Triple Threat Collaboration: Increasing Minority Success in Engineering

Jessica J. du Maine, Dorothy McGuffin
St. Louis Community College – Florissant Valley

Abstract

Increasing enrollment in engineering programs is attained through creative partnerships. One such partnership is the Emerson Electric Minority Engineering Scholarship. This 13-year collaboration between the corporate world (Emerson Electric Co.), a four-year university (University of Missouri – Rolla (UMR)) and a 2-year college (St. Louis Community College (SLCC)) makes it possible for participating students to enroll in an engineering curriculum and maintain academic achievement that leads to degrees in engineering. These students, selected from underrepresented populations, follow a specific engineering curriculum at SLCC, with tuition and fees paid by Emerson for up to six consecutive semesters. Then, upon successful completion of this component, these students are eligible to transfer to UMR to complete their engineering degree, with tuition and fees paid by the UMR Minority Engineering Transfer Scholarship, for up to three years.

The involvement of industry is key in this collaborative which is a unique program designed to increase recruitment and retention of minority engineering students. Another key component is the careful selection of a nurturing staff person to serve as counselor and mentor to the students. The successes of this program, as evidenced by student performance, transfer, retention and graduation, will be documented in this paper.

Introduction

Increasing minority enrollment in engineering programs is attained through creative partnerships. Often, these partnerships consist of two partners - Two-year community colleges partner with four-year institutions or universities partner with industry. This paper describes a unique community college/university/industry partnership – a Triple Threat Collaboration – that is a highly effective solution to the problem of increasing minority recruitment and retention in engineering programs.

What?

The Emerson Scholarship Program makes it possible for participating students, who keep their grades up, to earn a degree in Mechanical, Electrical or Computer Engineering, with nearly all expenses paid. The scholarship covers the cost of tuition and fees for up to six consecutive semesters at any of the three community college campuses – namely, SLCC-Florissant Valley,

SLCC-Forest Park or SLCC-Meramec. Student who complete the first two years of engineering studies with a minimum grade point average of 2.5 are eligible to transfer to UMR as juniors under a second scholarship program. This second scholarship, the Minority Engineering Transfer (MET) Scholarship, funded by UMR's Minority Engineering Program, covers the cost of tuition and fees for up to three years at UMR.

Why?

There are a small number of minorities and women in the engineering profession. This program strives to enhance the number of underrepresented groups achieve engineering degrees with ultimately working for Emerson as the goal. Emerson largely only employs Electrical, Mechanical and Computer Engineering graduates for its engineering positions.

How?

Every student signs a Scholarship Acceptance and Cooperation Agreement with the requirements as listed below:

1. Students will see only the designated counselor of advisor for registration; no web or online registration is permitted.
2. Students will see the home campus coordinator, to conduct student transactions, including: registration, financial aid transactions, bookstore purchases, dropping and adding classes, etc. If taking classes at another SLCC campus other than the SLCC-Florissant Valley campus, the student will contact that campus' Scholarship Coordinator or Advisor.
3. The student will participate in various activities such as New Student Orientation, Student Meetings, Emerson Events (usually two per year), individual appointments, and academic help sessions.
4. The student will work no more than 20 hours per week.
5. The student gives permission to the Scholarship Coordinator to make periodic checks on attendance and academic progress.
6. The student gives permission the campus coordinator to provide The Emerson Electric Company with the student's name, address, phone number, e-mail, college activities, grades and/or transcript. This information may be used for promotional and publicity purposes in news releases, feature stories, advertisements, and college correspondence to promote The Emerson Electric Company Minority Engineering Scholarship.

This cooperative program between the community college, the university and the corporation is very successful in the area of engineering education for minority students. The main components that make this program work are:

1. Selection and support of a community college staff persons who are willing to serve in this capacity, not just financially, but respect and understanding of the amount of real work time it takes to do this job. The main job being retention, completion of the Associates degree in Engineering Science, or completion of over 60 transferable

Engineering Science credits and transfer of the students I the program to the university. At the community college, this staff person is freed from the task of finding outside funds to support the program.

2. The minority engineering staff person serves to recruit students; interview and select students; work with educational advisors, faculty advisors, and enrollment personnel to see that students are appropriately placed; monitor students while enrolled in classes; provide the students with opportunities to interact with other engineers and other engineering students (such as joining the SLCC-Florissant Valley chapter of The National Society of Black Engineers); see that the students are utilizing support services on campus (especially learning help labs like our Science and Math Lab, the Writing Center and the Tutoring/Supplemental Instruction program); and connecting students with professional counselors who pay attention to the student's personal, emotional and mental health needs. Small group meetings are essential. It is usually easier to get students to come in for Small group meetings than for individual appointments.

Results and Conclusions

The success of this program is clearly seen in the data from 2001.

UPDATE ON STUDENTS PARTICIPATING IN THE
EMERSON ELECTRIC COMPANY MINORITY ENGINEERING SCHOLARSHIP PROGRAM AT
ST. LOUIS COMMUNITY COLLEGE AT **FLORISSANT VALLEY**

ENTERING SCHOOL YEAR FALL	STUDENTS ON SCHOLARSHIP	STUDENTS GRADUATED FROM S.L.C.C.-FV TRANSFER TO UMR	STUDENTS CONTINUING AT FLO VALLEY	STUDENTS WITHDRAWN	STUDENTS CURRENTLY AT UMR	STUDENTS GRADUATING FROM UMR
1988	6	3	0	3	0	3
1989	6	0	0	6	0	0
1990	5	1	0	4	0	1
1991	5	2*	0	3	0	1
1992	5	3**	0	3**	0	3
1993	5	4	0	1	0	4
1994	4	2	0	2	1	1
1995	5	4	0	1	0	4
1996	5	5	0	0	1	4
1997	4	2	0	2	1	1
1998	4	4*	0	0*	3	0
1999	5	3	0	2	3	0
2000	2	0	1	1	0	0
2001	6	0	5	1	0	0
TOTAL	**67**	**33**	**6**	**29**	**9**	**22**

* Student graduated from F.V.; did not transfer to UMR

** One student lost scholarship; but he transferred to UMR and graduated from UMR

The following pertinent information should be considered when viewing this data:

1) Using a three-year (six semester) time span of 1995-1997: 14 entered SLCC-Florissant Valley, 11 graduated and transferred to UMR with a 78% Persistence Rate.
   Using a three-year (six semester) time span of 1996-1998: 13 entered SLCC-Florissant Valley, 10 graduated and transferred to UMR with a 76% Persistence Rate.

2) Using a six-year completion rate (entered SLCC-Florissant Valley, transferred to UMR and graduated UMR) 1990-1996: 20 transferred to UMR, 14 graduated with a 70% graduation rate.

3) Using a six-year completion rate (entered UMR and graduated UMR) 1990-1996: 55% graduation rate.[1]

4) 36% of freshman from underrepresented minority groups who enroll in engineering complete a Bachelor's degree in Engineering.[2]

Bibliography

1. "Annual College Rankings" US News and World Report, August 20, 1999 Pages.

2. National Action Council for Minorities in Engineering (NACME)

Biography

JESSICA J. du MAINE
Jessica J. du Maine is an Assistant Professor of Electrical Engineering and Electrical Engineering Technology at St. Louis Community College – Florissant Valley. She graduated from the University of Missouri – Rolla with a B.S. in Electrical Engineering and received an M.S. from Washington University in St. Louis. She is a registered Professional Engineer in the State of Missouri.

McGUFFIN, DOROTHY
Dorothy McGuffin is a Professor of Counseling at St. Louis Community College – Florissant Valley and District Coordinator of the Emerson Electric Minority Engineering Scholarship Program. She graduated from Southern Illinois University-Carbondale with an M.S. in Teacher Education and from Drake University with an M.S. in Student Personnel and Counseling. She is a licensed Professional Counselor and a Certified School Counselor.