VIDYASAGAR UNIVERSITY

Midnapore, West Bengal

PROPOSED CURRICULUM & SYLLABUS (DRAFT) OF

BACHELOR DEGREE WITH GEOLOGY

(MULTIDISCIPLINARY STUDIES)

3-YEAR UNDERGRADUATE PROGRAMME

(w.e.f. Academic Year 2023-2024)

Based on

Curriculum & Credit Framework for Undergraduate Programmes

(CCFUP), 2023 & NEP, 2020

VIDYASAGAR UNIVERSITY
BACHELOR OF SCIENCE IN PHYSICSL SCIENCES with GEOLOGY
(*Under CCFUP, 2023*)

Level	YR.	SEM	Course Type	Course Code	Course Title	Credit	L-T-P	Marks		
								CA	ESE	TOTAL
B.Sc. in Physical Sc. with Geology	3rd	V	**SEMESTER-V**							
			Major-A4	**GELPMJ04**	**T:** Palaeontology & Stratigraphy**; P:** Practical ***(To be studied by students taken Geology as Discipline- A)***	**4**	**3-0-1**	**15**	**60**	**75**
			Major-A5	**GELPMJ05**	**T:** Resource Geology**; P:** Practical ***(To be studied by students taken Geology as Discipline- A)***	**4**	**3-0-1**	**15**	**60**	**75**
			Major-A6	**GELPMJ06**	**T:** Earth surface processes**; P:** Practical ***(To be studied by students taken Geology. as Discipline- A)***	**4**	**3-1-0**	**15**	**60**	**75**
			Major (Elective) -2	**GELMJE-02**	Seminar & grand viva ***(To be studied by students taken Geology as Discipline- A)***	**4**	**0-0-4**	**15**	**60**	**75**
			Minor-5 (Disc.-C5)	**GELMIN05**	**T**: Resource Geology**; P:** Practical ***(To be studied by students taken Geology as Discipline- C)***	**4**	**3-0-1**	**15**	**60**	**75**
			Semester-V Total			**20**				**375**
		VI	**SEMESTER-VI**							
			Major-B4		***To be decided (Same as MajorA4 for Geology. taken as Discipline-B)***	**4**	**3-0-1**	**15**	**60**	**75**
			Major-B4		***To be decided (Same as Major–A5 for Geology taken as Discipline-B)***	**4**	**3-0-1**	**15**	**60**	**75**
			Major-B4		***To be decided (Same as Major–A6 for Geology taken as Discipline-B)***	**4**	**3-0-1**	**15**	**60**	**75**
			Major (Elective) -3	**GELMJE03**	Assignment Writing ***(To be studied by students taken Geology as Discipline- A)***	**4**	**0-0-4**	**15**	**60**	**75**
			Minor -6 (Disc.-C6)	**GELMIN06**	**T:** Geotectonics**; P:** Practical ***(To be studied by students taken Geology as Discipline- C)***	**4**	**3-0-1**	**15**	**60**	**75**
			Semester-VI Total			**20**				**375**
			TOTAL of YEAR-3			**40**	**-**	**-**	**-**	**700**
			Eligible to be awarded Bachelor of Science in Multidisciplinary Studies with *Anthropology on Exit*			**126**	**Marks (Year: I+II+III)**			**2325**

MJP = Major Programme (Multidisciplinary), MI = Minor, A/B = Choice of Major Discipline; C= Choice of Minor Discipline; CA= Continuous Assessment, ESE= End Semester Examination, T = Theory, P= Practical, L-T-P = Lecture-Tutorial-Practical

MAJOR (MJ)

MJ A4/B4: Palaeontology & stratigraphy **Credits 04 (FM: 75)**

MJ A4/B4T: Palaeontology & stratigraphy **Credits 03 [45L]**

Course contents:

Unit I: Definition, Principles of stratigraphy; Geological Time Scale and stratigraphic classification; Physiographic divisions of India.
Unit II: Study of Precambrian succession: Dharwar, Cuddapah, Vindhyan and Rajasthan; Brief idea of Palaeozoic succession of northwestern Himalaya; Triassic of Spiti; Mesozoic type seccession of Kutch and Rajasthan; Cretaceous of Tiruchirapalli;
Unit III: Study of following type localities: Gondwana and Deccan Trap.
Unit IV: Palaeogene-Neogene sequences of northwest Himalaya and Assam.
Unit-V: Palaeontology: definition, Fossils: definition, characters, binomial nomenclature in taxonomy, modes of preservation, conditions of fossilization and significance of fossils;.
Unit VI: Morphology and geological distribution of brachiopods, bivalves, cephalopods and gastropods.
Unit VII: Morphology and geological distribution of trilobite, echinoidea.
Unit VIII: Evolutionary history of human; Morphology, distribution and significance of Gondwana flora.

MJ A4/B4P: Palaeontology & Stratigraphy (Practical) **Credits 01 (30hrs.)**

Course Outline:

I. Morphological characters, systematic position and age of fossil genera pertaining to brachiopods, bivalves, cephalopods, gastropods, trilobite.
II. Preparation of lithostratigraphic maps of India showing distribution of important geological formations.

Suggested Readings

1. Wadia, D., 1973. Geology of India. Mc Graw Hill Book co.
2. Krishnan, M.S., 1982. Geology of India and Burma, 6th Edition. CBS Publ.
3. Ravindra Kumar, 1985. Fundamentals of Historical Geology & Stratigraphy of India. Wiley Eastern.
4. Shrock, R. & Twenhoffel, W.H., 1952. Principles of Invertebrate Paleontology. CBS Publ.
5. Swinerton, H., 1961. Outlines of Paleontology. Edward Arnold Publishers
6. Jain, P.C. & Anantharaman, M.S., 1983. Paleontology: Evolution & Animal Distribution. Vishal Publ.
7. Lehmann, U., 1983. Fossil Invertebrate. Cambridge Univ. Press.
8. Rastogi, 1988. Organic evolution. Kedrnath and Ramnath Publ

MJ A5/B5: Resource Geology **Credits 04 (FM: 75)**

MJ A5/B5T: Resource Geology **Credits 03 [45L]**

Course contents:

Unit 1
1. Resource reserve definitions; mineral, energy and water resources
2. A brief overview of classification of mineral deposits with respect to processes of formation

Unit 2
1. Difference between Energy, Power and Electricity
2. Renewable and Non- Renewable Sources of Energy
3. The concept and significance of Renewability: Social, Economic, Political and Environmental Dimension of Energy

Unit 3
1. Resources of Natural Oil and Gas
2. Coal and Nuclear Minerals
3. Potential of Hydroelectric Power, Solar Energy, Wind, Wave and Biomass Based power and Energy

Unit 4
1.Ground water resources in India and its role in economic development of the country
2. Current Scenario and Future Prospects of Solar Power, Hydrogen Power and Fuel Cells.

MJ A5/B5P: Resource Geology (Practical) **Credits 01**

Course Outline:

1. Study of coal ain Hand specimen
2. Plotting of major Indian oil fields on map of India

Suggested Readings

1. Energy and the Environment by Fowler, J.M 1984. McGraw-Hill
2. Energy Resources and Systems: Fundamentals and Non-Renewable Resources by Tushar K. Ghosh and M. A. Prelas. 2009, Springer
3. Introduction to Wind Energy Systems: Hermann-Josef Wagner and Jyotirmay Mathur. 2009, Springer.
4. Renewable Energy Conversion, Transmission and Storage. Bent Sorensen, 2007

MJ A6/B6: Earth surface processes **Credits 04 (FM: 75)**

MJ A6/B6T: Earth surface processes **Credits 03 [45L]**

Course contents:

Unit 1: Introduction: Introduction to geomorphology; relationship between the landforms and the properties of earth
material and different kind of gradational processes; Endogenic and exogenic processes.

Unit 2: Major morphological features of the earth surface; Large scale topography - plate tectonics, overview, large scale
mountain ranges (with emphasis on Himalayas).

Unit 3: Surficial processes and geomorphology; weathering and associated landforms; Landforms produced by glacial,
periglacial, fluvial, aeolian, karst, coastal processes; Landforms associated with igneous activities. Geomorphic expressions of active structure.

Unit 4: Concept of monsoon, precipitation and surface runoff.

Suggested Reading:

1. Robert S. Anderson and Suzzane P. Anderson (2010): Geomorphology - The Mechanicsand Chemistry of Landscapes. Cambridge University Press.
2. M.A. Summerfield (1991) Global Geomorphology. Wiley & Sons.

Major Elective

(To be studied by students taken Geology as Discipline- A)

Major Elective (MJE)-2:

Major Elective (MJE)-02: Seminar & Grand viva-voce **Credits 04 (FM: 75)**

MJE-02P: Seminar & Grand viva-voce **Credits 04**

- Students to give Seminar presentation on any relevance topic of course/ curriculum under guidance of course coordinator/ concerned faculty
- Grand Viva-voce

Major Elective (MJE)-3:

Major Elective (MJE)-03: Assignment writing **Credits 04 (FM: 75)**

MJE-03P: Assignment writing **Credits 04**

- Students to submit a Report on the topic assigned by the course coordinator/ concerned faculty
- Viva-voce on the submitted report.

MINOR (MI)

(To be studied by students taken Geology as Discipline- C)

MI-5/C5: Same as Minor-5 (GELMIN05) of Geology (Hons) prog. **Credits 04**
Full Marks: 75

MI-6/C6: Same as Minor-6 (GELMIN06) of Geology (Hons) prog. **Credits 04**
Full Marks: 75