Queen Mary's College (Autonomous)

Chennai - 600 004

PG & RESEARCH DEPARTMENT OF GEOGRAPHY

M.Sc GEOGRAPHY

SYLLABUS

2021 onwards

CONTENTS

QUEEN MARY'S COLLEGE (A), CHENNAI – 4

PG AND RESEARCH DEPARTMENT OF

GEOGRAPHY, BOARD OF STUDIES – (2021

ONWARDS)

MINUTES OF THE BOARD MEETING HELD ON

29.3.2021 REVISION OF PG (GEOGRAPHY AND

GTA) SYLLABI

THE MEETING OF THE BOARD OF STUDIES WAS HELD ON 29- 03- 2021. THE PROPOSED NEW SYLLABI WERE PRESENTED BEFORE THE BOARD.

CHANGES MADE

- **RESOLVED TO REFRAME THE EXISTING SEQUENCE OF COURSES- CORE AND ELECTIVE.**
- **COURSE II- FEW ALTERATION AND REARRANGEMENT OF UNITS.**
- **PRATICAL COURSES WERE DISTRIBUTED IN ALL THE SEMSTERS.**
- **SYLLABI OF TANSCHE HAS BEEN REFERRED FOR UPDATION OF OUR SYLLABUS.**
- **UNIFORMITY HAS BEEN MAINTAINED FOR ALL SUBJECTS IN THE**
  - **ALLOTMENT OF MARKS**
  - **THEORY AND PRACTICAL HOURS**
  - **QUESTION PAPER PATTERN**
  - **INTERNAL EVALUATION PATTERN**

SUGGESTIONS MADE BY THE EXPERTS WERE CARRIED OUT. THE COPY OF THE SYLLABI AFTER CARRYING OUT THE SUGGESTIONS WAS SUBMITTED FOR APPROVAL

QUEEN MARY'S COLLEGE (A), CHENNAI – 4

PG and RESEARCH DEPARTMENT OF GEOGRAPHY, TOURISM AND ADMINISTRATION

BOARD OF STUDIES – (2021 ONWARDS)

MINUTES OF THE BOARD MEETING HELD ON 29.3.2021

The meeting of the Board of studies was held on 29 -03-2021. The proposed new syllabi were presented before the board.

MEMBERS OF THE BOARD

1. **DR. G. GEETHA** **CHAIR PERSON**
   ASSISTANT PROFESSOR and HEAD
   PG and RESEARCH DEPARTMENT OF GEOGRAPHY
   QUEEN MARY'S COLLEGE (A), CHENNAI - 4

2. **MRS. S. ESWARI** **UNIVERSITY NOMINEE**
   ASSISTANT PROFESSOR AND HEAD
   GEOGRAPHY AND TOURISM, TRAVEL MANAGEMENT
   MADRAS CHRISTAIN COLLEGE
   CHENNAI - 59

3. **MR. B. VASUDEVAN** **SUBJECT EXPERT**
   ASSITENT PROFESSOR
   DEPARTMENT OF GEOGRAPHY
   PRESIDENCY COLLEGE(A)
   CHENNAI -5

4. **DR. M.V.KARUNAMBIGAI** **SUBJECT EXPERT**
   ASSITENT PROFESSOR
   DEPARTMENT OF TOURISM AND TRAVEL MANAGEMENT
   JUSTICE BHASEER AHEMAD SYED COLLEGE FOR WOMEN
   CHENNAI- 18

INTERNAL MEMBERS (ALL THE MEMBERS OF STAFF)

- Ms.D.YAMUNASELVI
- MRS.T.KAVITHA
- MRS.K.S.BANU
- MRS.R.GEETHA
- DR.MRS.S.MUTHUNAGAI
- DR.MRS.B.VIJAYAKUMARI
- MRS.S.KALPANA
- MRS.P.SURIYA
- DR.MRS.J.NANDHINI

ALUMNAE OF THE DEPARTMENT

- Ms. BHAGISHREE DOULI (RESEARCH SCHOLAR)
- DR. (Mrs.) JOY RUBY VIOLET (GUEST LECTURER)

STUDENT REPRESENTATIVE

- Ms. M. KAVIBHARATHI (II MSc GTA)
- Ms. E. SANDHIYA (II MSc GEO)
- Ms. T. KRISHNA MOUNIKA(MPHIL)

LIST OF COURSEWITH CREDITS FOR THE PROPOSED NEW SYLLABI (PG)

SEM	Course No.	Title of the Course	Code No.	UE	IA	TOTAL	C
I	I	APPLIED GEOMORPHOLOGY	PC5641	75	25	100	4
	II	ADVANCED CLIMATOLOGY	PC5642	75	25	100	4
	III	THEMATIC CARTOGRAPHY	PC5643	75	25	100	4
	IV	GEOGRAPHY OF INDIA WITH SPECIAL REFERENCE TO TAMIL NADU	PC5644	75	25	100	4
	V	**PRACTICAL – I** ANALYTICAL PHYSICAL GEOGRAPHY	PC5645	75	25	100	4
II	VI	THEORETICAL ECONOMIC GEOGRAPHY	PC5646	75	25	100	4
	VII	REGIONAL PLANNING AND DEVELOPMENT	PC5647	75	25	100	4
	VIII	**PRACTIACL – II** QUANTITATIVE TECHNIQUES FOR GEOGRAPHICAL DATA	PC5648	75	25	100	3
	IX	**ELECTIVE**-I CULTURAL GEOGRAPHY	PE5616	75	25	100	3
	X	FIELD WORK IN GEOGRAPHY	PE5617	75	25	100	3
	XI	**EDE**-1 RESEARCH ANALYTICAL TECHNIQUE	PD5608	75	25	100	4
III	XII	GEOGRAPHICAL THOUGHT	PC5649	75	25	100	4
	XIII	REMOTE SENSING AND ITS APPLICATIONS	PC5650	75	25	100	4
	XIV	**PRACTICAL – III** REMOTE SENSING TECHNIQUES	PC5651	75	25	100	3
	XV	**ELECTIVE-III** POLITICAL GEOGRAPHY	PE5618	75	25	100	3
	XVI	**ELECTVE-IV** RESEARCH METHODLOGY	PE5619	75	25	100	3
	XVII	**EDE**-II FUNDAMENTALS OF GEOGRAPHICAL INFORMATION SYSTEM	PD5609	75	25	100	4
IV	XVIII	SETTLEMENT GEOGRAPHY	PC5652	75	25	100	4
	XIX	POPULATION GEOGRAPHY	PC5653	75	25	100	4
	XX	**PRACTICAL – IV** COMPUTER AND GIS APPLICATION	PC5654	75	25	100	3
	XXI	PROJECT	PC5655	75	25	100	4
	XXII	**ELECTIVE-V** APPLICATION OF GEO-SPATIAL TECHNOLOGY	PE5620	75	25	100	4

C – Core; DE - Department Elective; EDE – Other Department Elective

SOFT SKILLCOURSES

S.NO	SEM	TITLE OF THE COURSE IN THE NEW SYLLABUS	NO. OF CREDITS	CODE	MARKS	
					EXT	INT
1	I	LANGUAGELAB Soft skill- I	2	PSS11	75	25
2	II	PERSONAL SKILLS Soft skill- II	2	PSS12	75	25
3	III	SOCIALSKILLS Soft skill- III	2	PSS13	75	25
4	IV	EMPLOYABILITY SKILLS Soft skill- IV	2	PSS14	75	25
INTERNSHIP						
1	II	INTERNSHIP		PININ	75	25

CHOICE BASED CREDIT SYSTEM FOR P.G

2021- 2022

TotalnumberofCourse- 27 91 credits

TYPE OF COURSE	NO. OF COURSE	CREDITS PER COURSE	CREDITS
CORE	15	4	60
CORE ELECTIVE	5	3	15
OTHER DEPARTMENT ELECTIVE	2	3	6
SOFT SKILL	4	2	8
INTERNSHIP	1	2	2

Outof7electivecourse5electivecoursewillbeoffered byparent department(II, IIIand IVSemester)

The remaining 2 elective course will be offered to all Other PG students in the college (II and III Semester)

*Week-6working day order Semester–15 such weeks

S. NO.	CORE/ELECTIVE	HRS/WEEK*	NO. OF WEEKS*	TOTAL HOURS / SEMESTER*
1	Core	06	15	90
2	Elective	04	15	60

- Number of Units in the syllabus of core course 05
- Number of Units in the syllabus of elective course 05
- Maximum marks per course 100
- **Total marks 2200**

QUANTIFICATION: END SEMESTER EXAMINATION

QUESTION PAPER PATTERN

(EFFECTIVE FROM THE ACADEMIC YEAR 2018 - 2019)

CORE and ELECTIVE COUSERS **Maximum Marks: 100**

Internal Assessment: 25 **External Valuation: 75**

Part – A	Part – B	Part- C
5 x 2 = 10 marks	**5 x 4 = 20 marks**	**3 x 15 = 45 marks**
Answer all the questions	**Answer all the questions**	**Answer any 3 questions out of 5**

Question	Unit
1	I
2	II
3	III
4	IV
5	V

Question	Unit
6(a) or 6(b)	I
7(a) or 7(b)	II
8(a) or 8(b)	III
9(a) or 9(b)	IV
10(a) or 10(b)	V

Question	Unit
11	I
12	II
13	III
14	IV
15	V

INTERNAL EVALUATION METHODOLOGY FOR ALL THE PROGRAMS:

- √ Quiz programme or e-Quiz
- √ Periodical class tests
- √ Objective type assignments
- √ Problem solving assignments (INDIVIDUAL/GROUP)
- √ Individual seminar USING **POWERPOINT**
- √ Seminar based on lecture notes available online
- √ Group Discussions/Debate/Interactive Sessions
- √ Digital computation exercises with spreadsheet or Excel wherever possible
- √ Oral presentation on Topics of interest

QUANTIFICATION OF INTERNAL EVALUATION - PG THEORY

- Minimum 6 tests–2 out of 6
- Minimum 3 assignments–best of three
- Model Examination for 75 marks reduced to 10 marks

TEST	ASSIGNMENT	SEMINAR	MODEL EXAM	TOTAL	CONTINUOUS INTERNAL ASSESSMENT
10	**10**	5	75	**100**	-
Reduced To					
5	5	5	10		25

PRACTICALS

Maximum Marks: 100

InternalAssessment:25 **External Valuation :75**

Model test for 75 marks reduced to 5 marks

RECORD	MODEL	REGULARITY	NEATNESS	TOTAL
5	10	5	5	25

PRACTIAL EXAM–END SEMESTER
75

Passing minimum

UniversityExamination 50%

Aggregate(CIA+UE) 50%

Grade Points and Cumulative Grade Point Average are awarded in the mark sheet

TEACHING METHODOLOGIES ADOPTEDFOR THE PG PROGRAM

1. CHALKTALK
2. TEXT BOOKLEARNING
3. DIGITAL LEARNING-ONLINEPPT-LECTURENOTES
4. VIDEO LECTURE–ONLINE–YOUTUBE–GOOGLEMEET-CLASSROOM
5. INTERACTIVE SESSIONS
6. STUDENT SEMINAR
7. LECTURE BY EXPERTS IN FIELD–INVITED TALKS
8. PARTICIPATORY LEARNING–LECTURES IN OTHER INSTITUTIONS

PROGRAM EDUCATIONAL OBJECTIVE (PEO):

On par with theinstitutional vision and mission, M.Sc. Geography Programme aimsatimparting knowledge and skills to the students enabling them to

- Pursue higher education, enrich research habits and procure job opportunities through strong and amplelearningofthecoreandrelatedsubjectswithadequateexposuretodigitalliteracyand training to communicate their original ideas effectively. (PEO1)
- Probe and utilize appropriate resources and tools to be life–long learners, demonstrate analytical skills and be fit globally competent. (PEO2)
- Improve leadership qualities in creating successful and self-confident citizens with rational thinking and scientific temper. (PEO3)

PROGRAM SPECIFIC OUTCOME (PSO):

After completing M.Sc. Geography Programme, the student would be able to

1. Transmit fundamental knowledge in the core subjects, explore new pathways in experimental and theoretical geography, perceive new ideas and analogy in every approach towards learning, choose an area of research and pursue higher education (PSO1:PO1).
2. Utilize digital tools and e-resources available as open-source for knowledge addition, learning and create innovative applications (PSO2:PO7).
3. Critically analyze any problem scientifically, accompanied by original and diversified thinking and perform duties successfully with rational thinking and scientific temper (PSO3:PO3).
4. Exhibit good interpersonal skills through effective communication and interactions, propose ideas and participate in core discussions and conferences, adopt better perspective towards life with confidence and remain a responsible citizen(PSO4:PO2).
5. Foster inquiring qualities, focus upon deep self-learning, thrive with the quest of enhanced and self-disciplined learning and raise queries of interest(PSO5:PO4).

PROGRAM OUTCOME (PO):

The outcome of the PG program in Geography would be to create an individual with very high knowledge in the subject concepts, develop good communication skills through frequent seminars and digitally conversant through presentations, get inclined to analyze and solve problems, have a quest for enquiry and learning. The program also gives abundant opportunity for students to pursue disciplinary cum systematic learning (**PO**1), enhance and explore her communication skill set (**PO**2), undergo thorough training in analyzing problems(**PO**3), motivated to learn through questions and updated topics (**PO**4), work in teams (**PO**5) to take initiatives (**PO**6), become digitally efficient (**PO**7), embrace moral values (**PO**8), be aware of the resources available to equip knowledge (**PO**9), earnest to be self-learner (**PO**10) and project their findings globally. However, it is up to the student to take her thought initiative forward to reach her goal. The skill levels are checked on a scale of 3 and correlated as low (1), moderate (2) and strong (3) for each unit of the course to arrive at the total correlation of skills for the program. Any level of skill below 30 % is not correlated and left as blank.

Graduate Attributes for M.Sc. Geography Programme:

PO1.Disciplinary knowledge and skills: Ability to demonstrate(i)good knowledge and understanding of major concepts and theories in Climatology, Geomorphology, Thematic Cartography. ii) Compares the spatial aspects of population and settlement pattern. iii) Understands political economic and cultural background at world level. iv) Realizesthatgeographicalknowledgeismandatoryforregionalplanning. v) Develops knowledge of about Remote sensing, GIS and apply it in practical situation. vi) Develop skills in data processing, mapping methods manually, interpretation of aerial photography and satellite imageries, acquire talent in handing GPS for surveying, handles confidently SPSS software for statistical analysis and GIS software for mapping purpose.**(PSO1)**

PO2. Skilled communicator: Competence to acquire sophisticated knowledge and training the skills through soft skill courses, convey advanced, technical and complex information pertaining to all areas in Geography in a clear and concise manner both in writing and orally communicating the learnt concepts, to present them in a simple language through a digital tool for better understanding and compilation there by strengthening theiranalytical, interpretation and report makings kills**(PSO4).**

PO3.**Critical thinker and problem solver:** Make links across different areas of knowledge, generate, develop and evaluate ideas, reflect on their learning and information related to their project (**PSO3**).

P**O4.Senseofinquiry:** Proficient to ask pertinent/appropriate questions relating to the origin and effects, problems in the field of various environmental situation, and planning, executing and reporting the results.(**PSO5).**

PO5.**Teamplayer/worker:** Accomplished to work efficiently in diversified teams in both classroom and laboratory, workshop and in internships and field- based situations like seminar or competitions.

PO6.**Skilledprojectmanager:** Skillful to identifyorgatherappropriateresourcesrequiredforaproject/ Case Studyandmanagethetaskthrough to completion, whileobserving responsible as well as principled, scientific hygiene and conduct, laboratory safety norms and practices. Develop idea, synthesize, characterize new dataand suggest their applications throughprojects.

PO7.**DigitallyEfficient:** Become digitally fit and gain expertise to use computers for basic computations in Excelsheet, SPSSfornumerical, graphicalandstatisticalanalysis ofdata, GIS softwarefor mapping. (**PSO2**).

PO8.**Ethical awareness / reasoning:** Ability to think and analyze rationally with modern and scientific outlook andidentifyethicalissues related toone's work; avoid unethical behaviorsuch as fabrication, falsification ormisrepresentation ofdataorcommitting plagiarism. Adhering tointellectual property rights, and adoptingobjectives, unbiased and truthful actions in all aspects of work.

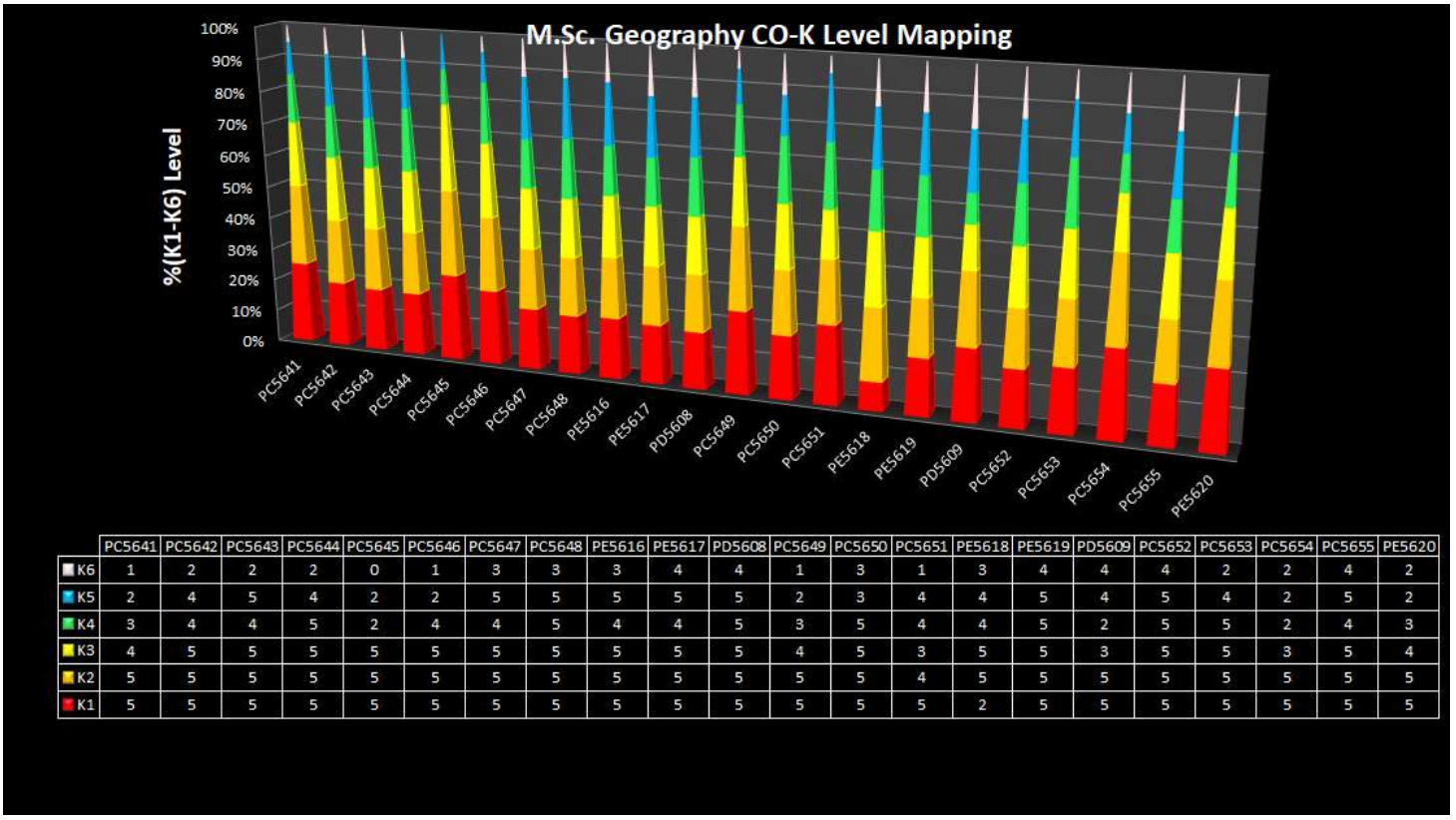
PO9.**Nationalandinternational perspective:** Thegraduatesshouldbeabletodevelopanationalaswell as international perspective for their career in the chosen field of theacademic activities. They should prepare themselvesduring their most formative years for theirappropriate role in contributing towards the national development and projecting our national priorities at the international level pertaining to their field of interest and future expertise. Compulsory participation in several in-house and external conferences paves a way for this attribute.

PO10. **Lifelong learners:** Competenttocarryself-paced andself-directedlearning aimed at personal development and for improving knowledge/skill development and re-skilling in all areas of geography. Continuousinternal activities in every coursestrengthen the confidence level in a student.

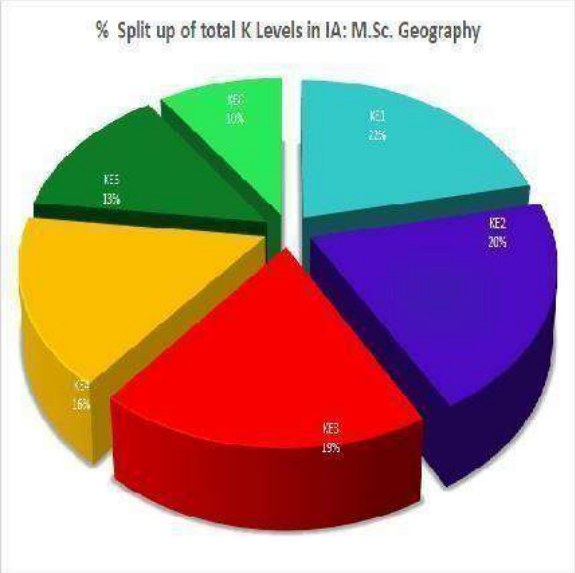
PROGRAM COURSE OUTCOME (CO):

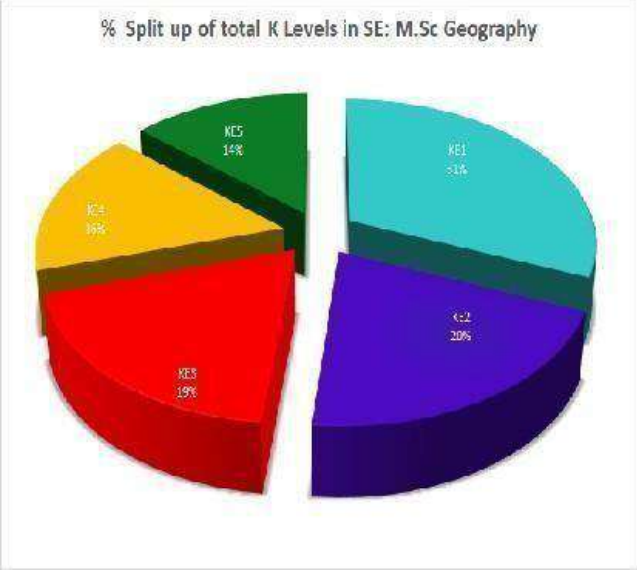
The PG Geography curriculum has been designed to fit thoroughly into the ideologies of Bloom's taxonomy with strong knowledge level foundation, catering to remembering and understanding of the advanced concepts in Geography. Applying and analyzing the studied concepts scientifically based on the thorough theoretical and experimental knowledge acquired in all related fields, focused well in the evaluation pattern of both the continuous internal assessment and end-semester examination. Due weightage to creativity is given in internal assessment and project. The rational correlation of the course outcomes is evident in the evaluation pattern which is the strength of the course. Students would have acquired competence in areas of recent development and can fit themselves in places of scientific temper as they have the skill, computer knowledge and mastered the subject. Knowledge levels imparted in the

curriculum are categorized based on Bloom's taxonomy under 6-levels as K1, K2, K3, K4, K5 and K6 and mapped to check their presence or absence and are not scaled.

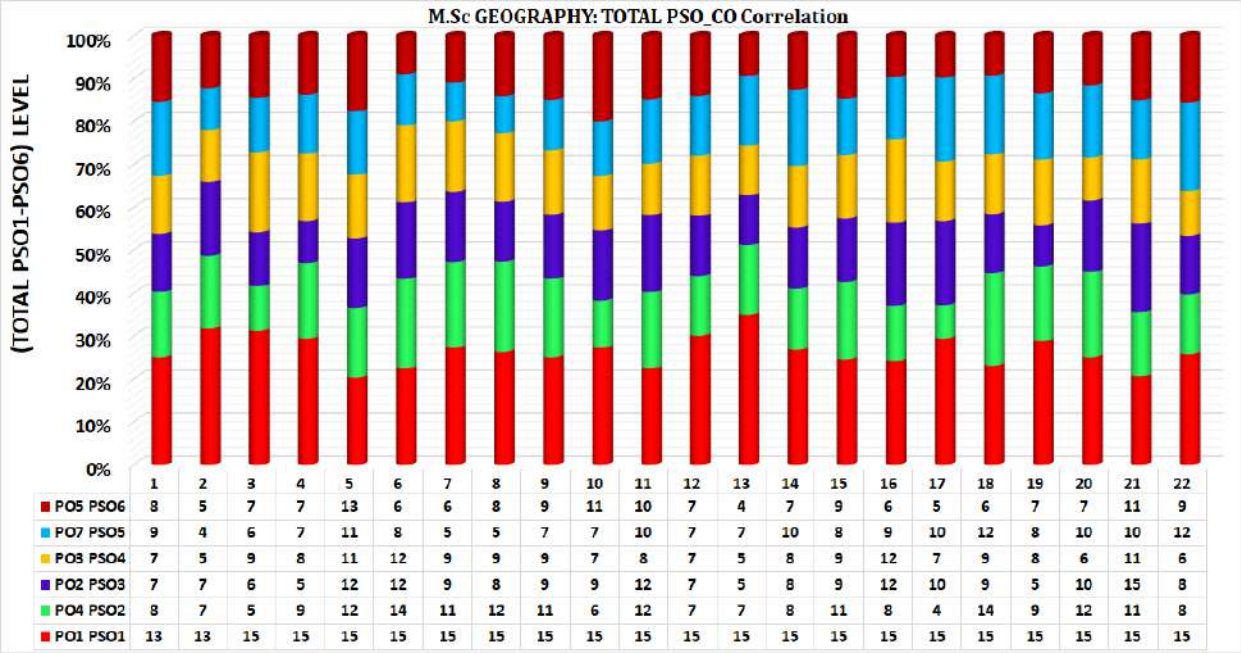


	PC5641	PC5642	PC5643	PC5644	PC5645	PC5646	PC5647	PC5648	PE5616	PE5617	PD5608	PC5649	PC5650	PC5651	PE5618	PE5619	PD5609	PC5652	PC5653	PC5654	PC5655	PE5620
K6	1	2	2	2	0	1	3	3	3	4	4	1	3	1	3	4	4	4	2	2	4	2
K5	2	4	5	4	2	2	5	5	5	5	5	2	3	4	4	5	4	5	4	2	5	2
K4	3	4	4	5	2	4	4	5	4	4	5	3	5	4	4	5	2	5	5	2	4	3
K3	4	5	5	5	5	5	5	5	5	5	5	4	5	3	5	5	3	5	5	3	5	4
K2	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5
K1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2	5	5	5	5	5	5	5

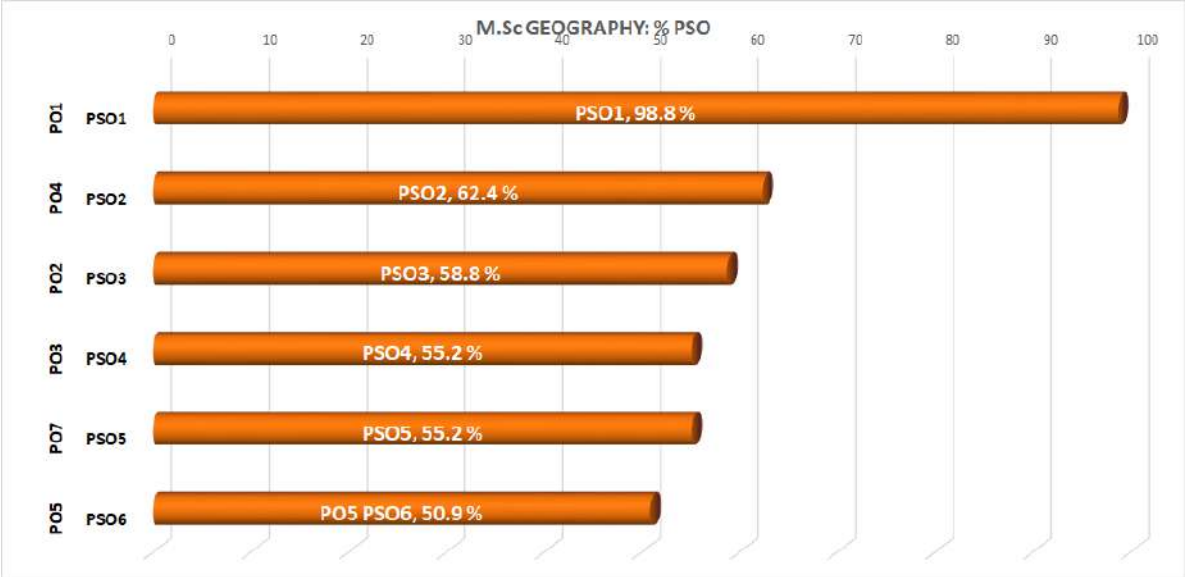




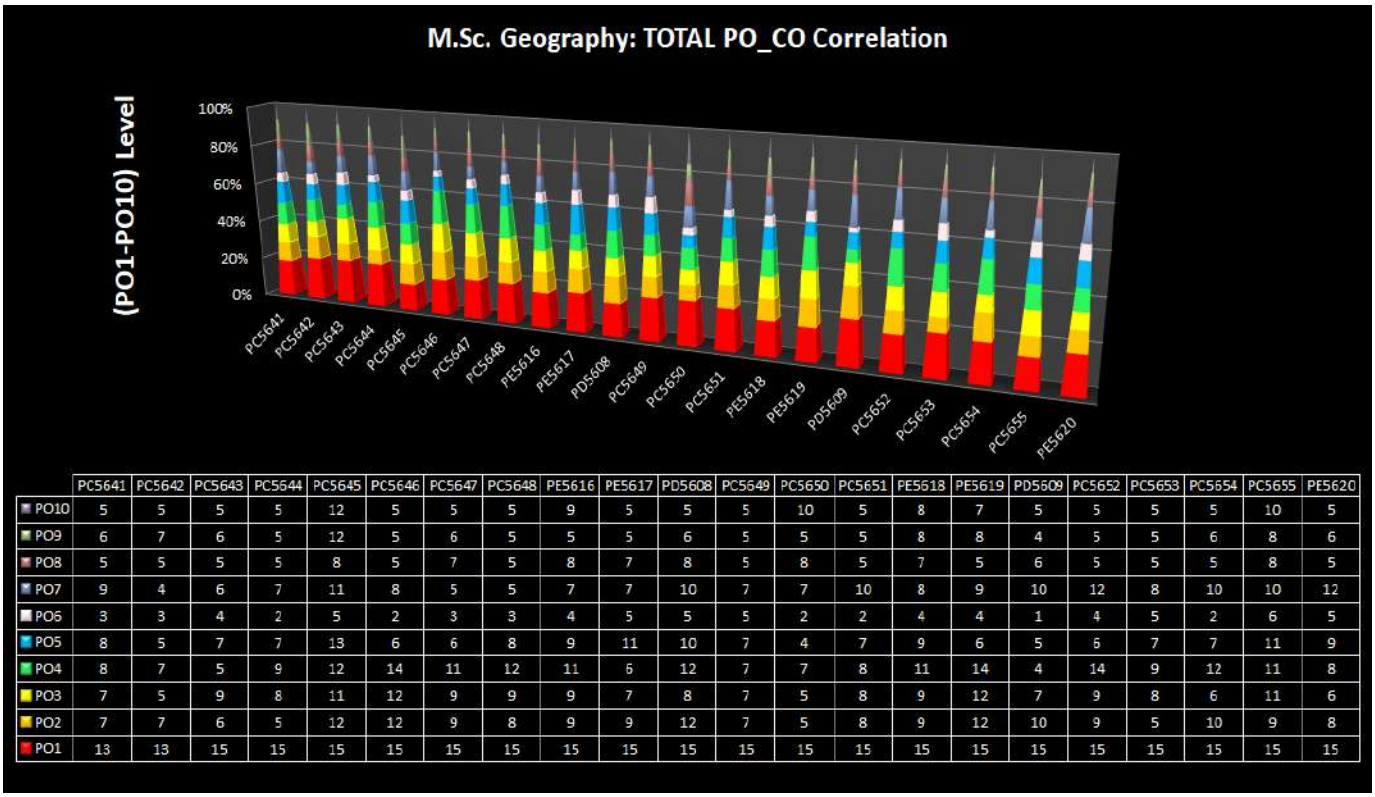
NOTE: Kindly refer Appendix for mapping and correlation details of all courses of the Program.



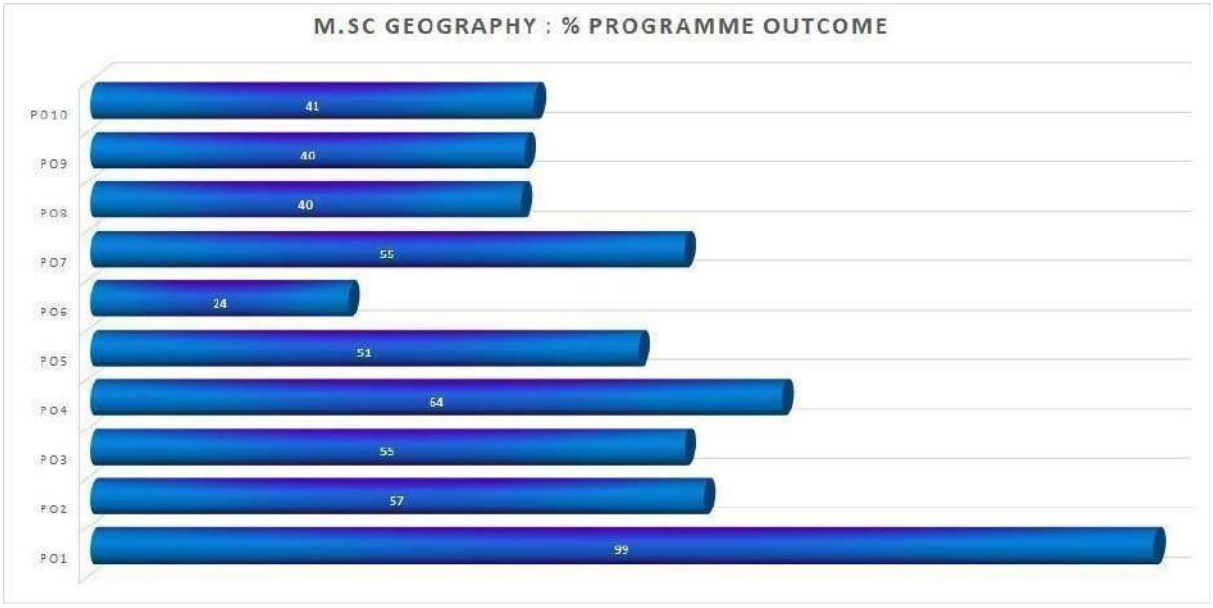
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
PO5 PSO6	8	5	7	7	13	6	6	8	9	11	10	7	4	7	9	6	5	6	7	7	11	9
PO7 PSO5	9	4	6	7	11	8	5	5	7	7	10	7	7	10	8	9	10	12	8	10	10	12
PO3 PSO4	7	5	9	8	11	12	9	9	9	7	8	7	5	8	9	12	7	9	8	6	11	6
PO2 PSO3	7	7	6	5	12	12	9	8	9	9	12	7	5	8	9	12	10	9	5	10	15	8
PO4 PSO2	8	7	5	9	12	14	11	12	11	6	12	7	7	8	11	8	4	14	9	12	11	8
PO1 PSO1	13	13	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15



PO-CO MAPPING



	PC5641	PC5642	PC5643	PC5644	PC5645	PC5646	PC5647	PC5648	PE5616	PE5617	PD5608	PC5649	PC5650	PC5651	PE5618	PE5619	PD5609	PC5652	PC5653	PC5654	PC5655	PE5620
PO10	5	5	5	5	12	5	5	5	9	5	5	5	10	5	8	7	5	5	5	5	10	5
PO9	6	7	6	5	12	5	6	5	5	5	6	5	5	5	8	8	4	5	5	6	8	6
PO8	5	5	5	5	8	5	7	5	8	7	8	5	8	5	7	5	6	5	5	5	8	5
PO7	9	4	6	7	11	8	5	5	7	7	10	7	7	10	8	9	10	12	8	10	10	12
PO6	3	3	4	2	5	2	3	3	4	5	5	5	2	2	4	4	1	4	5	2	6	5
PO5	8	5	7	7	13	6	6	8	9	11	10	7	4	7	9	6	5	6	7	7	11	9
PO4	8	7	5	9	12	14	11	12	11	6	12	7	7	8	11	14	4	14	9	12	11	8
PO3	7	5	9	8	11	12	9	9	9	7	8	7	5	8	9	12	7	9	8	6	11	6
PO2	7	7	6	5	12	12	9	8	9	9	12	7	5	8	9	12	10	9	5	10	9	8
PO1	13	13	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15



APPLIED GEOMORPHOLOGY

Semester:I **Code: PC5641**

Course: I **Credit:4**

Learning Objectives: This paper explains the Interior forces within and on the earth which resulting to various landforms on the earth surface. Understanding the landforms and theories of Geomorphology paves the knowledge for the hydrologists, resource explorers and the Engineers.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledgeofgeomorphology andtheadvancestudiesinthefieldofgeomorphology.

CO1	In Scope and Content, **Show** the Approaches in Geomorphology, Fundamental concepts-. Explain the **Classification** of Geological Time Scale, Structure of Earth's Interior (Sial –Sima-Nife). **Infer** the Origin of Continents and Ocean Basins. **Distinguish and discuss** the important theories like Wegner's Theory of Continental Drift- Plate, Tectonics Theory Seafloor spreading and Isostasy. **Individual Activity: Students will prepare a model of Continent and Ocean Basins and the sea floor spreading (PO8, PO5, PO10)**	K1 K2 K4 K5 K6
CO2	Rocks: **When** rocks Originated, based on origin and characteristics Classify the types. Discuss the Orogenetic, Tectonic forces, due to this forces **explain** Folds and Faults formation and its types. Sudden forces**: Identify** types and distribution of Volcanoes and its types. Classify the Earthquakes and list out the types and Distribution of Earthquakes, Tsunami. In Denudation Differentiate and **Categorise** Weathering and Mass Wasting Courtesy : https://www.youtube.com/watch?v=nexUjEkX4PI **Group Activity: Students will have a game on the distribution of volcanoes and earthquakes and Quiz activities in the topics of rocks , Tectonic and sudden forces (PO4,PO5)**	K1 K2 K3 K5
CO3	Landforms associated with fluvial action: **Outline** the Types of Streams and its Drainage Pattern. Classify and list out the landforms formed due to Erosion, transportation, Depositional fluvial landforms. **Contrast** the Cycle of Erosion by Davis and Penck. Courtesy: https://www.youtube.com/watch?v=r0eSyM6_K7A **Individual activity :Students will present the Seminar (Po3) on the topic of landforms caused at three stages of river with ppt presentation**	K1 K2 K3 K4
CO4	Landform associated with Glacial**, Show** the features caused by Erosion, Transportation, Depositional landforms. **Classification** of Aeolion landforms at the Erosion, Transportation, Depositional. List out the landforms caused in Karst regions by Erosion, Transportation, Depositional landforms. **Organise** and distinguish the Coastal action: Erosion, Transportation, Depositional landforms and Coastal Classification (Sheppard, Johnson and Valentine). Courtesy : https://www.youtube.com/watch?v=KXDHLv0jPL8 **Students will encourage to prepare a table and list out the various landforms with the examples , illustrations(PO6)**	K1 K2 K3
CO5	**Define** the Applied Geomorphology and list out the Application of Geomorphology in the field of Hydrology stratigraphic and lithological zones . Show the River channel restoration and implication of Groundwater potential. **Choose**the Dam Sites and Select the Good reservoir sites for Resource exploration. Differentiate the surface expression of ore bodies, Weathering residues, Placer Deposits and Oil Exploration. IIustrate the **Inference** on Hazards Management. **Students individual activity: Students will write an assignment on the Significance, Application and its Implications of Applied Geomorphology**	K1 K2 K3 K4

CO/PO/PSO	PO									
	1 Disciplinary **knowledge and skill**	**2 Skilled** communicators	**3 critical thinkers and problem solver**	**4 Sense of inquiry**	**5 Team players/ worker**	**6 Skilled project managers**	**7 Digitally efficient**	**8 Ethical** awareness/ **reasoning**	**9 National and International perspective**	**10 Life long learners**
CO1	3	2	2	2	1		2	1	1	1
CO2	3	1	1	1	2	1	2	1	2	1
CO3	2	1	1	1	2	1	2	1	1	1
CO4	3	2	1	2	2	1	2	1	1	1
CO5	2	1	2	2	1		1	1	1	1
CO-PO-Avg	3	2	2	2	2	1	2	1	1	1
CO-PO_Total	**13**	**7**	**7**	**8**	**8**	**3**	**9**	**5**	**6**	**5**

COURSE OUTLINE:

The students are able to have thorough knowledge of Basics of landforms, Earth's Interior and formation of Landforms.

Unit I: Scope and Content - Approaches in Geomorphology – Fundamental concepts- Geological Time Scale-Structure of Earth's Interior (Sial –Sima-Nife) - Origin of Continents and Ocean Basins: Wegner's Theory of Continental Drift- Plate -Tectonics Theory - Seafloor spreading – Isostasy.

Unit II: Rocks: Origin , Classification, types and Characteristics of rocks- Orogenetic forces: Folds -Types of Folds – Tensional forces: Faults and its types -Sudden forces: Volcanoes and its types- Distribution of Volcanoes- Earthquakes and its types- Distribution of Earthquakes- Tsunami_ Denudation :Weathering and its types- Mass Wasting.

Unit III:Landforms associated with fluvial action, Types of Streams- Drainage Pattern- Erosion, transportation, Depositional fluvial landforms- Cycle of Erosion- Davis and Penck.

Unit IV:Landform associated with Glacial: Erosion, Transportation, Depositional landforms- Aeolion: Erosion, Transportation, Depositional landforms -Karst: Erosion, Transportation, Depositional landforms- Coastal action: Erosion, Transportation, Depositional landforms -Coastal Classification (Sheppard, Johnson and Valentine).

Unit V:Applied Geomorphology- Application of Geomorphology to Hydrology- stratigraphic and lithological zones – River channel restoration-Groundwater potential-Dam Sites Selection – Good reservoir sites-Resource exploration: surface expression of ore bodies-Weathering residues-Placer Deposits – Oil Exploration-Hazards Management.

References:

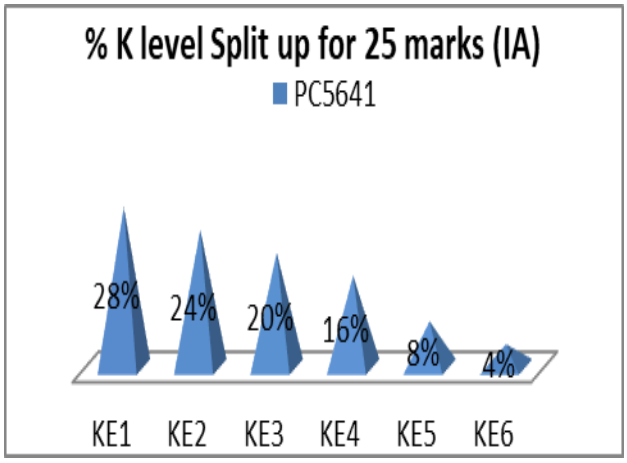
1. Singh,Savindra (2017).*Physical Geography*.PravalikaPublications,Allahabad.
2. Siddhartha,K&Mukherjee. R (2008).*The earth's Dynamic Surface*. Kiyasala publication
3. Singh, Savindra. (2006) *Geomorphology*.PrayagPustakBhawan,Allahabad.
4. Thornbury, W.D. (1960)*Principals of Geomorphology*. John Wiley, New York.

Web Sources:

1. En.wikipedia.org/wiki/Geomorphology
2. En.wikipedia.org/wiki/volcano
3. http://www.geographynotes.com/articles/applied-geomorphology-meaning-two-main-lines-specific-applications-and-techniques/779

CIE-Continuous Internal Evaluation (25 Marks)

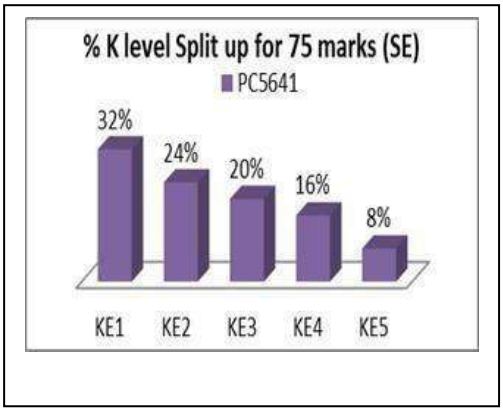
PC5641				
Bloom's Taxonomy	**Test**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (7)	1	1	2	3
Understand (6)	1	0	1	4
Apply (5)	2	2	0	1
Analyse (4)	0	1	1	2
Evaluate (2)	1	0	1	0



ESE – End Semester Examination (75 Marks; Weight age 75 %)

PC5641	
Bloom's Taxonomy	**Weightage %**
Remember	32 %
Understand	24 %
Apply	20 %
Analyze	16 %
Evaluate	8%

[.]



ADVANCED CLIMATOLOGY

Semester:I **Code: PC5642**

Course: II **Credit:4**

Learning Objectives: This paper gives enormous knowledge of climatic elements and general circulation of Atmosphere. It elucidates the classification of climate and causes of recent climatic changes at global level andits remedies.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Recalls** the climatic parameters, heating processes of atmosphere and Heat balance, **list** out the factors affecting the distribution of Temperature and air pressure, describe the distribution of air temperature and pressure, **memorize** and **draw** the major pressure belts of the world **Group Activities: www.skepticalscience.com able to follow the website and present a seminar on the topic Energy Flow in Climate system PO1 PO2 PO3 PO4 PO5 PO7 PO8 PO9 PO10**	K1 K2 K3 K4 K5 K6
CO2	**Associate** the General Circulation of Atmosphere with major pressure belts, able to **demonstrate** the Tri cellular Model, **differentiates** the Jet Streams, **recognize** Clouds and its types ,**classify** types of Precipitation and Types of Rainfall, able to **criticize** the theories of Monsoon and its Mechanism **correlates** the El Nino and its effects on global climate **Reference**: https://www.yourarticlelibrary.com/monsoon/monsoon-classical-and-modern-theories-of-mon **PO1 PO2 PO3 PO4 PO6 PO7 PO8 PO9 PO10**	K1 K2 K3 K4 K5
CO3	**Define** Air masses and its Types, **understands** Fronts and its Types , **identify** and locate their Sources, **explain** the formation of Cyclones, list the factors promoting cyclones **distinguish** between Tropical and extra Tropical cyclones- able to **identifythe criteria** influencing cyclones in Indian coast. **Activity: https://mausam.imd.gov.in/ refer to the website and find out the different forecast and warnings available in it.PO1 PO2 PO3 PO4 PO7 PO8 PO9 PO10**	K1 K2 K3 K4 K5
CO4	**Understands** the basis of Classification of Climate, explains Koppen's Classification, **recognize** Climatic Zones in India based on Koppen's classification and **identify** Agro Climatic zones for India and Tamil Nadu. https://www.yourarticlelibrary.com/geography/15-agro-climatic-zones-in-india-categorised-by-the-planning-commission/42307 **Group activity refer Agriculture, horticulture an dairy government website to prepare and map the agro- climatic zones of Tamilnadu state.PO1 PO2 PO4 PO5 PO 7 PO8 PO9 PO10**	K1 K2 K3
CO5	**Define** Climatic Change, **explains** Greenhouse effect, **identify**Global Warming, Ozone depletion their Causes and effects, **conclude** remedial Measures, **understand** the Concept of Micro Climatology**, correlates** Urban Climatology and Heat Island , criticize Urbanizations as a cause of climate change. **Activitys : Debate on any one of the topic PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10** Reference :http://cccr.tropmet.res.in	K1 K2 K3 K4 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skill	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2	1	2	1	1		1	1	1
CO2	3	1	1	1			1	1	1	1
CO3	3	1	1	1			1	1	1	1
CO4	3	1		1	2	1	1	1	2	1
CO5	3	2	2	2	2	1	1	1	2	1
CO-PO-Avg	3	1	1	1	1	1	1	1	1	1
CO-PO_Total	**15**	**7**	**5**	**7**	**5**	**3**	**4**	**5**	**7**	**5**

COURSE OUTLINE:

Students are able to know Climatic Elements, Circulation of Atmosphere. Students classify India and Tamil Nadu into Agro Climatic regions – Students gain awareness of causes and remedies for climatic change.

Unit 1. Climatic Parameters – Heating Processes - Heat Balance – Factors Affecting the Distribution of Temperature – Temperature Distribution: Horizontal – Vertical – Temperature Inversion – Atmospheric Pressure – Factors Affecting Pressure – Vertical and Horizontal Distribution of Pressure-pressure belts

Unit 2. General Circulation of Atmosphere – Tri cellular Model – Jet Streams – – Clouds and its types Precipitation – Types of Rainfall - Monsoon and its Mechanism – Theories of monsoon –El Nino

Unit 3. Air masses and Types- Fronts and its Types – Sources– Atmospheric disturbances – Cyclones –Factors promoting cyclones- Tropical and extra Tropical cyclones.

Unit 4. Classification of Climate – Koppen's Classification – Climatic Zones in India based on Koppen's classification- Agro Climatic zones for India and Tamil Nadu.

Unit 5. Climatic Change: Greenhouse effect – Global Warming – Ozone depletion – Causes, Effects, Remedial Measures – Concept of Micro Climatology – Urban Climatology – Heat Island – Urbanizations as a cause of climate change.

References:

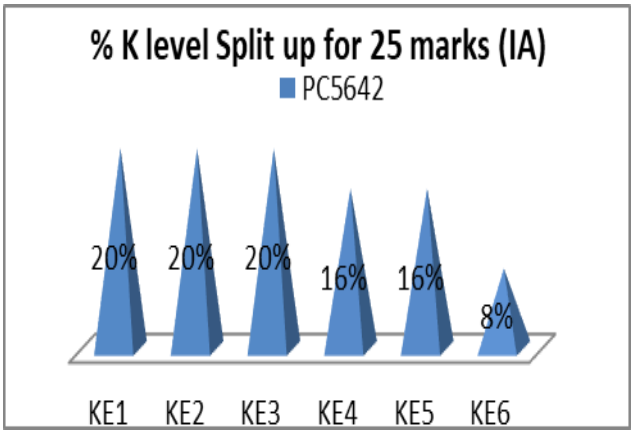
1. Siddhartha.K. (2016). Atmosphere,Weather& Climate. KitabMahal
2. Saha,Pijushkanthi. (2012).Modern Climatology. Allied Publishers Private Limited, New Delhi
3. Lal, D.S.(2006).Climatology.Chitanya Publishing House, New Delhi.
4. Singh,Savindra.(2003) Climatology.PrayagPushtakBhavan – India.
5. Gochenleong. (2001).Certificate Physical and Human Geography. Oxford University Press, NewDelhi
6. Barry, R.G. and Chorley P.J. (1998). Atmospheric Weather and Climate. Routledge, London and New York.
7. Mausam' India Journal of Meteorology.
8. Season crop report published by Agricultural University, Coimbatore.

Web Sources:

1. https://www.environmentalscience.org/climatology

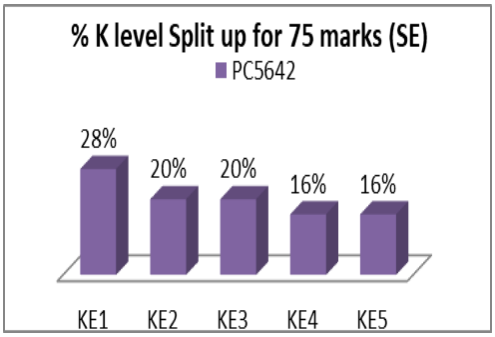
CIE-Continuous Internal Evaluation (25 Marks)

PC5642				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	1	1	2
Understand (5)	1	0	1	3
Apply (5)	2	2	0	1
Analyse (4)	0	1	1	2



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5642	
Bloom's Taxonomy	**Weightage %**
Remember	28%
Understand	20%
Apply	20%
Analyze	16%
Evaluate	16%



THEMATIC CARTOGRAPHY

Semester:I **Code: PC5643**

Course:III **Credit:4**

Learning Objectives:

It gives clear idea of recent trends and development in cartography and compilation of data and generalization of thematic maps. It explains the components and tones of maps and also gives enormous idea of techniques of thematic maps and construction of cartograms.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Student willbeabletounderstandthein-depth knowledge.

CO1	**Recalls and memorize** the basic concepts of cartography and its importance in Geography, it is important to explore their knowledge in maps and types of maps to draw their state's own map by themselves **PO1 PO2. Understands** the Purposes of thematic maps, Acquire the thorough knowledge in Cartographic process to develop the skills to work on Computer Assisted Cartography like, Data encoding, Data input, storing, analysis and display and Data output. **PO3, Understands** the recent trends and developments in Cartography. **PO4 PO5**	K1 K2 K3 K4 K5
CO2	**Understanding**of facts and ideas of compilation data and generalization of thematic maps by organizing Base data. Compare the methods of compilation, methods of generalization**,Applying acquired knowledge of symbolization – symbolizing data at points, line, area, statistical surfaces in excel sheets PO7.** understand the sources of primary data , data selection and its classification, **PO1**	K1 K2 K3 K4 K5
CO3	**Define** the components of map and map design. Appreciate the goals of map design. Construct the elements of map design like distance or scale, direction, legend, sources of information, Inset map, title, projection, locator maps and index maps and Map layout. **PO2 Examine** the visual hierarchy , applying acquired knowledge techniques in typographic and their designs **k6-PO3** **https://blog.socialstudies.com/ how-to-engage-students-in-map-analysis.PO5**	K1, K2 K3 K5 K6
CO4	**Understands**the perception of colour in thematic maps and colour specification system. **Examine** the subjective aspects of colour and colour in cartographic design; PO1 **Analyze the map production and reproduction map printing and non-printing techniques. PO6, PO5 as a team**	K1,K2 K3 K4, K5
CO5	**Define** the techniques of thematic mapping, explains and explore the Mapping of terrain (contouring, layer tinting, hill shading, Hachures) **PO1 Activitys given to draw hachures and hillshading from toposheets, PO6. Understands** the Concept of weather - climatic and socio-economic information ,**Build the Pictorial maps-construction of cartograms.PO7 as group activity PO5**	K1, K2 K3, K4 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ Reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	1		1			1	1	2	1
CO2	3	1	2	1			1	1	1	1
CO3	3	1	2	1			1	1	1	1
CO4	3	1	3	1			2	1	1	1
CO5	3	2	2	1	3	2	1	1	1	1
CO-PO-Avg	3	1	2	1	3	2	1	1	2	1
CO-PO-Total	**15**	**6**	**9**	**5**	**3**	**2**	**6**	**5**	**6**	**5**

COURSE OUTLINE:

The students have the skills to produce maps- To have the knowledge about contours, map design and techniques of cartography.

Unit 1. Cartography and its importance – Maps- Types of Maps – Purposes of thematic maps – Cartographic process – Computer Assisted Cartography – Data encoding - Data input, storing, analysis and display-Data output - Recent Trends and developments in Cartography

Unit 2. Compilation of data and generalization of thematic maps – compilation data – Base data - sources of primary data – methods of compilation, methods of generalization – selection - classification, symbolization – symbolizing data at points, line, area, statistical surfaces.

Unit 3. Components of Map – map design – goals of map design – elements of map design (Distance or scale, direction, legend, sources of information, Inset map, title, projection, locator maps and index maps)and Map layout – visual hierarchy – typographic and their designs.

Unit 4. Colour and thematic maps – perception of colour – colour specification system – subjective aspects of colour – colour in cartographic design; map production and reproduction map printing and non-printing techniques.

Unit 5. Techniques of thematic mapping – Mapping of terrain (contouring, layer tinting, hill shading, Hachures) – weather - climatic and socio-economic information – Pictorial maps-construction of cartograms.

References:

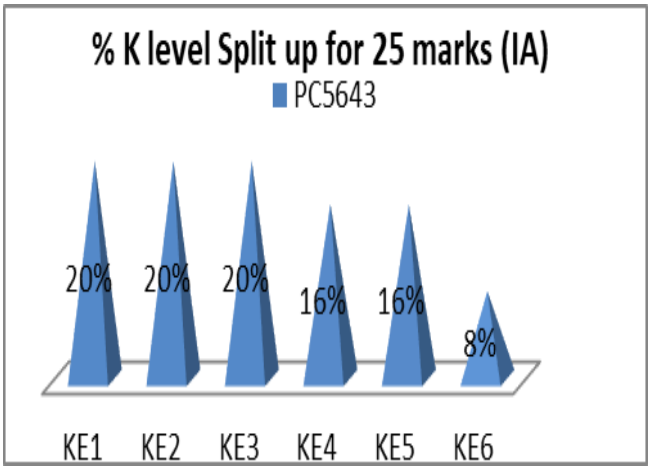
1. Misra,P. and A. Ramesh.(2006).*Fundamentals of Cartography.* McMillan Co. Publishing, New Delhi.
2. Robinson, H. (1995). *Elements of Cartography.* (6th Edition). John Wiley and Sons, New York
3. Tyner,Judith.(1992).*Introduction to thematic Cartography.* Prentice Hall, New Jersey.
4. Border, D. (1990).*Cartography : Thematic map design.* WCB WMC Brocan Publishers.

Web Sources:

1. http://en.wikipedia.org/wiki/carography
2. http://www.geography.wisc.edu/histcart
3. http://www.map-symbol.com/sym_lib.htm.

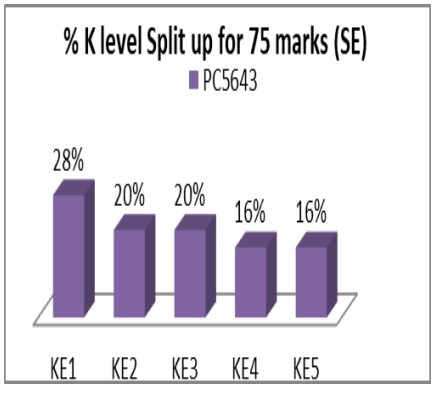
CIE-Continuous Internal Evaluation (25 Marks)

PC5643				
Bloom's Taxonomy	**Tes**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	1	1	2
Understand (5)	1	0	1	3
Apply (5)	2	2	0	1
Analyse (4)	0	1	1	2
Evaluate (4)	1	0	1	2



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5643	
Bloom's Taxonomy	**Weightage %**
Remember	28%
Understand	20%
Apply	20%
Analyze	16%
Evaluate	16%



GEOGRAPHY OF INDIA WITH SPECIAL REFERENCE TO TAMIL NADU

Semester:I **Code: PC5644**

Course:IV **Credit:4**

Learning Objectives:
The course aims at the student to learn Geography of India with K-mapping the student acquires depth knowledge of Resource and physiography and thorough understanding of Indian stands in terms of Population with special reference to Tamil Nadu

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Recall** the geographic location and compare the neighbouring countries and compare its strategic importance, classifying the rivers, **examine** the conditions of watersheds , **Find out** flood and drought prone regions,discuss the importance of multipurpose projects in India, analyse the benefits of various multi purpose projects over India **PO- 7** **(Students are allowed to estimate the hydel power in India– [PO3]) (Interactive session with questions) (Viva – Voce in IA) [PO2]** www.mheeducation.co.in	K1 K2 K3 K1 K4 K5
CO2	**Distinguish t**he concept of climate and weather ,**explain** the intensity of Indian Monsoon , Evaluate the amount and pattern of rainfall, discuss the tropical cyclones over Indian coasts, analyse **Critically evaluate PO - 3** the floods and droughts in India**,** recall and Understand **PO - 4** the vegetation types and animal resources, summarise the distribution of various soil over the region **(Interactive session with questions) (Viva – Voce in IA) [PO2]** www.cs.mcgil.ca	K1 K2 K4 K2 K3 K5
CO3	**Define** the agricultural regions, **distinguish** the food crops and non food crops of India, classify the mineral resources and its related industries, identifying the cropping pattern and its distribution, assess the production of various industries **- PO 3** bring out the importance of textile industries in India **(Interactive session with questions) (Viva – Voce in IA) [PO2]** www.jagranjush.com	K1 K2 K3 K4 K5
CO4	**Recall** the population distribution and density, **classifying** the settlement patterns, ,perceive the urban development and its associated problems, **Evaluate** the means of transportation and growth **PO - 4**, Analyse the major and minor ports and its importance in economic growth **PO - 4** **(Interactive session with questions) (Viva – Voce in IA) [PO2]** www.toppr.com	K1 K2 K3 K4 K6
CO5	**Explain** the Tamil Nadu physiography and natural resources, **Evaluate** the amount and pattern of rainfall in Tamil Nadu **PO -3**, Classifying the cropping pattern, **understand** the vegetation types and animal resources, **PO -7** summarise the distribution of various soil over the region, **analyse** the imports and exports of Tamil Nadu and its growth **PO -7** www.cirilsdally.com **(Interactive session with questions) (Viva – Voce in IA) [PO2]**	K1 K2 K3 K4 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	1	2	2	1		2	1	1	1
CO2	3	1	2	2	2	1	2	1	1	1
CO3	3	1	2	2	1		1	1	1	1
CO4	3	1	1	1	1		1	1	1	1
CO5	3	1	1	2	2	1	1	1	1	1
CO-PO-Avg	3	1	2	1	1	1	2	1	1	1
CO-PO-Total	**15**	**5**	**8**	**9**	**7**	**2**	**7**	**5**	**5**	**5**

COURSE OUTLINE

The course enables the students to have broader knowledge on where does the state Tamilnadu stands all the aspects as whole when compared to India.

Unit 1: India – Geographic location- neighboring countries-territorial borders-strategic importance-Physiographic (mountains, plateaus, plains, Islands)- Drainage system Rivers and watersheds) –Multipurpose projects

Unit 2: Climate and seasons- Indian monsoons and rainfall patterns- Tropical cyclones and western disturbances- Floods and droughts- Climatic regions- Natural vegetation and animal resources- Soil types and their distributions

Unit 3: Agriculture-Food and non foodcrops(cultivation and distribution)-agricultural regions-Minerals(metallic and non-metallic)- Distribution and mines- Major industries: Metallurgical, Textile, Engineering, Chemical and allied industries - Industrial regions

Unit 4: Population(distribution, density, growth rate, literacy)urban and rural settlements- Urbanization and development of Megalopolis and associated urban problems -Transportation -Roadways, Railways, Airways, ports and harbours- trade(imports and exports)

Unit 5: Tamil Nadu-Administrative divisions- Physiographic divisions- rivers-climate-Rainfall pattern- Natural vegetation- soils-Agriculture(Cropping pattern and distribution)-Industries – Population(distribution, density, growth rate,literacy) Transportation –trade and commerce..

References:

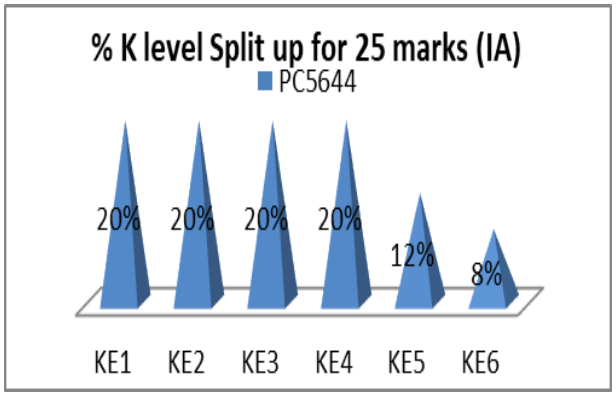
1. Hussain,Majid.(2018).*Geography of India.* McGraw Hill Education (India) Private limited,Chennai
2. Khullar,D.R. (2011). *India A Comprehensive Geography*.Kalyani Publishers, Ludhiana.
3. Tiwari, R.C. (2010). *Geography of India*. PrayagPustakBhawan, Allahabad.
4. Deshpande, C.D. (1988). *A Regional Geography of India*.ICSSR,New Delhi.
5. Spate, O.H.K., and A.T.A., Learmonth(1972). *India and Pakistan: A General and Regional.*

Web sources:

1. https://www.mapsofindia.com/geography
2. www.indianmirror.com/geography/geography.html

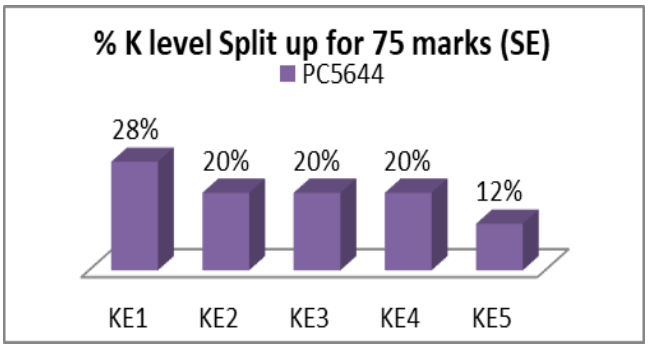
CIE-Continuous Internal Evaluation (25 Marks)

PC5644				
Bloom's Taxonomy	**Test**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	0	0	4
Understand (5)	1	0	1	3
Apply (5)	2	2	0	1
Analyse (5)	0	2	2	1
Evaluate (3)	1	0	1	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5644	
Bloom's Taxonomy	**Weightage %**
Remember	28 %
Understand	20 %
Apply	20 %
Analyze	20 %
Evaluate	12 %



PRACTICAL – I ANALYTICAL PHYSICAL GEOGRAPHY

Semester:I **Code:PC5645**

Course:V **Credit:4**

Learning Objectives: The paper gives training about how to analyse the physical features seen on the map, such as a drawing profiles, drainage basin analysis, and knowledge about the graphs of water level fluctuation and water balance graph with different method represent the climatic data

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Fine** Morphometric analysis, Gradient analysis **Explain** Smith, Robinson, Wentworth **Assume** Hypsometric, Climographic**Simplify** Terrain classification **Explain** Altimetric , Frequency curve. https://en.wikipedia.org/wiki/Morphometrics	K1 K2 K3 K4 K5
CO2	**Find** Contour interpolation and contour Drawing**Explain** Profiles, Serial, Superimposed, Composite **Choose** Projected- Block Diagram https://www.mindat.org/glossary/interpolation_of_contours	K1 K2 K3
CO3	**Find** Drainage basin **Analysis,** Delimiting the watershed, Basin Relief **Show** Drainage pattern , Stream order ,Drainage Density ,Bifurcation ratio ,Length Ratio**Solve** Horton's Analysis , Sinuosity Index, Thal wag profile. https://www.wou.edu/las/physci/taylor/g322/drainage_anal.pdf	K1 K2 K3
CO4	**Define** Hydrology , Water level fluctuation using ground water data **Explain** Mapping Rainfall , distribution **Solve**Theissen Polygon Method , Isohyets method **Analyze** water balance graph-Located wind rose maps**.(P05)** https://en.wikipedia.org/wiki/hydrology	K1 K2 K3 K4
CO5	**Find** Foster'sclimograph ,climatic graphs ,Climatographs, Rainfall Variability **Explain** Mapping Interpretation of Weather Maps of cyclonic track**(P07)**	K1 K2

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2	1	2	2	1	1	1	2	2
CO2	3	3	2	2	3	2	1	1	3	1
CO3	3	2	2	2	2	1	3	2	1	2
CO4	3	2	3	3	3	2	3	2	3	3
CO5	3	3	3	3	3	2	3	2	3	3
CO-PO-Avg	3	2	2	2	3	2	3	2	3	3
CO-PO-Total	**15**	**12**	**11**	**12**	**13**	**5**	**11**	**8**	**12**	**12**

PO*At the end of the Course, the Student will be able to identify, appreciate, interpret and able to draw maps with suitable scales.

COURSE OUTLINE:

Unit 1. Morphometric analysis – Gradient analysis – Smith, Robinson, Wentworth - Hypsometric, Clinographic, Terrain classification – Altimetric - Frequency curve. CO1*

Unit 2. Contour interpolation and contour Drawing -Profiles- Serial- Superimposed, Composite, Projected- Block Diagram.CO2*

Unit 3. Drainage basin Analysis – Delimiting the watershed – Basin Relief – Drainage pattern – Stream order – Drainage Density – Bifurcation ratio – Length Ratio – Horton's Analysis – Sinuosity Index – Thal wag profile.CO3*

Unit 4. Hydrology – Water level fluctuation using ground water data – mapping Rainfall-distribution -Theissen Polygon Method – Isohyets method – water balance graph-Located wind rose maps.CO4*

Unit 5. Foster's climo-graph – climatic graphs – Climatographs- Rainfall Variability- -Mapping Interpretation of Weather Maps of cyclonic track.CO5*

References:

1. Singh, R.L and Rana Singh P.B. (2014). *Elements of Practical Geography*. Kalyani Publishers,Ludhiana
2. ParthaBasu,PijushkantiSaha. (2010).*Advanced Practical Geography*. Books and Allied Limited
3. Khan, M.Z.A. (1998).*Text book of Practical Geography*. Concept publishing Company, NewDelhi
4. Negi, Balbir Singh. (1995). *Practical Geography.* (3rd edition).Kedar Nath and Ram Nath, Meerut - Delhi.
5. Monkhouse F.F. (1980) *Maps and Diagrams.* Wilkinson H.R. Methuen and Co. Ltd.

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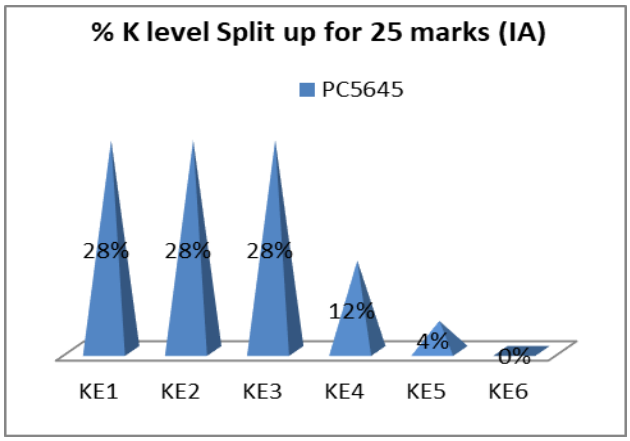
1. agilemodeling.com/artifacts/physicalDataModel.htm
2. https://en.wikipedia.org/wiki/Morphometrics
3. https://www.wou.edu/las/physci/taylor/g322/drainage_anal.pdf
4. mapsgis3015.blogspot.com/2008/12/climograph.html

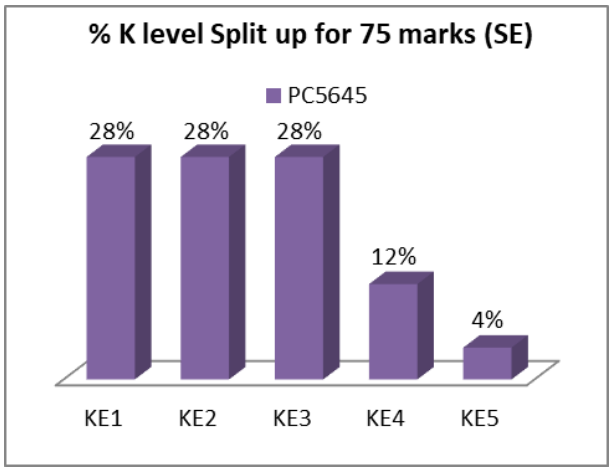
CIE-Continuous Internal Evaluation (25 Marks)

PC5645				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (7)	2	2	3	0
Understand (7)	1	0	1	5
Apply (7)	2	2	0	3
Analyse (3)	0	1	1	1
Evaluate (1)	0	0	0	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5645	
Bloom's Taxonomy	**Weightage %**
Remember	28%
Understand	28%
Apply	28%
Analyze	12%
Evaluate	4%



THEORETICAL ECONOMIC GEOGRAPHY

Semester:II **Code: PC5646**

Course:VI **Credit:4**

Learning Objectives: To teach the basic theories of Spatial and Economic Activities. To make students update and frame efficient maps based on the Plans.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeable to understandthein-depth knowledge.

CO1	**Define** Economic geography and Basic Concepts: resources and its types **Distinguish between**Renewable and non-renewable-exhaustible and non-exhaustible**Differentiate** conventional and non-conventional-biotic and abiotic-recyclable and non-recyclable-**Understand**ubiquitous **Recall**Economic activities –Primary, secondary and tertiary. .http://www.clearias.com	K1 K2 K3 K4 K5
CO2	**Describe** Primary Activities: types of farming**Classify** Whittlesey' classification of agriculture, forestry, fishing and mining- Farming tenancy**Distinguish between**Farmer types(large, medium, small, marginal and landless labourers- Von thunen theory of agricultural location https://en.wikipedia.org/wiki/Farmer	K1 K2 K3
CO3	**Understand** Secondary Activities-s –spatial interaction -Spatial association-spatial Organization **Distinguish between** Edward Ullman's theory of spatial interaction(principles of transferability , complementarily and intervening opportunity**Summarize** Manufacturing - Manufacturing Regions of the world, Special **Identify** Economic Zones	K1 K2 K3 K4
CO4	**Defind**Industries-major industries of the world (Cotton, Jute, silk, Iron and steel, Metallurgical, ship building, automobile and machine tools) **Explain** Industrial regions-factors affecting Industrial location **Understand** Weber's theory of Industrial location –Walter Isard's theory of Location**Summarize** and space economy .http://www.ibisworld.com	K1 K2 K3 K4
CO5	**Understand** Tertiary Activities: Transport, Trade and Services **Describe** technology parks-Network analysis(graph theory)-vertices and nodes-connectivity and accessibility-**Compare** location-allocation model**Summarize** Recent Trends and Scope Of Economic Geography in development https://en.wikipedia.org/wiki/Economic_geography **Activitys :Recent Trends e Of Economic Geography in development**	K1 K2 K3 K4 K5 K6

PO										
CO/PO/PSO	**1 Disciplinary knowledge and skill**	**2 Skilled communicators**	**3 critical thinker and problem solver**	**4 Sense of inquiry**	**5 Team player/worker**	**6 Skilled project managers**	**7 Digitally efficient**	**8 Ethical awareness/ Reasoning**	**9 National and International perspective**	**10 Lifelong learners**
CO1	3	2	2	2			2	1	1	1
CO2	3	2	2	3			1	1	1	1
CO3	3	3	3	3	3	2	1	1	1	1
CO4	3	2	2	3			1	1	1	1
CO5	3	3	3	3	3	2	1	1	1	1
CO-PO-Avg	3	2	2	3	1	2	1	1	1	1
CO-PO-Total	**15**	**12**	**12**	**14**	**6**	**4**	**6**	**5**	**5**	**5**

COURSE OUTLINE:

Unit 1: Economic geography- Basic Concepts: resources and its types- renewable and non-renewable-exhaustible and non-exhaustible-conventional and non-conventional-biotic and abiotic-recyclable and non-recyclable- ubiquitous-Economic activities -Primary secondary and tertiary.CO1*

Unit 2: Primary Activities: types of farming-Whittlesey' classification of agriculture, forestry, fishing and mining- Farming tenancy- Farmer types(large, medium, small, marginal and landless labourers- Von thunen theory o agricultural location.CO2*

Unit 3: Secondary Activities-s –spatial interaction -Spatial association-spatial Organization;-Edward Ullman's theory of spatial interaction(principles of transferability , complementarily and intervening opportunity-Manufacturing - Manufacturing Regions of the world, Special Economic Zones.CO3*

Unit 4: Industries-major industries of the world (Cotton, Jute, silk, Iron and steel, Metallurgical, ship building, automobile and machine tools)-Industrial regions-factors affecting Industrial location – Weber's theory of Industrial location –Walter Isard's theory of Location and space economy.CO4*

Unit 5: Tertiary Activities: Transport, Trade and Services.-technology parks-Network analysis(graph theory)-vertices and nodes-connectivity and accessibility- location-allocation model-Recent Trends and Scope Of Economic Geography in development.CO5*

References

1. Siddhartha.K. (2016).*Economic Geography*. KitabMahal, New Delhi
2. Saxena, H.M. (2016).*EconomicGeography*.RawatPublications,New Delhi
3. Knowles, R. and J.Wareing.(2004).*Economic and Social Geography*.Rupa series
4. Lloyd, P.E. and P.Dicken(1992). *Location in Space: A Theoretical Approach to Economic Geography*. Harper International Edition.
5. Goh, Chengleong. andGillan Clare Morgan. (1982*). Human and Economic Geography*. Oxford University Press
6. Abler, Adam Gould. P.(1972). *Spatial Organisation : A Geographer's View of the World.* Englewood Cliff. New Jersey.

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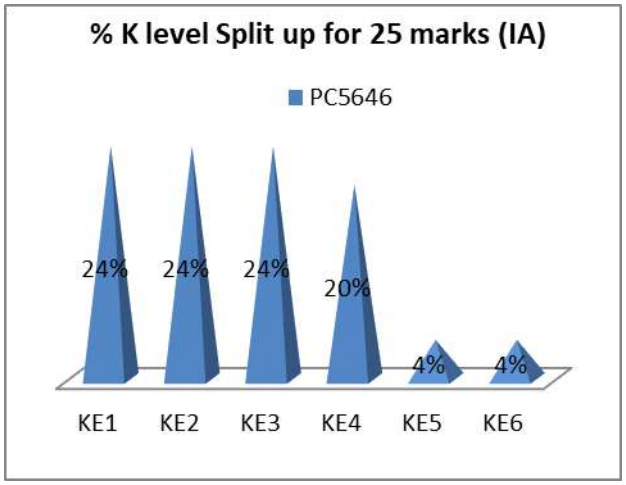
1. https://en.wikipedia.org/wiki/Economic_geography
2. geog.ufl.edu/files/Economic-Geography-3.pdf
3. https://www.e-education.psu.edu/geog597i_02/node/768

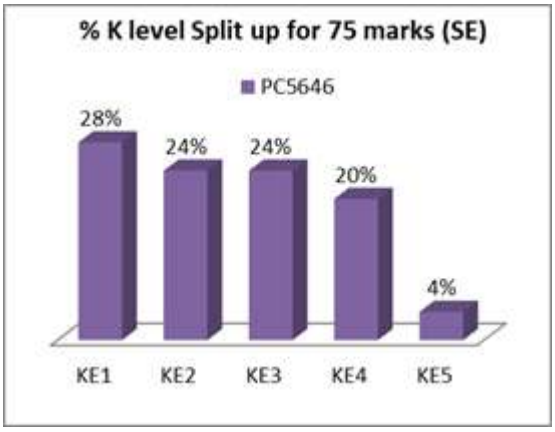
CIE-Continuous Internal Evaluation (25 Marks)

PC5646				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (6)	2	0	2	2
Understand (6)	1	0	1	4
Apply (6)	2	2	0	2
Analyse (5)	0	2	2	1
Evaluate (1)	0	0	0	1



ESE- End Semester Examination (75 Marks; Weightage 75 %

PC5646	
Bloom's Taxonomy	**Weightage %**
Remember	28 %
Understand	24 %
Apply	24 %
Analyze	20 %
Evaluate	4%



REGIONAL PLANNING AND DEVELOPMENT

Semester:II **Code: PC5647**

Course:VII **Credit:4**

Learning Objectives: This paper initiates the student to infer the planning procedures, types of planning and strategies for specific purpose and regions.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeable to understandthe in-depth knowledge.

CO1	**Recalls** and memorize the framework of Regional planning,its concepts and principles in geographical perspective., it is important to **explore** their knowledge in changing concept of development which gives the real indication of economic, social, and environmental aspects.**PO1 PO2**. **Understands** the concept of different types and approaches (Top down and bottom up) towards regional planning. **Acquire** the thorough knowledge inmeasuring development through various phases and stages in planning process. **PO3, PO4 PO5,PO10**	K1 K2 K3 K4 K5
CO2	**Understanding** of facts and ideas of regions and regionalism.Comparethe various classification of regions and its hierarchy.Applying acquired knowledge of various resource and delineation of planning regions**InvidualActivitys given to creating charts containing pictures and description of backward regions and regional planning for those areas PO6.understand**the special area development plans in India such as Hilly, Tribal, and drought prone regions. JAM avtivity given to create slides for Regionalisation of India for special area development. **PO3. PO4 ,PO7, PO8.**	K1 K2 K3 K4 K5 K6
CO3	**Acquire** the thorough knowledge on basis of planning and its processes through sectoral, temporal and spatial dimensions. Appreciate the various models of Growth Pole of Perroux and Growth Centre Model in Indian Context; Myrdal, Hirschman, Rostow.**ASK STUDENTS CREATE PPT on short term and long term planning perspective regarding Land use and area development aspects. k6-PO3PO5, PO6, PO7, PO10**applying acquired knowledge techniques in multi level planning. **COURTESY**:**https://youtu.be/f4E2Ju5C8a8** **http://www.dspmuranchi.ac.in>blog** **http://www.strategic planning for regional.core.ac.uk.>pdf**	K1 K2 K3 K4 K5 K6
CO4	**Understands** the regional population analysis and population projection. Learn the impact of population on regional planning.; learn the principles of locational analysis **PO1, PO2, PO4** **COURTESY http://www.jstor.org/stable/523435**	K1, K2 K3 K4, K5
CO5	**Acquire** through knowledge on regional planning in **IndiaPO1,PO2. Activity given to list out the important development aspects in five year plans and annual plans.PO5**. Undersands the Concept of block level and district level planning in Tamilnadu , infer the important idealogy of panchayat raj and planning programme ti improve developing regions. **group activitys to identify the thrust areas in Tamilnadu to implement plans K6, PO5,PO6,PO7**	KI, K2 K3 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2		2				1	2	1
CO2	3	1	2	2	2	1		1	1	1
CO3	3	2	2	2	2	1	3	2	1	1
CO4	3	2	3	2			1	1	1	1
CO5	3	2	2	3	2	1	1	2	1	1
PC-AVG	3	2	2	2	2	1	1	2	2	1
PC-TOTAL	**15**	**9**	**9**	**11**	**6**	**3**	**5**	**7**	**6**	**5**

COURSE OUTLINE:

Unit 1: Regional Planning – Concepts and Principles-Changing Concept of Development, concept of underdevelopment; measuring development: Indicators (Economic, Social and Environmental); Human development. – frame work for regional planning –Types of regional Planning - Approaches – Bottom up approach – Top down approach in Planning (CO1)

Unit 2: Regions and Regionalism- classification of regions– Regional Hierarchy – Resource regions – Delineation of Planning Region; Regionalization of India for Planning - Metropolitan region – Backward Regions and Regional Plans- Special Area Development Plans in India(Hilly region, tribal region, drought prone regions).(CO2)

Unit 3: Basis of planning – planning processes – Sectoral, temporal and spatial dimensions, short term – long term – perspective of planning – land use and area development-Growth Pole Model of Perroux- Growth Centre Model in Indian Context; Myrdal, Hirschman, Rostow – Multilevel planning. (CO3)

Unit 4: Regional population analysis - Population Projection - Impact of Population on Regional Planning – Principles of locational analysis(CO4)

Unit 5: Regional Planning in India-Five year plans- Annual plans- specific Area Plans-Planning in Tamil Nadu – Block level and District level planning – Panchayat Raj and planning-Planning and Programmes to improve developing regions-Thrust areas to implement plans.(CO5)

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1. Chandna R.C. (2014).*Regional Planning and Development.* KalyaniPublishers,Ludhiana
2. Chand, Mahesh and V.K. Puri. (2011).*Regional Planning in India.* Allied Publishers Pvt,Ltd
3. Hall, P. (1992). *Urban and Regional Planning.* Routledge, London.
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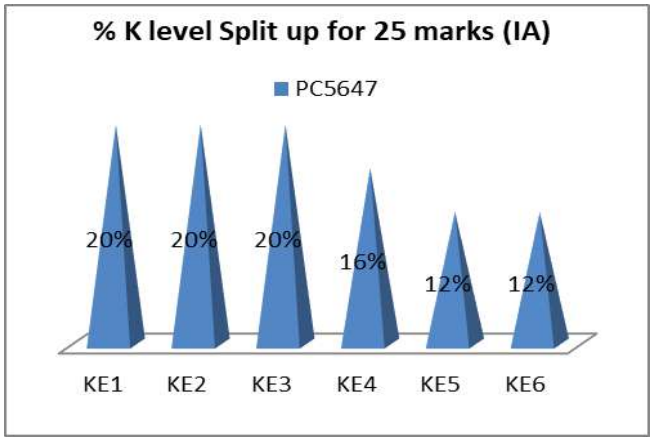
2. https://en.wikipedia.org/wiki/regionalism_(international_relation)
3. www.tn.gov.in/tcp/activities.htm
4. www.slideshare.net/charujaiswal/planning-regions-of-india

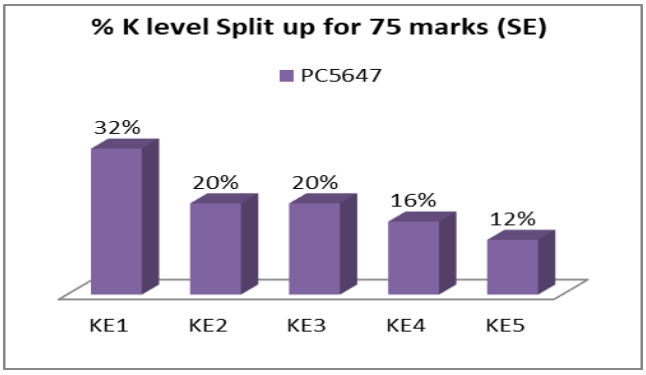
CIE-Continuous Internal Evaluation (25 Marks)

PC5647				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	0	1	3
Understand (5)	1	0	1	3
Apply (5)	2	2	0	1
Analyse (4)	0	1	1	2
Evaluate (3)	1	0	1	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5647	
Bloom's Taxonomy	**Weightage %**
Remember	32 %
Understand	20 %
Apply	20 %
Analyze	16 %
Evaluate	12 %



PRACTICAL – II QUANTITATIVE TECHNIQUES FOR GEOGRAPHICAL DATA

Semester:II **Code: PC5648**

Course: XI **Credit:4**

Learning Objectives: It gives detailed information of the types of data, collection of data through questionnaires and schedules and also explains sampling techniques which is important for research analysis. Paper gives clear vision of mapping techniques through various methods, and spatial statistics for research purposes.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Recalls.** Data – Types List out Collection of Data through Questionnaires and Schedules: Constructing questionnaires and report preparation for residential preference – how it is important to **explore their knowledge**o Constructing questionnaires and report preparation for residential preference – f Environmental Quality of maps on their own effort with the help of Questionaire. **PO1 PO2. Understands** the Purposes of which is essential to choose the questionaire according to the types of questionaire aby their own. **PO8 Acquire the knowledge** through learning of Consumer Behavior – Environmental Quality **PO3, PO4 PO5**	K1 K2 K3 K4 K5
CO2	**Understanding**of facts and Identify the Sampling Techniques Explain,the types of sampling– Nesting – Stratified – Random Sample Selection – **. PO3, PO8**, Develop the skills of– Urban land use map along road – Traffic flow – Measures of connectivityand Accessibility.Identify.**k3** Examine the relationship between **PO10, activity given for calculation of important**(Alpha, beta and Detour index-Shimbel index-Associate number **PO5,PO6**	K1, K2 K3, K4 K5
CO3	**Define** the Residual Mapping , calculate the Least square method and mapping – Mapping of attributes. Preparation of maps using X^2 Test and Scalogram- Measures of inequality – Location Quotient –Index of concentration **K6,PO3,PO6,PO8**. Identification Location Quotient –Index of concentration **pO5 , PO10**	K1, K2 K3, K4 K5, K6
CO4	**Explore**the Distribution Maps – Population potential using gravity model – Threshold determination and mapping.calculate the Index of dissimilarity – Lorenz curve - Gini Co-efficient elaborately. **K4,PO5,PO6 PO8 PO10. Acquire the knowledge** to classify the distribution maps	K1, K2 K3, K4 K5,K6
CO5	**Explains** the Spatial Statistics ,calculate the Mean Centre and the Median Center Weighted mean center- Standard deviation – correlation .Concept RN Statistics.**PO7**	K1, K2 K3, K4 K5, K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicator	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ Reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	1	1	2	1		1	1	1	1
CO2	3	1	1	2	1		1	1	1	1
CO3	3	1	1	2	2	1	1	1	1	1
CO4	3	2	3	3	2	1	1	1	1	1
CO5	3	3	3	3	2	1	1	1	1	1
CO-PO-Avg	3	1	2	2	2	1	1	1	1	1
CO-PO-Total	**15**	**8**	**9**	**12**	**8**	**3**	**5**	**5**	**5**	**5**

COURSE OUTLINE:

Objectives: It gives detailed information of the types of data, collection of data through questionnaires and schedules and also explains sampling techniques which is important for research analysis. Paper gives clear vision of mapping techniques through various methods, and spatial statistics for research purposes.

Unit 1. Data – Types – Collection of Data through Questionnaires and Schedules: Constructing questionnaires and report preparation for residential preference – Consumer Behavior – Environmental Quality.

Unit 2. Sampling Techniques – Nesting – Stratified – Random Sample Selection – Urban land use map along road – Traffic flow – Measures of connectivity and Accessibility(Alpha, beta and Detour index-Shimbel index-Associate number..

Unit 3. Residual Mapping – Least square method and mapping – Mapping of attributes: Preparation of maps using X^2 Test and Scalogram- Measures of inequality – Location Quotient –Index of concentration

Unit 4. Distribution Maps – Population potential using gravity model – Threshold determination and mapping.- - Index of dissimilarity – Lorenz curve - Gini Co-efficient.

Unit 5. Spatial Statistics – Mean Centre – Median Centre – weighted mean centre- Standard deviation – correlation – RN Statistics.

References:

1. ParthaBasu,PijushkantiSaha. (2010).*Advanced Practical Geography.* Books and Allied Limited.
2. Khan, M.Z.A.(1998).*Text book of Practical Geography*. Concept publishing Company, NewDelhi
3. Khullar, Dr. (1997). *King's Practical Geography.* Educational Publishers, Delhi.
4. Negi, Balbir Singh. (1995). *Practical Geography.* (3rdedition)Kedar Nath and Ram Nath, Meerut –Delhi
5. Cole and King.(1989).*Quantitative Geography Techniques and Theories in Geography.* John Wiley and Sons Ltd., London.

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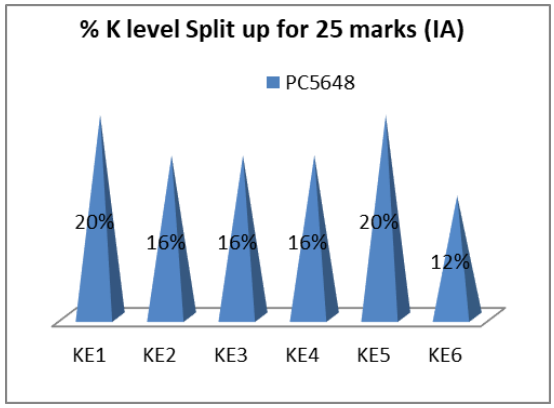
1. https://en.wikipedia.org/wiki/Data_mapping
2. https://www.statpac.com/surveys/sampling.htm
3. https://en.wikipedia.org/wiki/Residuated_mapping
4. https://en.wikipedia.org/wiki/Dot_distribution_map

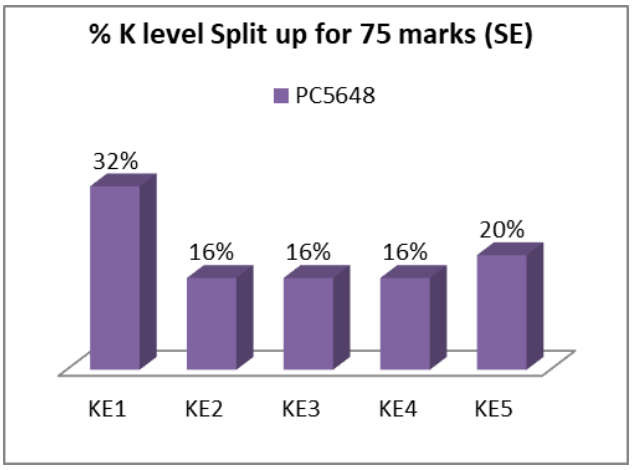
CIE-Continuous Internal Evaluation (25 Marks)

PC5648				
Bloom's Taxonomy	**Tes**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	1	0	3
Understand (4)	1	0	1	2
Apply (4)	1	1	0	2
Analyse (4)	0	1	1	2
Evaluate (5)	2	0	2	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5648	
Bloom's Taxonomy	**Weightage %**
Remember	32 %
Understand	16 %
Apply	16 %
Analyze	16 %
Evaluate	20 %



ELECTIVE - I CULTURAL GEOGRAPHY

Semester:II **Code: PE5616**

Course:VIII **Credit:3**

Learning Objectives: It gives an elaborate idea of themes and evolution of cultural Geography and different types of costumes, languages and religions at global level. Human evolution through various phases, Cultural evolution by means of Settlement, Food, Life style, Languages, religions faces and tribes of the world are wellestablish

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Recalls** and memorize the framework of cultural Geography and its importance in Geography, it is important to explore their **knowledge** in culture of the world in order to map the social map of the world**PO1 PO2**. **Understands** the concept of culture around the world. Acquire the thorough knowledge in evolution of mankind through various phases and stages. **PO3,Understands** the early, primitive and modern life**PO4 PO5,PO10** **Courtesy http://youtu.be/2B_1xokBliY**	K1 K2 K3 K4 K5
CO2	**Understanding**of facts and ideas of housing and settlement. Compare the elements of settlement forms.,**Applying acquired knowledge of various tools used by mankind for life and agriculture by creating charts containing pictures and description PO6. understand**the early transport carriers and modes of transport ,**PO1PO2,PO3. Activitys given to identify different types of settlements with global level examples as a team PO5, PO6,PO7**	K1 K2 K3 K4 K5
CO3	**Acquire** the thorough knowledge on ancient to recent types of lifestyle. Appreciate the various forms of costumes and jewellery around the world. **ASK STUDENTS CREATE PPT on costumes and cuisines of the world .PO5, PO6, PO7, PO10**Understand the different arts, music, and dances of the world from time to time and region to region. **PO1,PO2. Examine**the cultural hierarchy ,applying acquired knowledge techniques lifestyles of mankind **k6-PO3** **Courtesy https://youtu.be/M-4riPZ-AvE** **Courtesy https://youtu.be/zjbygXKC_L0** **Courtesy https://youtu.be/6YSAMo6TmkE** **Courtesy https://youtu.be/mAFbDSXcJmY** **Courtesy https://youtu.be/jYG3s6Iu-SI**	K1 K2 K3 K4 K5 K6
CO4	**Understands** the world distribution of various languages and Indo European languages ; learn the concept of bilingualism PO1, PO2, Activity given to **Analyze the distribution pattern of major religions of the world PO6, PO5 as a team, PO6,PO7** **Courtesy http://youtu.be/o87OvXTAp_s** **http://eric.ed.gov/?id=ED321574**	K1, K2 K3 K4 K5 K6
CO5	**Acquire** through knowledge on major races of the **world PO1 Activity given to identity the basic traits of various races of the world. PO5. Understands**the Concept of ethnicity **, Build the Pictorial maps of various tribes of the world PO7 as group activity K6, PO5,PO6,PO7** **Courtesy http://youtu.be/tMtNxP6tx1A**	KI, K2 K3 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2		2			1	2	1	1
CO2	3	1	2	2	2	1		2	1	2
CO3	3	2	2	2	2	1	3	2	1	2
CO4	3	2	3	2	2	1	2	2	1	2
CO5	3	2	2	3	3	1	1	2	1	2
PC-AVG	3	2	2	2	2	1	2	2	1	2
PC-TOTAL	**15**	**9**	**9**	**11**	**9**	**4**	**7**	**8**	**5**	**9**

PO * At the end of the course students will able to the important aspects of human cultures and as they relate language, ethnicity, nationalism, religion and geopolitics. Landscapes are also important because they link culture of the physical environments in where people live. This study reveals the interaction between the natural landscapes and cultural aspects, and human creates the cultural landscape.

COURSE OUTLINE:

Unit 1: Culture – Concept – Framework of cultural geography — Man's invasion of the earth – Earliest Hominids – Australopitheas – Homo habit's – Homoerectus – Homo Sapiens – Domestication of plants and animals - Human evolution – Early Life – Primitive life – Modern life (CO1)

Unit 2: Housing and settlement – Elements of Housing systems – Basic settlement forms – Early Hunting tool – Manufacturing tool – Early transport carriers and modes of Transport – Early Agriculture – Tools used for early agriculture.(CO2)

Unit 3: Ancient to recent types of lifestyle: – Food and international cuisine – costumes of the world -Jewellery and its types – Arts of the world – Music of the world – Dances of the world from time to time and from region to region(CO3

Unit 4: Languages – World Distribution Indo European Linguistic Family Bi-Linguism – Language and Culture – Religion – Major Religions of the World (CO4)

Unit 5: Races – Major Races of the World – Caucasoid, Negroid, Mongoloid and Mixed races – Identification of Races and basic traits– Ethnicity-Tribes of the World- Impact of development on tribes of the world(CO5)

References:

1. Syed, Maurya.(2016).*Cultural Geography*. ShardaPustakBhavan,Allahabad
2. Norton, William. (2005).*Cultural Geography*. Oxford University Press, Oxford.
3. Hussain, Majid. (1994). *Human Geography*.Anmol Publications Pvt., Ltd. New Delhi.
4. Stoddard,Robert H. and Others.(1986). *Human Geography*. Prentice Hall, Englewood Cliffs, New Jersey
5. Spencer,J.E. and W.L. Thomas. (1978). *Introducing Cultural Geography*. John Wiley and Sons, NewYork.

Web Sources:

1. https://en.wikipedia.org/wiki/Cultural_geography
2. https://en.wikipedia.org/wiki/Race_(human_categorization)
3. https://en.wikipedia.org/wiki/Clothing_in_the_ancient_world
4. https://books.google.co.in/books?isbn=8180690741

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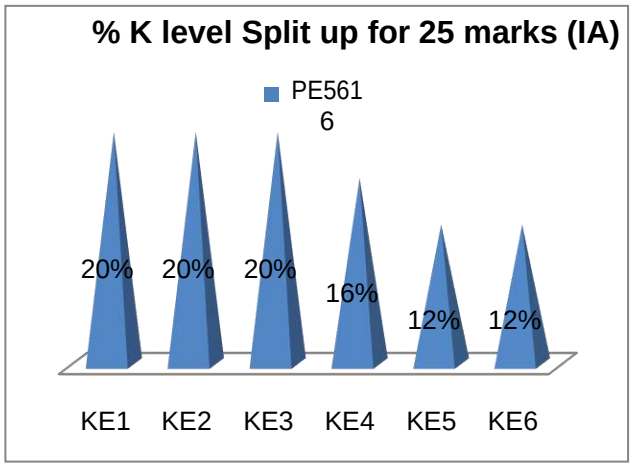
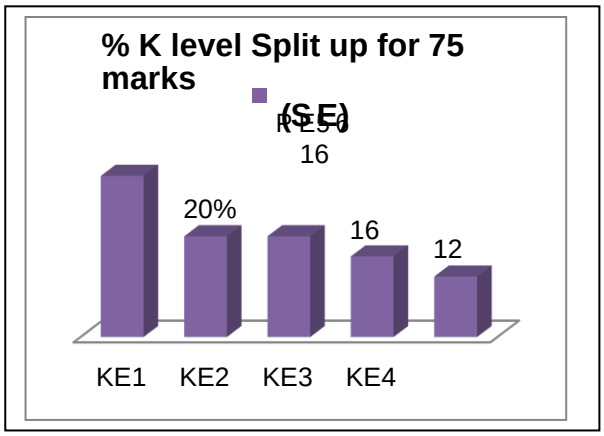
CIE-Continuous Internal Evaluation (25 Marks)

PE5616				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember(5)	1	0	1	3
Understand (5)	1	0	1	3
Apply (5)	1	1	0	2
Analyse (4)	0	1	1	2
Evaluate (3)	1	0	1	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PE5616	
Bloom's Taxonomy	**Weightage %**
Remember	32 %
Understand	20 %
Apply	20 %
Analyze	16 %
Evaluate	12 %



ELECTIVE –II FIELD WORK IN GEOGRAPHY

Semester:II **Code:PE5617**

Course:IX **Credit:3**

Learning Objective: It gives clear idea of the importance of field work in Geography teaching. It gives idea of identification of Landforms through different types of survey such as Eco, Socio-economic and land use survey.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Student willbeabletounderstandthein-depth knowledge.

CO1	**Explore** and emphasize the basic concepts of Field work and its importance in Geography. It is important to insist that the Teaching of Geography is always relates with practical knowledge which is possible through field work. **Field work acquires** the real vision of our landforms and topographical features. **PO1 PO2. Understands** the importance of topographic, thematic maps, sketch and route maps for field work. With the help of these maps we could easily recognise the landforms resulting from river, ice and marine erosion. **Courtesy http://youtu.be/fNLO46RiR7s. Interpretation of settlements, urban/rural land use patterns. (PO2, PO3 PO4, PO5). Communication patterns and location of economic activity through field work leads to understand the recent trends and developments in geography. (PO8, PO9, PO10)**	K1 K2 K3 K4 K5
CO2	**Understanding** of facts and ideas of land form survey, **Applying acquired** locational **knowledge** of Identification of landforms like (Mountains, Plateaus, Plains – Coastal and River, Beaches and lakes). **Understands** and analyse the sources of primary data , through land use field survey. Courtesy**http://youtu.be/ET4c7hiRgbM.** **Activity for students: by organizing a group give them a case study to collect the base data on the basis of field survey, and gives training to Prepare a Survey Report K6,(PO5,PO6,PO7,PO10)**	K1, K2 K3,K4 K5, K6
CO3	**Appreciate** the goals of Identifying the bio diversity classification, through the field survey, **examine** the hierarchy of flora and fauna. **PO1,PO2** **Activity : Construct the elements of field Survey to prepare a EIA Assessment report around your surrounding (One exercise– College/Road/Home Environment/National Park – Prepare Rough Plan/Sketch Plan and Survey Report), K6, PO3,PO8,PO9,PO10**	K1, K2 K3 K5 K6
CO4	**Understands and applying** the Socio-Economic Survey through Primary and Secondary data sets based on proper questionnaire/Schedules, Interview, Census and Statistical Reports. **Prepare** a field survey report and analyse as **a team (One exercise with Map/Plan/Sketch/Photographs and Diagrams) PO5,PO6, PO7**	K1,K2 K3, K4, K5, K6
CO5	**Explains and explore** the Land use types – Residential, Industrial, Institutional, Commercial, Recreational, Open space, Mixed and other Land uses**. Understands** the Concept of Land use Survey. **PO1,PO2,PO3.** **Individual activitys: Prepare a Land use Survey – Map/Plan/Sketch/Photographs/Diagram for given land use type, K6, PO4, PO8,PO9,PO10**	K1, K2 K3, K4 K5, K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicator	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ Reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2	1	1	2	1	2	1	1	1
CO2	3	1	1	1	2	1	1	1	1	1
CO3	3	2	1	1	2	1	2	2	1	1
CO4	3	2	2	1	2	1	1	2	1	1
CO5	3	2	2	2	3	1	1	1	1	1
CO-PO-Avg	3	2	2	1	2	1	2	2	1	1
CO-PO-Total	**15**	**9**	**7**	**6**	**11**	**5**	**7**	**7**	**5**	**5**

PO*At the end of the Course, the Student will be aware to draw sketch and Route maps which is useful to prepare a sketch plan of a particular area in geographical context. It also reveals knowledge of fieldwork and its importance to geography. The benefits of the students would be two way - the correlation between knowledge of landscapes and geography

COURSE OUTLINE:

Unit 1: Field work – Definition, Importance and Significance – Geography Teaching and Field work – Rural and urban Field work - Maps for field work (Historical, Topographical, Geological, Thematic, Sketch maps and Route maps) CO1*

Unit 2: Landform Survey – Locational knowledge - Identification of landforms – (Mountains, Plateaus, Plains – Coastal and River, Beaches and lakes) – Field survey – One exercise and Preparation of Survey Report CO2*

Unit 3: Eco-Survey – Identification and Classification of Bio-diversity – Flora and Fauna, Field Survey (One exercise– College/Road/Home Environment/National Park – Prepare Rough Plan/Sketch Plan and Survey Report) CO3*

Unit 4: Socio-Economic Survey–Primary and Secondary – Questionnaire/Schedules, Interview, Census and Statistical Reports. Prepare a field survey report (One exercise with Map/Plan/Sketch/Photographs and Diagrams) CO4*

Unit 5: Land use Survey – Land use types – Residential, Industrial, Institutional, Commercial, Recreational, Open space, Mixed and other Land uses. Prepare a Land use Survey – Map/Plan/Sketch/Photographs/Diagram. CO5*

Reference:

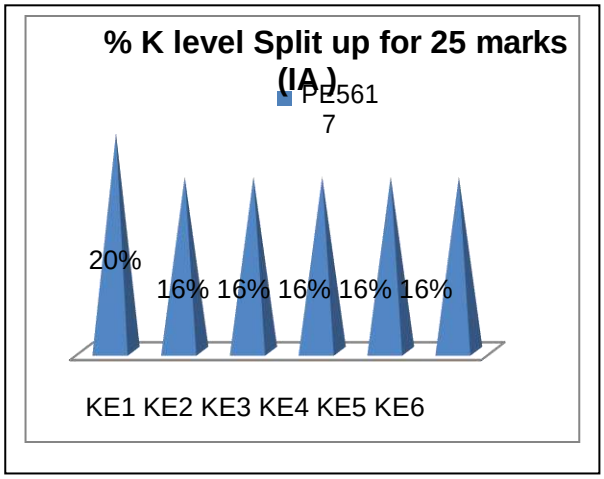
1. ParthaBasu,PijushkantiSaha. (2010).*Advanced Practical Geography.* Books and Allied Limited
2. Khan, M.Z.A. (1998).*Text book of Practical Geography*. Concept publishing Company, NewDelhi
3. Negi, Balbir Singh (1995). *Practical Geography.*(3rd edition).KedarNath and Ram Nath, Meerut, Delhi
4. Sanders,E.M. (1999). *Observational Geography.* George Philip and Sons Ltd, London.
5. Wheelr,K.S. and M. Herding. (1965). *Geographical Fieldwork: A Hand Book*. Blend Educational Ltd.

Web Sources:

1. www.rgs.org › ... › Fieldwork and local learning
2. www.fao.org/docrep/006/t0165e/t0165e07.htm
3. www.cifor.org/.../practical-guide-for-socio-economic-livelihood-land-te...

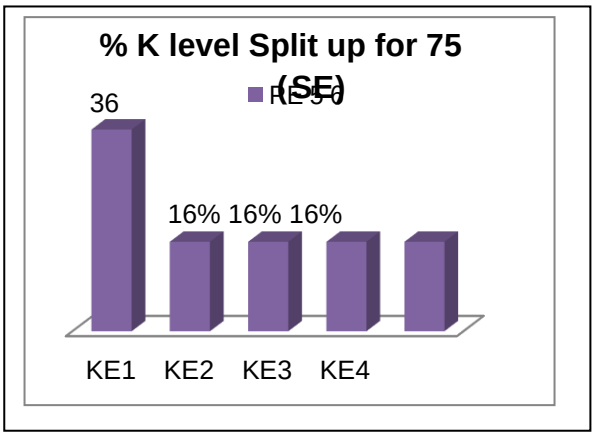
CIE-Continuous Internal Evaluation (25 Marks)

PE5617				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	2	1	0	2
Understand (4)	1	0	1	2
Apply (4)	1	1	0	2
Analyse (4)	0	1	1	2
Evaluate (4)	1	0	1	2



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PE5617	
Bloom's Taxonomy	**Weightage %**
Remember	**36 %**
Understand	16 %
Apply	16 %
Analyze	16 %
Evaluate	16 %



RESEARCH ANALYTICAL TECHNIQUES(PRACTICALS)
(Offered to other Department)

Semester:II **Code: PD5608**

Course:XEDEI **Credit:3**

Learning Objectives: The paper gives broad idea of collection of data, sampling and methods of hypothesis testing for a research study. It gives clear vision of various spatial and statistical analysis of research. It also gives knowledge of trend surface and construction of models for social studies.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Understands** the Purposes of data collection and its sources. Sampling is very essential to choose according to the types of data types and the purpose of the study**. PO1 PO2. Recalls** the types of data collection, and**explore** the importance of sampling for a case study or project. **PO3,PO4.** **http://www.albert.io/blog/data-collection-methods-statistics/**	K1, K2 K3, K4 K5
CO2	**Understanding**of facts of hypothesis testing and need of hypotheses in research analysis. **Explore**the types of hypothesis and its significance and confidence level. **Examine** the relationship between Parametric and Non-parametric procedures through Chi-square test, 'T' test, 'F' test, Analysis of Variance (ANOVA**). Activity given for calculation of 'T' test, 'F' test, Analysis of Variance for a socio economic data as a team PO5,PO6. PO10** **https://www.investopedia.com/terms/h/hypothesistesting.asp.**	K1, K2 K3, K4 K5, K6
CO3	**Define** Bivariate Analysis, and methods to be followed to analyse for socio economic data analysis through scatter diagrams, simple linear and regression, rank correlation and Product Moment Correlation Coefficients and residuals and their mapping.**Activity given to construct a residual mapping for a socio economic data as a team PO5,PO6,PO7,PO10** **http://stattrek.com/regression/residual-analysis.aspx, http://www.britannica.com/science/statistics/residual-analysis, http://youtu.be/gLENW2AdJWg**	K1, K2 K3, K4 K5, K6
CO4	**Explain** Multivariate analysis and Explore the basic Principles and elements of Factor Analysis , apply factor analysis in SPSS (principal component analysis for a set of population data base to acquire the knowledge for data analysis and interpretation elaborately. **K4, Acquire the knowledge** to classify the data for cluster analysis. **Activity given for a group to analyse set of data of people from multiple disciplines for cluster analysis. K6, PO5,PO6 PO7 ,PO8,PO10** **http://youtu.be/zxHP2Qhw5vl. http://sciencing.com/difference-between-cluster-factor-analysis-8175078.html. http://www.educba.com/cluster-analysis-vs-factor-analysis/ http://youtu.be/4Q0KUCvhmAk.**	K1, K2 K3, K4 K5, K6
CO5	**Explain** the importance of trend surface data for spatial data to demonstrate the variance of one or more parameters. **PO1,PO2,PO3. Discover the spatial interactions between location and gravity model** can be extended to include several calibration parameters. **PO3, PO4, PO7, PO9** Explains the methods of calculation and mapping of Population Potential and Index of Concentration at a given data. **Understands** the Concept growth rate data and construct scalogram for a given spatial data. **Activity given to do the scalogram calculation and interpretion the given data, as group activity PO5,PO6, PO10** **http://www.researchgate.net/publication/275026276_Trend_surface_Analysis_of_Spatial_Data http://transportgeography.org/?page_id=8565.**	K1, K2, K3, K4, K5, K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2	1	2	2	1	1	1	2	1
CO2	3	3	1	2	2	1	1	1	1	1
CO3	3	2	2	2	2	1	3	2	1	1
CO4	3	2	2	3	2	1	3	2	1	1
CO5	3	3	2	3	2	1	2	2	1	1
CO-PO-Avg	3	2	2	2	3	1	3	2	1	1
CO-PO-Total	**15**	**12**	**8**	**12**	**10**	**5**	**10**	**8**	**6**	**5**

PO*At the end of the Course, the Student will be able to identify, interpret and analyses with the result of the spatial and socio economic data with suitable mapping. They are able to work in SPSS.

COURSE OUTLINE:

Unit 1: Data Collection – Data Sources – Data Types – Primary, Secondary – Sampling – Simple Random – Stratified – Nesting. - CO1*

Unit 2: Hypothesis Testing - Needs and Types of hypotheses – Goodness of fit and significance and confidence levels - Parametric and Non-parametric procedures: Chi-square test, 'T' test, 'F' test, Analysis of Variance (ANOVA). CO2*

Unit 3: Bivariate Analysis: Scatter diagram – Simple linear– Spearman's Rank and ProductMoment Correlation Coefficients, Regression – Residuals and their Mapping. - CO3*

Unit 4: Multivariate Analysis: Basic Principles and elements of Factor Analysis - Principal - Cluster Analysis. -CO4*

Unit 5: Trend Surface and Models: Gravity Models- Population Potential – Index of Concentration- Growth rate-Scalogram - CO5*

References:

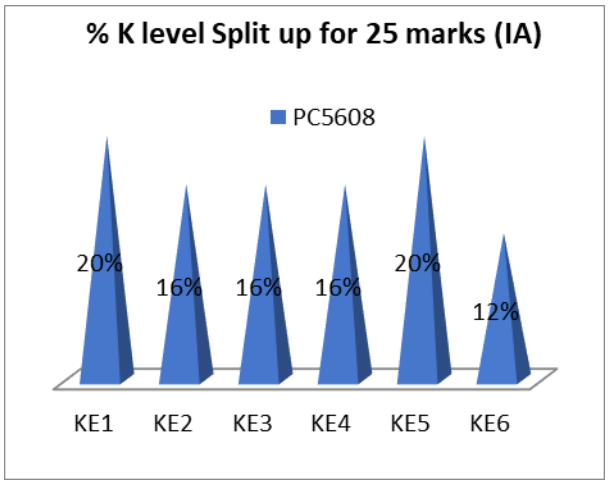
1. David Unwin, (1981) Introductory Spatial Analysis, Methuen, London,
2. Gregory, S. (1978) Statistical Methods and the Geographer, Longman, London,
3. Hammond R and P.S. Mc Cullagh (1974) Quantitative Techniques in Geography: An Introduction, Clarendan Press, Oxford,
4. Maurice Yeats, (1974) An Introduction to Quantitative Analysis in Human Geography, McGraw Hill,New York,
5. Peter Haggett, Andrew D. Cliff, and Allan Frey, (1977) Location Methods Vol. I and II, Edward Arnold, London.

Web Sources:

1. http://www.albert.io/blog/data-collection-methods-statistics/
2. http://sciencing.com/difference-between-cluster-factor-analysis-8175078.html
3. http://transportgeography.org/?page_id=8565.
4. www.slideshare.net/parabprathamesh/primary-sec
5. http://youtu.be/zxHP2Qhw5vl
6. http://youtu.be/Se28XHI2_xE

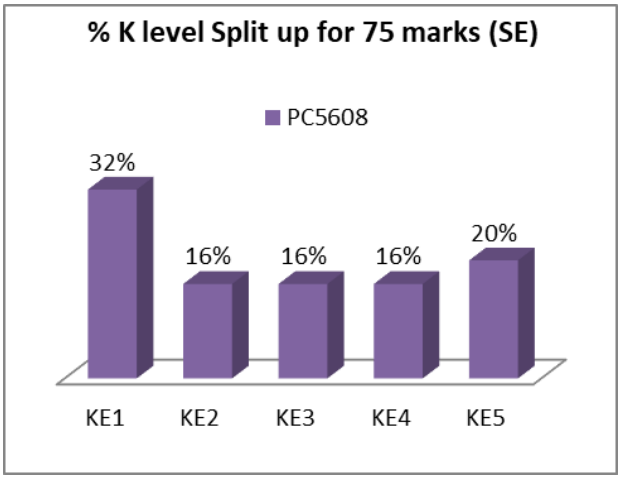
CIE-Continuous Internal Evaluation (25 Marks)

PC5608				
Bloom's Taxonomy	**Test**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	1	0	3
Understand (4)	1	0	1	2
Apply (4)	1	1	0	2
Analyse (4)	0	1	1	2
Evaluate (5)	2	0	2	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5608	
Bloom's Taxonomy	**Weightage %**
Remember	**32 %**
Understand	16 %
Apply	16 %
Analyze	16 %
Evaluate	20 %



GEOGRAPHICAL THOUGHT

Semester:III **Code:PC5649**

Course:XII **Credit:4**

Learning Objectives: This paper explains the views and research works of various authors about the nature of geography. It elaborates the contribution of authors in Schools and Discoveries paves the scientific way for emerging new modern themes. Geography explores with his new dimension examines through theories, models and spatial approaches with the quantitative techniques.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeable to understandthein-depth knowledge.

CO1	**Tell** the origin of Nature and content of Geography.**Outline**Applied Geography. **Compare** the Early Origins of Geographical Thinking with reference to the Pre ancient ,Classical and Medieval Philosophies. **Categorize the philosophies of** (Greek-Roman-Arab-Chinese-Indian- Distiguish the Influnece of works of scholar like Varenius, Immanuel Kant , Alexander Von Humbolt and Cart Ritter. **Group Activity: Quiz based on the philosophical views of Geographers – Use code words or chunking method to memorise the Authors and their works and findings (PO5)** **Courtesy:https://www.directionias.com/wpcontent/uploads/2019/02/Geographical-Thought-by-Neetu-Singh-Class-Notes-with-video-lecture.pdf (PO9)**	K1 K2 K3 K4
CO2	**Show** the Modern views and Evolution of Geographical Thinking and **Infer** the Disciplinary Trends in Germany, France, Britain, United States of America. **Discuss** the Impact of exploration and Discoveries. Compare and conclude the Determinism, Possibilism , Dualism and Dichotomy in Geography. **Group Activity: (PO4) Question Session, Students will have discuss session based on INSERT LEARNING and Games will be conducted (Kahoot)** Courtesy:https://www.directionias.com/handwritten/geographical-thought-class-notes/	K1 K2 K4 K5
CO3	**Relate the** Recent Trends in Geography **and Infer** Paradigms in Geography **. Identify** the Paradigm's Shift and **Analyse the** Quantitative Revolution. Discuss the **Influence** on the Theories and methodological developments to **Improve**Models (types of models) in Geography. Compare the System and System Analysis in Geography **Group activity:Debate on the Paradigm and recent trends in geography (PO4)** **Students are encouraged to assess one research topic based on the theory**	K1 K2 K3 K5 K6
CO4	**Find** the Critical Revolution in Geography. **Relate** and discuss the different recent concepts in geography like the Positivism, Humanism, Behaviorism, welfare- Radical Geography and Post Modernism Differentiate and **Explain** Regional Concept and Areal Differentiation Students Activity: Students will prepare assignment , seminar on the different theories .	K1 K2 K3
CO5	**Select** the Scientific Approaches in Geography and **Classify** the Theory and fact-Hypothesis. **Apply** the Scientific Explanation(Induction and Deduction) in the changing Concept of Space in Geography, Time space Geography and Locational Analysis, Spatial Analysis **and Examine** the Recent trends in Geography.	K1 K2 K3 K4

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skill	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	2	1	1	1	1	1	1	1	1	1
CO2	3	2	1	1	2	1	2	1	1	1
CO3	3	2	1	2	2	1	2	1	1	1
CO4	2	1	2	1	1	1	1	1	1	1
CO5	2	1	2	2	1	1	1	1	1	1
CO-PO-Avg	3	2	2	2	2	1	1	1	1	1
CO-PO-Total	**12**	**7**	**7**	**7**	**7**	**5**	**7**	**5**	**5**	**5**

PO * At the end of the Course, the student will have the knowledge of the Geography Nature, Scope and also the various philosophical views which enhance the geographical knowledge. They have the outline of various branches and paradigm of geography and its recent trends.

COURSE OUTLINE:

Unit 1. Nature and content of Geography – Applied Geography – Pre-Modern – Early Origins of Geographical Thinking with reference to the Classical and Medieval Philosophies (Greek-Roman-Arab-Chinese-Indian-Varenius– Immanuel Kant – Alexander Von Humbolt – Cart Ritter)

Unit 2. Modern – Evolution of Geographical Thinking and Disciplinary Trends in Germany, France, Britain, United States of America– Impact of exploration and Discoveries – Determinism, Possibilism – Dualism and Dichotomy in Geography.

Unit 3. Recent Trends in Geography –Paradigms in Geography – Paradigm's Shift- Quantitative Revolution - Theories and methodological developments –Models (types of models) in Geography-System and System Analysis in Geography

Unit 4. Critical Revolution in Geography- Positivism- Humanism- Behaviorism- welfare- Radical Geography- Post Modernism-Regional Concept - Areal Differentiation

Unit 5. Scientific Approaches in Geography – Theory and fact-Hypothesis-Scientific Explanation(Induction and Deduction) -Changing Concept of Space in Geography-Time space Geography- Locational Analysis – Spatial Analysis- Recent trends in Geography

LEARNING OUTCOMES : To attain the knowledge of Basics and foundations in Geography. To know the thoughts of Philosophers in Geography .To update the modern trends in Geography using statistical techniques.

References:

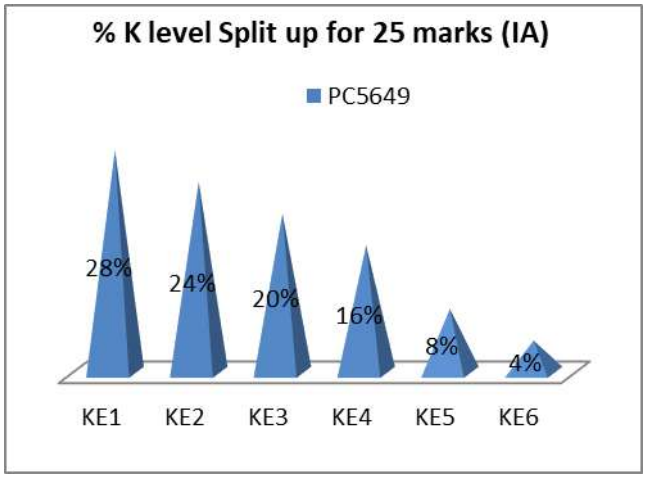
1. Majid Hussain (2015) *'Evolution of Geographical Thought'*Rawat Publication 5th Edition, New Delhi.
2. AnoopNayak and Alex Jeffrey (2013), '*Geographical Thought: An Introduction to Ideas in Human Geography*, Pearson Education
3. Tim Chriswell (2012) *Geographical Thought – A Critical Introduction*,Wiley Blackwell
4. Dikshit R.D (2009)*' Geographical Though Contextual History of Ideas*, Prentice-Hall of India pvt. Ltd., New Delhi
5. SudeeptaAdhikari(2009) *Fundamentals of Geographical thought*, Chaitanya Publishing house,Allahabad
6. Chorley R.J and Haggett (eds) 1967 *' Models in Geography*

Web Sources:

1. www.overcart.com/geographical-thought-a-contextual-history-of-ideas-eng.
2. www.alibris.com/search/books/isbn/9788120311824

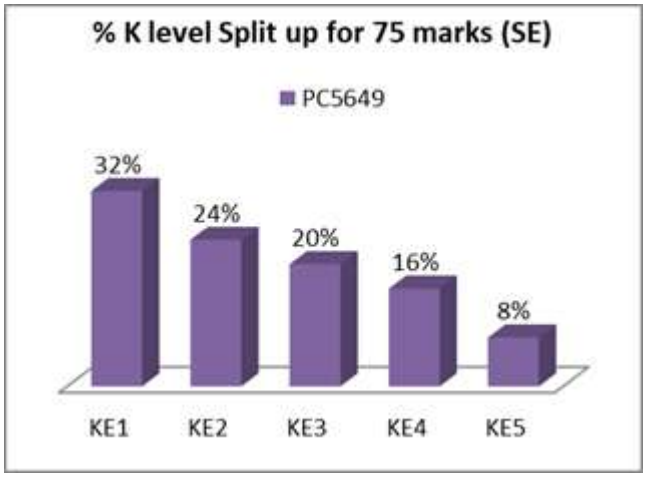
CIE-Continuous Internal Evaluation (25 Marks)

PC5649				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (7)	1	1	2	3
Understand (6)	1	0	1	4
Apply (5)	2	2	0	1
Analyse (4)	0	1	1	2
Evaluate (2)	1	0	1	0



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5649	
Bloom's Taxonomy	**Weightage**
Remember	**32 %**
Understand	24 %
Apply	20 %
Analyze	16 %
Evaluate	8%



REMOTE SENSING AND ITS APPLICATIONS

Semester:III **Code:PC5650**

Course:XIII **Credit:4**

Learning Objectives: This paper explains the concepts and types of remote sensing based on platforms. It also describes the image processing, aerial photo interpretations. It also deals with applications of remote sensing on various fields.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeable to understandthein-depth knowledge.

CO1	**Define** Remote Sensing**, describe** the Principles of Remote Sensing, **memorize** the bands in Electromagnetic**, Distinguish** between Radiation Interaction with Atmosphere and Earth Surface-Interaction, Distinguish between the types of Remote sensing based on platform, Energy sources, Imaging media, regions of Electromagnetic spectrum, **differentiate**sensor resolutions Spatial, spectral, radiometric and temporal resolution, **understand and relates** the Image referencing system for their local area. https://onlinecourses.swayam2.ac.in/aic20_ge05/preview **PO1 PO2 PO3 PO6 PO7 PO8 PO9 PO10** **Group activity to refer Google satellite image of our College and identify features at various spatial resolution PO4 PO5**	K1 K2 E3 E4 K5
CO2	Define Microwave Remote sensing, differentiates between Passive and Active Microwave Remote Sensing, distinguishes between Airborne versus space bore radars correlate the images from SLAR and SAR System. **Activity JAM** **PO1 PO2 PO7 PO8** **https://crisp.nus.edu.sg/~research/tutorial/mw.htm**	K1&k2 K3, K4 K6
CO3	**List** the Image Processing methods, understands Pre -processing methods (Radiometric and Geometric Correction) differentiates Image Enhancement techniques, compare Image Transformation methods, categorize Image Classification (Supervised and Un-supervised) appraise Image Display **PO1 PO2 PO7** **https://onlinecourses.nptel.ac.in/noc19_ce38/preview** **Activity Hand on processing exercises in practical paper is done when this topic is taught**	K1 K2 K3 K4 K5 K6
CO4	**RecognizeInterpretation** Procedure, lists Elements of Interpretation and Interpretation Keys, Equipment for Image Interpretation, conclude Photomorphic Analysis techniques. **PO1 PO2 PO3 PO4 PO7 PO8 PO9 PO10** **Activity Each student to identify their district features from Google satellite image**	K1 K2 K3 K4
CO5	**Summarise** application of Remote Sensing in Land Cover and Land use mapping, Change detection in land use, Water, Forest, Agriculture, Environmental Impact assessment and Urban planning. Group Activity PPT presentation on any one topic https://geographyandyou.com/remote-sensing-applications/ **PO1 PO2 PO3 PO4 PO7 PO9 PO10**	K1 K2 K3 K4 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skill	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	1	1	1	2	1	2	1	1	2
CO2	3	1					1	1	1	1
CO3	3	1		2			1	2	1	2
CO4	3	1	2	2			2	2	1	2
CO5	3	1	2	2	2	1	1	2	1	2
CO-PO-Avg	3	1	2	1	1	1	1	2	1	2
CO-PO-Total	**15**	**5**	**5**	**7**	**4**	**2**	**7**	**8**	**5**	**9**

COURSE OUTLINE:

Objectives: This paper explains the concepts and types of remote sensing based on platforms. It also describes the image processing, aerial photo interpretations. It also deals with applications of remote sensing on various fields.

Unit 1. Concept of Remote Sensing –Principles of Remote Sensing– Electromagnetic Radiation Interaction with Atmosphere and Earth Surface-Interaction- – Types of Remote sensing based on platform, Energy sources, Imaging media, regions of Electromagnetic spectrum; sensor resolutions – Spatial, spectral, radiometric and temporal resolution – Image referencing system.

Unit 2. Microwave Remote sensing – Introduction – Passive, Active Microwave Remote Sensing – Radar Imaging – Airborne versus space bore radars – Radar systems – SLAR and SAR System.

Unit 3. Image Processing - Manual and Digital – Data analysis–Pre -processing methods - (Radiometric and Geometric Correction)- Image registration- Image Enhancement (Filtering)- Image Transformation- Image Classification (Supervised and Un-supervised- Image Display

Unit 4. Image and Aerial Photo Interpretation – Interpretation Procedure-Elements -Interpretation Strategies-Interpretation Keys-Equipment for Image Interpretation-PhotomorphicAnalysis

Unit 5. Application of Remote Sensing - Land Cover and Land use mapping – Change detection in land use – Water – Forest – Agriculture – Environmental Impact assessment – Urban planning.

References:

1.Chandra, A.M&Ghosh.S.K. *Remote Sensing and Geographic Information System*. Narosa Publishing House.2016.
2.Bhatta, Basudeb. *Remote sensing and GIS*. Oxford University Press, India. 2011.
3. Reddy, M. Anji. *Remote Sensing and Geographical Information System*. B.S. Publications, A.P.2002.
4.Lillesand, T.M. and R.W. Kifer. *Remote Sensing and Image Interpretation*. John Wiley sons, NewYork.1999.
5.Curran,Pane J. *Principles of Remote Sensing*. Longman group Ltd., London.1985.

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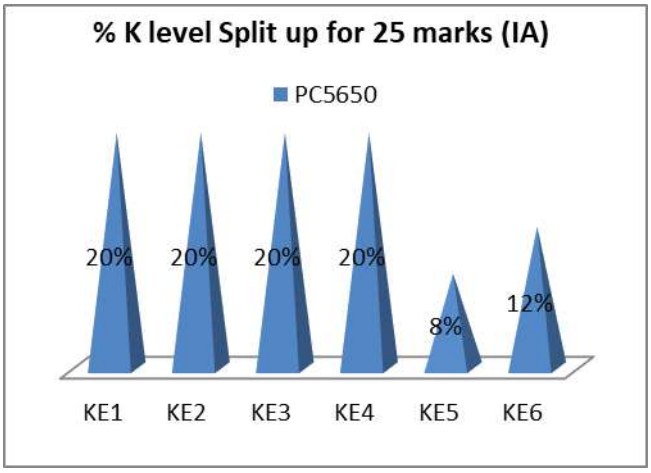
1. Government of Canada. 22.08.2020. https://www.nrcan.gc.ca/maps-tools-publications/satellite-imagery-air-photos/tutorial-fundamentals-remote-sensing/9309
2. University of Minnesota. 22.08.2020. https://rscc.umn.edu/lessons/lessons-intro
3. Union of Europe 22.08.2020. EN_TUTORIAL_COMPLETO.pdf
4. Government of India.22.08.2020. https://www.iirs.gov.in/
5. Government of India.22.08.2020. https://bhuvan.nrsc.gov.in/bhuvan_links.php
6. landsat.gsfc.nasa.gov/education/tutorials.html

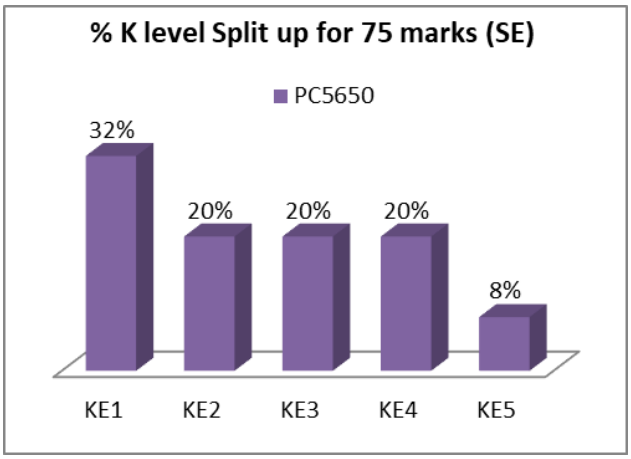
CIE-Continuous Internal Evaluation (25 Marks)

PC5650				
Bloom's Taxonomy	**Test**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	0	0	4
Understand (5)	1	0	1	3
Apply (5)	2	1	0	2
Analyse (5)	0	2	2	1
Evaluate (2)	1	0	1	0



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5650	
Bloom's Taxonomy	**Weightage**
Remember	**32%**
Understand	20%
Apply	20%
Analyze	20%
Evaluate	8%



PRACTICAL – III REMOTE SENSING TECHNIQUES

Semester:III **Code:PC5651**

Course:XVI **Credit:4**

Learning Objectives: This paper helps to acquire more knowledge about aerial photographs and satellite imageries. Training given to the students about stereoscope, how to view the images through stereoscope, marking principal point, identification of flight direction. Satellite imageries are digitized through the image classification.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Recalls** Aerial Photographs, Orientation and Stereoscope Viewing of Photographs, **Identifies** of Flight Direction and Flight route deflection, **PO1 PO2calculates** Scale, and area measurement in Aerial Photo, **PO3 PO4 PO5 PO6Execute** Distance and area measurement with Google map for their local area**, PO7 interpretates** by Comparative study of Aerial Photograph, with Toposheet and imagery **PO8 PO9 PO10** **https://www.nrcan.gc.ca/maps-tools-publications/satellite-imagery-air-photos/air-photos/national-air-photo-library/about-aerial-photography/concepts-aerial-photography/9687** **https://www.makeuseof.com/tag/measure-area-distance-google-maps-earth/#**	K1K2K3K4 K5
CO2	**Recalls** Elements of Aerial photo Interpretation, **Identify analyse and judge** the Relief, River features, Drainage pattern Land use, **Builtup** Structure and Transportation lines **https://www.geographynotes.com/topography/aerial-photography/aerial-photography-meaning-and-interpretation-geography/5964** **PO1 PO2 PO4 PO5 PO7 PO8 PO9 PO10**	K1K3K3K4 K5
CO3	**Recalls** Interpretation Keys and Annotation (2 exercise), **PO1 PO2 PO3 PO4Interpretates features in** true colour and false colour composite**,PO5 PO7 PO8P09** Interpretation of Radar image from IMD website – Cyclonic tracking **PO10** **https://earthobservatory.nasa.gov/features/ColorImage** **https://mausam.imd.gov.in/imd_latest/contents/cyclone.php**	K1 K4 K5
CO4	**recognizes** the Data formats and storage of digital data (BIP,BIL,BSQ) **PO1 PO2applie**s the concept of Grey Scale **PO3understands** Intensity profile and Histogram as a pre-processing and enhancement technique for image interpretation, **differentiates** between supervised and unsupervised classification. **PO4 PO5 PO7PO8 Po9 PO10**	K1 K2 K4 K5
CO5	**Develops** the skill of handling GPS. **PO1 PO2identifies** the Latitude and Longitude of a place – **calculates** the Track length **PO3 PO4 PO5 PO7 PO8Doessurvey** for Open and Closed track to **draw the plan for the area, measures** the Height of a place using GPS **https://www.techwalla.com/articles/how-to-use-gps-to-survey-land**	K1 K2 K3 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	1	1	1	1		2	1	1	1
CO2	3	1	1	1	1		2	1	1	1
CO3	3	2	2	2	1		2	1	1	1
CO4	3	2	2	2	2	1	2	1	1	1
CO5	3	2	2	2	2	1	1	1		1
CO-PO-Avg	3	2	2	2	1	1	2	1	1	1
CO-PO-Total	**15**	**8**	**8**	**8**	**7**	**2**	**10**	**5**	**5**	**5**

COURSE OUTLINE

UNIT I: Aerial Photographs-Orientation-Stereoscope Viewing of Photographs-Identification of Flight Direction- Flight route deflection-)-Photometric Exercise-Scale factor- Height and area measurement in Aerial Photo- Distance and area measurement with Google Application – Comparative study of Aerial Photograph, with Toposheet and imagery (5 Exercises)

UNIT II: Aerial photo Interpretation-Elements of Aerial photo Interpretation-Identification of Relief, River, Drainage, Land use, Buildup Structure and Transportation lines (5 Exercises)

UNIT III: Interpretation of Satellite Imageries-Interpretation Keys- Annotation (2 exercise)-Interpretation (2 Exercise each for true colour and false colour composite)- Interpretation of Radar image from IMD website – Cyclonic tracking

UNIT IV: Hands on processing of digital data – Data formats and storage of digital data (BIP, BIL, BSQ) – Grey Scale – Intensity profile – Histogram- supervised and unsupervised classification.

UNIT V: GPS- Identification of Latitude and Longitude- Track length calculation- GPS survey – Open and Closed Survey- Height measurement with GPS

References:

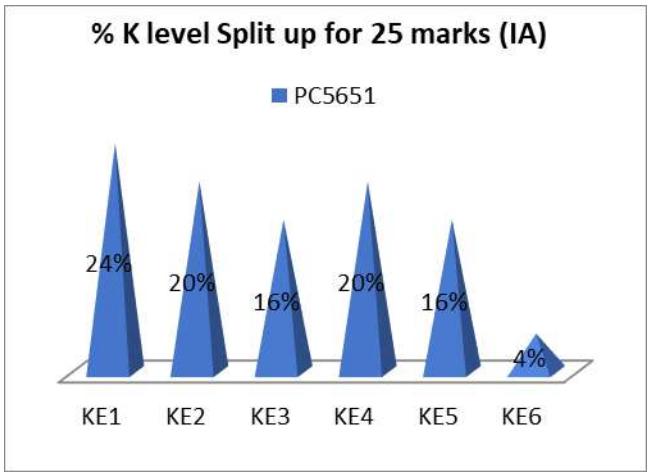
1. Bhatta,Basudeb. (2011).*Remote sensing and GIS*. Oxford University Press, India
2. ParthaBasu,PijushkantiSaha(2010). *Advanced Practical Geography.* 'Books and Allied Limited
3. Khan, M.Z.A (1998).*Text book of Practical Geography.* Concept publishing Company, NewDelhi
4. Khullar,Dr. (1997). *King's Practical Geography.* Educational Publishers, Delhi.
5. Negi, Balbir Singh (1995).*Practical Geography.*(3rd edition).KedarNath and Ram Nath, Meerut, Delhi

Web sources:

1. landsat.gsfc.nasa.gov/education/tutorials.html
2. www.iirs.gov.in/
3. www.nrsc.gov.in/&remotesensing.org/

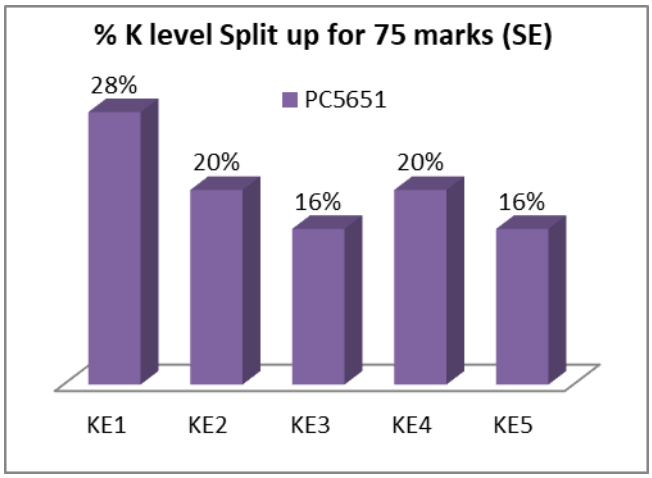
CIE-Continuous Internal Evaluation (25 Marks)

PC5651				
Bloom's Taxonomy	**Test**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (6)	2	1	1	2
Understand (5)	1	0	1	3
Apply (4)	1	1	0	2
Analyse (5)	0	2	2	1
Evaluate (4)	1	0	1	2



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5651	
Bloom's Taxonomy	**Weightage %**
Remember	**28 %**
Understand	20 %
Apply	16 %
Analyze	20 %
Evaluate	16 %



ELECTIVE – III POLITICAL GEOGRAPHY

Semester:III **Code:PE5618**

Course:XIV **Credit:3**

Learning Objective: This paper gives an idea of history, development, theories and approaches to the study. It covers the political area at the global level which comprises economic, human, political pattern of states, territory, frontiers and boundaries. Also deals with political geography of India in various aspects including electoral system in India.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Acquire** through knowledge on the basic concepts of Political Geography and its importance and scope in Geography, it is important to **explore theirknowledge** in various phases of political Geography **PO1 PO2. Understands** the concepts of political Geography, Learns geopolitical school of thought to develop the skills to understand our political system **PO3, Understands** the recent trends and developments in Political Geography .**PO4 PO5** Courtesy **http://youtu.be/5E90dydJSfA**	K1 K2 K3 K4 K5
CO2	**Understanding**of facts and ideas of various political areas of our Territory, State, Nation and the world. **Acquire** through knowledge on frontiers and boundaries.**Applying acquired knowledge** of political patterns of the geographical regions by drawing maps PO6. understand the elements of spatial structure **PO1** Courtesy http://youtu.be/zZJFozFsnIU	K1 K2 K3 K4 K5
CO3	**Categorize** political regions of India how-to-draw India-political divisions-in-map-PO1,PO4,PO5 Appreciate various factors behind political regions . **Construct** the state and union territories maps **PO2, PO3, PO7 Examine** the visual hierarchy ,**applying acquired knowledge** techniques in drawings political maps and their designs **k6-PO3,PO4** Courtesy https://youtu.be/d5bkxhbE8SU	K2 K2 K5 K6
CO4	**Understands** the concept of electoral Geography. Examine the subjective aspects of electoral divisions of India; **PO1**. Activity given to **Analyse** various constituencies of Parliament to village administration in India **PO6, PO5** as a team Courtesy http://youtu.be/HxStnd0dck Courtesy http://youtu.be/exA0X-CmW0A Courtesy http://youtu.be/vAvIRBH0Ebw	K2 K3 K4 K6
CO5	**Understand** various Theories of Political Geography: **PO1 Activity** given to point out facts about Sacks theory **PO5**. Understands the Concept of Hartshorne theory , Debate between Sacks theory and Hartshorne theory.PO7 as group activity **PO5** http://journals.openedition.org/samaj/2784	K2 K3 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2		2			1	1	2	2
CO2	3	1	2	2	2	1	1	1	1	1
CO3	3	2	2	2	2	1	1	1	1	1
CO4	3	2	3	2	2	1	2	2	2	2
CO5	3	2	2	3	3	1	3	2	2	2
CO-PO-Avg	3	2	2	2	2	1	1	2	2	2
CO-PO-Total	**15**	**9**	**9**	**11**	**9**	**4**	**8**	**7**	**8**	**8**

PO*At the end of the Course, the Student will be aware of the origin of political geography and the inter relationships between people, state,and territory. This course would appeal to students to develop a critical understanding the relationships between the earth's natural and human phenomenon and its political systems.

COURSE OUTLINE

Unit I: Nature and Scope of political geography – History – development of political geography-Geopolitical school of thought – Approaches to study (CO1)

Unit II: Political area: Countries of world – Natural setting of Political – Economic and human features, Political patterns of states – Dependent areas; Territory, State and Nation: Territory and Territoriality – Elements of Spatial structure – Nation and Nationalism –Frontiers and Boundaries – Boundaries and International tension in South Asia.(CO2)

Unit III: Political geography of India: Historical background – Political units of India – States of the Indian Union. Union of India: Physical factors – Economic aspects – population and ethnic factors – Other territories(CO3)

Unit IV: Electoral geography – Elections in India – Electoral division – Parliamentary constituencies – Assembly constituency – Local body election –Corporation – Town Panchayat –Municipality –Village administration(CO4)

Unit V: Theories of Political Geography: Sack's theory of Human territoriality – Hartshorne's theory of Territorial Integration (CO5)

References:

1. Dwivedi, R.L. (2014).*Fundamentals of Political Geography*. Chaitanya Publishing House,Allahabad
2. Adhikari, Sudeepta. (2009).*Political Geography of India- A Contemporary Perspective*.SharadaPustakBhavan, Allahabad
3. Prescoot,J.R.V. (1972). *Political Geography*. Richard Clay (The Chaucer Press) Ltd., Great Britain.
4. Valkenburg,Samuel Van and Carl L. Stotz. (1955). *Elements of Political geography*.
5. Second Edition, Prentice-Hall, New Jersey.

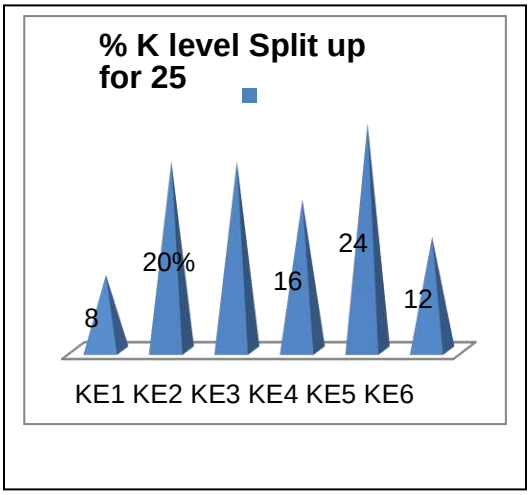
Web Sources:

1. www.geography.about.com/od/politicalgeography

2. www.electoralgeography.com/new/en/category/countries/i/india
3. https://en.wikipedia.org/wiki/Political_geography

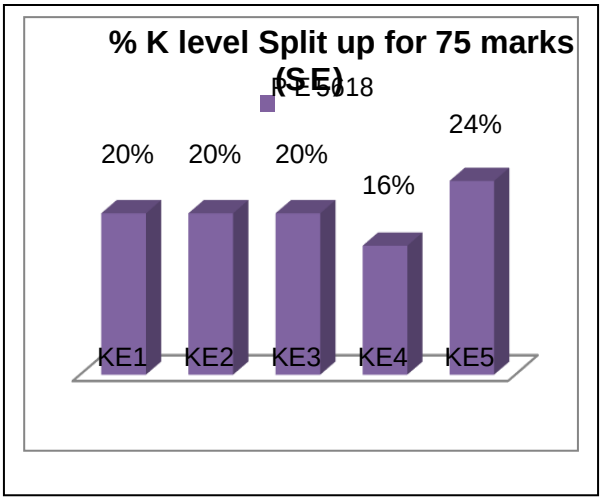
CIE-Continuous Internal Evaluation (25 Marks)

PE561 8				
Bloom's Taxonomy	**Test**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (2)	0	0	0	2
Understand (5)	1	0	1	3
Apply (5)	2	2	0	1
Analyse (4)	0	1	1	2
Evaluate (6)	2	0	2	2



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PE561 8	
Bloom's Taxonomy	**Weightage %**
Remember	**20 %**
Understand	20 %
Apply	20 %
Analyze	16 %
Evaluate	24 %



ELECTIVE - IV RESEARCH METHODOLOGY

Semester:III **Code:PE5619**

Course:XV **Credit:3**

Learning Objectives:

This paper gives the broad idea about how to execute a research study. Establishing step by step logical organized and rigorous methods to identify problems, gather data, analyze and draw valid conclusions.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthein-depth knowledge.

CO1	**Defines** the term Research – **Finds** the importance of Aims and Objective of Research – **Explains** the Types of Research **– Illustrates** the Qualitative, Quantitative, Descriptive, Analytical, Applied, Fundamental, Conceptual, Empirical – Scientific method of Research and able to **Identifies** the types – **Analyze** the Multi-disciplinary and inter disciplinary approaches in Research. **(PO1,PO2)** www.researchconnections.org / **https://libguides.wits.ac.za/research-support**	K1 K2 K3 K4 K5
CO2	**Recalls** Data Collection: **(PO1) Distinguishes** Primary and Secondary data – **Understands** Field work – Aerial Photograph, Census data and satellite imageries as data sources – **Analyze and Develops** Sampling and sample survey **(PO2)** –the Designer of Questionnaires and schedules **Determines** Field work in collecting data for their respective project work. **compilation** of their research proceedings in the form of a research proposal.http://www.scribbr.com **Activity: Field work in collecting data for their respective project work**	K1 K2 K3 K4 K5 K6
CO3	**Finds** the concept of Hypothesis testing **(PO2) -Recalls** formulation of Hypothesis – **Understands** its importance – **Compare and Contrst** the Scientific Hypothesis – Null Hypothesis – Alternative Hypothesis – **Perceives** Hypothesis Testing – **Applies** X^2 Test, 't ' Test, 'F'Test. **Activity: Group Discussion on the merits and demerits of X^2 Test, 't ' Test, 'F' Test with reference to their selected research topics.(PO5)**	K1 K2 K3 K4 K5 K6
CO4	**Recalls** the Need for Quantitative Techniques **(PO1) – Finds** the Measurement of Quantitative data **(PO2)– Understands** the levels of measurement - **Analyzing**the Nominal, Interval, Ordinal and Ratio scales –**Examines** the Data transformation**(PO7)** – **Understands, Applies and valuates**theMeasures of central tendency and dispersion – Correlation**. (PO7)** **Activity: JAM on Levels of measurement of data**	K1 K2 K3 K4 K5 K6
CO5	**Finds** the selection of a Problem-**Decides** the Design of Project –**Explains** the Research proposal – **Develops** the Scientific Writing **(PO6) – Plans** the Methodological frame work - Chapter organization – **Distinguishes** Appendix – Bibliography. **Seminar: on the Results and Conclusion of their individual research project.(PO4, PO10)** http://www.projectmanager.com .	K1 K2 K3 K4 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2	2	2			1	1	1	1
CO2	3	2	2	3			2	1	1	1
CO3	3	3	3	3	3	2	2	1	1	1
CO4	3	2	2	3			2	1	2	2
CO5	3	3	3	3	3	2	2	1	3	2
CO-PO-Avg	3	2	2	3	3	2	2	1	2	2
CO-PO-Total	**15**	**12**	**12**	**14**	**6**	**4**	**9**	**5**	**8**	**7**

COURSE OUTLINE

UNIT I: Definition of Research – Aims and Objective of Research – Types of Research – Qualitative, Quantitative, Descriptive, Analytical, Applied, Fundamental, Conceptual, Empirical – Scientific method –Multi disciplinary and inter disciplinary approach

UNIT II: Data Collection: Primary and Secondary data – Field work – Aerial Photograph, Census data and satellite imageries as data sources - Sampling and sample survey – Designing Questionnaires and schedules.

UNIT III : Hypothesis testing - formulation of Hypothesis – its importance – Scientific Hypothesis – Null Hypothesis – Alternative Hypothesis - Hypothesis Testing - X^2 Test, 't ' Test, 'F' Test.

UNIT IV: Need for Quantitative Techniques – Measurement of Quantitative data – levels of measurement - Nominal, Interval, Ordinal and Ratio scales – Data transformation – Measures of central tendency and dispersion – Correlation

UNIT V: Selection of a Problem-Design of Project – Research proposal – Scientific Writing – Methodological frame work - Chapter organization – Appendix – Bibliography.

References:

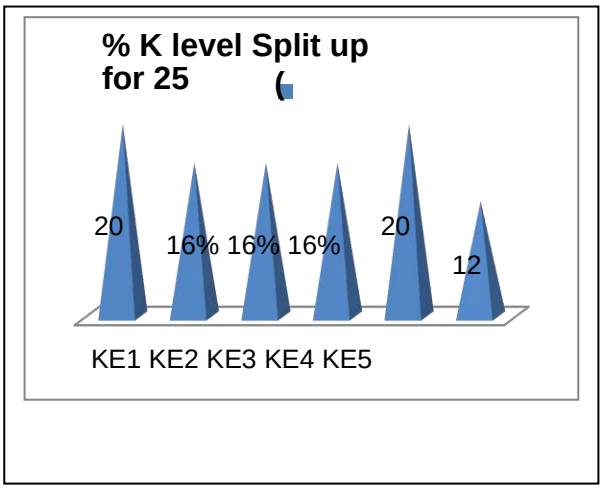
1. Newman, Lawrence. (2015).*Social Research Methods: Qualitative and QuantitativeApproaches*. Pearson
2. Kothari.C.R&GauravGarg. (2012).*Research Methodology Methods and Techniques.* New Age International Publishers
3. Johnn,Best.W&James.V(2006).*Research in Education*. Pearson
4. Cole and King (1989). *Quantitative Geography Techniques and Theories in Geography.* John Wiley and sons Ltd., London.

Web Sources:

1. **www.fao.org/.../the...census...censuses...surveys/...survey-design/en/**
2. **www.researchconnections.org**
3. **http://www.scribbr.com**
4. **http://www.projectmanager.com**
5. **https://blog.udemy.com/quantitative-techniques/**

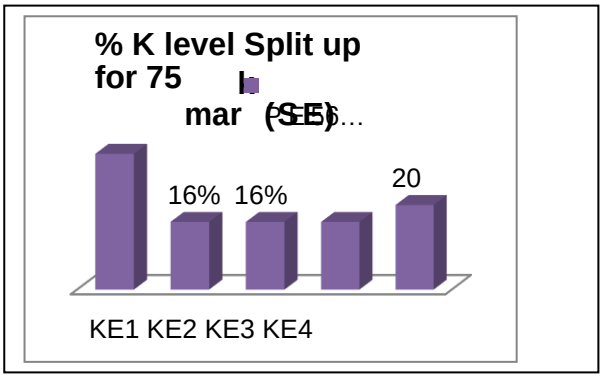
CIE-Continuous Internal Evaluation (25 Marks)

PE5619				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	1	0	3
Understand (4)	1	0	1	2
Apply (4)	1	1	0	2
Analyse (4)	0	1	1	2
Evaluate (5)	2	0	2	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PE5619	
Bloom's Taxonomy	**Weightage**
Remember	**32%**
Understand	16%
Apply	16%
Analyze	16%
Evaluate	20%



FUNDAMENTALS OF GEOGRAPHICAL INFORMATION SYSTEMS

(Offered to other Department)

Semester:III **Code: PD5609**

Course:XVI **Credit:3**

Learning Objectives: Objective: This paper reveals the history and components of cartographic techniques and the coordination between Maps and GIS software's. It gives knowledge about Topo sheets, Aerial photos, and GPS and GIS applications to non-geography students.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Student willbeabletounderstandthein-depth knowledge.

CO1	**Recalls** maps and its importance in daily life, **understand** Geography as Spatial science and GIS concepts, **define** GIS, **trace** the history and development of GIS, **lists** the Components of GIS, **distinguish** between Hardware, Software, **understands** the Procedure, **differentiate** Data types and Users, **realize** the significance of Digital Cartography Group Discussion Hardware and software **https://www.esri.com/en-us/what-is-gis/overviewPO4 PO5 P06,PO7 PO8 PO9 PO10**	K1 K2 K3 K4 K5 K6
CO2	**Recalls** the Shape of the earth ,**compare** the different Coordinate systems, **PO1PO2 PO4list** Map projections and differentiate its Types, **understand** the **Universal Transverse Mercator** coordinate system(UTM) , **realize** the significance Geo Referencing **PO5 PO7 PO8 P09 PO10 Activity (Just a Minute)** **https://www.e-education.psu.edu/natureofgeoinfo/c2_p22.html reference 54** **https://desktop.arcgis.com/en/arcmap/10.3/guide-books/map-projections/universal-transverse-mercator.html**	K1 K2 K3 K6
CO3	**List** Data Sources ,(Topographical maps, Aerial photos, Satellite Imageries) **explain** Global positioning systems, **summarise** Data Input (Keyboard entry Scanning ,Digitization.) **download** data from relevant website **PO1 PO2** Group assignment to download socioeconomic data for a district from statistical hand book published by our State Government and prepare ppt presentation.**PO5 PO6PO7 PO9 PO10**	K1 K2 K3 K4 K5 K6
CO4	**List** Basic Data Models, (Spatial and Non-spatial Data, Raster and Vector Data), **compares** Advantages and Disadvantages of Raster and Vector GIS, **Evaluate** types of Database (Hierarchical, network, relational and object oriented.) **Individual seminar on any one of the sub topic** **https://desktop.arcgis.com/en/arcmap/latest/manage-data/geodatabases/design-data-types-in-the-dbms.htm PO1 PO2 PO7 PO9 PO10**	K1 K2 K5
CO5	**List** GIS Software s (CAD- GIS-ARC GIS, ARC VIEW, MAP INFO,GRASS and QGIS) **Summarise** GIS application (Environmental and National Resources Management, Planning and Engineering, Land Information System, Urban Planning). **PO1 PO2 PO5 PO6 PO7 PO8 PO 10Group activity** to present seminar on any one topic **https://grindgis.com/blog/gis-applications-uses.**	K1 K2 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2	1	1	1		2	1	1	1
CO2	3	2	1	1	1		2	1	1	1
CO3	3	2	2	1	2	1	2	1	1	1
CO4	3	2	2	1			2	1	1	1
CO5	3	2			1		2	1		1
CO-PO-Avg	3	2	1	1	1	1	2	1	1	1
CO-PO-Total	**15**	**10**	**7**	**4**	**5**	**1**	**10**	**6**	**4**	**5**

COURSE OUTLINE

UNIT I: Geography as Spatial science and GIS concepts: Introduction - Definition – History and development of GIS – Components: Hardware, Software, Procedure, Data and Users – Digital Cartography

UNIT II: Maps and GIS – Shape of the earth – Coordinate systems — Map projection and its Types-UTM - Geo Referencing

UNIT III: Data Sources – Topographical maps – Aerial photos – Satellite Imageries – Global positioning systems - Data Input - Keyboard entry - Scanning – Digitization.

UNIT IV: Basic Data Models: Spatial and Non-spatial Data – Raster and Vector Data – Advantages and Disadvantages of Raster and Vector GIS – Database Management: Hierarchical, network, relational and object oriented.

UNIT V: GIS Software –CAD- GIS-ARC GIS, ARC VIEW, MAP INFO,GRASS and QGIS -GIS application : Environmental and National Resources Management, Planning and Engineering, Land Information System, Urban Planning.

References:

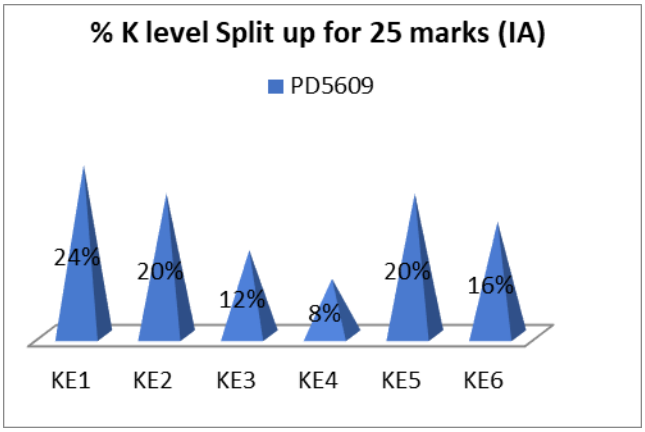
1. Chandra A.M. &Ghosh.S.K. ***Remote Sensing and Geographic Information System***. NarosaPublishing House(2016).
2. Bhatta,Basudeb, ***Remote sensing and GIS***, NewDelhi.Oxford University Press /Radha press. (2011).
3. Siddique,Dr. M.A. ***Introduction to Geographic Information Systems***. Allahabad. ShardaPustakBhawan, (2006).
4.Clarke***. Getting started with Geographical Information systems***. New Jersey. Prentice Hall, (2001).

Web Sources:

1. wamis.org/agm/pubs/agm8/Paper-6.pdf
2. http://igre.emich.edu/wsatraining/TManual/Chapter1/Chap1.pdf
3. https://en.wikipedia.org/wiki/GIS_file_formats
4. ww.gisinecology.com/Introduction_To_GIS_Software.htm

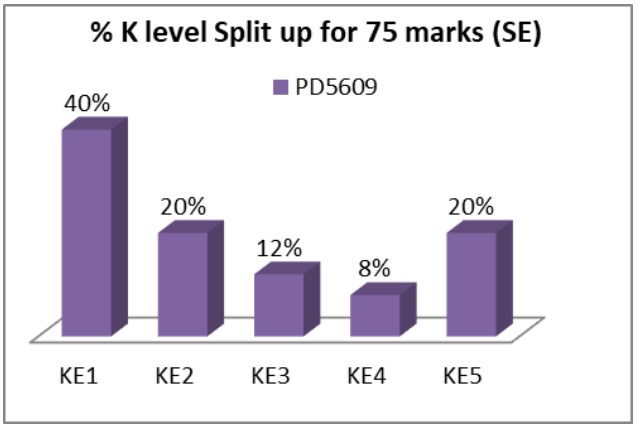
CIE-Continuous Internal Evaluation (25 Marks)

PD5609				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (6)	1	1	-1	5
Understand (5)	1	0	1	3
Apply (3)	1	1	0	1
Analyse (2)	0	1	1	0
Evaluate (5)	2	0	2	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PD5609	
Bloom's Taxonomy	**Weightage**
Remember	**42 %**
Understand	20 %
Apply	12 %
Analyze	8%
Evaluate	20 %



SETTLEMENT GEOGRAPHY

Semester:IV **Code: PC5652**

Course:XVIII **Credit:4**

Learning Objectives: This paper helps to know about the difference between rural and urban settlements and their functions. Various theories relating to settlement will help them to know about the origin of urbanization and house types

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeable to understandthein-depth knowledge.

CO1	**Defines** the Settlements – Rural and Urban Settlements– **Finds** the –Site – Situation – Pattern — Advantages and Disadvantages– **Explains**– Function — **Illustrates** Planned Settlement – **Analyze** the Advantages and Disadvantages. . **(PO1, PO2)**	K1 K2 K3 K4
CO2	**Recalls:** Rural Settlement **(PO1) Distinguishes** Site and situation factors – **Understands**– Pattern – Size and Spacing of Rural Settlement. Types, – Forms and Pattern of rural settlements: Cause and effect; Classification – **Analyze and Develops** of rural settlements; Rural Urban Fringe- structure, **(PO2) – Determines,** Characteristics and Function.	K1K2K3 K4K5 K6
CO3	**Finds** the concept. Functional classification of towns and villages; Functional classification of urban centers**. (PO2) -Recalls** Size of village, Size and distribution of hamlets – **Understands** its importance – **Compare and Contrast** Character of villages and village sites, Functional structure of towns in India **Activity: Group Discussion on the merits and demerits of selected research topics. (PO5** Functional structure of towns in India research topics.(PO5)	K1 K2 K3 K4 K5 K6
CO4	**Recalls** Settlement Hierarchy, Christaller's Central place theory**: (PO1)** –**Finds** the Measurement of Hierarchy **(PO2) – Understands** the , Primate city, Urban Fringe analyzing the suburbs **(PO7)** – **Understands, Applies and valuates** the m Metropolis, Mega polis, Conurbation, Urban sprawl **(PO7)**	K1 K2,K3 K4 K5
CO5	**Finds** the Housing and House Types,– **Explains** the relief, Climate, Socio economic and other factors. –**–Explains** the Types, Factors influencing house type – **Develops** the Building materials for House types – Walls, Roofing, Materials. Houses in India-Types of rural and urban houses in India **(PO6)**– –**Distinguishes** Appendix – Bibliography.**Seminar: on the Results and Conclusion of their individual research project.(PO4, PO10)**	K1 K2 K3 K4 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skill	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	1	1	2			2	1	1	1
CO2	3	1	1	3			2	1	1	1
CO3	3	2	2	3	3	2	2	1	1	1
CO4	3	2	2	3			3	1	1	1
CO5	3	3	3	3	3	2	3	1	1	1
CO-PO-Avg	3	2	2	3	1	2	3	1	1	1
CO-PO-Total	**15**	**9**	**9**	**14**	**6**	**4**	**12**	**5**	**5**	**5**

COURSE OUTLINE

UNIT I: Settlements – Rural and Urban Settlements – Site – Situation – Pattern – Function – Planned Settlement – Advantages and Disadvantages.

UNIT II Rural Settlement – Site and situation factors – Pattern – Size and Spacing of Rural Settlement. Types, Forms and Pattern of rural settlements: Cause and effect; Classification of rural settlements; Rural Urban Fringe- structure, Characteristics and Functions

UNIT III Functional classification of towns and villages; Functional classification of urban centers, Size of village, Size and distribution of hamlets, Character of villages and village sites, Functional structure of towns in India

UNIT IV Settlement Hierarchy, Christaller's Central place theory: Measurement of Hierarchy, Primate city, Urban Fringe, Suburb, Metropolis, Mega polis, Conurbation, Urban sprawl

UNIT V Housing and House Types, Factors influencing house type – Relief, Climate, Socio economic and other factors, Building materials for House types – Walls, Roofing, Materials. Types of Houses in India-Types of rural and urban houses in India

References:

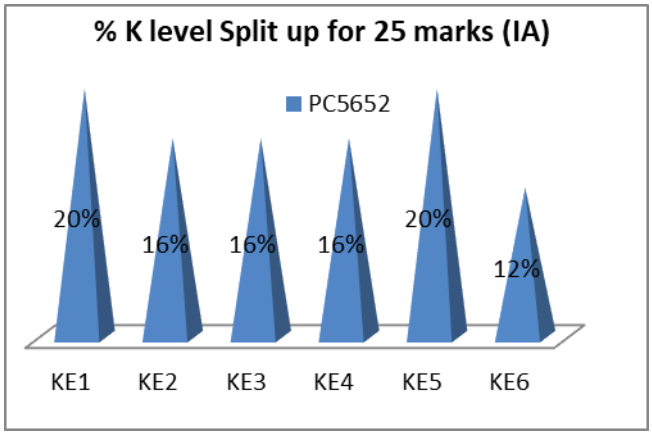
1. Verma, Usha, AnuradhaSahay, and Sinha V.N.P. (2017).*Introduction to Settlement Geography*. Rajesh Publications
2. Siddhartha, K & Mukherjee. S. (2016). *Cities, Urbanisation and Urban Systems(Settlement Geography).* Kitabmahal Publishers
3. Mandal, R.B.(2001).*Introduction to Rural Settlements*. Concept Publishing House, NewDelhi
4. Ghosh.S. (1998).*Introduction to Settlement Geography*.Sangam Books Limited
5. Negi. Dr. B.S. *Rural Geography*.KedarNath Ram Nath, Meerut.
6. Ramachandran. R. (1992). *Urbanisation and Urban systems in India*. Oxford University Press, New Delhi.

Web Sources:

1. https://en.wikipedia.org/wiki/Settlement_geography
2. https://golearngeo.wordpress.com/.../urban-rural-settlement-geography/
3. https://en.wikipedia.org/wiki/Settlement_hierarchy

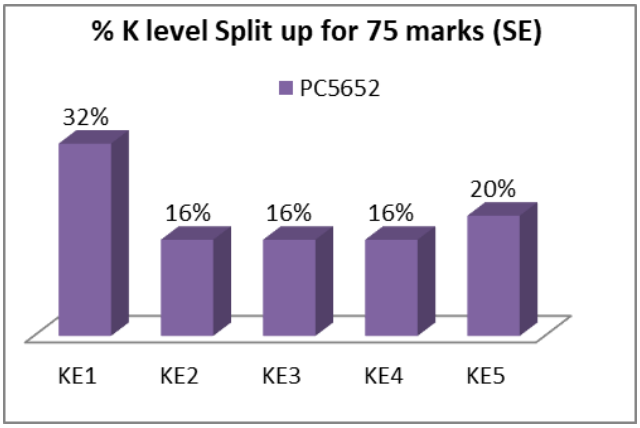
CIE-Continuous Internal Evaluation (25 Marks)

PC5652				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	1	0	3
Understand (4)	1	0	1	2
Apply (4)	1	1	0	2
Analyse (4)	0	1	1	2
Evaluate (5)	2	0	2	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5652	
Bloom's Taxonomy	**Weightage**
Remember	**32%**
Understand	16%
Apply	16%
Analyze	16%
Evaluate	20%



POPULATION GEOGRAPHY

Semester:IV **Code: PC5653**

Course: XIX **Credit:4**

Learning Objectives:
The paper discusses the theories of population, Population distribution and density in India as well as at global level. It also deals with the spatial movement of people at global level and current trend in population policies.

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthein-depth knowledge.

CO1	**Recall** the scope of the Population geography, compare with the other branch of Geography, **Understand** the threats of population explosion, PO- 7 **analyse** the transition period PO- 4, **explain** the theories of population, **examine** the population data **(Students are allowed to mark the graph by using population data– [PO3]) (Interactive session with questions) (Viva – Voce in IA) [PO2]** **www.onlinelibrary.wiley.com**	K1 K2 K3 K4 K5
CO2	**Explain** the world distribution of population, compare the population growth and density, **analyse** the composition, **PO - 4examine** the birth and death rate, **PO - 3 classifying** the occupational structure, outline the population policy, **predict** the population projection Group discussion on how to control the population explosion **(Interactive session with questions) (Viva – Voce in IA) [PO2]** **www.oxfordreference.com**	K1 K2 K4 K2 K3 K5
CO3	**Explain** the distribution of population in India, compare the population growth and density, **analyse** the composition in India, **PO - 4examine** the birth and death rate of India, **PO - 3 classifying** the occupational structure, outline the population policy , **predict** the population projection of India **Group discussion on how to control the population explosion in India** **(Interactive session with questions) (Viva – Voce in IA) [Po2]** **www.guides.library.ucla.edu**	K1 K2 K3 K4 K5
CO4	**Recall** the movement of population, **explain** the migration and its types, **examine** the push and pull factors of migration, PO 4 **compare** the Internal and International migration, **estimate** the causes and consequences Po4 **(Students are allowed to debate on advantage and disadvantages of Migration– [PO3])** **(Interactive session with questions) (Viva – Voce in IA) [Po2]** **www.sk.sagepub.com**	K1 K2 K3 K4 K6
CO5	**Illustrate** the population pressure, **examine** the reason for over population**, Po3 estimate** the cause of unemployment, **PO -7 analyse** the social crimes and economic imbalance **Po 4, explain** the population explosion in India, **evaluate** the environmental impact on urbanization **Po7** **(Students are allowed to discuss on social crimes over the region – (po3)** **(Interactive session with questions) (Viva – Voce in IA) [PO2]** **www.nap.edu**	K1 K2 K3 K4 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skills	**2 Skilled communicator**	**3 critical thinker and problem solver**	**4 Sense of inquiry**	**5 Team player/worker**	**6 Skilled project managers**	**7 Digitally efficient**	**8 Ethical awareness/ reasoning**	**9 National and International perspective**	**10 Lifelong learners**
CO1	**3**	1	2	**2**	1	1	**2**	1	1	1
CO2	**3**	1	2	**2**	2	1	**3**	1	1	1
CO3	**3**	1	2	**2**	1	1	**1**	1	1	1
CO4	**3**	1	1	**1**	1	1	**1**	1	1	1
CO5	**3**	1	1	**2**	2	1	**1**	1	1	1
CO-PO-Avg	3	1	2	1	1	1	2	1	1	1
CO-PO-Total	**15**	**5**	**8**	**2**	**2**	5	**8**	**5**	**5**	**5**

COURSE OUTLINE

UNIT I: Population Geography: Nature, Scope and Objectives –-Geography as a field of specialization – Theories of Population – Malthus Theory – Demography Transition Theory – Optimum Theory - Population Data Sources.

UNIT II: Population: World Distribution of Population – Population Density – Growth – Population Composition (Male, Female, Age, Caste, Religion) – Fertility rate – Birth and Death rate – Occupational structure – Population projection – Population Policies.

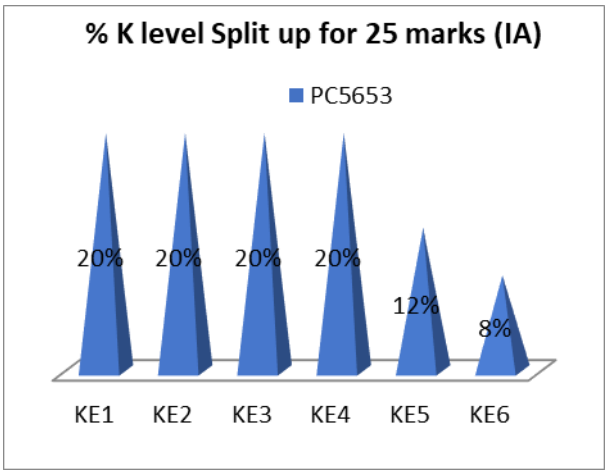
UNIT III: Population Distribution and Density in India – Factors affecting Population density (Physical and Human)-Indian Population Composition – Growth rate – Birth, Death and Fertility rate – age composition – Male and Female Composition – Caste and Religion – Occupational structure.

UNIT IV: Spatial movement of Population: Migration-Types of Migration (permanent, temporary, voluntary) – Push (drought, faminee, lack of jobs, over population and civil war) and Pull factors (better job, better education, a better standard of living)-Internal Migration-International Migration-Causes and Consequences of Migration.

UNIT V: Population Policies and Problem – India Population Pressure –Over population-unemployment problem-inadequate infrastructural facilities-Social crimes and Economic imbalance- Population Explosion-Population and Environment Interface.

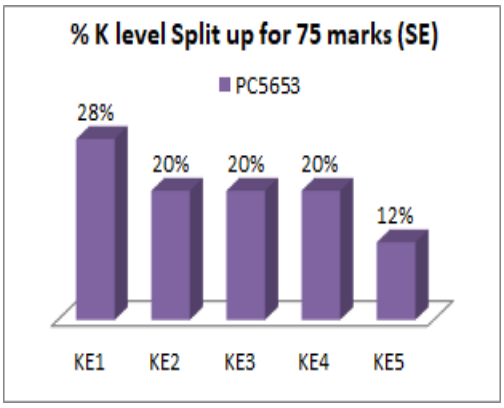
CIE-Continuous Internal Evaluation (25 Marks)

PC5653				
Bloom's Taxonomy	**Test**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	1	0	0	4
Understand (5)	1	0	1	3
Apply (5)	2	2	0	1
Analyse (5)	0	2	2	1
Evaluate (3)	1	0	1	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5653	
Bloom's Taxonomy	**Weightage**
Remember	**28%**
Understand	20%
Apply	20%
Analyze	20%
Evaluate	12%



PRACTICAL – IV COMPUTER AND GIS APPLICATION

Semester:IV **Code: PC5654**

Course: XXI **Credit:4**

Learning Objectives:

This paper explains the statistical analysis using word Excel spreadsheet, SPSS software and GIS mapping. It also gives training to manual methods of vector to raster transformation and calculation of Data. Individual gets hands on training and experiences of GIS mapping

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeabletounderstandthe in-depth knowledge.

CO1	**Recalls** application of computer in Geography, **understand** Geography as Spatial science and GIS concepts, **define** GIS, **trace the knowledge** of creating folders, saving files using MS excel,, **understands** calculation of mean, median and mode etc , **differentiate** the calculation of statistical analysis using excel. **PO1 PO2 PO4PO5** **Courtesy** **https://youtu.be/rMcUQDLZm-whttps://youtu.be/gxuk2pRuzSQ**	K1 K2 K3 K4
CO2	**Recalls** SPSS software ,**explores** the use of SPSS in calculating correlation, factor analysis etc**PO1 PO2 PO4understand** the relation of using SPSS and exporting the attribute table into the GIS software **realize** the significance attribute table or non spatial data in the application of GIS **Courtesy** https://youtu.be/TZPyOJ8tFcIhttps://youtu.be/itpAr1fpzcw	K1 K2 K3 K4 K6
CO3	**Relates** GIS mapping in diagrammatic representation like charts, quantities **Explores** the knowledge of located bar diagram on the maps. **Understands** the thematic layering **PO1,PO3,PO5 PO6** **Courtesy** **https://youtu.be/JyYTFR8y8OQhttps://youtu.be/NMnt-30g0hg**	K1 K1 K2 K3
CO4	**Recalls** the manual methods of creating vector data into raster data, **explores** the mathematical calculation of data–manually, **Understands** Raster overlaying - manually, **Courtesy** https://youtu.be/Dw670g5ySlghttps://youtu.be/7KT8qq9VcfwhttpS://youtu.be/R64aJfG8RXM	K1 K2 K5
CO5	**Recalls** the manual preparationof thematic layers, conversion of vector into raster, **Applies** theknowledge of creation of thematic layersin the GIS software, **Explores** the knowledge of GIS software in application of mapping -population data, rivers etc ,**Understands** the need for Geo Referencing and Buffering **PO5** **Courtesy** **https://www.e-education.psu.edu/natureofgeoinfo/c2_p22.html reference 54** ,https://desktop.arcgis.com/en/arcmap/10.3/guide-books/map-projections/universal-**transverse-mercator.html****PO9**	K1 K2 K5 K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skill	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2	1	2	1		2	1	1	1
CO2	3	2	1	2	1		2	1	1	1
CO3	3	2	1	2	2	1	2	1	1	1
CO4	3	2	1	3	1		2	1	1	1
CO5	3	2	2	3	2	1	2	1	2	1
CO-PO-Avg.	3	2	1	2	1	1	2	1	1	1
CO-PO-Total	**15**	**10**	**6**	**12**	**7**	**2**	**10**	**5**	**6**	**5**

COURSE OUTLINE:

UNIT I: Computer Applications is Geography: Creation of folders, Saving File, Data Base Creation using Excel – Use of Formula – Calculation of Mean, Median, Standard Deviation, Percentage, Growth Rate – Population Density – Co-efficient of Variability – Index of Concentration – If analysis. (CO1)

UNIT II: Application of SPSS Software – Frequency Table, Cross table, Rank Correlation, Product moment Correlation – Regression – Factor Analysis – Cluster Analysis. (CO2)

UNITIII: Computer Graphics and GIS Mapping – Charts (Pie, Bar/Column) Quantities (Graduated colors, Graduated symbols, proportional symbols, Dot density). (CO3)

UNITVI: Manual methods of Vector to Raster Transformation- Cell Addresses- Mathematical Calculations of Vector to Raster Addition, Subtraction, Multiplication and Division) - Raster Overlay - Buffering. (CO4)

UNIT V: GIS Mapping using Computer Software: On screen digitization: Creation of thematic layers - Population density, rivers, language-Editing – Geo Referencing – Point, line, Area mapping– Buffer. (CO5)

References:

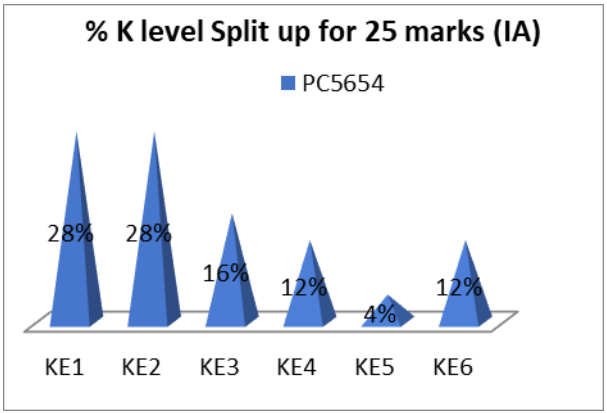
1. Chandra A.M. &Ghosh.S.K. (2016).*Remote Sensing and Geographic Information system*.Narosa Publishing House
2. Bhatta, Basudeb (2011). *Remote sensing and GIS*. Oxford University Press /RadhaPressNewDelhi
3. Siddique, Dr. M.A. (2006).*Introduction to Geographic Information Systems.* ShardaPustakBhawan, Allahabad.
4. Clarke (2001). *Getting started with Geographical Information systems.* Prentice Hall, New Jersey.

Web sources.

1. wamis.org/agm/pubs/agm8/Paper-6.pdf
2. http://igre.emich.edu/wsatraining/TManual/Chapter1/Chap1.pdf
3. https://en.wikipedia.org/wiki/GIS_file_formats
4. ww.gisinecology.com/Introduction_To_GIS_Software.htm

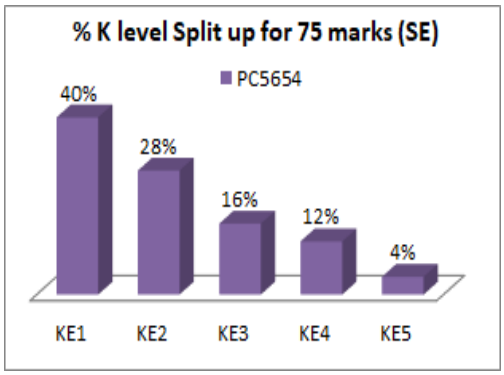
CIE-Continuous Internal Evaluation (25 Marks)

PC5654				
Bloom's Taxonomy	**Test**	**Assignme**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (7)	3	1	2	1
Understand (7)	1	0	1	5
Apply (4)	1	1	0	2
Analyse (3)	0	1	1	1
Evaluate (1)	0	0	0	1



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5654	
Bloom's Taxonomy	**Weightage %**
Remember	**40 %**
Understand	28 %
Apply	16 %
Analyze	12 %
Evaluate	4 %



PROJECT

Semester:IV **Code: PC5655**

Course:XXII **Credit:4**

Learning Objectives: The students have to select a specific topic for their Project Work. The project report should contain the given below: a) Introduction b) Review of literature c) Study Area d) Data sources e) Main Objectives f) Materials and Method g) Results and Discussion h) Conclusion i) Photos j) References. The students may select some of the following themes for their project. Land Evaluation- Land-use - Land cover analysis - Water Sources - Slope Studies - Climatic Change - Settlement Studies - Agriculture Studies-Health Studies-Infrastructure Studies - Vegetation Studies- Recent trends /Issues in Geography

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) At theendofthe Course, the Studentwillbeable to understandthe in-depth knowledge.

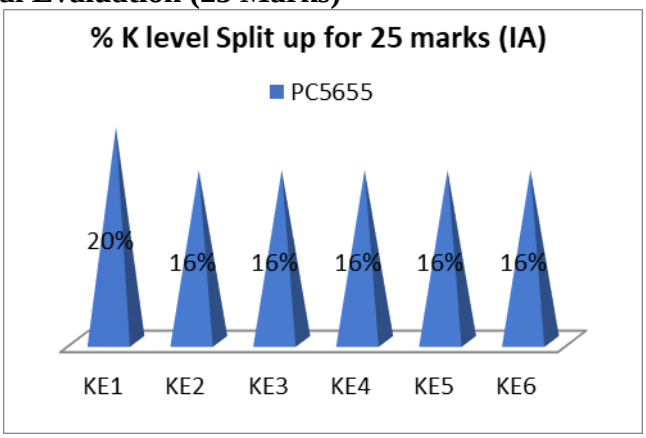
CO1	**Explore** and **emphasize** the basic concepts of research work and its importance in developmental aspects. It is important to**insist** doing research is highly important in Geography and it is always relating with practical **knowledge** which is possible through field work **PO1 PO2. Understands** the importance of topographic, land use and land cover **analysis** which is essential for geo spatial analysis. As a young geographer student should learn to correlate the geo related topics for developmental and planning purposes. **(PO8, PO9, PO10)**	K1 K2 K3 K4 K5
CO2	**Interpretation** of settlements, urban/rural land use patterns for agricultural and vegetation studies would help us to **analyses** the climatic changes of that particular area. Appreciate the goals of **Identifying** the bio diversity classification, through the field survey, **examine** the hierarchy of flora and fauna. **PO1, PO2 (PO2, PO3 PO4, PO5). Activity for students: Give them a case study to collect the base data for a report, and gives training to Prepare a Report K6, (PO5, PO6, PO7, PO10)**	K1, K2 K3, K4 K5, K6
CO3	**Understands and applying** the Socio-Economic Survey through Primary and Secondary data sets based on proper questionnaire/Schedules, Interview, Census and Statistical Reports. **Prepare** a report and analyse a given topic. Relevant Photographs, maps and Diagrams should be included**) PO5, PO6, PO7**	K1, K2 K3 K5 K6
CO4	**Individual activity**: **Explains** and explore the relevant research **analysis for** the project study and prepare project report. **K6, PO4, PO8, PO9, PO10**	K1, K2 K3, K4, K5, K6
CO5	**Presentation** of their completed report through power point which would **enhance their knowledge** and courage to express their views and suggestions towards **developme**nt aspects in socio economic problem	K1, K2 K3, K4 K5, K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and [illegible]	2 Skilled communicator	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ [illegible]	9 National and International perspective	10 Lifelong learners
CO1	3	2	2	2	2		2	1	2	2
CO2	3	1	2	2	2	2	1	1	1	2
CO3	3	2	2	2	2		2	2	1	2
CO4	3	2	2	2	2	2	2	2	2	2
CO5	3	2	3	3	3	2	3	2	2	2
CO-PO-Avg	3	2	2	2	2	2	2	2	2	2
CO-PO-Total	15	9	11	11	11	6	10	8	8	10

PO*At the end of the Course, the Student will be able to prepare a report individually of a particular area in geographical context. It also reveals knowledge of fieldwork and its importance to geography. The benefits of the students would be two way - the correlation between knowledge of landscapes and geography. The students enhance and explore their knowledge in Geography. The application of research methodology in their project work is well executed.

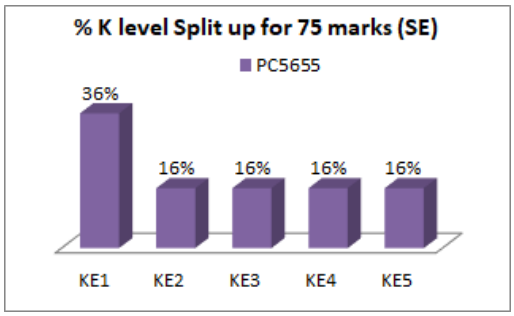
CIE-Continuous Internal Evaluation (25 Marks)

	PC5655			
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (5)	2	1	0	2
Understand (4)	1	0	1	2
Apply (4)	1	1	0	2
Analyse (4)	0	1	1	2
Evaluate (4)	1	0	1	2



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PC5655	
Bloom's Taxonomy	**Weightage %**
Remember	**36%**
Understand	16%
Apply	16%
Analyze	16%
Evaluate	16%



ELECTIVE – V APPLICATION OF GEO-SPATIAL TECHNOLOGY

Semester:IV **Code:PE5620**

Course: XX **Credit:3**

Learning Objectives:

This paper introduces the basic concepts of GIS Software for mapping with the help of different sources of Data set. It also explains the data management and analysis. The paper elaborates GIS applications to the various fields and the usage of GPS..

Course Outcomes: Knowledge level - K1 (Remember), K2 (Understand), K3 (Apply), K4 (Analyze), K5(Evaluate), K6(Create) Attheendofthe Course, the Studentwillbeable to understandthein-depth knowledge.

CO1	Introduction **Definition** and Development **List** out the Components of GIS and Map Concepts. To **Outline** the Node, Arc-Polygon, Topology. **Make use of** Software for GIS Mapping and **Choose** the GIS software's like Map Info, Arc Info, SPAN, GRASS, Geo Media, IDRISI **Courtesy https://mangomap.com/gis-software** **Courtesy https://unearthlabs.com/blog/free-gis-software/** **Individual Activity: Students will download software and should know the applications of software's.**	K1 K2 K3 K5 K6
CO2	Data Collection: **Name** the various sources like Natural Resource Dataset, Census Data, Remotely sensed Data. **Choose** the Digital Data and Input the Data with Keyboard Entry. **Categories** and **Compile** the **Digitization,** Encoding, and Scanning , Data Format. **Courtesy: https://volaya.github.io/gis-book/en/Data_sources.html (PO9,PO10)** **Courtesy: https://slideplayer.com/slide/5270118/** **Courtesy : https://www.slideshare.net/Ashokatmum/digitization-arc-gis** **Individual Activity: Students should select maps from source and to digitize maps (PO8)**	K1 K2 K3 K4 K5
CO3	Data Management: outline the Database Approach and **Choose** the Data Structure to **Compare** the Data Models **classified** as Hierarchical – Network, relational and Spatial data Models . **Select** Raster and Vector for Data conversion and **Examine** the Spaghetti Model . Analyse the Data Storage , Quality Control , Data Linkage and Sources of Error. **https://www.youtube.com/watch?v=HwVFvHwuYJo** **Individual Activity : Preparation of PPT (PO5)**	K1 K2 K3 K4
CO4	Data Analysis and display: **Select** Data layers for Buffering. **Relate** Format, Geometric and Projection Transformations. Distinguish the Attribute Editing and Query functions. **Classify and Infer** Overlay, Neighborhood, connectivity functions and Output formatting. Show the Data display Devices, Hard and Soft.	K1 K2 K4
CO5	**List** out the GIS Applications in the field of Resource, Environment Network Management. **Compare** the application with Socio-Economic, Recreational and Planning with the **Utilize** of GPS application. **Group Activity : Make a survey in recreational places with help of GPS , GIS and prepare maps and make their own reports**	K1 K2 K3, K6

CO/PO/PSO	PO									
	1 Disciplinary knowledge and skill	2 Skilled communicators	3 critical thinker and problem solver	4 Sense of inquiry	5 Team player/worker	6 Skilled project managers	7 Digitally efficient	8 Ethical awareness/ reasoning	9 National and International perspective	10 Lifelong learners
CO1	3	2	2	2	1		2	1	1	1
CO2	3	2	1	1	2	1	2	1	1	1
CO3	3	1	1	2	2	1	3	1	2	1
CO4	3	2	1	1	1		2	1	1	1
CO5	3	1	1	2	3	2	3	1	1	1
CO-PO-Avg	3	2	1	2	2	1	2	1	1	1
CO-PO-Total	**15**	**8**	**6**	**8**	**9**	**5**	**12**	**5**	**6**	**5**

PO: At the end of the Course, the students enriched with knowledge of the GIS which enhance the mapping knowledge. Now GIS knowledge enhances the skill in mapping and gives solution in application ofvarious fields.

Unit I: Introduction, Definition and Development – Components - GIS and Map Concepts – Node, Arc-Polygon, Topology - Software for GIS Mapping - Map Info, Arc Info, SPAN, GRASS, Geo Media,IDRISI.

Unit II: Data Collection: Sources - Natural Resource Dataset - Census Data - Remotely sensed Data - Digital Data - Data Input - Keyboard Entry - Digitization, Encoding, and Scanning - Data Format.

Unit III: Data Management: Database Approach - Data Structure - Data Models: Hierarchical - Network relational - Spatial data Models - Raster and Vector - Data conversion - Spaghetti Model - Data Storage - Quality Control - Data Linkage - Sources of Error.

Unit IV: Data Analysis and display: Data layers – Buffering - Format, Geometric and Projectional Transformations - Attribute Editing and Query functions - Overlay, Neighborhood and connectivity functions - Output formatting – Data display Devices - Hard and Soft.

Unit V: GIS Applications: Resource/ Environment / Network Management – Socio-Economic, Recreational and Planning and GPS application.

References:

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3. Siddique,Dr. M.A.(2006).*Introduction to Geographic Information Systems*.ShardaPustakBhawan, Allahabad.
4. Clarke 2001. *Getting started with Geographical Information systems.* Prentice Hall, New Jersey.
5. Anand,Dr. P.H. and V. Rajesh Kumar (2003). *Principles of Remote Sensing and GIS.* Sri Venkateswara Publications, Kumbakkonam.
6. Burrough,P.A. (1998) *Principles of Geographic Information System for Land ResourceAssessment*. McDonnell, Oxford University Press.

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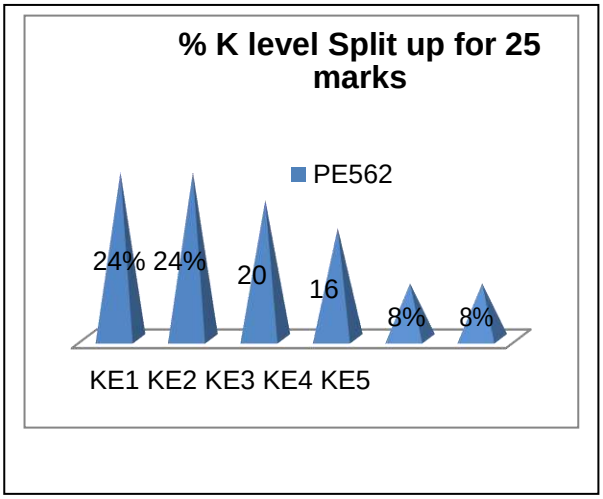
1. wamis.org/agm/pubs/agm8/Paper-6.pdf
2. http://igre.emich.edu/wsatraining/TManual/Chapter1/Chap1.pdf
3. https://en.wikipedia.org/wiki/GIS_file_formats
4. ww.gisinecology.com/Introduction_To_GIS_Software.html

CIE-Continuous Internal Evaluation (25 Marks)

PE5620				
Bloom's Taxonomy	**Test**	**Assignment**	**Semin**	**Model**
Total (25)	**5**	**5**	**5**	**10**
Remember (6)	1	1	1	3
Understand (6)	1	0	1	4
Apply (5)	2	2	0	1
Analyse (4)	0	1	1	2
Evaluate (2)	1	0	1	0



ESE- End Semester Examination (75 Marks; Weightage 75 %)

PE5620	
Bloom's Taxonomy	**Weightage %**
Remember	**32%**
Understand	24%
Apply	20%
Analyze	16%
Evaluate	8%