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M.Sc. Courses in Acoustics at London University

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The M.Sc. course in acoustics commenced at Chelsea College in 1950. This development was based on experience gained by the then Head of Department, Dr. George, during visits to Universities in Europe and the United States in which there was a considerable amount of systematic instruction following the first degree. The London University regulations made it possible to establish an M.Sc. course in which the qualification was gained by a written examination and a dissertation, in the form of a critical examination of current knowledge in a specialised subject. This was the basis for the part-time M.Sc. courses. Up to the mid 1960's about 50 students successfully completed this course, most of them by part-time study, but some as full-time students carrying out a research project instead of the dissertation. In the mid 1960's the course seemed to be losing support and the opportunity was taken to revise the syllabus in relation to current needs. The name was changed to Applied Acoustics and it became a day release course requiring an attendance of one day a week over a two year period for part-time students, whilst it was still of one year duration for full-time students. Since the revision of the course there have been over 65 students, including current enrolments. An indication of the value of the course is that some students come for lectures only, being motivated by the search for information rather than by the wish to obtain a higher degree. Students who have been on the revised course can be divided into the following groups:-

Aircraft Industry 2
Heating and Ventilating Industry 2
Building Industry 3
Government Establishments 8
Electro-acoustic Industry 10
Noise Consultancy Firms 8
Industrial Noise Control 10
Technical Colleges and Polytechnics 21

A few years ago the opportunity arose to establish a joint course with the Department of Mechanical Engineering at Imperial College. This course is entitled Acoustic and Vibration Technology and it is for full-time students only, with S.R.C. studentships available. Since 1970 there have been about 30 students on this course, 24 of them specialising in acoustics. The acoustic content of the Applied Acoustics course and the Acoustic and Vibration Technology course are the same.

A future development is likely to be an M.Sc. course in Audiology organised by the Institute of Laryngology and Otology which has been responsible for training audiology technicians since 1949. The increasing demand for supervisory staff has led to proposals for an M.Sc. course in Audiology open to suitable science graduates. Inter-collegiate co-operation is also envisaged for this course.

When the M.Sc. course was instituted over 20 years ago it was considered primarily to serve as an introduction to research, but this is no longer true, perhaps because there are not sufficient research places available. A large number of students are currently going into consultation work, as this is the present growth industry in acoustics and it is likely that a good M.Sc. student is, in general, to be preferred to a Ph.D. student for this kind of work, since he has wide knowledge of the field of acoustics, together with some experimental experience.

SYLLABUS The M.Sc. Applied Acoustics course covers the following topics: Vibrating systems; Wave propagation; Vibration of Strings, membranes and plates; Electrical, mechanical and acoustical analogies; Acoustic standards and measurements; analysis of sounds; Instrumentation; Sound absorbing materials; Architectural acoustics; Noise and vibration; Speech and hearing; Psycho-acoustics; Microphones and loudspeakers; Applications of ultrasonics; Underwater acoustics.

The course in Acoustic and Vibration Technology has compulsory syllabus topics of Mechanical vibrations; Fundamental acoustics; Analysis of noise and vibration with additional optional topics chosen from: Mathematics; Random vibrations; Rigid body mechanics; Computer programming and numerical analysis; Fundamentals of automatic control systems; Brittle fracture and fatigue in metals; Acoustic standards and measurements; Sound absorbing materials; Architectural acoustics; Noise and vibration; Speech and hearing; Transducers; Ultrasonics; Underwater acoustics.

Dissertations and project reports prepared by recent M.Sc. students include:-

Flow Duct Liners; A Survey of High Frequency Loudspeakers; The Airborne Sound Insulation of Party Walls; Impulsive Noise; Traffic Noise; Oscillation in Combustion Systems using Gaseous Fuels; Bandwidth Compression of Speech; Ultrasonic Delay Lines; Fan Noise Sources; Analysis of Random Vibrations.

The Transient Response of Acoustic Resonators; Effects of Infrasonic Noise on Visual Perception; The use of Correlation Techniques in some Acoustical Measurements; Acoustical Characteristics of a Model Head; Domestic Appliance Noise; The Vibrations of Windows under Acoustic and Structural Excitation; An Investigation into the Acoustics of the Steel Drum; Low Frequency Sound Attenuation by a Cavity-backed Panel; The Response of an Acoustic Filter Element to High Intensity Pressure Pulses.