

Consulting Acoustical & Vibration Engineering



Consulting Acoustical & Vibration Engineering Introduction

- Graduate courses in mechanical engineering, applied physics, music or computer science. Practice in industry, as a manufacturer, in research or consulting
- Post graduate studies
 - **Australia**
Monash, University of NSW or Adelaide Universities
 - **Overseas**
Southampton University, UK,
Virginia Polytechnic, West Virginia,
UTC Compiegne, France, Gottingen,
Germany, Purdue University, Illinois



Consulting Acoustical & Vibration Engineering Speech and Hearing

- Many aspects of speech communication and hearing are not completely understood. Speech scientists conduct basic research in speech production and perception and machines that recognise verbal messages of individual speakers.
- Scientists are currently studying the peripheral ear, the neural pathway to the brain, and higher order processing of acoustic information. Physicists and audiologists frequently study in these fields.



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Underwater Acoustics

- Sound is an extremely valuable tool, not only for military applications (detection and evasion) but also for commercial use.
- Acoustic signals are used to detect the location of fish stocks, to map the sea floor to determine the safest routes for ocean vessels and to explore geological formations or search for oil within the earth's crust or beneath the ocean floor.



Consulting Acoustical & Vibration Engineering Bioacoustics and Medical Acoustics

- The mechanisms by which animals produce acoustic signals and the ways in which other animals detect and process these signals are common fields of study.
- This is an interdisciplinary field for students with an interest in biology and medical sciences, as well as acoustics and physics.



Consulting Acoustical & Vibration Engineering Structural Acoustics and Vibration

- Structural acoustics and vibration covers the study of vibration, its control or elimination on large machinery or electronic components, buildings or structures and isolation of equipment connected to vibrating sources.



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Physical Acoustics

- Physical acoustics deals with the way in which sound propagates in liquids, solids and gases and how they interact with these materials. Of special interest are sound waves of very high frequency and very high intensity. Many new frontiers exist in this exciting field of research.



Consulting Acoustical & Vibration Engineering Electro Acoustics

- Electroacoustics deals with microphones, loudspeakers, as well as the recording and reproduction of sound. People who combine a solid background in acoustics or business experience are very much in demand in the audio entertainment industry.
- In addition, the study of digital electronics and computers systems is of growing importance in the digital sound processing and audio recording fields.



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Musical Acoustics

- Musical acoustics deals with the way in which we hear and perceive music, the instruments that produce it and even the structure of melody and harmony. It combines elements of both the arts and sciences.
- Persons frequently work in the entertainment industry, in education, in recording and film studios, or in the musical instrument industry.



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Noise control

- Technical solutions to our environmental and industrial noise problems requires the work of scientists and engineers with considerable knowledge of engineering and acoustics.
- Environmental problems may also require experience in political or social action, knowledge of political science, sociology and the law.



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Architectural Acoustics

- Architectural acoustics deals with sound in and around buildings including concert halls, recording studios, auditoria and churches, as well as homes, offices, factories or classrooms.
- There is growing public awareness of the importance of good acoustical design and this field is popular amongst architects, engineers and other building professionals.



Consulting Acoustical & Vibration Engineering Job Dimensions

- Variety, little repetition
- Technology based
- Problem solving
- Not just desk bound
- Good remuneration
- Flexible work options
- Project based not production based



Consulting Acoustical & Vibration Engineering Challenges

- Computer based technology
- Attention to detail; careful reviewing skills
- Ability in dealing with clients
- Quick response scenario
- Defence, building, medical, manufacturing, rail, mining, legal, music industries
- Ever changing & developing



Consulting Acoustical & Vibration Engineering Opportunities

- Transportable career
- Overseas research or study
- Travel overseas
- Challenging career
- Always interesting
- Small to large businesses



Consulting Acoustical & Vibration Engineering

Who will Succeed?

- Self motivated
- Well organised
- Handle demanding clients and timelines
- Prepared to accept responsibility
- Architects, engineers, environmental scientists, musicians & physicists



Consulting Acoustical & Vibration Engineering

What Employers Want

- Good interpersonal skills
- Adaptability
- Highest technical & professional skills
- People who will grow
- Self motivated



Consulting Acoustical & Vibration Engineering Summary

- Interesting & challenging career
- Not for everyone
- Demanding in time & effort at times
- Gives personal job satisfaction from major projects
- Can be paid to see the world



Thank You

