TEXAS TECH UNIVERSITY

The Faculty Senate

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PLEASE POST FOR FACULTY

January 13, 1994

TO: Members of the Faculty Senate

FROM: Sue Couch, President

RE: Agenda for meeting #148, January 19, 1994
             3:15 p.m., University Center Senate Room

AGENDA

I.   Call to order and introduction of guests

II.   Approval of the minutes of the December 8, 1993 meeting

III.   Remarks from Executive Vice President and Provost Haragan

IV.   Remarks from Vice Provost Sweazy on Advanced Research Program
             and Advanced Technology Program Funding

V.   Reports from University Councils

                    Provost Council -- Sue Couch
                    Other

VI.   Reports from Committees of the Faculty Senate

                    Faculty Performance Study Committee
                    Academic Programs Committee
                    Other

VII.   Old Business

                    Remarks from Michael Shonrock, Dean of Students, and
                    consideration of tabled motion on High Riders Resolution

VIII.   New Business

                    Recommendation to delete technology from General
                    Education requirements - Howard Curzer

IX.   Announcements

X.   Adjournment

FACULTY WHO DESIRE ADDITIONAL INFORMATION ABOUT AGENDA ITEMS MAY CONTACT
                    THEIR SENATE REPRESENTATIVE.

An EEO/Affirmative Action Institution

THE TECHNOLOGY REQUIREMENT SHOULD BE ELIMINATED

motion by Howard J. Curzer
(This is not a report by the academic programs committee.)

REASONS

(1) Most comparable universities have General Education Requirements which are significantly lighter than ours. There is a good reason for their lighter requirement level. Requirements are intrinsically burdensome for many students, especially those students in highly structured programs. Our students need more flexibility. Without the PE requirement, our general education requirements come to 53 hours. Consider a student whose major and minor requirements are 33 and 18 hours respectively. This student's requirements total 104 hours. Thus, of the 125 hours needed for graduation, this student has only 21 hours of electives. (Of course, major and minor requirements may overlap with the general education requirements. On the other hand, many programs require more than 33 hours for a major. And some colleges require more than the 53 general education hours. The College of Arts and Sciences, for example, requires 60 hours.) How can we expect our students to get a reasonable amount of breadth and depth out of their college education with only 21 hours or less of electives? Eliminating the PE Requirement is a step in the right direction, but it is not sufficient. Our General Education Requirements should be further reduced. I shall argue that the Technology Requirement is the requirement which should be eliminated.

(2) Technology Requirements are rare among universities. Of the 22 universities surveyed, only 1 had a Technology Requirement. Moreover, the state coordinating board's suggested General Education Requirements do not include a Technology Requirement.

(3) Choosing General Education Requirements is a matter of priorities. Many fine things are taught at Tech, but not all of them should be required of every student. I believe that Tech should require only those courses which are *absolutely central* to a college education. I do not believe that Technology courses are part of the bare minimum which *every* college student needs.

It may make sense for students *in certain programs or colleges* to take technology courses. Naturally these programs or colleges may continue to require their students to take technology courses. So eliminating the Technology Requirement would not prevent programs or colleges from ensuring that their students get the courses they need.

(4) The Technology Requirement as it presently stands is incoherent. The courses which satisfy the Technology Requirement fall into three categories:

    (a) Courses which deal with the relationship of technology and society. (e.g. GEOG 3353 Man, Resources, and Environment; POLS 4343 Science, Technology, and Public Policy)

    (b) Courses which teach a technical skill. (e.g. AGSM 3303 Small Gasoline Engines and Tractor Maintenance; CS 1405 Introduction to Computer Science)

    (c) Courses which have little or nothing to do with technology. (e.g. ANSC 2303 Care and Management of Companion Animals; HORT 2311 Vegetable Crops)

If the purpose of the Technology Requirement is to enlighten students about the relationship of technology and society, then courses of type (b) should not satisfy the Technology Requirement. On the other hand, if the purpose is to provide students with some technical skill, then courses of type (a) should not satisfy the Technology Requirement. No matter how the Technology Requirement is construed, courses of type (c) should not satisfy the Technology Requirement. I shall rebut the rationales for including courses of type (a) and (b) within the Technology Requirement separately.

(5) The main argument for including courses of type (a) within the Technology Requirement is this: Since technology and society are intimately connected, an adequate understanding of society presupposes some understanding of the relationship between society and technology.

I agree that an adequate understanding of society presupposes some understanding of the relationship between society and technology. But an adequate understanding society presupposes some understanding of many, many things, some of which are more central than technology. For example, I submit that sex and gender are more fundamental to society than technology. If you doubt this, consider the many major ways in which our arts, institutions, day-to-day life, etc. are built around sex and gender. Thus, sex and gender have a better claim to a requirement than technology. Another purely hypothetical example is other cultures. Students have to deal with people from other cultures as well as with technologies. And isn't it more important to help students understand people rather than things? So a Multicultural Requirement makes more sense than the type (a) component of the Technology Requirement.

Moreover, we already have a requirement specifically designed to enhance the understanding of societies, the Individual and Group Behavior Requirement. So the real question is this: Does the student gain an adequate understanding of society by satisfying the Individual and Group Behavior Requirement? If the answer is "no", then instead of focusing on just one aspect of societies (an aspect which is not the most central aspect) we should simply increase the Individual and Group Behavior Requirement from 3 to 6 hours. On the other hand, if the answer is "yes", then we should simply eliminate courses of type (a) within the Technology Requirement. I think the answer is "yes".

(6) The main argument for including courses of type (b) within the Technology Requirement is that students need to know something about technology to live in the modern world. In particular, students need to be at home with technology rather than perceiving technology as an alien, unintelligible aspect of their lives.

I agree that students need to know something about technology. But our students do not come to us fresh from hunter-gatherer societies. They already know quite a bit about technology. They know how to drive cars, use TV's, make phone calls, and so on. So there is no need to expose them to yet another piece of technology as if they have no idea what technology is. (Of course, they do not typically know how to build or repair cars, TV's, telephones, etc.. But the courses of type (b) do not teach students how to build or repair things, but rather they teach students how to operate things.) Students are very far from perceiving technology as an alien, unintelligible aspect of their lives.

(7) Advocates of including type (b) courses within the Technology Requirement might maintain that these courses aim to provide proficiency rather than mere familiarity with technological thought. And our students need proficiency not only to join industries which compete in the global,

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modern marketplace, but also simply to get their VCRs off of "blink time" (12:00, blink, 12:00, blink, 12:00, blink, 12:00 blink).

The problem with this argument is that it misunderstands the problem. People, both at work and at home, do have trouble reading instruction manuals and implementing the instructions. But that is not because they lack proficiency in some mysterious way of thinking called technological thought. Instead, they lack the reasoning skills necessary for working through the manuals. After all, the same people who have trouble with technology-related instructions have equal trouble with instructions that are *not* technology-related. If we want to address the problem illustrated by blink time (and by many letters to the editor), we should replace the Technology Requirement with a Logic Requirement.

Insofar as there is something apart from critical thinking called "technological thought", it is adequately taught in the courses which satisfy our Laboratory Science Requirement.

(8) Advocates of including courses of type (b) within the Technology Requirement might maintain that these courses provide certain basic skills which the college student must have in order to cope with their classes. Just as we require students to be able to read, write, and do math, so we should also require them to be computer literate, etc..

The problem with this argument is that the skills taught by the courses of type (b) are clearly not basic skills. For example, they include cooking, home gardening, electronic music, care and feeding of pets, and tractor maintenance. While these are undoubtably useful skills, they are not on a par with reading, writing, and math. They are not the basic skills one needs in order to flourish in college.

The only courses of type (b) which have a plausible claim to teaching basic skills are the courses which teach computer literacy. If computer literacy were a basic skill, then it might make sense to replace the Technology Requirement with a Computer Literacy requirement. But when computer literacy is compared with the ability to read, write, and do math, it becomes clear that computer literacy is not in the same league. It is simply not a basic skill which all college student must have in order to cope with their classes.

(9) The final version of the general education curriculum as well as the faculty senate and academic council recommendations specify that courses satisfying the Technology Requirement should be, "designed to prepare students to make intelligent choices with regard to scientific and technological issues affecting society." Courses of type (b) do not meet this criteria.

The overall goal of General Education Requirements is to broaden students, but courses of type (b) work in the opposite direction. They force students to focus on narrow, purely mechanical skills. General Education Requirements should open the student up to whole new horizons of thought. They ought to be "gee whiz" courses (courses where the students come away saying, "gee whiz, I never thought of that"), rather than technique courses. But courses which focus on narrow, purely mechanical skills cannot open students up to whole new horizons of thought. Since the Technology Requirement provides neither a basic skill nor a new horizon, let us abolish it and give the student another 3 hours of elective so that perhaps they can find a "gee whiz" course on their own.

IMPACT OF ELIMINATING THE TECHNOLOGY REQUIREMENT

The Technology Requirement may be satisfied by taking one course from a list of 65 courses. These courses are distributed among the colleges in the following way: AG 23, ARCH 2, A&S 15, BA 1, ED 1, EN 18, HS 5.

The impact of eliminating the Technology Requirement is difficult to determine. However, the fact that the courses satisfying the Technology Requirement are spread out over so many departments suggests that the elimination of the Technology Requirement would not be a devastating or even a heavy blow to any single department. Moreover, demand for these courses will not vanish if the Technology Requirement is eliminated. Many students will continue to take these courses as electives or as part of their major or minor. For example, ISOS 3344 Introduction to Production and Operations Management is presently taken only by BA students and would continue to be required by the business school even if the Technology Requirement is eliminated. So the elimination of the Technology Requirement would have no impact on BA.

SURVEY RESULTS

UNIVERSITY	TEXAS TECH	U OF TEXAS	U OF HOUSTON	TEXAS A&M	U OF KENTUCKY	U OF ARIZONA	KENT STATE	U OF ILLINOIS
TECHNOLOGY	3	0	0	0	0	0	0	0
TOTAL	53	42	50	57	51	50	39	30

UNIVERSITY	STANFORD	NORTH CAROLINA	OHIO STATE	MICHIGAN STATE	U OF CONN	OKLAHOMA STATE	U OF ARKANSAS	LOUISIANA STATE
TECHNOLOGY	3	0	0	0	0	0	0	0
TOTAL	45	59	45	45	45	42	35	39

UNIVERSITY	U OF FLORIDA	NORTH DAKOTA	U OF WISCONSIN	BOISE STATE	PENN STATE	U OF OKLAHOMA	NORTH TEXAS	COORDINATING BOARD
TECHNOLOGY	0	0	0	0	0	0	0	0
TOTAL	39	39	3	51	46	41	36	

COURSES WHICH SATISFY THE TECHNOLOGY REQUIREMENT

<u>College of Agriculture</u>
AGED 4302 Transfer of Agricultural Technology
AGRO 1321 Agronomic Plant Science
AGRO 2321 Crop Growth and Culture
AGRO 2432 Principles and Practices in Soils
AGSM 1301 Principles of Agricultural Modernization
AGSM 2302 Agricultural Surveying and Land Conservation
AGSM 3303 Small Gasoline Engines and Tractor Maintenance
AGSM 4302 Agricultural Buildings and Environmental Control
ANSC 1301 General Animal Science
ANSC 2303 Care and Management of Companion Animal
ANSC 2401 Anatomy and Physiology of Domestic Animals
ANSC 3301 Principles of Nutrition
ANSC 3402 Animal Genetics
FDT 2300 Principles of Food Technology
FDT 2302 Elementary Analysis of Foods
FDT 3301 Food Microbiology
FDT 3303 Food Sanitation
HORT 2311 Vegetable Crops
HORT 2312 Propagation Methods
LARC 3304 Landscape Construction
R&WM 2301 Introductory Wildlife
R&WM 2302 The Ecology and Conservation of Natural Resources
R&WM 2303 Introduction to Fisheries

<u>College of Architecture</u>
ARCH 2351 Building Systems
ARCH 2352 Building Systems 11

<u>College of Arts and Sciences</u>
ATMO 2301 Weather, Climate and Human Activities
ATMO 3301 General Meteorology
BIOL 2313 Ecology and Environmental Problems
CHEM 1303 Applied Chemistry
CHEM 3305 Organic Chemistry
GEOG 3353 Man, Resources, and Environment
GEOG 4401 Geomorphology in Environmental Management
GEOL 2303 Geology for Engineers
GEOL 3323 Geological Processes and Human Activities
G PH 2300 Introduction to Geophysics
MBIO 4307 Industrial Microbiology
MUCP 3001 Projects in Electronic and Experimental Music
PHIL 3330 Philosophy of Science
PHYS 1305 Engineering Physics Analysis I
POLS 4343 Science, Technology, and Public Policy

<u>College of Business Administration</u>
ISOS 3344 Introduction to Production and Operations Management

<u>College of Education</u>
EDIT 2318 Computing and Information Technology

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College of Engineering

C E 1130 Civil Engineering Seminar I
C E 1205 Engineering Analysis I
CH E 1305 Engineering Analysis I
C S 1405 Introduction to Computer Science
C S 3462 Introduction to Artificial Intelligence
CTEC 1312 Construction Methods
CTEC 2301 Surveying and Surveys
E E 1305 Introduction to Engineering and Computer Programming
GTEC 1312 Alternating and Direct Current Technology
GTEC 2301 Living with Technology
I E 1305 Engineering Analysis I
I E 2301 Engineering Design in Production Operations
I E 3351 Manufacturing Engineering I
I E 4363 Work and Product Safety Engineering
M E 1305 Engineering Analysis I
M E 3321 Engineering Thermodynamics I
MTEC 1312 Mechanical Technology
PETR 1305 Engineering Analysis I

College of Human Sciences

C&T 3301 Textile Fabrics: Properties and Performance
C&T 4331 Contemporary Textiles for Nonapparel Use
F&N 2310 Principles of Food Preparation
ID   4383 Computer Aided Design for Interiors
RHIM 3303 Computers in the Hospitality Industry