Newaygo County Career-Tech Center Counselor's Handbook

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Table of Contents

Introduction	Page
Introduction	1
Agriculture, Food, and Natural Resources	
Agriscience Program	
Business, Management, Marketing, & Technology	3
Business Applied Technology	4
Culinary Arts	8
Engineering / Manufacturing & Industrial Technology	10
Mechanical Engineering	11
Construction Trades	12
Welding	16
Engine Repair/Brakes – First Year Mechanics	21
Engine Performance – Second Year Option	22
Diesel/Heavy Equipment	24
Human Services	26
Cosmetology	27
Early Childhood Education	29
Health Services	31
Health Sciences	32
Arts & Communication	34
Graphic Communications	35
Dual Enrollment Education Programs	37
Criminal Justice / Public Safety	38
Information Security & Intelligence	39

INTRODUCTION

The purpose of the Counselor's Handbook is to promote exploration of the Newaygo County Career-Tech Center programs and to encourage our students to learn more about themselves as they explore their interests and aptitudes in regards to career fields. We hope that students, parents, and teachers, as well as counselors will use the Handbook to discover the unique features of each program area.

Description of Areas

To make the Handbook user friendly, each program is broken down into eight (8) or nine (9) areas of interest and description.

Program description: This section gives a synopsis of the structure of the program and any information pertinent or unique to the program. It gives a basic guide to the expectations of the student and those helping the student understand the structure of the program.

Sample job titles: In helping the student complete further research into these career fields, we have listed several job titles that are specific to each program

Students will learn about: In this section, students will learn about the some of the goals of each program. These goals are expectations of industry standards. In acquiring these skills, the student will have gained the training and experience needed to become employable in his or her occupational field.

Students should have the interest and ability to: In determining the interests and abilities a student has for a specific occupation, it is helpful to compare aptitude and interest scores to the list under this section. As a student learns more about him/her self, this self-knowledge is helpful in determining what career field he or she will value and be successful in.

Work-Based Learning Opportunities: This section describes the various work experiences available in each Career-Tech program. The best experience a student can receive while learning a trade is on the job training. Each program has individualized work experience training including co-ops, internships, externships, and simulated shop experience.

Special features of the program: Each program has specific characteristics that are described in this section. The outstanding quality of the Career-Tech Center can be attributed to many of these characteristics.

College credit available: Free direct credit is available in all our Career-Tech programs through Ferris State University. Most programs have college articulation

agreements with Muskegon Community College and Baker College. The credit hours vary from program to program. This section will indicate the referral to the College Articulation Agreement section at the back of the Handbook for exploration. Some college credit is available to students while they are attending the Career-Tech Center and will be defined under this area.

School subjects helpful for preparation for this career field: Each occupational specialty requires a fundamental knowledge of many academic areas. It is not necessary that the student take these classes before enrolling in the Career-Tech Center but would be helpful to the student if they have had these classes prior to his or her entrance into the program. Our programs have many successful students who have shown increased knowledge of academic subjects while taking part in applied learning experiences in their program areas.

Agriculture, Food, and Natural Resources

Agriculture, Food, and Natural Resources

Program Overview:

Instruction in the program will be delivered from two different perspectives. The first will be core instruction based on the Michigan Agriscience Curriculum. The purpose of core instruction is to provide every student with a foundation in the concepts essential to employment in the industry. Six of twelve units will be completed each year.

The second focus will be on specialty areas that will be chosen by each student. The purpose of this part of the class is to provide the student with an opportunity to develop an in-depth understanding of a part of the industry that interests them. This will be accomplished through the completion of Supervised Agricultural Experiences (SAE) that are planned and completed by the student, either in class or at home.

Students will learn about:

- Veterinary Science
- Animal Industries and Domestic Animal Production
- Animal Health and Nutrition
- Plant Nutrition
- Soils
- Forestry
- Leadership, Business, and Career Success
- Wildlife
- Comparative Animal Systems and Animal Genetics
- Plant Physiology
- Pests and Pest Management
- Alternative Energy
- Biotechnology
- Food Science & Safety
- Aquaculture

Leadership Development:

The development of leadership skills is an essential component of career success and personal growth. Students will be encouraged to actively

participate in a variety of leadership development opportunities throughout the year as a member of the NCCTC FFA Chapter.

Students should have the interest and ability to:

- ♦ Perform basic math applications
- ♦ Perform basic computer skills
- ♦ Work with detailed written materials and tables
- ♦ Perform scientific applications
- ♦ Work outdoors

Work-Based Learning Opportunities:

The purpose of this part of the class is to provide the student with an opportunity to develop an in-depth understanding of a part of the industry that interests them. This will be accomplished through the completion of Supervised Agricultural Experiences (SAE) that are planned and completed by the student. Students will have an opportunity for a work-based learning experience in the community during the spring semester.

College credit available:

To Be Determined

School subjects helpful in preparation for this career field:

English Keyboarding Basic Computers Biology Business Math Communication Science

Business, Management, Marketing, &Technology

Business Applied Technology (BAT) Accounting / Finance

Program Overview:

Students who enroll in the Business Applied Technology program will develop skills that are important to be successful in any office or college environment. Students train on the most up-to-date equipment in a setting that resembles a business office and focus on learning about basics of business. Each student chooses his/her area of study from accounting, office management/marketing, and medical office assistant. Since the focus is upon mastery of a variety of software packages, students should be able to type at least 25 wpm using proper keyboarding techniques.

Accounting/Finance:

Interested in entrepreneurship, management or any other business-related occupation? Accounting isn't just sitting behind a desk. This component of the Business Applied Technology program could be for any student looking into all these careers: food and fashion, entertainment, technology, sports, criminal, environmental, travel, non-profit and government.

They will learn how to do the "book work" for small businesses and corporations by recording daily transactions in journals and ledgers (along with sales, purchases, and payroll) and preparing financial statements. Students learn about the accounting cycle for a sole proprietorship and corporations. All workbooks and tests are mostly on-line using the Aplia website. Students will learn some basic computerized accounting using Automated Accounting.

Free college credit may be given to students who complete college competencies.

Sample job titles:

Accounting Clerk Database Specialist General Office Clerk Junior Accountant Entrepreneur/Marketing Spreadsheet Specialist

Students will learn about:

• Accounting I and/or Accounting II

- Online accounting instruction (Aplia)
- Sole proprietorship/partnership/corporate accounting
- Computer software applications and Automated Accounting
- Entrepreneurship/Marketing
- 10-key
- Business Center management
- Telephone and Customer Service Skills
- Professional e-mail/Internet applications
- Computer Software Applications using Microsoft 2010 Suite
- Employability skills

Students should have the **interest** and ability to:

- Perform basic computer skills
- ♦ Work with various office machines
- ♦ Dress professionally when required
- Work independently and as a team member
- ♦ Earn math credit

Work-Based Learning Opportunities:

- * Possible co-op work experience in a local business
- * Possible three week unpaid work experience in a local business

Special features of the Accounting/Finance program:

- \Rightarrow Nationally recognized entrepreneurship instruction
- \Rightarrow Opportunity to participate in the Honors Accounting online program (2nd yr)
- ⇒ Optional Business Professional of America student organization membership
- \Rightarrow Field trips to area businesses
- \Rightarrow Simulated office environment
- \Rightarrow State-of-the-art office equipment
- ⇒ Individualized instruction to help the student increase skills in job specialties
- \Rightarrow Employability skills training

College credit available:

Free Muskegon Community College, Ferris State University, Grand Rapids Community College, Baker College and Davenport College articulated **credit**.

West Shore Community College – earn free college credit (articulated or transcripted) for Independent Study: Business (1 credit) Complete the Entrepreneurship 6 week program and prepare a marketing plan.

Pilot Program: West Shore Community College – graduate high school with 12 free college credit hours through their on-line program and receive a Management Certificate. Two year commitment.

School subjects helpful in preparation for this career field:

English Keyboarding Basic Computers

Business Math Communication Composition

Business Applied Technology (BAT) Management Support

Program Overview:

Students who enroll in the Business Applied Technology program will develop skills that are important to be successful in any office or college environment. Students train on the most up-to-date equipment in a setting that resembles a business office and focus on learning about basics of business. Each student chooses his/her area of study from accounting, office management/marketing, and medical office assistant. Since the focus is upon mastery of a variety of software packages, students should be able to type at least 25 wpm using proper keyboarding techniques.

Management Support: Helps prepare the students for success in emerging and traditional occupations within business and computer technology areas. Students who choose the management support component have a strong desire to work in an office performing clerical and support staff tasks and obtain entry level work.

Students spend a majority of their time working on advanced features and integration aspects of Microsoft Office 2010. Additional emphasis is on office support skills such as telephone techniques, filing, letters, memos, customer service, spreadsheets, databases, presentations, desktop publishing, and integrated projects, etc. Completion of all of these tasks will enable students to participate in a three-week "real world" work experience. Second-year students can choose to specialize in many areas including medical office assistant, spreadsheet specialist, or database specialist.

Free college credit is given to students who are motivated to accomplish their goals in the Management Support component.

Sample job titles:

General Office Clerk Office Assistant Administrative Assistant Spreadsheet Specialist Database Specialist Word Processing Specialist Medical Office Assistant Entrepreneur/Marketing

Students will learn about:

• Entrepreneurship/Marketing

• Budgets

- Business Center management
- Customer Service

- Telephone techniques
- Professional e-mail/Internet applications
- Records management/filing procedures
- Word processing
- Databases
- Spreadsheets
- Presentation graphics applications
- Desktop Publishing
- Employability skills

Students should have the **interest** and ability to:

- ♦ Increase keyboarding skills
- Oress professionally
- ♦ Increase verbal communication skills
- ♦ Earn math or visual performing arts credit
- Work independently and as a team member
- ♦ Earn MOUS Certification

Work-Based Learning Opportunities:

- * Possible co-op work experience in local businesses
- * Possible three week unpaid work experience in a local business

Special features of the Management Support program:

- \Rightarrow Nationally recognized entrepreneurship instruction
- ⇒ Opportunity to join the Business Professional of America student organization
- \Rightarrow Field trips to area businesses
- \Rightarrow Simulated office environment
- ⇒ Individualized instruction to help the student increase skills in job specialties
- \Rightarrow State-of-the-art office equipment
- \Rightarrow College credit for those students motivated to increase their skills and

training

College credit available:

Free Muskegon Community College, Ferris State University, Grand Rapids Community College, Baker College and Davenport College articulated **credit**.

West Shore Community College – earn free college credit (articulated or transcripted) for Independent Study: Business (1 credit) Complete the Entrepreneurship 6 week program and prepare a marketing plan.

Pilot Program: West Shore Community College – graduate high school with 12 free college credit hours through their on-line program and receive a Management Certificate. Two year commitment.

School subjects helpful in preparation for this career field:

English Keyboarding Communication

Math Basic Computers Composition

Culinary Arts

Program description:

This training program will provide hands-on experience for students by working and operating a restaurant and hospitality center open to the public. Job experiences include dining room attendant, cook, cashier, waiter/waitress, and visitor center informationist. Instruction includes preparing and serving quality food, safety and sanitation, equipment operation, maintenance, management, researching and gathering promotional information for the hospitality center. At the end of the program, students will have the skill and knowledge to qualify for culinary arts and hospitality employment.

Sample job titles:

Food Preparation WorkerHWaiter / WaitressRCounter Attendant / Bus PersonDVegetable / Salad MakerD

Host / Hostess Restaurant Cook Dishwasher Cashier Short Order Cook

With further specialized training:

Cook & Chef Dietitian Food Service Manager Hotel and Restaurant Management

Students will learn about:

- Vegetable and salad preparation
- Quantity food preparation
- Instruction in nutrition, safety, and sanitation
- Planning, selecting, and storing food products
- Preparing and serving quality food products
- Travel and tourism

Students should have the interest and ability to:

- \diamond To communicate and work well with others
- ♦ Work easily and skillfully with their hands
- ♦ Follow instructions/reading/adjusting recipes to needed yields
- Solve math problems that deal with recipes and ingredients
- ♦ Estimate food purchasing requirements and costs

Work-Based Learning Opportunities:

* Stepping Stone Restaurant located at the Career-Tech Center.

Special features

- \Rightarrow Large institutional lab kitchen serves as training area
- \Rightarrow Stepping Stone Restaurant provides a realistic training situation for students working in customer service
- \Rightarrow Team oriented to provide students with unique opportunity to learn appropriate work behaviors.

College credit available:

Free direct credit opportunity with Ferris State University. Muskegon Community College and Baker College articulated credit

School subjects that will be helpful in preparation for this occupation:

Health Education Biology Computer Science Foods and Nutrition Chemistry Sociology Algebra

ENGINEERING / MANUFACTURING & INDUSTRIAL TECHNOLOGY

MECHANICAL ENGINEERING

PROGRAM DESCRIPTION:

Students will be exposed to Mechanical, Electrical, and Computer Aided Design systems through various instructional opportunities including lecture, demonstration, and applied / hands-on projects. This course should appeal to those students who enjoy working with or express interest in alternative energy, electronics, design, computers, mechanics, and critical thinking / problem solving. Direct College Credit available through Muskegon Community College.

PROGRAM SNAPSHOT:

The course covers the basic skills required to utilize software applications including SolidWorks, MicroSoft Office Suite and MasterCAM. Numerous hours of structured laboratory exercises and applied projects are at the core of the course uniting the principles of design, mechanics, electronics, and computing to produce a real world applications.

PROGRAM CIP CODE:14.4201P.S.N.15926bTEXTBOOK(s), including edition(s),
author(s), publisher(s), copyright(s),

Print Reading for Industry, Winter Addition, 2011, ISBN: 978-1-60525.308-4 Tooling-U, Online Text Engineering Drawing and Design, Fourth Edition, 2001, ISN 13: 978-1-4180-2987-6 Concepts of Electronics, Heath Company, 1988. ISBN 0-87119-065-6 Concepts of Electronics Workbook, Heath Company, 1988. ISBN 0-87119-066-4 DC Electronics, Heath Company, 1999, ISBN 0-87119-213-6 DC Electronics Work Book, Heath Company, 1998, ISBN 0-87119-214-4 Digital Fundamentals, Thomas L. Floyd, Prentice Hall, 2000. ISBN 0-13-080850-4 Digital Techniques Book 1/ Book 2, Heath Company, 1987 Digital Techniques Work Book, Heath Company, 1990, ISBN 0-87119-222-5 Electricity and Electronics, Howard H. Gerrish, Goodheart Willcox Co., 1996. ISBN 94-25667 Experiments in Circuit Analysis, Robert Boylested, Prentice Hall, 1999. ISBN 0-13-927187-2 Introductory Circuit Analysis, Robert Boylested, Prentice Hall, 1999. ISBN 0-13-927187-2 Residential Wiring, Gary Rockis & Thomas E. Proctor, American Technical Pub., Inc., 1994. ISBN 0-8269-1653-8 Machining and CNC Technology, Michael Fitzpatrick, McGraw-Hill Companies, Inc., 2011. ISBN 978-0-07-33734-4 Machine Trades Printreading 2nd, Thomas E Proctor, J. David Holloway, Jonathan F. Gosse, American Technical Pub., Inc., 2005. ISBN 978-0-8269-1867-3

SOFTWARE: AutoCAD 2005 Microsoft Office

SolidWorks CAD Academy

MasterCAM

ASSESSMENT:

SPECIAL FEATURES OF THE PROGRAM: Field trips are provided for the student to become familiar with different program applications and systems used in industry and post-secondary training opportunities. Work-based learning opportunities are available. Program related extra-curricular activities are encouraged and offered in a variety of areas.

JOB TITLES AVAILABLE AT NCCTC:

Sawing & Cutting Machine Operato	or (SOC 51-4001.00)
Drill Machine Operator	(SOC 51-4002.00)
Lathe/Turning Machine Operator	(SOC 51-4004.00)
Milling Machine Operator	(SOC 51-4005.00)
CNC Operator	(SOC 51-4011.00)
CNC Programmer	(SOC 51-4012.00)
Layout Technician/Inspector	(SOC 51-4192.00)
Industrial Engineer	(SOC 17-2112.00)
Designer	(SOC 27-1021.00)
Electrician's Helper	(SOC 47-3013.00)
Electrical Engineer	(SOC 17-2071.00)
Electronic Inspector & Tester	(SOC 51-9061.04)
Electronics Engineering Technician	(SOC 17-3023.01)
HVACR Mechanic & Installer	(SOC 49-9021.00)

JOB TITLES REQUIRING FURTHER TRAINING/CERTIFICATION:

Industrial Machine Mechanic	(SOC 49-9041.00)
Machinist	(SOC 51-4111.00)
Maintenance & Repair Worker	(SOC 49-9042.00)
Metal Molding Operator	(SOC 51-4072.04)
Production Inspector/Tester	(SOC 51-9061.05)
Tool & Die Maker	(SOC 51-9022.00)
Mechanical Drafter	(SOC 17-3013.00)
Mechanical Engineer	(SOC 17-2141.00)
Material Engineer	(SOC 17-2131.00)
Electrical Equipment Assembler	(SOC 51-2022.00)
Electrician	(SOC 47-2111.00)
Electromechanical Assembler	(SOC 47-2023.00)
Electronics Engineer	(SOC 17-2072.00)

Related Occupation Reprints from the Occupational Outlook Handbook:

Computer-Control Programmers and Operators: Industrial Machinery Installation, Repair, and Maintenance Workers: Machine Setters, Operators, and Tenders— Metal and Plastic: Tool and Die Makers: Drafters: Mechanical Engineers: Civil Engineer: Engineering Technicians Engineering and Natural Sciences Managers: Civil Engineers: Mechanical Engineers: Mechanical Engineers: Metanical Engineers: Electricians: Heating, Air-Conditioning, & Refrigeration Mechanics and Installers: Electrician Electronics Installers and Repairers:	http://www.bls.gov/oco/ocos224.htm http://www.bls.gov/oco/ocos225.htm http://www.bls.gov/oco/ocos225.htm http://www.bls.gov/oco/ocos033.htm http://www.bls.gov/oco/ocos033.htm http://www.bls.gov/oco/ocos027.htm http://www.bls.gov/oco/ocos027.htm http://www.bls.gov/oco/ocos030.htm http://www.bls.gov/oco/ocos033.htm http://www.bls.gov/oco/ocos033.htm http://www.bls.gov/oco/ocos033.htm http://www.bls.gov/oco/ocos034.htm http://www.bls.gov/oco/ocos192.htm http://www.bls.gov/oco/ocos184.htm
Assemblers and Fabricators:	http://www.bls.gov/oco/ocos217.htm
Electrical and Electronics Engineers:	http://www.bls.gov/oco/pdf/ocos031.pdf

College Programs: The following post-secondary institutions allow for articulated college credit(s) through NCCTC.

Ferris State University
Manufacturing Tooling Technology:

http://www.ferris.edu/ http://www.ferris.edu/htmls/colleges/technolo/manutool.htm

Mechanical Engineering Technology: Plastics Engineering Technology: Rubber Engineering Technology: **Civil Engineering Technology:** CAD Drafting & Tool Design Technology: Manufacturing Engineering Technology: Mechanical Engineering Technology: Industrial Electronics Technology:

Grand Rapids Community College: Industrial Maintenance Technology: Plastics Manufacturing Technology: Mechanical Drafting and CAD Technology: **Computer Electronics** Electronics Technology:

http://www.ferris.edu/htmls/colleges/technolo/mecengtk.htm http://www.ferris.edu/htmls/colleges/technolo/plastics.htm http://www.ferris.edu/htmls/colleges/technolo/rubtech.htm http://www.ferris.edu/HTMLS/colleges/technolo/civileng.htm http://www.ferris.edu/htmls/colleges/technolo/mechanical.htm#cdtd http://www.ferris.edu/htmls/colleges/technolo/manufeng.htm http://www.ferris.edu/htmls/colleges/technolo/mechanical.htm#cdtd http://www.ferris.edu/htmls/colleges/technolo/indelect.htm

http://www.grcc.cc.mi.us/ http://www.grcc.cc.mi.us/ShowPage.cfm?PageID=453 http://www.grcc.cc.mi.us/ShowPage.cfm?PageID=1125 http://www.grcc.cc.mi.us/ShowPage.cfm?PageID=991 Air Conditioning, Refrigeration & Heating Technology: http://www.grcc.cc.mi.us/ShowPage.cfm?PageID=452 http://www.grcc.cc.mi.us/ShowPage.cfm?PageID=450 http://www.grcc.cc.mi.us/ShowPage.cfm?PageID=449

Muskegon Community College: Machining Technology: Industrial Technology: Materials Technology: Drafting Technology:

http://www.muskegon.cc.mi.us/

http://www.muskegoncc.edu/servlets/mcc?/home/sapkowsk/www/programs/p112a.htm http://www.muskegoncc.edu/servlets/mcc?/home/sapkowsk/www/programs/p111.htm http://www.muskegoncc.edu/servlets/mcc?/home/sapkowsk/www/programs/p114.htm http://www.muskegoncc.edu/servlets/mcc?/home/sapkowsk/www/programs/p101.htm

Construction Trades

Program description:

This two-year program is structured to provide the student with a fundamental background of the building trades industry by providing a hands-on experience in building a house for Habitat for Humanity. From foundation to completion, students gain the knowledge, experience and satisfaction of participating in the home construction industry.

Sample job titles:

Rough Carpenter	Electrician
Finish Carpenter	Block Mason
Construction Laborer	Roofer
Plumber & Pipe Fitter	Drywall Installer & Finisher
Insulation Worker	Mobile Home Installer & Repairer
Painter	Siding Installer

Students will how to:

- Layout and construct floors, walls, roofs, and stairs
- Install doors and windows
- Install cabinets, counter tops and plastic laminate; hang interior doors and bi-folds; install casing and base trim
- Install and finish drywall
- Install electric meter and service panels, install electrical device boxes, string wire, and connect wiring including 3-way and 4-way switching
- Install copper water lines and plastic sewer lines; basic plumbing codes; install tub/shower units, sinks and laundries, stools and faucets
- Install roofing and siding
- Lay masonry block
- Apply primers, paints, stains, and varnish materials

Students should have the interest and ability to:

- ♦ Work with hand tools, machines, and follow safety rules and procedures
- ♦ Read and comprehend written instructions
- ♦ Work with mathematical concepts
- ♦ Understand how flat drawings/pictures would look as solid objects
- ♦ Follow oral and written directions, plans, and blueprints

Special features of the Building Trades program:

 \Rightarrow The constructed house is dedicated to Habitat for Humanity for a family to live in. Students may participate in a dedication service at the end of the school year.

College credit available:

Free direct credit opportunity with Ferris State University. College credit available by performance testing at the institution selected.

School subjects that will be helpful for preparation for this career:

Drafting	Geometry
Earth Science	Wood Shop
Physical Science	Algebra

Welding

Program description:

Develop skills and welding techniques in gas metal arc (mig), shield metal arc (stick), dual shield, gas tungsten arc (tig) CNC plasma cutting, and oxyacetylene cutting and brazing in accordance with diagrams, blueprints or written specifications. Students may advance at their own pace in developing these techniques and skills. Once they have demonstrated mastery of individual units of instruction, they will be permitted to work on customer projects and repairs. Students learn safety, housekeeping, quality workmanship, and teamwork as they complete units and projects. It is helpful if a student has some previous mechanical drawing coursework and math aptitude.

Sample job titles:

Production Tig Welder Production Stick Electrode Welder Metal Cutter Skilled Mig Welder Skilled Stick Welder

Students will learn about:

- Oxyacetylene cutting of mild steel plate using hand cutting torch and line burner
- GMAW (Mig) welding of sheet and plate steel and aluminum
- GTAW (Tig) welding of mild steel, stainless steel and aluminum
- Shielded metal arc (Stick) electrode arc welding mild steel
- CNC plasma cutting

Students should have the interest and ability to:

- \diamond Work with machines
- ♦ Rate information using standards that can be measured or checked
- ♦ Work within precise limits or standards of accuracy
- ◊ Visualize solid objects from flat drawings and blueprints
- ♦ See detail in objects or drawings and recognize slight differences
- ♦ Work easily and skillfully with your hands

Work-Based Learning Opportunities:

* Co-op experience from local industries

Special features:

 \Rightarrow Possible apprenticeship with a skilled trade

College credit available:

Free direct credit opportunity with Ferris State University. Muskegon Community College and Baker College articulated credit

School subjects helpful in student preparation:

Mechanical Drawing Blueprint Reading Industrial Arts Courses Math Sciences

Automotive Technician—Brakes/Steering Suspension

Program description:

Automotive technology is growing and changing at a very rapid pace. Program instruction is set up with a balance of lectures, demonstrations and hands-on instruction. Instruction includes theory, troubleshooting, and maintenance on all vehicles. Students are instructed in the areas of: shop safety, steering- suspension and alignment, brake systems. Upon completion of training in these instructional areas, students have the opportunity to become certified via the State of Michigan test in the areas of brakes and steering/suspension/alignment.

PROGRAM CIP CODE: 47.0604	P.S.N.: 00095
TEXTBOOK (s), including edition(s), author(s), publisher(s), copyright(s),	<u>AUTOMOTIVE EXCELLENCE</u> The McGraw-Hill Companies, Inc. 2007 ISBN: 0-07-874412-1

SOFTWARE: Mitchel On Demand Auto Repair. Computer Literacy instruction with Microsoft Word, Internet, <u>www.todaysclass.com</u>, and e-mail.

ASSESSMENT: NATEF / State Certification Assessment

SPECIAL FEATURES OF THE PROGRAM: Student may take the State of Michigan certification tests. Customer service work is scheduled into the curriculum. The program prepares students to specialize in the Automotive Technology programs. Work-based learning opportunities are available for qualified students. Articulated college credit is available from Ferris State University and Muskegon Community College.

O'NET JOB TITLES AVAILABLE AT NCCTC:

Brake System Technician	(SOC 49-3023.02)
Diesel Engine Repair Technician	(SOC 49-3031.00)
Electrical Systems Technician	(SOC 49-3023.02)
Engine Performance Technician	(SOC 49-3023.02)
Gasoline Engine Repair Technician	(SOC 49-3023.02)
Heating/Cooling Technician	(SOC 49-3023.02)
Manual Trans/Drive Line Tech	(SOC 49-3023.02)
Parts & Service Writer	(SOC 49-3023.02)
Prep and Set-up Maintenance Tech	(SOC 49-9098.00)
Small Engine Technician	(SOC 49-3053.00)
Suspension/Steering Technician	(SOC 49-3023.02)
Tire Repairer and Changers Tech	(SOC 40-3093.00)

O'NET JOB TITLES REQUIRING FURTHER TRAINING:

Automotive Brake System Technician	(SOC 49-3023.02)
Automotive Engine Repair Technician	(SOC 49-3023.02)
Automotive Electrical Technician	(SOC 49-3023.02)
Automotive Transmission Technician	(SOC 49-3023.02)
Suspension/Steering Technician	(SOC 49-3023.02)
Master Mechanic	(SOC 49-3023.01)
Parts Manager	(SOC 49-3023.02)
Service Manager	(SOC 49-3023.02)

Students will learn about:

Oxy-Acetylene Cutting Fasteners and thread repair Suspension systems Computerized 4-wheel alignments Preventive maintenance fluids and lubricants Tires, wheels, and balancing Braking systems Steering systems

A student should have the interest and ability to:

- ♦ Work both indoors and outdoors
- ♦ Work easily and skillfully with his/her hands
- ♦ Solve mathematical problems involving machines and equipment
- ◊ Read and comprehend manuals and written instructions
- ♦ Use his/her judgment to estimate repair costs
- ♦ Use his/her judgment to evaluate information about engines and "troubleshoot"

Work-Based Learning Opportunities:

* Possible work experience in the automotive field within local businesses

Special features of the Automotive program:

- \Rightarrow Student may take the State of Michigan certification tests.
- ⇒ Preparation to specialize in the Automotive or Heavy Equipment/Diesel Technology programs
- \Rightarrow 4th year Related Math credit, Visual, Performing and Applied Arts credit, and On-Line Learning Experience

College credit available:

Free articulated credit opportunity with Ferris State University. Muskegon Community College and Baker College articulated credit

School subjects helpful for preparation for this career choice:

Math Language Arts Physical Science Automotive Technician—Electrical/Engine Maintenance

Program description:

Automotive technology is growing and changing at a very rapid pace. Program instruction is set up with a balance of lectures, demonstrations and hands-on experience. Students are instructed in the areas of: shop safety, electrical, and engine maintenance. Upon completion of the program, State of Michigan Mechanic's Certification testing is available at the Center in the area of electrical and engine repair.

PROGRAM CIP CODE: 47.0604

P.S.N.:00095

TEXTBOOK (s), including edition(s),
<pre>author(s), publisher(s), copyright(s),</pre>

<u>AUTOMOTIVE EXCELLENCE</u> The McGraw-Hill Companies, Inc. 2007 ISBN: 0-07-874412-1

SOFTWARE: Mitchel On Demand Auto Repair. Computer Literacy instruction with Microsoft Word, Internet, <u>www.todaysclass.com</u>, and e-mail.

ASSESSMENT: State Certification Assessment

SPECIAL FEATURES OF THE PROGRAM: Student may take the State of Michigan certification tests. The program prepares students to specialize in the Automotive Technology programs. Work-based learning opportunities are available for qualified students. Articulated college credit is available from Ferris State University and Muskegon Community College.

O'NET JOB TITLES AVAILABLE AT NCCTC:

Brake System Technician (SOC 49-3023.02) Diesel Engine Repair Tech (SOC 49-3031.00) Electrical Systems Technician (SOC 49-3023.02) Engine Performance Tech (SOC 49-3023.02) Gasoline Engine Repair Tech (SOC 49-3023.02) Heating/Cooling Technician (SOC 49-3023.02) Manual Trans/Drive Line Tech (SOC 49-3023.02) Parts & Service Writer (SOC 49-3023.02) Prep and Set-up Maint Tech (SOC 49-9098.00) Small Engine Technician (SOC 49-3053.00) Suspension/Steering Tech (SOC 49-3023.02) Tire Repairer & Changers Tech(SOC 40-3093.00)

O'NET JOB TITLES REQUIRING FURTHER TRAINING:

(SOC 49-3023.02)
(SOC 49-3023.02)
(SOC 49-3023.02)
(SOC 49-3023.02)
(SOC 49-3023.02)
(SOC 49-3023.01)
(SOC 49-3023.02)
(SOC 49-3023.02)

Students will learn about:

Shop procedures and safety Automotive preventive maintenance Automotive engine performance Automotive electrical systems Automotive braking systems Automotive suspension and steering Employability skills

A student should have the interest and ability to:

- ♦ Learn how to inspect, maintain, troubleshoot, diagnose, and repair mechanical, electronic, and electrical parts of automobiles
- ♦ Read and comprehend manuals and written instructions
- ♦ Solve mathematical problems involving machines and equipment
- ♦ Work in cramped or awkward positions
- ♦ Use his or her judgment to estimate repair costs

Work-Based Learning Opportunities:

- * Simulated automotive repair shop facility for hands-on experiences
- * Possible 3 week work or Co-op work experience in local businesses

Special features of the Automotive Technology Program:

- \Rightarrow Actual automotive diagnosis, repair and maintenance of customers' automobiles
- \Rightarrow Specialize in specific certification areas or train in all eight areas
- \Rightarrow Testing for certification as a master technician

College credit available:

Free direct credit opportunity with Ferris State University. Muskegon Community College and Baker College articulated credit

School subjects that will be helpful in preparation for this program:

General Math
Drafting

Reading Physical Science

Diesel/Heavy Equipment

Program description:

This program trains students to troubleshoot and repair heavy equipment, farm equipment, trucks, and stationary gas and diesel engines. Students will have the opportunity to develop mechanical skills by working on actual customer equipment. Making the repair, ordering parts and satisfying the customer are important components of the training. Upon completion of the program, students may become certified by the State of Michigan in heavy-duty gas or diesel engine, transmissions, electrical or brakes.

Sample job titles:

Construction Equipment Trainee	Agriculture Equipment Repair Trainee	
Diesel Parts Worker Trainee	Heavy Duty Diesel Engine Trainee	
Heavy Duty Gas Engine Trainee	Heavy Duty Electrical System Trainee	
Military Equipment Trainee	Maintenance Trainee	
Heavy Duty Suspension and Steering Trainee		
Heavy Duty Braking Systems Repair Trainee		

Students will learn about:

Shop procedures and safety	Servicing electrical systems
practices	Diesel engine tune-ups
Servicing heating/cooling systems	Preventive maintenance
Servicing fuel systems	Precision measurements
Servicing engine blocks	Service semi-trucks

A student should have the interest and ability to:

- Learn how to service, repair, and rebuild diesel engines, agriculture tractors, and industrial engines and equipment, and semi-trucks
- ♦ Work with greasy, dirty, oily equipment parts and work in cramped, awkward positions
- ◊ Read and understand repair manuals
- ♦ Solve mathematical problems involving machines and equipment

Special features of the Diesel/Heavy Equipment Program:

- \Rightarrow Actual repair and maintenance of customers' equipment in a simulated shop experience
- \Rightarrow State of Michigan Certification testing in specialty areas

College credit available:

Free direct credit with Ferris State University

School subjects helpful for preparation for this career choice:

General Math Drafting CAD Welding **Physical Science**

HUMAN SERVICES

Cosmetology

Program description:

Students are provided with the knowledge and skills necessary to successfully complete the twoyear cosmetology course beginning their senior year of high school. The 13th year of tuition is free. Instruction will include: individual disciplines, small or large group instruction, lectures, textbook/theory work, demonstrations, videos, field trips, and guest speakers to facilitate learning. Students will participate in competitions demonstrating their skills. Successful completion of prestate practical and written examinations, plus the completion of all other course assignments precede the State of Michigan examination for licensure.

Nail Technician

Make-up Artist

Skin Care Specialist

Manicurist

Sample job title:

Cosmetologist Hair Designer Film & Theatrical Hairstylist Color Technician Distributor Sales Consultant

Students will learn about:

- Sanitation / Patron Protection
- Facials/Make Up
- Hairdressing/Hair Extensions
- Scalp and Hair Treatments
- Hair Coloring
- Chemical Hair Restructuring
- Chemistry / Occupational Safety & Health
- Anatomy, Physiology, & Histology
- Manicuring / Pedicuring
- Artificial Nails
- Salon Management

Students should have the interest and ability to:

- ♦ Be flexible and enjoy change
- ◊ Perform a variety of duties which may change often
- ♦ Feel at ease with strangers
- ♦ Make decisions based on personal judgment and hair and skin analyses
- ♦ Recognize differences in colors, shades, and forms

- ♦ Communicate well with customers and take instructions
- ♦ Solve general math problems
- ♦ Read and comprehend chemical names and ingredients
- ♦ Practice self-discipline and motivation demonstrated in excellent attendance
- ♦ Maintain a 75% class average
- ♦ Be creative

Work-Based Learning Opportunities:

- 1st year students will be trained on mannequins or **each other** for 350 hours
- 2nd year students will perform work on patrons in our NCCTC Salon
- 1500 hour total training program

Special features of program:

- * Annual Spring Fashion event
- * Cosmetology competitions
- * Field trips and guest demonstrations
- * State of Michigan cosmetology license upon successful completion of State Board testing
- * 4th year Related Math credit, Visual, Performing and Applied Arts credit, and On-Line Learning Experience

School subjects helpful in preparation for this occupation:

Health Education	General Business
Chemistry	Computer Applications
Communications	Anatomy and Physiology
General Math	Art

Early Childhood Education

Program description:

Our Early Childhood Education Program is designed for those students who have expressed an interest in exploring Child-Related Careers that exist within the field of Early Childhood Education. The two year program is structured to provide students with an awareness of the developmental needs of young children, as well as the opportunity to acquire the skills that are necessary in order to gain an entry level position within the child care industry. Students who successfully complete **both years** of the program are eligible to earn articulated college credit as well as meeting the training requirements for a **Child Development Associate (CDA)**, which is a nationally recognized certificate requiring 120 hours of formal classroom training and 480 hours of supervised contact with children 3-5 years old. In addition to occupational training, a primary focus in ECE is to improve student's oral and written communication skills.

Entry Level Job Titles:

Child Care Aide Home Day Care Provider Teacher Assistant

Topics of Study:

First aid and child safety Child development Planning and leading recreational activities Caring for the needs of children Nutrition and dietary needs of children Designing a classroom interest area to specifications Designing an outdoor play area Laws and regulations governing the operation of a child-care facility Laws and regulations pertaining to special education Recognizing child abuse signs and following the correct reporting methods

Students entering the program should have the interest and ability to:

Help people and care about the well-being of children Be enthusiastic about learning new skills Maintain a positive attitude and appearance Develop organizational skills Be self-motivated Handle responsibilities Work cooperatively with others Create activities developmentally appropriate for children

School to Work (WBL):

First and second year students have the opportunity to take part in WBL where they spend two-three days each week working in either a preschool, a day care center or a kindergarten classroom.

College credit available:

Our program has long standing articulated credit agreements with Baker College, Ferris State University, and Muskegon Community College.

School subjects that will be helpful in preparation for this occupation:

Art Instrumental & Vocal Music Reading for Comprehension Sociology Physical Education Psychology Communication (written & oral)

HEALTH SERVICES

Health Sciences

Program description:

This program prepares a student to pursue a profession in the healthcare field, and is a great opportunity for those who have a future goal of working at either the professional or technical level. The current outlook for jobs in the healthcare field is very promising with projected increases in demand for a variety of jobs in this field. Students receive an introduction to entry level careers and careers requiring further education such as physician, physician assistant, nurse practitioner, nursing, physical therapy, radiology, respiratory therapy, dental hygienist, physical therapy assistant, x-ray assistant to name just a few.

A snapshot:

This course is for high school junior and seniors that wish to seek employment or further education in the health care field. There are over 200 health careers to choose from and this number is growing all the time. There are 16 career pathways in health care that a student may explore. These include but are not limited to, medicine, nursing, physical therapy, nutrition, dentistry, wellness and fitness, respiratory therapy, diagnostic imaging, pharmacy, vision care, information services, and biotechnology.

Our program instruction is a combination of lecture, critical thinking exercises, online learning, teamwork, field trips, guest speakers, and practice of clinical skills in the lab. Assistance in health career exploration is provided. Upon demonstrating competency of objectives for knowledge and lab skills, students earn the opportunity to go out into a healthcare setting and further their experience. Our curriculum is aligned with the National Consortium for Health Science Education and the Michigan Department of Community Health, and covers a variety of subjects essential to healthcare. Students can expect to learn about the body systems (Anatomy & Physiology) with a focus on Pathophysiology (things that can go wrong with the body), Medical Terminology (the international language of medicine), and Safety, Legal and Ethical issues in healthcare.

Students will go through American Heart Association's CPR and First Aid course, either at the Heartsaver or the Health Care Provider level. Students also have the opportunity to earn Certified Nurse Assistant (CNA) training*. Upon successful completion of CNA training, students will be eligible to take the MI state certification test needed to obtain a job as a nursing assistant. While a job as a CNA may be the end goal of some students, it can also prove valuable to students planning on furthering their education in any aspect healthcare. Many colleges and universities are now requiring students seeking admission to their physician assistant and nursing programs to first work with patients in a healthcare setting before applying to their program. Earning their CNA will help students acquire a job that meets this requirement. Finally the skills learned in this course will be used throughout their lifetime.

*Students interested in CNA training should be scheduled to attend NCCTC within <u>one</u> year of their 18th birthday due to Federal regulations now requiring an age of 18 for CNA employment.

Sample job titles:

Long Term Care Nursing Assistant Medical Records Aide Respiratory Therapy Aide Diagnostic Imaging Aide Pharmacy Aide Radiology Aide Activity Therapy Aide Central Supply Assistant Environmental Service Worker Occupational Therapy Aide Acute Care Nursing Assistant Physical Therapy Aide Medical Assistant Dietary Aide Veterinary Aide Laboratory Aide Materials Management Clerk

Students should have interest and ability with the following:

- **Teamwork Skills** (leadership, negotiation, cultural awareness, integrity, responsibility, self-esteem, patience, and honesty)
- Academic skills (Reading, Writing, Mathematics, Biology, Chemistry, Anatomy & Physiology, Foreign Language, Problem Solving, and Technology Literate)
- **Personal Management Skill** (time management, organization, flexibility, communication, reasoning, responsibility)

Work-Based Learning Opportunities:

Students earn the opportunity to job shadow and assist staff (per facility policy) in the hospital, nursing home, and community based health facilities. Good attendance and attitude are crucial to gaining this experience. Occasionally, the mentor will become an employer if they have a need in their institution for hire. Students will be placed on co-op internship and NCCTC will work with employer to insure that both student and employer needs are met.

Special features:

- gain experience in online learning; this include working in Moodle (similar to Blackboard) a program used in colleges, helping student s prepare for college
- scholarship opportunities

College credit available:

- free direct credit opportunity with West Shore Community College
- articulated credit opportunity with Ferris State University and Baker College

Subjects helpful in preparation for this career field:

Health Education Anatomy & Physiology Biology Chemistry Public Speaking Mathematics Language Arts Community Service

ARTS & COMMUNICATION TECHNOLOGY

Graphic Communications

Program description:

Graphic Communications is everywhere you look! Posters, T-Shirts, Signs & Billboards, Television, Internet – the list goes on! Students in the Graphic Communications class are exposed to each of these areas through personal design and printing projects. Students with an interest in graphic communications will be able to produce projects such as their very own T-shirt, Memo Pad, Business Card, Photographs, Web sites, Vinyl Signs, Multimedia and *more*. By mastering the class content students will be ready to enter the work force or go on to college for further training. Students also have many opportunities to compete in various local, state, and national art contests. To take full advantage of what the Graphic Communications program has to offer, it is helpful if the student has a sincere interest in art and has one or two years of prior art coursework. Many students will qualify for articulated college credit through Baker College or Muskegon Community College or *Direct* credit through Ferris State University.

Sample job titles:

Cartooni	ist	Multimedia Artist	Graphic Designer,	
Compute	er Graphics Artist	Painter and Illustrator,	Film Video	
Custome	er Service Rep	Editor	Sign Maker	Desktop
Publisher Pre-Press Imaging Specialist				
Printing	Press Operator	Bindery Technician	Screen Printer	

Students will learn about:

- Designing logos, advertisements, brochures, and graphics for clients
- Creating vinyl signs and banners
- Using the computer and special graphics software to prepare artwork for video, web pages, and print
- Using digital photography equipment for printed publications like brochures, books, and magazines
- Operating the printing press to produce a variety of printed work
- Using screen printing processes to print t-shirts & more
- Setup and operate bindery equipment
- Plan, organize, and operate a real in-plant printing business

Students should have the interest and ability to:

- Communicate ideas to people
- Use creative imagination to develop ideas
- Interpret feelings, ideas, or facts artistically
- Coordinate and plan entire activities
- Work with computers and graphics software
- Work with complex machines
- •Work accurately and pay close attention to detail
- •Be precise with tools and equipment
- Measure using a ruler
- •Read and interpret shop manuals and printing specifications

Work-Based Learning Opportunities:

• Co-op experiences

Special features of the program:

- Portfolio Development for job interviews or college
- Student competitions and contests
- Individualized instruction with projects students can keep
- Skills USA –Student leadership & competition organization
- Customer service work

College credit available:

- Ferris State University **direct credit**
- Muskegon Community College articulated credit

School subjects that will be helpful in preparation for this occupation:

Art	Industrial Technology
English	Drafting
College Prep	Yearbook/School Newspaper

DUAL-ENROLLMENT PROGRAMS

Criminal Justice/Public Safety (Specialized Learning Program in Corrections)

Program description:

This program, in partnership with **West Shore Community College (WSCC)**, is designed to meet the needs of the community for well-trained law enforcement personnel and to give high school students a solid foundation in criminal justice and law concepts to select a career specialization. The criminal justice field offers students a variety of challenging careers in both public and private sector employment. Between 2002 and 2012, protective service occupations are expected to provide about 1.4 million job openings for workers with less than a bachelor's degree. Most of these openings are projected to be in three occupations: Security guards, police and sheriff's patrol officers, and correctional officers and jailers. Greater opportunities exist for the college graduate in employment, promotion and specialization at the local, state and national levels. The following areas will be covered in both semesters: Report Writing, Criminal Law and Procedure, and Criminal Investigation.

The Criminal Justice Program is a **dual enrolled program** with West Shore Community College. Criminal Justice student earn college credit as a high school students that can be applied to a degree in Criminal Justice. This program provides a basic foundation and understanding of our Criminal Justice System. Students examine the all aspects of the Criminal Justice System including Law Enforcement, the Judicial and Corrections components. This program is open to junior or seniors who pass the dual enrollment prerequisites for West Shore Community College.

The student receives college credit in the following West Shore Community College Courses:

TLCJ 100 Introduction to Criminal Justice

(3 credit hrs/ 3 contact hrs) Overview of the criminal justice system to include law enforcement, courts, prosecution, and corrections.

TLCJ 210 Introduction to Corrections

(3 credit hrs/ 3 contact hrs) Introduction to philosophy of corrections; includes juvenile and adult programs. Rehabilitation methods examined.

TLCJ 211 Juvenile Delinquency

(3 credit hrs/ 3 contact hrs) Studies the causation of juvenile delinquency. Topics include federal and state law, the juvenile justice system, police and community intervention, and gang activity.

TLCJ 217 Client Relations in Corrections/

(3 credit hrs/ 3 contact hrs) The course will examine the meaning and function of culture, the

impact and meaning of discrimination, minorities, attitude formation, and professional responsiveness.

Dual Enrollment Prerequisites:

The Dual Enrollment Program is designed to provide an opportunity for superior high school students to obtain college credit while still in high school here at the Newaygo County Career Tech Center. High school juniors and seniors may petition to dual-enroll in courses at West Shore and the Newaygo County Career Tech Center with permission of their high school principal or counselor and parents. Students must also obtain a satisfactory score on either the ACT or ASSET test.

ACT score requirements: Reading—17; English—16

***The Newaygo County Career-Tech Center provides COMPASS testing for any students interested in the Criminal Justice Program.

Sample job titles:

Police Officer	Detention Counselor
Criminal Investigator	Parole Officer
Park Ranger	Security Guard
Corrections Officer	Industrial Security Guard

Some skill areas students will learn about:

- Correctional institutions/facilities
- Introduction to criminal justice
- Introduction to corrections
- Criminal investigations
- Legal issues in corrections
- Juvenile justice

Students should have the interest and ability to:

- ♦ Demonstrate honesty, good judgment, and a sense of responsibility
- ♦ Work effectively as a team member
- ♦ Communicate information effectively
- ♦ Deal effectively with people beyond giving and receiving instructions
- ♦ Demonstrate good reading, comprehension, and writing skills at a college level
- ♦ Demonstrate good math skills

Special features of the Criminal Justice program:

- \Rightarrow Instruction by law enforcement specialists
- \Rightarrow Scholarship assistance
- \Rightarrow Practical application of skills learned

College credit available:

Twelve West Shore Community College credits in Criminal Justice Ferris State University will articulate up to seven (7) credits

Information Security & Intelligence

