



CENTRE FOR GEOGRAPHICAL STUDIES

अभ्युदय प्रोद्योगिकी संस्थान, युवापन, नदी, पटना, बिहार

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RESEARCH METHODOLOGY CERTIFICATE PROGRAMME

Ordinance and Regulations

The idea behind starting this programme is to enable inquisitive minds becoming scholars and researchers who can be involved in socially productive projects. Such researchers, after completing this course will develop the know-show to undertake project writing, doing micro-level research, built their own questionnaire and have the capacity to analyse various kinds of data.

Ordinance for Certificate Programme in Research Methodology

1. **Name of Centre** – Centre for Geographical Studies (An Autonomous Centre, Govt. of Bihar, Affiliated by Aryabhatta Knowledge University, Patna)
2. **Name of Programme** – Certificate Programme in Research Methodology (CPRM)
3. **Nature of the Programme** – The Programme will run under Self Financing Scheme
4. **Reservation Policy** – As per Regulations of Government of Bihar
5. **Aims, Objectives & skills** –
 - 5.1 Enable students to become researchers, by imparting basic knowledge of doing research
 - 5.2 Enable Students to understand the nuances of different theories and their practical implication in doing research
 - 5.3 Enable Researchers to be efficient project report writing.
 - 5.4 Impart hands on training to the students through field-work/internship in doing actual research, so that the quality of the research is improved

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5.5 To develop researchers well versed in planning and execution of various policy research in social and economic sectors.

5.6 Besides budding PhD scholars, this certificate course would also help students in finding jobs in NGO's and other research organisations.

5.7 Identifying problem

5.8 Learn hypothesis, methodology, objectives etc

5.9 To reach problem related project

5.10 Collection and analysis of data

5.11 Micro level research

5.12 Formation of questionnaire

5.13 To build project

5.14 To use in policy making

5.15 Role in social and economic sector

5.16 In planning and execution

5.17 To improve quality research

5.18 Enhance the authenticity of the research

6. **Duration of the Programme** – The Programme will be six months duration and will comprise 200 contact hours.

7. **The Number of Seat** – 40 (Forty)

8. **Eligibility for Admission** –The minimum qualification for admission in this course is Master's degree with 55% marks in any discipline. Besides those candidates who have B.Tech., B.E. degrees with job experience in governmental, semi-governmental and non-governmental organizations are also eligible.

9. **Mode of Admission** – The selection for this course shall be made on the basis of (a) **Academic Qualification -70 marks** (break up of academic marks, based on the highest degree obtained: > 70% = 70; 60%-70% = 60; 50%-60% = 55) and (b) **Interview- 30 marks**

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10. **The Programme of Study** – The CPRM programme shall consist of one semester/ six months having 04 courses/papers. The entire curriculum shall be of 20 credits i.e. 500 marks taken together.
- 10.1 The Centre shall offer Certificate Programme in Research Methodology (CPRM).
- 10.2 The duration of CPRM (Semester System) shall be of one semester spreading over six calendar months. Each Semester shall be of ninety teaching days.
- 10.3 CPRM programme shall consist of 04 courses/ papers spread over one semester. There shall be four courses/papers and the entire curriculum shall be of 20 credits i.e. 500 marks taken together.
- 10.4 The distribution of papers like theory, practical, field work/internship, with number of credits is specified in each subject in the course structure of the subject concerned of the centre.
- 10.5 The term “credit” means weightage given to a course in relation with the instructional hours assigned to it. One credit will generally consist of ten hours of instruction. The CPRM programme shall be of twenty credits. The number of credits for each paper of the CPRM programme shall be specified in the course structure of the subject concerned.
- 10.6 The details of credits for individual components and individual courses are given in Table 1:



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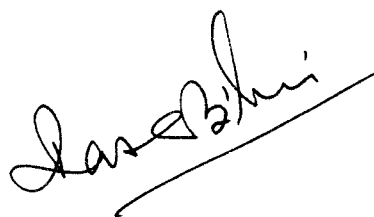


Table-1. Description of papers for Certificate Programme in Research Methodology, at the Centre for Geographical Studies

Course/ Paper Code	Title of the Course	Credit	Contact Hours	Marks	Marks of CIA	Marks of ESE	Feedback from the Field	Passing Criterion
G- 10001	Research Methods	4	40	100	30	70	--	45
G- 10002	Common Trend of Research Methodology	4	40	100	30	70	--	45
G- 10003	Computer based Qualitative and Quantitative Research	4	40	100	30	70	--	45
G- 10004	Field work and Internship, followed by Report writing	8	80	200	50 (Report writing)	100 (Presentation and Comprehensive viva voce)	50	90
	Total	20	200	500	140	310	50	225

11. Evaluation of Performance Under Semester System–

11.1 The Performance of a student in each course will be assessed on the basis of a Continuous Internal Assessment (CIA) of 30 marks and the End of Semester Examination (ESE) consisting of 70 marks.

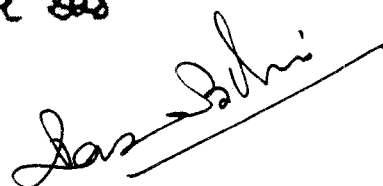
11.2 The components of C.I.A are follows:

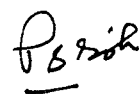
- (i) Mid-semester tests of one-hour duration each = 10 Marks
 - (ii) Presentation/Quiz = 10 Marks
 - (iii) Assignment = 10Marks
- Total** = 30 Marks

11.3 The concerned teacher of the course/paper shall be responsible for conducting the mid- semester tests and other components of the CIA.



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11.4 The ESE will be written examination of 3-hours duration conducted by the Aryabhata Knowledge University, Patna.

11.5 The evaluation of dissertation/field work, will also be based on CIA and an end semester practical examination/viva voce.

11.6 All such examination shall be as per the provisions of the Aryabhata Knowledge University rule.

11.7 Only those students who secured minimum qualifying marks of 45 % in the CIA shall be allowed to fill up the End Semester Examination form.

12. Examination–

12.1 The End-Semester-Examination will be conducted by Aryabhata Knowledge University and the Mid semester examinations and other components of CIA shall be conducted and evaluated by the Centre for Geographical Studies. The practical examinations wherever applicable shall be conducted by the Centre/University.

12.2 The End Semester Examination (ESE) shall be named as follows:

(a) CPRM – Examination

(b) Syllabus for each paper shall be divided into at least 3 units. Based on this, the question paper pattern for the End Semester Examination shall have divided into

(c) three parts A, B, C comprising of objective type questions with multiple choice, short answer type questions respectively as mentioned below:

Part	Nature of questions	Number of Questions to be asked	Number of questions to be answered	Marks of each Question	Total marks
Part-A	Objective type questions with multiple choice	10	10	02	20
Part-B	Short answer type questions	08	04	05	20
Part- C	Long answer type questions	06	03	10	30
Total marks					70

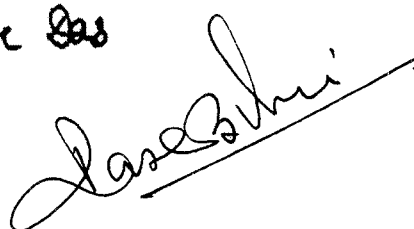
Part – A : Ten objective type questions -- All questions to be answered (Questions shall be picked up from the whole syllabus Preferably two questions from each unit) $10 \times 2 = 20$ marks

Part – B : Eight Short Answer Questions -- Four questions to be answered (Questions shall be picked up from the whole syllabus)

$4 \times 5 = 20$ marks



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Part – C : Six long Answer Questions -- Three questions to be answered. (Questions shall be picked up from the whole syllabus Preferably one question from each unit)

3 x 10 = 30 marks

12.3 In formulating the entire programme of studies, the Centre shall be guided by the consideration that at the Postgraduate level, students should be familiar with all the sub-disciplines, trends and paradigms of the subject contributing to the knowledge pool and also the value education and employability factor. Keeping this in view the Centre will decide subject based Courses.

12.4 Paper Settings: Concerned teacher will set the question of that paper and evaluate it and sent to the Aryabhatta Knowledge University or as per Aryabhatta Knowledge University Rule.

12.5 All practical papers shall be evaluated by two external examiners. The distribution of CIA marks in practical papers shall be as per the course structure.

13. Passing of Examinations

13.1 There shall be no supplementary examination in any of the papers.

13.2 After appearing at the Final Examination, the candidates can be placed in following categories in the context of declaration of the results.

13.3 To be declared passed in End Semester Examination in any subject, a candidate must secure at least 45% marks in each paper separately in CIA, theory and practical, wherever applicable.

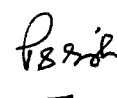
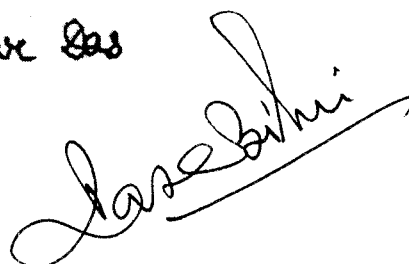
13.4 Final result of CPRM shall be published on the basis of candidate's performance in the 04 papers spread over one semester provided he/she has passed with minimum qualifying marks of 45% in each paper.

13.5 The final result will be published only after he/she has cleared all the 04 papers securing minimum qualifying marks.

13.6 Since it is a continuous evaluation programme, student shall be awarded Grade Point (GP) at the End of each Semester Examination and cumulative Grade point (CGP) at the End or Final End Semester Examinations in 10-point scoring system. There shall be no supplementary examination.



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13.7 If students fail to secure minimum 45% marks in CIA of any paper his/her result will be declared as failed in that paper.

13.8 There shall be no provision of improvement in result. However, Scrutiny can be permitted after depositing the required fees. (Scrutiny fee per paper-Rs.750)

14. Declaration of Result:

The following grading system shall be used by teacher/ Examination Department:

Letter Grade	Percentage Range	Numerical of Letter Grade	Description of Grade
O	100-91	10	Outstanding
A++	90-81	9	Excellent
A+	80-71	8	Very Good
A	70-61	7	Good
B+	60-51	6	Average
B	50-45	5	Pass
F	Less than 45	Less than 5	Fail

15. Examinations:

15.1 The End Semester Examinations (ESE) and the continuous Internal Examination (CIA) shall be conducted by the concerned faculty who is teaching the said class or by Aryabhata Knowledge University Rule.

16. Passing of Examination:

A student shall be declared to have 'passed' when he/she earns 'B' grade or above grade as mentioned in the table above in section 14

16.1 Semester examination covering continuous evaluation, mid-term and end-term examinations in all the courses for which he/she was registered in the said semester.

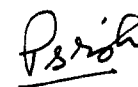
16.2 A student will be deemed as 'FAILED' when he/she gets 'F' grade in more than 50% of the papers offered in the examinations to meet the requirements. Such students will be advised by the University to repeat the examination on payment of the academic fee.

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16.3 A student shall be declared to have failed in the programme when he/she fails to qualify after two successive attempts.

16.4 Grades that may be shown in the award sheet of a student without any numerical value are N.A (Not applied) and S.P (Satisfactory Performance) for course(s) extending beyond a semester such as Project Work.

16.5 There shall be a Grade Point Average (GPA) calculated for each semester on the basis of grades obtained in that semester. The GPA for the Jth Semester is calculated as:

$$\text{GPA} = \frac{\sum_{i=1}^n m_i o_i}{\sum_{i=1}^n o_i}$$

When n is the number of course in the Jth semester, m_i denotes the numerical value of the grade obtained in the Jth course of the semester denotes the number of credits for the Jth course of the semester.

Example:

Let us consider the numerical grade and credit of a student given in the table below GPA for Jth semester can be calculated.

Course	Paper I	Paper II	Paper III	Paper IV
Credit	4	4	4	8
Numerical Grade	7	8	5	7

The GPA for the Jth semester is calculated as:

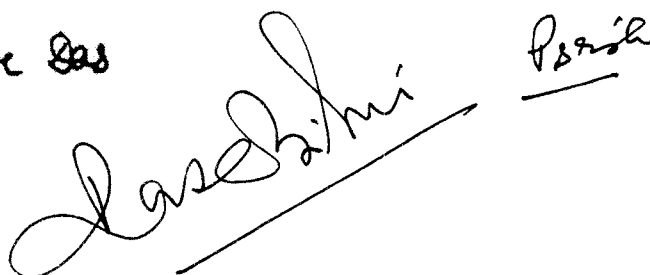
$$\text{GPA} = \frac{7 \times 4 + 8 \times 4 + 5 \times 4 + 7 \times 8}{4 + 4 + 4 + 8} = \frac{136}{20} = 6.8$$

17. Fee Structure:

The Fee Structure for the Certificate Programme (Research Methodology) Self-financing in the Centre for Geographical Studies for one semester shall be as mentioned below. However, the fee for one semester shall have to be paid at the time of admission.



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FEE STRUCTURE

Certificate Programme in Research Methodology (CP RM)

A. Fee charges at the time of Applying	Rupee (₹.)
Application Form	500.00
B. Fee charges at the time of admission	
1. Admission Fee	2000.00
2. Tuition Fee	8000.00
3. Library Fee	1000.00
4. Establishment & Development Fees	1000.00
5. Lab Fees	1500.00
6. Miscellaneous Fees	1000.00
Total Fee	14500.00
C. Examination Fee- Students have to deposit a fee of ₹ 1000 at the time of appearing in the examination.	
D. Other rules and fee amount charges to be made from time to time as per Centre rules, to be modified from time to time.	

18. There will be no provision of revaluation of the theory paper, however, scrutiny of the ESE papers is allowed by depositing the requisite fees of Rs.750 for each paper. The certificate will be issued by the Controller of Examination/ Vice Chancellor of the Aryabhata Knowledge University.

19. The fee will be revised time to time with the approval of the Director of the Centre on the recommendation of the academic committee of the centre.

20. Certificate:

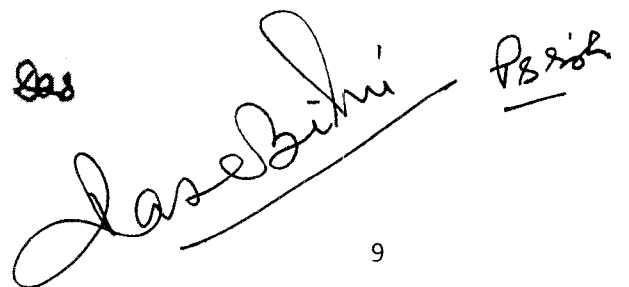
At the completion of the course, the successful candidates will get a certificate from the Examination Controller/Vice Chancellor of the Aryabhata Knowledge University.

21. Classes --

21.1 December to May



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- 21.2 The class will be held thrice in a week and the duration of the class will be of two hours.
22. The rate of honorarium / remuneration to be paid to the Visiting Faculty / Resource Person engaged for the subject will be paid as per Aryabhata Knowledge University rule or approval of the academic committee of the centre (CGS).
23. Bank Operation – There shall be a separate head of centre bank account in a nationalised bank in the name of Research methodology Programme and it will be operated with the joint signature of Director and Coordinator of the Centre.
24. Website: There shall be link in the website of the Centre for Geographical Studies in the name “Certificate Programme in Research Methodology”.
25. Engagement of Visiting Faculty/ Resource Persons –
Reputed Visiting faculty/Resource Persons will be engaged by the Director on the need basis.
26. Budget -- The Centre will prepare annual budget and send it to the Department of education, Govt. of Bihar for incorporation in the Annual Income and Expenditure of the Centre.
27. Audit – The Centre will get its accounts audited by AG Audit of Government of Bihar. at the end of every financial year.
28. Savings: In case of any dispute regarding marks, academic and ethical conduct of the students, a committee formed by the Director of the CGS, will conduct an inquiry and based on its report, the Director CGS will be the final arbitrator in all matters.

29. Content of the Syllabus

Proposed Syllabus for Certificate Course in Research Methodology the CGS, AKU Patna

Course	Title of the Course	Credit	Core/Optional
G-10001	Research Methods	04	Core
G-10002	Common Trend of Research Methodology	04	Core
G-10003	Computer based Qualitative and Quantitative Research	04	Core
G-10004	Field work and Internship Programme	08	Core

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G-10001: Research Methods

The basic idea behind this course is to make the students aware of different aspects of research and its related field practices:

Unit- I -Research Methods

- a. Meanings, scope, objectives, significance of Research Methodology
- b. Concepts and Scientific Methods of Research
 - 1.1 Relevance of conceptual framework in research
 - 1.2 Identifying Research Questions
 - 1.3 Hypothesis Building: Importance of a Hypothesis; Hypothesis Formulation and its Types: Deductive reasoning, Use of analogies in hypothesis formulation; Criteria of a usable hypothesis, Hypothesis Statements, Hypothesis Testing
 - 1.4 Doing a Literature Review - Basic guidelines, Types of and Sources of Bibliographic Information

Unit -II – Operationalization of Research

- 2.1 Practice of geographical field, data collection and interpretation techniques during the field trip
- 2.2 Stages of fieldwork: Selecting a research universe, gaining access and presenting oneself, gathering information
- 2.3 Field notes: Types, coding, analysis
- 2.4 Types of Field Observation: Participant and Non-participant, Structured and Non-structured, Empirical and Measured
- 2.5 Data Inventory: Sources and Types, Length of Quotations, Direct and Short Direct Quotations, Long Quotations, Cross references, Quotation of Footnotes, Quotation in Quotation, Ellipse, Interpolation, Footnote, Endnote, Correction, Footnote Numbering, Cataloguing, Citations, Bibliographic Management and Style of Referencing; Preparation of Foot notes, End notes, Glossary, Appendix, Abbreviations and Acronyms

Unit-III -Nuts and Bolts of Field-work

- 3.1 Conducting an Interview: Framework and guidelines;
- 3.2 Techniques of Socio-economic survey: Preparation of questionnaire, interview, focus group discussion along with master table preparation

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3.3 Mode of collecting Primary Data using Instruments

- a. Fundamentals of Total Station Survey including data collection and computation
- b. Soil testing both shear and fertility

Unit-IV -Research Ethics

- 4.1 Ethical Issues in Research
- 4.2 Meaning and seriousness of Plagiarism,
- 4.3 Types of Plagiarism,
- 4.5 Preventing Plagiarism,
- 4.6 IRB,
- 4.7 Research Ethics

G-10002: Common Trend of Research Methodology

This paper will introduce the Students to the way research is conducted, significance of paradigm and the way it affects the method of data collection and interpretation of the collected data. The choices that a researcher makes and the reasons behind those choices.

Unit I: Typology of Research Methods

- 1.1 Descriptive research,
- 1.2 Exploratory research, explanatory research and research on causality,
- 1.3 Comparative research,
- 1.4 Hypothesis testing research,
- 1.5 Survey research,
- 1.6 Cross-sectional research, longitudinal research,
- 1.7 Experimental and quasi-experimental research,
- 1.8 Evaluation research,
- 1.9 Case study,
- 1.10 Pilot study,
- 1.11 Field research, collaborative approaches,
- 1.12 Behavioural research,
- 1.13 Qualitative and mixed methods of research

Unit II: Epistemology and Ontology

- 2.1 Paradigm and paradigm shift
- 2.2 Epistemological basis of Quantitative and Qualitative Research Ontology,
- 2.3 Epistemology and Methodological issues in Quantitative and Qualitative Research;
- 2.4 Arguments for Choosing Quantitative and Qualitative Methodologies,
- 2.5 Power and Subjectivity in Qualitative Research Paradigm and paradigm shift

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Unit III – Quantitative Aspects

- 3.1 Types of data and their sources and limitations
- 3.2 Collection of Primary Data - Concept of Questionnaire Survey
- 3.3 Sampling Techniques - Quantitative Variables
- 3.4 Multivariate Regression, PCA, ANOVA, Statistical Hypothesis Testing
- 3.5 Idea of bias in Quantitative Research

Unit IV - Qualitative Aspects

- 4.1 Collection of Primary Data- Concept of Deep Interview
- 4.2 Qualitative Approach to Inquiry: Phenomenological Research
- 4.3 Idea of Triangulation in Qualitative Research
- 4.4 Quantification in Qualitative Research
- 4.5 Grounded Theory

G-10003: Computer Aided Quantitative and Qualitative Research

Give hands on knowledge to the students in utilising computers in aiding their research.

Unit I- Computer aided Research

- a. Fundamentals of computer
- b. Computer organization, Components of Hardware and Software.
- c. Operating Systems: MS-DOS, MS-Windows, etc.
- d. Data Structure and Data Format, A – D and D – A presentation, Data representation, Computer Programming and Networking.
- e. Familiar with MS-Office, Page Maker, Corel Draw, etc. scanning,
- f. Work on Ms excel/SPSS: data entry, tabulation and analysis (Central tendency, Dispersion, Coefficient of Variation)
- g. Representation of data through computer aided techniques: scatter diagram with trend line, bar graph, pie graph, and histograms. Diagrammatic illustrations and mapping.

Unit II- Computer aided Quantitative Research

- 2.1 Project by using Statistical Software
- 2.2 SPSS,
- 2.3 R,
- 2.4 SAS
- 2.5 MS-Excel

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Unit III- Computer aided Qualitative Research

- 3.1 Project in handling Qualitative Analytic Software
- 3.2 NVivo,
- 3.3 ATLAS.ti,
- 3.4 CAQDAS,
- 3.5 Transana

Unit IV: Remote Sensing and GIS Techniques in Geospatial Research

- 4.1 Basics of Remote Sensing;
- 4.2 Image Properties;
- 4.3 Image Interpretation;
- 4.4 Digital Image Processing and Classification;
- 4.5 GIS: An Overview;
- 4.6 Maps and GIS;
- 4.7 Digital Representation of Geographic Data;
- 4.8 Query and Analysis;
- 4.9 GPS Fundamentals;
- 4.10 Applications of Remote Sensing and GIS in Natural Resource Management, Socio-economic Analysis, Disaster Management

G-10004: Field work and Internship Programme

The allocation of field work and internship programme will be approved by the Director, CGS. The CGS will notify the date, programme and other details of field work and internship programme. The student has to act accordingly.



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