June 1990

A Study to Determine the Effect of College-Level Mathematics Skills on Electronic Technology Final Grades

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DOCUMENT RESUME

ED 336 592 CE 058 980

AUTHOR	Satterlee, Brian
TITLE	A Study To Determine the Effect of College-Level Mathematics Skills on Electronic Technology Final Grades.
PUB DATE	Jun 90
NOTE	34p.; Ed.D. Practicum, Nova University.
PUB TYPE	Dissertations/Theses - Practicum Papers (043)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Community Colleges; Comparative Analysis; *Electric Circuits; *Electronics; Electronic Technicians; Industrial Education; *Mathematics Skills; Prerequisites; Required Courses; Statistical Analysis; *Statistical Significance; *Trigonometry; Two Year Colleges; Vocational Education
IDENTIFIERS	Seminole Community College FL

ABSTRACT

A study determined the effect of college-level trigonometry skills on the final grades of students enrolled in Introduction to AC/DC Circuits, the first course in the vocational electronics program at Seminole Community College (Florida). The literature was reviewed to develop a conceptual framework for the project. A pretest that measured college-level trigonometry skills was administered to each student enrolled in all sections of the course at the beginning of the Spring 1990 term. Results were used to categorize students as those with college-level trigonometry skills (control group, N=11) and those without (experimental group, N=14). At the end of the term, final grades for each group were averaged and a statistical comparison of the mean scores for both groups was performed. Since the researchers believed the control group would score higher, a two-tailed independent t-test was used. The difference between the mean scores of the control group and the experimental group was statistically significant at the .01 level. It was recommended that the college should require a prerequisite of college-level trigonometry and modify participation in the program and that vocational faculty should teach the trigonometry skills applicable to AC circuits. (Fifteen references and an organizational chart for Vocational-Technical Education at Seminole Community College are appended.) (YLB)

A STUDY TO DETERMINE THE EFFECT OF COLLEGE-LEVEL MATHEMATICS SKILLS ON ELECTRONIC TECHNOLOGY FINAL GRADES

Applied Educational Research
and Evaluation Seminar

by

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Seminole Community College

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West Florida Cluster

A Practicum presented to Nova University in partial fulfillment of the requirements for the degree of Doctor of Education

Nova University

June, 1990

ABSTRACT

In 1986, Seminole Community College was designated by the Florida Division of Adult and Continuing Education (DVACE) as a Center of Electronics Emphasis. As a designated Center, the College was to offer a vocational electronics curriculum that was developed by industry program planners. A problem existed in that tenth-grade level algebra was required by DVACE for student entrance into the program, the industry program planners required the learner to solve trigonometric problems as applicable to electronics technology, and the recommended textbook required trigonometry as a prerequisite to learning AC circuits. Further, the electronics faculty had expressed a concern that the state-mandated curriculum was inconsistent, causing students who enrolled in the program without college-level trigonometry skills to earn lower grades than students with such skills.

The purpose of this study was to determine the effect of college-level trigonometry skills on the final grades of students enrolled in EET 1035C, Introduction to AC/DC Circuits. The professional literature was reviewed to develop a conceptual framework for the project. A pretest that measured college-level trigonometry skills was

administered to each student enrolled in all sections of EET 1035C at the beginning of the Spring 1990 term. Using the results of the pretest, the students were categorized as either those with college-level trigonometry skills (the control group), and those without (the experimental group). At the end of the term, the final grades for each group were averaged and a statistical comparison of the mean scores for both groups was performed. The difference between the mean scores of the control group and the experimental group was statistically significant at the .01 level.

The following recommendations were derived from the results of this study: (1) The college should require a prerequisite of college-level trigonometry for EET 1035C; (2) The College should modify participation in the Centers of Emphasis program; (3) Vocational faculty should teach the trigonometry skills applicable to AC circuits; and (4) The College should conduct an in-service workshop for all administrators, faculty, and staff associated with the electronics programs to demonstrate the content difference between the postsecondary vocational offerings and the Associate of Science degree in Electronics Engineering Technology.

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Chapter One

INTRODUCTION

Nature of the Problem

The Florida High Technology and Industry Council evaluated postsecondary vocational electronics programs via site visitations in 1986. The findings of the evaluation were summarized as follows:

> There were no minimum standards for electronics programs and no common core of instruction which all students completing electronics training programs could be expected to have mastered... Most training programs had little accountability. As a group they could not document either program completion or mastery of minimum competencies among existing students (Vocational Education Committees Report, 1986).

The results of the evaluation were used as the basis for a cooperative venture between the Florida High Technology and Industry Council, the Division of Vocational, Adult, and Continuing Education (DVACE), and the electronics industry to restructure Florida's postsecondary vocational electronics programs.

To accomplish this task, ten "Centers of Electronics Emphasis" were established across the state. These centers were to offer state-of-the-art instruction utilizing minimum competencies that must be acquired by learners. The mandated method of instructional delivery was a computer-managed "turnkey" system that could be updated in a quick and inexpensive manner. Seminole Community College, which also serves as an Area Vocational Center, was selected as one of the original Centers of Electronics Emphasis.

Industry program planners were called upon to develop the minimal competencies expected for entry-level employment as electronic technicians. A curriculum framework was developed, including student performance standards. These standards were generated and approved by industry experts and were to be implemented by the Centers of Emphasis. Additionally, course textbooks were prescribed by the program planners.

A problem exists in that tenth-grade level algebra is recommended as a prerequisite for entry into this program while the student performance standards require the learner to solve trigonometric problems as applicable to electronics (Florida Vocational Program Guide for Electronic Technology: 1988). Further, the mandated textbook for the first course, EET 1035C, Introduction to AC/DC Circuits, requires trigonometry as a prerequisite to learner understanding AC circuits (Floyd: 1989).

The electronics faculty at Seminole Community College had expressed a concern that the state-mandated curriculum was inconsistent, causing students who enroll in EET 1035C without college-level trigonometry skills to earn lower grades than students with such skills. The faculty believed the prerequisite mathematics skill level should be made consistent with course content.

Purpose of the Study

The purpose of this study was to determine the effect of college-level mathematics skills on the final grades of Electronic Technology students enrolled in all sections of EET 1035C, Introduction to AC/DC Circuits, at Seminole Community College. The research hypothesis of this study was students with college-level trigonometry skills will earn higher grade mean averages in EET 1035C than students without college-level trigonometry skills.

Methodology

The population study group selected was the entire enrollment of all sections of EET 1035C, Introduction to AC/DC Circuits. Twenty-five students enrolled in two sections during the Spring 1990 semester. A pretest that measured college-level trigonometry skills was administered to each student in the population study group. Utilizing the results of the instrument, the students were grouped by the following categories: Those with college-level trigonometry skills (the control group), or those without college-level trigonometry skills (the experimental group). The total number of students in the control group was eleven, and the experimental group numbered fourteen. At the end of the semester, the faculty supplied the final letter grades for each student, which were converted to a four-point numeric system. Statistical treatment of the data ensued, and the mean scores of both groups were compared.

Chapter Two

BACKGROUND AND SIGNIFICANCE

Relationship to Seminar

The orientation of the Applied Educational Research and Evaluation seminar is toward research and evaluation, especially as it occurs in a work setting. Thus, the learner is required to give emphasis to research problems of which the results can be used within his/her institutional context (Barton: 1987). According to Isaac and Michael (1989), few opportunities exist for education professionals to apply what they have learned in research and evaluation coursework.

Yancy asserts the main goal of institutional research is frequently different from conditions in which the classical experimental research paradigm is being employed.

> The goal of the institutional researcher is often to gather information that can immediately aid the decision-making process rather than in testing hypotheses. The institutional researcher is frequently confronted with problems that need immediate solutions. This is the case particularly when the researcher's results are to be used directly in the planning process or to determine if a particular program or policy had the desired impact. Under the classical experimental paradigm, a research study begins with

> theory, either existing or newly derived. In an institutional research setting, a research study usually begins as a matter of practical expedience (1988:8).

Therefore, this practicum was developed from the perspective of the institutional researcher.

Relevance to the Institution

The expectation of this study was to determine the effect of college-level mathematics skills on the final grades of Electronics Technology students enrolled in EET 1035C, Introduction to AC/DC Circuits, at Seminole Community College. An ancillary expectation was to determine whether or not offering conflicting course prerequisites was detrimental to student success in EET 1035C.

An administrative decision was to be made before the next academic year concerning participation in the Centers of Emphasis program. The decision alternatives available to the College were: (1) Maintain status quo; (2) Modify program implementation; or (3) Discontinue participation. As stated previously, such designation requires participating institutions to submit to the state-mandated program guidelines, including what to teach, how to teach it, the sequence of instruction, and the use of a common textbook. The results of this study provided statistical data that were used in the decision-making process at Seminole Community College.

Review of the Literature

As society enters the last decade of this century, both technology educators and industry leaders must concern themselves with the question, Are technology curricula providing education in the knowledge and skills required for an effective workforce? Willis and Mayo (1988:216) indicate that technology-oriented, competency-based education models of curriculum that emphasize job-related competencies ensure such congruence. Consequently, technology educators are in a position to teach and influence generations of future students. Professors will have a marked influence on the educational system's transition into a technological future (Jalbert:1986).

Across the United States, community colleges are reassessing their missions, financial structures, and relationships with industry and government in response to increasing requests for job training (Jaschik:1986). Successful training partnerships between community colleges and industry create a synergistic effect on economic development. While industry and educational leaders may agree on mutually beneficial missions, needs, and programs, "the necessary cooperation sometimes fails to materialize at an operational level" (Goetsch: 1989:2). This often occurs when the responsibilities of the community college and sponsoring industry are not clearly delineated. Synergy will not occur unless a program is properly implemented.

A common misunderstanding in cooperative ventures is the level of instruction to be offered in technology programs, i.e., vocational vs. academic. Many community college administrators have promoted the concept of separate academic and vocational tracks by presenting vocational programs as a democratic option for academically less-able students (Parnell:1985:16-17). In general, vocational programs are perceived as terminal in nature, while academic programs promote further educational opportunities. Industry leaders must decide, from the beginning, what type of training best meets the needs of their service area.

Responsibility for the development and implementation of the curriculum lies with the community college. The National Council for Occupational Education (NCOE) recommends the following criteria for excellence in two-year technology programs:

> Associate degree programs designed primarily for immediate employment should be designated as an Associate in Applied Science Degree Program. AAS degree programs must be responsive to the employment needs of business...all components of the AAS degree requirements should be outcome oriented. The general education component of AAS degree programs should constitute a minimum of 25% of the course credits...Although open admission to the institution for all adults is a cardinal characteristic of most community, technical, and junior colleges, minimum criteria for admission to AAS degree programs are essential (1985:5-7).

The NCOE states that these criteria are necessary for the AAS degree to realize its potential both as a national employment credential and the curricular foundation for the occupational mission of community colleges. Another professional organization concurs in its recommendation to: "Insure the viability of the AAS degree by giving attention to communication, computation, and problem solving competencies in addition to technical education skills" (Commission on the Future of Community Colleges: 1988). Finally, The Accrediting Board for Engineering Technology (ABET) indicates that industry "prefers to employ technicians and technologists with sound basic educations, leaving much specialization to take place on the job" (Alden:1987:22). From all indications, the technical manpower needs of industry should be stronger at the two-year degree level.

In most AAS degree programs, an hierarchy of skills exists. The teaching of advanced technological skills requires the mastery of certain prerequisite competencies. According to Gagne, prerequisites may be classified as essential or supportive. Essential prerequisites must be learned if the total task is to be learned and performed correctly. Supportive prerequisites, on the other hand, aid new learning by making it easier or faster (1988:146). Instructional designers, in developing technology curricula, should conduct task classification and categorization before attempting to identify prerequisites. While the process of curriculum development is initiated by educators, industry experts should be consulted to ensure that prerequisites are in congruence with task categories.

Once the curriculum is developed and prerequisites established, the program must be implemented. The curriculum, or the written statement of work, should align with the taught curriculum and the evaluated or tested curriculum. This is known as the concept of curriculum alignment. Faculty "have a professional obligation to teach from the written curriculum" (Pautler:1989:1). The Commission on the Future of Community Colleges reports "it is through a curriculum with coherence that community can be also built" (1988:15).

In summary, competency-based models of curriculum are necessary if community colleges are to fulfill their mission of economic development. Economic development is best accomplished by cooperative ventures between education and industry. However, agreement must exist as to the level of instruction offered. National professional associations, such as the NCOE, AACJC, and ABET, promote the two-year AAS degree as a national credential in technology education. The process of creating such joint-venture programs requires the occupational tasks be identified and categorized, and the development of prerequisite coursework hierarchies. Finally, the concept of curriculum alignment should be adhered to in the implementation of the curriculum.

Chapter Three

PROCEDURES

The purpose of this study was to determine the effect of college-level mathematics skills on the final grades of Electronic Technology students enrolled in all sections of EET 1035C, Introduction to AC/DC Circuits, at Seminole Community College. The procedures for this study were categorized as: (1) The data collection phase and (2) The treatment of data phase. The procedures followed during the data collection phase were as follows:

1. The professional literature was reviewed.
2. The Director of the Testing Center at the College was consulted to locate a previously validated instrument that measures for college-level trigonometry skills.
3. The population study group was the entire enrollment of all sections of EET 1035C for the Spring 1990 semester. Twenty-five students enrolled in the two sections that were offered for the Spring 1990 term. The pretest that measured college-level trigonometry skills was administered to each student in the population

study group. The instrument was administered during the second week of the term, by a representative of the College's Testing Center.

4. Utilizing the results of the instrument, the students were grouped into the following: Those with college-level trigonometry skills (the control group) or those without college-level trigonometry skills (the experimental group). The total number of students in the control group was eleven, and the experimental group numbered fourteen. At the end of the semester, faculty supplied the final letter grades earned by each student. The letter grades were converted to the standard four-point numeric system, where the value for an "A" was 4.0, a "B" was 3.0, a "C" was 2.0, a "D" was 1.0, and an "F" was 0.0. A grade of "I" or "W" had no value, and was not considered in the statistical treatment of the data.

5. The final grades for each group were averaged and a statistical comparison of the mean scores for both groups was performed. The results were presented to the program administrator.

The procedures followed during the treatment of data phase were as follows:

1. The researchable hypothesis of this study was students with college-level trigonometry skills

will earn higher grade mean averages in EET 1035C than students without college-level trigonometry skills. The null hypothesis of this study was there is no significant difference between the mean final grades of the two groups.

2. The analysis of the data was to indicate if a statistically significant difference between the mean scores of both groups existed. Since it was believed that the control group would score higher than the experiment group, a two-tailed independent t-test was used. The desired level of significance for this study was .01, with the region of rejection being one-tailed (selected to provide meaningful evidence that one group would have significantly higher mean scores).

<u>Assumptions and Limitations</u>

The expected outcome of this study was to determine the effect of college-level mathematics skills on Electronic Technology final grades at Seminole Community College. It was assumed that: (1) Since only one student received a final grade of "I" and that score was not included in either sample group, the score was insignificant in the final statistical inference; and (2) The Coordinator of Electronics and Engineering Technology would use the results of this study in the decision process concerning the future direction of the College's participation as a Center of Electronics Emphasis. This study was conducted for Seminole Community College, and was limited to those involved in the Electronics Technology program at that institution.

Definition of Terms

prerequisite - a skill that is learned prior to the learning of a target objective, and that aids or enables that learning.

student performance standard - a resource list of job-specific competencies. This list is generated and approved by industry experts and becomes the basis for curriculum development in vocational programs.

Turnkey system - a vocational training equipment system that is installed in such a manner that requires the teacher to operate it by simply "turning the key" to the "on-position".

Chapter Four

RESULTS

The group mean for the control group was 3.5, with a standard deviation of 0.527. The experimental group had a group mean of 1.9, with a standard deviation of 1.639. The degrees of freedom for the sample were 22. The calculated t-value from the statistical analysis of data was 3.35. The critical t-value for the .01 level of significance, and a one-tailed region of rejection was 2.50. Since the calculated t-value exceeded the critical t-value, the null hypothesis was rejected. The difference between the mean scores of the control group and experimental group was statistically significant at the .01 level.

TABLE 1

Statistical Data and Comparisons

Variable	Control	Experimental
Mean	3.5	1.9
Standard Deviation	0.527	1.639
Observations	10	14

Degrees of Freedom:	22
Critical t-value:	2.50
Calculated t-value:	3.35

Chapter Five

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Discussion

The electronics faculty at Seminole Community College had expressed a concern that the state-mandated curriculum for the Electronics Center of Emphasis was inconsistent, causing students who enrolled in EET 1035C without college-level trigonometry skills to earn lower grades than students possessing such skills. The results of this study confirm the suspicion of the faculty. The difference between the mean final grade scores of students with trigonometry skills and those without trigonometry skills was statistically significant at the .01 level.

It is interesting to note that the Centers of Emphasis were designed for implementation as postsecondary vocational programs, not associate degree programs. This probably accounts for the prerequisite mathematics level of tenth-grade algebra. When the College was designated a Center of Electronics Emphasis, the program manager decided to place deliver the Center's training through the associate degree program, which requires learners to possess college-level mathematics skills. Hence, an inconsistency was created in curriculum implementation when the state mandated vocational curriculum conflicted with the college degree curriculum. The relationship between these findings and the review of the professional literature suggests that community colleges should strive to offer associate degrees that match the technological sophistication of their service areas. This does not imply that postsecondary programs are outdated or irrelevant, or should be discontinued. Rather, the technical associate degree offers training at a higher academic level than the postsecondary vocational program, and student outcomes meet different industry training needs.

Implications

Community colleges must make administrative decisions and/or adjustments concerning their curricular offerings. Often, the decisions are made without reference to a statistical database. The probable causes of this are: (1) Lack of available data; (2) A resistance to using quantitative applications to decision-making; (3) a propensity to rely on an intuitive approach to making decisions; or (4) A combination of the above.

The major implication of this study is that there now exists statistical data concerning curricular coherence in an Electronics Centers of Emphasis program. This study provided information that was useful in the decision process to continue, modify, or eliminate Seminole Community

College's participation as a Center of Electronics Emphasis.

Recommendations

The following recommendations were derived from the results of this study:

1. The College should require that EET 1035C should require a prerequisite of college-level trigonometry.
2. The College should modify participation in the Centers of Electronics Emphasis. Emphasis coursework should be offered through the post-secondary vocational program (the intended level of instruction).
3. Vocational electronics faculty should teach the trigonometry skills applicable to AC circuits.
4. The College should conduct an in-service workshop for all administrators, faculty, and staff associated with technical programs to demonstrate the content difference between it's postsecondary vocational electronics program and it's associate degree program in Electronics Engineering technology.

These recommendations could not have been supported without the results of this study. This practicum was presented to the Coordinator of Electronics and Engineering Technology, who, in turn, disseminated the results to college personnel.

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ORGANIZATIONAL CHART

Vocational-Technical Dean

Director of Technical
& Industrial Education

Department Chair
Program Manager

Airconditioning & Refrigeration
Apprenticeship
Automotive Technology
Building Construction Technology
Drafting and Design Technology
Electronics
Interior Design
Manufacturing Technology
Marine Mechanics Technology
Occupational Reupholstery
Wastewater Treatment
Welding

JOB DESCRIPTIONS

POSITION TITLE: Vocational-Technical Education Dean
REPORTS TO: Vice-President for Academic Affairs
MAJOR FUNCTION
The Dean of Vocational-Technical Education (VTE) provides overall leadership and direction to all VTE programs and activities of the College. S/he advises the V.P. on matters that affect VTE, and is an advocate for VTE.

POSITION TITLE: Director, Technical and Industrial Ed.
REPORTS TO: VTE Dean
MAJOR FUNCTION
The Director of Technical and Industrial Education (T&I) provides the leadership and direction to assigned programs and courses within the T&I framework. S/he advises the VTE Dean on matters that affect the assigned T&I areas.

POSITION TITLE: Department Chair
REPORTS TO: T&I Director
MAJOR FUNCTION
The Department Chair is a full-time faculty member who implements and evaluates the goals of the department in concert with the program faculty. S/he manages the day-to-day, internal operations of the department, including supervision of faculty, maintenance of the department budget, preparation of the schedule, and curricular improvement.
A department is defined as having more than three faculty members, excluding the Department Chair.

POSITION TITLE: Program Manager
REPORTS TO: T&I Director
MAJOR FUNCTION
The Program Manager is a full-time faculty member who coordinates daily operation of a program of learning. A program is defined as having up to three faculty members, including the Program Manager.

POSITION TITLE: Instructor
REPORTS TO: Department Chair/Program Manager
MAJOR FUNCTION
An Instructor is responsible for using professional knowledge and training to present materials designed to meet the objectives of courses.

BUILDING THE PROGRAM BUDGET

Building the program budget should not be an activity that is conducted once a year, when program cost projections are requested by the appropriate Director. It should be a continuous developmental process that results in an accurate description of program costs and needs for the next budget cycle. These projections are submitted to the Director, who, in turn, makes recommendations to the Vocational Dean.
The following is an overview of the budget building process.

Monthly

Each month, the Director's office receives updated budget figures for their respective cost centers. These figures are then transferred to departmental budget sheets and are distributed to the appropriate department chair or program manager, who is responsible to manage their program within the resources allocated. The monthly budget sheets furnish information on who spent, for what, when, and how much money is still available. This information provides a database which can be used in developing cost projections for the next budget cycle.

Yearly

Department Chairs/Program Managers will be requested, usually in Term II, to submit their budget request for the next fiscal year. These requests will made on the Budget Summary forms (see appendix), which is a line-item listing of anticipated costs, the justification for these costs, and the recommended vendor.

The Director will review all program budget requests, build the first draft of the program budget, and contact the appropriate department chair/program manager for final input and/or negotiation. The Director will then transfer all program budget requests to cost center budget requests, and submit those documents to the Vocational Dean for approval.

Constraints

SCC does not have access to unlimited financial resources. The Vice-President for Academic Affairs is responsible to allocate these limited resources among programs in the most effective and efficient manner possible, and relies on information submitted by the Deans in their decision-making process. The Dean relies on information submitted by the Director, who in turn relies on department chairs/program managers to provide accurate and reliable information. The superior budget request provides factual information on and justification for projected expenditures.

PURCHASING

Purchase Orders (see appendix for forms)

All requests for any expenditure at SCC flows from the department chair/program manager to the director. The director will approve or disapprove the request, based on department priorities and availability of funds.

1. Requests over $300.00 require the Dean's approval.
2. Requests over $500.00 must be approved by the Vice-President for Academic Affairs.
3. Requests over $5000.00 must be sent out for bid.

Upon final approval, copies of the purchase order are sent to both the director and the originator. Receiving is not a function of the faculty and academic staff. It is the function of the Receiving Office. All goods are delivered to the Receiving Office, which in turn, contacts the originator of the purchase order for disbursement.

Check Request (see appendix for forms)

In the event that a particular vendor does not accept a purchase order, it may be necessary to submit a request for check. The originator must furnish documentation that a purchase order will not be accepted by the vendor. All requests for checks must be approved by the Director, who forward it to the Business Office for processing. Usually, the check will be issued within 24 hours.

Petty Cash (no form required)

The use of petty cash is not to replace or circumvent the purchase order process. Items costing less than $15.00 doe not require a purchase order. The originator must submit paid receipts, with written justification for the purchase, to the Director for approval/disapproval.

PAYROLL

Faculty Loads

All full-time faculty must submit a Faculty Load Sheet to the Director's office by the end of the second week of the semester (see appendix for form). The full-time load for faculty teaching college credit coursework will consist of a minimum of 15 contact hours per week and a maximum of 18 contact hours per week (including release time, if applicable). The full-time load for faculty teaching non-credit courses will consist of a minimum of 20 hours per week and a maximum of 30 hours per week (including release time, if applicable). Overloads will be assigned to faculty whose loads exceed these ranges. The maximum overload allowed is 6 hours weekly averaged over a term.

Monthly Reporting (see appendix for forms)

A working schedule of 37.5 hours per week shall be the normal number of hours on campus for all employees. For instructional personnel, this includes their teaching load, eight scheduled office hours, and participation on College committees. Two forms exist: one for vocational faculty, and one for college credit faculty. These forms will be submitted to the Director's office at the appropriate time. Documentation for leave of absence or temporary duty elsewhere must be included.

Leave of Absence (see appendix for forms)

If a faculty member is anticipating a leave of absence, this must be pre-approved by the Director, at least one week before the time period requested. This must be filed with the monthly payroll report. If an illness is unplanned, a Certificate of Absence must me submitted on the day the individual returns to duty.

Temporary Duty Elsewhere (see appendix for forms)

All applications for temporary duty elsewhere must be approved by the Director at least one week before the event is to occur. The following is a schedule of reimbursements:

* per diem $50.00
* milage $0.20/mile
* meals $3.00/$6.00/$9.00

To use a College vehicle, contact the Director of Physical Plant. Car rentals require the approval of the President. Out-of-country travel must be approved by the Board of Trustees. If expenses are allowed, a Request for Reimbursement form must be submitted to the Director's office with appropriate receipts attached.

In-District Travel (see appendix for forms)

The following SCC rule presently governs in-district travel:

> Required in-district travel shall be reimbursed at the College's current rate per mile and shall be the actual miles traveled. In-district travel is defined as travel performed in Orange County as well as Seminole County. If reimbursement for milage only is involved, such reimbursement shall be made based on the filing of a Monthly Travel Report. Such report must be prepared on a single calendar month basis and filed within 10 days after the end of the month reported. If other reimbursable expenses are involved, all such expenses together with milage shall be reported on the individual trip Request for Reimbursement form. This reimbursement will not be paid unless the approved Application for Leave of Absence for is on file in the Business Office.

All faculty requesting Monthly In-District Travel must be pre-approved, by the Director, by submitting a Request for Monthly In-District Travel form.

PERSONNEL

Faculty: Full-time and Part-time (see appendix for forms)

Sections 3.0100 through 3.2500 of the Faculty Handbook provide information regarding personnel procedures at SCC. Department chairs and program managers should become familiar with these procedures and policies. The following is a partial listing of the topics that typically arise on a daily basis:

TOPIC	SECTION
Employment Contracts	3.0200
Classification of Contract Personnel	3.0220
Issuance of Continuing Contract	3.0225
Criteria for Employment	3.0230
Professional Development	3.0300
Contract Resignation	3.0400
Contract Periods/Duty Days	3.0500
Weekly Work Period	3.0600
Instructor Load and Overload	3.0700
Salary Schedules	3.1000
Employment Procedures - Faculty	3.1100
Employment Procedures - Staff	3.1120
Outside Employment	3.1200
Employees Enrolling in Courses	3.1400
Refund of Matriculation Fees	3.1410
Evaluation of Personnel	3.1500
Personnel Records	3.1600
Code of Ethics for Faculty	3.1700
Grievance and Complaint Procedure	3.1800
Termination of Employment	3.1900
Reappointment of Personnel	3.1930
Instructor Absences	3.2100
Leave of Absence - Definition	3.2200
Sick Leave	3.2207
Personal Leave	3.2209
Vacation Leave	3.2212
Sabbatical Leave	3.2300
Temporary Duty Elsewhere	3.2500

Employment Forms (see appendix)

All employees must submit an application for employment. The completed form includes:

1. An application form that must be submitted to the Director at least 3 weeks before the next Board meeting, which is on the second Tuesday of the month.
2. A notarized Loyalty Oath.
3. Forms I-9 and W-4.

<u>Scheduling</u>

The Director will deliver the previous year's schedule to department chairs/program managers for additions, deletions, and revisions. After the first draft is revised, it is reviewed by the department chair/program manager for final inclusion into the Spectrum schedule. The following guidelines will be followed in the revision process:

1. All changes will be made with a red pen.
2. Section numbers are assigned by the computer.
3. Prefix numbers are determined by the Statewide Course Numbering System.
4. Check the contact hours for correctness. Hours for many vocational courses vary from term to term.
5. Specify the meeting hours for courses - do not use military time; use a.m. and p.m.
6. Specify the days - M T W R F - use (S) for Saturday and (X) for Sunday.
7. Specify the Building and Room Number.
8. Specify an instructor by last name, first initial, and social security number. If Staff, the S.S.# is 999-99-9999. An instructor <u>must be assigned</u>.
9. Specify the maximum number of students to be allowed for each class.
10. Registration fees and Lab fees for courses are computer generated.
11. Specify starting/ending dates; vocational courses must have a start and an end date, which equate to the total number of contact hours for that course. Reference the College calendar for holidays, etc.
12. Specify footnotes - maximum 70 characters.
13. Contact the Co-op office to schedule Co-op classes for each term.
14. When building the schedule, classes can be scheduled and placed on "hold" by entering "hold", in red, in the left margin next to the section #.
15. Classes cannot overlap from one term to the next. Classes should be scheduled to end in time for the due date in processing grades.
16. To delete a class, draw a red line through the course, starting with the prefix number to the end of the course. Do not mark through the section #.

Non-credit vocational courses must be approved by the Board before they can be scheduled. Upon approval, the <u>Course Master</u> form (see appendix)is processed.

For additions, deletions, or changes to the schedule, once it is published, the <u>Class Schedule</u> form must be approved by the Director (see appendix).