

		The Maharaja Sayajirao University of Baroda Faculty of Science, Department of Geology		ACADEMIC YEAR 2026-27	
B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)					
YEAR	IV	GLM4007C: Petrogenesis of Igneous rocks		CREDIT	4
Semester	I			HOURS	90
OBJECTIVES:		To understand magma generation, differentiation processes, phase equilibria, and tectonic settings of igneous rocks through petrogenetic classification and geochemical plotting techniques.			
COURSE CONTENT / SYLLABUS					
UNIT-I	THEORY			15 hrs.	
	Concept of partial melting; Role of pressure, temperature and volatiles; Heat transfer and temperature gradient; Crystal growth, nucleation and zoning, Primary and secondary textures; cumulates and crystal mush systems; Mode and norms (CIPW) classification schemes, Thermodynamics: Gibbs free energy, phase equilibria and lever rule; Ternary (Di-An-Alb, Di-Fo-Si, Di-Fo-An, Fo-An-Si and Ne-Ks-Si) and quaternary systems; Magma series; Element distribution and partition coefficient; Concept of batch melting, fractional melting and Rayleigh fractionation; Role of trace elements in igneous systems.				
UNIT-II	THEORY			15 hrs.	
	Magmatic differentiation and other processes; Layered mafic intrusions; Intraplate and interplate volcanism: Generation of MORB, island arc magmatism, continental flood basalts, and hotspot volcanism with global examples; Continental rift associated magmatism, Magmatic processes and introduction of some common alkaline Rocks: Carbonatites, Anorthosites, Lamprophyres, Lamproites and Kimberlites; Genesis and classification of Granitoids; Role of igneous petrology in geothermal energy, mineralization, and CO2 removal.				
UNIT-III	LAB			30 hrs.	
	Petrogenesis of felsic and mafic rocks; QAPF and TAS plots, CIPW normative calculation, Practical interpretation of phase diagrams & crystallization sequences.				
UNIT-IV	LAB			30 hrs.	
	Exercise to differentiate the igneous rock type and basic plots such as binary (V versus Ti, Nb/Yb versus Th/Yb; Zr/Y versus Nb/Y) and ternary Ti-Zr-Y, Th-Hf-Ta, MnO ₂ -TiO ₂ -P ₂ O ₅ ; Mineralogical differentiation diagram: SiO ₂ versus Na ₂ O+ K ₂ O-CaO; Feldspar Ternary (An-Ab-Or), Basic exercises using Igneous petrology softwares.				
REFERENCES					
1.	Winter, J. D. (2014). Principles of igneous and metamorphic petrology. Pearson.				
2.	Philpotts, A., & Ague, J. (2009). Principles of igneous and metamorphic petrology. Cambridge University Press.				
3.	Bose M.K. (1997). Igneous Petrology.				
4.	White, W. M. (2020). Geochemistry. John Wiley & Sons.				
5.	Robin Gill (2010) Igneous Rocks and Processes: a practical guide. John Wiley& Sons				
6.	Srivastava, Rajesh K. and Chandra, R., (1995): Magmatism in Relation to Diverse Tectonic Settings, A.A. Balkema, Rotterdam.				

		The Maharaja Sayajirao University of Baroda Faculty of Science, Department of Geology		ACADEMIC YEAR 2026-27	
B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)					
YEAR	IV	GLM4017C: Petrogenesis of Metamorphic Rocks		CREDIT	4
Semester	I			HOURS	90
OBJECTIVES:		To understand metamorphic reaction mechanisms, facies concepts, fluid-rock interactions, P-T-t path construction, and thermobarometric techniques through microscopic analysis & phase equilibria modeling			
COURSE CONTENT / SYLLABUS					
UNIT-I	THEORY				15 hrs.
	Concept of metamorphism and grade; Micro-scale and meso-scale structures: Crystal growth, nucleation and diffusion; Dynamic recrystallization and porphyroblast-matrix relations; Metamorphic reactions: Polymorphic reactions, exsolution, solid-solid net transfer, devolatilization, continuous, ion exchange, oxidation/reduction reactions; Relationship between deformation and metamorphism: Deformation vs metamorphic mineral growth, Analysis of polydeformed and polymetamorphosed rocks; Textural geochronology.				
UNIT-II	THEORY				15 hrs.
	Concept of Metamorphic facies; Metamorphic facies series: Barrovian, Buchan and high-pressure facies, Metamorphic fluids: Types of metamorphic fluids, fluid sources, composition, evolution, Role of fluids in mineral reaction, Fluid-rock interaction processes, Infiltration-driven metamorphism; Partial melting and HP/UHP crustal processes; P-T-t-d path construction; Concept of geothermobarometry; Emerging trends in metamorphic petrology.				
UNIT-III	LAB				30 hrs.
	Microscopic studies of reaction textures, metamorphic mineral growth; ACF, AKF, AFM, A'KF, CMASH systems				
UNIT-IV	LAB				30 hrs.
	Conventional thermobarometers (garnet biotite, GASP, Grt-Opx), Pseudosection modelling using THERMOCALC, Perple_X				
REFERENCES					
1.	Winter, J. D. (2014). Principles of igneous and metamorphic petrology. Pearson.				
2.	Barker, A. J. (2013). Introduction to metamorphic textures and microstructures. Routledge.				
3.	Turner, F. J., & Verhoogen, J. (1960). Igneous and metamorphic petrology				
4.	Yardley, B., & Warren, C. (2021). An introduction to metamorphic petrology. Cambridge University Press.				

	The Maharaja Sayajirao University of Baroda Faculty of Science, Department of Geology			ACADEMIC YEAR 2026-27		
B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)						
YEAR	IV	GLM4027C: Geochemistry			CREDIT	4
Semester	I				HOURS	75
OBJECTIVES:		To provide fundamental understanding of geochemical principles, elemental behavior, water-rock interactions, stable and radiogenic isotope systematics, and geochronological dating methods with practical applications.				
COURSE CONTENT / SYLLABUS						
UNIT-I	THEORY				15 hrs.	
	Fundamental concepts of geochemistry; Periodic property of elements; Geochemical systems: Open, closed, isolated, chemical composition of the Universe – cosmic abundance; Geochemical classification of elements. Element partitioning in mineral/rock formation and concept of distribution coefficient, Crust, Mantle, and Core composition, Continental vs. oceanic crust, Geochemical behavior of Major, Trace, Rare Earth Elements (REE) and PGE; Meteorites, their classification, mineralogy, and origin.					
UNIT-II	THEORY				15 hrs.	
	Water–rock interaction mechanisms, Oxidation-reduction reaction, Chemical precipitation and stability of minerals, acids and bases, salts and their ions, Carbonate system: CO ₂ –H ₂ O–CaCO ₃ equilibrium, Eh-pH dependence, Composition of seawater, groundwater, rivers; Biogeochemical cycles: carbon, sulfur, nitrogen, phosphorus. Concept of equilibrium, Entropy, enthalpy, Gibbs free energy, and laws of thermodynamics. Stable isotopes: δ ¹⁸ O, δ ¹³ C, (‰ vs. SMOW, PDB), Isotope fractionation and its applications for Paleoclimate.					
UNIT-III	THEORY				15 hrs.	
	Introduction to sedimentary geochemistry: Geochemical processes involved in rock weathering, CO ₂ sequestration, and soil formation. Radiogenic isotopes, α, β, γ decay principles; decay constant, half-life, Equations of Radioactive Decay and Radiogenic Growth, Geochronology using radioactive decay schemes of Rb-Sr, Sm-Nd, U-Th-Pb, K-Ar, U-series disequilibrium method of dating, 14C dating, Fission track Dating, Isotope Geochemistry of the Earth's Mantle and crust					
UNIT-IV	LAB				30 hrs.	
	Mineral formula calculations, LOI determination, Binary plots of trace elements					
REFERENCES						
1.	Mason, B. Principles of Geochemistry, Wiley, 1982					
2.	Allègre, C.J. Isotope Geology, Cambridge University Press, 2008					
3.	Faure, G. Principles of Isotope Geology, Wiley, 1986					
4.	White, W.M. Geochemistry, Wiley-Blackwell, 2013					
5.	Wood, B.J. and Fraser, D.G. Elementary Thermodynamics for Geologists, Oxford University Press, 1977					
6.	Anderson, G.M. Thermodynamics of Natural Systems, Cambridge University Press, 2005					

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B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)					
YEAR	IV	GLE4007C: Quaternary Geology and Evolution of Human Civilization		CREDIT	4
Semester	I			HOURS	75
OBJECTIVES:		To understand Quaternary climatic and sea level changes, paleoclimate reconstruction methods, climatic geomorphology, and correlation between environmental changes and human cultural evolution.			
COURSE CONTENT / SYLLABUS					
UNIT-I		THEORY		15 hrs.	
		Nature and major characteristics of Quaternary period, time divisions of Pleistocene and Holocene, Quaternary climatic changes-glacial and interglacial periods, linkage to cultural evolution. Sea level changes – Eustatic Sea Level (ESL), Relative Sea Level (RSL), glacio-eustasy, tectono-eustasy, Quaternary fauna and flora, Quaternary sea level changes and climatic changes, Ocean gateways of the Quaternary and their role in controlling global climates and migration patterns. Sea level changes during Quaternary with special reference to India. Application of stable isotopes (Oxygen and Carbon) in Paleoceanography and Paleoclimatology.			
UNIT-II		THEORY		15 hrs.	
		Distinction between weather and climate, Components of the climate system Concept of morphoclimatic zone, morphogenetic region and climatic geomorphology, Koppen’s classification of climate. Morphogenetic regions of the world – processes and landforms. Milankovitch cycles and variability in the climate, Magnetostratigraphy-principles, types of magnetism, Global Magnetic Polarity Timescale (GMPTS), applications in understanding sedimentation history. Brief introduction to archives of climate change: Climatic record from deep sea sediment archives- history of deep sea coring, Characteristics and types of deep-sea sediments, Deep Sea record and major Cenozoic climatic events, Glacial-interglacial stages -Marine Isotopic Stages –basis and implication for sea level change and climate. Ice-cores and palaeoclimate. Paleoclimatic reconstructions from ice cores. Climate Change: natural vs. anthropogenic effects, Future perspectives			
UNIT-III		THEORY		15 hrs.	
		Concept of culture and civilization; stages of prehistoric cultural evolution—Palaeolithic, Mesolithic, Neolithic, and Chalcolithic; geographical factors in the rise of civilization; early human settlements in the Indian subcontinent; origin, extent, and salient features of the Indus Valley Civilization; post-Harappan cultural developments; early urbanization in India; civilization and environment in the Indian context.			
UNIT-IV		LAB		30 hrs.	
		Interpretation of Quaternary sediments, stratigraphic columns, and depositional environments; exercises on sea level curves and coastal geomorphic indicators; map-based study of Quaternary landforms and environmental changes.			
REFERENCES					
1.	Bradley, R.S. Paleoclimatology: Reconstructing Climates of the Quaternary				
2.	Cronin, T.M. Paleoclimates: Understanding Climate Change Past and Present				
3.	Elias, S.A. & Mock, C.J. (eds.) Encyclopedia of Quaternary Science				
4.	Maher, B.A. & Thompson, R. Quaternary Climates, Environments and Magnetism				
5.	Valdiya, K.S. Neotectonism in the Indian Subcontinent				
6.	Kumaran, K.P.N. (ed.) Holocene Climate Change and Environment				
7.	Allchin, B. & Allchin, R. The Rise of Civilization in India and Pakistan				
8.	Coningham, R. & Young, R. The Archaeology of South Asia: From the Indus to Asoka, c. 6500 BCE–200 CE				

	The Maharaja Sayajirao University of Baroda Faculty of Science, Department of Geology			ACADEMIC YEAR 2026-27	
B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)					
YEAR	IV	GLR4007C: Research Project in Geology - I		CREDIT	6
Semester	I			HOURS	
OBJECTIVES:		To develop research skills in geology through independent investigation, data collection, analysis, interpretation, and scientific documentation of a chosen geological problem.			

		The Maharaja Sayajirao University of Baroda Faculty of Science, Department of Geology		ACADEMIC YEAR 2026-27	
B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)					
YEAR	IV	GLM4008C: Advanced Paleontology		CREDIT	4
Semester	II			HOURS	90
OBJECTIVES:		To understand fossil preservation, evolutionary patterns, biostratigraphic correlation, paleoecological reconstruction, and ichnological applications through integrated theoretical concepts and quantitative laboratory techniques.			
COURSE CONTENT / SYLLABUS					
UNIT-I	THEORY				15 hrs.
	Precambrian–Cambrian transition and origin of Metazoa (Ediacaran–Cambrian radiation), Taphonomy as a filter: Biases in preservation, time-averaging, condensation , Quantitative approaches to fossil preservation (preservation windows, Lagerstätten); Species concepts: Morphospecies vs biological species vs phylogenetic species; Ontogeny and population structure in fossil assemblages Functional morphology and ecological inference ; Introduction to Paleocology & Paleobiogeography; Fossil record completeness and sampling standardization.				
UNIT-II	THEORY				15 hrs.
	Introduction to paleodiversity curves and biases; Modes of evolution: Gradualism vs punctuated equilibrium; Adaptive radiation, ecological opportunity, and constraints; Sepkoski Dataset and Model; Major evolutionary transitions (vertebrates, plants, marine ecosystems); Mass extinctions & recovery dynamics (focus on Permian–Triassic, K–Pg); Biotic interactions: Predation, competition, symbiosis Trace fossils as proxies for oxygenation and energy conditions Ichnology in: Sequence stratigraphy; Reservoir quality prediction. Biostratigraphy & Correlation Biozones: Range, assemblage, abundance zones ; Index fossils and correlation techniques Integration with litho- and sequence stratigraphy Paleoclimate & Paleoenvironmental Reconstruction Fossils as proxies for: Temperature; Oxygen levels; Sea-level change; Stable isotopes (basic introduction)				
UNIT-III	LAB				30 hrs.
	Practical related to Fossilization potential and modes of preservation; Fossil identification and morphology; Biostratigraphic correlation exercises; Trace fossil interpretation problems; Case studies (deltaic, estuarine, deep marine systems)				
UNIT-IV	LAB				30 hrs.
	Quantitative Morphometrics (ImageJ-based basics); Diversity indices; Paleoecological modeling; Evolutionary Modelling, sepkoski Data plotting and interpretation, Ichnofacies models: Skolithos, Cruziana, Zoophycos, Nereites Ichnofabric analysis and Bioturbation Index (BI).				
REFERENCES					
1.	Clarkson, E.N.K.1998. Invertebrate Palaeontology and Evolution, George Allen & Unwin.				
2.	Raup, D.M. and Stanley, S. M. 1971. Principles of Palaeontology, W.H. Freeman and Company.				
3.	Benton, M. 1997. Basic Palaeontology: An introductory text, D.Harker, Addison Wisely Longman.				
4.	Benton, M.J. 2005. Vertebrate palaeontology (3rd edition). Blackwell Scientific, Oxford.				
5.	Willis, K.J. & McElwain, J.C. 2002. The evolution of plants, Oxford University Press.				
6.	Foote, M. & Miller, A. I. (2006). Principles of Paleobiology, third edition.				
7.	Shukla, A. C. & Mishra, S.P. (1982).Essentials of Palaeobotany.				

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B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)						
YEAR	IV	GLM4018C: Landscape Evolution			CREDIT	4
Semester	II				HOURS	75
OBJECTIVES:		To understand landscape evolution models, controlling factors, soil formation processes, morphostratigraphic concepts, and morphometric analysis techniques using field and GIS-based approaches.				
COURSE CONTENT / SYLLABUS						
UNIT-I	THEORY				15 hrs.	
	Models of landscape evolution-Evolutionary cycle, slope replacement model, pediplanation model, equilibrium model. Introduction to controlling factors of landscape evolution-climate, tectonics and sea level change. Role of lithology in landscape evolution in granitic, limestone and volcanic terrains; Earthquake induced surface changes. Slopes-classification, geomorphic processes on slopes and evolution.					
UNIT-II	THEORY				15 hrs.	
	Soil terminology, components, soil profile and discrimination, Factors affecting soil formation, soil properties-physical and chemical, Pedogenic processes-physical and chemical weathering, Diagnostic soil horizons, Soil Taxonomy-soil orders. Recognition and characteristics of palaeosols. Palaeoclimatic interpretation of soils. Geomorphology and morphogenesis of the Lunar and Martian landforms, Application of geomorphology in environmental management, hydrology, mineral exploration, engineering, coastal zone management, hazard analysis, regional and urban planning. Role of humans as geomorphological agents.					
UNIT-III	THEORY				15 hrs.	
	Morphostratigraphy-concept and approaches-lithostratigraphic, allostratigraphic, pedostratigraphic and relative dating. Geomorphological mapping – analog and digital techniques, Morphometric analyses of drainage basins-morphometric indices, analysis and interpretation using GIS, DEM-types of DEMs, data sources and landscape analysis.					
UNIT-IV	LAB				30 hrs.	
	Preparation and interpretation of geomorphic maps; identification and delineation of major geomorphic features. Morphometric analysis of drainage basins, including linear, areal, and relief aspects; interpretation of drainage characteristics and their geomorphological significance.					
REFERENCES						
1.	Summerfield, M. A. (2014). <i>Global geomorphology</i> . Routledge.					
2.	Huggett, R., & Shuttleworth, E. (2022). <i>Fundamentals of geomorphology</i> . Routledge.					
3.	Buol, S. W., Southard, R. J., Graham, R. C., & McDaniel, P. A. (2011). <i>Soil genesis and classification</i> . John Wiley & Sons.					
4.	Brady, N. C., Weil, R. R., & Weil, R. R. (2008). <i>The nature and properties of soils</i> (Vol. 13, pp. 662-710). Upper Saddle River, NJ: Prentice Hall.					
5.	Retallack, G. J. (2008). <i>Soils of the past: an introduction to paleopedology</i> . John Wiley & Sons.					
6.	Baker, V. R. (2013). Introduction to planetary geomorphology. <i>Meteoritics & Planetary Science</i> , 48(9).					
7.	Wilson, J. P., & Gallant, J. C. (Eds.). (2000). <i>Terrain analysis: principles and applications</i> . John Wiley & Sons.					

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B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)						
YEAR	IV	GLM4028C: Sedimentology and Basin Analysis			CREDIT	4
Semester	II				HOURS	75
OBJECTIVES:		To develop conceptual and practical understanding of sequence stratigraphy, system tracts, stratigraphic surfaces, and sedimentary basin analysis techniques for interpreting depositional history and economic applications.				
COURSE CONTENT / SYLLABUS						
UNIT-I	THEORY Overview of Siliciclastic and Carbonate system. Introduction to Mixed-siliciclastic rocks. Diagenesis of siliciclastic sedimentary rocks: Stages and realms, processes and effects. Diagenesis of carbonate sedimentary rocks: Regimes, processes and changes. Paleocurrent analysis: Paleocurrent indicators, Measurement technique, Calculation, Representation of data (Rose diagram, Vector method, Trigonometric method) and interpretation. Provenance analysis: Methods (Petrography, Heavy mineral analysis, Geochemical analysis), Types and characteristics of tectonic provenance settings (Continental block, Recycled Orogen, Magmatic Arc), Dickinson’ s model.				15 hrs.	
	THEORY Depositional environment: Introduction and Classification. Continental environments: Fluvial, Aeolian, Lacustrine and Glacial systems. Marginal Marine environment: Deltaic, beach and barrier island, Estuarine, Lagoonal and Tidal-flat systems. Siliciclastic Marine environment: Shelf and deep-water environment. Carbonate and Evaporite environments: Non-reef, Organic reef and evaporite environments, Mixed Carbonate-Siliciclastic Systems.				15 hrs.	
UNIT-III	THEORY Introduction to Basin Analysis. Mechanisms of basin formation (subsidence). Plate tectonics and basins. Kinds of sedimentary basins- basins in divergent settings, basins in intraplate settings, basins in convergent settings, basins in strike-slip/ transform-fault-related settings, basins in hybrid settings. Sedimentary basin fill. Techniques of basin analysis- measuring stratigraphic sections, preparing stratigraphic maps and cross sections, Siliciclastic petrofacies (provenance) studies, Geophysical studies. Applications of basin analysis: interpreting geologic history economic applications. Sea level changes and sedimentation. Depositional sequences and tracts, Parasequences, Sequence stratigraphy in marine and non-marine basins. Applications of sequence stratigraphy				15 hrs.	
	LAB Detailed petrographic studies of siliciclastic, carbonate and mixed-siliciclastic carbonate sedimentary rocks. Practicals related to Paleocurrent and Provenance analysis.				30 hrs.	
REFERENCES						
1.	Lindholm, R.C., 1987. A Practical Approach to Sedimentology, AllcneUnwin, London.					
2.	Pettijohn, F.J., 1975. Sedimentary Rocks, Harper and Row Publ. New Delhi.					
3.	Nichols, G., 1999. Sedimentology and Stratigraphy, Blackwell publishing.					
4.	Sam Boggs, 1995. Principles of Sedimentology and Stratigraphy, Print iceHall, New Jersey.					
5.	Tucker, M.E., 2006. Sedimentary Petrology. Blackwell Publishing					
6.	Principles of Sequence Stratigraphy: Octavian cateneauau (2006) Elsevier					

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B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)					
YEAR	IV	GLE4008C: Structural Analyses of Rocks		CREDIT	4
Semester	II			HOURS	75
OBJECTIVES:		To provide comprehensive understanding of fold-fault mechanics, fracture systems, rock deformation behavior, shear zone kinematics, and strain analysis through theoretical concepts and practical structural geology applications.			
COURSE CONTENT / SYLLABUS					
UNIT-I	THEORY				15 hrs.
	Fold interference and superposed folds. Modes of superposed buckling in single and multilayers. Mesoscopic and macroscopic analyses of superposed folds. Problem of co-axial folding Mechanics of faulting: Complex geometry of normal, strike-slip and thrust faults with natural examples. Hafners analyses Concept of fault zone weakening; fault reactivation and its significance. Concept of balanced cross sections; Fold and thrust belts.				
UNIT-II	THEORY				15 hrs.
	Fracture mechanics; Mechanics of rock fracturing: fracture initiation and propagation; Coulomb's criterion and Griffith's theory; Geometrical analyses of joints and their Importance Mechanical aspects of fracturing and joint formation. Joints with relation to folds and faults. Joints in relation to tectonic cycle, Orientation analyses of joints. Different types of planar and linear structures in deformed rocks; Origin of rock cleavage and its mechanism. Axial plane cleavage in relation to principal axes of finite strain. Lineations in superposed deformation, Patterns of deformed early lineation, Boudinage in superposed deformation, origin of boudins-sequential and simultaneous development, rotated boudins, asymmetric boudins, shear fracture boudins, foliation boudins, boudinage in relation to granitization and metamorphism.				
UNIT-III	THEORY				15 hrs.
	Behavior of rocks under stress- elastic, plastic, viscous and visco-elastic responses and their geological significance; Strain analysis: deformation mechanism at different scales, dislocation and diffusion creep, strain hardening and softening, lattice preferred orientation, Granular flow, super plasticity. Stress tensor, role of fluid in deformation; Time relation between crystallization and deformation in rocks. Shear Zones – Types and associated rocks, analysis of strain in shear zones; kinematic significance of different shear zone structures; Shear sense indicators; Folding in shear zones, Flow behaviour of sheared rocks. Large scale shear zones and their importance in continental crustal evolution.				
UNIT-IV	LAB				30 hrs.
	Interpretation of geological maps and sections. Calculation of strain parameters, Exercises on balanced cross sections. Analysis of structural data using softwares. Numerical problems related to rock beds.				
REFERENCES					
1.	Ghosh, S. K. (2013). Structural geology: Fundamentals and modern developments. Elsevier.				
2.	Billings, M. P. (1972). Structural geology. Prentice Hall of India Pvt. Ltd..				
3.	Fossen, H. (2016). Structural geology. Cambridge university press.				
4.	Davis, G. H., Reynolds, S. J., & Kluth, C. F. (2011). Structural geology of rocks and regions. John Wiley and Sons.				
5.	Ramsay J. G. (1967), Folding and fracturing of Rocks, McGraw Hill Pub.				
6.	Ramsay J.G. and Huber M. I., (1983). The Techniques of Modern Structural Geology, Strain Analysis, Academic Press.				
7.	G.W.Chiplonkar (1962) Geological Maps. Dastane Ramchandra & Co. Pune.				
8.	Marshak, S., & Mitra, G. (1988). Basic methods of structural geology				

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B.Sc. GEOLOGY (Hons. With Research): Regular (NEP 2020)					
YEAR	IV	GLR4008C: Research Project in Geology - II		CREDIT	6
Semester	II			HOURS	
OBJECTIVES:		To develop research skills in geology through independent investigation, data collection, analysis, interpretation, and scientific documentation of a chosen geological problem.			