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### **ABSTRACT**

An examination is presented of the progress of Maryland's Joint Coordinating Committee for Occupational Education Programs in developing a systematic procedure for the evaluation of the quality of occupational programs in Maryland's community colleges. After presenting the 1976 resolution which established the joint committee, the fiscal year 1987 project summary is provided. The summary presents procedures and results for the following objectives: (1) to gather and report statewide data on credit enrollment, degree recipients, graduate follow-up, leaver (entrant) follow-up, employer follow-up, discipline cost analysis, continuing education data system, and program inventory; (2) to run the State Board for Community Colleges Program Data Monitoring System (PDMS) and review each of the career programs by June 15, 1987; and (3) to publish an in-depth evaluation of 50 community college programs and a statewide evaluation of paralegal programs. Tables identify the program areas designated for evaluation between 1978 and 1986 and the programs designated for qualitative evaluation in 1986 and the reasons they were selected. Guides for using the PDMS and for using information to support instructional program evaluation are appended. (EJV)

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## THE IMPROVEMENT

## OF OCCUPATIONAL EDUCATION

## IN MARYLAND

A Progress Report Fiscal Year 1986

DIRECTED BY:

Maryland State Board for Community Colleges

**FUNDING GRANTED BY:** 

Division of Vocational-Technical Education Maryland State Department of Education

PROJECT DIRECTOR:

Lawrence A. Nespoli

September 1987 Annapolis, Maryland 21403



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## Resolution

## ESTABLISHMENT OF JOINT COORDINATING COMMITTEE FOR OCCUPATIONAL EDUCATION PROGRAMS MARYLAND STATE BOARD OF EDUCATION -MARYLAND STATE BOARD FOR COMMUNITY COLLEGES

- WHEREAS, The Maryland State Board for Community Colleges and the Maryland State Board of Education, in order to improve, expand, and coordinate their individual and joint efforts in the development, achievement, and support of high-quality occupational programs and services in postsecondary education for the citizens of Maryland; and
- WHEREAS, A joint commitment of these two agencies to regular and systematic cooperation and coordination will assure the achievement of certain key objectives;
- NOW, THEREFORE, BE IT RESOLVED That the State Board for Community Colleges and the Maryland State Board of Education will link efforts to achieve the following objectives:
  - Coordinate staff efforts through active dialogue and information-sharing concerning curriculum, facilities, personnel development, fiscal matters, and appropriate technical assistance in the occupational area;
  - 2. Coordinate appropriate interrelated informational components within information systems;
  - 3. Systematic sharing of relevant communication pertaining to specific occupational projects undertaken by community colleges;
  - 4. Jointly develop, publish, and disseminate informational program materials and brochures highlighting occupational programs in Maryland community colleges;
  - 5. Establish a joint coordinating committee for occupational education to foster interagency planning on annual and long-range master planning.

## Approved:

State Department of Education, April 28, 1976 State Board for Community Colleges, May 13, 1976



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## PROJECT SUMMARY FISCAL YEAR 1987

### PROJECT TITLE

Management Information System and Program Evaluation, Activity No. 3.II.1.5.2.

## **PROBLEM**

A valid and reliable student data base is needed for planning, decision making, and Vocational Education Pata System (VEDS) reporting. A systematic and objective procedure is needed to evaluate the quality of occupational programs in Maryland community colleges.

## **OBJECTIVE NO. 1**

To conduct the following statewide projects, including the preparation of computer files and publication of a report for each study:

Credit enrollment
Degree recipients
Graduate follow-up
Leaver (entrant) follow-up
Employer follow-up
Discipline cost analysis
Continuing education data system
Program inventory

### PROCEDURES AND RESULTS

<u>Credit Enrollment</u>. Opening Fall enrollment is reported using a system of computer tapes from the colleges. In addition to demographic data about each student, the student's program of study and credit hours carried are reported. All seventeen community colleges submitted tapes or coding forms in Fall 1986. Data were published in the State Board for Community Colleges (SBCC) State Plan, the Databook, the Program Data Monitoring System, and a Technical Memo concerning enrollment trends.

<u>Certificates and Degrees Awarded</u>. The number of students who complete programs during the fiscal year are reported by college by program. Trends in the mix of occupational and transfer degrees are analyzed. Colleges submit the degree data on computer tapes or coding forms with one record per graduate. Degree trends were analyzed in the Databook and in a Technical Memo shared with the colleges.

Graduate Follow-Up. The statewide graduate follow-up study surveys persons about nine months after program completion. The study is a joint



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project of the community colleges and the SBCC and uses a standard questionnaire mailed in odd-numbered years. In FY 1987, 7,530 graduates from 1986 were surveyed. An adjusted response rate of 55 percent was achieved. Each college has received a printout of its results, the results from graduates of similar peer colleges, and the statewide results. The nodata have been added to the Program Data Monitoring System and a summary report of the survey will be sent to the DVTE.

Entrant Follow-Up. Follow-up surveys of all entering students are conducted two to four years after entry into the community colleges. All first-time students from Fall 1982 were surveyed in Spring 1984 and results have been used in a number of studies examining why students attend community colleges, why they leave before graduation, and how long they take to graduate. During FY 1987, the SBCC and the Maryland Community College Research Group revised the questionnaires and procedures for a survey of all entering 1984 students who will be surveyed four years later in Spring 1988.

Employer Follow-Up. Surveys of the employers of community college graduates have been conducted every other year in conjunction with the surveys of graduates. The study surveys all employers of graduates from occupational programs who were employed full-time and working in a field related to their college program and who gave the college permission to contact their employer. During FY 1987, the employer survey was revised by the SBCC and the colleges, and employers of the 1986 graduates were surveyed. A report utilizing the data from this employer survey will be sent to the DVTE in FY 1988.

<u>Discipline Cost Analysis</u>. Costs and full-time equivalent students are reported for each discipline at each college. The data enable an analysis of trends in costs per FTE student in occupational disciplines. Colleges are provided with trend reports for their college, similar size colleges, and statewide. A Discipline Cost Analysis Manual has been developed and is revised periodically to clarify the procedures for preparing the cost data. Colleges report the data to the SBCC on a standard format tape in order to facilitate processing and accuracy of the data.

Continuing Education Data System. Enrollments and contact hours are reported to the SBCC for each approved noncredit course. Reports are generated showing the number of registrants and full-time equivalent reports are sent to the colleges and to the DVTE at the end of each year. Summary reports of enrollments in noncredit courses are included in the annual SBCC Databook.

The State Board for Community Colleges has implemented a computerized system for colleges to submit enrollment, course, and student demographic data in continuing education. This tape system provides software that generates a standard format file and produce; management and aid transmittal reports at each college.

Program Inventory. The SBCC Program Inventory was updated in FY 1987 to reflect programs that were added, discontinued, or made inactive. The Program Inventory is the backbone of the SBCC Information System and is critical to the Program Data Monitoring System and to student follow-up studies. A crosswalk is used for the new federal Classification of Instructional Programs (CIP). Colleges will continue to report their enrollment, degrees, discipline cost analysis, employee data, and follow-up surveys using the present six-digit State Board for Community Colleges and State Board for Higher Education (SBHE) subject codes. The SBCC and SBHE translate these program codes to CIP codes for any federal report which requires CIP codes.

Common Data Elements. In a statewide system of locally governed community colleges, each institution is free to develop its own data processing system. In order to ensure that data from each institution are comparable and to promote more efficient development of data systems, the Association of Data Processing Directors of Maryland Community Colleges has produced the Course Master Data Elements and Student Data Element Dictionary. This Data Element Dictionary has been continuously updated by the data processing directors and maintained by the State Board for Community Colleges on the SBCC computer file.

## OBJECTIVES NO. 2 AND NO. 3

To run the SBCC Program Data Monitoring System and review each of the career programs by June 15, 1987. (See Appendix A for a description of the SBCC PDM System.)

To publish an in-depth evaluation of 50 community college programs by March 15, 1987 and a statewide evaluation of paralegal programs. (See Appendix B for a description of the SBCC Program Evaluation System.)

## PROCEDURES AND RESULTS

<u>Program Data Monitoring System</u>. The 1987 printout of the Program Data Monitoring System was sent to college occupational deans and institutional researchers for confirmation of the data. Upon receipt of the corrections, a final printout was made and a copy was sent to the DVTE with one page per program at each college.

Enhancements are made to the PDM System each year. This year data were added about Fall 1986 enrollment, FY 1986 awards, and FY 1986 discipline costs. Also, changes were made so that the discipline cost data are now calculated based on six-digit HEGIS numbers, not the four-digit numbers as in the past. The number of credit hours generated in a discipline is also a new addition to the PDM display. This is shown for each discipline, both at the college and statewide.

<u>Program Evaluation</u>. The system for program evaluation is described in length in the SBCC Instructional Program Manual. Briefly, the SBCC reviews each program at each college every April using the Program Data Monitoring



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System. The PDM System displays trends in enrollments, awards, employment in field of training, student satisfaction, discipline costs, and job openings. Programs that appear to need a qualitative evaluation are identified and a letter asking specific questions is sent to the college presidents. The colleges prepare written responses, and the responses are compiled into a Program Evaluation Report reviewed by the SBCC in January.

The 161-page 1987 Program Evaluation Report was published in April and sent to the DVTE. After the ninth full cycle of program evaluations, 431 programs have been evaluated. Many programs have been improved through changes in curriculum, staffing, or recruitment. In addition, 84 programs have been discontinued. Table 1 shows the number of programs evaluated by year and by occupational program area.

In June 1987, 44 programs were identified for a qualitative evaluation in the tenth cycle of the Program Evaluation System to be conducted in FY 1988. Table 2 gives the names of the programs identified for a college evaluation.

Table 1
PRYGRAM AREAS DESIGNATED FOR EVALUATION
MARYLAND COMMUNITY COLLEGES
1978 - 1986

	Number of Active Programs Designated for Evaluation										Programs Discontinued				
	Programs 1978 87 21 0		9 1979 1980 1981 1982 1983 1984 1985 1986 Total										1978-1986		
TRANSFER	87	21	0	1	16	3	14	8	11	7	6	66	15	0	0
OCCUPATIONAL															
Business & Commerce	103	25	10	10	12	15	12	10	13	8	15	105	25	16	19
Data Processing	25	6	2	5	1	1	0	0	1	17	c	27	6	1	1
Health Services	68	17	8	6	1	11	7	6	6	9	11	65	15	17	20
Mechanical & Engineering	62	15	11	14	8	9	9	7	13	5	10	86	20	21	25
Natural Science	15	4	2	4	3	3	2	2	0	3	2	21	5	10	12
Public Service	49	_12	_4	_5		10	_4	15	_6	_4	6	61	14	19	23
TOTAL	409	100	37	45	48	52	48	48	50	53	50	431	100	84	100



## Table 2

# PROGRAMS DESIGNATED FOR QUALITATIVE EVALUATION MARYLAND COMMUNITY COLLEGES 1987

College Program	HEGIS No.
/ . EGANY wursing, Practical Automotive Technology (Statewide)	5209-01 5306-01
ANNE ARUNDEL Human Services Designing and Drafting Technology	5216-01 5303-01
BALTIMORE Banking and Finance Nursing, Registered Medical Records Technology Construction Technology Heating, Air Conditioning, and Refrigeration	5003-01 5208-01 5213-01 5317-01 5317-02
CATONSVILLE Television Technology (Statewide) Nursing, Registered Interpreting for the Deaf	5008-02 5208-01 5599-05
CECIL Nursing, Registered Sanitary Technology	5208-01 5408-01
CHARLES Office Technology Nursing, Registered	5005-01 5208-01
CHESAPEAKE Radiologic Technology Develop .ntal Disabilities	5207-01 5503-02
DUNDALK Business Administration Transfer Area Physical Fitness Technology (Statewide) Heating, Ventilation and Air Conditioning	4970-01 5299-11 5317-02



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ESSEX Veterinary Technology (Statewide) Radiog apny Nursing, Registered	5206-01 5207-01 5208-01
FREDERICK Nursing, Registered	5208-01
GARRETT Maintenance Technology Human Services	5312-02 5503-01
HAGERSTOWN Radiologic Technology Nursing, Registered	5207-01 5208-01
HARFORD General Studies Photography Computer Operator Nursing, Practical	4950-01 5007-01 5104-01 5209-01
HOWARD Vision Care Technology (Statewide) Biomedical Engineering Technology (Statewide) Plant Science	5212-01 5399-02 5402-01
MONTGOMERY Nursing, Registered Medical Assistant (Statewide) Corrections	5208-01 5214-01 5505-02
PRINCE GEORGE'S Engineering Transfer Area Nursing, Registered Medical Records Technology (Statewide)	4940-01 5208-01 5213-01
WOR-WIC TECH Hotel-Motel-Restaurant Management (Statewide) Nursing, Registered (Statewide)	5010-01 5208-01



# A GUIDE FOR USERS OF THE PROGRAM DATA MONITORING SYSTEM

The State Board for Community Colleges Program Evaluation System was developed in cooperation with the community college presidents and approved by the Board in 1978. The system involves two steps: quantitative evaluation of each program each year by the SBCC, and qualitative evaluation of selected programs each year by the community colleges. The following information is given to assist in the interpretation of data on the Program Data Monitoring (PDM) printout (see page 9): a display of enrollment, awards, follow-up, discipline cost, and manpower information.

<u>Program Number and College Program Title</u>. These items are taken from the current SBCC Program Inventory. Data are only shown on the PDM printout as related to programs and not according to program options. Data related to program options are included as part of the overall program. For example, a college may have a program in Electronics Technology with an option in Digital Electronics. Data related to the Digital Electronics option are included in the Electronics Technology data.

Enrollment and Awards. Enrollment and awards data are obtained from Enrollment Information System (EIS) data tapes and from the Degree Data System tapes, respectively. The "FT ENR-TO-AWARD RATIO" is derived by taking one-half of the full-time enrollment in a given year and dividing that figure by the number of graduates two years later. For example, a program that had 100 full-time students and 25 graduates two years later would have a ratio of 2:1. All student and discipline cost information on the PDM printout is submitted by the colleges, and changes are not made in the data without consulting the colleges.

<u>Similar Programs</u>. Enrollment and award data from the most recent year are shown for each college having the same program in order to show the scope of the programs at adjacent colleges and statewide.

Student Follow-Up Studies. Student follow-up studies are conducted jointly by the college and the SBCC, with the college responsible for mailing the questionnaires to students. Graduates are typically mailed surveys nine months after graduating. All percentages in the follow-up section are simple percentages of the number of respondents, except the data "Among Full-time Employees" where blanks have been excluded from the data "Among Full-time Employees" where blanks have been excluded from the data interpreted when there are less than two respondents.

Annual Job Openings to 1990. The data were developed by the Maryland Department of Employment and Training, Research and Analysis Division. The projections include annual openings due to growth and labor force separations by occupation through 1990. Statewide data are shown for all programs where relevant occupational data are available. In addition, Baltimore area



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data are shown for the Community College of Baltimore, Catonsville Community College, Dundalk Community College, and Essex Community College. The Baltimore area data include Baltimore City, plus Anne Arundel, Baltimore, Carroll, Harford, and Howard Counties. Regional data are provided for Charles County Community College (Calvert, Charles, and St. Mary's Counties), Chesapeake College (Caroline, Dorchester, Kent, Queen Anne's, and Talbot Counties), and Wor-Wic Tech Community College (Somerset, Wicomico, and Worcester Counties). For all other colleges, county data are provided.

Discipline Credit Hour Cost. Data are shown as reported in the SBCC Discipline Cost Analysis for the fiscal years shown. Basically, the discipline cost analysis accounts for all expenditures at the colleges (including federal) and attributes them to direct costs, additional direct costs, and indirect costs. Direct costs are a function of faculty compensation and class size. Additional direct costs include supplies and materials related to the teaching of that discipline, such as laboratory supplies. Indirect costs include general administration costs, including the library, student services, and utilities. Indirect costs are applied to all courses in proportion to the number of full-time equivalent students in the course. Cost data are shown for each discipline at a college and compared to the cost of that discipline statewide; costs also are shown for all disciplines at a college and compared to the cost of all disciplines statewide. The number of student credit hours generated in each discipline, both at the college and statewide, also are shown.

<u>Procedure for Program Evaluation</u>. Every April the updated PDM printout is distributed to academic deans, occupational deans, and institutional research directors to verify the data. The SBCC staff then identifies several programs at each college appearing to be in some difficulty and in need of a qualitative evaluation. In general, selection is based upon enrollment, awards, and job placement, in that order. Discipline cost information is used in the context of the overall discipline cost at the college and the average cost of the discipline at other colleges.

The selection of programs for a qualitative evaluation is assisted by "flags" shown in the lower right corner of the PDM printout. The flags represent criteria checks on certain data, such as "Enrollment decreased at least 20 percent and by ten students last year." The flags were set with the help of community college academic deans, occupational deans, and institutional research directors. The flags are used by the SBCC staff to assist in selecting programs for a qualitative evaluation but are not the sole criteria for requesting a qualitative evaluation by the college.

The SBCC staff constructs questions to be addressed in the qualitative evaluation. Upon approval by the SBCC in June, the questions are sent to each college president. Colleges conduct the qualitative evaluations, respond to the questions raised, and submit a report to the SBCC. The SBCC publishes a report of all questions and responses. The report is distributed to the community colleges, the State Board for Higher Education, the State Department of Education, Division of Vocational-Technical Education, and the Maryland State Council for Vocational-Technical Education.



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	COLLEGE	HARFOR	D COMEUN	ITY C			COLLECE PROGRAM	ITLE	IHPL	YEAR EHENTED	STATU		NUMBER
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# USING INFORMATION TO SUPPORT INSTRUCTIONAL PROGRAM EVALUATION

Program evaluation in Maryland community colleges is part of an integrated system for program implementation and evaluation, with both pieces woven together by an extensive data base. The process for implementing and evaluating instructional programs in Maryland community colleges is diagrammed on the following page. New programs begin with local needs. Faculty members and administrators see educational needs among students and employers and respond with program ideas. By December, the college submits the titles for its proposed programs to the State Board for Community Colleges (SBCC) and the titles are printed in the State Plan for Community Colleges in Maryland. In June, the colleges submit Letters of Intent that describe the goals and nature of the proposed programs. The SBCC acts on the Letters of Intent at its July meeting, raising questions as necessary and making suggestions for program development. Often the questions arise from the Program Data Monitoring System. For example, a college could propose a new program in Recreation Technology; statewide data about employment of graduates of existing Recreation programs may indicate that graduates of the new program would have great difficulty getting jobs.

In November, the colleges submit full program p: sals. The proposals are analyzed by the SBCC staff with an eye toward employment possibilities, student interest, and cost. Again, the Program Data Monitoring System is used to establish benchmarks for reasonable projections in the proposals. The SBCC acts on the program proposals at the December meeting. Following SBCC action, the programs are sent to the State Board for Higher Education (SBHE) for approval. The Division of Vocational Technical Education (DVTE) of the Maryland Stace Department of Education also reviews the proposals for federal funding. Approved programs generally are implemented the following September, about 15 months after the Letter of Intent was submitted.

Program evaluation is a two-step process in Maryland community colleges. The first step is a quantitative evaluation. Each April the SBCC staff evaluates each program at each college using the Program Data Monitoring System. The PDM System produces one computer page for each program and displays trends in enrollment, degrees, and discipline costs. Employment and transfer information from entrant and graduate follow-up also is shown. In May, the printout is sent to the colleges for verification.

In June, the SBCC requests colleges to conduct a qualitative evaluation, the second step in the process. Typically, the local qualitative evaluation is done with a committee of faculty, academic administrators, and institutional research staff. The committee draws on their experiences, conducts a deeper analysis of existing data, and seeks more information from students or employers. The qualitative evaluations are reviewed and compiled by the SBCC and distributed to the SBHE and the DVTE.



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# INSTRUCTIONAL PROGRAM IMPLEMENTATION AND EVALUATION PROCEDURE MARYLAND COMMUNITY COLLEGES

