Volume VIII

Agenda and Minutes of the Meeting of November 22, 1971

UNIVERSITY SENATE

Meeting Notice: Monday, November 22, 1971
Senate Room, 314, CAC
3:30 p.m.

Order of Business:

I. Calling of the meeting to order

II. Approval of the minutes of November 15, 1971

III. Orders of the Day

A. Special Orders (none)

B. General Orders
Mr. Schad, Director of Libraries

IV. Unfinished Business
Mr. Kahn, University Governance Committee Report

V. Committee Reports
Mr. Cathers, Curriculum Committee, B.S. Proposal in Engineering (ATTACHMENT)

VI. New Business

VII. Adjournment

Wichita State University

INTER-DEPARTMENTAL CORRESPONDENCE

To Members of the University Senate Date November 15, 1971

From C. V. Jakowatz, Dean, College of Engineering C.V.J.

Subject Proposal for New Program

Attached is a copy of a proposal for a new program being submitted by the College of Engineering.

This program has been unanimously approved by the College of Engineering Curriculum Committee, the Executive Committee and the faculty of the College of Engineering. (2 negative votes)

The proposal is now on the agenda of the University Curriculum Committee for the meeting of November 18, 1971. On the assumption that it will be approved by the University Curriculum Committee, it tentatively has been placed on the agenda of the University Senate for consideration at the November 22, 1971 meeting.

PROPOSAL FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

Description of New Program

The College of Engineering is proposing an explicit new program which will enable a greater flexibility for students pursuing a technical field of their own interest. The program will require a new degree designated, "Bachelor of Science in Engineering." This degree differs from the present degrees now existing in the College of Engineering. At present, the College of Engineering offers a Bachelor of Science degree with a designation of the departmental major, that is, Aeronautical, Electrical, Mechanical or Industrial. Presently, each student in the College of Engineering takes approximately 60 hours of his baccalaureate work in the College of Engineering, 40 hours of common core courses and some 20 hours of designated major courses. Approximately 70 hours of mathematics, science and other general requirements are taken outside the College of Engineering. It is proposed that for the new degree the student will still complete the 40 hours from core courses within Engineering, as well as the appropriate mathematics, science and general requirements reserving 27 hours for a major of his choice. The specific proposal which is being presented to the engineering faculty is appended to this report and justifies the academic soundness of this request.

Perhaps a general justification is in order with regard to

the desirability of expanding Engineering offerings at this point in time. Despite the visibility given to Engineering unemployment there is good evidence to believe that the Engineering prospects for the future are very encouraging. The following material is taken from the context of Publication No. 1701, U.S. Department of Labor (1971).

Prospects for Engineering employment period 1968-80:

Annual openings are 73,000

Expected annual growth - 36,000

Annual replacement - 17,000 (death, retirement)

Annual shift in occupation - 20,000 (from Engineering to other fields).

The average flow into Engineering has not been sufficient to meet manpower needs. About 38,000 new Engineering graduates have to enter the field annually to meet the requirements. Since 85% of new graduates enter the profession, this means about 45,000 new graduates are needed each year. Statistics for annual engineering graduates for the last 3 years are:

1968	38,000
1969	39,900
1970	42,900

The technical and professional occupational groups whose growth has outpaced that of all major occupational groups in recent

decades will continue to lead from 1968-80 with an estimated increase of 50% compared to 25% for all occupations.

Manpower requirements in Engineering, the second largest profession, is expected to increase from 1.1 to 1.5 million or 40% between 1968 to 1980. Particularly rapid growth is expected in Industrial, Electrical and Civil Engineering.

Employment requirements in all life sciences including botanists, geologists and microbiologists are projected to increase to 240,000 or about 41% over the 170,000 employed in 1968. Thus, it is reasonable to surmise that expected Engineering growth will be at least equal to that of the life sciences.

Estimate of Program Size

It is anticipated that no new courses for the support of this program will initially be developed. If future years warrant the additions of courses for this program they will be treated and justified as any new courses proposed for the College of Engineering. The central theme guiding the specific choice of courses for completing the program, especially with respect to choice of major, resides essentially with the student and adviser following the guidelines established within the proposal. We feel the inauguration of such a program tends to provide a more efficient use of present University resources, since the program is based on courses

already in existence. For Engineering, in particular, such a program provides a flexibility with respect to choice of technical subject material most appropriate in meeting the changing needs of a technologically oriented society.

The minimum standards set forth in the Board of Regents directive are expected to be adequately met.

a) The instructional staff related to Engineering courses as presently constituted consists of some 26 Ph.D. in Engineering. It is estimated that approximately 1/3 of these persons would be ultimately directly related with instruction of this program (40 hours of Engineering Core). With respect to the University whole, the number of doctorates participating would be substantial, since the 27 hours of major courses and other mathematics and science requirements are envisioned to be taught by senior faculty who normally have their terminal degree.

b) The College of Engineering, over the past five years, has awarded the following number of bachelor degrees:

1967	70
1968	53
1969	70
1970	70
1971	112
Ave	75

In order to estimate the number of students expected in such a new program, an estimate was derived from those 60 schools which offer an Engineering Science Degree in addition to other degrees. Present Engineering Science programs allow, to a first approximation, about the same type of latitude in courses as suggested by our proposed program. This estimate assumes that the ratio of Engineering Science Degrees to total degrees gives an indication of the number of students who would be interested in such a degree as we propose. Our estimate from such a study is that 16.8% of the total Engineering degrees are Engineering Science. Since the College of Engineering has about 600 students, we may estimate the number of students in the proposed program. Thus, an estimate made of the program size is .168 x 600 = 100 students total expected in this program. Another source of students expected in such a program is from science oriented students who wish to have an Engineering background in coping with today's problems. Rensselaer Polytechnic Institute has had a program similar to our suggested program. One estimate of the size of the student base for such a program has been made by Dr. Ken Mortenson (R.P.I. Associate Dean) who reports their program produces about a 10% additional student base. Another comment pertinent to the program comes from Dean Charles Norris from the University of Washington. At Washington,

a program of this type has been inaugurated just this Fall Semester. Dean Norris reports that he has been "overwhelmed with student inquiry into the program even though there has been minimum publicity on the program."

An additional factor which may change this number should be considered, and is dependent upon the expected source of students. This is the expected depletion of students from our present program. Assuming that the standards in the new degree are as rigorous as are normally adhered to in our present degree programs, it is likely that most students will find some advantage in continuing in a designated degree. There is good evidence (recruiters on campus) to indicate continued opportunities within a current degree designation. Hence, we are assuming that a significant depletion of our present students will not take place. Our expectation is that such a program would appeal to students who are motivated to a greater degree on current societal programs: pollution, environment, biomedicine, etc. This should attract students who wish to have a career in current societal technical problems. The College of Engineering will continue its dedication to providing the student with a broad technological base with the expectation that the student will continue to learn in an orderly and scholarly manner throughout his life.

Budget

It is anticipated that no unclassified salary budget request will be required over that which is normally allocated on a per credit hour basis for engineering instruction. Until the program builds up, requiring two or three years, the only students taking engineering courses will be transfer students. Thus, we do not immediately foresee any significant impact on the engineering courses and the graduate growth that will occur can be accommodated as student credit hours are generated. The initial impact of this program would be expected to be largely in the College of Liberal Arts and Science, where these students normally complete their requirements of the first two years.

There will be required laboratory space for senior projects. If we assume an output of 25 students (after about four years), this would require laboratory space of about 2,000 square feet. This is a major consideration in the program. However, we would hope that this space would be distributed throughout the University Departments and thus would not appear to be an insurmountable burden on any one department.

Library holdings in areas of interest will need to be considered, and assuming that the funding is equal to the current Engineering allocation, we estimate an expense of $10 per year per student (assuming 100 students in the program) totalling $1,000 per year. Once again, the library

costs would not be immediate, with the expected growth coming in four or five years.

New capital equipment needs are marginal, and would be funded at the same rate as other students. Supporting staff needs would also be requested as the program would grow, but current new needs for this program are marginal.

This program is expected to be accredited with time. The agency in this particular case is the Engineers' Council for Professional Development. As a policy, accreditation cannot be obtained until a program is in operation. In view of the very favorable report recently received in our Engineering programs, we do not expect any problem regarding accreditation.

Again, it should be emphasized that the above costs are expected to be funded from normal credit hour production as they accrue, including capital equipment, supporting staff and laboratory space.

Regional Consideration in Such a Program Offering

An examination of the Universities in the neighboring region indicates that the availability of general engineering degrees (BSE) is very limited. Following is a tabular listing of neighboring states which shows the number of schools offering programs leading to the BSE degree:

State	No. of Programs Leading to BSE	Total Number of Accredited Engr. Colleges
Arizona	0	2
Arkansas	0	3
Colorado	0	5
Kansas	0	3
Minnesota	0	1
Missouri	1	6
Nebraska	1	2
New Mexico	0	3
Oklahoma	2	3
Texas	2	14
Totals -	6	42

It is noted that Kansas Engineering Colleges have no degrees of this type available.

Introduction to the Academic Program

The information contained herein is a recommendation from the College of Engineering regarding the academic guidelines for the proposed new program in engineering, which shall be referred to in this correspondence as the BSE (Bachelor of Science in Engineering) program. The present programs in mechanical, electrical, industrial, and aeronautical engineering continue to be important, however, the BSE is an attempt to allow for development in combinations of these specialties and to bring in other kinds of knowledge and expertise as well. The BSE along with the present programs will provide an educational facility in engineering to match the intricacy of the society with which engineers must deal.

Academic Guidelines

It is recommended that the academic guidelines for the proposed BSE be as follows:

4 Hrs.	University Core Electives
32 Hrs.	Humanities and Social Science
29 Hrs.	Math and Physical Science
40 Hrs.	Engineering Core. As new engineering programs are adopted, the engineering core must be investigated to determine its appropriateness as a core for all engineering programs.
27 Hrs.	To embrace a major area of approved study. It is recommended that this 27 Hr. major designed by the student be approved to insure that it has a meaningful intellectual content that meets a reasonably well-defined set of objectives.

Examples

Each of the following examples serves as a possible program of study that an individual student might pursue for the BSE.

1. Environmental Engineering (Noise Pollution)

4 Hrs.	University Core Elective
24 Hrs.	Humanities and Social Science
8 Hrs.	Communications
16 Hrs.	Mathematics (through Differential Equations)
13 Hrs.	Physical Science (Phys. 243E, 244E, Chem 111)
40 Hrs.	Engineering Core (to include Engr. 464)
4 Hrs.	Biol. 100 Principles of Biology (4) or Biol. 112 Introductory Zoology (4)
5 Hrs.	Biol. 223 Human Biology
3 Hrs.	Log. 470 Laboratory Instrumentation
2 Hrs.	I.E. 449 The Human Factor in Engr. Design
3 Hrs.	M.E. 301 Mechanical Engineering Measurement
3 Hrs.	A.E. 477 Vibration Analysis
3 Hrs.	A.E. 476 Noise Measurement
3 Hrs.	M.E. 439 Mechanical Engineering Design I or A.E. 498 Computer Aided Design
2 Hrs.	Senior Project
133 Hrs.	

2. Health Engineering (Biomedical)

4 Hrs.	University Core Elective
24 Hrs.	Humanities and Social Science
8 Hrs.	Communications
16 Hrs.	Math (Math 142, 243, 244, 346)
13 Hrs.	Physical Science (Phys, 243E, 244E, Chem. 111 or 123)
40 Hrs.	Engineering Core
5 Hrs.	Chem. 112 General and Inorganic Chemistry
5 Hrs.	Chem. 331 Organic Chemistry
11-12 Hrs.	Biol. 111 Introductory Botany (4) Biol. 112 Introductory Zoology (4) Biol. 201 Introductory Cellular Biology (3) or Biol. 112 Introductory Zoology (4) Biol. 201 Introductory Cellular Biology (3) Biol. 301 Bacteriology (5)
2 Hrs.	Senior Project
3-5 Hrs.	From Below:

Chem. 332	Organic Chemistry (5)
H.P. 101	Introduction to Health Professions (1)
Biol. 401	Genetics (4)
E.E. 477	Biomedical Engineering (3)
M.E. 301	Mechanical Engr. Measurements (3)
Math. 346	Differential Equations (3)
E.E. 392	Electronic Circuits (4)

131-134 Hrs.

3. Socio-Economic Engineering

4 Hrs.	University Core Elective
24 Hrs.	Humanities and Social Science
8 Hrs.	Communications
16 Hrs.	Math (Math 142, 243, 244, 346)
13 Hrs.	Physical Science (Phys. 243E, 244E, Chem. 111)
40 Hrs.	Engineering Core
2 Hrs.	Senior Projects
9 Hrs.	From Below:

Soc.	323	Sociology of Law (3)
Econ.	364	Economic Poverty (3)
Pol. Sci.	317	Urban Politics (3)
Econ.	475	Natural Resources & Regional Planning (3)
Pol. Sci.	477	Intro. to Urban Affairs (3)

16 Hrs. From Below:

Any from the list immediately above.

Econ.	175	Economics of Envir. Quality (3)
Econ.	190	Consumer Economics (3)
Econ.	400	Seminars in Social Science (3)
Econ.	415	Economics of Transportation (3)
Psych.	246	Social Psychology (3)
Pysch.	346	Adv. Social Psychology (3)
Soc.	226	Race Relations (3)
Soc.	326	Political Sociology (3)
Soc.	330	Social Stratification (3)
Soc.	334	Urban Sociology (3)
Anthro.	130	Afro-American Heritage (3)
Pol. Sci.	321	Intro. to Public Adminis. (3)
Pol. Sci.	479	Urban Government Finance (3)
Geog.	470	Urban Geography (3)
Journ.	115	Intro. to Mass Communications (3)
Journ.	444	Policies & Problems in Mass Communication (3)
Adm.	332	Law and Society (3)
Adm.	334	Law and Business (5)
Engr.	400	System Modeling (3)

132 Hrs.

WICHITA STATE UNIVERSITY
STUDENT EVALUATION OF FACULTY

This Student Government Association sponsored survey is given with the permission of your instructor in this class: It is designed to aid both the instructor in obtaining an evaluation of his or her teaching methods and classroom environment and the student in selecting courses which meet his or her educational needs. A group profile of student responses to questions 1 - 20 by course will be available for both faculty and student use in the spring. The information the instructor receives will not identify any student individually. The information will not be released to anyone until after the semester is over.

Use a Number Two pencil if possible. Any type of pencil, however, may be used, but do not use an ink or ball point pen. On the IBM sheet, please write the instructor's name, class number, (i.e., Psychology III) and time of class period in the space marked Name of Test.
DO NOT WRITE YOUR NAME!

Listed below are several qualities which describe aspects of instructor behavior. Rate your instructor on each of these items by marking the corresponding space on the IBM answer sheet. DO NOT OMIT ITEMS.

The rating scale is as follows: 1-Outstanding; 2-Very Good; 3-Competent; 4-Only Fair; and 5-Of Less Value.

1. Discusses points of view other than his or her own
2. Explains clearly
3. Invites students to share their knowledge and experiences
4. Has a genuine interest in and respect for students
5. Has an interesting style of presentation
6. Gives references for more interesting and involved points
7. Is well prepared
8. Invites criticism of his or her own ideas
9. Is accessible to students out of class
10. Seems to enjoy teaching
11. Presents facts and concepts from the field and from related fields
12. Is careful and precise in answering questions
13. Knows if the class is understanding the material or not
14. Broadens students' interests in the subject
15. Is enthusiastic about the subject
16. Emphasizes conceptual and comprehensive understanding
17. Summarizes major points
18. Has interest and concern in the quality of teaching
19. Motivates further involvement in the subject
20. Has a sense of humor

After answering questions 1 - 20 on the IBM sheet, please answer questions 21 and 22 on this instruction sheet. Answers to these two questions will be given to your instructor next Spring, for his or her personal use only. Again, DO NOT SIGN YOUR NAME.

21. Is there something you believe the instructor has done especially well in the teaching of this course?

22. What specific things do you believe might be done to improve the teaching in this course?

UNIVERSITY SENATE
Wichita State University
Minutes of the Meeting of November 22, 1971, (Vol.8,No.9)

Members present: Artiaga, Burnett, Coker, Collison, Comstock, Cress, Dybdahl, Elcrat, Farnsworth, Friesen, Genova, Gleason, Gosman, Heathman, Jakowatz, Magelli, Malone, Mathews, Mathis, Morse, Norris, Perel, Poland, Posey, Rhatigan, Rogers, Saricks, Savaiano, Smith, Sowards, Stucky, Youngman, Zody. Members not present: Ackerman, Ahlberg, Allegrucci, Austin, Becker, Blake, Boughton, Breazeale, Britton, Chaffee, Christenson, Darling, Dunn, Graham, Hammond, Harder, Holmes, Mills, Nielsen, Spies, Spohn, Terrell, Unrau, Wong. Guests present: Cathers, Craig, Benningfield, Gundersen.

I. The meeting was called to order at 3:35 p.m. by Chairman Zody. The Chairman announced that the Public Occasions Committee has announced a convocation for the next Eisenhower lecture, Thursday, December 2. John Gardner will speak at 11:30 a.m. in Henry Levitt Arena.

II. Mr. Genova moved unanimous consent to accept the minutes of November 15, 1971. The Chair so ordered without objections from the floor.

III. A. Special Orders (none)

B. General Orders. Mr. Schad, Director of Libraries, spoke to the Senate. He presented the dimensions of the library problem in the ATTACHED report. Mr. Perel moved (seconded by Mr. Malone) (a) to ask the Library Committee to study the relative status of the W.S.U. Library among the various state institution libraries, and (b) to prepare a resolution for Senate consideration relative to financial support of library facilities. The motion PASSED.

IV. Unfinished Business. Mr. Kahn, University Governance Committee Report. Mr. Morse spoke of the need for a Senate office. A permanent, physical location is very desirable due to the increasing volume of Senate materials. The question was called for and Section VI PASSED as presented in the Report.

Mr. Collison explained that recommended changes in committee structure as in Section VII, evolved from committee hearings and committee chairmen. The question was called for and Part A of Section VII PASSED.

Discussion of Part B brought out reasons for and against administration representation on the Senate agenda committee. Mr. Genova asked the Senate to reject Part B because the agenda committee serves an important function of airing faculty views. Mr. Magelli responded that some items on the agenda require response from the administration and to strike Part B would be to strike the whole document. Mr. Rogers agreed with Mr. Magelli that with respect to the document, the balance should be maintained. The question was called for and Part B of Section VII PASSED as written.

Part C of Section VII was already striken due to the adoption of the Tenure and Promotion Report.

Part D was PASSED as written.

Part E was PASSED unanimously as written.

In discussion of Part F, Mr. Burnett moved (seconded by Mr. Comstock) to amend "to include one member from the unassigned faculty." The question was called for and the amendment to Part F PASSED. The main question, Part F, was called for and Part F PASSED unanimously as amended.

Part G was PASSED as written.

Section VIII PASSED after the intent of the section was recorded: The constitutional revision committee will amend the existing Constitution to bring it into line with the Governance document.

Mr. Sowards moved (seconded by Mr. Genova) to postpone consideration of the amended Governance Report until December 13, the next Senate meeting. The motion PASSED.

V. Committee Reports. Mr. Cathers, University Curriculum Committee.

Mr. Cathers moved that the Senate adopt the B. S. program in Engineering. The question was called for and the motion PASSED unanimously. Mr. Cathers also requested that the Senate support a B. S. degree in Computer Science. The prospect of such a program caused a discussion to develop with both support and opposition to the program.

Mr. Genova moved (seconded by Mr. Saricks) that the Senate approve the proposal to be implemented only to the extent that it is funded by the Board of Regents. The amendment PASSED. The proposal will be recommended as amended.

VI. New Business. Tracy Brown, chairperson of the Teacher Evaluation project, asked the Senate to approve a questionnaire for evaluation of faculty to be used voluntarily. Mr. Morse moved that the Senate endorse the student evaluation of faculty project. Mr. Cress seconded the motion. The motion PASSED.

VII. The meeting was ordered adjourned at 5:20 p.m. by the Chairman.