Department of Earth Sciences
Indian Institute of Technology
Bombay

DST – Fund for Improvement in S&T Infrastructure (FIST 2002)

Brief Outline of the Department

The Department offers academic programmes leading to M.Sc. (Applied Geology), M.Sc. (Applied Geophysics), M.Tech. (Geo-exploration), M.Tech. (Petroleum Geoscience) and Ph.D. degrees. The department annually admits 32 students in its M.Sc. programmes, and another 32 in its M.Tech. programmes. For doctoral research, 6 students are annually admitted as I.I.T. research fellows in addition to several students admitted under CSIR fellowship and various sponsored research projects.

Teaching & Research Activities

Apart from teaching various courses for the above academic programmes, faculty members undertake sponsored research projects, consultative assignments, and conduct short term courses under the Continuing Education Programme (CEP) of IIT Bombay. The main research activities of the Department include the following: Petrogenesis of Deccan volcanics; Petrology of southern Indian kimberlites and their xenoliths; Sedimentology of Proterozoic sequences; Micropalaeontological studies; Arsenic and fluoride contamination of ground water; Structural and metamorphic studies of Precambrian mobile belts; GIS, Remote sensing and spectral response studies; Engineering geological aspects of slopes and underground excavations; Fluid and melt inclusion studies of sulphide ores and pegmatites; Geostatistics and ore-body modeling; Seismological studies in western India; Gravity, magnetic and electromagnetic studies.

Facilities Created

1. Inductively Coupled Plasma - Atomic Emission Spectrometer (ICP-AES): It is a high resolution sequential instrument with a resolution of ~ 0.005 nm at 120-320 nm wavelength range, and ~ 0.010 nm at 320-800 nm range, and is most suitable for REE analysis in complex geological samples.

ICP-AES

2. Cathodoluminescence (CL) microscope: It is an optical cathodoluminescence system attached to a polarizing microscope. CL properties of calcite, quartz, etc. can be studied in standard thin sections without conductive coating.

Cathodoluminescence Microscope

3. Polarising microscopes for teaching purposes: Five polarizing microscopes and two stereozoom microscopes have been purchased. The former have both transmitted and reflected light facilities.

Polarising microscopes

Funding

Equipment	**Utilisation**
I. ICP-AES (Jobin-Yvon Ultima)	100%
II. Cathodoluminescence Microscope	100%
III. Microscopes for teaching Purposes	100%
Total	

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