

Des Moines Area Community College

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Board of Directors Meeting Minutes

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1-8-1983

### Board of Directors Meeting Minutes (January 8, 1983)

DMACC

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Jan. 8, 1983  
Sp. Meeting

DES MOINES AREA COMMUNITY COLLEGE

Board of Directors' Retreat

January 8, 1983

Best Western Starlite Village  
Ames, Iowa

AGENDA

1. Call to Order - 9:00 a.m.
2. Roll Call.
3. Approval of tentative agenda.
4. Institutional progress report.
5. Task Force report on long range planning.
6. Discussion of organizational management.
7. Adjournment.

DES MOINES AREA COMMUNITY COLLEGE  
2006 South Ankeny Blvd.  
Ankeny, Iowa

SPECIAL MEETING

8 JANUARY 1983

A special meeting of the Des Moines Area Community College Board of Directors was held at the Best Western Starlite Village, Ames, Iowa, on January 8, 1983. The meeting was called to order by Board President Eldon Leonard at 9:00 a.m. for the purpose of receiving divisional progress reports, reviewing College goals and objectives as they relate to long range planning, and discussion of the Statement of Future Expectations for DMACC.

ROLL CALL

Members Present: DeVere Bendixen  
Eldon Leonard  
Jasper Risdal  
Donald Rowen  
Raymond Clark  
Theodore Nemmers  
Herbert Ritland  
Douglas Shull

Members Absent: Georganne Garst

Others Present: Dr. Joseph A. Borgen, President  
Eugene R. Snyders, Board Secretary  
Members of the President's Cabinet

APPROVAL OF  
TENTATIVE AGENDA

It was moved by T. Nemmers, seconded by R. Clark, that the tentative agenda be approved.

Motion passed unanimously.

PRESENTATION OF  
PROGRESS REPORTS

Tom Nelson, Rich Byerly, Del Shepard, and Gene Snyders presented divisional progress reports of the last fiscal year as detailed in Attachment #1 to these minutes.

REVIEW OF TASK  
FORCE REPORT

Dr. Borgen and Leonard Bengtson reviewed the "Statement of Future Expectations for Des Moines Area Community College" with the Board. The complete text of the report is included as Attachment #2 to these minutes.

RECESS FOR LUNCH

The Board recessed for lunch at 12:00 p.m. and reconvened at 1:00 p.m.

ACCEPTANCE OF  
TASK FORCE REPORT

A motion to accept the Strategic Planning Task Force report entitled "Statement of Future Expectations for Des Moines Area Community College" and approve the principles therein for future planning directions for the College was made by R. Clark, seconded by D. Rowen.

Motion passed unanimously.

ADJOURNMENT

H. Ritland made a motion, T. Nemmers seconded, that the meeting be adjourned.

Motion passed unanimously and at 2:00 p.m. Board President Leonard adjourned the meeting.

  
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ELDON LEONARD, President

  
\_\_\_\_\_  
EUGENE R. SNYDERS, Board Secretary

COMMUNITY AND COLLEGE RELATIONS

THE OVERALL GOAL OF THIS OFFICE IS TO FOSTER THE OVERALL POSITIVE IMAGE OF DES MOINES AREA COMMUNITY COLLEGE.

MAJOR ACCOMPLISHMENTS:

- . REVISION OF MAJOR PUBLICATIONS TO BE MORE COMPATIBLE WITH CONSUMER NEEDS - VIEWBOOK, STUDENT HANDBOOK, SCHEDULES, GENERAL INFORMATION BOOKLET.
- . ORGANIZED, PROMOTED, AND HOSTED THE OFFICIAL DEDICATION/ OPEN HOUSE FOR BUILDINGS 1 AND 5, APPROXIMATELY 650 ATTENDED.
- . STARTED STUDENT PRIDE CAMPAIGN FOR ANKENY CAMPUS.
- . COLLEGE LOGO IMPROVED WITH DESIGN THAT REFLECTS MODERN IMAGE.
- . DURING THE PAST 12 MONTHS, 1016 DIFFERENT NEW RELEASES WRITTEN.
- . INITIATED COMPUTER TYPESETTING SYSTEM.
- . WEEKLY BULLETIN EXPANDED TO THREE TIMES A WEEK TO IMPROVE INTERNAL COMMUNICATIONS.
- . INITIATED "COMMENT" THAT IS INSERTED INTO PAYCHECKS THAT ALLOWS EMPLOYEES TO ANONYMOUSLY REQUEST INFORMATION AND TO MAKE SUGGESTIONS.
- . NEWSPAPERS, RADIO AND TV STATIONS VISITED TO IMPROVE RELATIONS.

COMMUNITY AND COLLEGE RELATIONS (CONTINUED)

- . REGULAR VISITS TO BOONE AND CARROLL BY STAFF PERSONNEL TO PROVIDE PROFESSIONAL ASSISTANCE IN PROMOTION EFFORTS.
  
- . SPEAKERS SERVICE STARTED THAT OFFERS 51 DIFFERENT TOPICS TO A CROSS SECTION OF ORGANIZATIONS DISTRICT-WIDE.
  
- . PUBLISHED LEGISLATIVE PACKET FOR ALL COMMUNITY COLLEGES IN IOWA.
  
- . ORGANIZED AND PROMOTED STATE FAIR BOOTH.
  
- . ASSISTED A VARIETY OF ORGANIZATIONS AND DEPARTMENTS WITH PROMOTIONAL EFFORTS.

BUSINESS & ECONOMIC INSTITUTE

SEMINARS

- . TAX SHELTERED INVESTMENT FOR DMACC STAFF.
- . TWO STRESS MANAGEMENT FOR STAFF OF REGENTS INSTITUTION.
- . LAW OFFICE AUTOMATION & PRODUCTIVITY APPROVED BY IOWA BAR ASSOCIATION.
- . POLITICAL ACTION WORKSHOP FOR JOB SERVICE OF IOWA.
- . TWO DYNAMICS OF THE BUILDING TRADES FOR CONSTRUCTION TRADE'S UNION BUSINESS AGENTS.
- . HOUSING OF THE 80'S FOR PRIVATE CONTRACTORS.
- . PERSONAL COMPUTERS FOR BUSINESS SPONSORED BY SBA.
- . FLAT TAX RATE SEMINAR.
- . STATE OF THE ECONOMY (2).
- . SHARPENING MANAGEMENT SKILLS, CO-SPONSOR - NORTHERN NATURAL GAS.
- . LABOR-MANAGEMENT COOPERATION SYMPOSIUM.
- . IMPROVING ORGANIZATIONAL EFFECTIVENESS. CO-SPONSORED WITH GENERAL MOTORS.
- . QUALITY OF WORKLIFE FOR DMACC STAFF.
- . AG OIL IN THE HEARTLAND.



INDUSTRY/BUSINESS & ORGANIZATIONS WORKED WITH

- . EQUITABLE OF IOWA - MARKETING INTERNSHIP PROGRAM.
- . PELLA ROLSCREEN - ASSISTED IN 3-YEAR SKILL TRAINING.
- . PELLA ROLSCREEN, FARMLAND INDUSTRIES, GENERAL ELECTRIC - CARROLL, IOWA PRE-EMPLOYMENT TRAINING.
- . ATLAS INDUSTRIES - MANAGEMENT PLANNING
- . MASSEY FERGUSON - QUALITY OF WORKLIFE & TRAINING PROPOSAL.
- . GENERAL MOTORS - BROKER FOR GENERAL MOTORS' COURSES & QUALITY OF WORKLIFE SURVEY,
- . HAWKEYE BANCORPORATION - TRAINING PROPOSAL.
- . BRENTON NATIONAL BANK - QUALITY OF WORKLIFE & TRAINING PROPOSAL,
- . DES MOINES HOME BUILDERS - \$2,000 SCHOLARSHIP AND REMODELERS CERTIFICATION TRAINING.
- . TONE BROTHERS & DMACC QUALITY OF WORKLIFE SURVEY, PART OF TITLE III,
- . AMERICAN PRODUCTIVITY CENTER - QUARTERLY NETWORK MEETINGS.
- . VERNON COMPANY - NEWTON, IOWA.
- . INTERNATIONAL ASSOCIATION OF QUALITY CIRCLES, IOWA CHAPTER MONTHLY MEETINGS.
- . ASSISTED IN WRITING TITLE III - NOW FUNDED.

PRODUCTIVITY SERVICES AND TALKS

- . BOONE LIONS, CHAMBER OF COMMERCE, KIWANIS
- . ANKENY ROTARY
- . ALTOONA CHAMBER OF COMMERCE
- . DES MOINES KIWANIS
- . NEWTON CHAMBER OF COMMERCE
- . DISTRIBUTIVE EDUCATION CLUBS OF AMERICA
- . THREE PROFESSIONAL BREAKFAST CLUBS.

DMACC FOUNDATION

(AS OF 12/31/82)

	<u>FY '82</u>	<u>FY '83</u>
- <u>MONETARY CONTRIBUTIONS</u>		
UNRESTRICTED	\$ 7,925.79	\$ 6,286.71
SCHOLARSHIPS	77,539.55	62,237.56
SPECIAL PURPOSE	44,900.75	11,145.48
LOAN PROGRAMS	2,300.62	500.00
ENDOWMENT	<u>58,828.19</u>	<u>54,564.16</u>
TOTAL MONETARY	\$191,494.90	\$134,733.91
- <u>EQUIPMENT CONTRIBUTIONS</u>	<u>\$135,700.00</u>	<u>\$ 925.00</u>
- <u>TOTAL CONTRIBUTIONS</u>	\$327,194.90	\$135,658.91

- ACCOUNTS SERVICED:      FY '81 = 509              FY '82 = 584

- SPECIAL PROJECTS AND DOLLARS RAISED

BERT HOLST FARM MANAGEMENT INSTITUTE (FY 83 - \$50,000), ANKENY STEAK FRY (FY 83 - \$3,185), BOONE BEAR CLUB DRIVE (FY 83 - \$4,550), BOONE ANNUAL FUND DRIVE (FY 83 - \$23,955), PAUL LOWERY ENDOWMENT (FY 82 & FY 83 - \$32,604.26)

- SPECIAL PROJECTS - CURRENT

GOALS

ANKENY ANNUAL FUND DRIVE	\$10,000
DINNER THEATER	\$ 4,000

GOVERNMENTAL AFFAIRS ACTIVITIES

- . A 47 MEMBER ALL CAMPUS GOVERNMENTAL AFFAIRS COMMITTEE HAS BEEN FORMED.

- . TASK 1 - VOTER REGISTRATION

VOTER REGISTRATION ACTIVITIES WERE ESTABLISHED AT EACH OF THE SITES. 350 NEW VOTERS WERE REGISTERED.

- . TASK 2 - FORUMS

THE FOLLOWING FORUMS WERE CONDUCTED AND APPROXIMATE ATTENDANCE IS LISTED FOR EACH:

<u>DATE</u>	<u>LOCATION</u>	<u>CANDIDATE</u>	
10/4/82	ANKENY	DAVE READINGER	(80)
10/5/82	ANKENY	BOB ANDERSON	(60)
10/6/82	BOONE	DAVE READINGER	(140)
10/7/82	BOONE	<u>REPUBLICAN LEG.</u>	
		SONJA EGENES	MARVIN WALTER (125)
		BILL FERGUSON	PAUL LUNDE
10/8/82	BOONE	<u>DEMOCRAT LEG.</u>	
		CHARLES BRUNER	RALPH ROSENBERG (135)
		JOYCE LONERGAN	JOHNIE HAMMOND
10/11/82	ANKENY	<u>REPUBLICAN LEG.</u>	
		GARY BAUGHER	DOROTHY CARPENTER (57)
		DICK KINTNER	
10/12/82	URBAN	<u>REPUBLICAN LEG.</u>	
		WILLIAM LYNCH	JULIA GENTLEMAN (80)
		NADEAN HAMILTON	
10/13/82	URBAN	<u>DEMOCRAT LEG.</u>	
		JOHN CONNORS	GARY SHERZAN
		JOHN SCIESZINSKI	MICHAEL HELLER
		EVELYN GORE	TOM MANN (120)
		FLORENCE BUHR	

10/15/82	ANKENY	ROXANNE CONLIN	(600)
10/18/82	URBAN	DAVE READINGER	(115)
10/19/82	ANKENY	NEAL SMITH	(65)
10/20/82	ANKENY	<u>DEMOCRAT LEG,</u> BILL DIELEMAN	DENNIS RENAUD
		WILLIAM PALMER	FLORENCE BUHR (63)
		MARK HAVERLAND	
10/22/82	ANKENY	TERRY BRANSTAD	(350)
10/27/82	ANKENY	LARRY POPE	(90)

DEVELOPMENT SERVICES  
GRANT & CONTRACTS REPORT  
 JULY 1, 1982 - PRESENT

<u>PROJECT TITLE</u>	<u>FY 82 (CARRY-OVER) FY 83</u>	
CLASS-SIZE	\$109,858	\$235,072
TITLE III	45,415	103,800
CAI-LINKAGES	20,030	8,224
SUPPLEMENTAL CO-OP	6,328	3,709
CETA ED. RESEARCH	14,805	1,503
RETAIL SALES & SUPV. (RET.)	12,985	19,198
COMPUTER PROGRAMMING (RET.)	49,364	
BLDG., HEATING, & COOLING MAIN.	11,185	
PLANT CLOSING - RETRAINING	67,139	
MINORITY OUTREACH PROGRAM	4,564	
COMP. VOC. DEV. NEWTON		26,267
IN-SERVICE SPECIAL NEEDS		25,045
TEACHER AIDS/SPECIAL NEEDS		14,435
SPECIAL NEEDS COORDINATOR		11,807
STRIVE LEA		131,565
NURSING CAPITATION		7,973
G. M. TRAINING		40,873
TITLE II - LIBRARY/ ANKENY		840
TITLE II - LIBRARY/ BOONE		840
COMPREHENSIVE DEV. CENTER		70,992
INDUSTRIAL TECHNICAL UP-DATING		21,125
VETERANS COST OF INSTRUCTION		6,237
PELLA ROLSCREEN		6,395
DATA ENTRY OPERATOR (RET.)		16,884
ELECTRONIC TECHNOLOGY (HIGH TECH)		72,010
EQUIPMENT GRANT (HIGH TECH)		39,700
	<u>\$341,673</u>	<u>\$864,494</u>

PENDING PROJECTS:

STARTS FY 83 & 84

VERNON, 2 MITCHELLVILLE PROJECTS,  
RETRAINING, VOC. REHAB./CONTROL  
DATA, COOP, FIPSE, OPP - DISLOCATED  
WORKER CENTER, AACJC, FOR BETTER  
COMMUNITY INVOLVEMENT, 2 N. W.  
FOUNDATION, MASSEY FERGUSON

\$741,000 -  
\$1,100,000

HIGH TECHNOLOGY ACTIVITIES

- . ASSISTED IN WRITING TITLE III HIGH TECHNOLOGY COMPONENT (NOW FUNDED FOR UP TO 4 YEARS),
- . ESTABLISHED A STAFF HIGH TECHNOLOGY PLANNING TEAM FOR PROMOTING COLLEGE HIGH TECHNOLOGY INITIATIVES,
- . DEVELOPED HIGH TECHNOLOGY ELECTRONICS PROGRAM PROPOSAL AND WAS ONE OF THREE SELECTED STATEWIDE OF TWENTY-TWO PROPOSALS;

FUNDED FIRST YEAR \$72,010 (POTENTIAL SECOND YEAR FUNDING)

FOUR OPTION PROGRAM ~ COMPUTER TECHNOLOGY  
- ROBOTICS/PROCESS CONTROL  
- TELECOMMUNICATIONS  
- BIOMEDICAL

POTENTIAL FOR STARTING 120 STUDENTS PER YEAR BY FALL '84.

- . DEVELOPED PROPOSAL FOR SPECIAL STATE REPLACEMENT (HIGH TECHNOLOGY) EQUIPMENT AND RECEIVED FUNDING - \$39,700 (FY '83),
- . ESTABLISHING A HIGH TECHNOLOGY RESOURCE CENTER,
- . ASSISTING IN:

FORMATION OF HIGH TECHNOLOGY FOUNDATION  
IMPLEMENTATION OF APPROVED HIGH TECHNOLOGY PROGRAMS  
ESTABLISHMENT OF HIGH TECHNOLOGY CENTER



MAYOR'S TASK FORCE  
ON RETRAINING

PHASE I 7 PROGRAMS OR COMPONENTS

- . BLDG., HEATING, COOLING, MAINTENANCE (8/11/82)  
15/15 STUDENTS COMPLETED  
13 PLACED
  
- . TRAFFIC & WAREHOUSING (8/11/82)  
14/15 STUDENTS COMPLETED  
10 PLACED
  
- . RETAIL SALES & SUP. (8/11/82)  
\* 9/14 COMPLETED  
9 EMPLOYED
  
- . COMPUTER PROGRAMMING (3/30/83)  
?/20  
193 SERVED THROUGH CDC, URBAN  
32 RECEIVED GED'S  
30 SERVED THROUGH SUB-CONTRACTS  
AT DRAKE, DMPS (27 PLACED)

PHASE II NEW SERVICES

- . DATA ENTRY OPERATOR (12 WK, COURSE)  
12 STUDENTS BEGAN 12/6/82  
12 STUDENTS WILL BEGIN 3/83
  
- . RETAIL SALES & SUPERVISION (16 WK, COURSE)  
20 STUDENTS WILL BEGIN 1/10/83
  
- . DIESEL FUEL INJ. SERV. (6 MONTHS)  
16 STUDENTS WILL BEGIN 1/17/83

ACCOMPLISHMENTS OF EDUCATIONAL SERVICES

1. PLANNING AND CONSTRUCTION OF THE CONFERENCE CENTER IS NEARING COMPLETION. PROGRAMMING BEGINS IN MARCH, 1983.
2. THE COLLEGE WELLNESS PROGRAM WAS KICKED OFF WITH A FUN RUN AND 10K RACE. THIRTY PERCENT OF FACULTY AND STAFF HAVE PARTICIPATED DURING FALL QUARTER.
3. THE COMPUTER SCIENCE PROGRAM WAS BEGUN AT THE BOONE CAMPUS.
4. RETRAINING INITIATIVES HAVE BEEN IMPLEMENTED IN THE AREAS OF:
  1. BUILDING, HEATING & COOLING MAINTENANCE - ENDED AUGUST 1982
  2. TRAFFIC & WAREHOUSING - ENDED AUGUST 1982
  3. RETAIL SALES & SUPERVISION - ENDED AUGUST 1982
  4. RETAIL SALES & SUPERVISION - STARTS JANUARY 1983
  5. COMPUTER PROGRAMMING - ENDS MARCH 1983
  6. DATA ENTRY OPERATOR - STARTS DECEMBER 1982 AND MARCH 1983
  7. DIESEL FUEL INJECTION SERVICES - STARTS JANUARY 1983
5. THE FIRST GENERAL MOTORS PROJECT WAS COMPLETED AND A SECOND YEAR WAS APPROVED AND IS UNDERWAY.
6. A SPECIAL TRAINING PROJECT HAS BEEN DESIGNED AND IMPLEMENTED FOR PELLA ROLSCREEN AND THE MITCHELLVILLE CORRECTIONAL FACILITY.
7. THE STRIVE (SELECTED TRAINING RECEIVED IN VOCATIONAL EDUCATION) PROGRAM CONTINUED IN ITS SECOND YEAR OF OPERATION.

8. A PROGRAM PROPOSAL WAS DEVELOPED, SUBMITTED AND APPROVED BY DPI TO BEGIN A HIGH TECH ELECTRONICS PROGRAM IN MARCH OF 1983.
9. FY '82 ENROLLMENTS REACHED 8,408 FTEE WITH FY '83 PROJECTED TO REACH 8,700 FTEE,
10. ENROLLMENTS AT THE BOONE CAMPUS HAVE REACHED ALL TIME HIGHS FOR THE PAST TWO QUARTERS,
11. REMODELING TOOK PLACE IN BUILDING #20 TO ACCOMMODATE THE ARCHITECTURAL AND MACHINE DRAFTING PROGRAMS,
12. THE NEW GREENHOUSES AND ATTACHED CLASSROOM/LAB FACILITY WERE COMPLETED AND OCCUPIED BY THE COMMERCIAL HORTI-CULTURE AND AGRI-BUSINESS PROGRAMS,
13. PLANS ARE UNDERWAY FOR REMODELING BUILDINGS #16 AND #17 TO HOUSE THE COMMERCIAL & ADVERTISING ART AND HIGH TECH ELECTRONICS PROGRAMS RESPECTIVELY,
14. DEVELOPED EDUCATIONAL SPECIFICATIONS FOR THE REMODELING PROJECT IN BUILDING #6,
15. TWO STAFF WERE SELECTED FOR INTERNSHIPS FOR LEADERS FOR THE 80'S PROJECT SPONSORED BY MARICOPA COMMUNITY COLLEGE AND FUNDED BY THE FUND FOR IMPROVEMENT OF POST-SECONDARY EDUCATION (FIPSE). FROM OVER 500 APPLICATIONS SUBMITTED, THERE ARE 1,200 COMMUNITY COLLEGES THROUGHOUT THE NATION ELIGIBLE TO PARTICIPATE,
16. THE CURRICULUM TRANSITION FROM QUARTERS TO SEMESTERS IS IN A FINAL REVIEW STAGE, WITH ALL PROGRAMS BEING COMPLETE. SEVERAL AREAS NEED FINE TUNING TO MEET GUIDELINES ESTABLISHED AS A RESULT OF THE FINDINGS OF THE ACADEMY FOR EDUCATIONAL DEVELOPMENT,

17. ALL COLLEGE TRANSFER COURSE OFFERINGS WERE REVISED TO SEMESTER SYSTEM AND PUBLISHED FOR USE IN CAREER PROGRAM CURRICULUM TRANSITION,
18. ASSESSED THE MAGNITUDE OF THE COST INCURRED IN NOT REPLACING OR TECHNICALLY UPDATING PROGRAM EQUIPMENT, EXPLORED ALTERNATIVES TO ADDRESS THIS ISSUE,
19. DEFINED A SYSTEM FOR IDENTIFYING THE WORKLOAD OF PART-TIME NON-CONTRACTED TEACHING FACULTY,
20. EDUCATIONAL STAFF PARTICIPATED IN THE STRATEGIC PLANNING TASK FORCE AND OTHERS CONTINUE TO SERVE ON THE HIGH TECH TASK FORCE,
21. PARTICIPATED IN DEVELOPING DPI GRANT PROPOSAL FOR FUNDING AN AREA PLANNING COUNCIL FOR VOCATIONAL EDUCATION IN ELEVEN COUNTY DISTRICT,
22. REVISED FOR RECOMMENDATION TO PRESIDENT, ALL BOARD POLICIES RELATED TO EDUCATIONAL SERVICES AND STUDENT SERVICES,

ACCOMPLISHMENTS OF MANAGEMENT SERVICES

BUSINESS SERVICES

NEW FACILITIES

- . TWO NEW BUILDINGS -- THE STUDENT CENTER AND THE ADMINISTRATION BUILDING WERE COMPLETED AND OCCUPIED IN APRIL, 1982.
- . THE MALL AND EXTENSIVE LANDSCAPING WERE ALSO COMPLETED.
- . EDUCATIONAL SPECIFICATIONS WERE DEVELOPED FOR RE-MODELING A PORTION OF BUILDING 7 INTO A CONFERENCE CENTER. CONSTRUCTION IS UNDERWAY.
- . EDUCATIONAL SPECIFICATIONS WERE DEVELOPED FOR THE REMODELING OF BUILDING 6. THE MAJOR CHANGE WILL BE THE REPLACEMENT OF THE RANDTRIEVER WITH OPEN STACKS.
- . A COMPUTERIZED ENERGY MANAGEMENT SYSTEM WAS INSTALLED IN ALL ANKENY CAMPUS BUILDINGS.
- . NEW GREENHOUSES AND A HORTICULTURE LAB WERE DESIGNED AND CONSTRUCTED. THESE FACILITIES WERE OCCUPIED FALL QUARTER '82.
- . A NEW SIGN WAS ERECTED FOR THE BOONE CAMPUS.
- . TWO NEW SOFTBALL FIELDS WERE COMPLETED AS PART OF THE ANKENY LITTLE LEAGUE PROJECT.
- . SIX STUDENT-CONSTRUCTED HOUSES WERE SOLD IN THE PAST 18 MONTHS.

BUSINESS SERVICES (CONTINUED)

BUSINESS OFFICE

- . UTILIZED ANTICIPATORY WARRANTS FOR THE LAST HALF OF FY '82 AND FOR ALL OF FY '83.
- . EARNED INTEREST IN THE AMOUNT OF \$1,170,961 FOR FY '82 THROUGH OPTIMIZING COLLEGE MONIES AVAILABLE FOR INVESTMENT.
- . NUMEROUS WORKSHEETS WERE COMPLETED AND SUBMITTED TO THE DPI THE PAST SEVERAL MONTHS CONCERNING THE PROPOSED STATE FUNDING FORMULA.
- . DURING FY '82:
  - PROCESSED 10,859 REQUESTS FOR PAYMENT
  - WROTE 31,979 CHECKS
  - ISSUED 11,665 PAYROLL CHECKS
  - PROCESSED 8,575 INVOICES

PURCHASING

- . PURCHASED A SOFTWARE PACKAGE FROM IOWA STATE UNIVERSITY WHICH WILL ALLOW US TO CONVERT SEVERAL PURCHASING FUNCTIONS TO OUR COMPUTER SYSTEM.
- . FOR FY '82, PROCESSED 2,653 REQUISITIONS AND 2,574 PURCHASE ORDERS FOR A TOTAL EXPENDITURE OF \$1,875,087.
- . THE AVERAGE PROCESSING TIME PER REQUISITION WAS 3.94 DAYS FOR FY '82 AS COMPARED TO 4.87 DAYS FOR FY '81.

## BUSINESS SERVICES (CONTINUED)

### PHYSICAL PLANT

- . THE RE-ROOFING OF BUILDINGS 9, 19, 6, 7, 8, BOONE, AND 14 WERE COMPLETED DURING THE 18-MONTH PERIOD,
- . THE TELEPHONE SYSTEMS WERE INSTALLED IN THE NEW STUDENT CENTER AND ADMINISTRATION BUILDING BY THE PHYSICAL PLANT STAFF,
- . THE EXTERIOR TELEPHONE CABLING SYSTEM WAS COMPLETED,
- . THE PHYSICAL PLANT STORES (SUPPLIES AND MATERIALS) WAS INVENTORIED, AN IMPROVED SYSTEM DEVELOPED, AND IS IN THE PROCESS OF BEING PLACED ON THE COMPUTER,
- . REMODELING OF BUILDING 20 FOR THE DRAFTING PROGRAMS WAS COMPLETED, REMODELING OF BUILDING 16 FOR COM-MERCIAL ART AND BUILDING 17 FOR HI-TECH ELECTRONICS ARE BOTH UNDERWAY,
- . THE PROGRAM OF MOVING TREES FROM THE HORTICULTURE TREE NURSERY TO THE CAMPUS WAS CONTINUED AS PART OF THE LANDSCAPING MASTER PLAN.

### AUXILIARY SERVICES

- . A NEW BOOK STORE, SNACK BAR, VENDING AREA, AND GAME ROOM WERE OPENED IN THE NEW STUDENT CENTER IN APRIL, 1982,
- . OVERALL CASH OPERATIONS FOR FY '82 NETTED A PROFIT OF \$61,088 ON SALES OF \$1,362,825, OR 4.5%.

BUSINESS SERVICES (CONTINUED)

AUXILIARY SERVICES (CONTINUED)

- . WORD PROCESSING INCREASED WORKLOAD IN FY '82 WITH NO INCREASE IN STAFF AND EQUIPMENT.
- . DUPLICATING SERVICES INCREASED PRODUCTION 13% FOR FY '82 WHILE EXPENSES INCREASED AT A LOWER FIGURE TO PRODUCE A SLIGHT DECREASE IN COST PER COPY.
- . THE FY '83 YEAR-TO-DATE COMBINED PROFIT FOR THE SNACK BAR AND CAFETERIA IS UP APPROXIMATELY \$10,000 OVER LAST YEAR.
- . FY '83 BOOKSTORE INCOME IS UP AT ALL LOCATIONS OVER FY '82.



DATA SERVICES

- . BEGAN SUPPORT OF ALL ACADEMIC USER GROUPS (INCLUDING 400-500 STUDENTS) WITH OUR 4341 SYSTEM,
- . COMPLETED MOVE OF COMPUTER CENTER FROM BUILDING #20 TO BUILDING #1 IN FOUR DAYS. ALL USER GROUPS WERE PROVIDED FULL SERVICE AT THE END OF THE WEEK WITHOUT INCIDENT.
- . REMOVED THE OLD IBM 360 COMPUTER FROM CAMPUS AND INSTALLED NEW ON-LINE TERMINAL EQUIPMENT IN FULL SUPPORT OF CAREER EDUCATION DATA PROCESSING STUDENTS.
- . INSTALLED COMPUTER SUPPORT EQUIPMENT FOR COMPUTER SCIENCE PROGRAM AT BOONE CAMPUS.
- . INSTALLED A SECOND 4341 CENTRAL PROCESSOR AND BEGAN DUAL PROCESSOR SUPPORT OF ALL DMACC USERS.
- . INCREASED OUR TERMINAL NETWORK OF CATHODE RAY TUBE STATIONS FROM SIXTY UNITS TO ONE HUNDRED AND TWENTY-FIVE. OF THIS NUMBER FIFTY-SEVEN ARE SOLELY FOR INSTRUCTIONAL SUPPORT.
- . INSTALLED A SECOND OPEN LABORATORY FACILITY OF TEN COMPUTER TERMINALS DEDICATED TO FULL TIME STUDENT USE.
- . INCREASED COMPUTER WORKLOAD TO APPROXIMATELY DOUBLE THAT OF 18 MONTHS AGO. STATISTICS RELATING TO PRESENT VOLUME:

PROCESS	2,485	TASKS/MO. (ADMINISTRATIVE)
	<u>7,448</u>	TASKS/MO. (STUDENT INSTRUCTIONAL
	9,933	SUPPORT)

PRINT	5,538,000	LINES/MO. (ADMINISTRATIVE)
	<u>4,616,000</u>	LINES/MO. (STUDENT INSTRUCTIONAL
	10,154,000	SUPPORT)

DATA SERVICES (CONTINUED)

- . HANDLE APPROXIMATELY 70,000 CRT TRANSACTIONS PER DAY BY STAFF AND STUDENTS.
  
- . INSTALLATION OF SECURITY CONTROLS TO COMPUTER CENTER THROUGH GUARDIAN.

HUMAN RESOURCES

BUDGET COMPARISONS

STAFF SALARIES  
FY '82 - FY '83

	% OF TOTAL BUDGET		% INCREASE OVER
	'82	'83	PREVIOUS YEAR
ADMINISTRATIVE/PROFESSIONAL	15.6	14.8	4.9
INSTRUCTIONAL	40.5	40.6	11.5
SERVICE STAFF	2.8	2.85	11.1
SECRETARIAL/CLERICAL	6.5	6.6	11.5

STAFFING PATTERNS

AS THE ABOVE TABLE INDICATES, THE NET EFFECT OF THE REORGANIZATION WAS TO SIZE DOWN THE ADMINISTRATIVE /PROFESSIONAL STAFF AT DES MOINES AREA COMMUNITY COLLEGE. ALL ASPECTS OF THE STAFF REORGANIZATION PLAN APPROVED LAST FEBRUARY HAVE BEEN FULLY IMPLEMENTED. IN EXCESS OF \$92,000 WAS SAVED IN SALARIES, WHILE SALARY LINE ITEMS FOR ALL OTHER GROUPS ROSE BETWEEN 11.1 AND 11.5 PERCENT, THE ADMINISTRATIVE/PROFESSIONAL SALARIES GREW ONLY 4.9 PERCENT. THE OVERALL PERCENTAGE OF BUDGET FOR ADMINISTRATIVE/PROFESSIONAL SALARIES WAS REDUCED FROM 15.6 PERCENT IN FY '82, 14.8 PERCENT IN FY '83, WHILE ALL OTHER CATEGORIES REMAINED CONSTANT OR GREW BY A FRACTION OF A PERCENT.

HUMAN RESOURCES (CONTINUED)

- . WITH THE EMPLOYMENT OF A DIRECTOR OF EVALUATIONS, A NEW PERFORMANCE APPRAISAL SYSTEM EMPHASIZING STAFF DEVELOPMENT WHICH WILL ALSO FACILITATE PERSONNEL DECISION-MAKING HAS BEEN DESIGNED.
- . AS A RESULT OF THE REORGANIZATION, 567 PERSON HOURS WERE SPENT IN THE RECLASSIFICATION OF 129 POSITIONS FOR WAGE AND SALARY PURPOSES. SEVENTY-FOUR ADMINISTRATORS AND 55 CLASSIFIED JOB DESCRIPTIONS WERE WRITTEN AND EVALUATED.
- . A WOMEN'S INTERNSHIP PROGRAM WAS INITIATED IN NOVEMBER WITH 13 APPLICATIONS RECEIVED. SIX WERE FORWARDED TO A NATIONAL PROGRAM, TWO OF WHICH WERE ACCEPTED AND THREE OTHERS RECOMMENDED FOR LOCAL FUNDING.
- . A LEARNING EXPERIENCE ASSESSMENT PROGRAM WHICH INCLUDES ASSESSMENT OF ACADEMIC BACKGROUND AND EXPERIENCE, GOAL SETTING, IN-SERVICE TRAINING, ON-THE-JOB CROSS TRAINING, INTERNSHIPS, AND/OR FORMAL ACADEMIC PREPARATION FOR ALL STAFF HAS BEEN PLANNED, WITH IMPLEMENTATION TO BEGIN DURING FY '83 AND '84.
- . A TALENT AND INTEREST INVENTORY WAS DESIGNED AND DATA COLLECTED ON ALL STAFF DETAILING INDIVIDUAL SKILLS, KNOWLEDGE, AND ABILITIES.
- . OVER 200 UNEMPLOYMENT COMPENSATION CLAIMS WERE PROCESSED.
- . WAGE AND SALARY SURVEYS WERE CONDUCTED FOR FIVE DIFFERENT DEPARTMENTS TO ENSURE EXTERNAL EQUITY.
- . COMPREHENSIVE PERSONNEL DATA WAS SUPPLIED FOR HEGIS, EEO, AND OTHER REPORTS.

HUMAN RESOURCES (CONTINUED)

- . THE DEPARTMENT PROCESSED 1,428 APPLICATIONS RESULTING IN 133 NEW HIRES.
- . ONE HUNDRED TWENTY-SEVEN EXIT INTERVIEWS WERE CONDUCTED.
- . A COMPREHENSIVE TWO-STAGE ORIENTATION WAS CONDUCTED FOR 133 NEW EMPLOYEES.
- . INITIAL EMPLOYMENT WAS PROCESSED FOR 634 CONTRACTED EMPLOYEES DURING 1982.
- . AN AVERAGE OF 1,100 EMPLOYEES WERE ON STAFF EACH MONTH THROUGHOUT THE YEAR, WITH OVER 2,400 W-2'S ISSUED FOR 1982.
- . AN AUDIT FOR ALL CERTIFIED STAFF WAS CONDUCTED TO NOTE DISCREPANCIES BETWEEN CERTIFICATION AND ENDORSEMENTS ON FILE AND CURRENT ASSIGNMENTS.
- . IN THE LAST 18 MONTHS THE COLLEGE HAS INVESTED IN ITS PROFESSIONAL STAFF BY PROVIDING 2,690 PERSON DAYS OF RELEASE TIME FOR ATTENDANCE AT PROFESSIONAL MEETINGS, CONFERENCES, AND OTHER OPPORTUNITIES FOR PROFESSIONAL UPGRADING.
- . ON CAMPUS WORKSHOPS HAVE BEEN ATTENDED BY AT LEAST 50% OF THE FACULTY AND STAFF.
- . THROUGH A \$21,125 GRANT FROM DPI, 27 FACULTY HAVE COMPLETED TECHNICAL UPDATING WITHIN THEIR SPECIFIC FIELD.

RESEARCH, PLANNING AND REPORTING

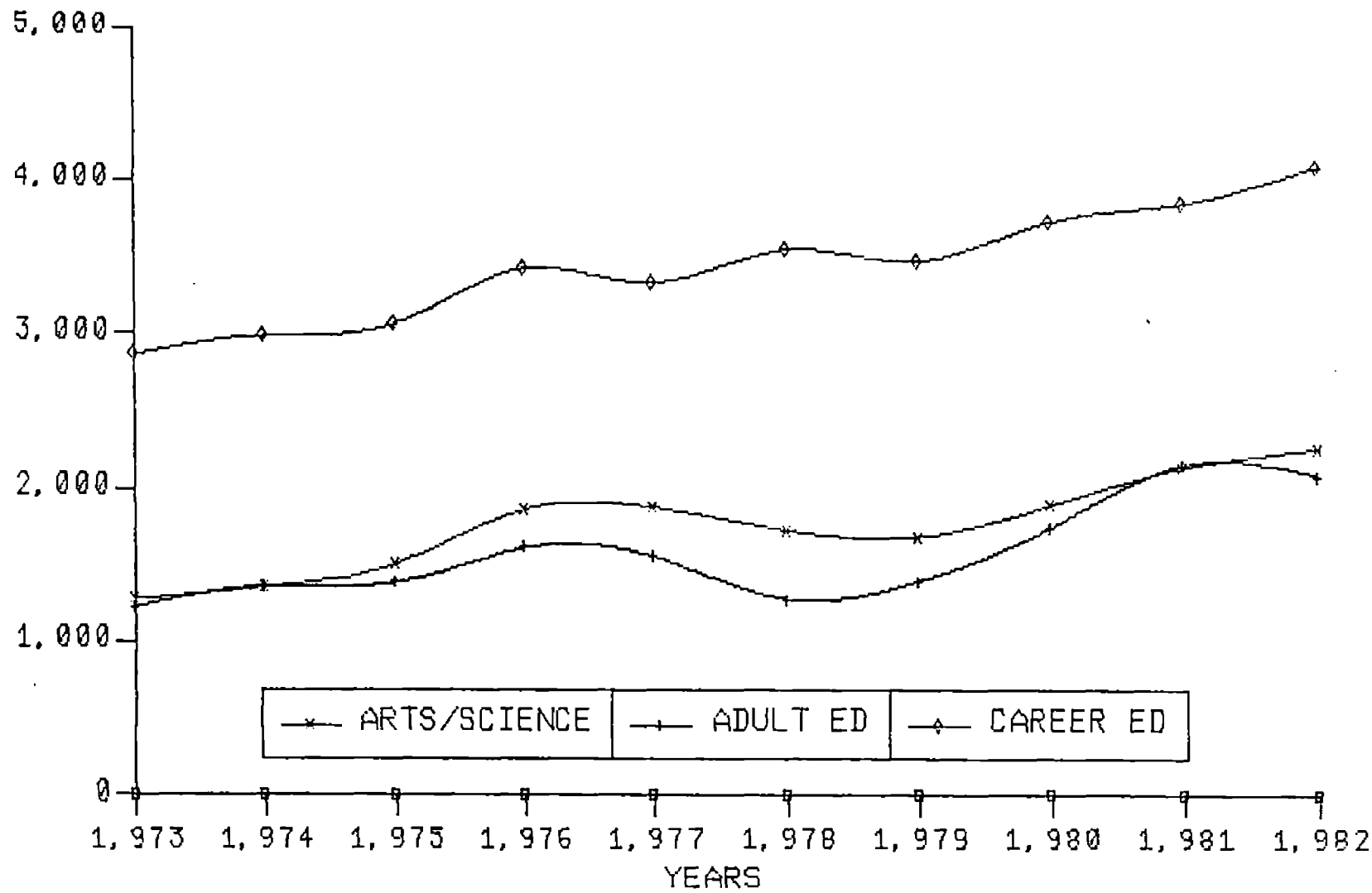
- . IMPLEMENTED CENTRALIZED REPORTING FUNCTION FOR ALL STATE, FEDERAL, AND INTERNAL REPORTS RELATING TO STUDENTS AND INSTRUCTION,
- . COMPLETED REDISTRICTING PLAN,
- . INITIATED EFFORTS TO DEFINE BOARD AND TOP MANAGEMENT INFORMATION NEEDS AND DEVELOPMENT OF APPROPRIATE REPORTING FORMATS,
- . COORDINATED DEVELOPMENT OF REVISED COLLEGE CALENDAR FOR SEMESTER SYSTEM,
- . COORDINATED DEVELOPMENT OF AIRPORT TASK FORCE REPORT,
- . COORDINATED DEVELOPMENT OF STRATEGIC PLANNING TASK FORCE REPORT,
- . DEVELOPED ANNUAL PROGRESS REPORT FOR DPI,
- . CONDUCTED OR PROVIDED DATA ANALYSIS FOR 12 INTERNAL RESEARCH PROJECTS, PLUS CONSULTATION AND ASSISTANCE TO STAFF MEMBERS ON A VARIETY OF OTHER PROJECTS,
- . DEVELOPED COMPUTER SIMULATION MODEL FOR ASSESSING EFFECT OF FUNDING FORMULA PROPOSALS ON DMACC,
- . ASSISTED IN PREPARATION OF NCA FOCUSED VISIT REPORT.

STUDENT RECORDS AND SERVICES

- . ALUMNI ASSOCIATION SPONSORED SEVERAL SUCCESSFUL PROJECTS, VASTLY INCREASED MEMBERSHIP, AND INITIATED STEPS TOWARD A BOONE CHAPTER.
  
- . DEVELOPED SHARED ADMISSION PROCEDURES IN COOPERATION WITH STUDENT DEVELOPMENT.
  
- . SIGNIFICANT REFINEMENTS IN MSG SYSTEM WERE ACHIEVED FOR STUDENT ACCOUNTING, ADMISSIONS, REGISTRATION, AND FINANCIAL AID.
  
- . INAUGURATED USE OF STUDENT INFORMATION CENTER IN COOPERATION WITH ADMISSIONS AND COLLEGE RELATIONS.
  
- . IN THE YEAR 1981-82:
  - 11,000 ADMISSION APPLICATIONS PROCESSED,
  - 24,000 CREDIT REGISTRATIONS PROCESSED,
  - 35,000 NON-CREDIT REGISTRATIONS PROCESSED,
  - 20,000 CREDIT & NON-CREDIT DROP/ADDS PROCESSED,
  - 100,000 PERMANENT RECORDS FILMED,
  - 72,000 DOCUMENTS MICROFILMED,
  - 5,252 CREDIT TRANSCRIPTS ISSUED,
  - 1,100 TRANSFER CREDIT EVALUATIONS COMPLETED,
  - 1,600 GRADUATION APPLICATIONS PROCESSED AND DIPLOMAS ISSUED,
  - ACADEMIC RECORDS ASSUMED THE RESPONSIBILITY FOR THE MAINTENANCE OF THE ADULT EDUCATION HIGH SCHOOL RECORDS AND THE AWARDING OF THE DIPLOMAS FOR GED,
  - THE REGISTRATION FOR THE ADULT EDUCATION SHORT COURSE DIVISION HAS BECOME A DAILY PROCESS,
  - 5,820 FINANCIAL AID APPLICATIONS WERE PROCESSED,
  - \$4,020,589 WERE AWARDED IN FINANCIAL AID,
  - 28,000 GRADE MAILERS WERE ISSUED,

# HISTORY OF ENROLLMENT GROWTH BY DIVISION (DATA SHOWN AS FTEE VALUES)

-27-





INTERDEPARTMENTAL

- . THE PLANNING AND BUDGETING PROCESS FOR FY '84 WAS DEVELOPED AND COORDINATED BY THE MANAGERS OF RESEARCH, PLANNING AND REPORTING, AND BUSINESS SERVICES.
- . THE DIVISION FACILITATED AN AUDIT BY ARTHUR ANDERSEN COMPANY OF THE DATA PROCESSING CENTER AND INTERNAL ACCOUNTING CONTROLS AS WELL AS AN ANALYSIS OF APPROACHES TO GENERATING TUITION INCOME AND PROVIDING STATE FINANCIAL SUPPORT.
- . ALL DEPARTMENTS PARTICIPATED IN THE REVISION OF THE BOARD POLICY MANUAL.
- . MODIFICATIONS AND REFINEMENTS TO THE MSG SYSTEM WERE MADE IN ALL DEPARTMENTS.
- . A 26 PAY PER YEAR PAYROLL SYSTEM AND A DIRECT DEPOSIT PAYROLL SYSTEM WERE BOTH IMPLEMENTED EFFECTIVE 7/1/82.
- . UNDER THE LEADERSHIP OF THE MANAGER, BUSINESS SERVICES, A COMPREHENSIVE PROCEDURES MANUAL FOR THE DIVISION WAS COMPLETED.
- . A CONTRACT FOR STAFF DENTAL INSURANCE WAS AWARDED TO DELTA DENTAL AND ENROLLMENTS PROCESSED FOR ALL EMPLOYEES.

Attachment #2  
Special Mtg.  
January 8, 1983

DRAFT COPY

Report of  
Strategic Planning Task Force

**STATEMENT OF FUTURE EXPECTATIONS  
FOR  
DES MOINES AREA COMMUNITY COLLEGE**

Presented To:  
Dr. Joseph A. Borgen, President

Submitted by:  
**STRATEGIC PLANNING TASK FORCE**

Leonard Bengtson, Chairperson  
Jolyne Ghanatabadi  
Kay Heninger  
Ed Keefe  
Norman Luiken  
Tom Nelson

**"In the long run, (people) hit only  
what they aim at. Therefore, though  
they should fall immediately, they  
had better aim at something high."**

**H.D. Thorau**

DES MOINES AREA



COMMUNITY COLLEGE

November 12, 1982

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## I. INTRODUCTION

This report represents an initial view of some of the vast technological changes which will influence Des Moines Area Community College's course over the next few years.

The success we will enjoy in the 1990's will be the result of the careful decisions made in the 1980's. There should be an integration of the present with the future direction that will be planned. The linkages which will be made with the present educational climate must be strong and continuous. To change directions 180 degrees will lead to chaos and disharmony. Therefore, the Strategic Planning Task Force was formed to examine our present conditions and to make rational speculation about the future role Des Moines Area Community College will play in our community.

The decade ahead necessitates an introspective re-assessment of traditional operations and methods for educational effectiveness. Full consideration of intervening external factors must be analyzed as part of this process. Some elements which correspond to future planning are environmental conditions, economic considerations, population trends and attitudes. In addition, program objectives need to be established which look at the impact of new technologies and delivery systems.

At the same time, it is essential to fully recognize present college capabilities and identify areas of limitations. For the past month, a committee of six persons representing Des Moines Area Community College administration, staff and faculty have attempted to look at these issues and begin to identify key areas for present and future consideration.

This process has incorporated several major concerns with a concentrated look to specific areas where the greatest impact for technology will likely occur. The task force has identified micro-electronics, manufacturing process control, the automated office, telecommunications, international education, energy and biotechnology and health as the focal topics for examination.

Each of these areas is presented with an introductory background, recommended preliminary activities from present to 1985 and future possibilities to 1990.

General sections address a statement of expectations and assumptions, essential elements for planning and marketing implications.

Since this is the first phase in looking at future technology implications for Des Moines Area Community College, it is envisioned that the information presented in this report will serve as a catalyst for overall college planning.

Therefore, the task force members offer the following report for information, review and general consideration.

## RATIONALE

In every part of the nation, educational institutions are initiating plans for addressing the complex needs of the future. The methodologies and exploratory techniques are as far-reaching, diverse and innovative as the institutions that seek answers to new and perplexing questions posed by a rapidly changing world.

The next two decades will be characterized by a continuum of new technological developments and dramatic economic changes. The speed and force of these changes can be characterized as awesome.

It's probably safe to say that the future is terrifying to some because we cannot see all the possibilities that will develop in the uncertain period of the 1980's. We are clinging to the known past (a very human thing to do) in fear of the unknown future. This report outlines the immediate future to make it more real and more knowledgeable.

With technology advancing at such a rapid rate, it is not inconceivable that the students of the 1990's will be more technologically literate than their teachers.

For example, there are about 200,000 computers in use in schools today -- about the same number as in homes. It is estimated that by 1990, 60 million computers will be in homes.

Rogers, in his "Diffusions of Innovations", says that our public school system lags 25 years behind the best practices. For example, it took 50 years for U.S. public schools to adopt the idea of kindergarten. On the whole, diffusion of educational ideas is known to be slower than acceptance of either farm innovations or medical drugs.

But Rogers says that "An important factor affecting the adoption rate of any innovation is its compatibility with the cultural beliefs of the social system."

We know that this is the information age. We know that we must change to meet the needs of a different society.

When one combines the fear of the future, the reluctance to change, and the fact that we know we must change, fundamental problems emerge.

Some questions must be asked: How fast should we change? What direction(s) should we go? How do we provide an adequately trained staff? Where will our students come from? How much money is needed?

If we are to keep pace with the outside world and the demands that a changing world will place on us, we must make some prudent projections.

The projections that this task force has made are not necessarily roadmaps for the future development and direction of Des Moines Area Community College. Those decisions go beyond the scope of the task force's charge. Rather, the report suggests general directions the college may need to move to maintain viable educational programming in an increasingly technological world.

It can be stated that the persistent realities of the present formulate the basis of projecting future needs and charting the course of action which creates a lasting positive influence.

Many of these current critical issues demand attention. For example, present national policies dictate a reduction in federal support of many programs and entitlement areas, thus increasing the growing numbers of minorities, older students, handicapped and low-income disadvantaged persons who need educational assistance to improve their quality of life. The extent of these financial reductions cut across the entire sector of the education community with reduced state allocations and proposed elimination of traditional student financial aid resources. Solutions must be carefully planned which do not impede the progress of the education system.

"Man is a clever animal. There is no way to keep him from devising new tools. The error lies in thinking that new tools are the only solution." John Hess In GEO magazine.

Institutions of higher education are not alone in this present struggle. Consideration of other economic areas is essential in looking at the overall status of an interrelated economy.

The record high unemployment rate, reduction in worker productivity and increase in the number of business failures indicate that employment opportunities in traditional occupations are changing.

In the September 13, 1982, issue of U.S. News and World Report, an article entitled "Jobs, A Million That Will Never Come Back" states that "old line manufacturing industries such as steel, autos, rubber and textiles, once the economy's backbone, will provide a smaller share of the nation's employment. In those and other related blue-collar industries, more than one million jobs have vanished permanently since 1978." It further states that "instead, employment will grow in the high technology, service and information sectors, as the nation travels further down the road toward what experts describe as a post-industrial society."

We are now between eras. We have not quite left behind the old industrialized society. As we move from an industrial to an informational society (and take advantage of the opportunity for job growth and investment in high technology) we must not lose sight of the need to maintain a balance with the human element in the face of all of that technology.

A large segment of the college district population is comprised of former job holders and traditional students. The former job holders are and will be involved in a re-examination of future careers through retraining in areas where the future holds promise for stable employment. These individuals and the traditional student population are and will be looking



to new program development in technology fields, primary service areas and information processign where employment demand is projected to be the highest.

Alternate education delivery systems will need to be developed and tested to accommodate a different learning mode preference.

Des Moines Area Community College must strive to meet its constituent needs and address the future challenges which lie ahead.

## CONCLUSIONS, EXPECTATIONS AND ASSUMPTIONS

In order to make speculations about the future, the task force had to make some basic assumptions. The assumptions that were made had significant impact on the remainder of this report.

At the heart of the assumptions were three factors: 1) that the downturn in the number of college-age youth will have effects on all institutes of higher education, 2) educational delivery systems will change as a result of societal changes, and 3) that the technological revolution is upon us.

The above three basic assumptions were expanded on, and divided into four divisions. The subsets under the four divisions often times are interrelated, but were placed under one of the major divisions because the task force felt that they would have a more significant impact on that particular area.

The four divisions are: population trends, educational programming, economic considerations and attitude adjustments.

### 1. Population Trends

- a. The number of high school graduates in Iowa will decline by 20 percent from 1981 to 1991. The population in the 18-44 age group will increase by almost 10 percent over this same period.
- b. Iowa's population will not significantly increase.
- c. Women will continue to enroll in college at greater rates than men.
- d. Community colleges will tend to maintain their current proportion of the total higher education population if they can attune themselves to local citizen desires and to short-term occupational courses leading to job entry or re-entry.
- e. Young people foreseeing a growing labor shortage in certain fields will enroll with the intent of filling the labor gap.

Knowledge about the labor shortage will be readily accessible as a result of the available information via home computers,

Educational Programming

- a. With the declining pool of traditional students, educational packaging must be more flexible to meet the time and economic demands of the population.
- b. The college degree will be less important in certifying competencies and external agencies will do more of their own examining and licensing.
- c. Collegiate regional and professional accrediting agencies will be relied on less.
- d. We may be doing as much retraining as initial training due to domestic and international competition, robotization, movement of industrial facilities and the shift to a service based economy, displacing thousands of workers annually.
- e. As costs of employee turnover increase, industry and business will make renewed efforts to educate and train employees, leading to a large marketing potential for community colleges.
- f. Retraining and development of in-house staff will have to be one of the top priorities.
- g. Computers will dominate education, business and industry.
- h. Telecommunications will be a significant factor in education. The videodisc and videocassette will be more important to people and could have a negative impact on traditional adult training and education.
- i. We will have to re-evaluate what are basic and elementary skills if we are to train people to function effectively in an information society.

- j. As computers take over, we will be even more responsible for teaching values, communications skills (written and verbal) and humanities. We can not abdicate the personal responsibility to educate for the betterment of mankind -- and that includes human touch. The more high technology around us, the more need for human touch. We must strike a balance between high technology and human values.

3. Economic Considerations

- a. Technology costs and the demands for state-of-the-art equipment will place economic strains on budgets.
- b. An increasing amount of the college budget should be devoted to training in-house staff.
- c. More people will work at home as a result of transportation costs and the expansion of telecommunications.
- d. People will expect more flexible work hours.
- e. Energy costs will continue to climb.
- f. Facilities will be utilized for more hours each day as a result of energy costs and the need for flex scheduling.
- g. Insurance will continue to be a major Iowa industry.
- h. Many jobs that now exist will be replaced by machines.
- i. The disparity between the haves and the have nots will increase as a result of the age of information.
- j. Iowa will continue to be a leader in exporting agricultural products and other agriculturally related goods.
- k. There will be stronger labor/management collaboration in decision-making.
- l. Mandatory retirement will either disappear or be deferred.
- m. More and more businesses, industries, and educational institutions will examine and adopt the four-day work week.

- n. Much of the technological development over the next five years will have military applications.
- o. The college will contract with business and industry to provide educational services.
- p. Consumers will become more militant.
- q. Third world countries will produce more and more manufactured goods.

4. Attitude Adjustments

- a. Competition for students in the next decade will become more rapacious, including some huckstering techniques.
- b. Collective bargaining will be less acrimonious.
- c. There will be a serious decline in the number of private colleges in Iowa.
- d. Non-traditional concepts for women in programs may disappear as they are more fully integrated into all areas and levels of the work force.
- e. Decision-making skills will not be greatly improved in education, without a concerted effort.
- f. The value of main-frame computers will decline.
- g. Traditional teaching methods will change drastically but personal contact for reinforcement of learning will still be important.
- h. Local government will become more important as decentralization increases.
- i. There will be more concern for quality and a move away from the "throw-away" society.
- j. The definition of productivity will begin to change from goods to services involving information and ideas.
- k. People will have more discretionary time.

- l. Physical fitness will be an important part of people's lives.
- m. Competency based advancement will strain the value of degrees.
- n. We will move hierarchies to networking, and reliability on many institutions will decrease.
- o. There will be a multitude of product choices for people, and as a result, there will be a proliferation of "cottage industries."
- p. The principal source of new workers into the 1990's will be women and minorities, therefore steps must be taken to eliminate continuing discrimination.

#### IV. PROGRAM RECOMMENDATIONS

Since the first twenty-eight students began classes in February, 1967, Des Moines Area Community College's enrollment has increased steadily until, in fiscal year 1982, a total of 59,221 persons utilized college services, producing a full-time equivalent enrollment of 8,409. This record of growth in itself indicates that the college is providing services which people perceive to be of value.

Des Moines Area Community College, along with other Iowa community colleges, came into being because of evident needs for expanded post-secondary educational opportunities for Iowans. Vocational and technical education programs to enable people to develop skills and understandings needed for employment in an increasingly technical society were among the most important of those needs.

Over the years, the pace of technological development has continued to accelerate, and today we are experiencing the development of whole new "high technology" industries as well as the application of higher levels of technology in nearly all existing occupations. Robotization, for example, will not be limited to manufacturing. Advanced Technology is being introduced in banking, insurance, transportation and communication. Keeping our educational programming current with these new developments will necessitate many adjustments. This occurs at a time when financial resources are very limited and probably will remain so for at least the next few years.

The college has recognized the need for continuing efforts to keep its educational offerings sensitive to the needs of business and industry as well as students, as evidenced by the following long term goals of the college:

To assess the diverse educational needs of organizations and individuals within the college district and offer, within available resources, educational programs and services which are responsible to those needs.

To provide, in partnership with business, industry and related organizations, programs and services which promote the economic development of communities within the college district.

To provide accessibility to educational programs and services through flexibility in program design and, to the extent possible, scheduling of offerings at times and locations convenient to those who desire to utilize the services.

The following sections of this report attempt to define some of the major areas which it appears the college should consider in the coming years in order to assure continued educational programming which meets the evolving needs of our state, our district, and its individual citizens.

After reviewing a wide variety of written articles and reports, (including the report of the Governor's Task Force on High Technology), consulting with professionals in a number of fields, and seeking input from all Des Moines Area Community College staff members, the task force has identified several areas in which developments appear to hold potential for significant impact upon our district and state, and, therefore, merit careful consideration in the coming years in order to assure continued educational programming which meets the evolving needs of our state, our district, and individual citizens. In the following sections, each of these areas is discussed briefly and some recommendations are presented concerning both the near future (1982-1985) and longer range (1986-1990).



#### A. Manufacturing Process Control

The image of factories as primarily places where people perform routine, repetitive, unchallenging tasks on assembly lines is rapidly becoming farther from reality. In modern plants today, in Iowa and across our nation, the dull, repetitive jobs, and even some requiring considerable skill, are being performed by robots and other computer-controlled automated equipment. And frequently with production rates and quality standards higher than could be maintained by humans. But at least equally important, humans are being freed to perform more creative, responsible, adaptable, and therefore more rewarding, work. And new jobs requiring combinations of skill and knowledge in areas such as electronics, hydraulics, mechanics, pneumatics and computers are being created. This is one of the major fields of high technology today, and it is commonly referred to as "manufacturing process control." And like any technical field, it has its own unique vocabulary. Some of the more common terms will be defined below.

Manufacturing Process Control (MPC) encompasses all the systems and components involved in monitoring and controlling an end product (like electrical output of a power plant), or the process itself (like the construction of a tire) through a closed loop feedback system. All this is possible because of the use of the computer. Likewise, MPC embodies many high technology key words common to the Factory of the Future. Some of these terms are: Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), Industrial Robotics, Programmable Logic Controllers (PLC's), and Flexible Manufacturing System.

CAD is a computer driven system used by the designer/engineer to create, modify and ultimately produce the final design of a product.

can be a computer driven machine/machine tool (usually linked with the CAD system) to automatically produce the designed product with little or no human skill or assistance.

Industrial Robots are programmable, multifunctional manipulators designed to move materials, parts, tools or specialized devices through variable programmed motions for the performance of a variety of tasks.

Programmable Logic Controllers are complete solid-state devices designed to replace relays and timer/counters. Sometimes referred to as the "brain" of the system, they can also be expanded to include computational capabilities as well as simulation of stepper switches.

Flexible Manufacturing Systems are totally integrated systems employing many high tech manufacturing components to accomplish a series of tasks necessary to totally complete a process or end product with little or no human intervention.

The dominant factor in all of the above systems and specialized devices is the computer. Whether a host main frame computer or the computer "chip", it is the heart of every new production component now being identified as the future factory. In a sense, the micro-processor is the only new component in the modern factory, yet it has become the dominant force which is revolutionizing the manufacturing process.

MPC will be a major source of the productivity and quality improvement needed for industrial survival in today's world marketplace. Even the smaller industries common in the Iowa economy must be equipped with the technology of MPC to maintain a healthy growth through the 1980's and it will eliminate much of the undesirable, unsafe and difficult manual labor associated with today's manufacturing processes. From design through all the manufacturing processes, to final inspection,

packaging and warehousing, computer aided and integrated factories are and will continue to produce a more marketable product to meet the demands of the next decade.

Preliminary Activities - 1982-1985

To begin the processes necessary to design, develop and implement a high technology instructional center at Des Moines Area Community College, the following tasks need to be accomplished:

1. Bring into being a high technology resource center for utilization by the constituents of the eleven county area and all the residents of Iowa.
2. Explore a group of high technology programs and program improvements for implementation at Des Moines Area Community College.
3. Develop a prototype facility for high technology experimentation and simulation to enhance the growth, adoption, and expansion of the industries of Iowa.
4. Develop and implement a group of "high technology" programs compatible, complementary or visionary to the industries of Iowa. Specific activities to begin this process will be to:
  - a. Explore at least 10-12 different high technology fields and/or operating programs.
  - b. Develop and prototype 3-5 of these potential programs.
  - c. Implement 3-5 of these programs.
5. Integrate developing technologies into established programs at Des Moines Area Community College to enhance and update where necessary to meet changing industry needs. These tasks would include:
  - a. Identification of 6-8 programs where technology is rapidly changing.

- b. Establish an updating process for these programs.
- c. Bring the programs up to speed through faculty development and facility/equipment updating.

The above activities will be accomplished or underway over the next four years as a part of the college's Title III U.S. Department of Education grant award.

Additional preliminary activities which are more specific, but also will complement some of the more general activities above are:

- a. Integrate CAD/CAM into our machine drafting curriculum and tool and die programs,
- b. Develop a certificate program for CAD and CAD/CAM update or re-training for those in industry.
- c. Develop a quality control technician certificate program with CAD/CAM, Robotics, and Laser Technology as part of the curriculum.

#### Future Possibilities - 1985-1990

There are numerous external forces which can not be predicted that will determine the future direction of both large and small manufacturing. However, with the assumption that technology will continue to leap frog as in the present, some future projections can be made concerning 1986 and beyond.

- A. A continual regular (yearly) assessment will be required in many manufacturing occupation-related programs to insure relevance to the marketplace.
- B. The anticipated changes will create new and emerging occupations which will require program development on a more timely basis than at present.

- C. New alliances for training and retraining will be necessary between industry/manufacturing and the college to insure timely preparation of employees.
- D. New cooperative efforts between industry and the college will become available for product development through applying technologies for both productivity and quality assessment.
- E. Continued development and refinement of the high technology instructional center will broaden the college's horizons and acceptance for industry support and cooperation.
- F. A site on the Ankeny Campus should be developed to attract and allow Iowa industry or Iowa associations to build their research/training headquarters on location for joint development and training for their related industries.

## B. The Automated Office

Over half of the nation's work force today is employed in offices as clerical workers, secretaries, managers or professionals. It is the primary responsibility of these workers to process information in the most efficient manner possible. The procedures for handling information in offices today are changing due to new technological developments. Before looking at these new developments, it is important to identify some of the problems associated with today's offices.

Problems encountered in current offices can be attributed to several factors. A summary of these difficult areas include the high cost of operation, low worker productivity, poor communications, lack of information accessibility, inadequate organization of time and employee dissatisfaction.

Through the increased utilization of current technology, these and other problems associated with today's offices can be significantly reduced.

The fully automated office combines a network of five technology areas which are briefly defined as:

1. **Data Processing.** The use of electronic computers to gather, manipulate, summarize and report on the numbers, statistics, and other data that flow through an organization. The data is stored in data centers that can be accessed by office workers to help them in their work.
2. **Word Processing.** The use of automated equipment to produce such things as letters, reports, and other text material electronically.
3. **Electronic Mail.** The communication of information from one location to another electronically using Telex-TWX,

facsimile, computer-based message system, communicating word processor, voice store-and-forward systems and computer-conferencing systems.

4. Micrographics. Refers to information that is recorded on microfilm, stored, and then easily retrieved for reference and use. Microfilming can be done as a by-product through either data or word processing.
5. Teleconferencing. Refers to sending voices, pictures or digital messages to one or more remote sites. It uses audio hookups, full-motion video, freeze-frame video, electronic blackboards and graphics.

By linking these five components into a network through which information in data, text, image and voice form will be processed, stored, moved and retrieved, the automated office will resolve many existing problems.

The basic skills and knowledge needed to prepare people to work in the automated office can be done now in programs through the Business and Management Department at Des Moines Area Community College. The only limitations are as follows:

Equipment-- Equipment in programs in most cases is inadequate, outdated or past the point of being repaired.

Staff updating --Staff needs to be given time to update their knowledge on the changes that have taken place in the office due to technological advancements.

Preliminary Activities - 1982-1985

1. Incorporate all of the new technology areas that affect office workers in the existing programs in the Business and Management Department.
2. Decision making skills and management skills will become more valuable in the automated office than they are in today's office. It is essential that more emphasis be put on these two skills than ever before in all business programs.

3. Short courses, seminars and workshops should be developed for clerical workers, secretaries, professionals and managers to explain what office automation is all about and the technologies that deal with office automation, networking and the changing role of the office worker.
4. Start a program titled "Information Processing Management" that will emphasize the five technologies that make up the network as well as management skills.
5. Establish a certificate program in office automation.
6. Establish a short course called "keyboarding" for all students who are using computers who have not had instruction on the "touch system" of typing. This course could be taught both during the day and at night. This course can be taught on an individualized basis using software that is currently available if microcomputers are used.
7. Establish a Des Moines Area Community College cooperative relationship with the insurance industry. This could be done through the Business and Economic Institute.
8. Purchase or lease up-to-date equipment to replace out-dated equipment to teach the skills and knowledge required for people who will be working in the automated office. The basic equipment needed is as follows: electronic typewriters, electronic calculators, dictation/transcription units, microcomputers and word processors plus the appropriate software. The equipment should be available in appropriate numbers at each instructional site.
9. In order to have uniformity for the multi-campus structure of the college, care needs to be taken that courses and programs offered at different campuses have comparable equipment.
10. Allow time for staff to be retrained in the concepts of the automated office.

#### Future Possibilities - 1985-1990

As we move toward an information society, more and more people will be employed in offices, and advances in technology will continue to have an impact on the office. Things to consider for the future are:

1. Curriculum must be kept up-to-date. This can be done through careful selection of people to be on program advisory committees and by evaluating programs on regular basis.



2. As technology continues to change, efforts must be made to offer retraining programs to those people affected.
3. Equipment must be leased or purchased to coincide with the changes that will take place in the office.
4. Staff must continue to be kept current on new trends and given time to attend classes, seminars and workshops.

### C. Microelectronics

Since the early 1970's, this country has been experiencing what has come to be known as the "accidental revolution": the almost haphazard proliferation of "microprocessing."

In the central part of the country, Iowa seems to be about five to seven years behind the east and west coasts in its accommodation to the microprocessor revolution. The recent report from the Governor's Task Force on High Technology is one of Iowa's first serious acknowledgements that we are in the midst of a revolution.

The fact is that the State of Iowa is behind. And trying to catch up with the leaders in this industry could be counter productive. Realistically, Iowans can not hope to compete with the cheap labor of the Third World countries in the manufacture of the hardware of microprocessing. Notwithstanding the excellence of Iowa's universities and colleges, we do not have the prestige of Stanford and Berkeley to see our "tornado alley" turned into another "Silicon Valley."

There are already two mature industries in the state: agriculture (along with agri-related industries) and the insurance industry. A more aggressive use of microcomputers by both of these industries would certainly draw some of the high tech businesses to Iowa, if only to act as service centers to a large population of users.

One example of this can be seen in the pioneering work of Dr. Ellwynn Taylor and the ISU Extension Service. They have experimented with the use of a network of hand-held computers to develop a state-wide pest control management system. In effect, they are using information from all over the state to begin to control the agricultural environment.

It is not surprising that the computer manufacturer whose products Dr. Taylor uses has built a service center in Des Moines. This service center currently employs six technicians (all graduates of Des Moines Area Community College) and has the capability of becoming a regional service center with upwards of 300 employees.

The insurance industry has, for many years, been a heavy user of computer technology. It has only been within the past year that the use of microcomputers (especially portable, battery-operated micros) have begun to be explored as tools for this industry. It is these portable computers that will capture 60 percent of the micro-computer market in the next five years. The first few battery-operated computers have just been produced. This is, perhaps, the best time to join the revolution as the region of the country with the largest proportion of portable computers used for business and environmental control.

Des Moines Area Community College is already a part of the "accidental revolution". Even now the college is experiencing a proliferation of microprocessors and microcomputers on campus. Microprocessors are used to run part of the heating and air conditioning system and manage the telephone network. At the personal level, there are several Apple II microcomputers available for classroom use. There is an IBM Personal Computer in Building 2. Over ten micros are located in the electronics department (used in training service technicians). The Tool and Die program has its own microcomputer used in Computer Numeric Control milling. The Word Processing Center has at least six microcomputers. There is a vintage mini-computer in the Math and Science area.

As the recent survey of this Task Force for Strategic Planning showed, these faculty and staff see the need for themselves and the time to learn these skills. What is needed is administrative support to devote time to learning the needed skills and the necessary hardware with which to do the learning.

In short, the college is long on people with interest and intelligence to learn, but short on the instructional technology (both hardware and software) in order to get the job of learning done effectively and efficiently.

#### Preliminary Activities - 1982-1985

"Computer literacy" is a frequently used phrase which means many things to different people. It is the contention of this task force that Des Moines Area Community College, in the next few years, must become more computer literate. This does not mean learning a computer language, like BASIC, and becoming a programmer. If that were all there was to computer literacy, then any computer could be more "literate" than most college instructors. Computers are tools used to enhance what is already done well by people. It is with the idea of becoming more efficient users of these tools that the following suggestions are proposed.

1. Provide the opportunity and support for college administrators to obtain advanced training in computer-assisted decision making. This could include such skills as learning to run a Visi-Calc-type program for use in budget planning. It could go as far as learning the elements of linear and multiple-goal programming for use in deciding which disciplines should be emphasized and which de-emphasized so that students and the community could best be served with the limited resources at our disposal.

2. Released time for faculty to explore and develop (refine) computer applications for their particular areas of expertise. The only criteria for such development would be that the "product" would make the delivery of education easier to do with a computer than without one. "User-friendly" computer software would be another way to say the same thing.

DMACC has the talented and well-educated faculty and staff that are generally willing to make the effort necessary to see that programming remains current. However, there should be an increased emphasis for them to:

Participate and assume leadership roles in professional organizations;

Interact with the large staff of adjunct instructors who are active career professionals in business, industry and the professions;

Visit job sites and discuss with employer representatives, program graduates and advisory committees;

Formalize a process to continue the investigation of the impact microelectronics will have on the college.

3. The college should investigate a "Community Accelerated Learning Center" (C.A.L.C.). The goal of this organization would be twofold. First, it could serve as an outreach service to high schools that are experiencing a shortage of math and science teachers. The emphasis of C.A.L.C. would be to teach the skills of computation, problem solving, and communication; the skills needed for any training in high technology. C.A.L.C. would, of course, need the best of instructional technology to get this job done. A second thrust of this organization would be to serve as the center for computer consulting. In this endeavor, C.A.L.C. would serve as a computer-user's center.

bers would be faculty, staff, or members of the community. The price of joining this users' group would either be a set fee per year or a number of hours of consulting service given to the organization. The end result would be a group of "consultants-on-retainer" to the business and educational community.

4. Re-examine all of the computer courses presently offered. Much of the literature indicates, for example, that in five years or so, computer programming will be obsolete as we now know it. If this is accurate, then it would seem obvious that we should begin immediately to examine other educational programs to meet the new challenges of microcomputers, user-friendly computers, automotive electronics, farm implement electronics, business systems, medical electronics, etc. There should definitely be a five year plan to keep pace with changing technology in this area.
5. There is a need for more microcomputers on campus now. As the demand grows, there should be a formalized process for approving the purchase of more microcomputers, and a system of shared-use for different programs. For example, if we had a 'bank' of 35 or 50 microcomputers, it would be possible, with coordinated scheduling, to adequately meet all the needs for the next three or four years. At the same time, we need to work on networking microcomputers.
6. With the expense involved with purchasing new equipment, and the rapid obsolescence rate, it might be more prudent to lease rather than purchase equipment. This option should be examined on a business-like, bottom-line basis.

Whatever we do in the next five years must begin now, or five years from now we will be ten years behind.

The Future - 1985 to 1990

A reporter for the Washington Star wrote that "Had the automobile developed at a pace equivalent to that of the computer during the past 20 years, today a Rolls Royce would cost less than \$3 and get three million miles to the gallon, deliver enough power to drive the Queen Elizabeth II, and six Rolls would fit on the head of a pin."

That might be a bit of hyperbole, but if even a part of it is accurate, then predicting the future in microelectronics is difficult at best. Some believe that the computer will cause waves of change comparable to those generated by the development of movable type in the 15th century.

We know that home computers will proliferate, that the capacity of microcomputers is increasing dramatically, that user friendly computers will be more 'friendly' and more usable, and that electronic components will continue to be more miniaturized.

With the above as background, then some projections for the future come into finer focus.

The task force anticipates that main frame computers, as we know them, will be utilized only by extremely large institutions. The military, IRS insurance companies, etc. will continue to use mainframes. However, smaller institutions will depend on microcomputers, or banks of microcomputers. It is not unrealistic to project that departments within smaller institutions will have their microcomputers dump daily activities to a central mainframe, and be able to communicate with other microcomputers across departments.

Turn-around time, ease of operation, standardization, etc. should be primary reasons why this will happen.

There would appear to be a major problem confronting DMACC: i.e. how to combine our present centralized system (mainframe) with decentralization of microcomputers.

It is also not out of the realm of possibility that virtually every class offered will have some type of computer use. We should be encouraging the use of educational technologies for manpower training and retraining, act to insure equitable access to information technologies, provide businesses and industries with the opportunity to directly finance technology acquisitions, and be actively involved in designing software for individual programming needs.

As new technologies emerge, community colleges may be the only educational institutions capable of the flexibility to meet the service needs of those technologies. It is not unrealistic to gear up a program for three or four years, change it as technology advances, change it again, and so on.

The college, in 1990, must have a staff willing to change and to keep curricula current with the rapidly changing forces that will drive us. Technology will drive our educational programs. It will not be the other way around.



#### D. Telecommunications & Delivery Systems

An examination of the present conditions in the Media Center concerning potential for expansion to a full blown telecommunications operation indicates a deplorable situation.

There is a crying need for appropriate equipment right now to meet the demands. In fact, the equipment now available to Des Moines Area Community College is at least one generation behind technology. If our assumptions are correct about the need for a delivery system utilizing modern telecommunications techniques, then the institution must proceed immediately with plans to beef up the equipment levels necessary to accomplish the task.

There is little reason to dream about an earth station with the horse and buggy equipment available. There is little reason to think about networking, video disks, cable expansion, teleconferences, computer/audio/visual combinations, etc., unless the college is willing to infuse the necessary money to gear up for the future. We cannot go into these technologies unless we have an appropriate distortion free signal that meets minimum broadcast standards.

The annual reports for the last three years give some perspective to the problem. They should be mandatory reading for decision makers.

Two years ago, Des Moines Area Community College had teleconferencing capabilities to deliver instruction to Boone and Carroll. As a result of budget cuts, the system was dropped. Considering the system, the decision was not a bad one. It was an excellent example of starting a system without an institutional commitment. The Telenet System lacked sufficient microphones and back up for visual delivery. Proposals for a slow-scan add on were opposed.

Those working with the Telenet System learned some valuable lessons: 1) The technology has been in place for some time for networking to a variety of sites, 2) an audio signal as a stand-alone system is inappropriate for instruction, 3) instructors have to be given up-front time to prepare (a full term of prior notification that one will be using an alternate delivery system is required in order to adequately provide viable education), and 4) some faculty members are not suited to use telecommunications to deliver instruction. Those lessons should be valuable as we move forward in telecommunications.

#### Preliminary Activities - 1982-1985

For the past five years, the college has allowed the present media equipment to be of secondary importance. With the present external technological advances, coupled with the decline in viable equipment, Des Moines Area Community College stands at a crossroad.

On the one hand, there is the need for updated equipment, and on the other hand, there is an expenditure of more than \$100,000 to provide the necessary tools to advance. However, without a commitment to upgrade equipment, the college will not be capable of coping with telecommunications changes.

There is going to be a change in American society. A brief glance at the assumptions this task force has made for the 1990's indicates that the outside world will change, and we must be prepared to deal with it.

Telecommunications will be an efficient, productive delivery method. If we are in the position to take advantage of the changes we believe will occur, then the entire telecommunications arena will

be one of growth, excitement, and service to our consumers. The growth should be prudent, however. For the short term, the following things must happen if we are going to be ready for the last half of the 1980's and the 1990's.

1. Purchase portable production equipment (\$30,000)
2. Purchase editing equipment (\$55,000)
3. Purchase delivery equipment for district wide use (\$23,000)

With the above in place, then other immediate term things will be able to occur.

1. Produce programming for commercial TV. Preliminary discussions with the new Channel 17 that will be installed in Des Moines within the next year, Des Moines Area Community College could have a 30-minute program each week.

It is possible that we could also produce our own telecourses to be broadcast over Channel 17. Channel 17 needs programming, we need an outlet. It could be a satisfactory arrangement for both parties.

2. Produce educational programs that will eventually free present staff to do more planning, up-grading, etc.
3. Be ready for the expansion of telecommunications that Bell Telephone anticipates. With proper equipment in place, it is not inconceivable that within three to five years, we will be able to dial access a classroom in Carroll, turn on the cameras in Ankeny, and through the telephone, have audio and visual delivery. This has unlimited potential.
4. Produce training videotapes for business and industry. We have not tapped this market. With our VT equipment, we could

contract with business and industry for an assortment of training modules. Cost recovery and payback potential is unlimited.

The above are cursory possibilities. There are undoubtedly other things that could be done, and with a systematic plan, could move Des Moines Area Community College to a position where it could be ready for the boom that is seen for the future.

#### The Future to 1990

Due to rapid developments in telecommunication and computer technology, and due to the falling costs of such capital-intensive technologies, we will need to increasingly implement such technologies. For the student, such technologies will provide a computerized knowledge, information, and course data base system. Such a system will individualize and decentralize course offerings and informational availability and largely eliminate the relatively inflexible and non-individualized lecture or lecture-discussion format currently used. The following capital-incentive educational delivery system should be in place by 1990.

Two-way interactive cable television permitting:

1. Video transmission of colored, life-size images projected on wide and/or thin screen television.
2. Two-way, real-time visual and audio contact between instructor/student and student/student.
3. System-wide courses originating from one and/or multiple location(s).
4. Delayed or real-time course presentation.
5. System and/or local purchasing of courses and programs developed at other universities, colleges, or private corporations.

6. Local delivery of courses, delayed or real-time, over local two-way interactive cable systems.

"Paperless" electronic libraries characterized by:

1. Electronic storage of books, journals, references, and course content.
2. Computerized cataloging and indexing.
3. Local storage of library, course, and multi-media materials on microcomputer, videodisc systems, videotape systems, and microfilm, microfiche, and holofiche.
4. Computerized and networked systemwide, state, and national library data banks with real-time access of requested sources.
5. High speed printers/converters for transforming electrically received information into readable hardcopy (paper, microfilm, microfiche).

Computerized course/program presentation via microcomputer or via microcomputer/videodisc interfacing allowing for:

1. Audio, video, graphic, and data course content.
2. Multi-media programmed instruction and multi-media simulations.
3. Networked course availability from course data banks.
4. 24 hour availability of course content.

Systemwide and/or local satellite reception/transmission permitting

1. Reception of national and international programs, courses, and lectures.
2. Two-way, interactive, real-time participation in national and international courses and seminars.

3. Ability to bypass cable systems to receive courses, programs, and lectures.

However, there are certain things that must coincide with the above changes:

Staff development and retraining in electronic delivery system.

Establish policies on the need for increased student services.

Establish medium/long range planning policies concerning funding needs vis-a-vis electronic delivery systems.

Establish policies on electronic libraries.

Study the impact of reduced student activities on the system.

Establish policies to encourage faculty involvement in courseware/software development.

Establish liaisons with local and regional cable companies.

Establish a policy on minimum faculty/student contact required for graduation/credentialing.

Establish programs emphasizing the recruitment of non-traditional students.

Identification of master teachers for systemwide electronic instruction.

### E. Energy

Iowa currently imports 98% of its energy. Each year, approximately 3½ billion dollars leave our state to purchase the energy necessary to operate our businesses, industries, governmental and educational institutions, farms and homes. Because of this energy dependency, Iowa will be more adversely affected than 47 of the other states by further increases in energy prices. And the outlook is for continued escalation of costs for our current major energy forms for the next several years. These factors indicate strongly that efficient energy management and the development of both instate energy resources and alternate energy sources need to be high priorities in Iowa.

On a more positive note, Iowa currently ranks third from the top among the states in the development of energy-related industries. Therefore, a good foundation already exists for further development of energy industries in the state.

In the future, DMACC can make a significant contribution to energy education in Iowa, in at least two major ways:

1. The transmission of energy management information and skills to business and industrial personnel as well as to individual homeowners, enabling them to cope more effectively with rising energy costs through effective utilization of available technology, and
2. The development of an educational program -- which produces broadly trained energy management technicians who possess the combinations of skills and knowledge necessary to develop, install, operate, maintain and repair the varied and increasingly complex energy systems of today and tomorrow.

Each of these areas will be expanded in the sections which follow.

Preliminary Activities -- 1982-1985

1. The Building Trades program places considerable emphasis on energy efficient home construction techniques. This emphasis is not presently reflected in the curriculum as shown in the college catalog. As the curriculum is revised for the transition to semesters, course descriptions should identify the knowledge and skills students develop in these areas. Similar situations may also exist in other programs, such as Conditioned Air.
2. As the technical college for central Iowa, DMACC should seek to establish itself as the center for energy management education. (The term "management" implies both to conservation and effective use.) This effort should be a part of the high technology center. This should involve establishment of a center for the collection or development and dissemination of current information in a wide variety of energy management and alternate energy areas. The college might want to also consider assuming an applied research role in establishing this economic practicality.

A rather extensive group of short courses, workshops and seminars on energy should be developed to meet the needs of businesses and industries as well as homeowners. These should deal with retrofit measures as well as new construction, passive as well as active systems, and energy production as well as energy conservation, again with emphasis on economic practicality. Courses to upgrade skills in energy management will be needed in all skilled construction trades as well as for architects and engineers. The courses should be capable of being packaged in a variety



of different combinations as certificate programs. Instruction should be offered in decentralized locations and via media wherever possible, so that the courses are readily accessible to people throughout the area.

3. A course in consumer energy decision making should be offered through the Health Services and Sciences Department, carrying transfer credit. The importance of energy management on a personal basis will increase as energy costs consume a greater proportion of our budgets.
4. A two-year associate degree Energy Management Technician program should be initiated within the next two years.

As energy industries expand, technical occupations associated with energy production, conservation and utilization will experience corresponding growth. Equipment used in homes, businesses, industries and institutions will become increasingly complex, involving systems that utilize combinations of mechanical, electrical, thermal, fluidal and optical components. Generally, these systems will be controlled by computers or microprocessors. A new generation of "systems-oriented" technicians will be needed to develop, install, operate, maintain and repair this type of equipment. Narrowly trained specialists will not meet these needs. The demand in this changing technology will be for interdisciplinary technicians possessing combinations of technical skills and knowledge. The curriculum for such a program will be able to draw heavily on existing courses, especially in the Conditioned Air and Electronics programs and in the sciences.

Employment opportunities for Energy Management Technicians will exist in a variety of occupations, such as:

in service organizations as energy audit and energy conservation technicians; in research and development labs as a support to engineers and scientists; in power plants and energy industries to develop and maintain production equipment; in businesses, industries, institutions, etc., for maintenance of energy-related equipment; in sales and installation of new, energy-related equipment, such as solar heating or electric conversion systems.

Two community colleges in Iowa (Iowa Valley and Western Iowa Tech) already are offering programs of this nature. If DMACC is to assume a leadership role in energy education in central Iowa, a "systems-oriented" technician level program must be a high priority.

#### Future Possibilities - 1985-1990

The combination of the 2-year Energy Management Technician program and short courses/certificate programs recommended for near-term development will also provide a framework for adapting to future developments in this rapidly changing field. Today, a number of alternate energy sources lie just beyond the realm of economic practicality, and a technological breakthrough can change that picture literally overnight. It is difficult to predict which alternate energy sources may suddenly become important due to such technological breakthroughs, and the college must be prepared to respond in a short timeframe to such developments and their resultant labor force implications. A brief assessment of some of these possibilities include:

1. Solar energy

It has already been proven that passive solar heating systems can be effective in Iowa. Active systems are generally more expensive, but new designs are reducing costs. Presently, solar energy can

provide all the hot water needs for a home on a cost-effective basis. As the technology is further refined, solar energy for both residential and commercial heating will play an increasingly important role in our energy picture. This technology should be a part of the initial curriculum for the Energy Management Technician program.

Another application of solar energy is the use of solar cells to convert sunlight directly into electricity. Basic technology in this field has existed for a number of years, but a major breakthrough in the cost of producing solar cells must occur before any significant amounts of electrical power will be produced by this method. Costs have been gradually declining, and probably will continue to do so. Whether or not the needed significant breakthrough will be achieved in the next few years is open to question.

## 2. Wind energy

The high front-end costs for equipment to produce electricity via wind-driven generators prevent this process from being cost-effective at present energy rates. However, increases in energy costs could change this picture. Once the equipment is installed, its operating conditions are considerably less critical than several of the other alternate energy systems (especially methane or ethanol production) -- a sizable advantage for the average individual.

## 3. Alcohol (ethanol)

The production of alcohol from grains, for use as a substitute or supplement for petroleum-based fuels, has been the subject of considerable research and experimentation. The technology presently exists for the production of rather sizable amounts of grain alcohol, and consumer acceptance of gasohol as an automotive fuel has increased.

However, at present prices, ethanol is not really cost-competitive with petroleum-based fuels, and its development has largely come to a standstill. However, should fuel costs increase significantly or a new fuel shortage develop, interest in alcohol production would be rapidly rekindled. If conditions develop which indicate a continuing need for alcohol as a fuel, the college should consider establishing an Alcohol Production Technician program. The process of converting grain to alcohol is a fairly complex one requiring skills and working knowledge in areas such as chemistry, microbiology, steam engineering, plumbing, and lab hygienics. Even the accomplished do-it-yourselfer is likely to experience more problems than success without adequate technical understanding.

#### 4. Methane

The production of methane gas from a variety of agricultural wastes, including manure, is another process which may hold considerable promise for the future. In addition to providing a usable fuel, it could also help to alleviate the increasing problem of disposal of animal wastes from larger confinement hog operations and cattle feed lots. And the resultant by-product is a fertilizer richer in nitrogen than is raw manure. In addition to animal wastes, crop residues, wood waste, and municipal wastes can also be used to produce methane, so there is an abundant supply of raw material.

As with other alternate energy sources, however, there are some problems. Presently, the size of operation necessary to be cost effective is larger than the average farm unit -- estimate at the equivalent of 5,000 hogs per year, for example. And, as with ethanol, the process

is not a simple one which will operate automatically. The digestion process must take place in the absence of oxygen, and temperature and pH range must be rather closely controlled.

The college should monitor closely further developments in this technology. With the wide availability of both plant and animal wastes in Iowa, the possibility certainly exists for this to emerge as a significant source of energy. If this begins to occur, a sizable demand for persons trained as digester technicians will develop very quickly, and the college should be prepared to respond.

The possibility of combining the digester technician and alcohol production technician programs into a single Agricultural Energy Technology program should also be examined.

Over the next few years, at least, two other potential energy developments should be watched for possible educational programming implications for the college. These are:

1. Our own Iowa coal could become a very important energy resource if better procedures for desulphurization can be perfected.
2. Sixty-one sites in Iowa have at one time been used to produce hydro-electric power. A French firm is now interested in remodeling several of these plants and putting them back in operation. A demonstration project featuring their new technology is planned. If restoration proves as practical as the company believes, a turbine manufacturing plant might also be developed.

Finally, we should like to point out what may be the obvious -- if the college is to become the center for energy management education for central Iowa, it must itself serve as a role model for effective energy management. This means the extensive energy conservation efforts which have been initiated must be maintained and extended, and new technological developments continually evaluated for potential adoption.

## F. Biotechnology & Health

Few of the newer technologies excite the imagination more than genetic engineering and the related areas known collectively as "biotechnology." The principles of biotechnology are not new. They have been used in baking, brewing, cheesemaking, waste treatment, and drug production for some time -- applications in which single-cell living organisms such as yeast, bacteria, fungi and related microorganisms really function as efficient miniature chemical factories. Recently, though, as a result of significant new insights into the genetics of living matter, biotechnology has made considerable advancement, particularly in the transplanting of animal genes into bacteria. Through this process, in research labs, scientists have produced a number of valuable hormones and drugs, including insulin, interferon, and human growth hormone. As the techniques of gene splicing and cloning are extended from microorganisms to plants and animals, the potential benefits for agriculture are almost beyond our imagination. Among the possibilities are plants with new resistance to drought, insects, salt, and certain herbicides, cereal crops that produce their own fertilizer, and livestock that is more resistant to disease and capable of higher yields of milk or meat than ever before. But transforming these possibilities into reality will be neither quick nor easy. Preliminary research indicates that the regulation of plant genes may be much more complex than that of bacterial genes. Most commonly, time tables for developments such as the above are stated as "within the next 20 years."

Other technologies related to health will also undergo significant change. The computer, for example, is fast becoming not only a device for the maintenance of financial and patient records, but also an important diagnostic

tool. New specialties in the health field are continually emerging, frequently involving high-technology equipment never before available. The upgrading and modification of our health programs, and the development of needed new areas of training, to meet these newly defined needs, will be a continuing challenge which, for the well being of our citizens, must be met.

#### Preliminary Activities -- 1982-1985

Although the opinions of "experts" differ rather widely as to how rapidly research efforts in biotechnology will move to practical application, there seems to be general agreement that into the 1990's, the field will be primarily research rather than production oriented. The primary need will be for scientists with advanced degrees, with limited employment opportunities for two-year technicians to assist the scientists. As a matter of fact, many of these technician-level jobs may be filled by persons with B.S. degrees in science, since the research positions will generally require advanced degrees.

At this point, it does not seem advisable for the college to attempt to implement a biotechnology technician program within the next three years. Rather, our emphasis should be on a high-quality science program providing a strong background for those who wish to transfer to senior institutions as science majors. Some who attain an Associate Degree may find opportunities for employment as technicians rather than continuing to pursue the B.S. degree. While it would appear likely that these numbers will be small, the potential opportunity should be pointed out to students in career planning activities.



In our existing health programs, the challenge will be to continually update the curricula to reflect new technological developments, so that students possess the skills and understandings required in the field. As in other areas, three years of essentially no new equipment purchases are creating problems which will only become more serious with the passage of time.

With the computer becoming an integral part of almost every health program, a major task for the near future should be the identification of the particular computer skills and understandings needed in each program and the integration of appropriate instruction into the curricula. General "computer literacy" will not be adequate to meet this need.

#### Future Possibilities -- 1985-1990

A part of the college's forward planning effort must be the monitoring of the development of the whole biotechnology field, with a view to establishing, as soon as practical, a two-year biotechnology technician program. This could well take the form of a career option program for science majors. There would also be a close relationship with the Medical Lab Technician program, since some of the same course work would be applicable. It appears a strong background in microbiology would be especially necessary.

The whole area of geriatrics will assume a more important role in health programming. As our "senior citizen" population continues to increase, new facilities and systems to meet the care needs of this group will be developed which will give rise to new programming needs. Also, a trend toward greater specialization, plus the development of new techniques and equipment, will create an expanding need for short courses, etc. for upgrading and retraining of health personnel.

### G. International Education

The entire area of international education and foreign language offerings at all levels of education is being re-examined. The rationale behind this motivation lies in the fact that we live in a global community which has interdependent economic needs. The 1979 President's Commission on Foreign Language and International Studies listed as a fundamental conclusion that "our lack of foreign language competence diminishes our capacity in diplomacy, in foreign trade and in citizen comprehension of the world in which we live and compete."

A major national concern is that American production is lagging behind several other countries in the world. Traditionally, powerful U.S. industries in automobiles and steel are losing out to foreign competitors.

American dependence on middle-eastern countries for basic energy supplies continues to affect the national economy.

Among all the various forms of international economic transactions, the trade arena is paramount. "Iowa's share of the farm export market is growing. The State is the nation's Number 1 exporting state and source of 8.5% of all the U.S. farm products marketed overseas." (Des Moines Register, May 23, 1982) It was further reported that Iowa's earnings from overseas sales of farm commodities has increased nearly eight fold over the past 15 years. Iowa's businesses and industries are seeking to expand their export markets; expansion of this activity will stimulate economic growth by increased production and creation of more jobs. The Iowa Development Commission reported in a Des Moines Register article on February 16, 1982 that 32,300 Iowa manufacturing jobs depended on exports during 1980, which was an increase of 12,500 jobs since 1976.

As Iowa continues to expand and experience growth in the international trade arena, Des Moines Area Community College can lend assistance to Central Iowa business and industries by providing well trained educated skill workers in international trade and global affairs.

An important element in international studies is a curriculum that addresses knowledge and understanding of the culture and customs of other countries. Training in these areas will enhance business efforts in their trading prospects overseas.

Des Moines Area Community College already offers a number of courses pertinent to this kind of education in the areas of anthropology, business and marketing, economics, history, and political science. The college is converting from a quarter to a semester system of credit offerings, scheduled to take effect in the fall of 1983. This process requires that we carefully analyze and revise courses and curriculums. In particular, we will need to integrate our offerings pertaining to business, international affairs and cross-cultural studies to focus on foreign trade and international relations.

#### Preliminary Activities

1. Establish a self-supporting international relations institute which will provide ongoing services to Iowa business and industry by educating students for jobs in foreign trade.
2. Develop an interdisciplinary curriculum model which would integrate existing courses and instructional materials and provide a flexible but focused treatment of global studies relevant to international trade.
3. Conduct successful implementation of the new curriculum and establish private support for its operation.

4. Advertise and disseminate information about the institute throughout Iowa.
5. Complete the resource center for internal and external uses.
6. Development of multimedia language and cross-cultural teaching model with the flexibility to offer various languages (including English as a Second Language) through individualized, self-pacing techniques.
7. Development and revision of curriculum and accompanying software according to identified user needs.
8. Institute participation and involvement at the national level in relevant organizations, seminars and conferences to promote international education for American business people.

The above activities will be accomplished over the next two to three years as part of the college's Title III U.S. Department of Education grant award.

#### Future Possibilities

Although many external factors will intervene to determine the future course of international education, it is apparent that Iowa's position has been firmly established as a national leader of farm exports. With the assumption that expansion and growth will continue in the future as it has in the past, some future possibilities can be projected.

1. An ongoing comprehensive assessment will be needed to determine the degree to which the curriculum meets anticipated market needs as changes occur.
2. An extensive effort will be concentrated toward expanding the college out-reach capabilities to all segments of the State International Trade community.

3. Additional selected second level courses will need to be added to the basic curriculum. This is especially important to prepare the students in expanding their international perspective.
4. The college will need to look at the possibility of internationalizing the curriculum.
5. It is envisioned that a developed plan to lead trade prospecting tours to selected foreign countries would provide personal exposure to the students which would cement their previous language instruction and cultural understanding.
6. A related activity would be to establish foreign business contacts for the local exporters. In addition, the college could sponsor an international trade seminar and participate in regional and national conferences.

Other activities could include offering the foreign language courses to small high schools in the district as part of a secondary school enrichment program via television.

## ESSENTIAL ELEMENTS FOR PLANNING

As the task force has focused on the future of the college, particularly in view of emerging technologies, three essential elements which the college must consider have emerged over and over again. Obviously, strategic planning involves the analysis of a great many elements, but these three seem especially important for DMACC at this time. These three elements, which will be discussed individually, are equipment needs, staff development needs, and the necessity for reallocation of resources.

### A. Equipment Needs

The implementation of new high technology programs, or new options in existing programs, will obviously require the commitment of funds for equipment. Generally, these commitments will need to be sizable because of the complex and sophisticated nature of the equipment involved,

It is at least equally important that we recognize that technological advancements not only generate a need for new programming, but also affect our existing programs, requiring adjustments in current curricula and the addition of new equipment in order to include these new developments in the learning experiences of our students. Failure to do so will cause our programs to quickly become out of date and the reputation of our students, which may be our most precious commodity, to decline.

In this regard, it is important to note that expenditures for new and replacement equipment for instructional programs have declined drastically with the elimination of state funds for this purpose and the "budget crunch" which our institution has experienced. Expenditures for instructional equipment for the past four years, and the amount budgeted for the current year, are shown in the table below.

Table: Instructional Equipment Expenditures

F1979	- \$ 425,171
F1980	- \$ 414,868
F1981	- \$ 423,066
F1982	- \$ 169,289
F1983 (Budgeted amount)	- \$ 6,871

This situation cannot continue without seriously affecting the viability of our programs. The restoration of state funds for equipment replacement has been made a number one legislative priority for this year. Unless DMACC's share of any such funds is sizable, approaching \$1,000,000 per year, the task force recommends that the college actively pursue extension of the 20% mill property tax for capital expenditures, with a major share of the funds committed to new and replacement equipment for both updating of existing programs and the initiation of new high technology programs.

The college will also need to pursue the establishment of partnerships with business and industry to permit the conducting of training activities for employees and our students during off hours on company-owned equipment, which is either too expensive or too specialized for the college to justify purchasing.

Needless to say, private source funds for equipment purchase will also continue to need to be pursued,

## B. Staff Development Needs

The accelerated rate of technological change not only affects equipment needs, but also creates a great need for faculty members to be able to develop skills and understandings in these new areas which will enable them to effectively transmit to their students the new knowledge and skills they will need to be effective on the job. This is a concern in both existing programs which are experiencing technological change and in new programs which may be established in high technology areas, which almost by definition will also be rapidly changing.

Further, instructors have the dual problem of keeping up with technological change in instructional methods as well as in their occupational fields. An example with widespread application may serve to illustrate this. Instructors in almost all career programs indicate that computers will be involved in their occupational field in the near future, if they are not already. Because the application of computers will vary widely, instructors will need to analyze the particular computer information and skills which will be needed in their occupational area, and plan for their inclusion in the curriculum. There is also considerable evidence that use of the computer to facilitate instruction (Computer Assisted Instruction) can result in accelerated learning, shorten training times, and permit individual students to learn at their own rates. But the development of such training packages requires both special expertise and considerable time and effort.

The college has an immediate need to explore possibilities for expanding staff development opportunities for instructors if we are to keep in the forefront of educational services. The increased flexibility of scheduling under the semester system, and especially the 4-week interim term, offer



some new possibilities, but truly innovative solutions are needed if we are to meet a challenge of this magnitude. Incidentally, this challenge is not unique to DMACC, but applies equally to every other community college. In reality, we are probably better able to cope with it than most, since we already have full-time staff positions in staff development and instructional development. But it will require both an institutional and staff commitment if we are to achieve the needed results.

C. Reallocation Resources

The possibility of additional funds being available for the establishment of new programs and/or services does not appear very bright in the foreseeable future. Special project funds will be sought whenever possible, but it appears that most of the new program thrusts the college decides to undertake will necessitate a reallocation of funds from present efforts. To provide a rational basis for the allocation of resources, the college will need to develop a master plan for the on-going assessment of the educational needs of individuals and organizations in the district and the evaluation of existing educational programs and services. This has been made objective number one for the college for fiscal 1984. It has also been selected as the major project on which the college will work, in lieu of the traditional D.P.I. evaluation visit, in fiscal 1984. This is the first year the option to select such a project has existed, and we believe this will be a very timely and desirable effort.

## VI. MARKETING IMPLICATIONS

There are several reasons which lend credence to the fact that in order to remain a viable resource for providing post-secondary education services, Des Moines Area Community College must develop and launch a strong marketing campaign.

The college will be competing for students and diminishing financial resources simultaneously. Traditional methods for generating student enrollments will be tested and greater innovative techniques will need to be explored.

The development of financial resources to provide support for offering quality education services will require an intensified effort and creative ingenuity in order to proceed with success in the future. It will be necessary to identify the institution's benefits to the community and sell them aggressively.

A heightened awareness of the value and importance of the institution to the communities it serves will establish a climate of support and create an understanding and appreciation for the services provided by the college.

It is imperative that an analysis of essential current and future needs be identified and listed to provide a firm base which is consistent with the college goals before a strategy is established.

A comprehensive marketing plan should be developed which includes achievable objectives, sound strategies and annual evaluations to note achievements.

The finest marketing plan can not hope to be successful without the support and involvement of the total college. A commitment by the Board of Directors, administrators, faculty, staff, students, alumni and college advisory committee members must be firmly established.

## VII. SUMMARY

In preparing for the future, DMACC is confronted with a major challenge: the setting of priorities in an era where emerging technological developments affect all areas of the education process.

Although an accurate forecast of technology-inspired changes cannot be assured, planning a directional course for the future without consideration of the impact of such changes would be foolhardy.

It is acknowledged that there is a fear of the future, a reluctance to change, and fundamental problems and differences will emerge. However, a successful future will not be ensured without a firmly established plan of action. The efforts of this task force reflect the initial stage of that process.

In developing this report, environmental expectations and assumptions were established concerning population trends, educational programming, economic conditions and attitude changes. This process had a significant impact on the program recommendations and conclusions in the report. Three elements were identified as basic to the expectations and assumptions:

1) the downturn in the number of college-age youth will affect all institutions of higher education, 2) educational delivery systems will change as a result of societal changes, and 3) the technological revolution is upon us.

The task force identified micro-electronics, manufacturing process control, the automated office, telecommunications, energy, biotechnology/health and international education as topic areas of examination. This is not a complete list of potential development areas. However, with the brief time allocated, it was not practical to attempt to include all possible areas.

The program recommendations made in each topical area consist of three parts: a brief introduction, preliminary activities recommended for

implementation during the 1982-85 period, and suggested future possibilities for the period 1985-90. Any attempt to summarize these recommendations without the accompanying rationale takes away much of their meaning, and therefore the reader is referred to the Program Recommendations section for this information.

In addition, the final section of this report identifies general conclusions which the task force reached as a result of its investigations.

## VIII, CONCLUSIONS

Based on the information provided in the preceding sections of this report, in conjunction with a comprehensive literature review and consultant advice, the following conclusions can be made.

- A. The excellence of quality education provided by DMACC in the past places the College in a leadership role for the future, therefore we must be ready to meet the challenge.
- B. A high technology future will force a radical redefinition of both the structure and function of all forms of higher education.
- C. Careful consideration, planning and efficient management are vital to the process for reallocation of college resources.
- D. Major expenditures for replacement of existing out-dated equipment and purchase of new equipment must be made.
- E. A comprehensive plan for staff development and upgrading is vital to the institution's success. Paramount to this success is the ability of the staff to be able to make knowledgeable decisions about curriculum and educational technologies.
- F. The increasing sophistication of telecommunications and computer technology will provide individual students unlimited discretionary access to an abundance of individualized information and knowledge.
- G. A survey network of key industrial manufacturing, health care, business, banking, engineers, production workers and futurists should be established to obtain regular input on the state-of-the-art process equipment and identification of future training needs.
- H. As technological changes continue to occur, it is imperative that the College re-evaluate all curriculum and make the necessary revisions to reflect important developments.

- I. College emphasis should be on high quality math-science programs to provide a strong background for students wishing to transfer to senior institutions as science majors or enter high tech areas as technicians.
- J. As the College moves into more high technology science oriented training there will be a greater need for an understanding of the humanities and the ability to communicate.
- K. As the senior citizen population grows, an increasing focus should be placed on their needs.
- L. A High Technology Center should be established to coordinate and enhance the involvement of the College in emerging technologies.
- M. As a result of the continuum of change we are faced with, it would be appropriate to appoint an on-going futures planning committee with rotating membership to monitor change on an on-going basis and provide input into decision making.
- N. We should take a very serious look at requiring a core of courses common to all students. It would be a mistake to train technicians that can't understand human behavior and that fail to grasp fundamental human values. A key to success will be interdisciplinary course work.

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## OTHER RESOURCES

## Consultants -----

Larry Bean  
Director, Conservation and Grants Division  
Iowa Energy Policy Council

Charlene Merta  
Industry Manager, Government-Education-Medical  
Northwestern Bell Telephone Company

Warren Dobbertin  
Vice President and General Manager  
Syntex-Agri Business, Inc.  
Animal Health Division

Mark Pogy  
Audio-Visuals Technician  
Des Moines Area Community College  
Instructional Support Services

Maurice Mitchell  
Instructional Development Director  
Des Moines Area Community College  
Instructional Support Services