

GEOGRAPHY HONOURS/MAJOR(NEP)

GRADUATE ATTRIBUTES IN GEOGRAPHY

Some of the Graduate attributes of a graduate in Geography are:-

- **Disciplinary knowledge and skills-** Acquiring sound knowledge to understand the major concepts ,theoretical principles and practical applicability in core Geography and its different sub -fields like Geomorphology, Climatology and climate change, changing perspectives of Human Geography, Pedology, Ecology and Bio- geography, Environmental geography, Forest and wildlife management, Regional Planning, Cartography, Regional Geography, Economic Geography, Philosophy of Geography etc. with special reference to Resource Geography, Research Methodology, Sustainable Geography, Remote Sensing, GIS & GNSS, Hazard management and other related fields of study including broader interdisciplinary sub –fields like Geology, Mathematics, Physics, Chemistry, Life Sciences, Environmental Sciences, Information Technology etc.
- **Skilled Interpreter-** Ability to explain complex geographical information in a clear and concise manner in writing as well as ability to express complicated concepts in a simple language for better understanding of the subject.
- **Critical Observer and Analyzer** - Ability to observe, understand and analyse geographical phenomena critically.
- **Attitude of Investigation** - Ability to ask relevant questions relating to the geographical issues and problems so that the problem area may be developed properly.
- **Efficient Planner-**Capable of formulating proper regional plans on the basis of resource inventory to solve the problem in question with appropriate planning, implementation and regular monitoring.
- **Team activity-** Capable of working efficiently in diverse teams in classroom as well as field-based situations.
- **Trained professional** – Ability to deal with problems related with changing climatic scenario as well as hazard and disaster management as a skilled professional.
- **Expert Field investigator-** Capable of conducting the Field work, the key activity of Geography by collecting proper primary data to understand and resolve the actual problem for the overall development of the area.
- **Digitally efficient** – Capable of using computers for GIS and GNSS studies as well as developing ability to utilize appropriate numerical and statistical methods related to Geography.

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- **Ethical awareness** - Development of demonstrating ability to think and analyze rationally with modern and scientific outlook and identify ethical issues to avoid unethical practices like falsification, committing plagiarism etc. Developing ability to adopt unbiased objectives and following truthful activities in all geographical spheres.
- **Lifelong learners-** Capable of self- paced and self- directed learning for personal development as well as to improve skill and knowledge leading to reskilling in all spheres of geography.
- **National and International perspective** – The graduates should prepare themselves during their most formative years for their appropriate role to contribute towards the national development by reducing regional disparities as well as to highlight our national priorities internationally pertaining to their field of interest and future proficiency.
- **Nature is the Laboratory of Geography-** Ability to relate with the nature as well as with the environment appropriately for the essential issue of maintaining nature-human co-existence following the measures of Sustainable development oriented towards nurturing the balance of ecology and biosphere.
- **Maintenance of sustainability-** Ability to apply the measures of sustainability in all spheres of life with genuine dedication.

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PROGRAM LEARNING OUTCOMES (POs) IN B.SC. (HONOURS) GEOGRAPHY **(NEP)**

The graduate students with the Degree of B.A/B.Sc (Honours) in Geography should be able to:-

- Acquiring a structured understanding of the academic field of Geography.
- Linkages with related disciplines and various types of related professional fields.
- Application of geographical concepts in most recent and emerging developments.
- Demonstrate the systematic geographical knowledge towards current problems along with their solutions.
- Specific skills in Map making to analyze various problems on the space.
- Ability to evaluate critically the spatial aspects in all levels on different time scales.
- Career oriented skill development.
- Application of acquired knowledge in daily life focusing the changing scenario.
- Communication skill towards utilizing acquired knowledge both theoretically and practically.
- Developing analytical skill to evaluate geographical problems.
- Appropriate skill in the proper application of most recent geographical research tools.
- Pertinent skill in the identification and explanation of physico- cultural characteristics and processes.
- Understanding man-environment and nature-society interactions along with global environmental challenges.
- Developing skills in the analysis of geographical information through geo-spatial technologies.
- Responding the global and national challenges.
- Utilization of field experience-based knowledge towards recent geographical problems with pragmatic solutions.

GEOGRAPHY HONOURS/MAJOR(NEP)

Programme Outcomes (POs) in Geography (Major):

PO 1: Basic concept

PO 2: Linkage with other disciplines

PO 3: Application of geographical concepts

PO 4: Problem identification and solution making approach

PO 5: Map making skill

PO 6: Critical Evaluation

PO 7: Skill Development

PO 8: Applied dimension

PO 9: Communication skills

PO 10: Analytical Skill

PO 11: Use of research tools

PO 12: Identification of geographical characteristic and processes

PO 13: Understanding man-environment relation

PO 14: Application of geo-spatial technologies

PO 15: Response to challenges

PO 16: Field based knowledge

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC1: PHYSICAL GEOGRAPHY (Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO 1: Cartography focusing concept and applications of different types of scales and projections along with components and classification of maps.

CO 2: Geotectonics mainly the internal structure of the earth in relation with seismic waves.

CO 3: Geomorphic processes and resultant landforms like weathering and various agents of erosion along with some other denudation processes and landforms produced by fluvial processes.

CO 4: Nature, composition and layering of the atmosphere with special reference to circulation in the atmosphere.

CO 5: Accumulate clear concept about factors of soil formation along with evolution of an ideal soil profile.

CO 6: Biogeography by gathering knowledge about plant adaptation and distribution according to water availability.

CO 7: True concept of nature and classification of hazards and disasters in Indian context.

CO 8: In the Laboratory course students learn first-hand-

- i) Graphical construction of different types of scales,
- i) Delineation of drainage basins on Survey of India 1:50,000 topographical map to determine stream Ordering and Bifurcation ratio.
- iii) Identification of drainage and channel patterns from Survey of India 1:50,000 topographical maps.
- iv) Construction and interpretation of Wind rose diagram.

GEOGRAPHY HONOURS/MAJOR(NEP)

PO-CO Mapping

Course Code: DSCC 1

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO 15	PO 16
CO1	√	√	√	√	√	√	√	√	√	√	√	x	x	√	√	x
CO2	√	√	√	√	x	√	√	√	√	√	√	√	x	√	√	√
CO3	√	√	√	√	x	√	√	√	√	√	√	√	√	√	√	√
CO4	√	√	√	√	x	√	√	√	√	√	√	√	√	√	√	x
CO5	√	√	√	√	x	√	√	√	√	√	√	√	√	x	√	√
CO6	√	√	√	√	x	√	√	√	√	√	x	√	x	x	√	x
CO7	√	√	√	√	x	√	√	√	√	√	√	√	√	√	√	√
CO8	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC2: HUMAN GEOGRAPHY (Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO 1: Nature, scope, recent trends and elements of Human Geography in special reference to different schools of thought.

CO 2: Evolution of human society in temporal sense and spatially, human adaptation to the environment with a journey focusing post- industrial urban societies.

CO 3: Population Geography with special reference to the concept of Demographic transition and demographic dividend as well as distribution, density and growth of population in India.

CO 4: Characteristics of Urban and Rural settlements with special reference to site, situation, types and patterns of rural settlement as well as morphology and hierarchy of urban settlement after Census of India.

CO 5: In the Laboratory course students learn first-hand-

- i) Measurement of Arithmetic growth rate of population comparing two decadal datasets.
- ii) Representation and interpretation of population density by Choropleth Method.
- iii) Identification of types of settlements from Survey of India 1:50,000 topographical map.
- iv) Construction of Proportional Squares to have a clear concept regarding distribution of households.

Course Code: DSCC 2

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GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 3: GEOTECTONICS

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO1: Relative and absolute dating of rocks.

CO2: Geological time scale focusing the events of Pleistocene.

CO3: Formation and structural differentiation of the earth.

CO4: Concept of Isostasy with important models and applicability as well as the theory of Plate Tectonics with processes and landforms at plate margins along with the characteristics and origin of major relief features of the ocean floor and concept of hotspots.

CO5: Genetic classification of mountains and types of volcanic eruptions.

CO6: Formation and classification of Folds and Faults.

CO7: Morphometric indices of tectonic activity like

i) Basin asymmetry factor,

ii) Transverse topographic symmetry factor,

iii) Mountain front sinuosity

CO8: In the Laboratory course, students will gather first-hand practical knowledge about-

i) How to measure dip and strike by using clinometer

ii) Megascopic identification of minerals and rocks

iii) Analysis of tectonic activity from Survey of India 1:50,000 topographical map focusing

- Basin asymmetry factor
- Transverse topographic symmetry factor.

iv) Interpretation of geological maps with

- Uniclinal structure,
- Folds,
- Unconformity,
- Intrusions.

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PO-CO Mapping

Course Code: DSCC 3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO 15	PO 16
CO1	√	√	×	×	×	√	√	×	√	√	√	×	√	×	×	√
CO2	√	×	×	×	×	√	×	√	×	√	×	√	√	×	×	√
CO3	√	√	√	√	×	×	×	√	√	√	×	√	×	×	×	√
CO4	√	√	√	√	×	√	√	√	√	√	√	×	×	√	√	√
CO5	√	√	√	√	×	√	√	√	√	√	×	×	√	√	√	√
CO6	√	√	√	√	×	√	√	√	√	√	×	×	√	×	√	√
CO7	√	√	√	√	×	√	√	√	√	√	√	×	×	√	×	×
CO8	√	√	√	√	√	√	√	√	√	√	√	√	×	√	√	√

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Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 4: ECONOMIC GEOGRAPHY

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

Students will

CO 1: Revise the different approaches of Economic Geography and its scope.

CO 2: Acquire knowledge about different economic aspects like goods and services, production, exchange and consumption as well as economic man.

CO 3: Develop concepts about different economic activities like primary, secondary, tertiary, quaternary and quinary.

CO 4: Understand the theories of favourable locational approaches in special reference to Agriculture (after Von Thünen) and industry (after Weber).

CO 5: Learn in detail about different primary activities like agriculture, forestry, fishing, and mining.

CO 6: Learn in detail about different Secondary activities in special reference with classification of manufacturing industries, special economic zones, and technology parks as well as Tertiary activities like transport, trade and services.

CO 7: Develop understanding in contemporary issues and concept about economic globalization.

CO 8: Acquire knowledge about international trade, role of WTO

CO 9: Enhance knowledge about the emergence and significance of economic blocs in special reference to BRICS

CO 10: In Laboratory Course,

Students will

- Learn how to represent gender-wise work participation rate by using bar graph and its interpretation.
- Learn how to construct proportional divided circles to show state-wise variation in oDSCCupational structure and its interpretation.
- Prepare crop calendar and its interpretation.
- Develop concept of Time series analysis and its representation in Industrial production of India by moving average.

Course Code: DSCC 4

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GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC 5: GEOMORPHOLOGY (Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO 1: Concept of time and space in Geomorphology with special reference to Schumm and Lichty's model as well as clear notion about landform ordering focusing Ga scale of Tricart and Haggett.

CO 2: Basic concept about degradational processes with classification of mass wasting and resultant landforms.

CO 3: Clear idea about processes of entrainment, transportation and deposition by different geomorphic agents.

CO 4: Development of river network and landforms on uniclinal, folded, faulted structure as well as on Granites, Basalts, and Lime stones.

CO 5: Detailed discussion about following geomorphic processes and landforms –

- a) Costal
- b) Glacial and glacio-fluvial
- c) Aeolian and fluvio-aeolian.

CO 6: Clear concept about the models on Landscape evolution focusing the views of Davis, Penck, King and Hack along with significance of systems approach.

CO 7: Fundamental concept about anthropogenic role in landform development.

CO 8: In the laboratory course students learn-

- i) Extraction and interpretation of geomorphic features from Survey of India 1:50000 topographical map of plateau region as well as relevant morphometric analysis of the concerned map.
- ii) Construction of hypsometric curve and derivation of hypsometric integer of a drainage basin of plateau region.
- iii) Determination of Channel Sinuosity Index and braiding index of rivers from topographical maps.

CO-PO Mapping

Course Code: DSCC 5

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GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC 6: CLIMATOLOGY (Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO 1: Understand the elements of weather and climate and its controlling factors like horizontal and vertical distribution of temperature, types, causes and consequences of inversion of temperature.

CO 2: Learn the causes, trends, and predictions of global temperature rise that has significant impact on the ozone layer.

CO 3: Learn about process and forms of condensation; mechanism and forms of precipitation as well as Bergeron-Findeisen theory, Collision, and coalescence theory.

CO 4: Learn about the typology, origin, characteristics, and modification of air mass as well as circulation of the atmospheric winds like Planetary winds, jet streams index cycle.

CO 5: Understand the frontogenesis and frontolyzes and atmospheric disturbance like tropical and mid-latitudinal cyclones and thunderstorms.

CO 6: Develop the concept on mechanism of monsoon with special reference to India.

CO 7: Understand the causes and consequences of Climate change in special reference to Greenhouse effect as well as formation, depletion, and significance of the Ozone layer.

CO 8: Comprehend the climatic classification developed by i) Koppen and ii) Thornthwaite.

CO 9: In Laboratory course, the students learn to

- i) measure mean daily temperature, air pressure, relative humidity and rainfall with the help of relevant instruments like Six's maximum and minimum thermometer, Barometer, Hygrometer and Rain Gauge respectively.
- ii) Interpret Pre-monsoon, Monsoon and Post-monsoon daily weather map of India.
- iii) Construction and interpretation of monthly rainfall dispersion diagram (quartile method) as well as water budget.
- iv) Construct and interpret hythergraph and climograph (after Taylor)

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COs-POs Mapping

Course Code: DSCC 6

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15	PO16
CO1	√	√	√	√	x	√	√	√	x	√	√	√	√	x	√	√
CO2	√	√	√	√	x	√	√	√	x	√	√	√	√	x	√	√
CO3	√	√	√	√	x	√	√	√	x	√	√	√	√	x	√	√
CO4	√	√	√	√	x	√	√	√	√	√	√	√	√	x	√	√
CO5	√	√	√	√	x	√	√	√	x	√	√	√	√	x	√	√
CO6	√	√	√	√	x	√	√	√	√	√	√	√	√	x	√	√
CO7	√	√	√	√	x	√	√	√	x	√	√	√	√	x	√	√
CO8	√	√	√	√	x	√	√	√	√	√	√	√	√	x	√	√
CO9	√	√	√	√	√	x	√	√	x	√	√	√	√	√	√	√

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 7: SOCIAL GEOGRAPHY

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO 1: the emergence, evolution, and thematic content of social geography as a discipline.

CO 2: how Caste, Class, urbanisation, industrialisation, and migration impact the spatial distribution of communities and critically analyse them.

CO 3: how social diversity (e.g., language, religion, ethnicity) contributes to the formation of socio-cultural regions.

CO 4: the ability to use indicators like education and health to evaluate development and disparities in different regions.

CO 5: developing insight into contemporary problems such as gender inequality, crime, poverty, marginalization, and deprivation.

CO 6: the existing welfare schemes for the vulnerable section of the society (women, children etc) along with the idea of social segregation setting the example of global north and south.

CO 7: In the Laboratory course, students learn first-hand-

i) instructions to construct and interpret HDI, GDI, and cartograms using real-world data and UNDP methodologies.

ii) skills to prepare questionnaires and analyze socio-economic data related to access to basic amenities in slum or rural areas.

GEOGRAPHY HONOURS/MAJOR(NEP)

CO-PO Mapping

Course Code: DSCC 7

POs \ COs	PO- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO- 7	PO- 8	PO- 9	PO- 10	PO- 11	PO- 12	PO- 13	PO- 14	PO- 15	PO- 16
CO 1	√	√	×	×	×	×	×	√	×	√	×	×	√	×	×	×
CO 2	√	×	√	√	×	√	×	√	×	×	×	√	√	×	×	×
CO 3	√	×	√	√	×	√	×	√	×	×	×	√	√	×	×	×
CO 4	√	√	√	√	×	√	×	√	×	√	×	×	×	×	√	×
CO 5	√	√	√	√	×	√	×	√	×	√	×	×	×	×	√	×
CO 6	√	×	√	√	√	√	×	√	×	√	×	√	×	×	√	×
CO 7	√	√	√	×	√	×	√	√	×	√	×	×	×	×	×	×

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 8: CARTOGRAPHIC TECHNIQUES

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

This course will enable the students to develop the knowledge on:

CO 1: Basic two types of Coordinate system like Polar and Rectangular as well as angular and linear grid systems of measurement system to comprehend locational and spatial aspect on the earth surface.

CO 2: Basic concepts of bearing: Magnetic and True as well as Whole Circle and Reduced Bearing.

CO 3: Concepts of Geoid and Spheroid with special reference to Everest and WGS-84.

CO 4: Components and classification of maps and their uses.

CO 5: Classification, properties, and uses of different map projections with special reference to Polar Zenithal Stereographic Projection, Simple Conical Projection with one Standard parallel, Cylindrical Equal area projection, Bonne's Projection and Mercator's Projection as well as UTM system.

CO 6: Application of different techniques of thematic mapping and their significance for regional development and decision making.

CO 7: To learn about reference scheme of old and open series of Survey of India topographical maps.

CO 8: In laboratory course the students learn

- i) Construction of different map projections and their properties. Accordingly, they learn in first-hand the application of different types of map projections.
- ii) Different techniques of thematic mapping and its application which can be applied for the purpose of regional development.

GEOGRAPHY HONOURS/MAJOR(NEP)

CO-PO Mapping

Course Code: DSCC 8

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	P15	P16
CO1	√	√	√	√	√	√	√	√	x	√	√	√	x	√	√	√
CO2	√	√	√	√	√	√	√	√	x	√	√	√	x	√	√	√
CO3	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√
CO4	√	√	√	√	√	√	√	√	x	√	√	√	x	√	√	√
CO5	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√
CO6	√	√	√	√	√	√	√	√	x	√	√	√	x	√	√	√
CO7	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√
CO8	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 9: HYDROLOGY AND OCEANOGRAPHY

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO1: The physical and biological role on Global Hydrological cycle and its system approach.

CO2: Controlling factors of different hydrological phenomenon like run-off and ground water recharge and discharge and their circulation.

CO3: Principles of water harvesting and watershed management focusing on drainage basin as a hydrological unit.

CO 4: Physical and chemical properties of ocean water with special reference to the distribution and determinants of temperature and salinity.

CO 5: Ocean circulation, water mass, T-S diagram and wave and tides.

CO 6: Types and causes of sea level changes and its implications.

CO 7: Classification of marine resource and their sustainable utilization and issues related to pollution of ocean water.

CO 8: In laboratory course they can acquire knowledge on-

- Construction and interpretation of rating curve, hydrographs and unit hydrographs.
- Construction of Ombrothermic graph and Hyetograph,
- Construction of Thiessen polygon from precipitation data.

CO-PO Mapping

Course Code: DSCC 9

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 10: CULTURAL AND SETTLEMENT GEOGRAPHY

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO 1: Gather sufficient knowledge about definition, scope and content of cultural geography.

CO 2: Basic concept about components and structure of culture.

CO 3: Secure clear concept about the following elements-

- a) Cultural hearths and realms,
- b) Cultural diffusion,
- c) Diffusion of major world religions and languages
- d) Cultural segregation, diversity and integration

CO 4: Obtain true concept about evolution and morphology of rural settlements.

CO 5: Procure comprehensible cognizance regarding rural house type of India highlighting the role of social segregation.

CO 6: Achieve true perception about following dimensions of urban settlements –

- e) Evolution
- f) Metropolitan concept
- g) Concept of megalopolis
- h) Concept of conurbation and agglomeration

CO 7: Access actual concept of urban morphology with special reference to the models of Burgess, Hoyt and Harris & Ullman.

CO 8: In laboratory course, students will learn –

- i) The skill of mapping language distribution of India
- ii) The required skill of representing cartograms showing roof materials used in rural houses in any state of India in the Census years 1991, 2002 and 2011.
- iii) Accessibility mapping using detour index from Survey of India 1:50000 topographical maps.
- iv) Nearest neighbor analysis from Survey of India 1:50000 topographical maps of plain region.

CO-PO Mapping

Course Code: DSCC 10

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 11: HAZARD MANAGEMENT

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO 1: The approaches to hazard study like risk perception and vulnerability assessment.

CO 2: The different hazard paradigms and continuum.

CO 3: The methods of responding to hazards including resilience and capacity building.

CO 4: The techniques of hazard mapping by data and geospatial techniques.

CO 5: Various geomorphic hazards like earthquake, land slide, land subsidence with special focus on their factors, vulnerability, consequences, and management.

CO 6: The climatic hazard like tropical cyclone with special focus on their factors, vulnerability, consequences, and management,

CO 7: The regional hazard like river bank and coastline erosion with special focus on their factors, vulnerability, consequences, and management.

CO 8: The fire and bio hazard with special focus on their factors, vulnerability, consequences, and management.

CO 9: In the practical component, the students will acquire in-depth knowledge about any specific hazard in India by preparing a project.

CO-PO Mapping

Course Code: DSCC 11

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GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 12: THEMATIC MAPPING AND SURVEYING

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

At the end of this course the students are expected to acquire the knowledge about fundamental mapping techniques and its applications like:

CO 1: Choosing of natural and log scale, logarithm and anti-logarithm, rounding and scientific notation to represent different types of data and its interpretation.

CO 2: Theoretical knowledge of geodetic and plane surveying by using Prismatic Compass, Dumpy level, Theodolite, Abney level and Total Station.

CO 3: How to read the different types of Geological maps like uniclinal, folded structures and its interpretation.

CO 4: Preparation and interpretation of land use and land cover maps.

CO 5: Preparation of Socio-economic maps and their interpretation.

CO 6: Gather information about the Principal National agencies like NATMO, GSI, NBSSLUP, NHO and NRSC.

CO 7: In field survey and laboratory courses they learn in first hand:

- i) Traverse survey by Prismatic compass.
- ii) Profile survey by using Dumpy level.
- iii) Height determination in triangulation method by using Theodolite.
- iv) Profile survey by using Abney level.

GEOGRAPHY HONOURS/MAJOR(NEP)

CO-PO Mapping

Course Code: DSCC 12

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	P15	P16
CO1	√	√	√	√	√	√	√	√	x	√	√	√	x	√	√	√
CO2	√	√	√	√	√	√	√	√	x	√	√	√	x	√	√	√
CO3	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√
CO4	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√
CO5	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√
CO6	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√
CO7	√	√	√	√	√	√	√	√	√	√	√	√	x	√	√	√

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC 13: SOIL AND BIOGEOGRAPHY

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

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

CO 1: Acquire clear concept about the Physical as well as Chemical properties of soil.

CO 2: Understand the origin and characteristics of soil profile.

CO 3: Learn the basic concept and principles of soil and land capability classification.

CO 4: Understand the factors of soil erosion and degradation emphasizing on management measures

CO 5: Understand the concept of Ecosystem, Ecology, Bio-sphere, Biome, Community and Ecotone along with classification of World Biomes.

CO 6: Obtain concept about trophic structure, Food chain, Food Web as well as Energy flow in the Ecosystem.

CO 7: Gather knowledge regarding Bio-geo chemical cycles.

CO 8: Procure conscious knowledge about Deforestation.

CO 9: In the laboratory course the students will get an opportunity to determine

A) Soil reaction (pH),

B) Organic matter and NPK

C) Textural classification of soil.

D) Access statistical methods to determine Plant species diversity,

E) Time series analysis of Biodiversity data.

Course Code: DSCC 13

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 14: INDIA AND WEST BENGAL

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

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

CO 1: Understand the physical and climate related profile of the country.

CO2: Study the resource endowment and its spatial distribution and utilization for sustainable development.

CO 3: Obtain proper knowledge about the different phases of Green revolution, White revolution and its consequences.

CO 4: Attain actual awareness about industrial development in relation to Automobile and information technology

CO 5: Secure thorough knowledge about physiographic and economic regionalization of India following R.L. Singh and P. Sengupta respectively.

CO 6: Acquire complete knowledge about the following aspects of West Bengal-

- i) Physical and demographic perspectives,
- ii) Various dimensions of resources,
- iii) Development of SEZs and changing pattern of industrialization in West Bengal.
- iv) Different aspects of Demography of West Bengal,
- v) Regional issues highlighting Darjeeling Himalaya as physiographic region,

Sundarban as an ecological region and Haldia as Industrial region.

CO 7: In the laboratory course, the students will get an opportunity to attain skills to

- i) Compute and interpret the graphical representation of monthly temperature and rainfall graph for five physiographic regions of India
- ii) Compute and draw annual trend of manufacturing goods over any two decades from India or West Bengal
- iii) Learn to compute Composite Index to compare developed and backward states of India.
- iv) Change in mean center of population of West Bengal over any three census years.

Course Code: DSCC 14

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 15: REMOTE SENSING, GIS & GNSS

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

The students will acquire knowledge about-

CO 1: concepts of Remote Sensing, Geographical Information System (GIS) and Global Navigation Satellite System (GNSS) and their applicability in geographical studies.

CO 2: the various successful space missions undertaken by Indian Space Research Organization in India and National Aeronautics and Space Administration in U.S.A.

CO 3: To know about the Image Referencing schemes and the process of data acquisition from various online sources.

CO 4: the skill to interpret the satellite imageries with the help of the interpretation keys and understanding the standard false colour composition of those images.

CO 5: various data structures to efficiently represent the imageries onto the Geographical Information System which is necessary for complex analysis in sustainable development.

CO 6: the theoretical concepts of attribute table, manipulation, query buffer and vector overlay analysis as preparations for practical part.

CO 7: manual measurements of length and area using GNSS data and its utility in geographical studies.

CO 8: Using Q-GIS software to georeference any raster image, digitize different features and administrative boundaries, attach data and create thematic maps, followed by image enhancement, supervised classification and preparing reflectance libraries of LULC features present in a satellite imagery, vector overlay analysis and lastly, graphical plotting of waypoints collected by GARMIN e-trex 10.

GEOGRAPHY HONOURS/MAJOR(NEP)

CO-PO Mapping

Course Code: DSCC 15

POs \ COs	PO- 1	PO- 2	PO- 3	PO- 4	PO- 5	PO- 6	PO- 7	PO- 8	PO- 9	PO- 10	PO- 11	PO- 12	PO- 13	PO- 14	PO- 15	PO- 16
CO 1	√	×	√	×	×	×	×	√	×	×	×	×	×	×	×	×
CO 2	√	×	√	×	×	×	×	√	×	×	×	×	×	√	×	×
CO 3	√	√	√	√	×	√	√	√	×	√	×	√	√	×	√	×
CO 4	√	×	√	√	√	×	√	√	×	√	×	×	√	√	×	×
CO 5	√	√	√	√	×	√	×	√	×	√	×	√	√	√	√	×
CO 6	√	√	√	√	×	√	√	√	×	√	×	√	√	×	√	×
CO 7	√	×	√	×	√	×	√	√	×	√	×	×	×	√	√	√
CO 8	√	√	√	√	√	×	√	√	×	√	×	×	×	√	×	√

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC 16: PHILOSOPHY OF GEOGRAPHY (Credits: 04; Theory-03, Practical: 01)

Course learning outcome (CLOs):

This course will enable the student to

CO 1: Distinguish the paradigms in geography discipline through time.

CO 2: Understand the geographical thinking in different regions of world.

CO 3: Acquire clear knowledge about dualism and dichotomies in the field of Philosophy of Geography.

CO 4: Secure real knowledge about the development of Geography through various ages.

CO 5: Obtain genuine knowledge about the contributions of eminent scholars of different periods.

CO 6: Understand the trends of geography in the post-World War-II period with special reference to Positivism, Quantitative revolution, Structuralism, Dialectical and historical materialism along with Behavioural and Humanistic approaches.

CO 7: Possess complete information regarding the changing concept of space with special reference to Lefebvre as well as the evolution of Critical approaches in Geography.

CO 8: In the laboratory course the students will get an opportunity to learn

- Changing perception of world maps through ages.
- Mapping voyages following famous expeditors.
- Preparation and presentation of posters on any selected paradigm in geographical thought.
- Book review within 1000 words from some selected writings of eminent geographers.

CO-PO Mapping

Course Code: DSCC 16

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC 17: RESOURCE GEOGRAPHY (Credits: 04; Theory-03, Practical: 01)

Course learning outcome (CLOs):

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

CO 1: Acquire knowledge about concept, classification and significance of natural resources along with utilitarian, conservational, community based and adaptive approaches to resource utilization.

CO 2: Obtain awareness about the crisis of resource availability focusing on the global scenario of the problem of depletion and conservation of forest and water resources.

CO 3: Procure actual consciousness about agricultural resource conflicts that highlights the issues of productivity of species and genetically modified crops.

CO 4: Gather cognizance about distribution, utilisation, problems and management regarding - i) Metallic mineral resources, ii) Non-metallic resources, iii) Energy resources emphasizing the conventional and non-conventional types.

CO 5: Possess true realization about the significance of human resources with reference to the problems associated to capacity development.

CO 6: In the Laboratory course the students will acquire skills-

- Regarding mapping and estimating changes in area / number from maps and /or satellite images for following components-
- Forest or vegetation cover,
- Water bodies.
- Comparison of any two contrasting districts from West Bengal using Weaver's method.
- Analyse the decadal changes in state -wise production of coal and iron ore and graphical representation.

GEOGRAPHY HONOURS/MAJOR(NEP)

CO-PO Mapping

Course Code: DSCC 17

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO 15	PO 16
CO1	√	√	√	√	x	x	x	√	x	√	x	x	√	x	√	x
CO 2	√	√	√	√	x	√	x	√	x	√	x	x	√	x	√	x
CO3	√	√	√	√	x	√	x	√	x	√	x	x	√	x	√	x
CO4	√	√	√	√	x	x	x	x	x	x	x	x	x	x	√	x
CO5	√		√	√	x	√	x	√	x	x	x	x	√	x	√	x
CO6	√	√	√	√	x	x	√	√	x	√	x	x	√	x	√	x

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs)

Discipline-specific Course: Honours (H – DSCC)

DSCC 18: ENVIRONMENTAL ISSUES IN GEOGRAPHY

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcomes (CLOs):

After going through this course, the students will develop the concept of:

CO1: Basic concept about Geographers' approach to environmental studies

CO2: Secure clear concept of holistic environment and systems approach

CO3: Gather knowledge about ecosystems and their relationship with habitats.

CO4: Possess proper knowledge about wetland ecosystem with special reference to East Kolkata Wetlands.

CO5: Obtain comprehensible knowledge on rural environmental issues with special reference to sanitation and public health.

CO6: Secure clear vision on urban environmental issues with special reference to waste management.

CO7: Bring awareness about the ocean environmental issues with special reference to plastic pollution.

CO8: Detailed discussion about following Environmental policies – Club of Rome, Earth summits special reference to Stockholm, Rio, and Johannesburg and bring awareness about the National Action Plan on Climate Change.

CO9: Acquire in depth knowledge on conference of the Parties and Global initiatives for environmental management special reference to Montreal, Kyoto, and Paris agreement.

CO10: Overview of principal environment-related regulations of India and Review of their achievements.

CO11: In the laboratory course students learn-

- i) Preparation of questionnaire for perception survey on environmental problems
- ii) Preparation of check-list for Environmental Impact Assessment for urban / industrial development projects
- iii) Determination of quality assessment of water using portable tester: pH, salinity, and hardness.
- iv) Interpretation of changes in air quality using multi-seasonal and multi-city or multi locational (within a single city) CPCB / WBPCB data

CO-PO Mapping

Course Code: DSCC 18

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC 19: STATISTICAL METHODS IN GEOGRAPHY (Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

After the completion of this course the students will acquire the knowledge on statistical application which will help them to analyse socio-economic data in Geography. They learn:

CO 1: Sources and types of statistical data and data processing for analysis.

CO 2: Tabulation of statistical data and measures of central tendency, partition values.

CO 3: Measures of absolute and relative dispersions.

CO 4: Regression, association and correlation to show the nature of relation between two variables.

CO 5: Time series analysis to understand the trend of any variable with time.

CO 6: Hypothesis testing for selection of data and its significance for future research purpose.

CO 7: Different methods of sampling from population which could be true representation of the population.

CO 8: In their laboratory course they learn:

i) Construction of data matrix and based on it the students will calculate the central tendency, partition value and dispersion.

ii) Drawing of sample set by using random, systematic and stratified sampling method and its representation on map.

iii) Representation of scattered diagram, linear regression line and residual from regression on map.

CO-PO Mapping

Course Code: DSCC 19

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Discipline-specific Course: Honours (H – DSCC)**

DSCC 20: REGIONAL DEVELOPMENT AND PLANNING (Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (CLOs):

This course will provide a fundamental conceptual base for future integrated regional development. The students will be able to:

CO 1: Understand the concept and types of regions, its delineation, concept of growth and development highlighting economic, demographic and environmental indicators of development.

CO 2: Have comprehensive understanding regarding theories and models for Regional Planning like A) Growth Pole Model by Perroux, B) Cumulative Causation by Myrdal and C) Stages of Development by Rostow.

CO 3: Learn about the concept and causes of underdevelopment focussing on the economic and social disparities in the region of India.

CO 4: Understand the principles and objectives of regional planning before going into its different approaches, namely, sectoral, spatial and centralized planning.

CO 5: Develop the detailed knowledge about decentralisation and multi-level planning in India (73rd and 74th amendments)

CO 6: Identify the issues related to planning in any hill region (as formal region) and city region (as functional region) of India that can aid in solution making for development.

CO 7: Learn about the different planning strategies undertaken while implementing Participatory planning and governance.

CO 8: In their laboratory course they will acquire knowledge for application in:

- Delineation of formal regions by Weighted index method,
- Delineation of functional regions by Breaking point analysis,
- Measurement of inequality by Location quotient method,
- Preparation of any interview schedule for any Gram Panchayat member on a relevant developmental issue.

GEOGRAPHY HONOURS/MAJOR(NEP)

CO-PO Mapping

Course Code: DSCC 20

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO 15	PO 16
CO1	√	√	√	√	x	x	x	x	x	x	x	x	√	x	x	x
CO2	√	√	√	√	x	√	x	√	x	√	x	x	x	x	√	x
CO3	√	√	√	√	x	√	x	√	x	x	x	x	x	x	√	x
CO4	√	x	√	√	x	√	x	√	x	√	x	x	x	x	√	x
CO5	√	x	√	√	x	√	x	√	x	√	x	x	x	x	√	x
CO6	√	x	√	√	x	√	x	√	x	√	x	x	x	x	√	x
CO7	√	x	√	√	x	√	x	√	x	x	x	x	x	x	x	x
CO8	√	x	√	x	√	x	√	√	x	√	x	x	x	x	x	x

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) Skill Enhancement Course (SEC)

GEOH-SEC-01: METHODS IN GEOGRAPHY (Credits:04)

Course Learning Outcome (CLOs):

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

CO 1: Design primary survey with clear concept about sampling types and strategy on diverse research problems, prepare questionnaire and interview schedule as well as gain proper knowledge about pilot survey and its relevance.

CO 2: Data compilation into master table with special regard to computer assisted field data entry as well as data tabulation into frequency distribution tables coupled with cognizance about statistical analysis of data focusing measures of central tendency and dispersion.

CO 3: Use minor survey instruments like Brunton Compass, Distometer and Smartphone levelling applications with accurate skill and will also be able to analyze the texture of grains by using sieves following proper process.

CO 4: Collect skill to prepare maps and extract flooded areas from satellite images and digital elevation models.

CO 5: Secure comprehensible knowledge with special reference to methods of preparing maps about areal and linear extents of river bank and coastline shift from Survey of India 1:50,000 topographical map.

CO 6: Accumulate sufficient knowledge regarding important methods in Human Geography like,

- i) Dominant and Distinctive functions to analyze functional structure,
- ii) Ternary diagram to understand occupational patterns,
- iii) Preparation of Accessibility map to study the attainability scenario,
- iv) Preparation of Flow charts to define transportation situation as related with accessibility status.

CO-PO Mapping

Course Code: SEC 1

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Skill Enhancement Course (SEC B.Sc Major))**

GEOH-SEC: ARTIFICIAL INTELLIGENCE (Credits:04, Theory: 04)

Course Learning Outcome (CLOs):

Students will be able to

CO 1: Define and explain the fundamental concepts of Artificial Intelligence (AI) as well as can differentiate AI from human intelligence.

CO 2: Understand the typology of Machine Learning like supervised, unsupervised and reinforcement learning as well as deep learning and neural network.

CO 3: Learn about Natural language processing (NLP) and computer vision.

CO 4: Identify real-world applications of AI in various fields like in healthcare, finance, transportation, customer services and chatbots, education.

CO 5: Analyze the

- i) Ethical implication like bias and fairness in AI system,
- ii) Social implications of AI in privacy and data protection concerns
- iii) And Economic implications of AI on employment and the workforce which can again enhance social inequality.

CO 6: Recognize the potential of AI by implementing and monitoring ethical guidelines and responsible AI practices.

CO 7: Understand the potential of AI to drive innovation and transformation in different domains like generative models and artistic applications.

CO-PO Mapping

Course Code: SEC: Artificial Intelligence

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) **Skill Enhancement Course (SEC B.A Major))**

GEOH-SEC: DIGITAL EMPOWERMENT (Credits:04, Theory: 04)

Course Learning Outcome (CLOs):

After going through this course, the students will secure knowledge about-

CO 1: Basic concept of Digital Literacy and Digital Empowerment.

CO 2: Enhancement of online communication and collaboration skills.

CO 3: Promoting digital citizenship and responsible online behaviour.

CO 4: Ethical considerations in the use of digital technologies.

CO 5: Gaining awareness of digital security risks and implementation of best practices.

CO 6: Skills to communicate and collaborate in cyberspace using social platforms, teaching – learning tools etc.

CO 7: Importance of security and privacy in the digital world and significance of ethical considerations in the cyber world.

CO 8: Skill of using ICT and digital services along with relevant exploration of emerging technologies in daily life.

GEOGRAPHY HONOURS/MAJOR(NEP)

CO-PO Mapping

Course Code: SEC: Digital Empowerment

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO 15	PO 16
CO1	×	√	√	√	√	√	√	√	√	√	√	×	×	√	×	√
CO2	×	√	√	√	√	√	√	√	√	√	√	×	×	√	√	×
CO3	×	√	√	√	√	√	√	√	√	√	√	×	×	√	√	×
CO4	×	√	×	×	×	×	√	√	√	×	×	×	×	√	√	×
CO5	×	√	√	√	√	√	√	√	√	√	√	×	×	√	√	×
CO6	×	√	√	√	√	√	√	√	√	√	√	×	×	√	√	×
CO7	×	√	√	√	√	√	√	√	√	√	√	×	×	√	√	×
CO8	×	√	√	√	√	√	√	√	√	√	√	×	×	√	√	×

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) Skill Enhancement Course

GEOH- SEC-03: ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLANNING (Credits:04, Theory: 04)

Course Learning Outcome (CLOs):

Students will

CO 1: Learn definition and scope of Environmental Impact Assessment (EIA) and Environmental Management Planning (EMP).

CO 2: Acquire knowledge about policy framework for environmental management and legal framework in special reference to Environmental Protection Act and its implementation to protect Air, Water and Forest.

CO 3: Know about the structure of governance and its implementation strategies.

CO 4: Acquire knowledge about concepts and objectives of Environmental Appraisal.

CO 5: Know how to conduct EIA in stages by using Environmental Information System (EIS).

CO 6: Know how to prepare inventory and matrices of EIA.

CO 7: Understand the methodology for EIA like Impact assessment, risk assessment and cost - benefit analysis.

CO 8: Acquire knowledge about the stakeholder's participation in collaboration among local bodies, citizens, relevant experts.

CO 9: Learn the methods of prediction scenarios, how to mitigate it and assessing its alternatives.

CO 10: Develop their cognition about reporting Environmental Impact.

CO 11: Learn how to monitor EI and review it as well as understand the relevance of Environmental audit and its process.

CO 12: Thoroughly learn about two case studies on EIA & EMP

- i) Metro rail project and
- ii) Highway project.

CO-PO Mapping

Course Code: SEC-3

[illegible]

GEOGRAPHY HONOURS/MAJOR(NEP)

Course Outcomes (COs) Inter Disciplinary Course

GEOD-IDC-1/2/3: INTRODUCTION TO GEOGRAPHY

(Credits:03, Theory: 02, Practical: 01)

Course Learning Outcome (CLOs):

Students will

CO 1: Understand the basic concepts in Geography with special reference to nature and scope of Geography, as well as the man-environment relationship based on paradigms like Determinism and possibilism.

CO 2: Learn about Regional Geography of India and West Bengal focusing on regional classification as well as physiography, climate, soil, natural vegetation, population distribution and urbanization.

CO 3: Acquire basic knowledge about contemporary Geographical issues like climate change and its impact, Hazard and disaster, deforestation, soil erosion and loss of biodiversity, migration and displacement.

CO 4: Develop fundamental concept on scales and types of maps and their uses.

CO 5: In laboratory course the students learn to apply specific techniques of cartograms like-

- a) Rainfall-temperature graph
- b) Bar graphs
- c) Pie graphs
- d) Line graphs.

GEOGRAPHY HONOURS/MAJOR(NEP)

CO-PO Mapping

Course Code: IDC – 1/2/3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO 15	PO16
CO1	√	√	√	x	x	x	x	√	√	x	x	√	√	x	x	x
CO2	√	√	√	x	x	x	x	x	√	x	x	x	x	x	x	x
CO3	√	√	√	√	x	x	x	√	√	x	x	√	√	x	x	x
CO4	√	√	√	x	√	x	√	√	√	x	x	x	x	√	x	x
CO5	√	√	√	x	√	x	√	√	√	x	x	√	x	√	x	x