाइपिंग, डाउनलोडिंग एवं नेट सर्फिंग की जानकारी।
3. संगीत में शोध विषय की भूमिका, कार्य पद्धति एवं प्रणाली, शोध की रूपरेखा, संकलन की विधि, शोध की संक्षेपिका, संगीत में शोध कार्य की समस्याएँ एवं निराकरण, सुझाव, संगीत में शोध कार्य हेतु प्रश्नावली, साक्षात्कार, पत्राचार, दूरभाष, रिकार्डिंग, फोटोग्राफी की भूमिका, आवश्यकता एवं महत्व।
4. म.प्र. में संगीत की प्रमुख शासकीय/अशासकीय संस्थाओं एवं कला अकादमियों का सर्वेक्षण एवं अध्ययन (कोई पाँच), कोर्स वर्क की छ'माह की अवधि में पाँच सांगीतिक कार्यक्रमों की समालोचनात्मक समीक्षा।
5. शोध विषय संबंधित संक्षिप्त प्रायोगिक ज्ञान, शोध की मौलिकता, शोध ग्रंथों, शोध प्रबंध (प्रकाशित/अप्रकाशित) एवं पत्रिकाओं का समीक्षात्मक अध्ययन (संक्षिप्त रूप में)।

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT-LIBRARY & INFORMATION SCIENCE

Research Methodology

Unit-I Research & Research Design **Total 14 Lectures**

- Research-Concept, Meaning, need and process of research
- Research and development of scholarship
- Current trends in Library & Information science research
- Types of research-Fundamental & Applied including Inter-disciplinary and Multi-disciplinary approach.
- Research methods-Scientific methods, spiral scientific method, historical method, descriptive method, survey method, case-study method, experiment method and Delphi method.
- Research design & types of research design
- Identification and formulation of research problem
- Designing of research proposal

Unit-II Research Techniques & Tools **Total 18 Lectures**

- Literature search-print, Non-print and electronics
- Research techniques and tools
- Questionaire, schedule, interview, observation, sampling techniques
- Data analysis and interpretation Descriptive statistics-Measure of central tendency, Mean, mode and median, Tabulation and generalizations, Graphic presentation of data-Bar, Pie-line graphs Histograms, etc
- Research reporting-structure, style and contents
- Guidelines for research reporting
- Style Manuals-Chicago, MLA, APA etc
- Citation style footnote and reference, E-citation
- Use of MS Office in Research reporting
- Methods of Research Evaluation

Unit-III Bibliometrics, Scientometrics and informatrics Total 10 Lectures

- Bibliometrics, Scientometrics and information-Concept and definition
- Bibliographic Laws-Bradford, Zips and Lotka
- Bibliometric Studies-Bibliographic coupling, Obsolescence, citation analysis, Webometrics
- Citation studies
- Info-metrics

Unit-IV Digital & Virtual Libraries Total 10 Lectures

- Concepts, Historical Development, Definitions, Need, Characteristics & Merits-Demerits.
- Digitization: Concepts & Process including storage of file format (For all types of library materials).
- Content Management.
- Information repository & open source, Software for Developing Digital Library (D-Space, Greenstone etc.)
- Advanced internet practice Web 1.0 & Web 2.0, Applicationin, LIS Library index to internet Library resources useful to social sciences (Off line & On line).

Unit-V Review of Research Oriented Databases Total 08 Lectures

- Vidyanidhi, INFLIBNET, Thesis & Dissertation.Com, LISA, LISTA
- Current Trends in IT, Review of Web technology useful to LIS Digital Divide Metadata : Dublin Core, ISO2709, Z39.5, MARK 21 information searching modes, Boolean, Probabilistic, Cognitive models.

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LIBRARY AND INFORMATION SCIENCE

REVIEW OF LITERATURES

Max. Marks : 100 Min. Marks : 50

A candidate will be required to submit three-typed Hard copies and one soft copy of his/her review by the end of course work. The date for the submission of review will be announced by the University.

The Departmental Committee shall finalize the topic and other details of the review of each candidate.

The review shall be submitted only when the supervisor concerned is/are satisfied that the review is worthy of consideration in partial fulfillment of the Ph.D. Course work, provided that the application for submission of review shall also be countersigned by course Co-Ordinator/Head of the Department.

Supervisor shall evaluate the review and a report will be submitted to the University through proper channel.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT-PSYCHOLOGY

Research Methodology

Unit- I:

The meaning of methodology, The research process. Nature and types of variables. Techniques for controlling extraneous variables. Sources of bias. Types of Research : Descriptive, Relational, Experimental and Ex post facto. Methods of data collection : Questionnaire, interview, Observation, Case study.

Unit- II :

Conceptual framework of experimental design : between groups and within group designs. Quantitative methods : Nonparametric and parametric : non parametric : Sign test, Mann Whitney U test and Chi Square. Parametric test : Test, One Way and Two Way Analysis of variance Newman Keuls, Duncan multiple range test.

Unit- III :

Simple correlation, Biserial correction, Tetrachoric correlation, and partial correlation. Overview of simple and multiple regressions. Introduction to factor analysis.

Unit- IV :

Defining Qualitative research. How is qualitative research conducted ? Issues in conducting of qualitative research, Non reactive research or unobtrusive measures : The logic, purpose and definition and types of non reactive research. Research report writing in APA style.

Unit-V :

Introduction to Computer : History, Characteristics of Computer. Knowledge about internet use and search engines. Introduction to operating system-Windows. MS Office : MS Word, Excel, Power Point. Introduction to Statistical Package for Social Sciences (SPSS).

Recommended Readings :

Broota, K.D. (2003), Experimental design in Behavioral research. New Age International, New Delhi.

Kerlinger, F.N. (2000), Foundations of behavioral research. Wordsworth publication House : New York.

Swain, A.K. (2007), A text book on research methodology. Kalyani Publishers : New Delhi.

Newman, W.L. (1991), Social research methods : Quantitative and qualitative approaches. Allen Bacon : London.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT-BUSINESS ECONOMICS

Research Methodology

Unit First -

Nature and Significance of Social Science, Concepts of Social Science Research, Stages in research process, Hypothesis, Theory and facts of Social Science especially in Business Economics.

Unit Second -

The Design of Research, Methods of data collection, Experimental method, Historical method, Inter-disciplinary. The case study methods, Survey method, Technique of interviewing.

Unit Third -

Data processing, Analysis and interpretation of data, scaling techniques, Chi-Square Tests, Test of Singnificance.

Unit Four -

The reserach report, Meaning and purpose of a report, Target group in report writing, Contents of a report, Format of the reserach report, Qualities of good Research Report, Planning of the Report, Style in writing, Conclusion and Generalisation, Value Judgements.

Unit Five -

Introduction to Computer : History, Characteristics of Computer. Knowledge about internet use and search engines. Introduction to operating system-Windows. MS Office : MS Word, Excel, Power Point. Introduction to Statistical Package for Social Sciences (SPSS).

Recommended Readings :

1. Swain, A.K. (2007), A text book on research methodology. Kalyani Publishers : New Delhi.
2. Newman, W.L. (1991), Social research methods : Quantitative and qualitative approaches. Allen Bacon : London.
3. Cauveery : Sudha Nayak : Girija : Meenakshi : Research methodology : S. Chand & Company Ltd. New Delhi.
4. Triveni & Shukla : Research Methodology : College Book Depot Jaipur.

Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus of Pre-Ph.D. Course work

SUBJECT-ANCIENT INDIAN HISTORY CULTURE & ARCHAEOLOGY

Research Methodology

Unit-I

- Fundamental of Research. Identification and formulation of problems and hypothesis.

Unit-II

- Data collection- Library work,manuscripts, private and public collections.
- Data processing, Thesis writing.

Unit-III

- Documentation (Footnotes, Bibligraphy, Diacritical marks).

Unit-IV

Sources of Ancient Indian History.

- Vedic literature, Dharma-Shastra, Astadhyayi, Mahabhashya of Patanjali, Buddhist and Jaina literature.
- Epics and Puranas, Kautilya, Banbhatta, Kalhana, Rajshekhara, foreigner's account.
- Sculptures, monuments inscriptions and coins. Archaelogicals method of dating the past.

Unit-V

- Introduction to computer : Basic functioning of computer & associated components/peripherals. An overview of Operating System with special emphasis to Windows Operating System. Only basic features of MS-Word, MS-Excel (for data analysis & visualization) & MS-Power Point, Graphics & Drawing usingn computer (only introductory level of adobe Photoshiop), image compression: gif, jpeg, png formats, multimedia, digital arts, Audio & Video format, Internet and it's application: WWW, E-mail, Telnet & Ftp, Educational and research resources on net for Ancient History, Art, Architecture and Archaeology, E-Journals, E-Books, Digital Libraries, searching research information using J-Gate & Scoupus.

Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- ECONOMICS

Research Methodology

Unit First -

Nature and Significance of Social science, Concepts of Social Science Research, Stages in research process, Hypothesis, Theory and facts of Social Science especially in Economics.

Unit Second -

The Design of Research, Methods of data collection, Experimental method, Historical method, inter-disciplinary Approach, methods of data collection, Documentary sources, Observation, Schedule, Interview, Sampling. The case study methods, Survey method, technique of interviewing.

Unit Third -

Data processing, Analysis and interpretation of data, scaling techniques, Chi-Square Test : Test of Singnificance.

Unit Four -

The reserach report, Meaning and purpose of a report, target group in report writing, contents of a report, format of the reserach report, Qualities of good Research Report, Planning of the Report, style in writing, Conclusion and Generalisation, value Judgements.

Unit Five -

Introduction to Computer : History, Characteristics of Computer. Knowledge about internet use and search engines. Introduction to operating system-Windows. MS Office : MS Word, Excel, Power Point. Introduction to Statistical Package for Social Sciences (SPSS).

Recommended Readings :

1. Swain, A.K. (2007), A text book on research methodology. Kalyani Publishers : New Delhi.
2. Newman, W.L. (1991), Social research methods : Quantitative and qualitative approaches. Allen Bacon : London.
3. Cauveery : Sudha Nayak : Girija : Meenakshi : Research methodology : S. Chand & Company Ltd. New Delhi.
4. Triveni & Shukla : Research Methodology : College Book Dipo Jaipur.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- SOCIOLOGY

Research Methodology

Unit-I (Fundamentals of Research)-

Basic principles of research, concept, constructs and definitions. Theory building. Types of research. Planning of research, Variable, Major research designs, Type and steps in sampling design. Hypothesis (Formation, Types and testing) Objectivity in research, Ethics in research.

Unit-II (Major Approaches)-

Comparative, Historical, Ethnographical, Phenomenological, Participatory, Case study approaches.

Unit-III (Methods, Tools and Techniques) Qualitative-

Methods of primary data collection. Observation, case study, Social survey, interview, content analysis. Interview schedule, questionnaire. Collection of secondary data, use of library (Research books, monograph, periodicals, abstracts, documents) review of relevant literature.

Unit-IV (Computer Application For Research)-

Need of Computer in social science research. Word processing, Data processing, Graphical processing, Use of excel, Use of SPSS, Use of multimedia tools, Use of web-2 tools for research.

Unit-IV (Writing/documentation)-

Writing of good research proposal, Report and research paper. Stages in preparation, structure, documentation, foot notes, references and Bibliography.

SUGGESTED BOOKS :

1. Black Thomas (2001), Understanding social science research, sage publication, India Ltd. New Delhi.
2. Black, James, A. and Champion, Dean, J. (1976), Methods and issues in social research, John Wiley.
3. Coburn Peter and Others (1982), Practical guide to Computer in Education, Addison Wesley Publication company, California.
4. Creswell, John (1994), Research design : Qualitative and Quantitative Approaches, Sage Publication, India Ltd. New Delhi.
5. Durkheim Emile (1938), Rules of Sociological Methods, Free press.

6. Das lal, D.K. (2005), Design of Social Research, Rawat Publication, Jaipur.
7. Doby, J.T. (1953), et al., An Introduction to Social Research, Harrisburg : Stackpole Co., London.
8. Fern Edward (2001), Advanced focus Group Research, Sage Publication, India Ltd. New Delhi.
9. Gideon Sjoberg, Roger Nett (1992), A methodology for Social Research, Rawat Publication, Jaipur.
10. Gupta, S.C. (2001), Fundamentals of Statistics, Himalaya Publication, House, New Delhi.
11. Gupta, S.P. (1980), Statistical methods, S. Chand Publication, New Delhi.
12. Goode, W.J. and Hatt, P.K. (1952), Methods of Social Research, McGraw Hill, New York,.
13. Kidder Louise H. (1981), Research Methods in Social Relations, Holt, New York.
14. Lundberg, G.A. (1946), Social Research, Longman Publication, New York.
15. Shah, V.F. (1977), Research Design, Rachna Prakashan, Ahemadabad.
16. Silverman, ed. (1997), Qualitative Research, Sage Publication, India Ltd. New Delhi .

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- POLITICAL SCIENCE

Research Methodology

Unit-I

What is Research, Nature of Research- Pure and Applied Research. The Scientific Method : History, Steps Methods and its techniques. Different Component of Comparative & Historical Method.

इकाई–1

अनुसंधान क्या है ? अनुसंधान की प्रकृति–विशुद्ध तथा व्यावहारिक शोध, शोध की वैज्ञानिक प्रविधि : इतिहास, इसके प्रकार, विधियाँ एवं तकनीक। तुलनात्मक एवं ऐतिहासिक प्रविधि के घटक।

Unit-II

Formulation of Research Design-Hypothesis and Concepts, Survey and Limited use of statistics. Use of MLA & APA Style, Bibliography & Citations.

इकाई–2

शोध रूपरेखा का प्रतिपादन–उपकल्पनाएँ एवं अवधारणाएँ, सर्वेक्षण एवं सांख्यिकी का एक निश्चित सीमा में उपयोग, एम.एल.ए. एवं ए.पी.ए. स्टाइल का उपयोग, ग्रंथसूची एवं उद्धरण।

Unit-III

Sources of data and their collection-Primary and Secondary data, Content Analysis, Measurement of Attitude, Method of Sampling, Questionnaire, and Schedules.

इकाई–3

तथ्यों के स्त्रोत तथा उनका संकलन–प्राथमिक तथा द्वितीयक तथ्य, अन्तर्वस्तु विश्लेषण, मनोवृत्ति का मापन, निदर्शन की विधियाँ, प्रश्नावली, एवं अनुसूचियाँ।

Unit-IV

Technique of Field Work-Participant and Non Participant, Participatory Rural Appraisal (PRA Technique), Observation, Case Study, and Life History and Interview (Tele & Video Interview).

इकाई–4

क्षेत्रीय कार्य की प्रविधि– सहभागी तथा असहभागी, सहभागी ग्रामीण समीक्षा (पी.आर.ए. तकनीक), अवलोकन, केस स्टडी, एवं जीवनवृत्त तथा साक्षात्कार (टैली एवं वीडियो साक्षात्कार)।

Unit-V

Fundamental of Computer, MS-Office (Word, Excel & Power Point), To Prepare Power Point presentation, INTERNET. Use of Computer for Report writing and Research article, Review of relevant books and article, features of good Report Writing.

इकाई–5

कम्प्यूटर का आधार, एम.एस. ऑफिस (वर्ड, एक्सल, पावर प्वाइंट), पावर प्वाइंट का प्रस्तुतीकरण तैयार करना, इंटरनेट, प्रतिवेदन लेखन एवं शोध लेख हेतु कम्प्यूटर का उपयोग, उपयुक्त पुस्तकों तथा लेखों का अनुशीलन, प्रतिवेदन लेखन की विशेषताएँ।

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अवधेश प्रताप सिंह विश्वविद्यालय, रीवा

(पी.एच.डी. पूर्व पाठ्यक्रम)

विषय–इतिहास

शोध प्रविधि

Research Methodology

Unit-I

Meaning and Definition of Research, Characteristics of Research, Subject matter of Research. Nature of study. Pure and Applied Research, Research formulation; Deductive Research, Descriptive Research, Curative Research, Experimental Research.

इकाई–1

अनुसंधान का अर्थ एवं परिभाषा। अनुसंधान की विषेषतायें, अनुसंधान की विषय वस्तु, अध्ययन की प्रकृति, विषुद्ध एवं व्यावहारिक अनुसंधान, अनुसंधान की प्ररचना, प्रतिपादनात्मक अनुसंधान, विवरणात्मक अनुसंधान, निदानात्मक अनुसंधान, प्रयोगात्मक अनुसंधान।

Unit-II

Nature and Concept of Research; Panel studies, Case studies, Regional studies, Historical methods and Experimental methods, Science and Scientific methods, General Research, Steps in scientific Thinking- Scientific methods and History.

Common sense and scientific concepts, Sampling Hypothesis and concept.

इकाई–2

अनुसंधान की प्रकृति एवं प्रवृत्ति– व्यष्टि सूची अध्ययन, वैयक्तिक अध्ययन एवं क्षेत्रीय अध्ययन, ऐतिहासिक पद्धति एवं क्रियात्मक पद्धति, विज्ञान एवं वैज्ञानिक पद्धति, सामान्य शोध, वैज्ञानिक चिन्तन के चरण– वैज्ञानिक पद्धति एवं इतिहास, सहज बुद्धि एवं विज्ञान अवधारणाएं, निर्दषन उपकल्पनायें।

Unit-III

Data collection and Analysis, Meaning nature andn type of Data, Difference between Primary and Secondary data, Source of Data- Use pf Mechanical aids- Tape recorder, Puncture, Verifiers, Sorters etc. Methodology of collection of Data,- Questionnaire and schedules, Observations-participants and non Participants observations, Interviewing, Use of life histories etc.

Data analysis, Type of Data analysis, Research report writing and Publication, Tabulation.

इकाई–3

तथ्य (आकड़ों) का संकलन एवं विष्लेषण, आकड़ों का अर्थ, आकड़ों के स्वरूप एवं प्रकार, प्राथमिक एवं द्वितीयक आकड़ों के उत्तर। आकड़ों स्त्रोत–यांत्रिक साधनों का प्रयोग, टेपरिकार्डर, पंचर, वेरिफायर्स, सोर्टर, सामग्री संकलन प्रविधियां, प्रष्नावली और अनुसूचियां, अवलोकन, सहभागी एवं असहभागी निरीक्षण, साक्षात्कार, जीवन इतिहास का प्रयोग आदि।

तथ्य विष्लेषण, विष्लेषण के प्रकार, अनुसंधान प्रतिवेदन लेखन एवं प्रकाषन, सारणीयन।

Unit-IV

Statistical Research, Meaning and extent of Statistical Research, Planning of Statistical Research.

Tabulation of Data and Graphical Presentation, Mean, Median and Mode, Simple Mean and Variance. Correlation and Correlation coefficient, Chi- Square, Test of Significance.

इकाई–4

सांख्यकीय अनुसंधान, सांख्यकीय अनुसंधान के अर्थ एवं क्षेत्र, सांख्यकीय अनुसंधान की योजना, आकड़ों का सारणीयन एवं ग्राफ द्वारा प्रस्तुतीकरण, माध्यमान, मध्यिका, बहुलक, सामान्य मध्यमान एवं विभेद, कोरिलेषन एंव कोरिलेषन कोएफिषिएन्ट, काई स्क्वेयर, टेस्ट आफ सिग्निफिकेन्स।

Unit-V

Fundamental of Computer, History, Characteristics of Computer, Knowledge about Internet. Use and search engines, Introduction to Operating system- Windows, MS-Office (MS-Word, Excel & Power Point), Introduction to statistical package for Social Sciences (SPSS).

इकाई–5

कम्प्यूटर का आधार, इतिहास, कम्प्यूटर की विषेषताएं इंटरनेट उपयोग एवं सर्च इंजिन की जानकारी, आपरेटिंग सिस्टम की भूमिका विण्डोज, एम.एस. ऑफिस (वर्ड, एक्सल, पावर प्वाइंट), सामाजिक विज्ञान में उपयोग में आने वाले सांख्यकीय पैकेज की जानकारी

Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- GEOGRAPHY

Research Methodology

Unit-I

Concept of research in social sciences, Nature of geographical research approaches in Geography, Selection of case studies, Stages of research.

Unit-II

Identification of research problems, Specification and Objectives of research, Making of hypothesis, Types of hypothesis and Confidence levels, Survey of Literature and preparation of bibliography and reference materials, Methods of review of Literature.

Unit-III

Nature of Geographical data and information, Sources of primary and Secondary data, Topographical sheets, Selection of indicators and variables, Questionnaire, Schedule and interview.

Unit-IV

Sampling design, Sampling and types and procedure, Standard error and testing. Tabulation of data, Comparison of samples-parametric (T&F) and Non-parametric test (Chi square test), Interpretation of data.

Rearrangement of Central tendencies and dispersion, variance, Correlation & Regression.

Unit-V

Computer Applications, Operation of MS Word, MS Excel, Power Point presentation, Word conversion to PDF, Functions of save as file transfer data, mail merge.

Use of Excel for simple statistical calculations of Central Tendency, S.D. Correlation, Regression, Preparation Graphs & Diagrams, Use of SPSS-for calculation of above.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- MATHEMATICS

Research Methodology

Unit-I : Basics of Research Methods-

Concept of Research : Definition and Objective, Research Approach and Types of Research, Criteria of good Research, Defining Research Problems. Research Design : Features of good Research Design, Different Research Designs with reference to Mathamatics. Structure and Components of Research report /Papers/ Thesis Skills for scientific presentations.

Unit-II : Complex Mainfolds-

Almost complex Manifolds, Nijenhuis Tensor, Eigen Values of an Almost Complex Structure, Existence Theorem and Integrability Condition of an Almost Complex Structure, Complex Manifolds, Almost Hermitian Manifolds, Some well known classes of almost Hermitian Manifolds (Almost Kaehler Manifolds, Kaehler Manifolds, Nearly Kaehler Manifolds, Para-Kaehler Manifolds) and their Curvature Properties.

Unit-III : Cosmology-

Heuristic Derivation of Einstein's Field Equations, Newtonian Approximation of Einstein's field Equations. Schwarzschild External Solution, Energy Momentum Tensor of Perfect Fluid, Schwarzschild Internal Solution, Friedmann-Robertson-Walker Cosmological Models with Cosmological Constant ; de-Sitter Model, Lemaitre Model, Eddington-Lemaitre Model. Exact Solution Connecting Radiation and Matter Dominated Eras of the FRW Models.

Unit-IV : Special Functions-

Gamma, Beta and Related Functions. Gaussian, Confluent and Generalized Hypergeometric Functions, The E-, G-, H-Function of One, Two and Severable Variables with their Properties, Special Cases and Derivatives, Hypergeometric Function of Two Several Variables, Classical and Other Orthogonal Polynomials with their Generalizations, Generating Functions, Some Useful Lemmas.

Unit-V : Fixed Point Theory-

Definition and Examples of Fixed point and Common Fixed point, Contraction Mapping, Contractive Mapping, Non-Expansive Mapping, Lipschitz Mapping, Relation between these Mappings and Continuous Mapping, Banach Contraction Principle and its Generalizations, Fixed point Theorem of Brouwer and Schaunder, Fixed point theorem for Multifunctions.

Reference Books :

1. C.R. Kothari, Research Methodology-Methods and Techniques, New Age International Publisher, New Delhi, 2004.
2. R.A. Day and B. Gastel, How to Write and Publish, Cambridge University Press.
3. L. Blaxter, C. Hughes and M. Tight, How to Research, Viva Books.
4. P. Clough and C. Nutbrown, A Student guide to Methodology, Sage Publications.
5. M. Alley, The Craft of Scientific Writing, Springer.
6. K. Yano and M. Kon, Structures on Manifolds, World Scientific, 1984.
7. D. E. Blair, Riemannian Geometry of Contact and Symplectic Manifolds, Progress in Mathematics, Vol. 203, Birkhauser Inc., Boston, MA, 2002.
8. R.S. Mishra, Structures on Differentiable Manifolds and their Applications, Chandrama Prakashan, Allahabad, 1984.
9. U.C. De and A.A. Shaikh, Complex Manifolds and Contact Manifolds, Narosa Publishing House, New Delhi, 2009.
10. R. Adler, M. Bazin and Schiffer, Introduction to General Relativity, McGraw-Hill, 1965.
11. S.R. Roy and Raj Bali, Theory of Relativity, Jaipur Publiching House, 1987.
12. J.V. Narlikar, General Relativity and Cosmology, Macmillan, 1978.
13. Edward R. Harrison, Cosmology : the Science of the Universe, Cambridge Univ. Press, 2000.
14. H.M. Shrivastava and H.L. Manocha, A Treatise on Generating Functions, Ellis Harwood Limited, John Wiley and Sons, New York, 1984.
15. H.M. Shrivastava, K.C. Gupta and S.P. Goyal, The H-function of one and Two Variables with applications, South Asian Publishers, New Delhi, 1982.
16. M.C. Joshi and R.K. Bose, Some Topics in Non-linear Functional Analysis, Wiley Eastern Ltd. New Delhi. 1985.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- PHYSICS

Research Methodology

Unit-I : Basics of Research Methods-

Concept of Research : Definition and Objective, Research Approach and Types of Research, Criteria of good Research, Defining Research Problems.

Research Design : Features of good research design, Different Research Designs with reference to Physics. Basic Principles of Experimental Research Designs. Structure and Components of Research report / Papers / Thesis. Skills for Scientific Presentations.

Unit-II : Basics of Computers-

Anatomy of Computers and their Classification : Input and Output Devices. Concepts of Computerware, Language processors and Computer Languages. Introduction to Operating Systems : Windows Operating System, Concept of OLE. Basics of MS Office : MS Word, MS Excel and MS Power Point. Internet and E-mail basics, Web Search Engines.

Unit-III : Quantitative Methods-

Nature and purpose of Mathematical Statistics, Tabulation and Statistical Interference - Tabular and Graphical Representation of data. Bar, Pie and Radar diagrams. Sample Mean and Variance, Correlation and Correlation Coefficients, Random Sampling. Introduction to random and pseudo random numbers, Random Number Generators. Estimation of Parameters, Confidence Intervals. Types of Errors and its scope in research, Goodness of fit, chi-square test, Method of least squares, fiting straight lines and polynomials. Data analysis using Fourier techniques. Idea of convolution and de-convolution.

Unit-IV : Experimental Methods in Material Research-
Materials Preparation Methods

General Idea of preparation of Crystalline, nano-crystalline and polymeric materials including films : Solid State Reaction method, Wet Chemical method, Solution Cast technique, Electrodeposition methods : Dip-coating method, Spin coating method. Elementary idea of Vacuum technology and Vacuum coating methods (Elementary idea only).

Materials Characterisation Techniques-

Elements of Experimental tools in Materials Research. Concept of Interferrometry and application to measurement of film thickness. Basic principles and applications of XRD, SEM, DSC, TEM, FTIR, NMR Impedance Spectroscopy.

Unit-V : Modelling and Observational Techniques in Space Science-
Theoretial Modelling Methods

Bisection Method, Runga-Kutta method and Simpson's Rule. General idea of Mathematical Modelling and Simulation - Monte Carlo technique, Random Walk Problem.

Methodology of Space Research-

Telescope Observations. Optical and Radio Telescopes. Ground based and Satellite Observations. Solar, Interplanetary and Geomagnetic parameters. Cosmic Ray Detectors. Extracting Scientific Information from Space Data.

Reference Books :

1. Research Methodology- Methods and Techniques : C.R. Kothari, New Age International Publisher, New Delhi (2004).
2. How to write and Publish : R.A. Day and B. Gastel, Cambridge University Press.
3. How to Research : L. Blaxter, C. Hughes and M. Tight Viva Books.
4. A Student Guide to Methodology : P. Clough and C. Nutbrown, Sage Publications.
5. The Craft of Scientific Writing : M. Alley, Springer.
6. Fundamentals to Computers : V. Raja Raman (PHI).
7. Computer Fundamentals : P.K. Sinha and Priti Sinha (BPB Pub. New Delhi).
8. Internet Concepts, Problems & Solutions : V.P. Singh & Meenakshi Singh (Asian Publishers).
9. Computational Physics - An Introduction : R.C. Verma, D.K. Ahluwalia and K.C. Sharma, New Age Publisher (1999).
10. Computer Oriented Statistical & Numerical Method : E. Balaguwswami, Macmillan India Ltd.
11. Introductory Methods Numerical Analysis : S.S. Shastry (PHI).
12. Numerical Methods for Mathematics, Science & Engineering : J.H. Mathews (PHI).
13. Handbook of Semiconductor Electrodeposition : R.K. Pandey, S.N. Sahu and S. Chandra. (Marcel Dekker Inc., New York).
14. Experimental Methods in Modern Physics : A.P. Mellissinos.
15. Semiconductor Measurements : Runyan.
16. Instrumental Methods of Analysis : Willard, Merit.
17. Principles of Instrumental analysis : Skoog & Leary.
18. Discovering Astronomy : R.R. Robbins & W. Jeffseys John Wiley & Sons.
19. Astronomy : Baker.
20. Solar Terrestial Physics : Akasapn & Chapman.
21. Source Book on Space Science : Glastone.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- CHEMISTRY

Research Methodology

Unit-I : Computer application-

Using Computers : Importing and exporting of computer data- a knowledge of PDF and HTML formats, using notepad/word pad, MS Access and Adobe Page Maker, Basic knowledge of programming and data processing, Two dimensional and three dimensional plots, Using Excel and Origin for graphical representations and computation, using SPSS and Mat lab, using Internet and search engines, using power-point /flash/video for making deliberations.

Application of programming in chemistry-

Determination of lattice energy of a crystal using Born-Lande Equation, Programm to obtain the value of atomic mass unit in Me V and to determine the bonding energy of a nucleus or a particle. Applications in chemical and statistical thermodynamics, Program to obtain heats of reactions, program to obtain the rotational partition functions for molecules, program to determine equilibrium constants using partition functions, Determination of molecular weights of organic compounds by various experimental methods, Calculation of the wave length maximum for conjugated dienes and Enones.

Unit-II : Quantitative approaches in research methodology-

Quantitative approaches in research methodology : Statistical tools and approaches, Testing confidence limits, normal binomial and Poisson distribution, Method of least square and successive approximation, Correlation and Regression - Linear and non linear; Multiple variable matrix and its analysis, Drawing of good fit lines, slopes, Correlation coefficients and their significance.

Separation Techniques - I : Introduction to basic separation techniques, general and fundamental concepts of chromatography, basic principles and application of thin, column, ion exchange and gel permeation chromatography techniuqes for qualitative and quantitative analysis.

Separation Techniques - II Theroy and applications of TLC-FID methods, basic theories, instrumentation and applications of gas - liquid and high performance liquid chromatographic techniques.

Unit-III : Application of Spectroscope Techniques in chemical research-

Advanced treatment of IR and UV visible Spectroscopy, Luminescence Spectral Studies, Mass spectrometry at advanced level, NMR and ESR Spectrometric application; CD and ORD treatment at advanced level Laser Spectroscopy ; Photoelectron Spectroscopy ; Mossbauer Spectroscopy ; Raman spectroscopy.

Basic Instrumentation-

Basic instrumentation, detectors : sensors and transducers, digital and analog instruments, microprocessor based system - spectrophotometers, atomic absorption/flame photometers, Brief introduction of packages, tailoring of plots, and hyphenated (coupled) devices of measurements.

Unit-IV : Electrochemical Techniques-

Polarography; Chronopotentiometry ; Chronoamperometry, Linear potential Sweep Voltametry; Cyclic Voltametry, Impedance measurement ; AC Voltametry, Electrolytic and controlled current methods.

Unit-V : Bioorganic and Biophysical chemistry-

Thermodynamics in Biochemistry (Fundamentals and Applications) ; Biopolymers (Protiens, Enzymes, DNA, Carbohydrates); Biomembranes (Structure and Fuction); Active transport and passive transport multiple equlibria, Specific examples of multiple equlibria, Transport processes; General features of transport processes; Optical system for the study of transport processes, Self organizing systems (Micelles, Lipids, Cyclodextrins, Liquid crystals, Reverse micelles, coacervates, proteins etc.) their interactions and solutions, properties preparation, Characterization and Application of nanoparticles.

Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- COMPUTER SCIENCE

Research Methodology

Unit-I

Introduction to Computer Science Research -

What is Research ?, Types of Research, Why Research, Significance & Status of Research in Computer Science. Steps in Research : Having grounding in Computer Science, Major Journals & Publications in Computer Science, Major Research areas of Computer Science, Identification, selection & formulation of research problem, Hypothesis formulation, Developing a research proposal, planning your research, The wider community, Resources and tools, How engineering research differs from scientific research, The role of empirical studies.

Unit-II

Qualitative Reasoning -

Qualitative Representations, Representing Quantity, Representing Mathematical Relationship, Ontology, State, Time and Behaviors, Space and Shape, Compositional Modelling, Domain Theories, and Modelling Assumptions, Qualitative Reasoning Techniques, Model formulation, Causal Reasoning, Comparative Analysis, Teleological Reasoning, Simulation : What is simulation ? How a simulation model works ? Time & randomness in simulation. Applications of simulations.

Unit-III

Basis of Computer Science Research -

Introduction to Formal models and Computability : Turing Machine & Computability, Undecidability, Diagonalization and Self-Reference, Reduction. Introduction to Basic Techniques for Designing Algorithms : Divide-and-Conquer, Dynamic Programming, Greedy, Analysis of Algorithms. Complexity Theory : Resources and Complexity Classes, Relationship between Complexity Classes, Reducibility and Completeness, P vs NP problems.

Unit-IV

Research Data -

What is data, Mathematical statistics and computer science views on data analysis, An Introduction to Data Mining, Data warehousing and Machine learning techniques. Concept

Learning, Mining frequent patterns, Associations, and Correlations, and Prediction Method for aggregation and visualisation : Principal components and clustering, a typical case study for machine learning / data mining techniques.

Unit-V

Literature Survey -

Finding out about your research area, Literature search strategy, Writing critical reviews, Identifying venues for publishing your research.

Writing Papers and Review Process -

Preparing and presenting your paper. The conference review process, Making use of the referees' reports, the Journal review process, Group exercise in reviewing research papers.

Thesis Writing -

Planning the thesis, writing the thesis, Thesis structure, writing up schedule, the Oral examination and Viva Voce.

Only for additional reading :

Ethical issues and Professional Conduct-

Ethics in Professional issues, Ethical Issues that Arise from Computer Technology, General Moral Imperatives, More Specific Professional Responsibilities, Organizational Leadership Imperatives.

REFERENCES :

1. Research Methods by Francis C. Dane, Brooks/ Cole Publishing Company, California.
2. Basic of Qualitative Research (3rd Edition) by Juliet Corbin & Anselm Strauss, Sage Publications (2008).
3. The Nature of Research : Inquiry in Academic Context by Angela Brew, Routledge Falmer (2001).
4. Research Methods by Ram Ahuja, Rawat Publications (2001).
5. The Computer Science and Engineering Handbook by (Editor-in-Chief) by Allen B. Tucker, jr. CRC Press, a CRC Handbook published in co-operation (only relevant parts of Chapter-2, Chapter-3, Chapter-4, Chapter-9, Chapter-10 & Chapter-32).
6. Machine Learing by Tom M. Mitchell (McGraw-Hill International Edition, 1997).
7. Han, Kamber, "Data Mining Concepts and techniques", Morgan Kaufmann

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- GEOLOGY

Research Methodology

Unit-I

1.1 Objectives and types of research problems.

1.2 Type of research processes and steps in research methodology.

1.3 Formulation of hypothesis.

1.4 Research : need, concept, planning and designing.

Unit-II

2.1 Literature survey and review.

2.2 Collection of data and their analysis.

2.3 Preparation of geological maps and thin sections.

2.4 Field and photo micrograph.

Unit-III

3.1 Application of remote sensing and GIS in Earth Science.

3.2 Basic idea of GPS and application.

3.3 Identification of Minerals and Rocks.

3.4 Hydro geological parameters of different geological formations. Water quality parameters and their geological representation. Water Table Maps. Watershed management.

Unit-IV

4.1 Basic statistical methods (Mean, Mode, Median and correlation) used in Earth Science.

4.2 Preparation of research papers. Types of references.

4.3 Seminars and workshops.

4.4 Formats for writing of Thesis.

Unit-V

5.1 Application of Computer in Geology : Basic idea of Computer, Parts of

Computer.

5.2 Storage devices, RAM, ROM, DOS (Disk Operating system)

5.3 Application of software package : MS-Word, Excel, Power Point Presentation.

5.4 Geological Software : Ilwis 3.4 & 3.7.

Reference Books :

1. Ground water Assessment Development and Management K.R. Karanth
2. Ground water Survey and Investigation Gautam Mahajan
3. Mineralogy Brian Mason
4. Statistical Method in Geology R.N. Hota
5. Remote Sensing and Image Interpretation Kiefer

Journal :

1. Geological Society of India, Bangalore
2. Gondwana Geological Magazine, Nagpur
3. Earth System Science, Bangalore
4. Current Science, Bangalore
5. International Journal Earth Science
6. Journal of Hydrogeology and Hydrology, Vishakhapatnam

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- HOME SCIENCE

Research Methodology

1. Introduction and Research Design -

Nature, objectives and significance of research, Types of research : Historical, Experimental. criteria for good research. Meaning of research design, Need of research design, features of good design, Different research design, Experimental design, randomized block design, Latin square design, factorial design.

2. Data Collection & Analysis -

Types of data, Methods and Techniques of data collection, Primary and Secondary data, Meta-Analysis. Historical methods, Content analysis, Devices used in data collection. Pilot study and Pretext of tools, Choice of data collection methods.

3. Processing and Analysis of Data -

Measures of Central tendency, Measure of Dispersion, Measures of Variation. Measures of Central Tendency vs. Measures of Dispersion, Normal distribution, Measures of Skewness and interpretation, Correlation and Regression : Types & applications, Chi-square test : its purpose and use.

4. Paper writing and report generation -

Basic concept of Paper / Thesis writing and report generation, Writing Research Abstract, Introduction, Review of literature. Result, Conclusion, Concepts of Bibliography and references; significance of report writing, steps of report writing, Types of Research reports. Methods of presentation of report. Format of publication in research general.

5. Computer Application -

Application of Computer in research. Generating charts/graph in Microsoft Excel, Power Point presentation, Web Search : Introduction to Internet, Use of internet and WWW. Using search engine like Goggle, Firefox, Yahoo etc.

Reference Books : -

1. Kothari, C.R. : Research Methodology (Methods and Techniques), New Age Publisher.
2. Donald H. Cooper, Pamela S. Schindler: Business Research Methods, 8/e Tata McGraw Hill Co. Ltd.
3. Bendat and Piersol: Random data, Analysis and Measurement Procedures. Wiley Interscience.
4. Raymond Greenlaw, Inline/Online : Fundamentals of the internet and the World Wide Web, Tata McGraw-Hill Co. Ltd.
5. John W. Creswell, Research design, SAGE : Publication, INC.
6. Trivedi R.N. & Shukla D.P. Research Methodology, College Book Depot., Jaipur.
7. Bill Taylor, Gautam Sinha & Taposh Ghoshal, Research Metholody. Prentice Hall of India Private Ltd., New Delhi.
8. Garrett, Henry E. (1971) Statistics in Psychology research.
9. Edwards : Experimental Design in Psychological research.
10. Kerlinger : Foundation of Educational Research.
11. SPSS/PC for the IBM PC / Xt. SPSS Inc.
12. Goyal: Mathematical Statistics.
13. Levin Statistics for Management.
14. Chouhan: Statistics for Business and Economics.
15. Thamligom: Research methodology.
16. Anusandhan Vidhiya by Parasnath.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- ENVIRONMENTAL BIOLOGY

Research Methodology

(Max Marks 100)

Unit-I

* Meaning ,objectives and types of research, Basic Principles of experimental design.Interpretation and Report Writing.
* Science of sampling, need of sampling,sample size and its determination. Random and non-random sampling.
* Plant and Animal sampling,Community analysis, IVI, Indices of species diversity, Richness and Similarity index.

Unit-II

* Analytical methods: Micrometry, Gravimetry, Chromatography, Electrophoresis, HPLC, GLC.
* Spectroscopic technique of Analysis, Spectrophotometer- single and double beam. Atomic Absorption Spectrophotometer, Flame photometer.
* Air Pollution monitoring, technique, Gaseous and particulate sampling. High Volume air sampler. Respirable dust sampler. Water sampling technique, Water quality analysis.
* Estimation of productivity- Primary and Secondary productivity.

Unit-III

* Microbial culture sterilization techniques, Culture media-types and preparation, colony counting techniques.
* Identification and enumeration of microorganisms, Preservation, storage and maintenance of microorganism.
* Determination of MPN, confirmatory tests.
* Microscopic study of blood cells, cell organells, spores etc.

Unit –IV

* Basic elements and tools of statistical analysis, Measures of central tendencies-mean ,mode,median, standard deviation, Planning and execution of survey, Test of significance, students ‘t’ test, chi-square test, correlation and regression analysis. Probability distribution, Analysis of variance-one and two way classification.

Unit -V

* History and development of Computers. Hierarchy of Computers.
* Computer hardware ,Components and functional structure.

* Computer softwares- MS Windows, MS office 2003-07/XP including , MS word, MS Excel, MS Powerpoint.
* Designing of document and file handling. Database management.
* Basic idea of Internet, E-mail.

Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- ZOOLOGY

Research Methodology

Unit-1

Fundamentals of Research -

Biological Problems and Assumptions, Search of Research Problems, Ethics in Biological Research, Objectives, Purpose, Characteristics, Types of Research processes and steps in research methodology, Formulation of hypothesis, its types and testing. Research proposal and concept. Research planning, designing, need and concept. Role of research in advancement of science. Rules of maintaining the biosafety in the laboratory.

Unit-2

(A) Principles of Biological Research -

Sampling and field methods, Physico-chemical analysis of water, air and soil. Estimation of Primary and Secondary productivity, Estimation of Biomass and gross productivity. Qualitative and Quantitative analysis, Collection, Preservation, Staining, Mounting and Identification of vegetation and animals. Maintaining of live animals for experimentation. Study of life cycles and Construction of life tables.

(B) Instruments : Principles and applications-

Microscope, Incubator, Hot air oven, Laminar air flow, Soxhlet, Spectrophotometer, Colorimeter, pH meter, B.O.D., Centrifuge, Electrophoresis, Microtome, Electronic Balance, Chromatography, Cryotomy, Staining, Microphotography etc.

Unit-3 Literature Survey and funding Agencies –

Literature collection, Documentation, Indexing, Library use, Cross references, Research Designing, Project Formulation and Report preparation. Tools and Techniques of Data Collection - Observation Schedule, Questionnaire, Interview and Case study methods, Analysis and Presentation. Scientific writing, Proof-correction and techniques in scientific illustrations and Photography, Mathematical modelling, Remote Sensing etc. Knowledge of Oral Communication, Conferences, Seminars, Symposia, Workshop, Exhibitions, etc. Information of various funding agencies.

Unit-4 Statistics in Biological Research -

Mean, Median, Mode, Standard deviation and Standard error. Binomial, Poisson and Normal distributions. Law of probability and Analysis of variance (ANOVA), Histograms, Frequency curve, Frequency polygon, Bar diagrams and Pie diagrams. Simple, Random and Stratified sampling. Tests of significance (t, f and chi square), Correlation and Regression.

Unit-5 Application of Computer in Research -

Computer, Computer-Programs, Algorithms, Flow charts, Pseudo codes, Computer Software- its types, Acquiring software development, Computer Languages, Operating Systems, Command interpretation. Applications of Software packages and Word processing packages ; MS Word, Excel and Power Point. Graphics packages, Spread sheet packages and Statistical analysis packages.

List of Books -

1. Chemical and Biological Methods for Water Pollution Studies. R.K. Trivedi and P.K. Goyal
2. Cell and Molecular Biology - De Roberties and De Roberties.
3. Manual of Freshwater Biota - Duttamunshi and Duttamunshi.
4. Introduction to Biostatistics - P.K. Banerjee.
5. Methods in Limnology - A.D. Adoni.
6. Text Book of Medical Physiology - Guyton and Hall.
7. Fundamentals of Statistics - D.M. Elhance.
8. Biostatistics and Computer Application - R. Goswami.

Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- BOTANY

Research Methodology

Unit- I

Scope & significance of Research, Historical review, Biological problems and assumption, Search of research problem, Reference and literature search, Records and presentation of data, Research papers, Abstracts and other literature, Rules for maintaining Biosafety in the laboratory.

Unit- II :

Instrumentation - Principle and Application : Research microscope, Autoclave, Hot Air oven, Laminar flow, Calorimeter, pH meter, Soxhelt, BOD, Centrifuge, Electrophoresis, Electronic balance Chromatography, Spectrophotometer, Microtome, Cryotomy Staining Microphotography, Air Sampler.

Unit- III :

Methods of sterilization (dry heat,wet heat gradation, Chemical & filteration etc.). Technique of plant tissue culture, Field survey, Plant collection and Identification key preparation, Conservation technique for plant material, Bio-chemical & phytochemical technique, Soil & Water Analysis.

Unit- IV :

Biostatistics - Mean, Median, Mode, Histogram, Frequency Curve, Frequency Polygons, Standard Deviation & Standard Error, Analysis of variance, Bio-nominal Distribution, Test of Significance (t-test, chi-square test, Probability, ANOVA, Basics of Correlation and Regression analysis.

Unit- V :

Computer Application: Introduction to Computer fundamental (MS Word, Power Point, Excel,) Application of Computer in Bio-statistical problem, Biological Data Type, Classification of biological data base sequence, Data base, Gene bank swiss-proy, Protein sequence data base, Bio-informatics :- Definition, role and limitation.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- MANAGEMENT

Research Methodology

Unit- I

An Introduction to Research Methodology: Meaning, Objectives, Significance, Importance and Scope of Research in Management ; Review of Literature.

Unit- II :

Research Design : Meaning, Need and Features of a Good Research Design ; Types of Research ; Sampling Design ; Measurement and Scaling Techniques ; Hypothesis : Meaning and its Formulation.

Unit- III :

Data Collection : Methods and Types of data Collection ; Processing of data- Editing, Coding, Classification, Field work and Tabulation of Data.

Unit- IV :

Analysis of Data : Utility and Importance of Statistics in Research ; Measures of Central Tendency and Dispersion ; Measures of Asymmetry (Skewness) ; Correlation and Regression ; z - test ; t - test ; F - test ; Chi - square test ; ANOVA.

Unit- V :

Interpretation and report Writing : Meaning, Technique, and Precautions in Interpretation ; Significance and Different Steps in report Writing ; Layout of the Research Report ; Basics of MS Office - Word, Power Point and Excel ; Research related Software like SPSS and others.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- LAW

Research Methodology

Unit-I

Meaning of Research - Purpose, Characteristics and Types of Research. Legal Research : Meaning and its kinds, Basic principles of research, Legal reasoning, facts, concepts, constructs and definitions : Process of Research : Identification and formation of research problem, Formulation of Hypotheses - Type of Hypotheses, Methods of testing Hypotheses.

Unit-II

Elements in Research methodology- Doctrinal and non doctrinal method, Utility of empirical research in law, Techniques and tools of data collections - observation, schedule, questionnaire, interview and case study method. Analysis of data.

Unit-III

Ethics in legal research, A brief idea about the funding agencies such as SSRC, ICHR, ICSSR, UGC and others. Role of IPR in research, sampling designs, scaling techniques. Basic knowledge of organizing conferences, symposia, workshop etc.

Unit-IV

Writing of Research Proposal, Report and Research Paper : Meaning and types - Stages in preparation, Characteristics, Structure, Documentation : Footnotes and Bibliography. Editing and evaluating the final draft - Checklist for a good Proposal / Report / Research paper.

Unit-V

Using Computers in Research : Basics of operating systems -

(i) Literature survey using web, handling search engines (ii) Computer usage for collecting / analyzing data (iii) Preparing presentations - (a) Research papers : Using word processing software - MS word, others, Drawing graphs and diagrams - Origin / Excel / Others. (b) Seminar presentations - Power Point for oral presentation, Review of Research Work.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- EDUCATION

Research Methodology

Unit-I

- Educational Research as a scientific process : Meaning, need and nature of Educational Research.
- Type of Educational Research : Historical, Experimental, Descriptive and Social survey based.
- Sources of problem / Topics of educational research. (Criteria for selecting a problem / Topic).
- Redefining the problem / Topic.
- Stating the objectives of research.

Unit-II

- Role of related literature in educational research.
- References and resources of educational research.
- Types for research strategies on the Internet or Computer data base.

Unit-III

- Hypothesis, Meaning, Classification, Statement & Charecteristics of Hyothesis.
- Sampling - Meaning and Nature, Steps in sampling design, Types of Sampling.
- Statistics in research - Concept ; meaning, Nature and need of statistical application and Error, Technique of Statistical comparison of data (t- test, Anova, chi Square, Correlation and Regression etc.)

Unit-IV

- Writing research proposal.
- Methods of Educational research.
- Data collection and analysis.

- Findings and interpretation.

Unit-V

- Knowledge of operation of a computer System.
- Graphical & Tabular presentation of research data.
- Internet exploration - Internet Surfing, Taking printout, downloading and formating the data.
- Use of SPSS in educational research.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- AYURVED

Research Methodology

1. General guidelines and steps in research process, Need of research in Ayurveda, Literature review- different methods, research design, Collection of data, Analysis of data.

2. Literary research, drug research.

3. Clinical research-Introduction to Clinical Research Methodology, Observational and interventional studies, Descriptive and Analytical studies, Randomized controlled trials and their types.

4. Collection, classification, presentation, analysis and interpretation of data, mean, mode, medium, Stadard deviation, P value and its interpretation, t test.

5. Role of computer in research, Introduction to database, Familiarization with the use of statistical software like SPSS / Graph pad.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- COMMERCE

Research Methodology

Unit-I

Basic accounting concept, Accounting standard, Financial statement and Accounting Ratios, cash flow and Fund flow analysis, marginal costing and Break even analysis, costing for decision making.

Unit-II

Demand analysis & elasticity of demand, Utility analysis & law of return, measurement of profit risk and concept of uncertainty, Economic Environment of India. Liberalization, Privatization & Globalisation & its impact on Indian economy. New industrial policy and its implementation. EMA, WTO, and direct foreign investment.

Unit-III

Law of contract 1872, sale of goods act 1930, Consumer Protection Act 1986, Indian company act 1956- promotion and Incorporation of companies, Memorandum of association, share cap. and debentures, direction and meeting of companies.

Unit-IV

Management, concept of management, Management thoughts : the classical school Function of Management, Marketing segmentation. Concept of advertisement Management., Capital costing and capital budgeting, working capital management, dividend policy.

Unit-V

Indirect tax - CST (Central sales tax). MPVAT and service tax, Direct tax : Basic concept and tax free income, computation of taxable income of persons. Firms and Companies. Tax evasion, methods of tax planning.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- BIOTECHNOLOGY

Research Methodology

Unit-1

Chromatographic techniques - Ion exchange chromatoghaphy, hydrophobio interaction & reverse phase chromatoghaphy, Affinity chromatoghaphy, Gas chromatoghaphy, High Performance Liquid Chromatography, Fast protein liquid chromatography : Application in separation of protein including enzymes.

Unit-2

Molecular Biology & spectroscopic techniques - Comet Assay, Real time PCR, RAPD, RFLP, ARDRA and fluorescence, in situ hybridization techniques. Atomic absorption, spectroscopy, Infrared spectroscopy, FACS, Nuclear Magnetic Resonance spectroscopy, Mass spectrometry including ESI MS and MALDI-TOF MS.

Unit-3

Electrophoretic and Centrifugation techniques - SDS and Native PAGE, Agarose gel electrophoresis, Isoeletric focusing and two-dimensional electrophoresis, proteome analysis, Differential and density gradient centrifugation, Analytical ultracentrifugation, Separation of DNA / RNA using Ultracentrifugation technique, Determination of molecular weight and sedimentation coefficient, Biosafety in laboratory conditions, Rules for maintaining the Biosafety in laboratory, Making aseptic sterilized and dust free conditions in laboratory.

Unit-4

Quantitative methods; Principles and Designs of Experiments ; Analysis of variance for one way and two way classifications ; Multiple Comparisons- Least significant difference Test, Duncan's New Multiple range Test; Factorial Analysis, Analysis of Covariance. Correlation and regression analysis, Pedigree Analysis, Statistical Software SPSS, PRISM, Arlqui, POP gene.

Unit-5

Computer application, Bioinformatics - Concept and application, introduction to data mining techniques, Biological Databases : sequence databases (gene bank, EMBL, DDBJ, Uniport KB, Protein family / Domain databases (PROSITE, PFam, PRINTS, PRODOMAIN), Structure

databases (PDB, PubChem), Expression profile databases (GEO, SWISS-2D-PAGE), Literature Databases (PubMed, PubMed Central).

Sequence Analysis : Pairwise alignment, homology search (BLAST & FASTA), multiple sequence alignment (Clustal W), Phylogenetic Analysis (MEGAS & PHYLIP).

Introduction to tools - Jemboss and UGENE.

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Awadhesh Pratap Singh University, Rewa (M.P.)

Syllabus for Pre-Ph.D. Course work

SUBJECT- PHYSICAL EDUCATION

Research Methodology

Unit-I

- Meaning of Research. Need and Importance and its scope in Physical Education.
- Formulation and Development of Research problem. Formulation of hypothesis.
- Research report, Abstract and Research proposal.

Unit-II

- Historical Research, Scope and Validity of historical data.
- Survey studies : tools of survey reserch, Questionnare and interview.

Unit-III

- Case studies : Definition and importance.
- Characterization of case studies, Data collection in case studies.
- Experimental Research : Meaning, scope and nature.
- Experimental design, control of Experimental factors.

Unit-IV

- Use of statistical application in Physical Education and Sports research.
- Sampling : Simple and stratified random sampling, Standard error.
- Relation between bionomical and normal curve, skewness kurtosis, standard scales.
- Percentile Z, T, 60 and 70 scales.
- Reliability limits. Null hypothesis. Type I and II errors. One tail and Two tails tests.
- Coefficient of variation, sampling error. Analysis of variance.

Unit-V

- Introduction to computer : Hardware and Software (Only preliminary concept).
- Introduction to Opertaing system : Need, functions and control programme.
- Introduction to Window, MS Office, Word, Excel, Power Point, Word Processing, Printing.

Reference :

1. Best, John W. Research in Education, New Delhi : Prentice Hall of India (P) Ltd. 1963.
2. Campbell Willian. G. Form and Style in Thesis writing, Broton : Houghten Moffin Company, 1954.
3. Charke David H. and Clarke H. Harrison. Research Process in Physical Education, Recreation and Health Englewood Cliffor N.J. Prentice Hall Inc. 1979.
4. Robson, M Bara T.S. and Uppal A.K: Thesis format Gwalior : LNCPE 1979.
5. Blommers Paul and Lindquist, E.F. Statistical methods in Psychology and Education Calcutta : Oxford Book Co. 1959.
6. Guilford, J.P. Fundamental Statistics in Psychology Education New York : McGraw Hill Book Co. Inc. 1966.
7. Steel, Robert G.D. and Torrie, James A: Principles and Procedures of Statistics, New York; McGraw Hill Book Co. 1960.
8. Taxali R.K.: P.C. Software made Simple, TMH.
9. Sinha P.K.: Computer Fundamentals BPB.
10. Cowart, R.: Mastering Windows, BPB.
11. Mansfields : The Compact Guide to M.S. Office, BPB.

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