

BUSINESS, MANAGEMENT, MARKETING & TECHNOLOGY CAREER PATHWAY

This pathway includes careers related to all aspects of business including accounting, business administration, finance, information processing and marketing. These may include advertising, entrepreneurship, sales, computer/information systems, human resources, office administration, economic and management and retailing.

DEGREES/CERTIFICATES:

- Accounting
- Business Administration
- Management
- Marketing
- Computer Programming Specialist
- Microcomputer Applications Specialist
- Microsoft Office User Specialist
- Networking Specialist
- Office Administration Specialist

SKILL SET CREDENTIAL

The "Skill Set Credentials" process is a building block approach to completing a trade certificate program. Students can choose to complete the skill set credentials depending upon the level of skill and knowledge desired. Students can apply for a skill set credential upon completion of the required courses.

TRANSFER PROGRAMS

The first two years of a student's college education usually consists of general education courses, introductory courses in a major and/or program of study, and selected electives. See an academic advisor for a transfer guide sheet to the college/university of your choice. The guide sheet identifies JCC courses that transfer in your program of study. Refer to pages 36 for additional information on transfer and MACRAO.

Sample curricula for some transfer programs are:

- Associate in Arts - Business
- AAS: Accounting or Business Administration to Siena Heights University
- Transfer – Computer Science

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ACCOUNTING —ASSOCIATE IN APPLIED SCIENCE

Accountants and auditors prepare, analyze and verify financial reports and taxes and monitor information systems that furnish this information to managers in business, industry and government.

The accounting/finance major prepares students for initial employment and develops competencies for those already in the field. Students develop skills in the posting and recording of financial data, use of computers, preparation of financial statements and reports, interpretation of financial information, and develop effective supervisory and communicative techniques and skills.

Typical job opportunities and places of employment are: junior accountant with public accounting firms, banks and other financial institutions, educational institutions and other profit and not-for-profit organizations.

Minimum credits:	60
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION — (17 credits)

ENGLISH — (3 credits)

ENG 131 Writing Experience	3
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MATHEMATICS — (3 credits)

MTH 120 Beginning Algebra or higher	3
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SCIENCE — (4 credits)

Choose one of the following:

BIO 131 General Biology	4
BIO 132 Human Biology	4
BIO 151 General Botany	4
BIO 152 General Zoology	4
CEM 131 Fundamentals of Chemistry	4
CEM 141 General Chemistry I	5
GEL 160 Introduction to Geology	4
NSC 131 Contemporary Science	4
PHY 131 Conceptual Physics	4
PHY 151 Astronomy	4

SOCIAL SCIENCE — (3 credits)

Choose one of the following:

ECN 231 Macroeconomics	3
ECN 232 Microeconomics	3

HUMANITIES — (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400	3
ART 112 Art History: Renaissance to Present	3

ENG 236 Women in a Changing Society3
 ENG 246 Short Story and Novels3
 ENG 247 Poetry and Drama3
 ENG 249 African American Literature3
 ENG 252 Shakespeare3
 ENG 255 American Literature-19th Century3
 ENG 256 American Literature-20th Century3
 ENG 257 World Literature I3
 HUM 131 Cultural Connections3
 MUS 131 Understanding Music3
 MUS 132 History of American Popular Music3
 MUS 133 Music Education3
 MUS 151 Music Theory I4
 MUS 152 Music Theory II4
 PHL 231 Introduction to Philosophy3
 PHL 232 Logic3
 THR 116 Introduction to Theatre3

HEALTH/PHYSICAL FITNESS — (1 credit)

Choose one of the following:

HPF 160 Wellness1
 HPF 168 Weight Training & Conditioning2
 HPF 221 Jazz Techniques3
 HPF 277 Stress Management2

ACCOUNTING CORE REQUIREMENTS (36 credits)

ACC 115 Payroll Accounting2
 ACC 130 QuickBooks Pro or
 CIS 121 Microsoft® Excel® Comprehensive2
 ACC 220 Taxation Issues in Business or
 ACC 122 Volunteer Income Tax Project3
 ACC 231 Principles of Accounting I4
 ACC 232 Principles of Accounting II4
 ACC 234 Managerial Accounting4
 ACC 240 Intermediate Accounting4
 BUA 100 Contemporary Business3
 BUA 110 Introduction to Wall Street1
 BUA 250 Business Law I3
 CIS 101 Introduction to Computer Systems3
 ENG 232 Technical and Business Writing3

ELECTIVES

(Select electives from the following list so that the degree equals 60 credits.)

ACC 130 QuickBooks Pro or
 CIS 121 Microsoft® Excel® Comprehensive2
 ACC 220 Taxation Issues in Business or
 ACC 122 Volunteer Income Tax Project3
 ACC 245 Internship3
 BUA 111 Personal Finance3
 BUA 120 Human Relations in Business3
 BUA 122 Successful Small Business3
 BUA 220 Principles of Management3
 BUA 230 Principles of Marketing3

Please note: ACC courses are not available at all JCC sites every semester. Please consult with an academic advisor.

Online note: Some students find online ACC courses to be challenging. It is recommended that online accounting students have strong computer skills including proficiency using e-mail, the Internet, experience using Microsoft Word, Excel and skills with attaching files.

ACCOUNTING — CERTIFICATE

This 30-hour program prepares students for bookkeeping and related occupations. Job opportunities exist for audit clerks, general accounting clerks, credit card clerks in hotels and restaurants, general ledger bookkeepers and many more. Learn to keep accounting records and compile reports using computers and calculators; prepare payrolls, tax reports; compute, type, and mail monthly statements, keep general ledgers, and perform many other accounting functions.

Minimum credits:30
 Minimum cumulative GPA:2.0
 Minimum grade in all courses:2.0
 Minimum JCC credits:12
 MACRAO agreement:No

GENERAL EDUCATION REQUIREMENTS — (9 credits)

ENG 131 Writing Experience3
 ENG 232 Technical & Business Writing3
 MTH 120 Beginning Algebra or higher3

ACCOUNTING CORE REQUIREMENTS — (17 credits)

ACC 115 Payroll Accounting2
 ACC 231 Principles of Accounting I4
 ACC 232 Principles of Accounting II4
 BUA 110 Introduction to Wall Street1
 CIS 101 Introduction to Computer Systems3
 CIS 121 Microsoft Excel Comprehensive3

ELECTIVES

Select electives from courses in ACC, BUA, or ECN, in order to meet 30 credits required for certificate. Please note: FIN courses have been replaced with BUA.

Please note: ACC courses are not available at all JCC sites every semester. Please consult with an academic advisor.

Online note: Some students find online ACC courses to be challenging. It is recommended that online accounting students have strong computer skills including proficiency using e-mail, the Internet, experience using Microsoft Word, Excel and skills with attaching files.

BUSINESS ADMINISTRATION — ASSOCIATE IN APPLIED SCIENCE

This is a broad-based program of business studies. This program allows the student to customize a program of study that meets the specific employment and/or transfer needs of the student.

Minimum credits:	60
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS — (17 credits)

ENGLISH — (3 credits)

ENG 131 Writing Experience	3
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MATHEMATICS — (3 credits)

MTH 120 Beginning Algebra or higher	3
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SCIENCE — (4 credits)

Choose one of the following:

BIO 131 General Biology	4
BIO 132 Human Biology	4
BIO 151 General Botany	4
BIO 152 General Zoology	4
CEM 131 Fundamentals of Chemistry	4
CEM 141 General Chemistry I	5
GEL 160 Introduction to Geology	4
NSC 131 Contemporary Science	4
PHY 131 Conceptual Physics	4
PHY 151 Astronomy	4

SOCIAL SCIENCE — (3 credits)

Choose one of the following:

ECN 231 Macroeconomics	3
ECN 232 Microeconomics	3

HUMANITIES — (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400	3
ART 112 Art History: Renaissance to Present	3
ENG 236 Women in a Changing Society	3
ENG 246 Short Story and Novels	3
ENG 247 Poetry and Drama	3
ENG 249 African American Literature	3
ENG 252 Shakespeare	3
ENG 255 American Literature-19th Century	3
ENG 256 American Literature-20th Century	3
ENG 257 World Literature I	3
HUM 131 Cultural Connections	3
MUS 131 Understanding Music	3
MUS 132 History of American Popular Music	3
MUS 133 Music Education	3

MUS 151 Music Theory I	4
MUS 152 Music Theory II	4
PHL 231 Introduction to Philosophy	3
PHL 232 Logic	3
THR 116 Introduction to Theatre	3

HEALTH/PHYSICAL FITNESS — (1 credit)

Choose one of the following:

HPF 160 Wellness	1
HPF 168 Weight Training & Conditioning	2
HPF 221 Jazz Techniques	3
HPF 277 Stress Management	2

BUSINESS CORE REQUIREMENTS — (22 credits)

ACC 216 Financial Accounting Concepts or ACC 231 Principles of Accounting I	4
BUA 100 Contemporary Business	3
BUA 220 Principles of Management	3
BUA 230 Principles of Marketing	3
BUA 250 Business Law I	3
CIS 101 Introduction to Computer Systems	3
ENG 232 Business and Technical Writing	3

ELECTIVES — (21 credits)

Select electives from the following list to meet the 60 credit degree requirement. Please note: FIN courses have been replaced by BUA.

ACC 115 Payroll Accounting	2
ACC 122 Volunteer Income Tax Project	3
ACC 220 Taxation Issues in Business	3
ACC 232 Principles of Accounting II	4
ACC 234 Managerial Accounting	4
ACC 240 Intermediate Accounting	4
BUA 110 Introduction to Wall Street	1
BUA 111 Personal Finance	3
BUA 120 Human Relations in Business	3
BUA 121 Leadership	3
BUA 122 Successful Small Business	3
BUA 130 Customer Service	3
BUA 131 Effective Selling	3
BUA 221 Human Resource Management	3
BUA 231 Advertising, Promotion & Public Relations	3
BUA 245 Internship	3
BUA 251 Business Law II	3
ECN 231 Macroeconomics	3
ECN 232 Microeconomics	3
PSY 140 Introduction to Psychology	4

Please note: BUA courses are not available at all JCC sites every semester. Please consult with an advisor.

**BUSINESS ADMINISTRATION —
CERTIFICATE**

The Business Administration Certificate will develop your awareness in all of the functional aspects of the business world. You can use your ability to get along with people, develop your leadership potential, and use your oral and written communication skills. Jobs may be found in insurance companies, hospitals, health-care facilities, educational institutions, transportation/distribution centers, government agencies and manufacturing firms in a variety of departments. This program also consists of the foundational courses needed for an associate degree.

Minimum credits:	30
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS — (6 credits)

ENG 131 Writing Experience	3
MTH 120 Beginning Algebra or higher	3

BUSINESS CORE REQUIREMENTS — (22 credits)

ACC 216 Financial Accounting Concepts or ACC 231 Principles of Accounting I	4
BUA 100 Contemporary Business	3
BUA 220 Principles of Management	3
BUA 230 Principles of Marketing	3
BUA 250 Business Law I	3
CIS 101 Introduction to Computer Systems	3
ENG 232 Technical & Business Writing	3

ELECTIVES

Select electives from courses in ACC, BUA, ECN, and ENT in order to meet 30 credits required for certificate. FIN courses have been replaced with BUA.

Please note: BUA courses are not available at all JCC sites every semester. Please consult with an advisor.

**SKILL SET CREDENTIALS —
FINANCIAL SERVICES**

This credential prepares students for work in the banking and financial services industries. Job opportunities could include introductory positions with banks (teller or customer service representative), trust offices, pension and retirement planning firms, personal financial planning groups and investment brokerage houses (clerk or customer service representative). Students acquire skills in customer relations and financial problem solving. Students learn about financial markets and economic issues.

Minimum credits:	13
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

REQUIRED COURSES — (13 credits)

BUA 110 Introduction to Wall Street	1
BUA 111 Personal Finance	3
BUA 120 Human Relations	3
BUA 130 Customer Service	3
ECN 232 Microeconomics	3

MANAGEMENT — CERTIFICATE

People with management skills are employed in every industry in the career world. This program will build on your natural ability to get along with people and help develop your leadership potential. The focus in this program is on the principles, theories, and application of planning, organizing, leading, staffing, and evaluating results. Having good communication skills and the ability to make reliable decisions without supervision are essential to beginning a career in management.

Minimum credits:	30
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS —(9 credits)

ENG 131 Writing Experience	3
ENG 232 Technical & Business Writing	3
MTH 120 Beginning Algebra or higher	3

MANAGEMENT CORE REQUIREMENTS — (16 credits)

ACC 216 Financial Accounting Concepts or ACC 231 Principles of Accounting I	4
BUA 100 Contemporary Business	3
BUA 130 Customer Service or BUA 120 Human Relations	3
BUA 220 Principles of Management	3
BUA 221 Human Resource Management	3

ELECTIVES

Select electives from classes in ACC, BUA, CIS, or ECN in order to meet 30 credits required for certificate. FIN courses have been replaced with BUA.

SKILL SET CREDENTIALS – ADVANCED MANAGEMENT

These credentials prepare students for management, leadership, and supervisory positions in any business or industry. It is designed for students who already possess an A.A., A.A.S., B.A., or B.S. degree or 10 years work experience. Students acquire skills in leadership, human behavior, problem solving and critical thinking. Students learn to effectively manage human resources and develop solutions to complex management problems.

Minimum credits:	16
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

REQUIRED COURSES – (16 credits)

BUA 121 Leadership	3
BUA 220 Principles of Management	3
BUA 221 Human Resource Management	3
PSY 140 Intro to Psychology	4
PSY 151/ SOC 152 Social Psychology	3

MARKETING — CERTIFICATE

Individuals considering a marketing career should be good listeners, enjoy current events and look forward to the business challenges that come with changing cultural habits. Also important are the abilities to think creatively, communicate effectively, and manage time wisely to meet deadlines.

Minimum credits:	30
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS — (9 credits)

ENG 131 Writing Experience	3
ENG 232 Technical & Business Writing	3
MTH 120 Beginning Algebra or higher	3

MARKETING CORE REQUIREMENTS — (18 credits)

BUA 120 Human Relations	3
BUA 122 Successful Small Business	3
BUA 130 Customer Service	3
BUA 131 Effective Selling	3
BUA 230 Principles of Marketing	3
BUA 231 Advertising, Promotion & Public Relations	3

ELECTIVES

Select electives from classes in ACC, BUA, CIS or ECN in order to meet 30 credits required for certificate. FIN courses have been replaced with BUA.

CERTIFICATE - AUTOMOTIVE ENTREPRENEURSHIP

This program provides classroom and laboratory experiences that prepares the students for entry-level employment in the automotive service field. It also prepares students for the Michigan and/or Automotive Service Excellence (ASE) certification tests. JCC's automotive entrepreneurs who already have established businesses can strengthen their managerial and business skills. Students in the automotive entrepreneurship program at JCC will learn the fundamentals of starting and operating their own businesses. The program includes basic business skills as well as specific courses in starting and managing a small business.

Minimum credits:	36
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS- (3 credits)

ENG 131 Writing Experience	3
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ENTREPRENEURSHIP RELATED REQUIREMENTS- (13 credits)

ENT 160 Introduction to Entrepreneurship	2
ENT 161 Opportunity Analysis	2
ENT 162 Legal Issues for Small Business	2
ENT 163 Financial Management for Small Business	2
ENT 164 Entrepreneurial Marketing	2
ENT 169 Business Plan	3

AUTOMOTIVE PROGRAM CORE REQUIREMENTS- (20 credits)

AUT 102 Engine Performance I	4
AUT 103 Engine Performance II	4
AUT 105 Automotive Brakes	3
AUT 106 Suspension & Steering or AUT 108 Automotive Air Conditioning/Heating	3
AUT 112 Electrical Systems I	3
AUT 113 Electrical Systems II	3

CERTIFICATE – ELECTRICIAN ENTREPRENEURSHIP

JCC's electrician entrepreneurship program, offered for college credit, can help prospective entrepreneurs launch new ventures. Entrepreneurs who already have established businesses can strengthen their managerial and business skills. Students in the electrician entrepreneurship program at JCC will learn the fundamentals of starting and operating their own businesses. The program includes basic business skills as well as specific courses in starting and managing a small business.

Minimum credits:	34
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Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

**ENTREPRENEURSHIP RELATED REQUIREMENTS-
(13 credits)**

ENT 160 Introduction to Entrepreneurship	2
ENT 161 Opportunity Analysis	2
ENT 162 Legal Issues for Small Business	2
ENT 163 Financial Management for Small Business	2
ENT 164 Entrepreneurial Marketing	2
ENT 169 Business Plan	3

**ELECTRICIAN PROGRAM CORE REQUIREMENTS-
(21 credits)**

ELT 074 National Electric Code	2
ELT 120 Circuit Analysis I	4
ELT 125 Circuit Analysis II	3
ELT 148 Electrical Math I	2
ELT 149 Electrical Math II	2
ELT 150 Residential Wiring	2
ELT 151 Commercial Wiring	2
ELT 152 Industrial Wiring	2
ELT 215 Electrical Troubleshooting	2

CERTIFICATE – ENTREPRENEURSHIP

Students will meet and exceed their entrepreneurial goals. Students participating in this academic program will exit JCC with the business acumen necessary to launch their own business venture.

Minimum credits:	30
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS - (6 credits)

ENG 131 Writing Experience	3
ENG 232 Technical and Business Writing	3

**ENTREPRENEURSHIP RELATED REQUIREMENTS-
(7 credits)**

BUA 120 Human Relations in Business	3
CIS 021 Excel Workshop	1
CIS 101 Introduction to Computer Systems	3

**ENTREPRENEURSHIP CORE REQUIREMENTS -
(13 credits)**

ENT 160 Introduction to Entrepreneurship	2
ENT 161 Opportunity Analysis	2
ENT 162 Legal Issues for Small Business	2
ENT 163 Financial Management for Small Business	2
ENT 164 Entrepreneurial Marketing	2
ENT 169 Business Plan	3

ELECTIVE CREDITS - (4 credits)

Choose any additional courses from the ACC or BUA discipline to meet the 30 credit degree requirement

**CERTIFICATE – GRAPHIC DESIGN
ENTREPRENEURSHIP**

The graphic design program prepares students for entry-level positions in design organizations. Graphic design graduates find employment in a variety of settings including the publication and printing industries, advertising and marketing organizations, and graphic design department of corporations, governments agencies and retailers. JCC's graphic design entrepreneurship program, offered for college credit, can help prospective entrepreneurs launch new ventures.

Entrepreneurs who already have established businesses can strengthen their managerial and business skills. Students in the graphic design entrepreneurship program at JCC will learn the fundamentals of starting and operating their own businesses. The program includes basic business skills as well as specific courses in starting and managing a small business.

Minimum credits:	40
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS - (3 credits)

ENG 131 Writing Experience	3
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**ENTREPRENEURSHIP RELATED REQUIREMENTS -
(13 credits)**

ENT 160 Introduction to Entrepreneurship	2
ENT 161 Opportunity Analysis	2
ENT 162 Legal Issues for Small Business	2
ENT 163 Financial Management for Small Business	2
ENT 164 Entrepreneurial Marketing	2
ENT 169 Business Plan	3

**GRAPHIC DESIGN PROGRAM CORE REQUIREMENTS -
(24 credits)**

ART 101 Two-Dimensional Design or ART 103 Drawing I: Foundations or ART 152 Painting I: Design and Color	3
CIS 101 Introduction to Computer Systems	3
CIS 128 Typography & Layout	3
CIS 132 Graphic Illustration (Adobe® Illustrator®)	3
CIS 134 Graphic Imaging (Adobe® Photoshop®)	3
CIS 136 Integrated Design I (Adobe® InDesign®)	3
CIS 232 Integrated Design II (Adobe® InDesign®)	3
CIS 234 Graphic Technology Applications	3

CERTIFICATE – MARKETING ENTREPRENEURSHIP

Individuals considering a marketing career should be good listeners, enjoy current events and look forward to the business challenges that come with changing cultural habits. Also important are the abilities to think creatively, communicate effectively, and manage time wisely to meet deadlines. The student will assess the current economic, social and political climate for their entrepreneurial idea(s). JCC's marketing entrepreneurship program, offered for college credit, can help prospective entrepreneurs launch new ventures. Entrepreneurs who already have established businesses can strengthen their managerial and business skills. Students in the marketing entrepreneurship program at JCC will learn the fundamentals of starting and operating their own businesses, the program includes basic business skills as well as specific courses in starting and managing a small business.

Minimum credits:	34
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS - (6 credits)

ENG 131 Writing Experience	3
ENG 232 Technical & Business Writing	3

ENTREPRENEURSHIP RELATED REQUIREMENTS - (13 credits)

ENT 160 Introduction to Entrepreneurship	2
ENT 161 Opportunity Analysis	2
ENT 162 Legal Issues for Small Business	2
ENT 163 Financial Management for Small Business	2
ENT 164 Entrepreneurial Marketing	2
ENT 169 Business Plan	3

MARKETING PROGRAM CORE REQUIREMENTS - (15 credits)

BUA 120 Human Relations	3
BUA 130 Customer Service	3
BUA 131 Effective Selling	3
BUA 230 Principles of Marketing	3
BUA 231 Advertising, Promotion & Public Relations	3

CERTIFICATE – MEDICAL INSURANCE BILLER ENTREPRENEURSHIP

The Medical Insurance Biller Entrepreneurship Certificate program prepares the student to work in the medical billing field. Emphasis is placed on interpersonal, written and oral communication, office procedures, medical terminology, use of computers, diagnostic and procedure coding and medical

insurance billing, record keeping and medical insurance. On-the-job experience is provided in a 150-hour non-paid externship. The student may enter any semester part-time or full-time. JCC's medical insurance biller entrepreneurship program, offered for college credit, can help prospective entrepreneurs launch new ventures. Entrepreneurs who already have established businesses can strengthen their managerial and business skills. Students in the medical insurance biller entrepreneurship program at JCC will learn the fundamentals of starting and operating their own businesses. The program includes basic business skills as well as specific courses in starting and managing a small business.

Minimum credits:	41
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS - (3 credits)

ENG 131 Writing Experience	3
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ENTREPRENEURSHIP RELATED REQUIREMENTS - (13 credits)

ENT 160 Introduction to Entrepreneurship	2
ENT 161 Opportunity Analysis	2
ENT 162 Legal Issues for Small Business	2
ENT 163 Financial Management for Small Business	2
ENT 164 Entrepreneurial Marketing	2
ENT 169 Business Plan	3

MEDICAL INSURANCE BILLER PROGRAM CORE REQUIREMENTS - (25 credits)

CIS 101 Introduction to Computer Systems	3
MOA 112 Insurance Reports, Law and Ethics	3
MOA 120 Medical Terminology	3
LPN 141 Body Structure and Function or	
MOA 141 Body Structure and Function	4
MOA 240 Medical Office Procedures	3
MOA 241 Medical Records	3
MOA 242 Advanced Medical Billing	3
MOA 245 Billing/Transcriptionist Externship	3

CERTIFICATE – P.C. TECHNICIAN ENTREPRENEURSHIP

The P.C. technician certificate prepares students to work as a computer service professional. A+/Networking+ is the recognized industry standard for computer service technicians. This training is the "journeyman's card" for professionals in microcomputer maintenance. The P.C. technician validates technical competency in networking administration and support. Those holding A+/Network+ should demonstrate critical knowledge of media and topologies, protocols and standards, network implementation and network support.

JCC's P.C. technician entrepreneurship program, offered for college credit, can help prospective entrepreneurs launch new ventures. Entrepreneurs who already have established businesses can strengthen their managerial and business skills. Students in the P.C. technician entrepreneurship program at JCC will learn the fundamentals of starting and operating their own businesses. The program includes basic skills as well as specific courses in starting and managing a small business.

Minimum credits:	33
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS - (6 credits)

ENG 131 Writing Experience	3
ENG 232 Technical & Business Writing	3

ENTREPRENEURSHIP RELATED REQUIREMENTS - (13 credits)

ENT 160 Introduction to Entrepreneurship	2
ENT 161 Opportunity Analysis	2
ENT 162 Legal Issues for Small Business	2
ENT 163 Financial Management for Small Business	2
ENT 164 Entrepreneurial Marketing	2
ENT 169 Business Plan	3

P.C. TECHNICIAN PROGRAM CORE REQUIREMENTS - (14 credits)

CIS 101 Introduction to Computer Systems	3
CIS 174 PC Repair/A+ Hardware Component	3
CIS 175 PC Repair/A+ Software Component	3
CIS 176 A+ Certification Exam Preparation	1
CIS 177 Network+ Networking Fundamentals	3
CIS 179 Network+ Certification Exam Preparation	1

ENTREPRENEURSHIP SKILL SET

Minimum credits:	16
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

ENTREPRENEURSHIP RELATED REQUIREMENTS - (16 CREDITS)

ENT 160 Introduction to Entrepreneurship	2
ENT 161 Opportunity Analysis	2
ENT 162 Legal Issues for Small Business	2
ENT 163 Financial Management for Small Business	2
ENT 164 Entrepreneurial Marketing	2
ENT 169 Business Plan	3
CIS 101 Introduction to Computer Systems	3

COMPUTER PROGRAMMING SPECIALIST — ASSOCIATE IN APPLIED SCIENCE

Programmers write the detailed sets of instructions computers understand and act on. Emphasis is placed on computer information systems, programming language, concepts and designs, logic and theory. Job opportunities may include applications programmer, computer operator, information office systems manager, operations scheduler, systems analyst or programmer.

Minimum credits:	65
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS — (17 credits)

ENGLISH — (3 credits)

ENG 131 Writing Experience	3
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MATHEMATICS — (3 credits)

MTH 131 Intermediate Algebra	4
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SCIENCE — (4 credits)

Choose one of the following:

BIO 131 General Biology	4
BIO 132 Human Biology	4
CEM 131 Fundamentals of Chemistry	4
CEM 141 General Chemistry I	5
GEL 160 Introduction to Geology	4
NSC 131 Contemporary Science	4
PHY 131 Conceptual Physics	4
PHY 151 Astronomy	4

SOCIAL SCIENCE — (3 credits)

Choose one of the following:

ECN 231 Macroeconomics	3
ECN 232 Microeconomics	3

HUMANITIES — (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400	3
ART 112 Art History: Renaissance to Present	3
ENG 210 Introduction to Film	3
ENG 236 Women in a Changing Society	3
ENG 246 Short Story & Novel	3
ENG 247 Poetry and Drama	3
ENG 249 African American Literature	3
ENG 252 Shakespeare	3
ENG 254 Children's Literature	3
ENG 255 American Literature-19th Century	3
ENG 256 American Literature-20th Century	3

ENG 257 World Literature I	3
HUM 131 Cultural Connections	3
MUS 130 Survey of Non-Western Music	3
MUS 131 Understanding Music	3
MUS 132 History of American Popular Music	3
MUS 133 Music Education	3
MUS 151 Music Theory I	4
MUS 152 Music Theory II	4
PHL 231 Introduction to Philosophy	3
PHL 232 Logic	3
THR 116 Introduction to Theatre	3

HEALTH/PHYSICAL FITNESS — (1 credit)**Choose one of the following:**

HPF 160 Wellness	1
HPF 168 Weight Training & Conditioning	2
HPF 221 Jazz Techniques	3
HPF 277 Stress Management	2

RELATED REQUIREMENTS — (16 credits)

ACC 216 Financial Accounting Concepts	4
BUA 100 Contemporary Business	3
BUA 120 Human Relations in Business	3
CIS 101 Introduction to Computer Systems	3
ENG 232 Technical & Business Writing	3

COMPUTER PROGRAMMING SPECIALIST CORE REQUIREMENTS - (32 credits)

CIS 012 Microsoft® Windows® Workshop	1
CIS 013 Operating Systems: UNIX	1
CIS 016 Microsoft® DOS® Workshop	1
CIS 122 Microsoft® Access® Comprehensive	3
CIS 143 HTML	2
CIS 158 Programming Logic	3
CIS 160 Programming in Visual Basic.NET	3
CIS 165 JAVA Programming	3
CIS 170 Programming in C++	3
CIS 174 PC Repair/A+ Hardware Component or CIS 177 Network + Networking Fundamental Component	3
CIS 244 Web Programming	3
CIS 260 Advanced Visual Basic.NET	3
CIS 273 System Concepts and Design	3

SUGGESTED COURSE SEQUENCE**First Semester**

ENG 131, MTH 131 or higher, BUA 100, CIS 101, CIS 158

Second Semester

CIS 122, CIS 160, ENG 232, Science requirement

Third Semester

Health and Physical Fitness requirement, Humanities requirement

Fourth Semester

CIS 143, CIS 165, CIS 170, CIS 174 or CIS 177, CIS 012, CIS 016, BUA 120, Social Science requirement

Fifth Semester

CIS 244, CIS 260, CIS 273, CIS 013, ACC 216

COMPUTER PROGRAMMING SPECIALIST — CERTIFICATE

Minimum credits:	41
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS – (9 credits)

CIS 101 Introduction to Computer Systems	3
ENG 131 Writing Experience	3
MTH 131 Intermediate Algebra or higher	3

COMPUTER PROGRAMMING SPECIALIST CORE REQUIREMENTS – (32 credits)

CIS 012 Microsoft® Windows® Workshop	1
CIS 013 Operating Systems: UNIX	1
CIS 016 Microsoft® DOS® Workshop	1
CIS 122 Microsoft® Access® Comprehensive	3
CIS 143 HTML	2
CIS 158 Programming Logic	3
CIS 160 Programming in Visual Basic.NET	3
CIS 165 JAVA Programming	3
CIS 170 Programming in C++	3
CIS 174 PC Repair/A+ Hardware Component or CIS 177 Network + Networking Fundamental Component	3
CIS 244 Web Programming	3
CIS 260 Advanced Visual Basic.NET	3
CIS 273 System Concepts and Design	3

SUGGESTED COURSE SEQUENCE**First Semester**

ENG 131, MTH 131 or higher, CIS 101, CIS 158, CIS 160

Second Semester

CIS 122, CIS 260, CIS 273, CIS 244, CIS 013

Third Semester

CIS 165, CIS 170, CIS 174 or CIS 177, CIS 143, CIS 012, CIS 016

MICROCOMPUTER APPLICATIONS SPECIALIST– ASSOCIATE IN APPLIED SCIENCE

Students completing this certificate are prepared to assume a variety of positions in an automated office setting. The program recognizes the increasingly important role of the microcomputer in modern business and is designed to assist students in developing skills in the use of microcomputer applications.

Depending upon the curriculum students choose, career choices may include applications specialist, information office manager, end user support technician, information systems associate, personal computer (PC) coordinator, or software specialist.

Minimum credits:	.....65
Minimum cumulative GPA:	.....2.0
Minimum grade in all courses:	.....2.0
Minimum JCC credits:	.....12
MACRAO agreement:	.....No

GENERAL EDUCATION REQUIREMENTS – (17 credits)

ENGLISH – (3 credits)

ENG 131 Writing Experience3
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MATHEMATICS – (3 credits)

MTH 120 Beginning Algebra or higher3
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SCIENCE – (4 credits)

Choose one of the following:

BIO 131 General Biology4
BIO 132 Human Biology4
CEM 131 Fundamentals of Chemistry	.....4
CEM 141 General Chemistry I	.....5
GEL 160 Introduction to Geology	.....4
NSC 131 Contemporary Science	.....4
PHY 131 Conceptual Physics	.....4
PHY 151 Astronomy	.....4

SOCIAL SCIENCE – (3 credits)

Choose one of the following:

ECN 231 Macroeconomics	.....3
ECN 232 Microeconomics	.....3

HUMANITIES – (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400	.....3
ART 112 Art History: Renaissance to Present	.....3
ENG 210 Introduction to Film	.....3
ENG 236 Women in a Changing Society	.....3
ENG 246 Short Story & Novel	.....3
ENG 247 Poetry and Drama	.....3

ENG 249 African American Literature	.....3
ENG 252 Shakespeare	.....3
ENG 254 Children's Literature	.....3
ENG 255 American Literature-19th Century	.....3
ENG 256 American Literature-20th Century	.....3
ENG 257 World Literature I	.....3
HUM 131 Cultural Connections	.....3
MUS 130 Survey of Non-Western Music	.....3
MUS 131 Understanding Music	.....3
MUS 132 History of American Popular Music	.....3
MUS 133 Music Education	.....3
MUS 151 Music Theory I	.....4
MUS 152 Music Theory II	.....4
PHL 231 Introduction to Philosophy	.....3
PHL 232 Logic	.....3
THR 116 Introduction to Theatre	.....3

HEALTH / PHYSICAL FITNESS – (1 credit)

Choose one of the following:

HPF 160 Wellness	.....1
HPF 168 Weight Training & Conditioning	.....2
HPF 221 Jazz Techniques	.....3
HPF 277 Stress Management	.....2

RELATED REQUIREMENTS – (19 credits)

ACC 216 Financial Accounting Concepts	.....4
BUA 100 Contemporary Business	.....3
BUA 120 Human Relations in Business	.....3
BUA 121 Leadership	.....3
CIS 101 Introduction to Computer Systems	.....3
ENG 232 Technical & Business Writing	.....3

MICROCOMPUTER APPLICATIONS SPECIALIST CORE REQUIREMENTS – (29 credits)

CIS 012 Microsoft® Windows® Workshop	.....1
CIS 013 Operating System: UNIX	.....1
CIS 016 Microsoft® DOS® Workshop	.....1
CIS 023 Microsoft® FrontPage® Workshop	.....1
CIS 119 Microsoft® PowerPoint®	.....2
CIS 120 Microsoft® Word® Comprehensive	.....3
CIS 121 Microsoft® Excel® Comprehensive	.....3
CIS 122 Microsoft® Access® Comprehensive	.....3
CIS 136 Integrated Design I	.....3
CIS 143 HTML	.....2
CIS 160 Programming in Visual Basic.NET	.....3
CIS 174 PC Repair/A+ Hardware Component	.....3
CIS 177 Network + /Networking Fundamentals	.....3

SUGGESTED COURSE SEQUENCE

First Semester

ENG 131, MTH 120 or higher, CIS 012, CIS 101, CIS 143, CIS 120

Second Semester

CIS 023, CIS 013, CIS 121, CIS 136, Social Science requirement, BUA 100

Third Semester

Health/Physical Fitness requirement, Humanities requirement

Fourth Semester

ENG 232, ACC 116, BUA 121, CIS 177, CIS 174

Fifth Semester

CIS 122, CIS 016, CIS 119, CIS 160, BUA 120, Science requirement

MICROCOMPUTER APPLICATION SPECIALIST— CERTIFICATE

Minimum credits:	38
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS – (12 credits)

CIS 101 Introduction to Computer Systems	3
ENG 131 Writing Experience	3
ENG 232 Technical & Business Writing	3
MTH 120 Beginning Algebra or higher	3

MICROCOMPUTER APPLICATIONS SPECIALIST CORE REQUIREMENTS – (26 credits)

CIS 012 Microsoft® Windows® Workshop	1
CIS 013 Operating System: UNIX	1
CIS 016 Microsoft® DOS® Workshop	1
CIS 023 Microsoft® FrontPage® Workshop	1
CIS 119 Microsoft® PowerPoint®	2
CIS 120 Microsoft® Word® Comprehensive	3
CIS 121 Microsoft® Excel® Comprehensive	3
CIS 122 Microsoft® Access® Comprehensive	3
CIS 136 Integrated Design I	3
CIS 143 HTML	2
CIS 160 Programming in Visual Basic.NET	3
CIS 177 Network + /Networking Fundamentals	3

SUGGESTED COURSE SEQUENCE

First Semester

ENG 131, CIS 012, CIS 101, MTH 120 or higher, CIS 120

Second Semester

CIS 136, CIS 160, CIS 177, CIS 121, ENG 232

Third Semester

CIS 023, CIS 013, CIS 119

Fourth Semester

CIS 122, CIS 143, CIS 016

MICROSOFT® OFFICE® SPECIALIST — CERTIFICATE

Students completing this certificate are prepared to assume a variety of positions in an automated office setting. The program recognizes the increasingly important role of the personal computer in modern business and is designed to assist students in developing their skills in the use of graphing, personal management, project management, and electronic presentations.

The Microsoft® Office® Specialist program provides a framework for measuring student proficiency with Microsoft® Office® applications and prepares students for the industry-recognized Microsoft® Exams for measuring an individual's mastery of "Office®" applications. Students completing the program could be hired at entry-level positions such as secretaries, help desk technicians, administrative assistants, and stenographers.

Minimum credits:	35
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS — (6 credits)

ENG 131 Writing Experience	3
MTH 120 Beginning Algebra or higher	3

RELATED REQUIREMENTS – (10 credits)

ACC 216 Financial Accounting Concepts	4
BUA 120 Human Relations in Business	3
CIS 101 Introduction to Computer Systems	3

MICROSOFT® OFFICE® SPECIALIST CORE REQUIREMENTS – (19 credits)

CIS 024 Microsoft® Outlook® Workshop	1
CIS 110 Beginning Keyboarding/Typing	3
CIS 119 Microsoft® PowerPoint®	2
CIS 120 Microsoft® Word® Comprehensive	3
CIS 121 Microsoft® Excel® Comprehensive	3
CIS 122 Microsoft® Access® Comprehensive	3
CIS 210 Office Administration Systems	4

SUGGESTED COURSE SEQUENCE

First Semester

ENG 131, MTH 120 or higher, CIS 101, ACC 216, CIS 120

Second Semester

CIS 210, BUA 120, CIS 110, CIS 122, CIS 121

Third Semester

CIS 024, CIS 119

**SKILL SET CREDENTIAL —
MICROSOFT® OFFICE® SPECIALIST**

These courses are part of the Microsoft® Office® Specialist credential tests. Students who pass the "expert" Word® and Excel® exams and the "core" Access® and PowerPoint® exams will receive "Master" recognition from the Microsoft® Corporation. Other levels of Microsoft® Office® certification are available from Microsoft® as students begin passing exams.

The successful completion of Microsoft® Office® sponsored exams are in addition to the successful completion of JCC's courses for credit. For specific information on Microsoft® certification, students should talk with the program advisor.

Students completing the program could be hired as administrative assistants, database administrators, and secretaries.

Minimum credits:	14
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

REQUIRED COURSES — (14 credits)

CIS 101 Introduction to Computer Systems	3
CIS 119 Microsoft® PowerPoint®	2
CIS 120 Microsoft® Word® Comprehensive	3
CIS 121 Microsoft® Excel® Comprehensive	3
CIS 122 Microsoft® Access® Comprehensive	3

**NETWORKING SPECIALIST —
ASSOCIATE IN APPLIED SCIENCE**

Networking involves the hardware, software and communication channels necessary to allow computers to talk to each other. Many organizations now use computer networks and need networking specialists to maintain their networks. Several other occupations may utilize networking skills, such as office assistants, accountants, or managers.

Students will study various components of computer hardware and networking. These courses prepare the student to take industry standard exams for both A+ and Network+ certifications. For specific information on these certifications, please talk to the instructors.

Students who pass the appropriate related certification exams can also achieve the premier certifications of CompTIA Security+, Microsoft™ Certified System Administrator (MCSA) and Certified Cisco Network Administrator (CCNA).

Minimum credits:	65
Minimum cumulative GPA:	2.0
Minimum grade in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS – (17 credits)

ENGLISH – (3 credits)

ENG 131 Writing Experience	3
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MATHEMATICS - (3 credits)

MTH 131 Intermediate Algebra or higher	3
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SCIENCE – (4 credits)

Choose one of the following:

BIO 131 General Biology	4
BIO 132 Human Biology	4
CEM 131 Fundamentals of Chemistry	4
CEM 141 General Chemistry I	5
GEL 160 Introduction to Geology	4
NSC 131 Contemporary Science	4
PHY 131 Conceptual Physics	4
PHY 151 Astronomy	4

SOCIAL SCIENCE – (3 credits)

Choose one of the following:

ECN 231 Macroeconomics	3
ECN 232 Microeconomics	3

HUMANITIES – (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400	3
ART 112 Art History: Renaissance to Present	3
ENG 210 Introduction to Film	3
ENG 236 Women in a Changing Society	3
ENG 246 Short Story & Novel	3
ENG 247 Poetry and Drama	3
ENG 249 African American Literature	3
ENG 252 Shakespeare	3
ENG 254 Children's Literature	3
ENG 255 American Literature-19th Century	3
ENG 256 American Literature-20th Century	3
ENG 257 World Literature I	3
HUM 131 Cultural Connections	3
MUS 130 Survey of Non-Western Music	3
MUS 131 Understanding Music	3
MUS 132 History of American Popular Music	3
MUS 133 Music Education	3
MUS 151 Music Theory I	4
MUS 152 Music Theory II	4
PHL 231 Introduction to Philosophy	3
PHL 232 Logic	3
THR 116 Introduction to Theatre	3

HEALTH/PHYSICAL FITNESS – (1 credit)

Choose one of the following:

HPF 160 Wellness	1
HPF 168 Weight Training & Conditioning	2
HPF 221 Jazz Techniques	3
HPF 277 Stress Management	2

RELATED REQUIREMENTS – (13 credits)

ACC 216 Financial Accounting Concepts4
 BUA 100 Contemporary Business3
 CIS 101 Introduction to Computer Systems3
 ENG 232 Technical & Business Writing3

NETWORKING SPECIALIST CORE REQUIREMENT – (35 credits)

CIS 174 PC Repair/A+ Hardware Component3
 CIS 175 PC Repair/A+ Software Component3
 CIS 176 A+ Certification Exam Preparation1
 CIS 177 Network+ Networking Fundamental Component ...3
 CIS 179 Network+ Certification Exam Preparation1
 CIS 281 Microsoft® Networking 13
 CIS 282 Microsoft® Networking 23
 CIS 283 Microsoft® Networking 33
 CIS 284 Microsoft® Networking 43
 CIS 285 Microsoft® Directory services3
 CIS 286 Design A Secure Microsoft® Network3
 CIS 287 Interconnect Cisco Devices3
 CIS 289 Networking Security/Security+3

SUGGESTED COURSE SEQUENCE

First Semester

CIS 101, CIS 174, CIS 175, CIS 176, MTH 131 or higher

Second Semester

ACC 216, CIS 177, CIS 179, ENG 131, Health and Physical Fitness requirement, Science requirement

Third Semester

Humanities requirement

Fourth Semester

BUA 100, CIS 281, CIS 282, CIS 286, CIS 289

Fifth Semester

CIS 283, CIS 284, CIS 287, Social Science requirement, ENG 232

Sixth Semester

CIS 285

NETWORKING SPECIALIST—CERTIFICATE

Networking involves the hardware, software and communication channels necessary to allow computers to talk to each other. Students will study various components of computer networking. Each 200 level networking class helps prepare students with the skills and knowledge to take vendor sponsored certification exams. Students who pass the related core exams are will be CompTIA Network+ certified and recognized as a Microsoft® Certified Systems Administrator (MCSA). Students who pass the appropriate related elective

exam can also achieve the premier certifications of Microsoft® Certified System Engineer (MCSE) and Certified Cisco Network Administrator (CCNA). Nearly all organizations of any size use computer networks to leverage their core competencies. These organizations need trained Networking Specialists to install, maintain and troubleshoot their networks. The CompTIA and Microsoft® certifications are recognized as industry standards and are required by many employers.

Minimum credits:35
 Minimum cumulative GPA:2.0
 Minimum grade in all courses:2.0
 Minimum JCC credits:12
 MACRAO agreement:No

GENERAL EDUCATION REQUIREMENTS – (12 credits)

CIS 101 Introduction to Computer Systems3
 ENG 131 Writing Experience3
 ENG 232 Technical & Business Writing3
 MTH 131 Intermediate Algebra or higher3

NETWORKING SPECIALIST CORE REQUIREMENTS – (23 credits)

CIS 174 PC Repair/A+ Hardware Component3
 CIS 175 PC Repair/A+ Software Component3
 CIS 176 A+ Certification Exam Preparation1
 CIS 177 Network+ Networking Fundamental Component ...3
 CIS 179 Network+ Certification Exam Preparation1
 CIS 281 Microsoft® Networking 13
 CIS 282 Microsoft® Networking 23
 CIS 283 Microsoft® Networking 33
 CIS 284 Microsoft® Networking 43

SUGGESTED COURSE SEQUENCE

First Semester

CIS 101, MTH 131 or higher , CIS 281, CIS 282

Second Semester

CIS 177, CIS 179, CIS 283, CIS 284, ENG 131

Third Semester

CIS 174, CIS 175, CIS 176, ENG 232

SKILL SET CREDENTIAL – COMPUTER SERVICE TECHNICIAN (A+/Network+)

The computer service technician credential prepares students to work as a computer service professional. A+/Network+ is the recognized industry standard for computer service technicians. This training is the "journeyman's card" for professionals in microcomputer maintenance.

The computer service technician validates technical competency in networking administration and support. Those holding A+/Network+ should demonstrate critical knowledge of media and topologies, protocols and standards, network implementation and network support.

CompTIA (Computing Technology Industry Association) is the certifying agent, a non-profit industry group which determines competencies. CompTIA assures the quality of those who successfully pass the A+ and Network+ Certification exams. Jackson Community College provides this program to prepare students to pass both exams. The exam is administered by CompTIA's agents.

Minimum credits:	14
Minimum cumulative GPA:	2.0
Minimum grade in all courses	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

REQUIRED COURSES – (14 credits)

CIS 101 Introduction to Computer Systems	3
CIS 174 PC Repair/A+ Hardware Component	3
CIS 175 PC Repair/A+ Software Component	3
CIS 176 A+ Certification Exam Preparation	1
CIS 177 Network+ Networking Fundamental Component	3
CIS 179 Network+ Certification Exam Preparation	1

SKILL SET CREDENTIAL – NETWORK+/SECURITY+

There is compelling evidence that neither technologies nor policies alone offer effective protection against security threats. Theft and destruction of intellectual property takes place despite the presence of firewalls, encryption and corporate edicts. Industry and government around the world must have a well trained workforce to effectively combat hackers, attacks, and security threats.

The Network+/Security+ is designed to prepare students to work as an IT professional with a knowledge of information security within computer networks. Both the CompTIA (Computing Technology Industry Association) Network+ and Security+ certifications are recognized as basic industry standards and are required by many employers.

JCC provides this program to prepare students to pass both exams. The exams are administered by CompTIA agents.

Minimum credits:	16
Minimum cumulative GPA:	2.0
Minimum grade in all courses	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

REQUIRED COURSES – (16 credits)

CIS 101 Introduction to Computer Systems	3
CIS 177 Network+/Network Fundamentals	3
CIS 179 Network + Certification Exam Preparation	1
CIS 281 Microsoft® Networking 1	3
CIS 282 Microsoft® Networking 2	3
CIS 288 Network Security/Security+	3

ADMINISTRATIVE ASSISTANT — ASSOCIATE IN APPLIED SCIENCE

This degree provides a solid foundation for students seeking higher-level support positions in office settings where increased responsibilities require technical skills in business communications, interpersonal relations, desktop publishing, presentation software, accounting, and database software. Office and support staff personnel are in great demand everywhere today. Employment opportunities for secretaries and administrative assistants are expected to grow through the year 2010. Students completing this program could be hired for above entry-level positions such as office information assistants, office systems supervisors, administrative office systems assistants, administrative secretaries, and executive assistants.

Minimum credits:	63
Minimum cumulative GPA:	2.0
Minimum grades in all courses:	2.0
Minimum JCC credits:	12
MACRAO agreement:	No

GENERAL EDUCATION REQUIREMENTS – (17 credits)

ENGLISH – (3 credits)

ENG 131 Writing Experience	3
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MATHEMATICS – (3 credits)

MTH 120 Beginning Algebra or higher	3
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SCIENCE – (4 credits)

Choose one of the following:

BIO 131 General Biology	4
BIO 132 Human Biology	4
CEM 131 Fundamentals of Chemistry	4
CEM 141 General Chemistry I	5
GEL 160 Introduction to Geology	4
NSC 131 Contemporary Science	4
PHY 131 Conceptual Physics	4
PHY 151 Astronomy	4

SOCIAL SCIENCE – (3 credits)

Choose one of the following:

ECN 231 Macroeconomics	3
ECN 232 Microeconomics	3

HUMANITIES – (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400	3
ART 112 Art History: Renaissance to Present	3
ENG 210 Introduction to Film	3
ENG 236 Women in a Changing Society	3
ENG 246 Short Story & Novel	3
ENG 247 Poetry and Drama	3
ENG 249 African American Literature	3
ENG 252 Shakespeare	3
ENG 254 Children's Literature	3

ENG 255 American Literature-19th Century 3
 ENG 256 American Literature-20th Century 3
 ENG 257 World Literature I 3
 HUM 131 Cultural Connections 3
 MUS 130 Survey of Non-Western Music 3
 MUS 131 Understanding Music 3
 MUS 132 History of American Popular Music 3
 MUS 133 Music Education 3
 MUS 151 Music Theory I 4
 MUS 152 Music Theory II 4
 PHL 231 Introduction to Philosophy 3
 PHL 232 Logic 3
 THR 116 Introduction to Theatre 3

HEALTH/PHYSICAL FITNESS — (1 credit)

Choose one of the following:

HPF 160 Wellness 3
 HPF 168 Weight Training & Conditioning 3
 HPF 221 Jazz Techniques 3
 HPF 277 Stress Management 2

RELATED REQUIREMENTS — (19 Credits)

ACC 216 Financial Accounting Concepts 4
 BUA 100 Contemporary Business 3
 BUA 120 Human Relations in Business 3
 BUA 121 Leadership 3
 CIS 101 Introduction to Computer Systems 3
 ENG 232 Technical & Business Writing 3

OFFICE AUTOMATION CORE REQUIREMENTS — (29 credits)

CIS 023 Microsoft® FrontPage® Workshop 1
 CIS 024 Microsoft® Outlook® Workshop 1
 CIS 110 Beginning Keyboarding/Typing 3
 CIS 111 Intermediate Keyboarding/Typing 3
 CIS 119 Microsoft® PowerPoint® 2
 CIS 120 Microsoft® Word® Comprehensive 3
 CIS 121 Microsoft® Excel® Comprehensive 3
 CIS 122 Microsoft® Access® Comprehensive 3
 CIS 136 Integrated Design I 3
 CIS 210 Office Administration Systems 4
 CIS 245 Internship 3

SUGGESTED COURSE SEQUENCE

First Semester

ENG 131, MTH 120 or higher, CIS 101, CIS 110

Second Semester

CIS 120, CIS 121, BUA 100, ENG 232, CIS 111

Third Semester

CIS 023, CIS 024, CIS 119, Social Science requirement

Fourth Semester

ACC 216, CIS 136, BUA 121, Science requirement, Health and Physical Fitness requirement

Fifth Semester

BUA 120, Humanities requirement, CIS 122, CIS 245, CIS 210

TRANSFER PROGRAMS:

ASSOCIATE IN ARTS — BUSINESS

Minimum credits: 60
 Minimum cumulative GPA: 2.0
 Minimum JCC credits: 12
 MACRAO Agreement: No

Completion of this degree will allow a student to transfer to those institutions currently subscribing to the MACRAO Transfer Agreement. It will not, however, ensure that the student will be admitted to the university's college of business since admission to the university and admission to the college of business are two separate processes. All students electing this degree are strongly encouraged to make an appointment with a transfer advisor in the business department no later than the second semester of the freshman year. Students should also contact their intending transfer institution for advising purposes. Sample curricula for a few popular programs are included.

NOTE: Only courses with a 2.0 or better will transfer to most four-year colleges and universities. If you want to complete the MACRAO Articulation Agreement, you will need to plan your courses carefully. Completion of the Associate in Arts - Business Transfer Degree does NOT guarantee the MACRAO designation.

GENERAL EDUCATION REQUIREMENTS — (18 credits)

ENGLISH — (3 credits)

ENG 131 Writing Experience 3

MATHEMATICS — (4 credits)

Choose one of the following:

MTH 140 Precalculus 5
 MTH 151 Calculus I 4

SCIENCE — (4 credits)

Choose one of the following:

BIO 131 General Biology 4
 BIO 132 Human Biology 4
 BIO 151 General Botany 4
 BIO 152 General Zoology 4
 BIO 155 Human Anatomy & Physiology 5

SOCIAL SCIENCE — (3 credits)

ECN 231 Macroeconomics 3

HUMANITIES — (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400 3
 ART 112 Art History: Renaissance to Present 3

ENG 246 Short Story & Novel	3
ENG 247 Poetry & Drama	3
ENG 249 African-American Literature	3
ENG 252 Shakespeare	3
ENG 255 American Literature-19th Century	3
ENG 256 American Literature-20th Century	3
ENG 257 World Literature I	3
ENG 261 Creative Writing I	3
ENG 262 Creative Writing II	3
HUM 131 Cultural Connections	3
PHL 231 Introduction to Philosophy	3
PHL 232 Logic	3
THR 116 Introduction to Theatre	3

HEALTH AND FITNESS — (1 credit)**Choose one of the following:**

HPF 160 Wellness	1
HPF 168 Weight Training & Conditioning	2
HPF 221 Jazz Techniques	3
HPF 268 Advanced Weight Training	2
HPF 277 Stress Management	2

BUSINESS CORE— (17 credits)

ACC 231 Principles of Accounting I	4
ACC 232 Principles of Accounting II	4
ECN 232 Microeconomics	3

Choose two from the following:

BUA 230 Principles of Marketing	3
BUA 100 Contemporary Business	3
BUA 220 Principles of Management	3

ADDITIONAL REQUIREMENTS— (19 credits)**HUMANITIES — (6 credit hours)**

Choose **two** courses in **two** different disciplines from the General Education Humanities list.

ENGLISH — (3 credits)

ENG 132 Writing Experience	3
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TECHNOLOGY — (3 credits)

CIS 101 Introduction to Computer Systems	3
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SOCIAL SCIENCE — (3 credits)**Choose one course from the following:**

ANT 131 Cultural Anthropology	3
CRJ 111 Introduction to Criminal Justice	3
CRJ 117 Criminology	3
PLS 141 American National Government	3
PSY 140 Introduction to Psychology	4
PSY 152 Social Psychology	3
PSY 245 Infancy Childhood	3
PSY 251 Abnormal Psychology	3

PSY 252 Developmental Psychology	3
PSY 290 Human Sexuality	3
GEO 131 Physical Geography	3
GEO 132 World Religions	3
SOC 117 Criminology	3
SOC 152 Social Psychology	3
SOC 231 Principles of Sociology	3
SOC 235 Minority Groups in America	3
SOC 236 Women in a Changing Society	3
SOC 251 Modern Social Problems	3
HIS 131 Western Civilization to 1555	4
HIS 132 Western Civilization 1555 to Present	4
HIS 231 Development of the US through Civil War	3
HIS 232 Development of the US from the Civil War	3

SCIENCE — (4 credits)**Choose one of the following:**

CEM 131 Fundamentals of Chemistry	4
CEM 132 Fundamentals of Organic & Biological Chemistry	4
CEM 137 Chemistry of Life	4
CEM 141 General Chemistry I	5
CEM 142 General Chemistry II	5
NSC 131 Contemporary Science	4
PHY 131 Conceptual Physics	4
PHY 151 Astronomy	4
PHY 231 College Physics I	4
PHY 251 Modern University Physics I	4

PROGRAM REQUIREMENTS

The remaining hours should be chosen from any ACC or BUA course that will transfer. The selection of these courses should be made only after consulting with the institution to which you intend to transfer and a transfer advisor in the business department.

ACCOUNTING OR BUSINESS ADMINISTRATION BACHELOR'S DEGREE OPTION WITH SIENA HEIGHTS UNIVERSITY

Through an articulation agreement with Siena Heights University, graduates of JCC's two-year business programs can earn a Bachelor of Arts in accounting or a Bachelor of Arts in business. Students can work with JCC and Siena Heights staff members to select a completion program for their specific career goals. All the courses required to earn a bachelor's degree are available at Jackson Community College's main campus through the Siena Heights University degree-completion center.

TRANSFER — COMPUTER SCIENCE

Computer science majors can concentrate and think logically, and enjoy working with ideas and solving problems. They become computer programmers, systems analysts, systems programmers, and software engineers, have careers in telecommunications and computer operations, and hold positions in computer sales, design, and manufacturing. The requirements for this degree – especially mathematics and science requirements – vary considerably among transfer institutions. Please see an advisor for more information.

**SUGGESTED COURSE SEQUENCE FOR
COMPUTER SCIENCE****First Year, Fall Semester**

ENG 131, CPS 175, MTH 151, CEM 141, MACRAO
Humanities course

First Year, Winter Semester

ENG 132, CPS 177, MTH 154, ECN 231, PHL 232

Second Year, Fall Semester

CPS 217, MTH 251, PHY 251, MACRAO Social Science course

Second Year, Winter Semester

MTH 254, MACRAO Social Science and Humanities courses