

## 10. COURSES LEADING TO DEGREES IN ENGINEERING

### (1) THE AIM OF UNIVERSITY SCHOOLS OF ENGINEERING

151. In Section 9 consideration was given to alternative ways of obtaining professional status as an engineer. The Committee holds strongly the view that, for future leaders of the profession, the basic training should consist of a full University degree course. Indeed, the time may not be far distant when practically all civil and electrical engineers will be educated in this way.

152. The holder of a B.E. degree is not necessarily a fully-trained engineer, and the criticism made by some witnesses on this account is scarcely reasonable. What the University schools can and should do is to provide a sound foundation of scientific knowledge, and develop in their students good habits of thought, study, and investigation. If, in addition, the schools assist the development of the personal qualities that distinguish a "University man," in the best sense of that term, they will have done their work. The student so equipped will have little difficulty in acquiring the practical experience in the art of engineering that will complete his professional training. Ultimately he should be able to meet emergencies by reverting to first principles, and cope with new problems by concentrating on essentials without neglect of detail. It is the belief that an engineer properly trained in a good University course can do these things that has led the Committee to attach great importance to degree courses.

153. This section then, deals with the courses in chemical, civil, electrical, and mechanical engineering leading to the University degree in Engineering. A brief description of the work allotted to the two schools is followed by a more detailed consideration of the entrance qualifications. Next comes a discussion of the best means of providing, during the professional years, for the efficient teaching of the number of students found to be necessary. Suggestions are then made for improvement of the existing courses and for keeping the work of the two schools in close touch with those engaged in the practice of the profession.\*

### (2) THE PRESENT POSITION

154. The degree courses in civil, electrical, and mechanical engineering consist of an intermediate year followed by three professional years leading to the ordinary degree of Bachelor of Engineering. To obtain the degree of B.E. (Honours) a fourth professional year is required; this course is available only to selected students. The intermediate course, comprising pure and applied mathematics, physics, and chemistry, as for B.A. or B.Sc., is common to all three branches, and may be taken at any one of the four constituent colleges. The professional years of the course are provided only in Auckland and Canterbury, but, as the five required subjects of the first professional year are common to all three branches, a student need not elect to follow a particular branch until the end of that year.

155. The course leading to the degree of B.E. (Chemical) consists of four professional years. As is the case with the other three branches, election to follow this course need not be made until the end of the first professional year. The fourth professional year is taken only at the Canterbury School.

156. The Canterbury school, then, provides complete courses in civil, electrical, mechanical, and chemical engineering. The Auckland school offers complete courses in mechanical engineering, and from 1949 in civil engineering, but does not at present provide for the final year in any of the other branches. The distribution of students by years and schools is shown in Table F.

157. From Table F it will be seen that, in addition to the degree students, the two schools together included in their 1948 classes 82 students who were not seeking degree qualifications.

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\* For reasons set out at the end of this section only brief mention has been made of the University of Otago School of Mines.