

6 FACULTY STAFF COUNCIL

RECEIVED
OCT 4 1968

OFFICE OF THE PRESIDENT

Tuesday, October 8, 1968 Staff Dining Hall

1. Approval of Faculty-Staff Council Minutes of June 18, 1968 Meeting.
Minutes were distributed in June.

2. INTRODUCTIONS - Attachment I

3. BUSINESS ITEMS:

X — A. Curriculum Committee Report - Attachment II.

B. Request for expansion of General Education Requirement - Dave Olsch -
Attachment III.

4. INFORMATION ITEMS:

A. Elections Committee Report - Corvina Johnson

1. Statewide Academic Senate Reports - Ray Anderson - Attachment IV

2. Committee Appointments

5. ADJOURNMENT

INTERIM AND TRANSITIONAL PROCEDURE

The following interim and transitional procedure should have been attached to the proposed constitution as acceptance of the new constitution includes acceptance of following:

Acceptance of the new Constitution by the entire electorate (ratification by a majority of the voting constituency) includes the following interim plan to smooth the transition from the present to the proposed form of government:

- a. Authority for the interim government shall be vested in the 1968-69 chairman of the Faculty-Staff Council and his Executive Committee in order to coordinate the formation of the new senates and the election of senate officers to whom this leadership shall be turned as they are elected.
- b. Members of the present council shall be senators to their respective senates for their elected terms. Any area of under-representation shall be corrected by election as follows. The Elections Committee of the present council will conduct elections following ratification of the proposed Constitution to fill the newly existing vacancies in each senate.
- c. The priority of business for the new senates shall be consideration of the suggested guidelines for proposed Bylaws.

REQUEST FOR APPROVAL OF A NEW DEGREE PROGRAM

Date Submitted: July 15, 1968

1. Definition of the Proposed Degree Program

- 1.1 Full and exact designation (degree terminology) for the proposed degree program:

Bachelor of Science in Engineering Technology

- 1.2 Name of the California State College submitting the request:

California State Polytechnic College, San Luis Obispo

- 1.3 Name of the department, departments, division or other unit of the college which would offer the proposed degree program:

Engineering Technology Department in the School of Engineering

- 1.4 Name, title, and rank of the individual primarily responsible for drafting the proposed degree program:

Archie Higdon, Dean, School of Engineering

- 1.5 Objectives of the proposed degree program:

1.51 To prepare graduates for that part of the technological field which requires the application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities. Engineering technology requires more specialization, or at least a narrower range of specialization, than engineering with somewhat less depth in mathematics, basic science and engineering science. Engineering technology is more application oriented with less theory than engineering at this time. Thus an objective of this program is to prepare men immediately useful to industry in support of the engineering effort of the industry.

1.52 To prepare graduates to be engineering technicians. The Engineering Council for Professional Development defines an engineering technician as "one whose education and experience qualify him to work in those areas of engineering which require the application of established scientific and engineering knowledge and methods, combined with technical skills, in the support of engineering or scientific activities toward the accomplishment of engineering objectives."

1.53 To aid in a significant increase in the persistence of engineering students by providing an alternate program for those less inclined toward the scientific aspects of engineering curricula of today.

- 1.6 List of all courses, by catalog number, title, and units of credit to be required for a major under the proposed degree program:

MP 141, 151	Manufacturing Processes	2
WM 141, 142	Manufacturing Processes	2
EnvE 141	Manufacturing Processes	1
IE 141	Manufacturing Processes	1

"Submitted to Chancellor's office for proposed program in Engineering Technology."

Attachment II

10/8/68

ME 141, 142	Engineering Drafting	4
WM 155	Fundamentals of Metallic Arc Welding	1
ET 142, 142	Electronic Instrument Practices	3
ET 143	Electronic Shop	1
WM 306	Metallurgy for Engineers	4
Engr 250	Engineering Problems - Digital Computer	1
CSc 221	Programming of Digital Computers	3
EL 101	Elements of Electronics	2
EL 141	Electronics Laboratory	1
EE 122	Electrical Analysis	3
EE 251, 252	Electrical Engineering Laboratory	2
EE 313	Electric Machines	3
ME 205	Engineering Mechanics - Statics	3
ME 206	Engineering Mechanics - Dynamics	4
Aero 202	Mechanics of Materials	5
ME 301	Thermodynamics	4
ME 341	Fluid Mechanics	3
ET 461, 462	Senior Project	4
		<hr/> 57

- 1.7 Clarification of number and types of electives, if any, under the proposed degree program including special options:

Technical option	40*
Free electives	10
Restricted electives	9
<hr/> 59 quarter units	

*No more than 10 units of these will be designated "major courses" for purposes of Section 40402, Title 5.

- 1.8 Justification of any unusual characteristics of the proposed degree program, e.g., in terminology, units of credit required, types of course work, etc.:

Four year engineering technology curricula leading to the BS degree are being started in many colleges and universities across the nation. The first and only Engineers Council for Professional Development accredited program is at Brigham Young University. These programs are developing very rapidly to meet an urgent need and this college should be in the forefront of that development. California has only three accredited two year Engineering Technology programs. They are City College of San Francisco, Cogswell Polytechnical College and Northrup Institute of Technology.

- 1.9 Prerequisites and criteria for admission of students to the proposed degree program, and for their continuation in the program:

Admission to the proposed degree program and continuation in it will be based upon requirements as outlined in the college catalog for all students.

CURRICULUM IN ENGINEERING TECHNOLOGY

Freshman

	F	W	S
Manufacturing Processes (MP 141, 151)	2		
Electronic Instrument Practices (ET 142)		3	
Electronic Shop Practices (ET 143)			1
Manufacturing Processes (WM 141, 142, EnvE 141)	1	1	1
Elements of Electronics (EL 101)	2		
Electronics Laboratory (EL 141)	1		
Mathematics for Engineers (Math 117)	5		
Analytic Geometry and Calculus (Math 131, 132)		4	4
College Physics (Phys 121, 122)		4	4
Freshman Composition (Eng 104, 105)	3	3	
Health Education (PE 107)			2
Physical Education (PE 141)	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Electives and option courses	1		4
	$15\frac{1}{2}$	$15\frac{1}{2}$	$16\frac{1}{2}$

Sophomore

Engineering Drafting (ME 141, 142)	2	2	
Manufacturing Processes (IE 141)	1		
Fundamentals of Metallic Arc Welding (WM 155)		1	
Engineering Problems - Digital Computer (Engr 250)		1	
Engineering Statics (ME 205)		3	
Engineering Dynamics (ME 206)			4
Analytic Geometry and Calculus (Math 133)	4		
College Physics (Phys 123)	4		
General Inorganic Chemistry (Chem 324)		4	
Programming of Digital Computers (CSc 221)			3
Public Speaking (Sp 201)			2
Basic Accounting (Actg 131)			3
Sports Education (PE 241)	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Electives and option courses	5	5	4
	$16\frac{1}{2}$	$16\frac{1}{2}$	$16\frac{1}{2}$

Junior

Mechanics of Materials (Aero 202)	5		
Metallurgy for Engineers (WM 306)		4	
Electrical Analysis (EE 122)		3	
Electrical Engineering Laboratory (EE 251, 252)		1	1
Electric Machines (EE 313)			3
Elementary Probability and Statistics (Stat 211)	3		
Introduction to Literature (Eng 207)			3
Technical Writing (Eng 219)			3
General Psychology (Psy 202)	3		
Survey of Economics (Econ 201)		3	
Electives and option courses	5	5	5
	16	16	16

Senior

Senior Project (ET 461, 462)		2	2
Fluid Mechanics (ME 341)	3		
Thermodynamics (ME 301)		4	
*Life Science			3
American Government (Pol Sc 301)	3		

*To be selected from the General Education List

Senior (cont'd)

Growth of American Democracy (Hist 304)
 The United States In World Affairs (Hist 305)
 *Literature or Philosophy
 Industrial Management (IR 311)
 Electives and option courses

<u>F</u>	<u>W</u>	<u>S</u>
	3	
3	3	3
		3
<u>6</u>	<u>5</u>	<u>5</u>
15	17	16

*To be selected from the General Education List

2. Context of the Proposed Degree Program

- 2.1 List of other California State Colleges currently offering the proposed degree program:

None

- 2.2 List of appropriate campuses of the University of California currently offering the proposed degree program:

None

- 2.3 Differences of the proposed degree program, if any, from similar programs in neighboring institutions:

There are six baccalaureate level Industrial Technology programs in California according to a national study as a Doctoral Thesis by Jesse J. Defore of Florida State University. They are California State Long Beach, Cal Poly San Luis Obispo, Fresno State, San Francisco State, San Jose State and Pacific Union College. There are no four year Engineering Technology Programs in California to our knowledge. The Industrial Technology programs are oriented towards business and management, whereas the Engineering Technology program is oriented towards direct support of the engineering effort through the use of specialized technical knowledge.

- 2.4 Relation of the proposed degree program to the total educational program of the respective college:

This college is uniquely qualified to offer the proposed program because of its background and faculty orientation. The proposed program is a logical extension of the engineering curricula to meet the needs of industry and government for fully qualified Bachelor of Science level technicians to work closely with engineers and multiply their effectiveness by doing the more routine and specialized portions of the total project. With adequate people trained in this way the engineer will be free to devote more time to creative design and development.

- 2.5 Relation of the proposed degree program to the planned curricular development of the respective instructional area:

Answered in 2.4 above.

- 2.6 Accreditation requirements as specified which are met by the proposed degree program:

The proposed program has been prepared to meet the requirements for accreditation by the Engineers Council for Professional Development and will be presented for an accreditation inspection as soon as the first class graduates.

- 2.7 List of other degree programs currently offered by the respective college which are closely related to the proposed program:

Some aspects of Industrial Technology are closely related to this program.

- 2.8 Explanation of how the needs to be met by the proposed degree program have previously been satisfied by the respective college:

In most respects they have not been met at all. The Industrial Technology program (formerly Technical Arts) has provided a fine type of program, somewhat suitable for people who will be attracted to the proposed program.

- 2.9 Applicability of course work taken under the proposed degree program to other degree programs currently offered by the respective college:

Where courses can be used for both this program and Industrial Technology only one set of courses will be developed. Courses in this program will be excellent electives for Industrial Technology students and perhaps a few other students.

3. Need for the Proposed Degree Program

- 3.1 Primary reason for requesting the proposed degree program:

To provide a program that is heavily engineering oriented but is less theoretical and somewhat more specialized than current engineering curricula. Many students become discouraged and transfer from Engineering or leave college completely because the basic and engineering science courses are either too difficult for them or fail to maintain their interest. Individuals who want to build, invent, create, and work with their hands as well as their heads are lost to engineering in large numbers. The proposed program is designed for them and it should greatly increase persistence in the School of Engineering.

Another reason is that a substantial portion of the faculty of the School of Engineering is more interested in and much better qualified for teaching engineering technology than engineering.

- 3.2 Professional uses of the proposed degree:

Graduates will be prepared to apply established scientific and engineering knowledge and methods directly to a wide variety of problems in industry. They will be especially useful in direct support of the engineers in any organization to implement solutions of many problems of somewhat routine nature and to give specialized attention to certain portions of new and large engineering problems. The industrial uses of men so trained are almost unlimited in increasing the productivity of the engineers in each organization by being extremely effective assistants with much needed specialized knowledge.

- 3.3 Demand in the geographical area served for individuals who have earned the proposed degree:

In talking with industrial people across the nation, it is evident that the need for engineering technicians is very great. Many colleges and universities are initiating four-year Bachelor of Science programs in Engineering Technology because of this urgent need and because the graduates of the traditional two-year programs are neither available in quantity nor fully qualified for many of the tasks to be done. This need is especially acute in California where no programs are in being as far as is known.

- 3.4 Results of any survey of serious interest in majoring under the proposed degree program:

No formal survey has been conducted but both junior college faculty and industrial recruiters are very clear in their insistence that there are large needs and large numbers of young people interested.

- 3.5 Enrollment figures during the past two years in specified courses or programs related to the proposed degree program which indicate interest in the proposed program:

Industrial Technology is related to Engineering Technology in that it draws (at least at Cal Poly) most of its students from those in engineering who are finding serious difficulty in mastering the engineering courses. At Cal Poly, Industrial Technology (formerly Technical Arts) has grown very rapidly and now has an enrollment of 300 students and graduates 80 per year.

With an undergraduate engineering enrollment which reached 1547 in the fall quarter 1967 in spite of a relatively low persistence rate, the potential source of students for Engineering Technology is very high.

- 3.6 Estimate of the number of students completing the proposed degree program in the second year and in the fifth year after its approval:

Second year: 40 Fifth year: 140

- 3.7 Total FTE lower division, upper division and graduate enrollments in the specified department, departments, division or other unit of the college which would offer the proposed degree program, as of the current semester and as projected five years hence, further divided into lecture FTE and laboratory FTE where appropriate:

Level	Actual Fall 1967					Projected Fall 1974-75				
	Lower Div	Upper Div	Grad.	Total	%	Lower Div	Upper Div	Grad.	Total	%
Lecture	226	337	0	563	59	288	454	16	758	59
Non-Lecture	<u>228</u>	<u>163</u>	<u>0</u>	<u>391</u>	<u>41</u>	<u>290</u>	<u>227</u>	<u>10</u>	<u>527</u>	<u>41</u>
Total	454	500	0	954	100	578	681	26	1285	100
Percent	47.6	52.4		100		45.0	53.0	2.0	100	

- 3.8 Advantages to the college of offering the proposed degree program:

The persistence rate for the School of Engineering and the college should increase by a significant amount.

Graduates will find useful and important positions along the lines of their interest and capabilities. Many of these would otherwise never graduate and would work in jobs below their real capacity.

Industry of California will have a source of employees with skills that are desperately needed.

Some current faculty members are exceptionally well qualified for an Engineering Technology faculty but are not so well qualified for the regular Engineering faculty.

3.9 Disadvantages of postponing or not offering the degree program:

It would continue the present situation which is not satisfactory for the college, the State, or the individuals who need the proposed program.

4. Resources for the Proposed Degree Program

4.1 List of all present faculty members, with rank, highest degrees earned, and professional experience, who would teach in the proposed degree program:

No firm list is possible at this time. The following individuals are representative of available faculty potential. No firm decisions have been made by either the individuals named or the college administration.

Leo E. Rogers - Intermediate Vocational Instructor
Bachelor of Science
High School instructor; engineering aid, Division of Highways

Ellard W. Betz - Intermediate Vocational Instructor
Bachelor of Arts
U.S. Navy; teacher

Richard E. Hall - Senior Vocational Instructor
Bachelor of Science
Mechanic, Lockheed Aircraft and Hancock Field; mechanic and supervisor, McClellan Air Field

Carlos C. Richards - Senior Vocational Instructor
Bachelor of Arts
O.C. Field Gasoline Corp.; U.S. Navy

Francis F. Whiting - Principal Vocational Instructor
Master of Arts
Teacher, Wisconsin and Minnesota; instructor, Kent State University; assistant professor, University of Minnesota; officer, U.S. Navy; chairman, Manufacturing Processes Dept., Cal Poly

George C. Stanton - Intermediate Vocational Instructor
Master of Arts
Tool and die maker; teacher, Anderson Union High School; laboratory assistant, Chico State College

R. Wallace Reynolds - Senior Vocational Instructor
Master of Science
Assistant educational adviser, Civilian Conservation Corps; engineer, Douglas Aircraft Co., Naval Ordnance Laboratory; instructor, Purdue University; head, engineering drawing, Washington and Jefferson College; assistant professor, University of Santa Clara; engineering designer, Hughes Aircraft Co.; consulting work in tool design and machine design.

Earl R. Hesch - Intermediate Vocational Instructor

Master of Science

U.S. Army; draftsman, Los Alamos Scientific Laboratory; survey party chief, C. H. Cole; surveyor-draftsman, City of Albuquerque.

Robert M. Johnston - Senior Vocational Instructor

Bachelor of Arts

Meteorologist, Pan American Airways, Pennsylvania Central Airlines; instructor, Randolph Field, Pan American Airways; engineer, Division of Highways.

Enrico P. Bongio - Principal Vocational Instructor

Master of Arts

Welder; U.S. Army Signal Corps; metal shop, Woodsman Power Saw Co.; instructor, Sonoma Valley Union High School; inspector and instructor, Hunters Point Naval Shipyard; technician, Ferro-Spec Laboratory.

Thomas D. Kay - Intermediate Vocational Instructor

Bachelor of Science

Assistant training director, Ex-Cell-O Corp.; apprentice instructor, Chrysler Corp.; mechanic, U.S. Army; machinist, Detroit-Timken Axle Co.; apprentice, Goodyear Tire and Rubber Co.

Glenn E. Seeber - Senior Vocational Instructor

Master of Arts

Instructor, Lassen Union High School and Junior College; welder and foreman, Interstate Steel Co., Pollock Shipbuilding Corp.; welder, Anderson's Welding Shop; fireman, Western Pacific Railroad

Irvin J. Kogan - Senior Vocational Instructor

Master of Arts

Instructor, Orange Coast College; U.S. Air Force

Theodore G. Graves - Intermediate Vocational Instructor

Master of Science

Instructor, Paia School; instructor, Maui High School; teacher; lecturer, University of California, Santa Barbara

Ray Allen - Intermediate Vocational Instructor

Master of Arts

Instructor, U.S. Naval Air Technical Training Center; technician, U.S. Air Force; technician, welder, machinist, self-employed; welder, Ventura Coastal Lemon Co.; engineer, Carpinteria Fire District

Richard T. Kombrink - Intermediate Vocational Instructor

Bachelor of Science

Pilot, U.S. Army Air Corps; draftsman, Hess, Greiner, and Pollard; engineer, T. H. Creech Corp., RCA Radar and Missile Div.; designer, City of Culver City

Paul E. Scheffer - Intermediate Vocational Instructor

Master of Science

Engineer, Crane Co., U.S. Rubber Co., Appraisal Service Co.; instructor, University of Minnesota

- 4.2 Number and types of additional faculty and other staff positions, if any, needed to initiate the proposed degree program:

None

- 4.3 Estimate of additional faculty and other staff positions needed specifically for the proposed degree program, one, two, and five years after its approval:

Only those justified by the faculty staffing formula as the program grows.

- 4.4 List of courses not now offered, by catalog number, title, and units of credit, needed to initiate the proposed degree program:

ET 101 Air Conditioning-Refrigeration Codes (2)
 ET 122 Advanced Turning (3)
 ET 142 Electronics (3)
 ET 143 Electronics (1)
 ET 344 Advanced Engineering Drawing (2)
 ET 221 Abrasive Machining and Finishing (2)
 ET 222 Advanced Machining Processes (3)
 ET 231 Basic Circuits (4)
 ET 232 Electronics Circuits (4)
 ET 233 Electronic Circuits (4)
 ET 235 Nondestructive Testing (5)
 ET 236 Welding Power Sources (3)
 ET 320 Mechanisms (4)
 ET 321 Air Distribution Systems (3)
 ET 324 Advanced Welding Technology (5)
 ET 325 Advanced Welding Technology (5)
 ET 326 Advanced Welding Technology (5)
 ET 331, 332 Refrigeration Systems (3)(3)
 ET 341 Electronic Circuits (4)
 ET 342 Radio Frequency Transmission Techniques (4)
 ET 421 Applied Machine Design (4)
 ET 422 Applied Machine Design (4)
 ET 423 Air Conditioning Systems (5)
 ET 461 Senior Project (2)
 ET 462 Senior Project (2)
 Math 131, 132, 133 Analytic Geometry and Calculus (4)(4)(4)
 Aero 202 Mechanics of Materials (5)
 ME 205 Engineering Mechanics-Statics (3)
 ME 206 Engineering Mechanics-Dynamics (4)
 ME 301 Thermodynamics (4)
 ET 441 Digital Circuits (4)
 ET 442 Electronic Systems (4)
 ET 443 Automation Technology (4)

- 4.5 List of additional courses not now offered, by catalog number, title, and units of credit, needed during the first two years after approval of the proposed degree program, to make the program fully operative:

ET 121 Manufacturing Processes (3)
 ET 123 Milling (3)
 ET 224 Work Measurement (4)

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- ET 322 Production Planning and Control (3)
- ET 413 Elements of Supervision (2)
- ET 431 Quality Control (2)
- ET 433 Production Incentive Systems (3)
- ET 434 Tooling and Manufacturing Practice (4)

4.6 College library resources, available in direct support of the proposed degree program, specified by subject areas, volume count, periodical holdings, etc.:

<u>Subject</u>	<u>Volumes</u>	<u>Periodicals</u>
Aeronautics	1925	37
Environmental Engineering	187	17
Electrical Engineering	1109	39
Electronics	1879	63
Industrial Engineering	277	24
Manufacturing Processes	454	8
Mechanical Engineering	1944	20
Metallurgy and Welding	585	8
General Engineering	1760	23
Tool Design & Shop	240	
Subtotal	10,360	239
Mathematics	816	21
Physics	2265	36
Chemistry	1216	21
Subtotal	4,297	78
TOTAL	<u>14,657</u>	<u>317</u>

4.7 Plans for developing college library resources in support of the proposed degree program during the first year of its operation:

A survey of the reference and bibliographic resources of the library is being undertaken in order to strengthen those subject areas in which the college is developing expanded or graduate programs. The collection of indexing and abstracting sources is being enlarged and back files of important periodical titles in the field of engineering will be obtained. The number of titles received on a subscription basis will also be increased.

The Library's book budget, exclusive of periodicals and non-book materials, is \$222,536.00 for the next fiscal year, and will continue to increase during the coming years. It can be expected that at least 10% of the budget will be spent on books in the subject fields listed under item 4.6. Additional funds will be spent on non-book materials such as microforms, periodicals, documents and maps. The Library automatically receives on an approval basis most current American and British publications in engineering and related areas. Significant numbers of older books are continually

being added to the collection by ordering from dealer's catalogs, and other sources.

The library subscribes to the microcard editions of United Nations documents and United States federal depository documents. An application has been made to become a federal depository library. The library has an account with the Clearinghouse for Technical and Scientific Information and receives many of the government sponsored research and technical reports.

The library's collections will be supplemented by the resources of other California and national libraries through inter-library loan.

- 4.8 Other instructional materials, if any, needed in support of the proposed degree program, itemized with cost estimates as projected for the first five years of operating the program:

It is estimated that costs for supplies and devices for laboratory work will be comparable to those currently experienced by other engineering departments with the same student load.

- 4.9 Special classrooms, laboratories, and other capital outlay facilities, if any, needed in support of the proposed degree program, itemized and arranged by dates for the first five years of operating the program:

None required until program outgrows present capacity.

State of California
M E M O R A N D U M

CALIFORNIA STATE POLYTECHNIC COLLEGE
San Luis Obispo

TO: Rodney G. Keif, Chairman

Date: 10-3-68

FROM: Dr. David Grant, Vice-chairman

SUBJECT: Revised General Education Requirements

On June 10, 1968, the ad hoc General Education Committee submitted its report recommending a way to interpret and implement the changes in the Administrative Code which had been approved by the Board of Trustees on February 29, 1968.

By a vote of 26-4, the Faculty-Staff Council voted to recommend the Committee's report as an interim procedure for General Education courses for the 1969-70 academic year.

On August 12, 1968, President Kennedy informed you by memo:

"After having consulted with the Academic Council and with the Academic Vice President and his staff, I accept the recommendation of the Faculty-Staff Council on General Education with one minor amendment to the section on Social Sciences recommended by the Academic Council. We are adding Psychology to the list of courses from which the students can select 15 units to meet the Social Sciences requirement.

"I am referring the amended recommendation on required General Education to the Academic Vice President for implementation in the 1969-70 Catalog. In view of the timetable that must be followed in order to put together curricula for the 1970-71 Catalog, I am asking that the above amended and approved General Education requirements be in effect for the 1970-71 Catalog as well as the 1969-70 Catalog.

"The new Academic Senate will therefore have additional lead time to have its appropriate committees take under advisement any changes proposed for General Education requirements for the 1971-72 Catalog."

On September 23 he added:

"My suggestion for a moratorium on further changes in GE requirements was prompted by a belief that it is in the interest of good academic planning for the instructional departments to be able to anticipate a period of at least two years of relative stability in GE requirements; since planning for curricular changes for the 1970-71 Catalog will be finalized in the fall of 1969, this means that the GE requirements would remain unchanged for at least one more year."

Because the departments are already working on material for the 1970-71 Catalog, the Executive Committee requests the Faculty-Staff Council to inform the President that its previous recommendation on General Education be extended to include the 1970-71 academic year.

Attachment III to
F-S Council Agenda
Oct. 8, 1968