

THE PRO AND CON OF GRADUATE ACCREDITATION

by

Carl C. Monrad
Carnegie Institute of Technology

For many years professional groups have struggled with the question of accreditation of graduate work. Engineering societies such as ECPD and AIChE have reviewed the problem almost continuously, approaching it gingerly and with mixed feelings. At present accreditation is limited to those curricula which lead to the first professional degree in an engineering field for which there is a recognized society. The curricula are therefore evaluated and accredited as professional programs without raising the whole question of distinguishing a graduate program from an undergraduate one. Accreditation in these few cases has been made necessary primarily due to only one of the many purposes of accreditation, namely the need for registration and licensing of the graduates in the various states.

Before considering the desirability of accreditation of other graduate programs, where these are not the first professional degrees in the field, it would be well to mention the other purposes of accreditation. One of these is to provide information to prospective students or advisors indicating whether or not the program meets some minimum standard. Of greater importance, perhaps, is the use of accreditation or periodic evaluation to encourage improvement in existing programs above minimum standards. In the long run this purpose is probably most important of all, although it need not be accomplished by formal accreditation procedures.

The goals of student counselling and improved education have been attacked in many ways. Internally most universities evaluate suggested new programs, control graduate faculty appointments, and often bring in distinguished scholars from outside the university to give advice on new or even well developed programs. Others have used visiting committees who regularly review the progress of individual departments. One of our sister professions, (chemistry), does not really accredit at any level, but approves undergraduate curricula as a basis of early admission to membership in the American Chemical Society. At the graduate level student counselling is assisted by publishing a directory showing the graduate faculty and important recent publications. Improvement in standards is obtained by periodic published comments on suggested good practice, and by informal discussions with department heads.

Within engineering, at present, an interim policy of ECPD is to proceed with accreditation of graduate programs leading to the first professional degree in the field providing qualified inspectors are available. In such cases accreditation does not indicate approval at the graduate level but merely that the program meets requirements basic to a bachelor's degree. In one specific case, sanitary engineering, accreditation of the M.S. program is proceeding with the advice of the American Sanitary Engineering Intersociety Board. Further accreditation of graduate programs will probably await a study of graduate education by ASEE under the chairmanship of Dean Pettit of Stanford.

In the general field of graduate education, most of the graduate school associations have strongly resisted accreditation above the first professional degree. University administrations and associations of accrediting agencies would in general be loath to encourage this. If it were to be undertaken, areas of jurisdiction would have to be carefully worked out. The whole problem of professional school standards versus graduate school standards would need to be resolved before a professional group undertook the job of accreditation of Ph.D. programs, for instance. This problem might be somewhat less acute at the M.S. or Engineer degree level.

Pro

Many good reasons have been present for many years and many more are developing rapidly to make accreditation at the graduate level desirable, especially in engineering. Pressures from faculty and government are now such as to encourage universities to undertake graduate work in areas where competence is marginal. These pressures are directed particularly to the Ph.D., so schools which would have normally developed slowly through a modest M.S. program, are undertaking Ph.D. work before the staffs are sufficiently developed. Thus as many such centers develop, the usual pattern of selection of graduate school, based on recommendations of professors to universities known by them to be satisfactory for a given student is replaced, at least in part, by independent choice by the student. His protection from an unsatisfactory program is being weakened, and an accreditation procedure would assist him in making a suitable choice.

The strongest case for graduate accreditation in engineering stems from a growing trend toward granting the first professional degree in a special field at the graduate level, or at least with a graduate degree. The first degree may be in engineering science, engineering (general), and may or may not be ac-

creditable by such agencies as ECPD. Here the necessity for accreditation is caused by the problem of registration, and it would appear, also, that the individual technical societies, such as AIChE, would have an interest in accreditation at the first level in such a specialty as chemical engineering. A newer pattern is evolving in which the first creditable degree in an engineering specialty will be at the Ph.D. or Doctor of Engineering level.

Any profession is interested in ensuring the highest possible standards of education consistent with available raw material and the numbers needed to serve the national needs. Whether accreditation could be really effective at the graduate level is debatable. Certainly, to the extent the curriculum is well organized and consists of a balanced sequence of courses, accreditation is as feasible as it is for undergraduate work. Surely a sharp differentiation should be possible between curricula geared to the average student and those suitable only for the gifted. Here we run into the real problem of differentiating clearly between a professional postgraduate degree, and a truly graduate degree. A decision is necessary regarding the overall control of these two types of programs within the university, and this cannot be done entirely on the basis of the student quality involved. There is a good case for control by the engineering school of programs leading to the master or doctor degree which differ from the ones which are research oriented. A carefully developed program by ECPD might result in a uniform approach to this general problem.

It is more difficult to justify accreditation of the normal research oriented Ph.D. degree unless this is needed for registration purposes. Here the difficulties lie in the personal guidance of a research neophyte by a thesis supervisor. Course work in such a program is of great variety even in a single department. The real problem is that accreditation would need to be based on individual programs and supervisors. A department might have one or two excellent men in research, and as long as the student studied under these, all would be well. A program taken under another man might be wholly inadequate. It would seem that accreditation under these circumstances would require a department to meet very stringent standards in selecting thesis supervisors. This opens up the whole problem of encouraging young staff and presently "mossback" staff to develop sound research capabilities.

The current rapid growth of part-time and of off campus center graduate programs could be cited as further reasons for accreditation at the graduate level. Some of these programs may not be really under faculty control, but serve primarily as a recruiting gimmick for eager employers. Courses may be given by substandard teachers, and research may be largely supervised by company personnel with inadequate standards. An accreditation procedure here might result in the elimination of mediocre programs, and an improvement in the control of standards in the better ones.

One of the strong reasons for graduate accreditation is the present rather frenzied growth of new graduate programs at a time when engineering enrollments at the undergraduate level are falling. Availability of funds for research, demands of staff for "a pair of hands", and university administrative pressures for "research status" are powerful weapons which may cause a drop in admission standards at the graduate level, a consequent retention of mediocrities in the program, and progressive downgrading of the quality of finished product. Accreditation procedures would not necessarily stop this, but students would be more adequately warned about what they were likely to encounter.

Another strong reason for accreditation, but one that perhaps could be equally well obtained by evaluation or consultation, is the collection of information on real operations in the various graduate centers. This could be made generally available and would assist weak programs to develop into stronger ones. Good ideas would be more rapidly assimilated throughout the country and perhaps the meaning of each degree would be more uniform, hopefully, at a generally higher level.

Con

Many individuals and organizations are firmly against accreditation at the graduate level except where necessitated by registration problems. They argue that accreditation is not workable in such varying programs tailored for the individual student. They argue that accreditation tends to standardize and prevent experiment, and this is particularly undesirable at the graduate level. University presidents already are in rebellion against continuous visitation by various groups and complain that they are losing control of the destiny of their institutions. Almost everyone recognizes the difficulties in accreditation of graduate programs in general, and the immense amount of time that would be consumed by the institutions and the visitors. If it isn't necessary, why do it?

Engineering has a somewhat unique problem in graduate work. Scientists are expected to do research and their graduate programs are tailored to this end. Although formal course work has gradually increased, in essence the "neophyte" studies under one "master" and becomes reasonably proficient in a "specialty".

In the past, engineering has largely followed the procedure developed by the scientists, particularly the chemists, without too great questioning. We are now entering an era, however, where post baccalaureate work in engineering encompasses more than the production of research men, and we have "design" oriented programs as well as those which cross over various disciplines in science and engineering.

We no longer are exactly sure what we mean by an engineer and how he differs from the scientist. Is the applied scientist an engineer? Should substantial numbers of engineers be trained to a very high level in design, systems, or decision making in broad sociological problems caused by technology? If so, how should these programs and degrees be differentiated, and what part of the university administration should control? Should our engineering research programs be supervised by the graduate school using one set of standards, and the "engineering" programs remain under the complete control of the engineering school with different standards? We need only to look to the field of education to see the parallel. Would accreditation of all of these programs by an outside agency such as ECPD assist in solving these problems and prevent the development of "high grade" and "low grade" programs within each department?

The strongest argument against graduate accreditation is that in most cases it is not necessary for registration purposes. Most students are relatively mature and should be able to find a graduate program suitable for their needs. No one has yet proved that accreditation results in a general improvement in education that cannot equally well be accomplished by information exchange or private evaluation procedures. The difficulty of accrediting a Ph.D. program tailored to the personal needs of an individual student working largely under the direction of one staff member is clear. Removal of the last area of free experimentation with programs might actually result in poorer rather than better standards. With the necessary close evaluation of individual staff members, it is conceivable that problems of libel would arise, which are now rather unlikely where curricula are reviewed at the undergraduate level.

A strong deterrent to graduate accreditation is the obvious reluctance of most other groups to engage in such work. Our sister science of chemistry has approached this very quietly, but has had success in several areas. For example, the biennial graduate directory is helpful to a student since he can see what professors are present, what their publications are in recent years, etc. Individual consultations with department heads, and periodic publications on "good" graduate practice has no doubt been of assistance to many departments which are developing at the graduate level. For engineering to undertake graduate accreditation it will be necessary to distinguish clearly between "graduate" and "professional post baccalaureate" programs. It would appear desirable for a while to concentrate on the latter, if indeed further accreditation at the graduate level is needed if this is not required for registration purposes.

On Balance

On balance, each of you will decide in your own mind what further steps should be taken in this area by ECPD and AIChE. I can only offer my present feelings in this matter. First, I believe we must recognize our obligation to accredit all satisfactory curricula for a first degree in engineering, regardless of the particular degree offered even up to the Ph.D. or D.Eng. Secondly, I feel that it is probably desirable to accredit all first degrees in a broad engineering field such as those represented by the technical societies affiliated with ECPD even if a prior accredited degree is in "general" engineering or engineering science. An M.S. degree in chemical engineering following an accredited "engineering" degree is an instance of this.

I would postpone consideration of accreditation of interdisciplinary programs or highly specialized fields. Thus an M.S. in "Systems Engineering" or in "Heat Transfer" might be left alone until some technical group is developed of sufficient strength to provide proper guidance for accreditation, and makes a case for the program on a national scale.

I see no present value in accrediting Ph.D. or D.Eng. programs in general. I do believe, however, that procedures such as those used by the American Chemical Society would be useful in assisting departments to markedly improve their programs. In this area information exchange, private consultations with departments or department heads, publication of suggested "good practice" would be more helpful at this time than a full scale involvement with the problems of accreditation and the doubtful results that would ensue for the effort expended.

I believe that much could be done to clarify general understanding of the admission standards and performance characteristics for the various degrees, in very broad terms. For example, if all students are permitted to enroll in a post baccalaureate program leading to a Master of Science degree, this should somehow be distinguished from a program limited to the highly gifted students. If this is not done, we will fall into the trap of granting "graduate" degrees which are not really this and our remaining truly graduate degrees will be downgraded in general estimation by our colleagues in other disciplines.