ST. XAVIER'S COLLEGE, MUMBAI

Est. 1869 | YEARS

(An autonomous college affiliated to The University of Mumbai)

Syllabus for the B.Sc and M.Sc
Subject: Geology

(Credit Based Semester and Grading System with effect from the academic year 2019–2020)

7th Revision - February 2019

This 7th revision of the syllabus for Geology incorporating modifications in FY, SY, TY, MSc 1 &2 course contents was proposed by the Board of Studies in Geology at its meeting held on 18th February 2019, for approval by the Academic Board of the College.

Composition of the Board of Studies in Geology 2018 – 2019

Chairman: Dr. Hrishikesh Samant., Associate Professor and Head of the Department of Geology, St. Xavier's College , Mumbai

External Members:

Academic members-

Professor. T. K. Biswal, Department of Earth Sciences, IIT Bombay
Professor. G.N. Jadhav, Department of Earth Sciences, IIT Bombay
Dr. S. M. Ganti, Head of Geology (Retd) , K.J. Somaiya College.

Industry representatives-

Dr. S. Umrikar, Hydrogeologist, Government of Maharashtra
Dr. (Ms). Jayshree Panjikar, PANGEM, Pune.
Mr. Sumantra Naik, Reliance Industries Limited

University representative

Dr. Pravin Henriques, Chairman, BOS in Geology, Mumbai University

Internal members (Members of the geology department teaching faculty)

Dr. G. Bandyopadhyay, Associate Professor.
Dr. Bobby Mathew, Assistant Professor.
Dr. Ashwin Pundalik, Assistant Professor.
Mr. John D'Souza, Assistant Professor.
Dr. Shweta Gurav, Assistant Professor.

Student Representatives:

Mr. Arnav Samant (PG)
Ms. Riya Bidaye (UG)

Revision History:

1st Revision: August 2010 (FY BSc only)
2nd Revision: January 2011 (SY BSc only)
3rd Revision: December 2011 (TY BSc only)
4th Revision: April 2013 (FY, SY, TY, MSc I & II)
5th Revision: February 2016 (FY, SY, TY, MSc I)
6th Revision: February 2017 (FY, SY, TY, MSc I & II)

The Rational:

Why study geology?
Are you interested in understanding how our planet earth formed? How the mountains, valleys, rivers and seas formed and why they are where they are seen today? And how earth's internal energy is responsible for shaping the earth's surface? Want to study global change, not just during historical time, but over the whole lifetime of the Earth, which is 4.65 billion years? And also find out how the age of our planet was arrived at? ? Are you interested in the origin and development of our landscape and in how plate tectonics control the surface features of the Earth such as earthquakes and volcanoes? Do you mull over how we can manage our natural resources which are getting meager by the day, more sustainably?

A Geologist is the Sherlock Holmes or a forensic detective, who tries to unravel the past and the future of the Earth through analysis and understanding of the earth's internal, surface and external processes observed today.

Learners who enjoy working outdoors, and are enthusiastic about trekking through hills and valley, fascinated by rocks, mineral and soils, have a good scientific background, and are interested in understanding how the world around them works will find this major branch of the earth sciences a rewarding area of study.

What will I study?
Geology is a field-based, multi-disciplinary science that integrates the principles of chemistry, physics, biology and mathematics in the study of Earth processes and history. Geologists and geoscientists study a broad range of topics including plate tectonics, glaciers, floods, groundwater flow – even dinosaur evolution. Geologists are increasingly in demand to study and evaluate geologic hazards and natural resources such as oil and gas.

Why should I choose Geology at Xavier's?
Our three year (six semester) geology degree course covers all major aspects of this discipline; it is ideal if you want to keep your options open or are presently uncertain about your future career plans. All our undergraduate (BSc) degrees provide apt opportunities for postgraduate studies and also general graduate employment. You can also extend your studies with our two-year M.Sc, which allows you to focus on a dissertation (research project) and take a number of specialist postgraduate geology courses. The College also has a superb library and an excellent placement cell.

The Geology course is affiliated to, and recognized by the University of Mumbai. You will enjoy ample opportunity to put what you have learned in to practice on field trips.

Interdisciplinary approach in Geology:
In the present context, Geology as a subject is offered as a Major subject with a combination with subjects like Math, Physics, Chemistry and Life Sciences.

Keeping the spirit and need of an Interdisciplinary BSc in mind, where the learner wishes to gain basic supporting knowledge in an allied field other than his or her specilisation, the syllabus in

geology has been framed. The outcome at the end of completion of the first and second semester (four courses) is to have a learner with the basic knowledge about the history and beginnings of the subject of geology, its applications in day-to-day human life. It will also lay stress on identification of the most commonly found minerals and rocks. The practical and the mandatory fieldwork will supplement the theoretical concepts. The knowledge and experience gained by the learner will enable him or her understand the different commercially available rock material used in building construction and also the commonly used minerals as ornamental stones. The learner will also be familiarized with the earth's internal and external systems, the various rock structures and their implications from understanding the earth's past.

If the learner wishes to gain further insights into the subject, he or she can opt to take the third and fourth semester courses (six courses), which are, specialized modules in ground water hydrology, ore geology, mineral optics, paleontology and field geology. The last two semesters (five and six) consist of eight mandatory courses and two additional courses (applied component), which can be selected from a sizable selection. The department on its part offers a course on remote sensing in the fifth semester and a course on gemology in the sixth. Both these courses have but one prerequisite – Geology courses till second semester.

February 2019.