

Kabi Jagadram Roy Government General Degree College, Mejia, Bankura

A Certificate Course

On

UNDERSTANDING EARTH AND ITS PROCESSES

Conducted by,

Department of Geology

(In association with IQAC)

[May 17-28, 2022]



“Geology is not just about rocks. It’s about understanding our planet, its processes, and our role in it”

- **Course objective:** Understanding mother Earth and its processes allows us to know our geological environments and events, to anticipate natural disasters and to raise a general awareness among ourselves towards correct practices for a better and sustainable earth.
- **Course outcome:** Upon completion of this course the students will be able to analyse the interactions between physical, chemical and biological processes that shape and define the earth system; correlate between the ancient Earth and its current changes; and develop effective communication skills to help diffusing major current environmental problems.
- **Intake capacity:** Around 20
- **Participants:** Under graduate students of all the disciplines are welcome!
- **Course duration:** May 17-28, 2022; Eleven (11) days; Thirty (30) hours
- **Patron:** Prof. Aloke Kumar Das (Officer-in-Charge)
Dr. Aresh Kumar Maji (IQAC Coordinator)
- **Resource person:** Dr. Nivedita Chakraborty [NC] (Course coordinator)
Ms. Indrani Mondal [IM] (Joint coordinator)
Dr. Aresh Kumar Maji [AKM] (HOD, Geology)
- **Course fee:** Nil
- **Assessment process:** Written Examination (MCQ) [25 Marks]
Group Seminar [15 Marks]
Attendance [10 Marks]
- **Grade Calculator:**

Marks (out of 50)	Grade
45-50	A+
40-44	A
35-39	B+
30-34	B
25-29	C
20-24	C+

- **Reward:** A sense of perspective to understand that we are just a small part of a much larger, dynamic planet and we need to protect our habitat; Access of seminar library, Department of Geology.

SCHEDULE

	Date	Module No.	Title	Duration (Hours) & Time	Resource Person
Week 1	17/05/2022	1	Events in Earth's history-1	3hrs (11.00AM-02.00PM)	NC
	18/05/2022	2	Events in Earth's history-2	3hrs (11.00AM-02.00PM)	NC
	19/05/2022	3	Introduction of external processes	3hrs (11.00AM-02.00PM)	NC IM
	20/05/2022	4	Introduction of internal processes	3hrs (11.00AM-02.00PM)	IM AKM
	21/05/2022	5	Orogenic processes	3hrs (11.00AM-02.00PM)	NC IM
Week 2	23/05/2022	6	Hydrothermal and magmatic processes	3hrs (11.00AM-02.00PM)	AKM NC
	24/05/2022	7	Earth surface processes	3hrs (11.00AM-02.00PM)	NC IM
	25/05/2022	8	Anthropogenic processes	5hrs (11.00AM-01.30PM & 02.00PM-04.30PM)	NC IM
	26/05/2022		Written Examination	1hrs (11.00AM-12.00 Noon)	
	27/05/2022		Group Seminar	3hrs (11.00AM-02.00PM)	
	28/05/2022		Certificate distribution and valedictory session	11.30 AM onwards	
	Total				30 hours

COURSE CONTENT

Module No. 1: Events in Earth's history-1

Concept of universe and time; origin of Earth as a planet in the solar system and its working in primordial stage.

Module No. 2: Events in Earth's history-2

Concept of geological age; time scale- compressing the history of earth into a diagramme; evolution of Earth in terms of air, water and life with ages.

Module No. 3: Introduction of external processes

Exogenic forces- that occur on the Earth's surface; sedimentation and mass wasting; meteorite impact, glaciations

Module No. 4: Introduction of internal processes

Endogenic forces-that occur under the Earth's surfaces-plate movement, volcanism, earthquake, tsunami; impact of climate change on earth's processes

Module No. 5: Orogenic processes

Forces causing mountain building processes; formation of large mountain belts such as Himalayas- evidence of colliding continents, influence on regional climate change; prediction of hazards or disasters (slope failure, landslide, cloudburst, flash flood)

Module No. 6: Hydrothermal and magmatic processes

Sub-surface movement of hot water and its action at elevated pressure; geysers, fumaroles, hot springs; formation of rocks, minerals, crystals and ores

Module No. 7: Earth surface processes

Physical and chemical fluxes across the Earth's surface, and the resulting landscapes; rivers, lakes, oceans, karst (caves), coastlines; sediment-water interface; journey of sediments from source to sink; sea-level changes

Module No. 8: Anthropogenic processes

Pollution; Global warming; Wastage of water; Coastal erosion; Illegal mining; Unplanned construction; Release of industrial and radioactive waste

Suggested Reading:

1. Skinner, Brain, J., Porter, Stephen, G., 1995. *The Blue Planet*. John Wiley and Sons.
2. Rogers, John J.W., Santosh, M., 2004. *Continents and Supercontinents*. Oxford University Press.
3. Chatterjee, Sankar, 2019. *From Stardust to First Cells – the Origin of Life*, Elsevier.
4. Hugget, Richard John, *Fundamentals of Geomorphology*. Routledge, 2007.
5. Mahapatra, G. B., 2019. *A Textbook of Geology*.
6. Mukherjee, P.K., 2010. *A Textbook of Geology*. World Press.

Suggested Watching:

1. The Lost Worlds of Planet Earth. Ninth episode of the American documentary television series *Cosmos: A Spacetime Odyssey* (2014) narrated by Neil deGrasse Tyson.
2. <https://youtu.be/uLahVJNnoZ4>
3. <https://youtu.be/UvIDxu7twpc>
4. Movies: Journey to the centre of the Earth, San Andreas, Dante's peak, The Core, Volcano, Earthquake, Deep impact, Pompeii, The wave, The day after tomorrow, Ice age, Armageddon, Twister.