

NEP CURRICULUM

# **COURSES OF STUDIES**



**NEP PG**  
**1-YEAR CURRICULUM**  
**M.A. GEOGRAPHY PROGRAMME**  
**SUBJECT CODE = GEO**

**FOR POST GRADUATE COURSES ( M.A ) UNDER ST. XAVIER'S COLLEGE (AUTONOMOUS) ,  
RANCHI UNIVERSITY, RANCHI.**

**IMPLEMENTED FROM ACADEMIC SESSION 2026-2027 & ONWARDS.**

## NEP CURRICULUM

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## NEP CURRICULUM

### HIGHLIGHTS OF NEP PG CURRICULUM

#### CREDIT OF COURSES

The term 'credit' refers to the weightage given to a course, usually in terms of the number of instructional hours per week assigned to it. The workload relating to a course is measured in terms of credit hours. It determines the number of hours of instruction required per week over a semester (minimum 15 weeks).

- a) One hour of teaching/ Lectures or two hours of laboratory /practical work will be assigned per class/interaction.

|                                  |                                           |
|----------------------------------|-------------------------------------------|
| <b>One credit for Theory</b>     | = <u>15 Hours of Teaching</u>             |
| <b>One credit for Practicum</b>  | = <u>30 Hours of Practical work</u>       |
| <b>One credit for Internship</b> | = <u>02 Weeks of Practical experience</u> |

- b) For credit determination, instruction is divided into three major components:

**Hours (L)** – Classroom Hours of one hour duration.

**Tutorials (T)** – Special, elaborate instructions on specific topics of one hour duration

**Practical (P)** – Laboratory or field exercises in which the student has to do experiments or other practical work of a two-hour duration.

**Internship** – For the Exit option after 1<sup>st</sup> year of the 2-year P.G. Programme for the award of P.G. Diploma, Level 6.5, Students can either complete two 4-week internships worth 2 credits each or one 8-week internship for all 4 credits. This practical experience connects academic learning with real-world applications, offering valuable exposure to professional environments in their fields of study

#### PG CURRICULUM

1. The PG Curriculum will be either of 1-year duration for students who studied the four-year UG Programme (FYUGP) or a 2-year duration for students who studied a three-year UG programme from a CBCS/LOCF/FYUGP Curriculum.
2. There is a flexible mode in the PG programme offered to the students of Ranchi University, Ranchi. The total credit for any semester will be 20 credits.
3. **One-year PG curriculum:** The Courses in the 1-year PG programme and the second year of the 2-year PG programme are the same.
  - a. **Course work only:** There will be 5 courses at level 500 of 4 credits each in every semester for the coursework offered in the programme.
  - b. **Course work and Research:** There will be 5 courses at the level 500 bearing 4 credits each in the first semester of a 1-year PG or in the third semester of a 2-year PG. Research work will be offered in the next semester for this mode of the programme. The eligibility for this mode is available in the NEP PG curriculum of Ranchi University, Ranchi.
  - c. **Research work only:** The eligible student will be offered this mode to conduct extensive research under the supervision of a guide. Each semester will be equivalent to 20 credits. The selection of a candidate for the research mode will depend upon the eligibility of the student, availability of the guide and seat in the department/institution of Ranchi University, Ranchi.

#### PROMOTION CRITERIA

##### One Year Post-graduation programme having coursework only:

- i. Each course shall be of **100 marks**, having two components: **30 marks for Sessional Internal Assessment (SIA), conducted by the Department/College and 70 marks shall be assigned to the End Semester University Examination (ESUE), conducted by the University.**
- ii. The marks of SIA shall further break into 20 for Internal Written Examinations, 05 for Written Assignment/ Seminar presentation and 05 for overall performance of a student, including regularity in the classroom lectures and other activities of the Department/College.
- iii. The Requisite Marks obtained by a student in a particular subject will be the criterion for promotion to the next Semester.
- iv. There shall be two written internal examinations, each of 1 hour duration and each of 20 marks, in a semester, out of which the '**better of the two**' shall be taken for computation of marks under SIA.



## NEP CURRICULUM

- v. If a student failed to secure pass marks in the Mid Semester Examination, he/she has to reappear in Mid & End Semester Examinations, of the following year.
- vi. In case a student fails to secure pass marks in End Semester Examination, then he/she has to appear only in the End Semester Examination of the following session within the period of Upper Limit of Two Years and the Marks of the Mid Semester will be carried for the preparation of the result.
- vii. Students' final marks and the result will be based on the marks obtained in the Mid Semester and End Semester Examination taken together.
- viii. The pass marks in the programme will be 45% of the total marks obtained in each Core/ Elective/ Other Courses offered.
- ix. In absolute terms of marks obtained in a course, **a minimum of 28 marks is essential in the ESUE and a minimum of 17 marks is to be secured in the SIA** to clear the course. In other words, a student shall have to pass separately in the ESUE and in the SIA by securing the minimum marks prescribed here.
- x. Every candidate seeking to appear in the ESUE shall be issued an Admit Card by the University. **No candidate will be permitted to appear in the examination without a valid admit card.**
- xi. A candidate shall be permitted to proceed in the next Semester (2<sup>nd</sup>), **provided he/she has passed at least 3 courses out of 5 courses** in the respective semester in theory and practical/ project courses taken together.
- xii. A student will have to clear all his/her papers within a maximum of Two Years of duration to qualify for the degree.

However, it will be necessary to procure pass marks in each of the papers before completion of the programme.

### VALUE-ADDED COURSES

1. The Value-added course will be of **2 credits** to be covered during the first semester.
2. The End Semester University Examination (ESUE) of this course will comprise 50 objective-type questions of 1 mark each.
3. ESUE shall be OMR-based and the correct option is to be marked by a black ballpoint pen.
4. For the **50 Marks Examination**, the student will be provided **two hours** to mark their responses.
5. Students are not allowed to choose or repeat courses already undergone at the undergraduate level in the proposed major and minor streams.
6. The performance in this course will not influence the SGPA or CGPA of the PG Programme wherein the student is registered to obtain the Master's Degree. However, it will be mandatory to secure minimum pass marks in the course before exiting the Programme.
7. If a student fails to secure the minimum pass marks in this course in the first semester, he/she must reappear in the examination of the said course with the following batch of the next session.
8. The student may appear in the examination of the said course further if they could not clear the course in the following attempt, subject to the date of validation of the Registration.

The existing Regulations of the PG Curriculum of Ranchi University, Ranchi, shall guide the Regulations related to any concern not mentioned here.

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## COURSE STRUCTURE FOR 'PG COURSEWORK/ COURSEWORK WITH RESEARCH/ RESEARCH ONLY'

Table 1: Credit Framework for One Year Postgraduate Programme [Total Credits = 40]

| Academic Level     | Level of Courses         | Semester | Coursework<br>Level 400 | Coursework<br>Level 500 | Research<br>Preparedness | Research<br>thesis/<br>Project/<br>Patent | Total Credits |
|--------------------|--------------------------|----------|-------------------------|-------------------------|--------------------------|-------------------------------------------|---------------|
| YEAR 1             |                          |          |                         |                         |                          |                                           |               |
| Level 6.5          | Coursework               | III      | ---                     | 4+4+4+4+4               | ---                      | ---                                       | 20            |
|                    |                          | IV       | ---                     | 4+4+4+4+4               | ---                      | ---                                       | 20            |
| OR                 |                          |          |                         |                         |                          |                                           |               |
| Level 6.5          | Coursework +<br>Research | III      | ---                     | 4+4+4+4+4               | ---                      | ---                                       | 20            |
|                    |                          | IV       | ---                     | ---                     | 20                       |                                           | 20            |
| OR                 |                          |          |                         |                         |                          |                                           |               |
| Level 6.5          | Research                 | III      | ---                     | ---                     | 20                       | ---                                       | 20            |
|                    |                          | IV       | ---                     | ---                     | ---                      | 20                                        | 20            |
| Total credits = 40 |                          |          |                         |                         |                          |                                           |               |

Note:

1. Every student has to take any one Value-added course of 2-credits compulsorily in the 1<sup>st</sup> Semester of PG programme.
2. There is no provision of 'Exit' in the 1-Year PG Programme.



## AIMS OF MASTER'S DEGREE PROGRAMME IN GEOGRAPHY

**The aim of the Master's degree programme in Geography is to provide:**

The 'Master of Arts in Geography' programme offered by the department, aims at empowering students with knowledge and skills for spatial thinking and analysis, to navigate real world problems, and contribute to society in a meaningful way. The aims of the course are to familiarize the students about geomorphic process, climatological characteristics, spatial variation of human societies and its features with integration of latest geo-spatial technologies such as GIS, Remote Sensing and GPS.

## PROGRAMME LEARNING OUTCOMES

**The broad aims of Master's degree programme in Geography are:**

At the end of the two-year (four-semester) course, students will have comprehensive understanding of spatial variation of physical environmental features, human environmental features and features, factors developed because of interrelationship among them. The students will acquire knowledge about contemporary issues in geography, both physical and human geography.

**The Courses in One Year P.G. Programme and in the Second year of Two years P.G. Programme are Common.**

Table 2: Semester-wise Course Code and Credit Points

| Sem       | Core, AE/ GE/ DC/ EC & Compulsory FC Courses |            |        |                                                                                       | Examination Structure          |                                |                                     |
|-----------|----------------------------------------------|------------|--------|---------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------------------------|
|           | Paper                                        | Paper Code | Credit | Name of Paper                                                                         | Mid Semester Evaluation (F.M.) | End Semester Evaluation (F.M.) | End Semester Practical/ Viva (F.M.) |
| <b>I</b>  | Core Course                                  | CCGEO311   | 4      | IKS in Geography                                                                      | 30                             | 70                             | ----                                |
|           | Skill Enhancement Course                     | ECGEO312   | 4      | Environment Geography and Disaster Management                                         | 30                             | 70                             | ----                                |
|           | Core Course                                  | CCGEO313   | 4      | Transport and Tourism Geography                                                       | 30                             | 70                             | ----                                |
|           | Core Course                                  | CCGEO314   | 4      | Cultural and Tribal Geography                                                         | 30                             | 70                             | ----                                |
|           | Practicals on Core                           | CPGEO315   | 4      | Practical (Instrumental Survey)                                                       | ----                           | ----                           | 100                                 |
| <b>II</b> | Elective                                     | ECGEO411   | 4      | A. Agricultural Geography/<br>B. Remote Sensing and GIS/<br>C. Urban Geography        | 30                             | 70                             | ----                                |
|           | Elective                                     | ECGEO412   | 4      | A. Soil Geography/<br>B. Application of Remote sensing & GIS/<br>C. Rural Development | 30                             | 70                             | ----                                |
|           | Core Course                                  | CCGEO413   | 4      | Mining and Industrial Geography                                                       | 30                             | 70                             | ----                                |
|           | Practicals on Elective                       | EPGEO414   | 4      | A. Practical-A<br>B. Practical-B<br>C. Practical-C                                    | ----                           | ----                           | 100                                 |
|           | PROJECT                                      | PRGEO415   | 4      | Dissertation/ Project/ Teaching Aptitude                                              | ----                           | ----                           | 100                                 |

Note:

1. Every student has to take any one Value-added course of 2-credits compulsorily in the 1<sup>st</sup> Semester of PG programme.
2. There is no provision of 'Exit' in the 1-Year PG Programme.



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### INSTRUCTION TO QUESTION SETTER

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#### SEMESTER INTERNAL EXAMINATION (SIE):

There **Marks Weightage of a Course:** Each non-practical/non-project course shall be of **100 marks** having two components: **70 marks shall be assigned to the End Semester University Examination (ESUE), conducted by the University, and, 30 marks for Sessional Internal Assessment (SIA), conducted by the Department/College.**

The marks of SIA shall further break into, 20 for Internal Written Examinations, 05 for Written Assignment/ Seminar presentation and 05 for overall performance of a student including regularity in the class room Lectures and other activities of the Department/College. There shall be two written internal examinations, each of 1-hour duration and each of 20 marks, in a semester out of which the **'Better One out of Two'** shall be taken for computation of marks under SIA.

In absolute terms of marks obtained in a course, **a minimum of 28 marks is essential in the ESUE and a minimum of 17 marks is to be secured in the SIA to clear the course.** In other words, a student shall have to pass separately in the ESUE and in the SIA by securing the minimum marks prescribed here.

#### A. (SIE 20+5=25 marks):

There will be a uniform pattern of questions for mid-semester examinations in all the courses and of all the programmes. There will be **two** groups of questions in 20 marks written examinations. **Group A is compulsory** and will contain five questions of **very short answer type** consisting of 1 mark each. **Group B will contain descriptive type five** questions of five marks each, out of which any three are to be answered. Department may conduct Sessional Internal Examinations in other format as per needs of the course.

The Semester Internal Examination shall have two components. (a) One Semester Internal Assessment Test (SIA) of 20 Marks, (b) Class Attendance Score (CAS) of 5 marks.

#### **Conversion of Attendance into score may be as follows:**

Attendance Upto 45%, 1mark; 45<Attd.<55, 2 marks; 55<Attd.<65, 3 marks; 65<Attd.<75, 4 marks; 75<Attd, 5 marks.

#### END SEMESTER UNIVERSITY EXAMINATION (ESUE):

#### A. (ESUE 70 marks):

There will be a uniform pattern of questions for all the courses and all the programmes. There will be **two** groups of questions. **Group A is compulsory** and will contain two questions. **Question No.1 will be very short-answer type** consisting of five questions of 1 mark each. **Question No.2 will be a short-answer type** of 5 marks. **Group B will contain descriptive type six** questions of fifteen marks each, out of which any four are to be answered. The questions will be so framed that examinee could answer them within the stipulated time.

[Note: There may be subdivisions in each question asked in Theory Examinations]

#### B. (ESUE 100 marks):

Practical/ Project courses would also be of 100 marks but there **shall be no internal written examinations** of the type specified above. The total 100 marks will have two components: **70 marks for the practical ESUE and 20 marks for the Viva-voce examination** conducted during the ESUE to assess the applied and practical understanding of the student.

The written component of the project (**Project Report**) shall be of **70 marks and 20 marks will be for the Viva-voce examination** jointly conducted by an external examiner, appointed by the University, and the internal supervisor/ guide.

**10 marks will be assigned on the cumulative assessment of the examinee during the semester** and will be awarded by the department/faculty concerned.

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**FORMAT OF QUESTION PAPER FOR MID/ END SEMESTER EXAMINATIONS****Question format for 20 Marks:**

| Subject/ Code                                                                            |           | Exam Year |
|------------------------------------------------------------------------------------------|-----------|-----------|
| F.M. =20                                                                                 | Time=1Hr. |           |
| <b>General Instructions:</b>                                                             |           |           |
| i. <b>Group A</b> carries very short answer type compulsory questions.                   |           |           |
| ii. <b>Answer 1 out of 2</b> subjective/ descriptive questions given in <b>Group B</b> . |           |           |
| iii. Answer in your own words as far as practicable.                                     |           |           |
| iv. Answer all sub parts of a question at one place.                                     |           |           |
| v. Numbers in right indicate full marks of the question.                                 |           |           |
| <b><u>Group A</u></b>                                                                    |           |           |
| 1.                                                                                       |           | [5x1=5]   |
| i.                                                                                       | .....     |           |
| ii.                                                                                      | .....     |           |
| iii.                                                                                     | .....     |           |
| iv.                                                                                      | .....     |           |
| v.                                                                                       | .....     |           |
| 2.                                                                                       | .....     | [5]       |
| <b><u>Group B</u></b>                                                                    |           |           |
| 3.                                                                                       | .....     | [10]      |
| 4.                                                                                       | .....     | [10]      |
| <b>Note:</b> There may be subdivisions in each question asked in Theory Examination.     |           |           |

**Question format for 70 Marks:**

| Subject/ Code                                                                            |            | Exam Year |
|------------------------------------------------------------------------------------------|------------|-----------|
| F.M. =70                                                                                 | Time=3HrS. |           |
| <b>General Instructions:</b>                                                             |            |           |
| i. <b>Group A</b> carries very short answer type compulsory questions.                   |            |           |
| ii. <b>Answer 4 out of 6</b> subjective/ descriptive questions given in <b>Group B</b> . |            |           |
| iii. Answer in your own words as far as practicable.                                     |            |           |
| iv. Answer all sub parts of a question at one place.                                     |            |           |
| v. Numbers in right indicate full marks of the question.                                 |            |           |
| <b><u>Group A</u></b>                                                                    |            |           |
| 1.                                                                                       |            | [5x1=5]   |
| i.                                                                                       | .....      |           |
| ii.                                                                                      | .....      |           |
| iii.                                                                                     | .....      |           |
| iv.                                                                                      | .....      |           |
| v.                                                                                       | .....      |           |
| 2.                                                                                       | .....      | [5]       |
| <b><u>Group B</u></b>                                                                    |            |           |
| 3.                                                                                       | .....      | [15]      |
| 4.                                                                                       | .....      | [15]      |
| 5.                                                                                       | .....      | [15]      |
| 6.                                                                                       | .....      | [15]      |
| 7.                                                                                       | .....      | [15]      |
| 8.                                                                                       | .....      | [15]      |
| <b>Note:</b> There may be subdivisions in each question asked in Theory Examination.     |            |           |



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**SEMESTER I**

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**I. CORE COURSE  
INDIAN KNOWLEDGE SYSTEM (IKS) IN GEOGRAPHY**

[CCGEO311]

**Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100****Pass Marks: (MSE: 17 + ESE: 28) = 45****(Credits: Theory-04, 60 Hours)****Course Objectives:**

On completion of this course, the students will be able to understand:

1. This course will make students aware of Indian knowledge traditions and their connection with Geography.
2. Contribution of Indian knowledge system in Geography.

**Course Learning Outcomes:**

On successful completion of this course the student should know:

1. Application of Principles of Indian knowledge system to modern Geography.

**Course Content:**

**Unit 1- Ancient Geography:** Ancient Indian texts mentioned information about Geography, Such as knowledge about rivers, mountains, climate, Astronomy, origin of the Universe, Nakshatra and season.; **Geomorphology:** Indian Principles of Geomorphology and their application, such as course of river, earthquake, Volcanoes.

**Unit 2- Climatology:** Indian principles of climatology and their effects, such as rainfall, seasons, temperature extreme, climatic phenomena, weather forecasting, Nakshatra used rainfall and cultivation.

**Unit 3- Population and Settlement:** Contribution of the Indian knowledge system to population and settlement Geography, such as growth of villages and towns, town planning architectures, social organization and trade Indus valley civilization.

**Unit 4- Environmental Geography:** Contributions of Indian knowledge system to environmental Geography, such a forestry, agriculture, water management, dairy and animal husbandry land use planning, tenure and tenants.

**Unit 5- Tribal and Cultural Geography:** Contribution of tribal cultures their livelihood, Sustainability to environment, food habits, rituals and habitat; Rich cultural heritage of India, pilgrimages, Religious tourism, and geo-tourism, temples; Indian Contribution to Geography: The universe, Akshansh and Deshantra, Earthquakes (Bhukampa) Atmosphere, weather and climate Geography, Dwipas, contribution of Varahamihira, Bramhagupta, Bhaskracharya, Aryabhata.

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**II. SKILL ENHANCEMENT COURSE**  
**ENVIRONMENT GEOGRAPHY AND DISASTER MANAGEMENT**

[ECGEO312]

**Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100****Pass Marks: (MSE: 17 + ESE: 28) = 45****(Credits: Theory-04, 60 Hours)****Course Objectives:**

On completion of this course, the students will be able to understand:

1. Perspective of disasters and various dimensions of disaster management
2. Comprehensive knowledge of various natural and manmade disasters in India
3. Examine the response and mitigation measures of disasters

**Learning Outcome:**

After the completion of course, the students will have ability to:

1. Gain a perspective of disasters and various dimensions of disaster management
2. Have comprehensive knowledge of various natural and manmade disasters in India
3. Examine the response and mitigation measures of disasters

**Course Contents:**

**Unit 1-** Environmental Geography: Concepts and Approaches; Ecosystem – Concept, Structure and Functions; Study of the Geographic distribution of organisms and Ecosystem, Ecology and Evolution; Ecological successions: stages and climax; Basic Principles of Ecology and Evolution. Man-Environment Relationship in Equatorial, Desert, Mountain and Coastal Regions

**Unit 2-** Environmental Problems and Management: Air Pollution; Solid and Liquid Waste; Biodiversity Loss, Environmental Programmes and Policies – Global, National and Local levels,

**Unit-3-** Hazards and disasters: Meaning, concepts, method and approaches; Elements of Disaster management,

**Unit-4** Disaster management: Earthquake, Tropic Cyclone Disaster, Landslide, Flood Hazards, Drought and famine; Localized weather related hazards; Biological and Health hazards, Anthropogenic Disasters; Man-Induced erosion and sedimentation; Global warming and climatic change

**Unit-5-** Disaster mitigation Programme- Institutional organization and policy framework of disaster management in India: - Disaster management in India- Histogenesis, NDMA, National Policy on Disaster Management, Disaster management act; disaster management strategies, mitigation and prevention; Disaster response, Relief and rehabilitation; Disaster management and environmental laws, National Forest Policy of India, Economic and financial aspect of disaster management

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### III. CORE COURSE TRANSPORT AND TOURISM GEOGRAPHY

[CCGEO313]

Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100

Pass Marks: (MSE: 17 + ESE: 28) = 45

(Credits: Theory-04, 60 Hours)

**Course Objective:**

The Learning objective of this course are as follows-

1. To familiarize the about cultural geography, its concept, nature and scope; migration social categories
2. To make students learn about Tribal geography and its concepts; Tribes and their economic activities, marriage, faith and practices

**Course Learning Outcomes:**

After the completion of course, the students will have ability to:

1. Understand the nature, scope and relationships of geography and human wellbeing;
2. Acquire knowledge on spatial dimensions of cultural diversity components;
3. Understand the aspects of Tribal geography and tribal socio-economic characteristics

**Contents:**

**Unit- I** Nature, scope, significance of and Development of Transport Geography, factors of Development: Physical, Economic, Social, Economic and transport and regional Modes development, relative significance of transport (railways, roadways, Waterways).

**Unit- II** Accessibility and flow models; network structure, measurement of accessibility, Models of network change, Function, pattern of movement and transport Development.

**Unit- III** Nature, scope and extent, concept of tourism, Relationship between geography and Tourism, Eco- tourism, Geo-tourism, Agro-tourism, Heritage Religions tourism and Adventure tourism.

**Unit-IV** Types of tourism- Domestic and the international, Adventure, wildlife, Pilgrimage, Business, Leisure, Pleasure, and cultural tourism, Local, National and international, Socio-Economic impact of tourism.

**Unit-V** Infrastructural approach for the development of tourism, Govt. policies for Planning and Promotion of tourism in India, prospect and manning of tourism in India. Case studies: Hill Station – Mount Abu, Shimla, Ooty, Beach points- Kwalum, Goa and Mariano Beach, Historical Centre – Mysore, Jaipur, Delhi, Religious- Puri, Deoghar Tirupati, Kedarnath, Mahakal (Ujjain); Dams- Tehri, Hirakud, Masanjor National Parks-Palamu Tiger reserve, Kaziranga and Gir.

**References-**

1. Hagget, F and Chorley, R.J. Network analysis, Edward Arnold, London, 1973
2. Raza, M and Agrawal, Y.P., Transport Geography in India. Concept Publication New Delhi, 1985.
3. White, H.P. and Senior, M.L; Transport- Longmon London, 1983.
4. Ulman, E.L. American Commodity flow, University of Washington press, 1957.
5. Bhatia, A.K. (1996) Tourism Development sterling Publisher, New Delhi.
6. Singh, R.L. and Kashi Nath Singh; Reding in Rural Settlement, Geographers.
7. Sharma, J.K. (2000) Tourism, Plannings, and Development – A New perspective Kanishks

**IV. CORE COURSE  
CULTURAL AND TRIBAL GEOGRAPHY**

[CCGEO314]

**Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100****Pass Marks: (MSE: 17 + ESE: 28) = 45****(Credits: Theory-04, 60 Hours)****Course Objective:**

The Learning objective of this course are as follows-

1. To familiarize the about social geography, its concept, nature and scope; migration social categories
2. To make students learn about Tribal geography and its concepts; Tribes and their economic activities, marriage, faith and practices

**Learning Outcomes:**

After the completion of course, the students will have ability to:-

1. Understand the nature, scope and relationships of geography and human wellbeing;
2. Acquire knowledge on spatial dimensions of social diversity components;
3. Understand the aspects of Tribal geography and tribal socio-economic activities

**Course Content:****Unit 1-** The Nature Meaning & Scope of Cultural Geography. The evolutionary approach in cultural geography. The Framework of cultural Geography. The evolution of cultural Geography-The contribution of Otto Schluter and Carl Sauer**Unit 2-** Cultural Geography: Elements & Components; Cultural Areas & Cultural Realm. Environment and Culture: Concept of cultural areas and cultural regions.**Unit 3-** Cultural adaptation and Environmental perception. . Focus on similarities and differences of various cultures with respect to racial, religious, linguistic, and demographic, characteristics in Indian context.**Unit 4-** Tribal Geography- meaning, concept, and scope of tribal geography; Tribes and their habitat- Geographical distribution of Indian tribes, groups and sub-groups; Economic activities; Socio- Political Organization- Family, Marriage and kinship, faith, beliefs and practices,**Unit 5-** Tribal rights- Land, forests, water; Emerging social problems- Health and education, malnutrition, illiteracy, Alcoholism; Industrialization and tribe, mining and tribes, displacement**References**

1. Ahmed A., 1999: Social Geography, Rawat Publications.
2. Casino V. J. D., Jr., 2009) Social Geography: A Critical Introduction, Wiley Blackwell.
3. Cater J. and Jones T., 2000: Social Geography: An Introduction to Contemporary Issues, Hodder Arnold.
4. Panelli R., 2004: Social Geographies: From Difference to Action, Sage.
5. Rachel P., Burke M., Fuller D., Gough J., Macfarlane R. and Mowl G., 2001: Introducing Social Geographies, Oxford University Press.
6. Smith D. M., 1977: Human geography: A Welfare Approach, Edward Arnold, London.
7. Smith S. J., Pain R., Marston S. A., Jones J. P., 2009: The SAGE Handbook of Social Geographies, Sage Publications.
8. Sopher, David (1980): An Exploration of India, Cornell University Press, Ithasa
9. Valentine G., 2001: Social Geographies: Space and Society, Prentice Hall.



## V. CORE COURSE PRACTICAL

[CPGEO315]

Marks: 100 (ESE Pr: 6 Hrs) = 100

Pass Marks = 45

(Credits: Practical-04, 120 Hours)

### Instruction to Question Setter for

#### End Semester Examination (ESE Pr):

There will be one Practical Examination of 6Hrs duration. Evaluation of Practical Examination may be as per the following guidelines:

|                           |            |
|---------------------------|------------|
| Experiment/Lab work       | = 70 marks |
| Practical record notebook | = 05 marks |
| Attendance                | = 05 marks |
| Viva-voce                 | = 20 marks |

### Practicals:

#### INSTRUMENTAL SURVEY

#### Course Objective:

The Learning objective of this course are as follows-

1. To familiarise students about various Instruments, methods, tools and techniques of ground survey
2. To make student learn and apply project development.

#### Course Learning Outcomes:

After the completion of course, the students will have ability to:

1. Understand the importance of field work, types of survey and application of instruments for leveling
2. Handle and apply the instrument to measure height, spot height determination techniques
3. Synthesis and develop the idea of project work on the basis of secondary and primary survey.

#### Course Content:

**Unit 1:** Importance of field work, Scope and purpose, Types of survey, Principles and applications of selected survey instruments, Plane Table, Plan preparation, Resection method: two point problem, three point problem, Tracing paper method.

**Unit 2:** Prismatic Compass: Open and closed traverse, elimination of error by Bowditch Rule. Other smaller instruments: Sextant, Abney Level and Indian Clinometer. Dumpy Level: Traverse Survey, Spot height determination and contour plan preparation,

**Unit 3:** Theodolite: horizontal and vertical (height) measurement, Accessible and inaccessible method. Survey of selected area, Preparation of base map by the use of surveying instruments.

**Unit 4:** Measures of Central Tendency, Dispersion, Skewness, Kurtosis, Moments, Correlation, Regression.

#### References:

1. Monkhouse F.J and Wilkinson H.R (1952) Maps and Diagrams, their Compilations and Concentration, Muthuen & Co. London.
2. Harwel J.D, Newson M.D. (1973)- Techniques in Physical Geography, Mc. Millan Edu. Ltd. London.
3. Sarkar, A: Practical Geography – A Systematic Approach.
4. R.L. Singh (2010) Practical Geography, Sharada Pustak Bhavan, 11, University Road, Allahabad, UP - India
5. Singh R.L. (1979) Elements of Practical Geography, Kalyani Publishers, New Delhi.
6. Kaanetkar and Kulkarni: Surveying and Levelling, Part-I and Part-II.
7. R.L. Singh (2010) Practical Geography, Sharada Pustak Bhavan, 11, University Road, Allahabad, UP - India
8. Sharma, J.P. (2011): Prayogik Bhugol, Rastogi Publications, Meeruth.
9. Chouhan, P.R. (2005) Prayogik Bhogol, Vasundhara Prakashan, Gorakhpur.
10. Hiralal (2006): Prayogik Bhugol, Radha Publications, New Delhi
11. Tiwari, R.C. & Tripathi, S. (2011): Prayogatamak Bhugol, Prawalika Publications, Allahabad.
12. Khullar, D.R. (2002): Prayogatamak Bhugol Ke Tatwa, New Academic Publishing Company, Jalandhar.

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**SEMESTER II**


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**I. ELECTIVE COURSE-A  
AGRICULTURAL GEOGRAPHY**

[ECGEO411A]

Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100

Pass Marks: (MSE: 17 + ESE: 28) = 45

(Credits: Theory-04, 60 Hours)

**Course Objectives:**

On completion of this course, the students will be able to understand:

1. Nature, scope and development of agriculture geography
2. Determinants of agricultural land use, cropping pattern, theories of agricultural location

**Course Learning Outcomes:**

On successful completion of this course the student should know:

1. Land reforms, land use policy and planning
2. Classification of agricultural regions, agro-climatic regions of India

**Course Content:**

**Unit 1:** Nature and scope, Significance and development of agricultural geography, Approaches to the study of agricultural geography, Origin and dispersal of agriculture, Sources of agricultural data.

**Unit 2:** Determinants of agricultural land use – Physical, economic, social and technological, Land holding and land tenure systems, Land reforms, Land use policy and planning, Cropping pattern, Intensity of cropping.

**Unit 3:** Theories of agricultural location based on several multi-dimensional factors, Von Thunen's model and its recent modifications, Whittlesey's classification of agricultural regions, Agro-climatic regions of India.

**Unit 4:** Agriculture in India – Land use and shifting cropping pattern, New trends in Indian agriculture, Green Revolution, White Revolution, Blue Revolution, Problems of Indian agriculture, Agricultural Policy of India.

**References:**

1. Mohammad Shafi (2006): Agricultural Geography, Dorling Kindersley (India) Pvt. Ltd. New Delhi.
  2. Negi. B.S. (2003) Indian Agriculture: problems, Progress & Prospects, Vikas publishing house Pvt. Ltd. S. Ansari Road, Daryagani, New Delhi-2.
  3. Majid Hussain (2000): Agricultural Geography, Ed Anmol Publishing Pvt. Ltd. Ansari Road, Daryagani, New Delhi-2.
  4. Shafi M. (1999): Agricultural Geography, Kedarnath Ram Nath, 132, College road, Meerat UP-1.
  5. Singh & Dhillon (2000): Agriculture Geography, Prayag Pustak Bhavan, 20 A, University road, Allahabad-211002, UP.
  6. Jasbir singh (2001): Agriculture geography, Prayog Pustak Bhavan, 20 A, University road, Allahabad-211002, UP.
  7. Memonia CB (1998): Agriculture Problems in India: Prayog Pustak Bhavan, 20 A, University road, Allahabad-211002, UP.
  8. Majid Husain (2007): Systematic Agricultural Geography, Rawat publications, Jawahar Nagar, Jaipur, New Delhi – 92.
  9. Goh Cheng Leong & Gillian C. Morgan (2009): Human and Economic Geography, Oxford University Press, New Delhi, New York.
  10. The Hindu Publications: 2005 to 2010; Survey of Indian Agriculture.
  11. Tiwari, R.C., & Singh, B.N. (2015): Krishi Bhugol, Prawalika Publications, Allahabad
  12. Singh, Indira (2007): Krishi Bhugol, Discovery Publishing Home, New Delhi.
  13. Lesely Simon (Translated by Shyam Sundar Katore) (1989): Krishi Bhugol, Madhya Pradesh Hindi Granth Academy, Bhopal.
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OR ELECTIVE COURSE-B  
**REMOTE SENSING AND GIS**

[ECGEO411B]

Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100

Pass Marks: (MSE: 17 + ESE: 28) = 45

(Credits: Theory-04, 60 Hours)

**Course Objective:**

The Learning objective of this course are as follows-

1. To explain the meaning, concept, and definition Remote sensing and GIS, as an important tool in the study and explaining geographic phenomenon
2. To familiarise students about satellite remote sensing, data processing and interpretation, classification
3. To aware students about use of GPS and GIS, its principle, working mechanism and applications

**Course Learning Outcomes:**

After the completion of course, the students will have ability to:

1. Appreciate the strength and application of remote sensing and GIS
2. Map the resources, their location and availability
3. Apply this knowledge for sustainable development

**Course Content:**

**Unit 1:** Stages in remote sensing data acquisition; physics of remote sensing; electromagnetic spectrum (ems); EMR and its interaction with atmosphere and earth surface features.

**Unit 2:** Remote sensing - platforms: types and their orbital characteristics; sensors types: active and passive; sensors systems: whiskbroom and push broom; satellite series: IRS, SPOT, IKONOS and Quick Bird.

**Unit 3:** Digital image processing: digital data formats; image restoration: geometric, radiometric, and atmospheric corrections; Filtering; Image enhancement: linear and nonlinear, contrast stretch; band combinations; image classifications: supervised and unsupervised.

**Unit 4:** Geographic information system and global positioning system:

Components of GIS; Data Structures; Data Base Management System (DBMS); Data Models; spatial data analysis and applications; Fundamentals of GPS; Segments of GPS; GPS Applications.

**References:**

1. Lillesand T.M and Keifer R.W. 2008(6th edition). Remote Sensing and Image Interpretation. John Wiley and Sons, New York.
2. Joseph George. 2005(2nd edition), Fundamentals of Remote Sensing. University Press. Hyderabad
3. Sabins, F.F. 1986. Remote Sensing: Principles and Interpretation. Freeman, New York
4. Rashid S.M. and Mazhar A.K. 1993. Dictionary of Remote Sensing. Manak Publishing House, Delhi
5. Lo, C.P. and Yeung A.K.W. 2006(2nd edition). Concepts and Techniques of GIS, Prentice – Hall of India, New Delhi.
6. Masood, A.S. 2006. Introduction to GIS, Allahabad.
7. Fazal S. and Rahman A. 2007. GIS Terminology. New Age International Publishings, New Delhi
8. Leick. A. 2003(2nd edition). GPS Satellite Surveying. John Wiley and Sons, New York.
9. N.K. Agarwal. 2004. Essentials of GPS, Spatial Network Pvt. Ltd.

OR ELECTIVE COURSE-C  
URBAN GEOGRAPHY

[ECGEO411C]

Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100

Pass Marks: (MSE: 17 + ESE: 28) = 45

(Credits: Theory-04, 60 Hours)

**Course Objective:**

The Learning objective of this course are as follows-

1. To familiarise students about Urbanization, its patterns and theories
2. To make student learn about urban functions, urban sprawl, urban renewal-policies, Master plan

**Course Learning Outcome:**

After the completion of course, the students will have ability to:

1. Understand the fundamentals and patterns of urbanization process
2. Learn the functional classification of cities and Central Place Theory
3. Know about policies of urban development of India

**Course Content:**

**Unit 1:** Nature and scope of Urban Geography-Definition of Urban Settlements (Towns, Cities and Metro etc.), Attributes of urban places during ancient, medieval and modern period, Classification of urban settlements on the basis of size and function, Urban growth and theories, Central Place theory of Christaller and Losch, Contribution of Indian scholars to the studies of urban settlements.

**Unit 2:** Urban Population Density and Land Value Curves- Urban Land Use – Vertical and Horizontal Growth of Cities, Concentric, Zonal and Multiple Nuclei Theories of Urban Structure.

**Unit 3:** Urban Functions- Basic and Non-Basic- Urban Hierarchy- Rank-Size Rule – Central Place Theory – Functional Classification of Towns by C.D. Harris and H.J. Nelson. Urban Issues & Challenges: Water supply, traffic congestion, solid waste, smog, sewage and drainage system.

**Unit 4:** Concept of City, Region and Urban Hinterland – Urban Sprawl- Urban Slums – Urban Crimes and their Trends with reference to India- Concept and Issues of Peri-Urbanization. Elements of Urban Planning – Urban Renewal – Policies of Urban Development in India – Master Plans of Ranchi City.

**References:**

1. Beanjen-Garnier J&G. Chabot (1967) Urban Geography, John Wiley, New York.
2. Northham Ray M. (1975) Urban Geography, Jhon Wiley & Sons, Inc. New York
3. Ranan Paddison (2001) Hand Book or Urban Studies, University of Glasgow, U.K., Sage Publications, N. Delhi.
4. Peter Roberts (2000) Urban Regeneration, University of Dundee, U.K., Sage Publication, New Delhi.
5. Saskia Sassen (2000) Cities in a World Economy, University of Chicago, USA, Sage Publications, New Delhi.
6. Stephen Ward (2004) Planning and Urban Change, Sage Publications, New Delhi
7. Karen Stromme Christensen (1999) Cities and Complexity, University of California, Berkely USA, Sage Publication, New Delhi.
8. Mayer H.M. & Kohn CF (1967) Urban Geography, Central Depot, Allahabad, India
9. King Leslie J. & Regionald G. Golledge (1978) Cities, Space and Behaviour 0 The Elements of Urban Geography, Pentice-Hall, Inc. Englewood Cliffs, New Jersey, USA.
10. Mandal R.B. (2002) Urban Geography – A Text Book, Concept Publishing Company, New Delhi.
11. Siddhartha K & S. Mukherjee (1996). Cities, Urbanization and Urban Systems, Transworld Media and Communication Pvt. Ltd. New Delhi
12. Johnson James H (1966) Urban Geography – An Introductory Analysis, Pergamon Press Oxford, London.
13. Bansal, S.C. (2011): Nagariya Bhogol. Meenakshi Publication, Meeruth.
14. [www.geography.about.com/cs/cities/urban/geo/](http://www.geography.about.com/cs/cities/urban/geo/)
15. [www.brixworth.demon.co.uk/leeds/](http://www.brixworth.demon.co.uk/leeds/)



## II. ELECTIVE COURSE-A SOIL GEOGRAPHY

[ECGEO412A]

Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100

Pass Marks: (MSE: 17 + ESE: 28) = 45

(Credits: Theory-04, 60 Hours)

**Course Objectives:**

On completion of this course, the students will be able to understand:

1. Significance of soil geography
2. Soil forming factors, process of soil formation and soil development
3. Physical properties of soil, texture, air, temperature and other properties

**Course Learning Outcomes:**

On successful completion of this course the student should know:

1. Spatio-temporal dimensions of soil formation
2. Soil organisms, soil erosion, degradation and conservation
3. Evaluation of land and soil

**Course Content:**

**Unit 1:** Nature, scope and significance of Soil Geography; its relationship with Pedology, Soil forming factors: parent material, organic, climatic, topographic, Spatio-temporal dimensions, Processes of soil formation and soil development: Physical, Biotic and Chemical. Soil profile.

**Unit 2:** Soil organism, macro-animals (earthworms, sowbugs, mites, centipedes, rodents and insects), Micro-animals and plants-Nematodes, Protozoa, Rotifers, Fungi, Bacteria, algae and Actinomyces.

**Unit 3:** Physical properties of soils: Morphology, Texture, Structure, Water, Air, Temperature and other properties of soil, Chemical properties of soil and soil reaction, Soil erosion, Degradation and Conservation

**Unit 4:** Evaluation of land and soil: Parametric and non-parametric systems, Land capability classification, Soil reclamation and management: soil survey and landforms in environmental management, Sustainable development of soil resources with reference to India.

**References:**

1. Miller, R. W. and Donahue, R. L. (1992): Soils: An Introduction to Soils and Plant Growth, Prentice-Hall of India, New Delhi
2. Brady, N. C., and Weil, R. R. (2008): The Nature and Properties of Soils, Prentice Hall, New Jersey
3. Pitty, A. F. (1978): Geography and Soil Properties, Methuen and Co., London
4. Bridges, E. M. and Davidson, D. A. (1982): Principles and Applications of Soil Geography, Longman Group, London
5. Daji, J. A. (1970): A Textbook of Soil Science, Asia Publication House, New York
6. Birkeland, P. W (1999): Soils and Geomorphology, Oxford University Press, New York
7. Govinda Rajan, S.V. and Gopala Rao, H.G.: Studies on soils of India, Vikas, New Delhi, 1978.
8. Raychoudhuri, S.P.: Soils of India, ICAR, New Delhi, 1958.
9. Bunting, B.T.: The Geography of Soils, McGraw Hill, New York.
10. Clarke, G.R.: Study of the Soil in the Field, Oxford University Press, Oxford, 1957.
11. Foth H.D. and Turk, L.M.: Fundamentals of Soil Science, John Wiley, New York, 1972.
12. Bennet, B.T.: Soil Conservation, McGraw Hill, New York.

OR ELECTIVE COURSE-B  
APPLICATION OF REMOTE SENSING & GIS

[ECGEO412B]

Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100

Pass Marks: (MSE: 17 + ESE: 28) = 45

(Credits: Theory-04, 60 Hours)

**Course Objectives:**

On completion of this course, the students will be able to understand:

1. Application of remote sensing and GIS in natural resource monitoring and management
2. Application of Geo-spatial tools in Agriculture, environmental monitoring, Hazards and disaster management
3. Application of remote sensing in Urban planning and land use planning

**Course Learning Outcomes:**

On successful completion of this course the student should know:

1. Concept and classification techniques of land use land cover
2. Application of remote sensing and GIS in urban planning

**Course Content:**

**Unit-1-** Application of remote sensing for natural resources monitoring and management: Geomorphology and structural mapping; Fluvial mapping, Drainage network and patterns, description and analysis of landforms, water resources mapping, land use, land cover and urban sprawl//mapping

**Unit-2-** Application in agriculture: content of moisture in the soil, determining crop types and classifications, crop condition assessment, crop damage and progress, water content determination, mapping soil; management and crop health

**Unit-3-** Application in Environment monitoring and management: Land Use Land Cover change, environmental impact assessment, biodiversity conservation

**Unit-4-** Application in hazards and disaster management: hazard assessment, vulnerability assessment (Degree of loss of population), building infrastructure, economic activities, risk assessment; quantifying number of lives, cost damage to property, preparation of map

**Unit-5-** Application in urban planning: land use pattern, Green zones, Residential areas, coastal cities Disasters and transport planning

**References:**

1. Lillesand T.M and Keifer R.W. 2008(6th edition). Remote Sensing and Image Interpretation. John Wiley and Sons, New York.
2. Joseph George. 2005(2nd edition), Fundamentals of Remote Sensing. University Press. Hyderabad
3. Sabins, F.F. 1986. Remote Sensing: Principles and Interpretation. Freeman, New York
4. Rashid S.M. and Mazhar A.K. 1993. Dictionary of Remote Sensing. Manak Publishing House, Delhi
5. Lo, C.P. and Yeung A.K.W. 2006(2nd edition). Concepts and Techniques of GIS, Prentice – Hall of India, New Delhi.
6. Masood, A.S. 2006. Introduction to GIS, Allahabad.
7. Fazal S. and Rahman A. 2007. GIS Terminology. New Age International Publishings, New Delhi
8. Leick, A. 2003(2nd edition). GPS Satellite Surveying. John Wiley and Sons, New York.
9. N.K. Agarwal. 2004. Essentials of GPS, Spatial Network Pvt. Ltd.



Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100

Pass Marks: (MSE: 17 + ESE: 28) = 45

(Credits: Theory-04, 60 Hours)

**Course Objective**

The Learning objective of this course are as follows-

1. To familiarise students about the rural development, and its concept
2. To make student learn about programme and plans for the development of rural development

**Learning Outcomes:**

After the completion of the course, the students will have the ability to:

1. Appreciate the concepts, needs and various approaches to rural development;
1. Understand the strong economic bases of rural areas of India;
2. Appreciate the area based and target group based approaches and provision of services to rural development.

**Course Content:**

**Unit-1-** Rural Development: Definition types, areas, parameters, progress and development, Development and growth, development and change, indicators of development. Theories of Rural Development: Economic theory, welfare theory, quality of life theory, human rights theory, sustainable development theory, LPG theory, Gandhian Concept of Rural Development. Models of Rural development: Agriculture labour, skill and education development, local self-governance, Panchayati Raj

**Unit-2-** Rural Livelihood and Resources: Livelihood- Types, Approach- meaning and principles, livelihood framework, assessment of livelihood reality, livelihood policy and programmes. Resource- Resources-ownership, Access and use- Rural environment: Environmental conservation, Climatic change and its impact on Rural livelihood.

**Unit-3-** Rural Development Programmes in India: History of Rural Development Programmes, Changing model and approaches of Rural Development Programmes in different plan period, , Barrier of Rural Development Programmes, Cultural, Social Geographical educational, Communications.

**Unit-4-** Evaluation of Rural Development Programmes- MNREGA, PMGSY, SJSY, Jan Dhan Yojana, Millets Mission

**References:**

1. Anand, Subhash. (2013): Dynamics of Rural Development, Research India Press, Delhi
2. Gilg, A. W., (1985): An Introduction to Rural Geography, Edwin Arnold, London.
3. Krishnamurthy, J., (2000): Rural Development - Problems and Prospects, RawatPubs., Jaipur
4. Lee, D. A. and Chaudhri, D. P., (eds.) (1983): Rural Development and State, Methuen, London.
5. Misra, R. P., and Sundaram, K. V., (eds.) (1979): Rural Area Development: Perspectives and Approaches, Sterling, New Delhi.
6. Misra, R. P., (ed.), (1985): Rural Development: Capitalist and Socialist Paths, Vol. 1, Concept, New Delhi.

**III. CORE COURSE  
MINING AND INDUSTRIAL GEOGRAPHY**

[CCGEO413]

**Marks: 30 (MSE: 20 Th. 1 Hr + 5 Attd. + 5 Assign.) + 70 (ESE: 3 Hrs) = 100****Pass Marks: (MSE: 17 + ESE: 28) = 45****(Credits: Theory-04, 60 Hours)****Course Objectives:**

On completion of this course, the students will be able to understand:

1. Distribution of economic mineral, mineral deposits
2. Origin, occurrences and formation of mineral deposits
3. Concept of Industrial geography, trends of industrialisation, problems and prospects in Jharkhand

**Course Learning Outcomes:**

On successful completion of this course the student should know:

1. Process of mineralization, magmatic concentration
2. Mineral extraction, conservation, trade and sustainable development in Jharkhand

**Course Content:****Unit-1-** Mining Geography: Concept, Definition and scope, Distribution of economic mineral, regional surveying mineral deposits, investigation and exploitation**Unit-2-** Origin, Occurrences and formation of mineral deposits: origin of minerals, mineral thermometer, process of mineralization, magmatic concentration, contact metasomatism, Hydro thermal process, Cavity filling and metasomatic replacement; residual and mechanical concentration, sedimentation, oxidation and secondary processing, metamorphism and sublimation**Unit-3-** Origin of some important metallic (Iron, Gold, Platinum, Silver, Lead, Zinc and Nickel; Non Metallic- Coal, petroleum; Granite quarries and sand mining, causes and consequences of mining; Mineral exploitation, Conservation, Trade and sustainable development in Jharkhand**Unit-4-** Industrial Geography: meaning, nature and scope, industrial growth in India and Jharkhand, present trends of industrialization in Jharkhand. Bases of Industrial development in Jharkhand- a case study of important industry- Iron ore, Manufacturing; Footloose industry**Unit-5-** Industrialization- causes and consequences, Industrial regions, Industrial revolutions, problems and prospects of Industrialization in Jharkhand, trends and trade of Industrial products, industrialization and sustainable resource development**Reference-**

1. Maurya, S.D (2020)- Audyogik bhugol, Pravalika Publication, Prayagraj
  2. Maurya, S.D-(2020) Industrial geography, Pravalika Prakashan, Prayagraj
  3. Sinha and Singh (2009), Jharkhand: Land and People, Rajesh Publication
  4. Baghela, Sunil, Industrial Geography
  5. Prasad, Umeswar – Bihar- Arthik bhu-vigyan ewam bharat ki khandeej sampada: Bihar Hindi Granth Akadami
  6. Dunn, J.N- Economic Geography of Bihar
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#### IV. ELECTIVE COURSE-A PRACTICAL-A

[EPGEO414A]

Marks: 100 (ESE Pr: 6 Hrs) = 100

Pass Marks = 45

(Credits: Practical-04, 120 Hours)

##### Instruction to Question Setter for

##### End Semester Examination (ESE Pr):

There will be one Practical Examination of 6Hrs duration. Evaluation of Practical Examination may be as per the following guidelines:

|                           |            |
|---------------------------|------------|
| Experiment/Lab work       | = 70 marks |
| Practical record notebook | = 05 marks |
| Attendance                | = 05 marks |
| Viva-voce                 | = 20 marks |

##### Practicals:

##### SOIL GEOGRAPHY

##### Course Objectives:

On completion of this course, the students will be able to understand:

1. Land capability, agricultural efficiency, cropping intensity
2. Soil profiles, composition of soil
3. Stream ordering, drainage density

##### Course Learning Outcomes:

On successful completion of this course the student should know:

1. Crop combination, Cropping intensity
2. Finding stream order, soil pH and soil nutrients

##### Course Content:

##### Unit 1:

Land capability, Agricultural Efficiency, Cropping Intensity, Crop Combination.

##### Unit 2:

Study of Soil pH Value, Nitrogen Content, Phosphorus and Construction of Soil Profiles.

##### Unit 3:

Stream Ordering, Drainage Density, Drainage Texture, Thalweg, Channel Profiles, Hypsometric Curve, Area-height Diagram.

##### Unit: 4

Water Budget, Rainfall Dispersion Diagram, Ergo graph, Climatograph.

##### References-

1. Miller, R. W. and Donahue, R. L. (1992): Soils: An Introduction to Soils and Plant Growth, Prentice-Hall of India, New Delhi
2. Brady, N. C., and Weil, R. R. (2008): The Nature and Properties of Soils, Prentice Hall, New Jersey
3. Pitty, A. F. (1978): Geography and Soil Properties, Methuen and Co., London
4. Bridges, E. M. and Davidson, D. A. (1982): Principles and Applications of Soil Geography, Longman Group, London
5. Daji, J. A. (1970): A Textbook of Soil Science, Asia Publication House, New York
6. Birkeland, P. W. (1999): Soils and Geomorphology, Oxford University Press, New York
7. Govinda Rajan, S.V. and Gopala Rao, H.G.: Studies on soils of India, Vikas, New Delhi, 1978.
8. Raychoudhuri, S.P.: Soils of India, ICAR, New Delhi, 1958.
9. Bunting, B.T.: The Geography of Soils, McGraw Hill, New York.
10. Clarke, G.R.: Study of the Soil in the Field, Oxford University Press, Oxford, 1957.
11. Foth H.D. and Turk, L.M.: Fundamentals of Soil Science, John Wiley, New York, 1972.
12. Bennet, B.T.: Soil Conservation, McGraw Hill, New York.

OR ELECTIVE COURSE-B  
PRACTICAL-B

[EPGEO414B]

Marks: 100 (ESE Pr: 6 Hrs) = 100

Pass Marks = 45

(Credits: Practical-04, 120 Hours)

**Instruction to Question Setter for**End Semester Examination (ESE Pr):

There will be one Practical Examination of 6Hrs duration. Evaluation of Practical Examination may be as per the following guidelines:

|                           |            |
|---------------------------|------------|
| Experiment/Lab work       | = 70 marks |
| Practical record notebook | = 05 marks |
| Attendance                | = 05 marks |
| Viva-voce                 | = 20 marks |

**Practicals:**

## REMOTE SENSING AND GIS

**Course Objectives:**

On completion of this course, the students will be able to understand:

1. Satellite image analysis, recognition of elements and interpretation keys
2. Creation of spatial data- vector data model
3. Using GPS, finding location, tracking

**Course Learning Outcomes:**

On successful completion of this course the student should know:

1. Creation of point, line and polygons to represent geographical features
2. Linking spatial and non-spatial data, creating map layout
3. Finding location, marking waypoints or location of GPS

**Course Content-**

**Unit 1:** Image analysis: Principles of visual image interpretation, recognition elements and interpretation keys for visual interpretation (Shape, size, colour, tone, texture, association), Interpretation of Satellite Image (Landsat, LISS III, LISS IV, Cartosat etc.)

**Unit 2:** Photographs Identification of Spatial Data: point, line and Polygon Features, Representation of Spatial Features: Raster and Vector Data Model, Data Structure, Overlay analysis, Change Analysis and Buffer Analysis.

**Unit 3:** Introduction GIS Software, Geo-referencing and Projection Spatial data entry, editing, query building and executing, Topology creation and linking spatial and non-spatial data, Spatial data visualization and output Map Generation.

**Unit 4:** Introduction to GPS, Finding latitude, longitude and altitude, Tracking in GPS, Routing in GPS.

**References:**

1. Peter A. Burrough and Rachael A. McDonnell (1998) Principles of Geographic Information systems, Oxford University Press, New York.
2. Aronoff S. (1989) Geographic Information System, A Management Perspective, WDL Publications, Ottawa, Canada
3. Ian Heywood, Sarah Cornelius, Steve Carver (2003), An Introduction to Geographic Information System, Pearson Education Ltd., India.
4. Chrisman N.R. (1997) Exploring Geographic Information System, Wiley, New York.
5. [www.gisdevelopment.net/tutorials/human008.html](http://www.gisdevelopment.net/tutorials/human008.html)
6. [www.gislounge.com/remotesensing.html](http://www.gislounge.com/remotesensing.html)



(Credits: Practical-04, 120 Hours)

**Instruction to Question Setter for**End Semester Examination (ESE Pr):

There will be one Practical Examination of 6Hrs duration. Evaluation of Practical Examination may be as per the following guidelines:

|                                |            |
|--------------------------------|------------|
| Experiment/Lab work/Case study | = 50 marks |
| Practical record notebook      | = 25 marks |
| Attendance                     | = 05 marks |
| Viva-voce                      | = 20 marks |

**Practicals:****URBAN- RURAL GEOGRAPHY**Course Objectives:

On completion of this course, the students will be able to understand:

1. linear and exponential growth rate of population.
2. Traffic flow cartograms, scatter diagrams to represent geographical data
3. Taking case study and preparing report

Course Learning Outcomes:

On successful completion of this course the student should know:

1. Methods of geographical data representation
2. Preparing Case Study report

Course Content:**Unit-1-** Linear and exponential growth rate of population; Standardization of data using "Z" Score**Unit-2-** Areal or Stigmen Bauer's method, Volumetric or Sten de Geer's Method, Pie Diagram (Representing urban population, Value-area Cartograms,**Unit-3-** Traffic-flow Cartograms, Scatter Diagrams, Spherical Diagrams, Compound pyramid (Growth of rural-urban population), Superimposed pyramid diagram**Unit-4-** A case study on evaluation of any selected programme in a village or ward using Secondary and or Primary data to be done by a group of five to ten students. The report should be handwritten on A4 size page in candidate's own words not exceeding 1000 words (excluding references). The report should contain a proper title and incorporate relevant maps, tables, diagrams, and references not exceeding 8 pages, photographs are optional.**References-**

1. Basu, P. 2021: Advanced Practical Geography- a laboratory manual, 4ed, Books and Allied
2. Alviz, 2002, Statistical Geograpy, Method and applications, Rawat Publication
3. Croxton, F.E. Cowden, D.J., 1994: Applied General Statistics, Prentice Hall
4. Mahjmoor, A. Raza, M. 1998, Statistical method in Geogrphical Studeies, Rajesh Publication
5. Pal, S.K. 1998. Statistics for Geoscientists: Techniques and applications, Concept publication
6. Sarkar, A. 2015 Practical Geography, A Systematic Approach, 3rd Ed, Orient Blackswan

## V. PROJECT DISSERTATION/ PROJECT/ TEACHING APTITUDE

[PRGEO415]

Marks: 100 (ESE Pr: 6 Hrs) = 100

Pass Marks = 45

(Credits: 04, 120 Hours)

### *Guidelines to Examiners for* End Semester Examination (ESE):

The evaluation of the dissertation will be done in 100 marks (70 marks + 30 marks of the session). The sessional component will be evaluated by the concerned supervisor.

The end term evaluation (70 marks) will be done by a board of examiners. The end term evaluation in 70 marks will include the literary and scientific presentation of the dissertation and the performance in the viva-voce.

*Overall project dissertation may be evaluated under the following heads:*

- *Motivation for the choice of topic*
- *Project dissertation design*
- *Methodology and Content depth*
- *Results and Discussion*
- *Future Scope & References*
- *Participation in Internship programme with reputed organization*
- *Application of Research technique in Data collection*
- *Report Presentation*
- *Presentation style*
- *Viva-voce*

### **Course Objectives:**

1. To develop research skills and scientific inquiry through independent investigations of a Geographical problem.

### **Course Outcomes:**

On successful completion of this course the student should know:

1. About conducting a research with approve stages of research methodology in Geography. Dissertation will enable student to further investigate and navigate different aspects and events of life through research.

### **PROJECT WORK**

Each student has to submit three copies of hard bound dissertation work (along with the raw data), duly forwarded by the HOD of Department concerned. The forwarded copies will be submitted in the Department of Geography, Ranchi University, for evaluation (one month before the viva voce examination).

The paper may involve:

- (a) Laboratory research/ Field work/ Lab work related to the project.
- (b) Survey research, Case Study or any other type of Research in Geography
- (c) One Large study/ Experiment or several studies/ Experiments depending on the objectives of the research.
- (d) The writing of dissertation must be within 80 to 100 pages including references and appendices.
- (e) Content must be typed in Font: Times New Roman with Line Spacing: 1.5 and Font Size 14 points.

Presentation of project work in the seminar on the assigned topic in the P.G. Department of Geography, Ranchi University, Ranchi & open viva there on.

**Topics:** As decided by the Supervisor/Guide

**TEACHING APTITUDE:** Only selected candidates, in alternative to the Dissertation, may be provided duty to teach the assigned topics in selected colleges. The performance may be evaluated based on the organized feedback for the candidate.