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AUTHOR McCollom, K. A.; Lowery, R. L.
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ABSTRACT

An analysis of a practice-oriented master's degree program in engineering is presented. The M. Engr. degree developed by the Division of Engineering of Oklahoma State University differs from the research-oriented M.S. program in that in lieu of completing the traditional thesis, the student prepares for professional practice by completing an internship program. The student writes reports relating to the internship experience and must complete an oral examination on a comprehensive final report. Methodologies of program implementation are presented. (RE)

FINAL REPORT TO

NATIONAL SCIENCE FOUNDATION

Grant GZ-2641

INITIATION OF PROFESSIONAL PRACTICE IN ENGINEERING EDUCATION

Oklahoma State University
College of Engineering
Stillwater, Oklahoma 74074

August 31, 1976

Dr. K. A. McCollom
Principal Investigator
Associate Dean
Division of Engineering,
Technology and Architecture

Dr. R. L. Lowery
Professor
School of Mechanical
and Aerospace Engineering

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Summary

Oklahoma State University has developed an internship or professional practice activity as a part of a new professional program ending with a Master of (designated) Engineering degree. The program has now been offered for four years in all engineering disciplines. Development of the professional practice activity has been supported partly by the National Science Foundation under Grant Number GZ-2641.

This report on the third and final year of the grant documents the implementation and assessment of the professional practice portion of the degree program. From the experiences gained by different approaches to professional practice, a composite recommendation is suggested as a "best way" for other institutions to implement such an activity.

INTRODUCTION

The Division of Engineering at Oklahoma State University has developed a new practice-oriented degree program in its professional engineering curricula. The new degree is a designated master's degree (M.Engr.) program which differs significantly from the existing research master's degree (M.S.) program. Included is an internship which is an off-campus activity for which the students receive appropriate academic credit. The new degree program has been offered for approximately four years in all Schools of Engineering, while the professional practice activity was added with support from the National Science Foundation.

Implementing the professional practice activity has represented a major part of the effort in getting the new program on line. Developing industry support and cooperation, and coordinating the first few classes of students, posed the problems, most of which have been successfully overcome. Several common problems emerged in the various experiences of the individual Schools. The methodologies they employed are the basis of a composite recommendation for other institutions considering such a program.

DESCRIPTION OF THE PROFESSIONAL PROGRAM

Oklahoma State University follows a curricular concept of a Professional School of Engineering, one embodying all of the graduate and undergraduate degree programs of the Division's schools. The degree programs are built on a common pre-engineering base of 60 semester credit hours, as shown in the following chart. Also required for admission to the professional school level is a demonstrated competence in certain math, physics, and chemistry courses. Qualified students transferring to OSU from other universities or from junior colleges may enter the professional program directly (at the junior level) or may need to take additional pre-engineering work to gain admission. All students must also have a cumulative grade-point average of 2.3/4.0 for admission to the undergraduate professional school.

During the junior year the student takes a standard program in a given discipline, but the paths diverge at the fourth year. There begin two possible paths: (1) the student may organize a plan of study encompassing 60 hours (two years) which will yield both the B.S. degree and the designated Master of Engineering, or (2) the research-oriented student may plan for the traditional Master of Science program beginning the fourth year, obtain the B.S. degree in the usual way, and enter the graduate college. Students desiring no graduate study may of course opt out with the standard accredited B.S. degree.

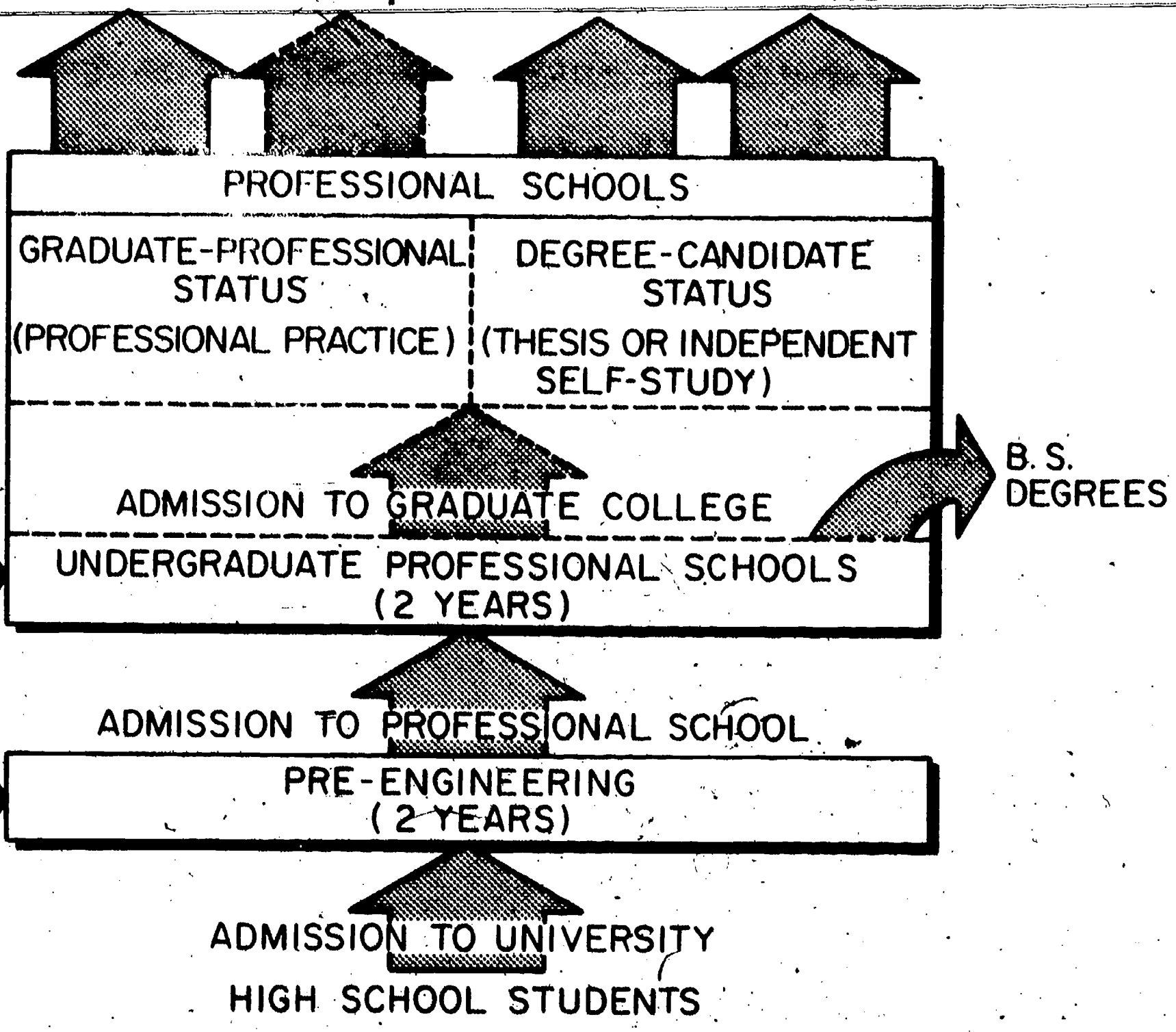
Although it is not explicitly depicted in the curricular chart, the student completing a Master of (designated) Engineering degree may elect to continue toward the Ph.D. degree with no penalty, and, by the same token, students entering the graduate college from other universities may usually enter the Master of (designated) Engineering program with little if any difficulty.

MASTER OF (DESIGNATED) ENGINEERING

TO D. ENGR. (FUTURE)

TO Ph.D

MASTER OF SCIENCE



Eventually the parallel paths for the research oriented programs and the professional practice programs will probably be completed by adding the practice-oriented Doctor of Engineering degree. This will serve the needs of students who tend to be more design or synthesis oriented than research oriented. The major difference between the two doctoral degrees will be in the preparation for and emphasis on research, or practice, and not one of quality. The planned Doctor of Engineering program is expected to have similar grade requirements and to meet the criteria of the Graduate College in all respects.

A significant difference between the Master of (designated) Engineering and the Master of Science degrees is that the M.Engr. student must complete a three to 12-month internship, instead of doing a research report or a thesis. During this internship the student is actually an employee of the sponsoring company and is under the direct supervision of a qualified engineer. He must submit periodic reports and a comprehensive final report, over which he must stand an oral examination upon his return to campus. In most of the Division's Schools the student receives from 6 to 8 semester credit hours for the completed internship, which is comparable to the credit awarded for a Master of Science thesis. The emphasis for the coursework is on preparation for the practice of the profession. The student must take at least 24 hours--the same number required of the student in the M.S. program.

Since the internship experience is such an important part of the M.Engr. program, rules and guidelines were established to assure the student a useful educational experience and measurable professional development during the professional practice. These guidelines, given in the appendix, are summarized in the next section.

IMPLEMENTATION OF PROFESSIONAL PRACTICE

Implementation of a program of professional practice requires that the industrial community participate directly in the educational program. This requires certain concessions from the participating companies since the training of an intern represents more effort and planning than normal recruiting practices. The professional practice experience is more demanding of the student than the typical educational program. Hence, the most important step in implementing the program was to inform the companies as to what was required. This phase was begun by having a series of meetings around the state to which representatives of most of the major firms were invited. The features of the program were discussed in broad terms. Then after these initial meetings with executives, individual faculty members visited each prospective company to give detailed information about the internship program. A number of commitments to employ interns resulted before the program had actually begun to generate large numbers of students.

SOME GUIDELINES DEVELOPED

During the first two years most of the effort regarding internship was spent in working with the supervising engineer in industry (the preceptor) to develop satisfactory internship experiences. Many of the sponsors initially tended to view the internship as an extended training period and considerable problems arose until both the preceptors and faculty had gained experience in setting up the projects. From this initial experimentation came a set of guidelines which have provided a permanent basis for the internship program. The salient features of these guidelines are summarized as follows:

1. The faculty, the industrial sponsors of professional practice, and the interning student all must agree on the nature of the project, the level of responsibility, and on the responsibilities of each party. Each student must have a designated industrial advisor (preceptor) and a faculty advisor who must confer periodically on the student's progress. The student must show his understanding of the project by submitting a written problem statement early in the program.

2. The project submitted by the company must deal with actual "live" engineering problems--never a make-work or hypothetical study. The project must have a schedule, with definite time constraints and time limits.

3. The project must be sufficiently advanced as to challenge the student's engineering skills developed during his senior year.

4. The student must complete certain reporting requirements on the internship in addition to the normal reporting required by the company.

5. Evaluation of the professional practice experience is made by the faculty, with input from the student's supervisors at the company.

6. The student must spend at least his last semester in residence on the campus. This prevents the student from saving the internship until the end of his program, merging it into a permanent job and still meeting the internship requirements. In one or two cases initially this happened and it was difficult to assess the quality of the work; more importantly the student would lose the educational benefit of adjusting his plan of study to fit new interests gained in his period of professional practice.

These guidelines were designed to provide maximum flexibility within each School. The following sections will document specific differences and features in the various schools, as well as the problems encountered.

THE INTERNSHIP EXPERIENCE

The guidelines for implementation of the Professional Program at Oklahoma State University* were developed by a committee to guide the faculty in integrating the internship program into the existing system. Each School, however, was implicitly given a wide range of freedom to develop its own program to best suit its individual needs. The clientele of each School is somewhat different. For instance, the graduates of one School find jobs primarily with the large petrochemical firms, whereas the students of another School go mainly to consulting firms. The diversity between such employers forces different approaches to setting up a successful internship program.

Each of the Schools designated one man to coordinate the internship program. In some cases it was the school head, in other cases a faculty member was given some released time to do the necessary coordinating.

The method of developing the internship positions also varied among Schools. As an example, one School asked all of its potential sponsors to submit job descriptions several months in advance of an internship. The coordinator then matched the position with an appropriate student in advance of the actual starting time (summer, in this case), thus allowing the student time to become familiar with the problem. In other Schools the placement of each student was handled more in the same vein as in an employment agency. The departmental coordinator, working from a list of potential sponsors supplied by the overall College of Engineering coordinator, would then make the initial contact with the firm and set up an informal interview or have the student's credentials submitted to the prospective employer. In many instances problems arose when companies would reject students that they considered not exactly qualified for their long-term hiring program. It

*Copies are available from the authors (see appendix).

was generally easy to place an outstanding student with a high grade-point average but difficult to find suitable positions for students with more modest credentials.

The time period of internship varies from one School to the next. The shortest has been from mid-May to September, and the longest over one year. Most of the Schools favor a minimum of a fall or spring semester, and for financial reasons a student often opts to take the summer as well, since most students work at summer jobs anyway. In a few instances students have elected to stay on the job an extra semester, particularly when the project is something they might wish to see to the finish, or when they have financial problems.

All Schools now have rigorous report requirements which are at least as stringent as those for the Master of Science Report option. The student is requested to submit progress reports, with the format varying from School to School; and he must submit a final report at the end of the internship. The format and style of the final report again depends upon the guidelines of each School and the report may or may not be finished by the time the student returns to campus. In many instances the student will submit company documentation as addenda to his report. In a few cases the student's report has in turn satisfied the company's internal report requirements.

Most of the reports have been completed without undue difficulty about proprietary information or other industry restrictions. However, two or three reports were temporarily held since they contained proprietary information. In those instances, the student's examining committee attended an oral exam of the student at company headquarters and were able to thoroughly review the report there. Such occasional restrictions are not unexpected since the top level work of all companies usually involves a degree of sensitivity.

STUDENT SELECTION AND RECRUITMENT

The growth of the M.Engr. program has been steady and somewhat faster than might have been predicted. Although engineering enrollment was at a low point in the beginning, a number of good students were attracted to the program on the basis of professional practice in lieu of a thesis. Since the period of internship could immediately follow the B.S. certification, some students found this period a time in which to reevaluate priorities by working a few months away from the campus. A few of them chose not to return to school, but with most, it seemed that the period of internship was a pleasant, if not financially profitable, break from the routine of classes.

Some students were attracted to the M.Engr. program for the wrong reasons: an easier route to a Masters Degree, a way of finding a job in a tight market, or an interlude between school and a final job. Some of these attitudes were developed unwittingly by some preliminary standards and guidelines which later proved to need modification.

Student acceptance and attitudes toward the quality of the program in almost all Schools is currently very good. Of at least half of the Schools it can be said that the most capable students are entering the M.Engr. program.

As each School developed its own specific guidelines, a clear pattern began to emerge. In some of the Schools the competition for the graduate student was keen. Because of sponsored-research projects on campus, students could find acceptable jobs on such research projects and most elected to take the conventional M.S. route, rather than the practice-oriented degree program. Other Schools, however, developed the philosophy that although they would temporarily lose the services of the graduate student, he would still be available for the approximate year's residency and could be even a more

valuable student after an internship with industry. In at least two of the Schools only the most outstanding students are permitted into the program. These, upon their return to campus, are then given employment on research projects of their interest, so they make a double contribution to the program.

Students now apparently regard the program as different, and not inferior, and this, in fact, is what the various faculties have been trying to promote during this start-up period. All Schools have become more restrictive, since after the first-year experiences it became obvious that only a superior student could actually finish an internship, complete the report, and accomplish project completion in the relatively short time allotted. It was obvious that the necessary self-pacing in the student's program was an additional pressure not faced by the Master of Science student, who often is permitted to progress at his own lackadaisical pace. In fact the examination and enforcement of the Master of (designated) Engineering criteria has in some instances caused a healthy reanalysis of the criteria for the Master of Science degree. In some Schools new criteria have been established for the M.S., requiring that the rate of satisfactory progress be comparable to that required of the Master of (designated) Engineering candidate.

At least three of the Schools currently are putting a sizable proportion of their best students, and in one case all, into the program. The other Schools have taken the basic stance that this program option will be available to the quality students who want it but no effort will be made to expand this program at the expense of the M.S. program.

FACULTY PARTICIPATION

In the initial phases it seemed appropriate to assign coordinating duties to one person in each School. These coordinators worked together with an overall coordinator to find suitable internship positions. This

activity was, in fact, the one in which most of the NSF Grant funds were expended.

In about half of the Schools the coordinator served as the advisor to the interns, whereas in the others the coordinator passed the duties on to other faculty. Plans have been made by some Schools to ensure that the advisory duties are spread among the faculty in the future.

There was some concern initially that the individual professor might not be recognized for his advisement work with off-campus interns. However, in an informal survey earlier this year, most of the faculty now feel that the supervision of one intern (exclusive of actually finding the position) probably required less time than the direction of an on-campus thesis or report student.

All coordinators agree that most of the effort lies in sorting through the various industry prospects to tie a student to a suitable position. All of these people also feel that stronger demands should be made of the companies for support on a programmed basis so that less "employment agency" activity is needed.

It is important to involve many faculty members in the operation and to do this the internship topics must offer professional growth, or at least be in the general specialty area of the men involved.

INDUSTRIAL ACCEPTANCE

The reception which industry gives the internship program is important for two reasons. First, the cooperation of industry is needed to ensure that the professional practice experience meets the guidelines discussed earlier, and, second, the market value of the Master of (designated) Engineering graduate is affected by overall industrial acceptance.

Some difficulty was encountered initially in the personnel classification policies of some companies, those unwilling or unable to create a new job classification. Hence the intern could be accommodated at the company only as a temporary or summer employee. These barriers have been broken down or circumvented, and some companies have actually created a permanent rotating position to accommodate the interns. In the few cases where the company is willing only to give summer employment and unable to make a distinction between the intern and the routine temporary employee, it has been necessary to terminate the program.

After the first two semesters of operation the need was felt for better communication with the industrial sponsors. Toward this end a "Preceptor Day" was organized which has become an annual event. The preceptors are recognized at a luncheon for their contributions, and, more importantly, discussion sessions are held for students, faculty, and preceptors to examine areas of common concern. These sessions have become increasingly fruitful in the last three years and have undoubtedly influenced the companies as well as the thinking of the faculty. Some of the most commonly made comments at these meetings can be summarized as follows:

1. The preceptors were pleased with the technical competence displayed by the students and were surprised to learn that the intern was capable of functioning at a higher professional level than thought possible.

2. Many of the preceptors believed that even though the internship was brief, the company was usually able to realize some profit from the intern.

3. The preceptors, as they became familiar with the students, found they could assign more responsibility to interns.

4. Many of the companies believed that a longer period of internship is desirable since inevitably some time is lost while the student becomes acclimated to his new surroundings.

5. Most of the preceptors believe that more interaction with the students' supervising professors would be helpful. Although a company may have sponsored several interns, each new preceptor will need orientation from the faculty.

6. The most commonly heard complaint was that the interns are deficient in written communication skills and engineering graphic skills.

SOME OPERATIONAL PROBLEMS

Following is a summary of some problems encountered by faculty and students during selections or implementations of internship. The list is not exhaustive but is intended to give some idea of the minor difficulties that can arise.

1. Two different students were involved in strikes at their respective companies. Since company policy often requires engineers to man the assembly line equipment, the students had to put aside their internship projects and in fact, one of the students eventually had to transfer to another company. Strikes are part of real life, but unfortunately do not add to the technical competence of the student.

2. One student caused considerable embarrassment by playing one company against another to get a better internship salary. This situation arose when a company delayed so long on making a decision about accepting an intern that other prospective employers had to be contacted.

3. It has been difficult to find good internship positions for international students lacking permanent visas.

4. A few companies are overly "choosy" in accepting interns. Some would like to sift through six top candidates and pick out the best man.

5. Some students have "failed" the interview with the prospective preceptor. Students need to be instructed how to interview effectively--and need a proper sense of direction. A student who may have excellent credentials but is not well motivated, or who has not set his priorities, can be a problem.

RECOMMENDATIONS FOR IMPLEMENTING AN INTERNSHIP PROGRAM AT OTHER UNIVERSITIES

The following recommendations are directed toward schools contemplating professional programs with internship. The situation may vary with regard to industrial support, state support, nearness to metropolitan centers, or working relationships with government research labs. Universities in any of the industrialized midwestern states would probably have little difficulty in finding good assignments for interns. Institutions in more sparsely populated states without industrial ties might have to spend more effort to organize internships, but in either case these procedures if followed will help to smooth the start-up process. The main recommendations are as follows:

1. Industry Cooperation

Industry must be sold the idea that they must participate in developing the professional program. This commitment must be more than the casual donation of a few scholarships or grants-in-aid. Industry must actively participate in the program and must be willing to make definite long-term commitments to create an atmosphere of professional development, and to provide satisfactory preceptors to guide the students. This, of course, is costly, and it involves far more effort than required for the standard training program. In the ideal arrangement, a company will guarantee a position for an intern at a specified time. This makes it possible to match the student with a position well before the starting date.

The abovementioned arrangement must be sold to top management, since most first-line engineering managers cannot make that type of commitment. But it is important that the operational details be "sold" to the manager, for without his support and enthusiasm the program would suffer.

2. On-Campus Coordination

It is helpful to have a central coordinator on campus to provide help in developing the proper ties with appropriate industries.

3. Student Selection

The intern will represent the School and should be selected with care. Only people with demonstrated skills in writing, in being "self-starting," and in working in groups should be considered. A weak student can cause more damage to the reputation of the program than three good ones can repair. A student good in classes or in research will not necessarily excel in the industrial arena. The program will be more attractive and successful in the long run if the admission criteria are stringent at the beginning. If the idea emerges that the program is a cheap way to get a master's degree, the better students will go elsewhere.

4. Intern Placement

The student should be matched with a potential position with as little interviewing or bargaining as possible. If preferences of location, salary, wife's employment, and other factors are applied it makes the selection process a ponderous one. The student should be concerned only with the quality of the experience and not so much about salary and location. It is probably of more benefit to the student to intern in a region foreign to him.

5. Preparation for Internship

A seminar course or similar mechanism should be employed to prepare the student for the internship. He should be familiarized with the report requirements, the company organization, and the products or services.

6. Scheduling

Scheduling of the internship period will always pose a problem for the reason that normal two-semester course sequences are often disrupted. This places

a burden on the faculty to design a program of courses specifically for the professional program. Coordinating the program will be simpler if all interns can be handled in groups or "classes" so that course scheduling is predictable.

7. Orientation and Qualifications of Preceptors

The intern's supervisor at the company must know exactly what is expected of him and he should have some specific written guidelines to follow. It follows that the preceptor must be a qualified engineer by experience and training.

8. On-Campus Internships

The temptation to create an internship on campus should be avoided since the main benefit from internship is to learn how to function in an industrial setting.

9. Completion of Reports and Exams

Each student should have an advisory committee to help him complete his program. The committee should see that the student meets certain deadlines for submitting reports and scheduling exams. It is important that the final report be completed as soon after the internship period as possible.

10. Continuing Industry Recruitment

Plans should be made to invest resources in a continuous system of seeking support from additional companies. It is important that new, exciting internship opportunities be sought; these can in turn be used to attract excellent students. Also, since company personnel often are transferred, the faculty advisor will find he must start over with a new preceptor every year or so.

CONCLUSIONS

1. The concept of professional practice is sound and can contribute to the professional development of the student.

2. The "Guidelines" as discussed are a reasonable method of controlling the program without creating specific, restrictive rules that might cause problems in the various schools within a university. Each school must develop its own operational structure.

3. Additional resources will be needed as the program expands: travel money, faculty released time, and conference expenses. Industrial participation will need to be both broadened and expanded as the number of students grows.

4. The quality of the students' supervision during internship has usually been good, as rated by the faculty.

5. The placement of interns must be reduced to a more automatic or systematic procedure to save faculty time. This can be done by seeking companies willing to commit themselves to a guaranteed number of interns per year or to create special "rotating" positions.

6. Other than the initial placement problem, most participating faculty members believe that supervising an intern requires no more time than the direction of a research thesis or report, and less time in some cases.

7. The quality of the program must be emphasized, as well as the ways in which professional practice offers an option completely different from the classic M.S. program.

8. The first four years of operation have proved that the professional degree is marketable and is attractive to a reasonable number of quality students.

9. The M.Engr. degree will continue as a path parallel to the traditional M.S. program, but not in particular competition with it, because of the different emphasis of the M.Engr. degree.

10. The temptation must be resisted to use the M.Engr. program to help the mediocre students develop or mature. The internship program can succeed only if strong students are available.

D-3-76

APPENDIX

GUIDELINES AND PROCEDURES
FOR
FACULTY ADVISORS

Revised

August, 1975

Professional Schools of Engineering
OKLAHOMA STATE UNIVERSITY

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FOREWORD

This handbook has been designed for faculty advisors to have available to them the guidelines and procedures relating to the educational programs in the Professional Schools of Engineering. The handbook may be useful to students seeking information about their programs, but contains more detailed information than students normally require. On the other hand, the answers to some questions faculty advisors will encounter may not be found in this handbook because

(1) many procedures have been left to each school to establish,

(2) limited experience with the program prevents our anticipation of all the problems which will surely arise,

(3) some procedural details are important only to the staff of the Dean's Office, and

(4) the information would duplicate that contained in other documents available to advisors (e.g., the Undergraduate Catalog).

Suggestions for the revision of this handbook and questions pertaining to its content should be directed to the Associate Director of Instruction.

INTRODUCTION

This handbook has been prepared to help in the advisement of students in the Professional Schools of the College of Engineering. These Professional Schools conduct what have been called Professional Programs leading to the Master of (designated) Engineering degrees as well as programs leading to bachelor's degrees, to the Master of Science degree, and to the Doctor of Philosophy degree. The Graduate faculty of the Professional Schools conduct the graduate portions of these programs under the auspices of the Graduate College.

The Professional Programs are academic programs distinguished by periods of internship in engineering practice carried out in cooperation with industry and/or government. Students whose career goals involve the practice of engineering design and development should be encouraged to pursue the Professional Programs. The Master of Science and Ph.D. programs are generally more appropriate for students whose career goals are research-oriented.

Minor differences in the procedures a student must follow, depending on which of the programs he is pursuing, are explicitly noted in these guidelines. These differences are primarily due to the necessity to provide more flexibility in scheduling for those students whose professional practice will take them off campus for a period of three to seven months.

SUMMARIZED PROCEDURES FOR ADVISORS

Eleven procedural steps, other than routine enrollment and participation in class activities, have been identified. The differences between procedures applicable to the Professional Programs and to a combined BS-MS program occur in chronological order and in detail, but not in the necessity that action on the part of the student, or his advisor, or both, be taken.

A table (Figure 1) titled "Summary of Procedures for Master's Degrees in Engineering" is presented below. This summary is patterned after the "Summary of Procedures for Master's Degrees" published by the Graduate College, modified to add explicitly the procedures applicable to graduate-professional students and show how they compare with procedures applicable to Master of Science degree candidates.

SUMMARY OF PROCEDURES FOR MASTERS DEGREES IN ENGINEERING

ED - Engineering Dean
GD - Graduate Dean
Adv. - Advisor
PSH - Professional School Head
EDO - Dean of Engineering Office
GCO - Graduate College Office
SHO - School Head's Office

Procedure	Initiate Through	Approved By	Time
I. Apply for admission to a Professional School of Engineering. Non-OSU students initiate through Registrar's Office.	EDO	PSH ED	During term when enrolled in 60th semester credit hour or equivalent, or when substantially completing pre-engineering work.
II. Prepare and submit a professional school plan of study.	Adv. (SHO)	ED GD	Prior to enrollment in any courses for graduate credit and no later than pre-enrollment for the last undergraduate term.
III. Apply for approval to receive credit for courses taken as senior-level student.	Adv. (SHO)	Instructor GD	Prior to fifth week of term in which course is taken. (First two weeks of summer term.)
IV. Plan professional practice, thesis, or independent study with appropriate faculty in own professional school.	Adv. (SHO)	PSH	(ME) Prior to last term as an undergraduate (MS) No later than preparation of preliminary plan of study.
V. Request BS certification and/or graduation check for BS degree.	Adv. (SHO)	PSH (Registrar)	Prior to enrollment in term during which minimum requirements for the BS degree will be met.
VI. Apply for admission to the Graduate College in (ME) Graduate-Professional or (MS) degree-candidate status.	GCO	PSH GD	During term in which minimum requirements for a BS degree will have been met.
VII. Submit documentation as required (ME) by own professional school for professional practice or (MS) by Graduate College for thesis, and give oral presentation of results.	Committee (SHO)	PSH for ME GD for MS	(ME) After internship completed prior to last term of professional program. (MS) Not less than 6 weeks before last day of classes for draft; 4 weeks for final oral.
VIII. Submit application for Bachelor and Master's degree(s) as appropriate.			At time of enrollment for term in which all requirements will have been met.
IX. Submit final graduate plan of study covering graduate study.	GCO Adv.	PSH GD	
X. Request check to assure all degree requirements have been met and certified as appropriate.	Adv.		At least 3 weeks prior to Commencement.
XI. Arrange for cap and gown and attend commencement.			

Figure 1

Copies of this summary table should be readily available to students so that they may be kept alert to the actions and procedures that are expected of them.

The following instructions are keyed to the Roman numerals along the left margin of the "Summary of Procedures." In each case, sufficient detail is added to provide advisors with the information needed to properly assist the affected students.

I. All engineering students wishing to qualify for a degree(s) from the College of Engineering (except architectural engineering) are expected to make application for admission to a professional school. Detailed procedures and qualifications are given on page 9. (Eligibility for Admission to a Professional School).

After the appropriate action by a Professional School and the Dean's Office, the school head's office will receive a student file for each student admitted. The file will contain a Student Progress Check List indicating date of admission (see page 6), and a Professional School Plan of Study showing pre-engineering deficiencies, if any.

II. The professional school plan of study, patterned after Appendix A, is prepared early enough to alert a student seeking an ME degree to the need to schedule around his professional practice should his assignment take him off campus. It also provides an early indication of when that internship will occur.

The front side of the plan of study shows the complete undergraduate portion of the total Professional Program, including enough information to provide the basis for a graduation check. Graduate level courses are listed on the reverse side of the plan. When such hours are to be scheduled prior to admission to the Graduate College, it should be apparent from entry in the "Term" column. A signed copy of the plan is transmitted to the office of the Dean of Engineering where an additional copy is made before the original is sent to the Graduate College to serve as the student's preliminary graduate plan of study. Students who will pursue an MS degree should follow the procedures above with respect to undergraduate enrollment, but the procedures in the graduate catalog should be followed with respect to courses taken for graduate credit.

III. Each student who wishes to schedule course work listed for graduate credit prior to qualifying for his BS degree should be supplied with a form (see Appendix B) to obtain his instructor's acknowledgment that the course is being taken for graduate credit. The form should be completed during the first five weeks of the term and returned to the school head's office where the approval is recorded on the Student Progress Check List before being sent to the Graduate College.

Students should understand that graduate credit for course work taken as an undergraduate is not actually conferred until completion of the entire Master's degree program. Such work cannot be transferred as graduate work.

IV. Planning for professional practice, thesis, or independent self-study involves naming of an advisory committee as well as completing arrangements between student and sponsor. The chairman of the advisory committee assumes responsibility to see that the guidelines relating to professional practice (page 13), or to thesis (see graduate catalog) are followed.

V. Prior to pre-enrollment for the term during which minimum requirements for BS certification will have been met (see page 11) a graduation check is performed in the school head's office, based on the front side of the Professional School Plan of Study. In the case of students who will seek graduate-professional status, this check should determine whether the student could receive a BS degree at the end of the term if all completed work, including that designated as graduate on the plan of study, were counted. The advisor should also note the work on the plan of study needed to complete the requirements for the BS degree for which the course work intended for graduate credit could be substituted. This check is also performed for students stopping with a BS or expecting to continue for an MS. The check sheet is sent to the Registrar. Any substitutions of undergraduate courses made after this check must be separately communicated to the Registrar on Engineering Form 23. The student should be advised that if he applies for the BS degree on the basis of BS certification, none of the work actually used for the BS degree can be counted to meet the requirements for the Master's degree. Thus, he should not apply for the BS degree until any courses taken for graduate credit and used for BS certification have been replaced with course work not intended for graduate credit.

VI. During the last semester in undergraduate status, the student should apply for admission to the Graduate College. He should apply for "graduate-professional status" if he seeks an ME degree, or "degree-candidate status" if he is an MS or Ph.D candidate. This application is routed by the Graduate College to the office of the school head who sends his recommendations back to the Graduate College. When approved, the student should be advised that all subsequent enrollments should be completed in the Graduate College office.

VII. The advisory committee monitoring a student's professional practice should notify the school head by letter when all requirements for professional practice have been met. Notice of the results of the final thesis examination, or oral presentation of professional practice results, must be submitted to the Graduate College as described in the graduate catalog.

VIII. Degree application forms are filled out at the time of enrollment for students expecting to graduate. See Item V above concerning the premature application for the BS degree.

IX. During enrollment for the semester in which all requirements for the master's degree will have been met, after the course work to be submitted for the master's degree is definite, the student should prepare an accurate final plan of study in three copies on forms supplied by the Graduate College. The student's advisor assists in preparation of the final plan to insure that the plan conforms to Graduate College requirements.

X. Advisors should expect students to request confirmation that all requirements have been met and properly recorded during their final term. If the Student Progress Check List is up to date, this confirmation should be readily available.

STUDENT PROGRESS CHECK LISTS

Because all students in the Professional Schools of Engineering will be encouraged to continue for master's degrees, and since scheduling problems will require that many, if not most, students will need to schedule work on meeting requirements for the master's degree before completing all requirements for a bachelor's degree, some of the procedures primarily relating to graduate work must be initiated before a BS degree

OKLAHOMA STATE UNIVERSITY — Engr. Form 33

PROFESSIONAL SCHOOL

6

STUDENT PROGRESS CHECK LIST

Name _____ Student Number _____

A copy of this form is to be included in the file of each student admitted.

I. Applied for Professional School. _____ (Date) Admitted _____ (Date)

II. Professional School plan of study completed _____ (Date) Forwarded by EDO _____ (Date)

The preliminary plan described in the Graduate catalog must be submitted after admission to the Graduate College for students who expect to obtain an M.S. degree.

III. List courses for which acknowledgement received that they are taken for graduate credit prior to admission to Graduate College.

_____ (Term) _____ (Course designations)

_____ (Term) _____ (Course designations)

This information is obtained from forms the student takes to each instructor involved. The forms are then forwarded to the Graduate College.

IV. Professional Practice: or Thesis: Date _____ Company or Sponsor *if any* _____

Preceptor *if any* _____, Advisory Committee _____ (Chairman)

_____ (Member), _____ (Extra departmental); _____ (Other)

Commenced _____ (Date); Proposal submitted _____ (Date).

Underline professional practice or thesis in the spaces above as appropriate.

V. B.S. certification submitted _____ (Date); Graduate hours included _____ (Number)

This certification is tantamount to a graduation check, but student should be advised that work submitted cannot be used for graduate credit if B.S. degree is taken based on this work.

VI. Application for Graduate College admission: Approved _____ (Date)

Rejected _____ (Date) (If rejected, indicate if B.S. degree awarded _____ (Yes or no)).

VII. Professional Practice treatise submitted _____ (Date) Oral presentation: _____ (Date)

M.S. thesis delivered to Graduate College: _____ (Date)

Final examination taken: _____ (Date)

VIII. Date expected graduation: B.S. _____ (Date) Masters _____ (Date)

Remind student he or she must apply for the degree.

IX. Final plan of study submitted: _____ (Date)

Remarks: _____

can be conferred. To help advisors keep a student's status current with regard to these procedures, a "Student Progress Check List" (see page 6) has been developed.

A copy of the check list is to be included affixed to the inside cover of each student folder transferred from the office of the Dean of Engineering. It lists procedural steps in the same order and with the same Roman numerals as found in the "Summary of Procedures." A blank entry on this list calls attention to the next procedural step to be followed, and a notation of each step is to be made as it is completed. The status of a student, with regard to procedures, will be immediately evident upon referral to this list.

Italicized notes on the check list briefly describe the associated procedure and timing, so that an advisor can recognize what is required without reference to this handbook or other instructions. At least, that should be true in the case of an advisor who has been through the procedural step previously.

DISCUSSION

In succeeding sections of this handbook, sufficient discussion is presented to describe the philosophy leading to the adoption of procedures as well as detailed accounts of the procedures themselves. The latter includes details not of direct importance to advisors, but is included for the sake of completeness.

An illustration portraying the academic functions of the Professional Schools appears in Figure 2. Here, the two years, more or less, of pre-engineering work is shown as the foundation for approximately three years of Professional School leading to the master's degrees. An exit from the Professional School with the Bachelor of Science degree after about two years is also shown for those students whose educational goals do not extend beyond the bachelor's degree, or who plan their graduate work later or elsewhere.

THE PRE-ENGINEERING PROGRAM

The pre-engineering program is largely specified by requirements for admission to the Professional Schools. Stated in the most flexible terms, these requirements include (in addition to acceptance by a Professional School) completion of at least sixty (60) semester credit hours at an accredited institution of higher learning and demonstrated competence in mathematics through elementary differential equations, general chemistry, general physics, and four courses in what are commonly referred to as the engineering sciences.

The pre-engineering curriculum at Oklahoma State University is found on the first page of the listings under the College of Engineering in the publication "Oklahoma State University Undergraduate Programs and Requirements." It comprises the first sixty (60) hours of the "core curriculum" taken by nearly all engineering students. Appendix D is taken from a flow-chart used in guiding a student's pre-engineering preparation. It illustrates alternate routes to meeting the academic requirements for students whose high school backgrounds do not permit direct entry into first-year courses in the nominal pre-engineering program. Course work taken at a junior college or other institution by transfer students should substantially equate to that shown for OSU students.

ACADEMIC PROGRAMS IN THE PROFESSIONAL SCHOOLS

The Professional Schools in the College of Engineering, as illustrated in Figure 2, offer the upper-division undergraduate work, and, under members of the Graduate College

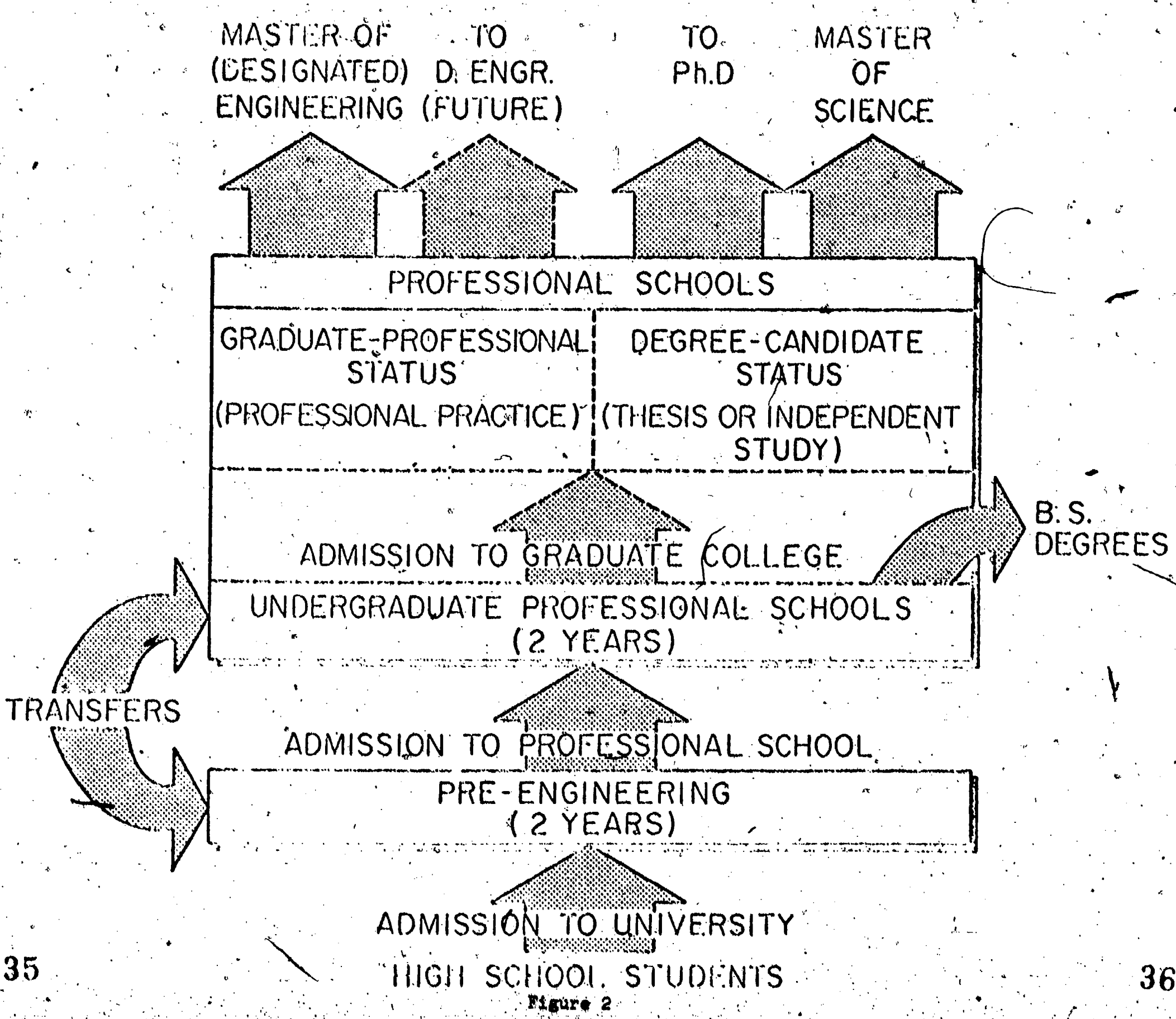

MASTER OF (DESIGNATED) ENGINEERING
TO D. ENGR. (FUTURE)
TO Ph.D
MASTER OF SCIENCE
PROFESSIONAL SCHOOLS
GRADUATE-PROFESSIONAL STATUS (PROFESSIONAL PRACTICE)
DEGREE-CANDIDATE STATUS (THESIS OR INDEPENDENT STUDY)
ADMISSION TO GRADUATE COLLEGE
B. S. DEGREES
UNDERGRADUATE PROFESSIONAL SCHOOLS (2 YEARS)
TRANSFERS
ADMISSION TO PROFESSIONAL SCHOOL
PRE-ENGINEERING (2 YEARS)
ADMISSION TO UNIVERSITY
HIGH SCHOOL STUDENTS

Figure 2

faculty, one or more years of graduate-level work. Because of the growing complexity of our technological society, and with it the increasing sophistication of the engineering disciplines, all students will be encouraged to consider the master's degree as the first degree providing sufficient training and background to be truly competitive in the profession of engineering, whether the student considers himself applications- or research-oriented. Although the demand for engineers with doctorates is developing less rapidly, it is believed that increasing numbers of qualified students will wish to qualify for Ph.D.'s and, when the degree becomes more widely available, the Doctor of Engineering degree.

ELIGIBILITY FOR ADMISSION TO A PROFESSIONAL SCHOOL

A student who, upon satisfactory completion of his current enrollment, will have at least sixty (60) semester credit hours of study in an accredited institution, including demonstrated competence in calculus, physics, chemistry, and the fundamentals of engineering science, is eligible to apply to the Professional School of his choice. Nominally, an overall grade point average of 2.3/4.0, computed taking the last grade received in any repeated course or courses, and including grades of "C" or better in "pre-engineering content" course work (i.e., calculus, physics, chemistry, and engineering science), is accepted as "demonstrated competence." Applications received by the Dean's office from students meeting these nominal requirements will routinely be forwarded to the Professional Schools for review.

Studentswith satisfactory grades but deficient in up to nine (9) hours equivalent of the course work in the pre-engineering program at OSU can be admitted with the understanding that deficiencies must be made up while in the Professional School.

Applications from students with marginal grades and/or other deficiencies will be forwarded to the Professional Schools with deficiencies noted and a recommendation by the Admissions Officer in the Dean's office with respect to admission. In addition to the application form, the Dean's office will send pre-engineering evaluation forms (Appendices C and D) and a copy of the student's transcript to the Professional School to facilitate review.

Heads of the Professional Schools will return the application and other forms after review, indicating acceptance or rejection for each applicant. Where acceptance is recommended for a student who has not received a favorable recommendation from the Admissions Officer, the Admissions Committee will meet to determine admissibility of the student.

Students not admitted to a Professional School for academic reasons can be permitted to enroll in the College of Engineering for up to two (2) additional terms to repeat courses in which competency has not been satisfactory. Such students can be allowed to enroll in a limited amount of course work in the upper-division curriculum. While nine hours of such work, prior to qualifying for admission, is nominally regarded as the limit of such course work permitted, individual cases might find a different number appropriate. Counselors in the Dean's office will remain alert to the fact that such course work may not be applicable if the student should change his academic objectives, while virtually all of the pre-engineering course work can be utilized in, for example, meeting requirements for a BS degree in Engineering Technology.

The Dean's office notifies the student whether or not he has been accepted by a Professional School. Records for students not admitted to a Professional School will continue to be kept in the Dean's office until such time as the student qualifies for and is accepted by a Professional School, or is transferred to another academic program.

Where the student is admitted to a Professional School, the student's records, including the application, evaluation form and transcript, together with a Student Progress Check List, and a Professional School Plan of Study showing deficiencies, will be sent to the school head's office for retention.

BS CERTIFICATION

At the present time, only the ECPD-accredited BS degrees can be awarded to students who become BS certified, so the certification must be in accordance with the degree requirements as shown in "Undergraduate Programs and Requirements" for each of the schools. (At some future date, it may be possible to certify for a degree such as "Bachelor of Science in Engineering Studies," a non-ECPD accredited degree with somewhat reduced requirements.) The criteria for BS certification common to the Professional Schools of Engineering are as follows:

(1) One hundred and twenty-four (124) or more semester credit hours, including pre-engineering work.

(2) Completion of all seventy-six (76) semester credit hours of "common core" course work.

(3) Thirty-nine (39) or more semester credit hours of upper-division work specified by the Professional School.

(4) Minimum grade point averages of 2.0/4.0 as computed by the Registrar in pre-engineering and Professional School course work and 2.0/4.0 in all engineering courses numbered 3000 and above.

As described in the summary section, a student may wish to schedule courses for graduate credit prior to admission to the Graduate College. It is anticipated that such work will be counted in determining that a student has "a bachelor's degree or the equivalent." This provision is applicable only to students seeking admission to graduate-professional status, and is in recognition of the need for greater scheduling flexibility to permit scheduling professional practice off-campus for a period extending over a term or more. Students expecting to become "degree candidates" in the Graduate College should not use any course work for BS certification except that actually intended to be used for the BS degree. Similarly, a student certified for a BS degree on the basis of work including some intended for graduate credit should not apply for and receive his degree until he has completed course work to replace that intended for graduate work. Course work actually used toward a BS degree cannot be counted toward meeting the requirements for a graduate degree.

ADMISSION TO GRADUATE STANDING

When a student is enrolled in course work that will, when taken with his previous work, meet the requirements for BS certification, he can apply for admission to the Graduate College.

Students who wish to complete work for the Master of Engineering degrees are eligible to apply for graduate-professional status if their grade point average in the Professional School is 2.3/4.0 or higher, and if they will have been certified for a Bachelor of Science degree by the close of the term.

Applicants for "degree candidate" status (i.e., to pursue the MS degree) in the Graduate College will be considered for acceptance if their overall GPA exceeds 2.3/4.0 and they will have received a bachelor's degree by the close of the term in which application is made. It has been the practice to admit students whose GPA is below 2.75/4.0 on probation, requiring them to complete a semester with a GPA of 3.0/4.0 or better in order to qualify for continued graduate enrollment.

Application for admission to the Graduate College is submitted on the blue forms in duplicate. The Graduate

College routinely seeks the concurrence of the Professional School in granting admission.

GRADUATE STATUS

In addition to the requirement by the Graduate College that a student earn a GPA of 3.0/4.0 or better for the work counted for the master's degree, there are other regulations imposed by that College that should be kept in mind by advisors of Professional School students taking graduate work. These regulations are listed in the graduate catalog, but are repeated here for emphasis.

Although the extent of enrollment for any semester may be as great as eighteen (18) semester credit hours, no more than sixteen (16) of these can be counted on a plan of study. Not less than fifteen (15) hours of the 30 or 32 hours total must be in course work (i.e., not thesis or report) numbered 5000 or above.

Professional Program guidelines add further requirements to those noted above. Although credit for Professional Practice may range from six (6) to twelve (12) semester credit hours, not less than twenty-four (24) hours of course work should be listed on the graduate plan of study.

The Graduate College requirement of a 3.0/4.0 GPA makes the Professional Program requirement of 2.5/4.0 for the three years somewhat redundant. A student entering the graduate year with a 2.3/4.0 GPA covering sixty-four (64) hours will have a 2.5/4.0 if he meets the 3.0/4.0 requirement for thirty-two (32) graduate hours.

Students who elect the Master of Science degree will need to take either thirty (30) semester credit hours, including not less than twenty-four (24) hours of course work if they submit a thesis (Plan I) or thirty-two (32) semester credit hours if they choose Plan III. (An independent study project is expected of those students who follow Plan III.)

PROFESSIONAL PRACTICE

The goal of Professional Practice is to provide the student with a sound educational experience in the practice of engineering. The individual programs are developed in cooperation with industry and government to introduce the student to many facets of real engineering problems, particularly the influence of economic and time constraints.

In order to insure the successful implementation of the basic goal, the following guidelines are presented:

1. The initial selection and definition of the nature and scope of the practice are important to the ultimate success of an individual's program. The internship experience must, therefore, be planned carefully prior to its actual initiation. The following four steps are recommended.

   (1) There should be an initial discussion between the school and the practicum sponsors about the objectives, activities and level of responsibility required for each proposed practice.

   (2) Prior to any direct contact between any student and a prospective sponsor, the school Head, or his designated representative, should match students with the available opportunities.

   (3) An appropriate faculty member and preceptor should agree to supervise the activity. The faculty advisor must be a member or an associate member of the graduate faculty.

   (4) The student should prepare his own written statement of the proposed practice and its objectives. This statement of the objectives must be acceptable to the preceptor and the faculty advisor and filed with the student's record.

2. The program, whether off-campus or on-campus, should deal with activities that are in the mainstream of the employer's business. It should involve a real problem for which a solution is needed and for which there is a reasonable chance of success. The problems, insofar as possible, should contain time restraints and require economic analysis.

3. The internship experience should have definite terminal objectives that are realistic and sufficiently limited so that they can be accomplished within the time limit of the school's professional practice program.

4. The work should challenge the student's creativity, draw upon his technical background and develop his ability to solve realistic technical problems.

5. The student may function either as an individual or as a member of a team assigned to obtain the solution of

one or more problems or projects. If the project is a team function, it must be organized so as to require individual responsibility for a specific segment(s).

6. The student will be held directly accountable for his part of the problem analysis and solution with respect to the timeliness, quality, and accuracy of the solution:

7. The student will be required to submit scheduled written status reports, including a single comprehensive written treatise. The treatise will be filed in the school's office where it will be available to the public. Where usual documentation procedures of the sponsoring firm or agency meet or exceed minimum requirements, such documentation will be accepted to meet Professional Practice requirements.

8. An examining committee consisting of three members or associate members of the graduate faculty from the College of Engineering will conduct the final examination and evaluate the treatise. Normally, the committee will include the faculty advisor and one other faculty member from the student's school. The third member should be selected from the faculty other than that of the student's own Professional School, preferably in the College of Engineering.

9. The examining committee will ascertain that (1) the student gained acceptable experience, (2) an acceptable treatise was submitted, and (3) the student reached the required minimum level of competence and performance in his practice. The committee will seek the evaluation, advice, and counsel of the preceptor who shall be invited to participate fully in the final evaluation. The examining committee will report in writing their evaluation and recommendations to the student. This evaluation shall be signed by each member of the committee and a copy will become a part of the student's record.

10. Off-campus Professional Practice positions are considered temporary employment by the College of Engineering.

11. Grades for Professional Practice will be assigned by the faculty. It is suggested that the reports and progress be evaluated on a regularly scheduled basis by the advisor and the preceptor.

12. The student should take his last semester in residence.

The faculty of each school should continually evaluate its entire program to assure that it is meeting the desired

objectives. The faculty is also responsible for the evaluation of each student's activities. The evaluation must consider the Professional Practice at its inception, during its life and at its termination. Some elements to be evaluated are:

(1) Initial Selection -- Does the plan satisfy the educational objectives of the school and the basic goal of Professional Practice?

(2) Advance Planning -- Has the Professional Practice experience been adequately planned? Have the appropriate faculty, student and preceptor been selected? Are all aware of the scope of the work and prepared to see it through to its completion?

(3) Active Phase -- Is satisfactory progress being made? Are interim reports and faculty consultation with the student's preceptor on schedule?

(4) Completion of Professional Practice -- The final evaluation shall be based on an oral report and a comprehensive report (treatise) written by the student. Were the objectives met? What was the student's development as an individual, as an engineer?

Suitable course work may be substituted for the internship in the case of a student who returns to school after having been engaged in the practice of engineering, provided the student can establish that his experience has met or exceeded the level of authentic involvement expected of an internship. If professional practice does not appear on the student's plan-of-study, the independent study required of Plan III master's programs must be included and explicitly identified.

Procedures differing substantially from these guidelines should be submitted in advance to the Professional College Curriculum Committee. Substantial deviations would include, but not be limited to, less than twenty-four (24) hours of course work, alteration in the timing of Professional Practice such that it does not occur prior to the last term of the program, and disjoint periods of Professional Practice that interrupt the student's ability to carry through on an engineering project.

THESIS

Graduate College regulations with regard to thesis are found in the graduate catalog and, with respect to format, in the publication, "Thesis Writing Manual: A Guide for Oklahoma

State University Graduate Students." Each student preparing a thesis should secure a copy of the latter. Advisors should refer to the graduate catalog for information regarding procedures and deadlines for submission of thesis.

The graduate faculty is responsible for the nature and conduct of investigations leading to thesis. This responsibility is normally discharged by a committee consisting of two members or associate members of the graduate faculty. One of the members of the advisory committee serves also as thesis advisor.

INDEPENDENT STUDY

The Graduate College has adopted a policy that students electing the option to pursue a Plan III Master of Science degree (all-course option) undertake some form of creative component under the guidance of a faculty member in his Professional School. This requirement insures a close working relationship between the student and at least one faculty member. This, in turn, will enable the faculty member to comment on the student's aptitudes and performance should the student seek to continue for a Ph.D. While it involves an independent study project of comparable scope to a project submitted for thesis credit, the credit allowed could be well below the nominal six (6) hours for thesis, with the principal difference being that the effort devoted to documentation could be significantly less in this case than for a master's thesis meeting Graduate College requirements.

REVISION OF THESE GUIDELINES

Experience both with the concept of the Professional Schools and the procedures described in this document will indicate over time whether modifications or revisions are needed. Any member of the faculty of the Professional Schools of Engineering may call attention to such a need in a letter addressed to the Professional College Curriculum Committee. The committee will be responsible for recommending appropriate revisions of this document to the Engineering Council for subsequent submission to the faculty for acceptance.

Appendix A

Engr. Form 3¼

18

OKLAHOMA STATE UNIVERSITY
College of Engineering
PROFESSIONAL SCHOOL PLAN OF STUDY Certify as of _____
Date

(Last Name) (First) (Middle) (Student No.) (Professional School)

Semester Credit Hours Earned in an Accredited Institution at Admission _____

Pre-Engineering Deficiencies (to be taken)

Department and Number	Course Title	Term

Social Science and Humanities Requirements Completed in Pre-Engineering

Department and Number	Course Title

Common Professional School Requirements

Department and Number	Term	Grade
MATH		
ENGSC		
ENGSC "H" or "S"		

Departmental Requirements

Department and Number	Term	Grade

Departmental Requirements (Cont.)

Department and Number	Term	Grade

Deviations (Line out pre-printed requirements above, numbering the line to agree with approved deviations listed below.)

Department and Number	Course Title	Term	Instructor	Grade
1.				
2.				
3.				
4.				
5.				
6.				

Engr. Form 35

APPENDIX B

OKLAHOMA STATE UNIVERSITY
COLLEGE OF ENGINEERING

19

APPLICATION FOR GRADUATE CREDIT FOR SENIORS
(This form intended for use by students in Graduate-Professional status only.)

Name _____ Student Number _____

School _____ Term _____ 19 _____

Dept.	Course Number	Title	Credit	Instructor's Signature

Credits remaining to Bachelor's degree prior to present enrollment. _____

Approved _____ Approved _____
Advisor Graduate College

Date _____ Date _____

APPENDIX C
APPLICATION REFERRAL FORM
PROFESSIONAL SCHOOL

COLLEGE OF ENGINEERING
OKLAHOMA STATE UNIVERSITY

Memorandum Date _____

To: Head, Professional School of _____ Engineering.

From: Admissions Officer, Office of the Dean of Engineering.

Subject: Application for Admission by _____
Student's Name.

ADMISSIONS OFFICER'S RECOMMENDATION

(See attached Pre-engineering Evaluation Chart, Form 13)

_____ The student meets the academic criteria for admission.

_____ The student does not meed academic admission requirements.

The following deficiencies are noted:

_____

_____

_____

_____ Admission recommended _____ Admission not recommended.

_____
Signature Date

PROFESSIONAL SCHOOL ENDORSEMENT

Professional School of _____ Engineering

_____ The student is acceptable.

_____ The student is not acceptable.

Remarks: _____

_____

_____

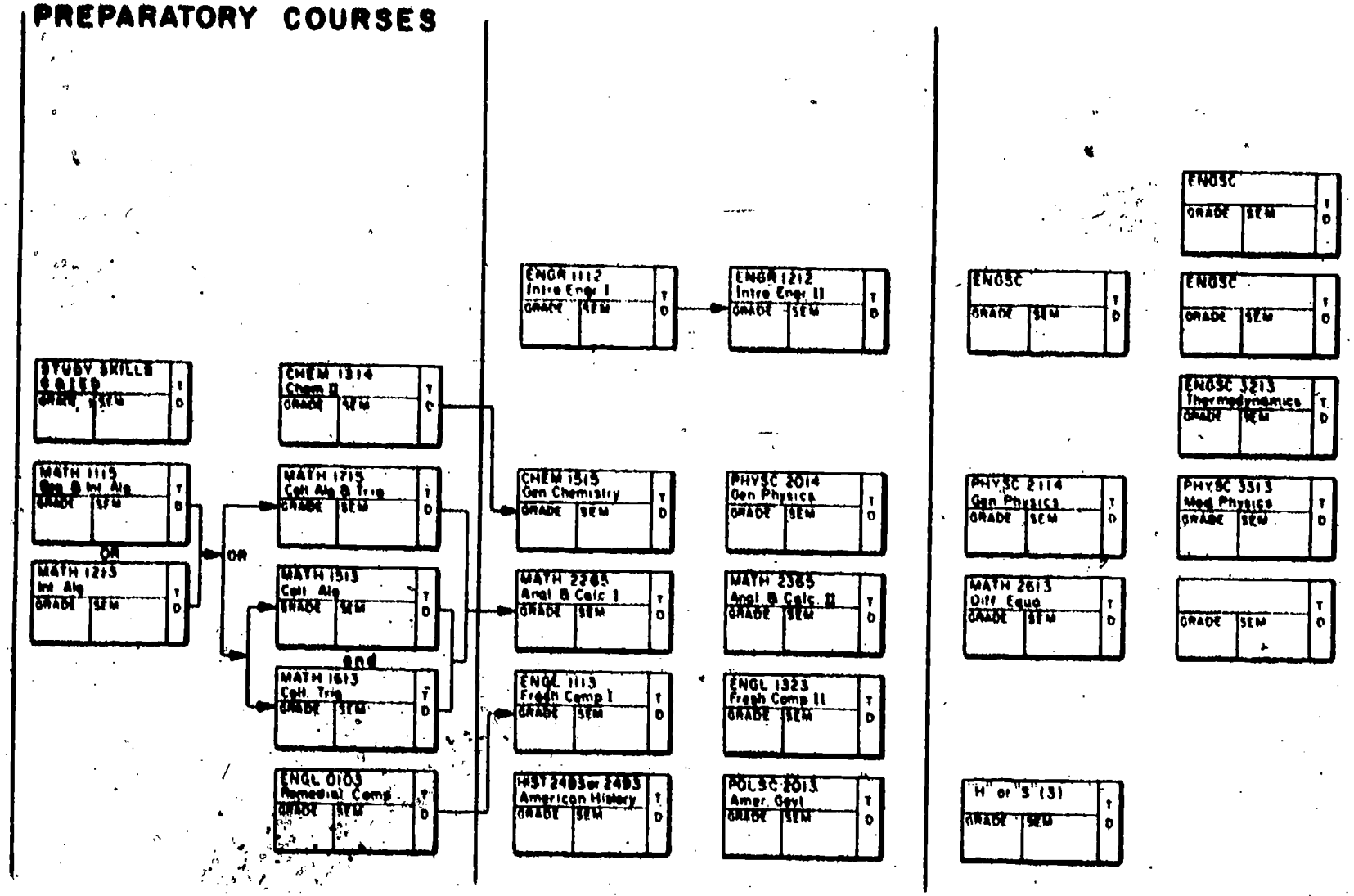
_____
Signature Date

Return application, referral form and accompanying material to EN 101.

PROFESSIONAL ENGINEERING PROGRAM EVALUATION FORM

NAME _____ PROFESSIONAL SCHOOL OF _____ SEMESTER, 19___ DATE _____

PREPARATORY COURSES



PRE-ENGR COURSES NOT COMPLETED

GRADE OF "C" OR BETTER

	YES	EXCEPTIONS
MATH	____	____
CHEM	____	____
PHYSC	____	____
ENGSC	____	____

PRE-ENGR APPLICABLE HOURS ____

PRE-ENGR APPLICABLE GPA ____

PROFESSIONAL COURSES COMPLETED:

	HRS	GR

PROFESSIONAL SCHOOL HOURS ____

PROFESSIONAL SCHOOL GPA ____

CUMULATIVE HOURS ____

CUMULATIVE GPA ____

ENTERED OSU _____ TRANSFER FROM _____ (COLLEGE) _____ (DATE ATTENDED) _____ (HOURS) _____ (GPA)

B.S. DEGREE COMPLETED _____

EVALUATED BY _____

Appendix D

ENGINEERING FORM 13
REV 8/79

21