

PROJECT ADMINISTRATION DATA SHEET

ORIGINAL  REVISION NO. \_\_\_\_\_

Project No. A-54-806 (U5030-3A0) ~~XXXX/GIT~~ DATE 8 / 22 / 85

Project Director: Dr. Helen E. Grenga School/~~XXX~~ Graduate Studies

Sponsor: U. S. Department of Education, Washington, DC

Type Agreement: Grant No. G008302597

Award Period: From 9/1/83 To 11/30/86 ~~8/31/86~~ (Performance) 11/30/86 (Reports)

Sponsor Amount:	This Change	Total to Date
Estimated: \$	<u>84,000</u>	\$ <u>284,600</u>
Funded: \$	<u>84,000</u>	\$ <u>284,600</u>

Cost Sharing Amount: \$ 70,354 in A-54-116 and Cost Sharing No: \$4,972 in A-56-112

Title: Cooperative Education Comprehensive Demonstration Program for Post Secondary Students

ADMINISTRATIVE DATA

OCA Contact Brian J. Lindberg X4820

1) Sponsor Technical Contact: Stan Patterson 2) Sponsor Admin/Contractual Matters: Arthur Stewart

Project Officer Grants Officer

U. S. Department of Education U. S. Department of Education

400 Maryland Avenue 400 Maryland Avenue

ROB-3, Mail Stop 3370 ROB-3, Mail Stop 3370

Washington, DC 20202 Washington, DC 20202

Defense Priority Rating: N/A Military Security Classification: N/A

(or) Company/Industrial Proprietary: N/A

RESTRICTIONS

See Attached N/A Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with N/A- no purchase or lease to be allowed.

COMMENTS:

Revisions No. 2 provides \$84,000 in new funds for final year of funding on a 3 year program (continuation of project A-54-805). New project number has been issued at request of Project Director so that separate records can be maintained for each year of funding.

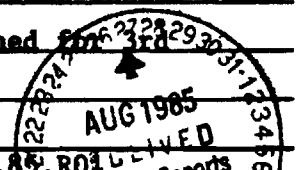
COPIES TO:

Project Director  
Research Administrative Network  
Research Property Management  
Accounting

Procurement/EES Supply Services  
Research Security Services  
Reports Coordinator (OCA)  
Research Communications (2)

SPONSOR'S I. D. NO. 03.144.000.85

GTR  
Library  
Project File  
Other Jones



SPONSORED PROJECT TERMINATION/CLOSEOUT SHEET

Date 5-7-87

Project No. A-54-806

School CE Grad. Stud. \_\_\_\_\_

Includes Subproject No.(s) N/A

Project Director(s) Heleh E. Grange

Sponsor U.S. Department of Education, Washington, DC

Title Cooperative Education Comprehensive Demonstration Program for Post Secondary Students

Effective Completion Date: 11/30/86 (Performance) 2/28/87 (Reports)

Grant/Contract Closeout Actions Remaining:

- None
- Final Invoice or Final Fiscal Report
- Closing Documents
- Final Report of Inventions
- Govt. Property Inventory & Related Certificate
- Classified Material Certificate
- Other \_\_\_\_\_

Continues Project No. A-54-805 Continued by Project No. \_\_\_\_\_

COPIES TO:

- Project Director
- Research Administrative Network
- Research Property Management
- Accounting
- Procurement/GTRI Supply Services
- Research Security Services

Library  
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 Other Duane H. Angela Dubose Russ Embry

A-27-246

# Georgia Institute of Technology

A UNIT OF THE UNIVERSITY SYSTEM OF GEORGIA

ATLANTA, GEORGIA 30332

OFFICE OF GRADUATE STUDIES AND RESEARCH  
GRADUATE COOPERATIVE PROGRAM  
(404) 894-5314

February 26, 1987

U.S. Department of Education  
Office of Higher Education Programs  
Program Support Branch (84.055)  
400 Maryland Ave., S. W.  
Washington, D.C. 20202

Ref: E.D. Grant No G008302597

Dear Sir:

Attached are the original and two copies of the final report for this grant. I would like to take this opportunity to thank you for the support this grant has provided in establishing the Graduate Cooperative Program at the Georgia Institute of Technology.

The Financial Status Report form will be sent under separate cover.

Sincerely,

Helen E. Grenga  
Assistant Vice President

HEG:pdr

DEPARTMENT OF EDUCATION  
WASHINGTON, D.C. 20202

COOPERATIVE EDUCATION PROGRAM  
(Title VIII, the Higher Education Act of 1965, as amended)

PERFORMANCE REPORT

Program Year 1985-86 (FY 1985 Funds)

FORM APPROVED  
O.M.B. NO. 1840-0063  
APPROVAL EXPIRES: 3/31/88

GRANT NUMBER

GOO 8302597

BUDGET PERIOD

FROM (month, day & year) TO (month, day & year)

9	1	85	11	30	86
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NAME OF GRANTEE Georgia Institute of Technology  
Graduate Cooperative Program  
Graduate Studies and Research

ADDRESS (include number, street, city, State and ZIP code)  
225 North Avenue  
Atlanta, GA 30332

PART I - TO BE COMPLETED BY ADMINISTRATION, DEMONSTRATION, AND EXPLORATION PROJECTS

Your answers to each item in Part I should reflect the activities and accomplishments of your project for the duration of the budget period as entered in the upper right-hand corner of this page)

SECTION A - PLACEMENT AND RELATED DATA

NUMBER OF CO-OP STUDENTS WHO WERE PLACED IN PAID JOBS, BY DISCIPLINE/FIELD, DURING THIS BUDGET PERIOD (Include graduate students) (Count students only once; do not count the number of times a student was placed)

DISCIPLINE/FIELD (Use additional sheets, if necessary)	NUMBER OF STUDENTS PLACED	CHECK IF DISCIPLINE/FIELD NEW TO CO-OP THIS BUDGET PERIOD
Biology	1	X
Chemical Engineering	2	
Civil Engineering	4	
Electrical Engineering	18	
Engineering Science and Mechanics	2	
Geoph. Science	1	X
Information & Computer Science	1	X
Industrial Engineering	8	
Mathematics	2	
Mechanical Engineering	15	
Nuclear Engineering	1	
Physics	4	
Textile Engineering	2	
<b>TOTAL</b>	61	

2. NUMBER OF STUDENTS PLACED BY TYPE OF PROJECT CALENDAR (TOTAL should equal TOTAL in Item A-1)	a. ALTERNATING 48	b. PARALLEL 13
3. NUMBER OF CO-OP STUDENTS PLACED WHO WERE ENROLLED IN GRADUATE OR PROFESSIONAL PROGRAMS (Post-baccalaureate) Seventeen enrolled as advanced undergraduates	44	
4. WERE ALL STUDENTS PLACED IN JOBS RELATED TO THEIR ACADEMIC PROGRAMS OF STUDY OR CAREER OBJECTIVES? (Item A-1)	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO (If NO, explain in Section D)	
5. NUMBER OF EMPLOYERS WHERE STUDENTS WERE PLACED (Firms/organizations; (This number may be less than the total number of employers with whom the institution has co-op work agreements)	37	

PERFORMANCE REPORT  
Third and Final Budget Period  
September 1, 1985 - November 30, 1986  
E.D. Grant Number G008302597  
Georgia Institute of Technology  
Graduate Cooperative Program

Section D. Narrative

I. Project Accomplishments During Final Budget Period  
Project objectives and activities, as given in the grant application, with the level of accomplishment attained during the third year are as follows:

A. Emphasize external program development and develop graduate level co-op positions.

Efforts on this aspect have continued and expanded with faculty assistance during the third year of the project. Some of the highlights for this year are as follows:

1. Graduate Co-op information brochures were sent to about 100 new companies. The Total number of companies participating in the program now totals 185.
2. A total of at least 3000 company information brochures were distributed by mail, through the placement center, at company visits and other means.
3. The School of Information and Computer Sciences approved unrestricted participation by their students in the Graduate Co-op Program, as of November 1986. Previously, they required the company to provide a fellowship in order to participate. While we will continue to try to develop such support for graduate co-op students, we are pleased that the lack of such additional funding will not preclude their students benefitting from other elements of the co-op program.
4. Faculty job developers visited several companies outside the state. Numerous other Atlanta area companies were visited by faculty job developers and/or the Graduate Co-op Staff.

Company visits by faculty are especially important at the graduate co-op level, since students tend to specialize at this level and are particularly interested in work directly related to their specialization. This also promotes interest by the faculty members who are crucial to recruiting students for the positions

A cooperative effort with the Corporate Liaison Program has been initiated so that interactions with Corporate Liaison members (company visits, students placements) are credited to the Graduate Co-op program. Such credit results in funds that can be used for travel and continued program development with the companies.

- B. Promote cooperative education to both graduate and undergraduate students at Georgia Tech.

The Graduate Co-op Program is widely advertised to Georgia Tech students. Articles about the program appear in the various publications of the Institute, including quarterly advertisements in the school newspaper and progress reports in the undergraduate co-op newsletters.

Brochures and posters with program information are widely distributed through schools and companies and in response to program inquiries. Approximately 3000 brochures and 900 posters have been distributed this year.

A number of students have indicated that the availability of a Graduate Co-op Program influenced their decision to pursue graduate studies.

One of the problems, early identification of students to the co-op program, is being alleviated with the new graduate admissions application forms that have a section for students to indicate their interest in this program.

- C. Involve faculty at a high level of participation.

The Graduate Co-op Director regularly attends meetings of the Graduate Coordinators and of the Graduate Committee and periodically reports on the status of the Graduate Co-op Program.

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D. Provide career counselling for students.

The application for the Graduate Cooperative Program is a slightly modified version of the Placement Center resume form. Students are advised and assisted in completing the form. This is a learning experience for many of the students. After the student is admitted to the program, the Graduate Co-op Director and the student discuss the student's work interests and identify companies of potential interest to the student. The student prioritizes the companies, based on job descriptions and brochures, as well as discussion with others who are familiar with the specific companies. The student's resume and a transcript are then sent several companies at a time until placement is made. If there are no current participating companies for the student's special area of interest, the student and appropriate faculty are asked to suggest companies who are then contacted by the Graduate Co-op Office to develop participation by that company.

A library of information concerning participating companies, including job descriptions, has been established in the Graduate Co-op Office. This library and the larger Placement Center library are both used by the students to help clarify their career interests as well as to identify companies and/or specific jobs of interest.

E. Stress academic enrichment and achievement.

The Graduate Cooperative Program is designed purposefully to incorporate maximum flexibility in order for the faculty and students to use it for maximum benefit with respect to the academic programs while at the same time offering companies a variety of ways to participate in the educational process through this program.

Some companies, students and academic units wish only to participate for the industrial experience gained by graduate co-op students. In this case, the program is similar to the traditional undergraduate program, providing all three participants with interactions that enrich the student's academic program. The work periods, however, are not necessarily scheduled on an alternating quarter basis. These students also enhance the graduate classroom experience of non co-op students in the same way that undergraduate co-op students contribute practical experiences to undergraduate classes.

The Graduate Cooperative Program can be used to obtain academic credit if the student does some or all of the thesis research or special problem assignment at work. In such cases, faculty members are directly involved with the company supervisor of these students.

Another model of the Graduate Cooperative Program is that in which a company sponsors a research grant on which the graduate co-op student is a research assistant performing thesis research at school; the student then spends work periods with the sponsoring company to become more involved in and knowledgeable about the application of this research.

F. Ensure growth of the Graduate Co-op Program.

During the first year, 73 companies were on the participation list. During the second year, this number increased to 126. Currently, there are 185 active companies for potential co-op student placement.

One hundred forty-six students have been placed in the program since the beginning in December 1983 (28, 57, and 61 during the first, second and third year, respectively).

The statistics for the third budget period concerning applications, admissions and placement of students in the program are as follows:

Number of applicants	185
Number accepted	168
Number placed	61
Number available for future placement	39

There are currently 84 active placed students at work or in school.

G. Administrative Commitment

1. The word processing/computer equipment obtained last year with Institute funds has greatly facilitated the operation of the Graduate Co-op Program. Information concerning students and companies is kept on a Data Management System, and is used routinely for matching students and companies, tracking students' progress and gathering statistical data.

2. The Vice President for Research, Vice President for Academic Affairs and Associate Vice President for Graduate Studies and Research are kept informed about the status and progress of the Graduate Cooperative Program. They are all interested in and supportive of the program. The Graduate Co-op program Director attends cabinet meetings of the Vice Presidents during the year.
3. The strongest evidence of commitment is the continuation of the program with a Director and Administrative Secretary although the project and funds terminated in November, 1986. Current plans are to continue the program indefinitely. A major new thrust will be to emphasize development of the graduate co-op program at the doctoral level.

## II. Grant Proposal Objectives Not Attained

The only significant objective not met has been in the number of student placements. As previously reported, there are several reasons for this:

The original estimates for the program were not realistic in view of the differences in graduate and undergraduate co-op programs. The more specialized interests on the part of both employers and students require more individualized matching. Less frequent course offerings at the graduate level necessitate a flexible study/work schedule rather than a strictly alternating quarter schedule. Some students, due to being married or having a housing lease, are restricted in location.

None of these problems are insurmountable, but they require time to resolve, and simply extend the time required to reach program goals in terms of numbers of students participating.

## PROJECT SUMMARY

September 1, 1983 - November 30, 1987

### 1. Accomplishments and Outcomes.

Summary statistical data for the three year period are as follows:

Inquiries	815
Applications	397
Admissions	366
Placements	146
Graduations	32
Withdrawals (after placement)	30
Companies (with placements)	72
Total companies	185

The above statistics refer only to the centrally administered Graduate Co-op Program. There are probably at least 100 additional students who have been placed by their faculty in professionally related positions that would qualify for graduate co-op credit. The Institute's centralized program was established to facilitate and promote such arrangements by the faculty and schools, not to replace them. As the program continues to gain visibility and recognition, it is believed that more faculty will want their students to be an official part of the graduate co-op program.

The numerous success stories for students and companies, along with the increasing visibility and credibility of the program among the faculty, are the major accomplishments that indicate the program will continue to grow and will play a significant role in the future of graduate education at Georgia Tech.

### 2. Strengths.

#### A. Individualized Programs.

A major strength of the graduate co-op program is its flexibility so that individualized programs can be worked out for maximum benefits to the students, faculty and companies.

Students, in consultation with their faculty and with company approval, may select a study/work schedule that includes alternating quarters, six month work periods, parallel work and study periods or other combinations. This flexibility is almost essential for the success of a co-op program involving graduate students.

The graduate co-op program accommodates and facilitates individualized program arrangements with companies. Several program models have been successfully developed with various companies. One of the models, which was used by the School of Chemical Engineering several years before the graduate co-op program was established, includes thesis research by the student at the company site. The company provides a research assistantship stipend for the student as well as travel funds for the faculty thesis advisor to visit the company for consultation with the student and company supervisor about the thesis research.

In another model, the company sponsors a research grant on which the graduate co-op student performs thesis research at school; the student's work periods at the company site are then used to become more knowledgeable about the application of this research.

A third model combines the co-op experience with a graduate fellowship. Companies that employ graduate co-op students can facilitate their completion of degree requirements by providing fellowships for them during study periods.

Finally, a model that is currently being developed is one in which the company sponsors an employee to return to school for an advanced degree; during work periods with the company, the employee will be provided the time and resources to perform thesis research.

#### B. Faculty Involvement.

One of the greatest strengths of the graduate co-op program at Georgia Tech is the involvement of faculty, which began with the establishment of the program by the Academic Senate. Faculty are involved in student recruitment, approval of students to participate in the program and the approval of the student's study/work schedule. The Assistant Project Director position in the grant was decentralized to provide partial support for several faculty members to serve as faculty job developers. Many more faculty members are actively involved in promoting the program to students and companies.

Recently an arrangement was worked out with the Corporate Liaison Program to provide credit for graduate co-op activities with Corporate Liaison members. This credit results in financial support for the program, which provides additional travel funds for company visits by faculty and the graduate co-op staff.

C. Administrative Support.

Another strength of the graduate co-op program at Georgia Tech is the administrative support. The President, Vice Presidents and Deans are knowledgeable and supportive of the program. Long range plans for the Institute include significant participation of students in the Graduate Co-op Program. The goal is to have about twenty-five percent of the total graduate enrollment as graduate co-op students.

Since the goals also include a large proportion of doctoral students, a major new thrust of the graduate co-op program in the immediate future will be to develop co-op positions that involve thesis research for doctoral students.

3. Weaknesses.

A weakness of the program has been the relatively slow growth rate of student placement during the three years project period. This has been due to several factors. Many students who apply for the program do so primarily for financial reasons; these students sometimes withdraw from the program when other support becomes available - usually before placement. Students who enter the co-op program for the educational and experience benefits generally remain in the program even when other support is available. Most of the graduate co-op students do have additional support, such as an assistantship during study periods. More graduate students than undergraduates are not state residents and thus must pay out-of-state tuition if they do not have an assistantship or other type waiver. It would be difficult for a graduate student, even on an alternating quarter basis, to meet all expenses with out-of-state tuition unless some additional support is available. Since most graduate students are unable to work alternate quarters (due to course schedules), the problem is especially critical.

Another weakness of the program is the lack of development of attractive co-op positions for doctoral students. The primary emphasis during the project period has been at the master's level. While this was a logical initial step, future emphasis should be at the doctoral level to be consistent with the Institute's goals to increase the ratio of doctoral to master's degree students. Several doctoral students have participated and the experience has been valuable to them. However, to make the program attractive to a larger number of doctoral students, thesis research must be integrated into their co-op assignment. This will require much greater faculty involvement and a longer term commitment from companies.