Course Type	Course Code	Name of Course	L	T	P	Credit
DP	NGPC526	**Earthquake Seismology Practical**	0	0	2	1

Course Objective
The course presents fundamental concepts of applied earthquake seismology with the objective to provide the students with a broad overview. The topics are particularly relevant to students that continue with research within earthquake seismology. However, the concepts and methods taught are also relevant to the general geophysics student interested in Earth structure and earthquake physics.
Learning Outcomes
Upon successful completion of this course, students will: Students will gain a deeper understanding of approaches such as forward modelling and inversion from the topics addressed within the earthquake seismology context. The student can demonstrate how the earthquake mechanism is derived from waveform data. Students will be able to the earthquakes, which will lead to improve Earth models. The student can discuss the different aspects of inverse problems in earthquake seismology.

Unit No.	Details of Lectures	Lectures Hrs.	Outcome
1.	Visit to geodetic observatory, understanding the seismic instruments and other facilities available in the observatory.	**2**	Visit to a seismic station
2.	Analysis of seismograms for local, regional and teleseismic earthquake events.	**2**	Understanding Seismograms
3	Identification of seismic phases on the broadband record of local earthquake events.	**2**	Understanding Seismograms
4.	Identification of seismic phases on the broadband record of regional and teleseismic events.	**2**	Understand Seismograms
5.	Coda magnitude estimation of local event. Computation of tentative location of earthquake using 3-components broadband digital record, and plotting on a map	2	Seismogram processing
6.	Computation of origin time of local earthquake using Wadati diagram.	2	Seismogram processing

7.	Reconstruction of intensity map on the basis of a field survey data.	2	Data Understanding
8.	Richter magnitude calculation using attenuation data of local earthquake. Comparison of estimated magnitudes of same earthquake using different seismographs.	2	Data Understanding
9.	Installation of seisan software and analysis of digital seismogram	2	Software use
10.	Computation magnitude and stress drop of local earthquakes using seisan software.	2	Software use
11.	Plotting of nodal planes, P- and T-axes on the stereonet using P-wave first motion data.	2	Use of stereonet plots
12.	Computation of fault parameter using focal mechanism.	2	Software use
13.	Reconstruction of block diagram for earthquake faulting using focal mechanism data.	2	Software use
14.	Field demonstration of seismic network installation	2	Familiarizing of broadband seismometer components
	Total	28	

Text books

1. Shearer, P. 1999. Introduction to Seismology, Cambridge: Cambridge University Press.
2. Lowrie, W., 2007. Fundamental of Geophysics, Cambridge: Cambridge University Press.

Reference books

1. Stein, S. and Wysession, M. 2003. An Introduction to Seismology, Earthquakes and Earth Structure, Oxford: Blackwell Publishing.
2. Båth, M., 1976. Introduction to Seismology, Birkhäuser Basel.