

Engineering Education

The following editorial is a statement prepared by a committee of the School of Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, in March of 1961. It is reproduced here with the permission of Professor T. K. Sherwood.

"Engineering is a profession. Its members do creative work which results in things that people need or want. These things may be highways, submarines, interplanetary vehicles, antibiotics, or television. Science, on the other hand, is a search for knowledge. The science of mathematics extends abstract knowledge. The science of physics extends organized knowledge of the physical world. In each of these consideration can be limited to a carefully isolated aspect of reality.

"The engineer must deal with reality in all its aspects. He must not only be competent to use the most classical and the most modern parts of science, but he must be able to devise and make a product which will be used by people. Moreover, he must assume professional responsibility insofar as the safety and well-being of people are affected by the thing he makes.

"A sound program which majors in engineering or one of its branches—civil, mechanical, chemical, etc.—will be the most stimulating and rewarding undergraduate experience for the great majority of candidates for engineering. They will find in it not only the science of the modern physicist, but also the other kinds of science—for example, fluid mechanics, or electric-circuit theory—which the engineer uses

and develops as incisive means for resolving the complex problems of the real world. Such a program grows out of an educational environment created by men in contact with the world of people and industry which serves the people. It will include attention to the furtherance of many parts of science which are of special interest to the engineer.

"Engineering education is being urgently called upon to produce graduates well versed in rapidly advancing science who will lead industry and the public into the new world which engineering will make possible. Engineers will often discover in science through their own research and invention or through the findings of scientists those things which can be put to human use. In any engineering achievement, however, the thing produced is the objective, and all means available to the intellect of man will be employed to reach that objective. Science and its application remain a part, but only a part, of any great engineering advance. Supersonic aircraft could have been devised and made only by engineers with great resources in science. In order to make the first supersonic airplane, however, science had to be combined with the engineer's drive toward creation of a predetermined object. Young people who can respond to this kind of challenge are needed now, but they will be needed as never before in the years ahead."

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