

Evaluation of Instruction for the Graduating Class Enrolled in the

Milwaukee Area Technical College

Associate Degree Program

Fire Science

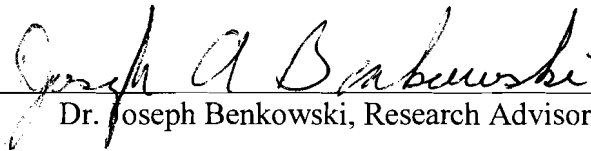
by

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ABSTRACT

The fire service is one of the most dangerous career choices one could get into. The men and women that enter this career are unique in the fact that they will possibly at one point in time make a decision to put their own life at risk to save the life of another. This type of individual is truly special.

This study looks at the curriculum offered at the mall key area technical college and the fire science program. It is an attempt to assess the value and look for ways to improve the program offered at MATC in the Fire Science Curriculum so we can meet the needs of our students and the fire service.

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Chapter 1: Research Problem and Objectives

Introduction

Milwaukee Area Technical College is a National College Accredited / State of Wisconsin organization recognized as a fire service training facility available for prospective firefighters. This program offers a sixty-eight credit / two year Associate Degree in Fire Science. In addition, it offers twelve State of Wisconsin level Certification Courses.

Milwaukee Area Technical College (MATC) is among the oldest and largest technical colleges in the nation. It has earned a reputation as one of the finest two-year colleges in America. MATC is committed to helping the people in the Milwaukee area realize their potential as well as increase productivity. MATC offers high-quality instruction and programs consistent with current and emerging educational and labor market needs.

MATC has an annual total enrollment of approximately 63,000 students. It is a publicly supported, comprehensive higher education institution and is the largest of the 16 districts that make up Wisconsin's two-year technical college system. The MATC district includes all of Milwaukee County, most of Ozaukee County, and portions of Waukesha and Washington Counties. The population of the district is 1.25 million. MATC holds a Secondary School Advanced Standing agreement with Milwaukee Public and Suburban/Parochial High Schools - Milwaukee Area Technical College – Classes & Programs, 2003).

The college is governed by a nine-member board composed of district residents. They are appointed by elected officials from the 21 school districts within the MATC District (Milwaukee Area Technical College, 2003).

In addition to higher education, the college also provides students with adult high school, General Education Degree (GED), High School Equivalency Degree (HSED), and External

Diploma programs. Accommodations are made for students with physical or educational disabilities. As of 2003, the median age of MATC students was 31 (Milwaukee Area Technical College – Classes & Programs, 2003).

MATC believes that a common core of abilities for all students is indispensable for every person as a productive worker and citizen. MATC serves the community's needs offering quality accredited programs.

Currently MATC Fire Science program services over 200 students per semester in both the Associate Degree program and our Certification program. MATC has two full-time instructors and 34 part-time instructors (Milwaukee Area Technical College – Faculty Count by Department, 2005).

The Fire Science Program at Milwaukee Area Technical College (MATC) has been offered to students at the Associated Degree level for many years. The program has changed in a variety of ways to meet the needs of the students who attend. This research project will evaluate the Associate Degree Program offered at MATC in Fire Science.

Statement of the Problem

At present MATC's Fire Science Program has not been evaluated for its effectiveness in teaching the students graduating in the Associated Degree Program. This research paper will identify the thoughts and feelings of the students graduating the Associate Degree Program at MATC in Fire Science to identify what the students liked and disliked about the program.

Purpose of the Study

This research is designed to evaluate the students' reactions/feelings related to the instruction received at MATC in the Fire Science Program. The goal is to identify the value in the Associate Degree Program relating to future hiring abilities:

1. Identify the strengths and of the program
2. Identify the weaknesses of the program
3. Identify areas that need improvement
4. Identify solutions to the weaknesses that were identified
5. Assess the courses offered to the students at MATC
6. Identify possible changes in curriculum to meet the needs of the students
7. Assess the teaching methods used and possible adjustment to those styles

The final aim of this study is to solve the research problem. Are students satisfied with the program offered at MATC? To answer this question the following steps will be used:

A review of literature to determine if any surveys have been done in this area and to review existing theory

- A decision as to population and sample
- A design of instruments to collect appropriate data
- A process to analyze the data once collected
- A summary of the findings

Following these steps will result in an understanding of the problems. The solution will be presented in the final chapters as discussion and conclusions.

Need for the Research

MATC has a long tradition of striving for excellence in academic programs and for responding to the needs of the student. Students are the customers and the product they are asking for is quality education and the skills necessary to obtain work or to improve their skills in the Fire Service or other related fields. Is the training the students receive currently meeting these needs? Are the students who graduate satisfied by the education and experience at MATC? These

are the questions that will be answered by the end of this research. The responses to these questions will be important to every instructor teaching at MATC, including myself.

Assumptions of the study

The researcher makes the following assumptions: an

- Answers given to survey will be thoughtful and honest.
- Students willing be will to provide answers that will help improve the Fire Science program at MATC.

Students will be allowed to not participate in the survey. This should provide credible responses that will allow for the improvement to occur in the Fire Science program.

The survey is only a starting point in the process of changing the Fire Science program offered at MATC.

Definition of terms

Part-time-Paid Firefighter. Member of a fire department who is willing to provide service to a community on a paid on call fee basis. (Ohio Laws and Rules, 2007)

Volunteer Firefighter. Member of a fire department who is willing to provide fire protection to a community for no fee or reimbursement. (Ohio Laws and Rules, 2007)

Full Time Equivalent (FTE). The equivalent of on student taking a twelve credit load in any one semester would be considered a full time student. MATC states if two students each take six credit loads this would be equivalent of one full time student. (Milwaukee Area Technical College Pocket Book, 2002)

College Warning. College warning is an official notice to a student or recognized student organization that the conduct is in violation of the Student Code of Conduct and that the

continuation of such conduct or action(s) may result in further disciplinary sanction. (Milwaukee Area Technical College - Student Code of Conduct, 2005)

Loss of Recognition. MATC student organizations may lose recognition and will be deprived of the use of College resources, the use of the College's name, and the right to participate in campus sponsored activities. This loss of recognition may be for a specific period of time or for an indefinite period of time until stated conditions are met. (Milwaukee Area Technical College - Student Code of Conduct, 2005)

Faculty member or instructor. Any union person who is employed to teach at least one course at MATC for an academic period in which an alleged incident took place. (Milwaukee Area Technical College – Classes & Programs, 2003)

Student. Includes all persons taking courses at Milwaukee Area Technical College, both full and part time, or pursuing studies of any kind even if physical attendance on MATC property is unnecessary. Persons who are not officially enrolled for a particular term but who have a continuing relationship with the College are considered "students." Also, persons who are actively in the process of enrollment are considered "students." (Milwaukee Area Technical College - Faculty Count by Department and Status, 2005)

Limitations of the Study

The results of this survey will be limited to one semester of the graduating class of May, 2005. Enrollment does change every semester and the results might change as a result. This snap-shot would be a beginning and further surveys would be required to obtain a more complete view of the fire science program by the students.

Methodology

This research project will gather and disseminate information to assist in improving the fire science program at Milwaukee Area Technical College. Chapter two will entail a review of literature to assist the information process of the study. Chapter three will describe the methodology will be used to develop the survey that will be given to the graduating students in the fire science program. It will cover the instrumentation, data collection procedures and analysis process.

In chapter four, the results of the survey will be disseminated and recommendations will be given in the final chapter.

Chapter 2: Review of Literature

This chapter establishes a background for the study with a review of the literature. A review of materials relating to exit surveys will be compiled and disseminated to develop a survey that will be given to the graduating class in the Fire Science Program. It will be utilized to gather the information so conclusions can be formulated regarding the question of competency of instruction at Milwaukee Area Technical College (MATC). It will also be used as part of an overall review of the fire science program offered at Milwaukee Area Technical College. The results of the review of the literature will help to identify the strengths and weaknesses in the Fire Science Programs offered at MATC. The outline of this Chapter will include:

- Review of history of Wisconsin Technical College System.
- Review of the history at MATC.
- When MATC was founded.
- When the Fire Science Program began and history of its beginnings.
- Reasons for the creation of the Fire Science Program at MATC. In
- Research previous studies dealing with student satisfaction.
- Review of previous surveys conducted.
- Constructing an exit survey.
- Analyzing survey information.
- Reporting survey information.

History of the Wisconsin Vocational, Technical and Adult Education System

The Wisconsin Technical College System began with a law passed in 1907. It allowed cities to operate trade schools for persons age 16 or older as part of the public school system as stated in Chapter 122 and allowed them to establish technical schools or colleges under the

control of either the school board or a special board as stated in Chapter 344 (Wisconsin Technical College System – History, 2005).

The law appropriated state aid for continuation, trade and evening schools; required every community with a population of 5,000 or more to establish an industrial education board; authorized the local boards to levy a property tax; and created an assistant for industrial education in the office of the State Superintendent of Public Instruction. It also created the State Board of Industrial Education (Wisconsin Technical College System - History, 2005).

In 1911, six years before the use of federal funds for the promotion of vocational, technical and adult education throughout the nation, Wisconsin set up a special Board of Vocational and Adult Education (Blackhawk Technical College, 2005). This board began apprenticeship agreements and required employers to release 14- to 16-year-olds for part-time attendance in continuation schools if such schooling was available. These became schools for apprentices. Hours in class were to count as part of the total paid work hours. The schools, established through the work of Charles McCarthy, first director of the present-day Legislative Reference Bureau, emphasized general cultural and vocational education, as well as trade skills (Wisconsin Technical College System - History, 2005). In Chapter 494, Laws of 1917, the Wisconsin Legislature changed the name of the State Board of Industrial Education to the State Board of Vocational Education, authorized it to employ a state director and designated it as the sole agency to work with the newly created federal board (Wisconsin Technical College System - History, 2005).

During the Great Depression, Wisconsin tightened its compulsory school attendance laws, which resulted in more 14- to 18-year-olds attending school. The demand for adult education also increased, as recognized by Chapter 349, Laws of 1937, which renamed the board

the State Board of Vocational and Adult Education. During that same period, the vocational school in Milwaukee began to offer college transfer courses (Wisconsin Technical College System - History, 2005).

Events of the 1960s transformed the Wisconsin vocational-technical system into the postsecondary system of today. Federal legislation for vocational schools affected business education and emphasized training for the unemployed. The federal Vocational Education Act, passed in 1963, helped the local boards build new facilities. Chapter 51, Laws of 1961, authorized the board to offer associate degrees for 2-year technical courses (Wisconsin Technical College System - College, 2005).

In 1965, the State of Wisconsin enacted a law designed to broaden the vocational, technical and adult education opportunities for youth and adults through the inclusion of the entire state into districts by July 1, 1970 (Blackhawk Technical College, 2005). The 1965 Legislature passed Chapter 292, which required a system of vocational, technical and adult education (VTAE) districts covering the entire state by 1970 and changed the board's name to the State Board of Vocational, Technical and Adult Education. College transfer programs were authorized in Madison, Milwaukee and Rhinelander (Wisconsin Technical College System - College, 2005).

As a result of the federal and state legislative changes in the 1960s, VTAE enrollments more than doubled to 466,000 between 1967 and 1982 (Wisconsin Technical College System - History, 2005). The 1970s also saw significant increases in the number of associate degree programs. Other major statutory changes included the requirement that VTAE schools charge tuition and that they improve cooperation and coordination with the University of Wisconsin

System. More recently, a greater emphasis has been placed on services to 16- or 18-year-old students (Wisconsin Technical College System - History, 2005).

Wisconsin Act 399 of 1993 renamed the VTAE system, changing it to the Technical College System, and designated the state board as the Technical College System Board. District VTAE schools became "technical colleges" (Wisconsin Technical College System - History, 2005).

Currently Wisconsin has 16 state technical colleges. These are:

- Fox Valley
- Gateway
- Lakeshore
- Madison Area
- Mid-State
- Milwaukee Area
- Moraine Park
- Nicolet Area
- Northcentral
- Northeast Wisconsin
- Southwest Wisconsin
- Waukesha County
- Western Wisconsin
- Wisconsin Indianhead
- Blackhawk
- Chippewa Valley

Of these 16 state technical colleges only five offer an associate degree in fire science.

These are:

- Blackhawk
- Fox Valley (Waukesha County)
- Gateway
- Madison Area
- Milwaukee Area

History of Milwaukee Area Technical College

Milwaukee Area Technical College (MATC) was founded in 1912 and has grown to become one of the Midwest's largest community-based technical colleges, offering multiple paths to success. Affordably, conveniently and quickly, students can complete the first half of their baccalaureate degree requirements, transferable to participating four-year colleges and universities. They can enter an occupation by earning a one-year technical diploma or a two-year associate degree. Or they can apprentice in a trade, starting at MATC and completing their training on the job. Students also can complete their high school diploma and transition to degree and diploma programs (Milwaukee Area Technical College - Creating the Future, 2005).

Most full-time students are pursuing degrees and diplomas, but more than half of MATC students are taking a course or two to expand their skills or learn new ones. The Faculty has vast experience with facilitating lifelong learning, which has been a core element of the mission from the start (Milwaukee Area Technical College - Creating the Future, 2005).

MATC is a large 2-year institution that operates as one of 16 technical school districts under the Wisconsin Technical College System (WTCS). WTCS empowers all of the 16 local district boards to levy property taxes; these provide the majority of MATC's funding. The college is located in downtown Milwaukee, and its three outlying regional centers serve a three-county area. These different locales allow MATC to provide educational services for a culturally and economically diverse population that totals approximately 65,000 students. MATC administration endorses a philosophy that strongly emphasizes an institution wide commitment to teaching and learning (Marketing Library Services, 2002).

2003-04 FUNDING SOURCES

MATC receives its revenue from the following sources:

- Local Government/Property Tax — 41.4%
- State Aid — 12.6%
- Federal Aid — 8.1%
- Tuition and User Fees — 11.3%
- Bond Proceeds — 8.5%
- Institutional and Others — 18.1%

Its total budget is \$265.7 million (Milwaukee Area Technical College Pocket Book, 2004).

For every dollar invested in MATC, taxpayers receive \$9.26 in graduate/student earnings and social cost savings. When students complete one year of MATC instruction they will earn, on average, an extra \$3,910 annually. Class of 2002 gross annual earnings was \$38 million (Milwaukee Area Technical College Pocket Book, 2004).

2002-03 Enrollment by campus was:

- Downtown Milwaukee 31,457
- Mequon 5,975
- Oak Creek 15,265
- West Allis 10,370

The total enrollment of 56,862 did not include any duplicate students who enrolled in more than one campus. The total duplicated enrollment was 63,067.

MATC graduates have a rich tradition of filling local employment needs. Associate degree and technical diploma alumni of the college are continuing success stories. Over 90% of MATC's 2002 associate degree and technical diploma graduates were employed or continuing their education within six months of graduation. Ninety-nine percent work in Wisconsin and 97%

are satisfied with their MATC education (Milwaukee Area Technical College Pocket Book, 2004).

MATC is accredited by the North Central Association of Colleges and Schools, Commission on Institutions of Higher Education, and is a member of the American Association of Community Colleges. In addition, MATC academic programs are accredited, approved, and/or governed by a number of other respected academic and related organizations and agencies.

The college was one of the first two year colleges to earn North Central Association accreditation. It did so in 1958, and it has been earning NCA reaccreditation ever since (Milwaukee Area Technical College Pocket Book, 2004).

Fire Science at MATC

At present MATC's Fire Science Program has not been evaluated for its effectiveness in teaching the students graduating in the Associated Degree Program. This research paper will identify the thoughts and feelings of the students graduating the Associate Degree Program at MATC in Fire Science to identify what the students liked and disliked about the program. It will be used as a tool to define areas that might be changed to improve the program in the fire science program. It will also identify areas that the students appear to like.

This will be the first part of the assessment of the fire science program. The survey that will be developed will take a "snap shot" of the overall program offered. It is understood this will not be the end of information gathering needed to assess the program offered.

About Milwaukee Area Technical College

Milwaukee Area Technical College is part of the Wisconsin Technical College System (WTCS). Both organizations are dedicated to developing individuals who apply knowledge and skills to enhance quality of life and boost economic vitality.

They are committed to extending learning beyond the classroom and throughout life.
(Visions of the Wisconsin Technical College System Board, 2003)

The Vision Statement held by MATC is: Milwaukee Area Technical College is committed to being a world-class educational institution that empowers students, faculty, and staff to realize their potential. (Milwaukee Area Technical College Catalog 2003-2004)

MATC's Mission Statement states:

Milwaukee Area Technical College (MATC) is a publicly supported comprehensive higher education institution committed to increasing the potential and productivity of the people in its district through the delivery of high-quality instruction and programs which are consistent with current and emerging educational and labor market needs. General Education is an integral part of MATC programs which provides the knowledge and conceptual abilities that college-educated adults must have to achieve in occupational skills training and to perform more effectively in the demanding, complex world in which they live. (Milwaukee Area Technical College Catalog 2003-2004)

Fire Science program is an associate degree program that is designed to prepare students' for employment with a fire fighting agency. The program's curriculum is directed at helping students to develop mature, knowledge-based judgment in fire department administration and fire prevention and suppression. The objectives of the program are twofold: to afford opportunities to qualified high school graduates who wish to be employed as firefighters or in related fields where knowledge of fire technology is essential; and to update certified firefighters and fire officers on new and advanced fire fighting techniques, possibly to take advantage of promotional opportunities (Fire Science AAS Degree, 2005).

Barbara Bras describes future workers in today's society as individuals who are self-aware, a team player, is flexible, who is a system thinker and is good at defining a problem (Higgins, T., 1994).

In the Fire Science Program MATC strives to create students who are well trained and educated firefighters. These students are being sought by public and private concerns alike. Typically, program graduates qualify for an entry-level fire fighting position, with advancement potential through competitive examination. Job opportunities also exist with industrial plants having safety and fire prevention departments (Milwaukee Area Technical College - Fire Science AAS Degree, 2005).

Career preparation which will be expected by the students who graduate the Fire Science Program (FSP) include:

- Work under stress
- Function well as a member of a team
- Demonstrate good physical condition, coordination and endurance
- Get along well with people, particularly while living and working in close quarters
- Demonstrate mental alertness
- Exercise initiative and sound judgment (Milwaukee Area Technical College - Fire Science AAS Degree, 2005).

The FSP course offerings are outlined as follows:

- FIRE-100 Fire Protection Organization
- FIRE-108 Building Construction and Fire Ordinances
- FIRE-101 Fire Protection Water Systems
- FIRE-102 Fire Fighting Tactics and Strategy 1
- FIRE-105 Chemistry of Hazardous Materials
- FIRE-115 Fire Prevention, Inspection, and Protective Systems
- FIRE-106 Hazardous Materials/Incident Response

- FIRE-107 Fire Department Health and Safety
- FIRE-109 Emergency and Disaster Planning
- FIRE-116 Fire Department Management
- FIRE-110 Fire Investigation

A total of 68 credits are required to obtain an Associate in Applied Science Degree.

Comparison of Fire Science programs offered in Wisconsin

Associate Degree Programs offered in Wisconsin in Fire Science are limited to five Technical Colleges: Blackhawk Technical College (BTC), Gateway Technical College (GTC), Fox Valley Technical College (FVTC), Madison Area Technical College (MATC – Madison) and Milwaukee Area Technical College (MATC).

Blackhawk Technical College

The Fire Science Program at Blackhawk Technical College (BTC) offers individuals exciting careers in fire protection, fire prevention or fire engineering. The field of Fire Science is concerned with the preservation of life and property from fire and related hazards. Potential jobs for graduates include municipal, military or government fire fighter; fire protection technician; fire inspector; and fire fighting equipment specialist-sales (Wisconsin Fire Service Education and Training, 2002).

The program outcomes include:

- Conduct fire investigations
- Perform basic fire inspections
- Perform first line fire service supervision
- Command basic fire ground operations
- Write fire and prefire plans

- Conduct basic fire company training
- Maintain records for apparatus and equipment
- Perform building plan and survey inspections

Gateway Technical College

The Fire Science Program at Gateway Technical College (GTC) provides opportunities to those who wish to enter the field of fire fighting as members of local fire departments or in other related fields where knowledge of this technology is essential. In addition, it provides educational opportunities for off-duty fire fighters to gain knowledge to better qualify them to perform duties in fire technology and to take advantage of promotional opportunities. Typical jobs of graduates include fire fighter, fire alarm operator, fire insurance inspector, fire equipment sales, industrial fire technician, industrial safety technician, and industrial fire inspector (Wisconsin Fire Service Education and Training, 2002).

Fox Valley Technical College

This program will prepare students for a career in fire prevention and protection. Students will learn to apply proper principles in solving fire-related problems facing America in the 21st Century. Through realistic classroom simulation and “hands-on” experience, students will master the knowledge and techniques to save lives and property.

The Fire Protection Internship provides an opportunity for qualified students to work in a fire department for a semester or school year and function as regular firefighters. The students also are given practical training at the FVTC Regional Fire Training Center. This practical work experience and training, together with classroom instruction, provides students with a comprehensive understanding of fire prevention and firefighting principles.

Students have the opportunity to complete training for the state of Wisconsin Firefighter I and II, Fire Inspector I, Driver/Operator, and Hazardous Materials Technician certification, as well as become EMT-Basic certified while completing their associate degree.

The Fire Protection Technician program is designed to permit new students to enter at the start of each semester as openings exist (Fox Valley Technical College, 2004).

Upon successful completion of this program, students will be able to:

- Demonstrate the ability to function in a para-military style organizational structure requiring teamwork, adaptation to change and the ability to work with:
 - diverse cultural groups
 - diverse ethnic groups
 - diverse genders and sexual orientations
 - personnel in related agencies
- Demonstrate empathy and integrity through responsible and ethical behavior toward the public as well as colleagues.
- Perform all necessary emergency response duties to include fire control and extinguishment, basic search and rescue, emergency medical care, ventilation, salvage and overhaul, use of occupancy's fire protection systems, motor pump operator, communications procedures, hazardous materials technician procedures, confined space rescue, vehicle extrication, and fire investigation.
- Perform all necessary non-emergency duties to include basic fire inspections (commercial, industrial, residential), public fire safety education, pre-fire and disaster planning, site inventory planning, risk analysis (fire and hazardous materials), station maintenance, vehicle maintenance, firefighting tools and

equipment maintenance, and emergency medical tools and equipment maintenance.

- Demonstrate a level of fitness and personal health required to perform the duties of a firefighter.
- Apply critical thinking skills as they relate to decision making in both emergency and non-emergency duties.
- Use proper oral and written communication skills necessary for interpersonal communication, public speaking, developing and writing reports, maintaining files and records, and pre-fire and disaster planning.
- Demonstrate basic computer and keyboarding skills relative to normal job-related responsibilities (Fox Valley Technical College, 2004).

A total of 70 credits are required for graduation.

Waukesha County Technical College's Fire Protection Technician program is shared with Fox Valley Technical College (FVTC). Some courses require registration with FVTC, but all courses are taught at WCTC, with some courses being taught by FVTC instructors using distance education technology. A joint diploma from WCTC and FVTC will be granted on graduation. This program adds a fourth location to obtain an associate degree in Fire Science in the State of Wisconsin (Waukesha County Technical College – Fire Protection 2004).

Waukesha County Technical College is the closest Technical College offering an Associate Degree in Fire Science from MATC. Students are able to receive course work in one college and transfer the credits to another program. Waukesha County Technical College, through Fox Valley Technical College, offers the following program:

First Semester

Course Num	Course Name	Credits
• 503-100	Fire Service Orientation	3
• 503-135	Firefighter Fitness	1
• 503-140	Fire Protection Hydraulics	4
• 503-154	Building Construction	3
• 801-195	Written Communication	3
•	Elective	3

Total Semester Credits 17

Second Semester

Course Num	Course Name	Credits
• 503-102	Firefighting Principles	4
• 503-104	Fire Prevention	4
• 503-111	Tactical Operation/Disaster Plan	4
• 801-196	Oral/Interpersonal Communication	3
• 107-006	Intro to Windows and Internet	1
• 107-007	Introduction to Microsoft Word	1
•	Elective	2

Total Semester Credits 19

Third Semester

Course Num	Course Name	Credits
• 503-108	Chemistry of Hazardous Materials	4
• 503-130	Fire Protection Internship	2

- 809-195 Economics 3
- 503-103 Fire Service Employ Strategies 1
- 531-102 Emergency Med Technician/Basic 3
- 804-169 Fundamentals of Mathematics 3
- Elective 1

Total Semester Credits 17

Fourth Semester

Course Num Course Name Credits

- 503-114 Fire Investigation 3
- 503-120 Fire Protection Systems 3
- 809-196 Introduction to Sociology 3
- 809-199 Psychology of Human Relations 3
- 599-101 Health & Wellness/Firefighters 1
- 806-174 General Chemistry I 4

Total Semester Credits 17 (Waukesha County Technical College – Fire Protection 2004).

Madison Area Technical College

The constant changes and growing complexities of modern living and the environment are creating a demand for college-trained people in the fire-service field. Opportunities for graduates exist with municipal fire departments, insurance and government agencies, and in the field of industrial safety. This program of study is designed to meet the needs of personnel currently employed in fire service positions and those desiring preparation for employment.

Classes should be taken in the sequence listed. Fire Academy students extinguish a fire in a specially designed structure at MATC's Fire Service Center.

Unique Requirements for Admission outlined are a high school diploma, High School Equivalency Degree (HSED) or General Education Degree (GED) with a grade point average of 2.0 or equivalent or satisfactory completion of 12 college credits. Students should also have one year of high school algebra and one year of high school science.

Career Potential

- Firefighter
- Fire Protection Technician
- Fire Protection Systems Installer
- Industrial Safety Technician
- Property Risk Management Specialist

With additional education and/or work experience, graduates may find employment as:

- Fire Protection Consultant
- Fire Protection Equipment Sales Manager
- Industrial Safety Manager
- Municipal Safety Manager
- Property Loss/Risk Management Supervisor
- Fire Investigator
- Fire Marshal
- Fire Inspector
- Fire Officer

Madison's Fire Science program offers the following:

Course Num	Course Name	Credits
First Semester		
• 10-503-108	Building Construction and Design	3.00
• 10-503-134	Introduction to Fire Organization	3.00
• 10-801-151	Communication Skills 1	3.00
• 10-804-129	Introduction to College Math	3.00
• 10-806-141	Technical Science 1-S	3.00
Semester Total 15.00 Credits		
Second Semester		
• 10-103-134	Windows 98/2000	1.00
• 10-103-137	Word-Beginning	1.00
• 10-503-114	Fire Protection Systems	4.00
• 10-503-131	Principles of Fire Control	3.00
• 10-801-152	Communication Skills 2	3.00
•	Elective	3.00
Semester Total 15.00 Credits		
Second Year		
First Semester		
• 10-503-105	Chemistry of Hazardous Materials	4.00
• 10-503-110	Fire Investigation	3.00
• 10-503-112	Fire Prevention	4.00
• 10-801-197	Technical Reporting	3.00

- 10-809-199 Psychology of Human Relations 3.00

Semester Total 17.00 Credits

Second Semester

- 10-503-125 Fire Service Management 3.00
- 10-503-145 Water Supply Hydraulics 4.00
- 10-503-153 Strategic Operations 4.00
- 10-809-197 Contemporary American Society 3.00
- Elective 3.00

Semester Total 17.00 Credits

Total Program Credits 64 (Madison Area County Technical College – Fire Protection/Fire Service Certification 2003).

Bringing the Curriculums Together in the WTCS

Currently the course curriculums differ between the different fire science programs offered in the WTCS system. As a result Associate in Applied Science (AAS) working group has proposed a statewide curriculum and educational initiatives committee. This group was established by the WTCS state board in response to union criticisms of their lack of voice in the AAS degree programs.

This membership consists of the following:

Membership (12 voting, 1 non-voting):

- 3 faculty representatives appointed by Wisconsin Education Association Council (WEAC)
- 3 faculty representatives appointed by American Federation of Teachers –Wisconsin (AFT-WI)

- 1 Instructional Services Administrator representative
- 1 college president representative
- 1 student services administrator
- 3 deans/associate deans

The group will be facilitated by the WTCS President or his/her designee. The facilitator is a non-voting member of the group. (AFT, 2005)

This attempt should standardize curriculums between the different Vocational, Technical and Adult Education (VTAE) programs offered in Wisconsin and allow expanded choices for students in teaching delivery.

Explanation of the survey process

Conducting a survey will be the most important part of this research assignment. With this in mind, a look at how a survey is constructed, what to do and what not to do, will be very important.

Kristi Lancaster states in the Nov, 2001 Issue of the Journal of the American Dietetic Association that surveys are an efficient, inexpensive way to collect information about a group of people. On the surface, developing a survey seems easy, but creating a survey that is easy to fill out and answers the questions that you want to ask can be challenging. You can design and test your own questions, or you can use established instruments. The questions used in government surveys such as the National Health and Nutrition Examination Survey (NHANES) and the Behavioral Risk Factor Surveillance System (BRFSS) have been well tested and validated, and are easily accessible on the web (Centers for Disease Control, 2004). In addition, review journal articles on your topic, they sometimes include questions from the survey instrument, or you can

contact the corresponding author for a copy. One can maximize the likelihood that participants will complete the survey by creating a user-friendly questionnaire.

Once the survey has been created it is important to pilot test it. Conducting a pilot survey can help identify awkward and unclear questions, and identify missing responses to multiple choice questions. It can also help determine whether the survey is too long, and make sure the words mean the same to the participants. To pilot the survey, have at least 10 to 15 people, preferably from the target audience, take the survey. It is beneficial to request comments about taking the survey, or debrief them after they take it. Check the surveys to see whether the answers the participants gave were the kinds of answers expected. Once the revised survey is based on the pilot test results, the survey will be ready for implementation.

One of the major aspects of the construction of the survey will be related to the assessment of the audience. The questions should relate and have meaning to the student so an accurate and sincere response will be evaluated.

Some of the questions that should be evaluated before the survey is constructed are:

- Who is the target audience?
- What should be gained from this survey and what questions should be asked to meet the objective(s)?
- How should the survey be administered? Should the questions be asked in person, filled out by the participant on site, or taken home and mailed back? Be aware that the response rate will be lower if the participant is to send it back. It is always best to include a self-addressed envelope with the survey to increase your response rate.

- How many questions will participants be willing to answer? How can the survey be as brief as possible (one to two pages is best) while still meeting its purpose?
- Does the target audience have any special needs? For instance, consider using a larger font size (e.g., 13 point font instead of 12 point) for older adults and word questions as simple as possible for children and people with a lower education level or language barriers.
- Which demographic questions should be asked (e.g., age, sex, marital status, etc.) to best characterize the participants?
- Development of user friendly questions is important.
- Keep questions focused and simple.
- Be specific. Do not assume participants know what is meant.
- Avoid jargon and technical terms.
- Use plenty of white space. Filling the page with too many words can look intimidating.
- When possible, use multiple-choice questions. These "closed-ended" questions are faster and easier for participants to answer, and easier to evaluate.
- Begin the survey with easy-to-answer, direct questions.
- Put any sensitive questions (e.g. alcohol use, income level, religion, etc.) at the end.
- Place related questions together; jumping from one subject to another and back can be confusing (Lancaster, K., 2001)

This outline for assessment will follow an ethical code of non-bias or favoritism to students involved in the survey process. According to Salant & Dillman, survey research carries

with it an obligation to follow certain ethical norms. Any time people are asked to participate in a survey, it is the researcher's responsibility to respect both their privacy and the voluntary nature of their involvement. (Salant & Dillman, 1994)

Summary of Chapter

The trends between 1990 and the year 2005 show an increase by 16.2 percent in industrial employment in Wisconsin. At the mid-century, one of two workers was employed in a goods-producing industry. By 2005, three of four workers will be employed in a service-producing industry. It is thought by the year 2005 both the trade and the service industry groups will have surpassed manufacturing in employment (Workforce Policy and Information Bureau, 1993)

With the Vision statement and Mission statement understood, the program offered at MATC in Fire Science should be evaluated to measure its effectiveness. This will be done by the use of a carefully generated survey form used to assess the graduating student's feelings of the program and suggestions of how the program could be improved.

Only after the assessment is conducted can the instructors at MATC make the needed changes which will hopefully improve the classes offered to future students.

The following chapter will evaluate the Methodology used to develop an instrument to assess the students in the Milwaukee Area Technical College Fire Science programs.

Chapter 3: Methodology

Introduction

The purpose of this chapter is to explain the research methodology used. The research method and procedures were chosen in correlation with the objectives of the study. This chapter will focus on the following areas:

- Research design
- Model that will be used
- Instrumentation

MATC background

The Fire Science Program at Milwaukee Area Technical College (MATC) has been offered to students at the Associate Degree level for many years. The program has been changed in a variety of ways to meet the needs of the students who attend the Associate Degree Program.

Milwaukee Area Technical College is a National College Accredited / State of Wisconsin organization recognized as a fire service training facility available for prospective firefighters. It is a sixty-five credit / two year Associate Degree in Fire Science and twelve State of Wisconsin Certification Programs.

Currently MATC's Fire Science program services over 200 students per semester in both the Associate Degree program and Certification program. MATC has two full-time instructors and 28 part-time instructors.

Problem Statement

At present MATC's Fire Science Program has not been evaluated for its effectiveness in teaching the students graduating in the Associated Degree Program. This research paper will

identify the thoughts and feelings of the students graduating the Associate Degree Program at MATC in Fire Science to identify what the students liked and disliked about the program.

Research Objectives

This research is designed to evaluate the students' reactions/feelings related to the instruction received at MATC in the Fire Science Program. The goal is to attain the following information:

1. Identify the value in the Associate Degree Program relating to future hiring abilities
2. Identify the strengths of the program
3. Identify the weaknesses of the program
4. Identify areas that need improvement
5. Identify solutions to the weaknesses that were identified
6. Assess the courses offered to the students
7. Identify possible changes in curriculum to meet the needs of the students
8. Assess the teaching methods used and possible adjustment to those styles

The final aim of this study is to solve the research problem. Are students satisfied with the program offered at MATC? To answer this question the following steps will be used:

1. A review of literature to determine if any surveys have been done in this area and to review existing theory
2. A decision as to population and sample
3. A design of instruments to collect appropriate data
4. A process to analyze the data once collected
5. A summary of the findings

Research Design

This study intends to assess the effectiveness of instruction given to the students enrolled in the Associate Degree Program at MATC. The intent is to discover whether students feel they are acquiring the necessary skills to be effective in their job field and able to obtain employment after receiving this degree.

The student will be quantifiably surveyed and those results will be interpreted. The survey will be validated before the students are assessed.

Subject Selection and Description

The researcher will use the graduating class enrolled in the Fire Science program. All students will be surveyed and all results will be used. The students will be informed on how the survey will be used and its purpose. A clear statement will be made about privacy and using a blind survey technique so results will not be influenced. No names will be collected at any time while conducting the survey.

Instrumentation

The instrument was created by the researcher and consists of an instructional cover page, a quantitative evaluation of respondents, mix of true/false questions and priority evaluation of the current program offered at MATC Fire Science Program. Lastly, the students are asked to grade the program for effectiveness and write personnel experiences (good/bad) in a note area of the survey.

Limitations of the Study

The results of this survey will be limited to one semester of the graduating class of May, 2005. Enrollment does change every semester and the results might change as a result. This

snap-shot would be a beginning and further surveys would be required to obtain a more complete view of the fire science program and the feeling of students.

Summary

This chapter explained the procedures used for collecting and analyzing the data. The information received will provide data that will help the Milwaukee Area Technical College's Fire Science Program evaluate its success in preparing, training and developing students with the competencies desired in the fire service and emergency response industries.

Chapter 4: Results

Introduction

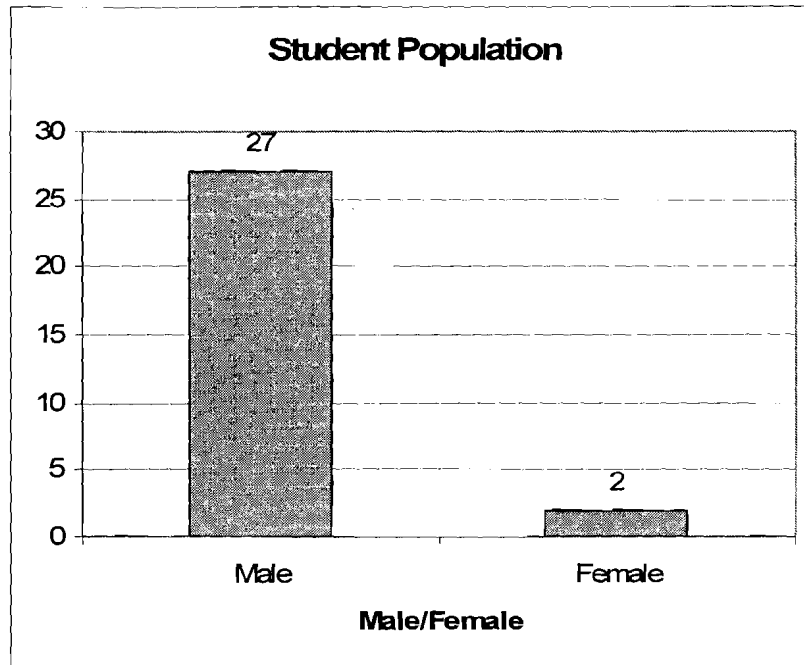
At present MATC's Fire Science Program has not been evaluated for its effectiveness in teaching the students graduating in the Associated Degree Program. This chapter will identify the thoughts and feelings of the students graduating the Associate Degree Program at MATC in Fire Science. The dissection of the survey given to the graduating students will assess to identify what the likes and dislikes are regarding the program offered at MATC.

Results of Research

This research is designed to evaluate the students' reactions/feelings related to the instruction received at MATC in the Fire Science Program. The survey consists of the following areas:

- a. Background of the students enrolled in the Fire Science Program.
- b. Current employment status in the fire service.
- c. Reason for enrollment in the Fire Science Program.
- d. Value assessment of the program offered at MATC in Fire Science.
- e. Value rating of the courses offered at MATC in Fire Science.
- f. General rating of the Fire Science program.
- g. Thoughts from students on likes of program offered at MATC
- h. Thoughts from students on dislikes of program offered at MATC

Graph 1: Question #1 - Gender of student



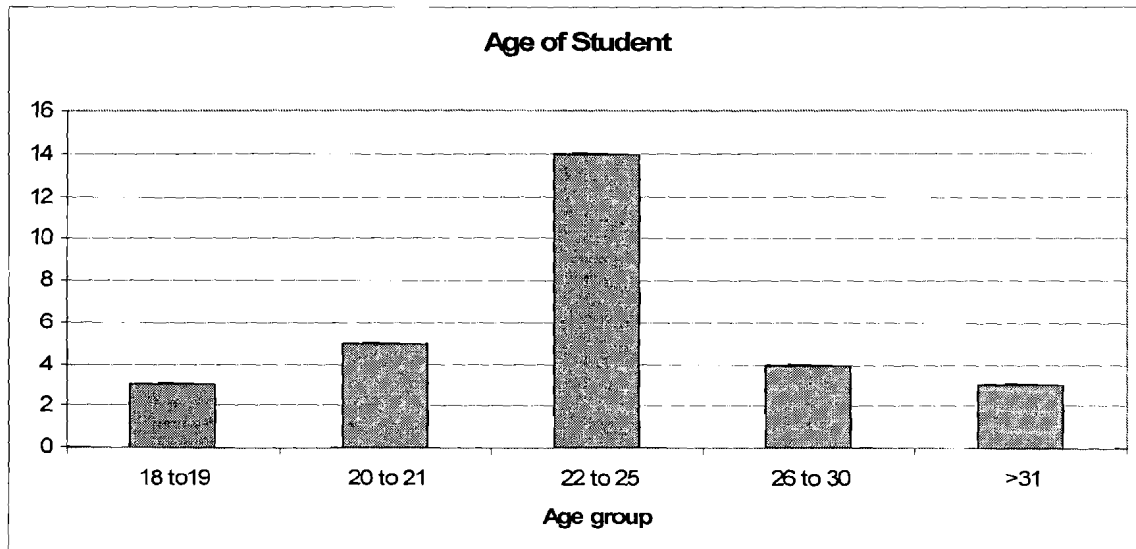
Male = 27

Female = 2

Total Number of students = 29

Note: Of the 29 students that were surveyed 27 of them were males and two were female.

Graph 2: Question #2 - Age of student



Age groups were broken with the following results:

18 to 19 = 3

20 to 21 = 5

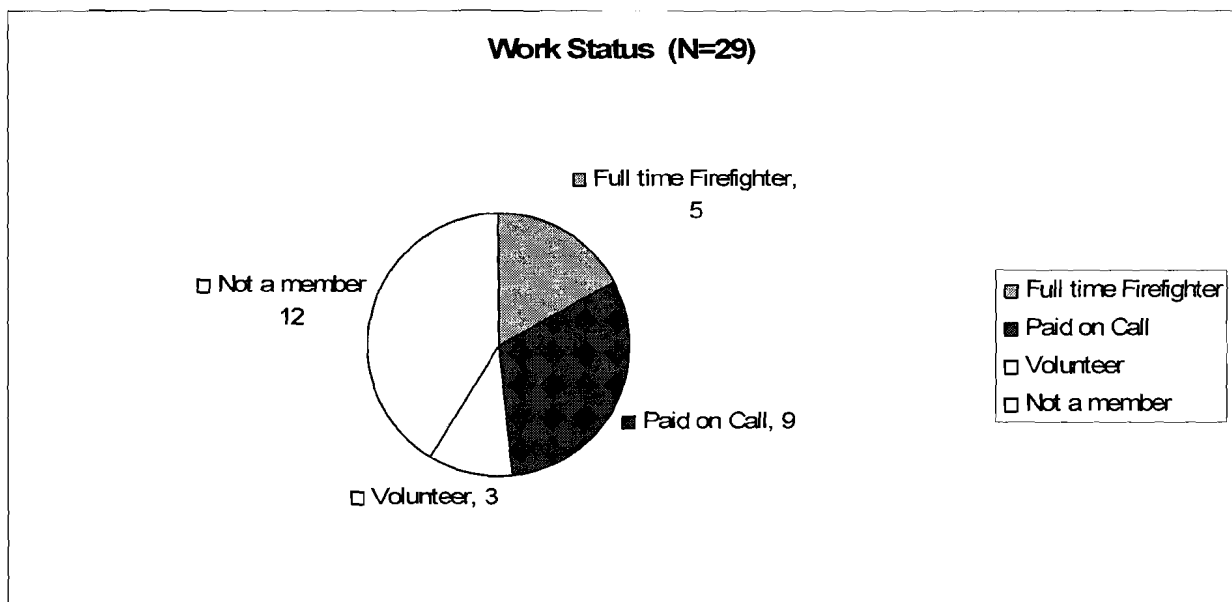
22 to 25 = 14

26 to 30 = 4

Over 31 = 3

The age ranges were from eighteen years old to over 31 years old. Nearly half the subjects surveyed fell into the age range of 22 to 25 years old.

Graph 3: Question #3 - Current firefighting employment status



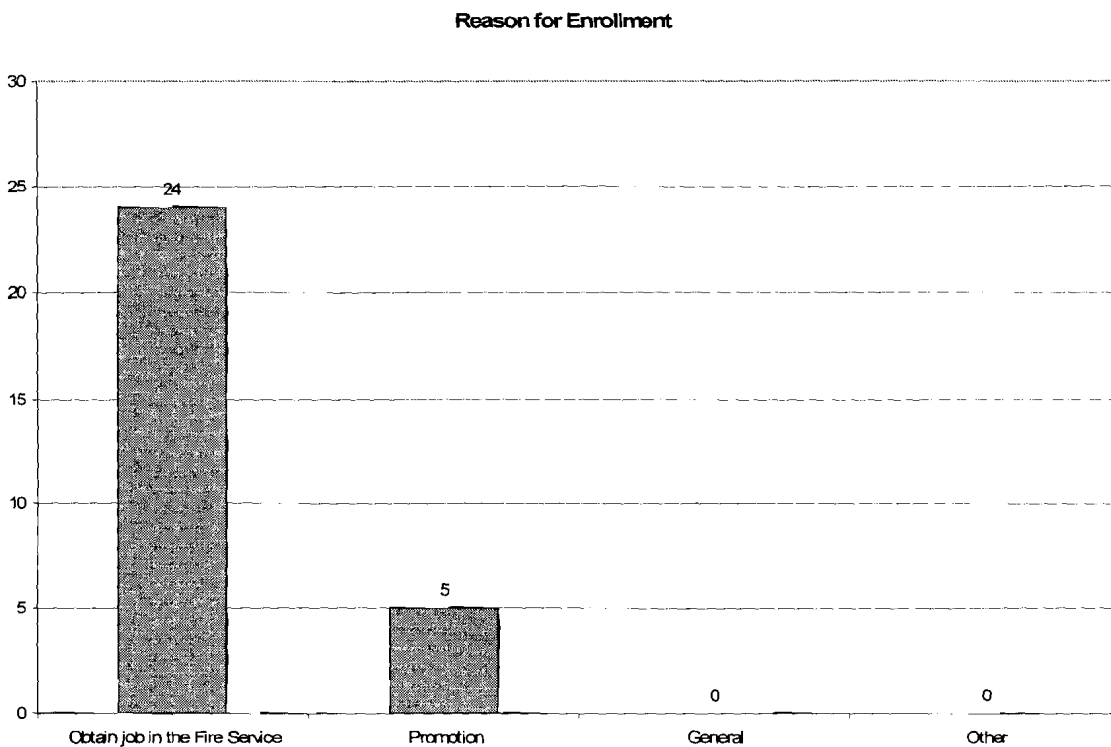
The following question asks the student about their employment status. They were given four choices:

1. Full time – Professional firefighter
2. Paid on call firefighter

- 3. Volunteer – No pay firefighter
- 4. Not a member of any fire department

Of the 29 students surveyed only five were fulltime firefighters. Forty one percent were on a department has either paid on call or volunteer. Forty two percent were not members of any fire department.

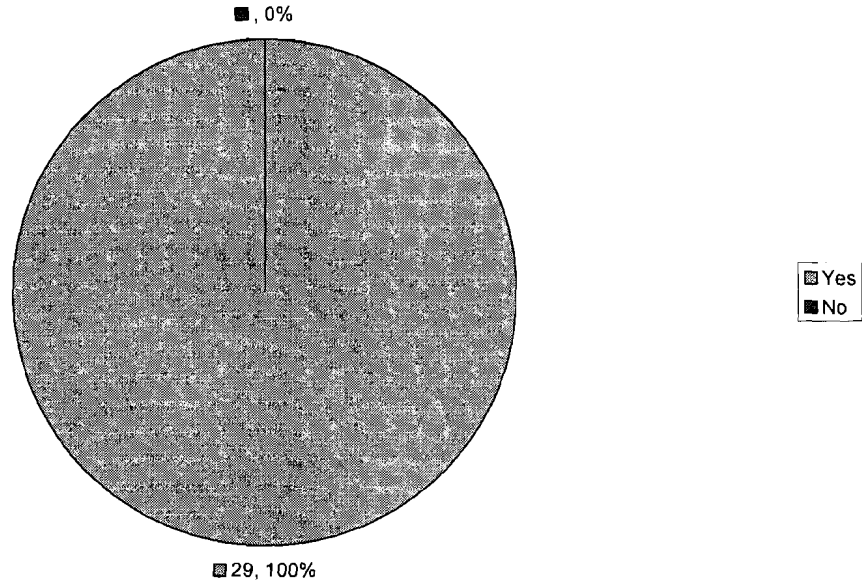
Graph 4: Question #4 – Reason for enrollment in program



Most students stated they were looking to obtain a job in the fire service. Of the 29 students surveyed, 24 students wanted to enter the fire service as a full time firefighter. Five students were full time firefighters and wanted to improve their skills to obtain promotions in the fire service.

Graph 5: Question #5 – Do you feel the program was of value to your needs?

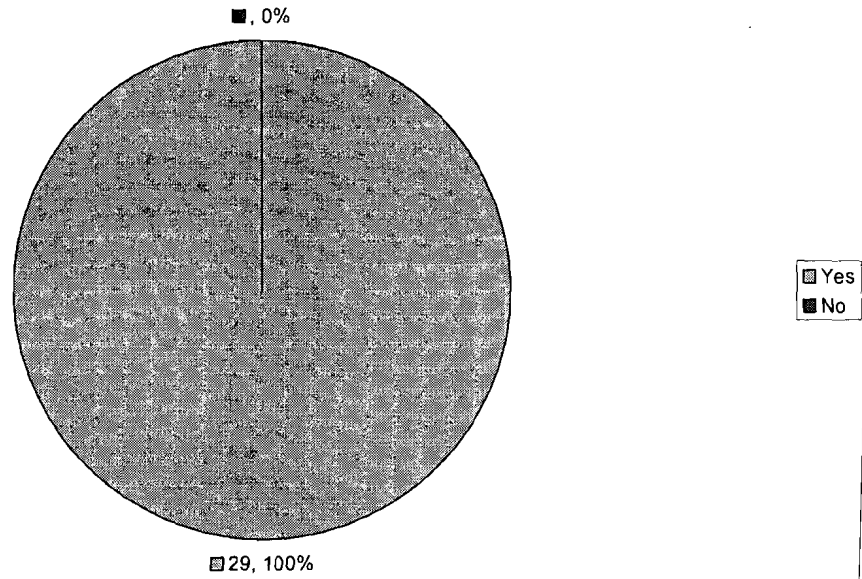
Program offered was of value to your needs



Of the 29 students that responded to the survey all responded they felt the program offered at MATC had value to the students needs and were satisfied in the fire science program at MATC. This result demonstrates more key area technical college's fire science program offers value and not only obtaining a job in the fire service, but advancement on the fire department.

Graph 6: Question #6 – Do you feel the program curriculum is current and useful?

Program offered was current and useful



Of the 29 students that responded to the survey all responded they felt the program offered at MATC was current and useful to their needs.

Graph 7: Question #7 – (Full time Firefighters) which course did you feel was most important to you in your success in the fire service? (Rank in order of preference)

Course Rankings

	1	2	3	4	5	6	7	8	9	10	11
a						1	1				1
b	1	2									
c			1		1			1			
d	2			2							
e			1		1	1					
f							1		1		1
g		1		1		1					
h					1					1	1
i							1		1	1	
j	2								1	1	
k			1					2			
Totals	5	3	3	3	3	3	3	3	3	3	3

(Please list in order from 1 – 11)

- a. Fire Protection Organization
- b. Building Construction and Fire Ordinances
- c. Fire Protection Water Systems
- d. Fire Fighting Tactics and Strategy 1
- e. Chemistry of Hazardous Materials
- f. Fire Prevention, Inspection, and Protective Systems
- g. Hazardous Materials/Incident Response
- h. Fire Department Health and Safety
- i. Emergency and Disaster Planning
- j. Fire Department Management
- k. Fire Investigation

Of the five students surveyed who were full time firefighters most indicated they preferred the following coursed offered at MATC:

- Fire Fighting Tactics and Strategy 1
- Fire Department Management

These were followed closely by:

- Building Construction
- Fire Ordinances and Hazardous Materials/Incident Response

The classes rated poorly were:

- Fire Protection Organization
- Fire Prevention, Inspection, and Protective Systems
- Fire Department Health and Safety

Graph 8: Question #8 – (Not Full time Firefighters) which course did you feel was most important to you in your success in the fire service? (Rank in order of preference)

Course Rankings

	1	2	3	4	5	6	7	8	9	10	11
a	1				5	2	1	2			5
b	5	5	2	3	1					1	
c		3	2		1	3	1	1	2	1	1
d	12	5	1	1					1		
e			4	4	3	3	1	1			1
f		1	2	3	1		4	2	1	3	
g	1	1	1	2	3		2	2		1	
h				2		4	2	1		1	2
i		1	1	1			2	3	3		1
j	2	1	3		1	1			2	3	
k	1		1	1	2	1		1	3	2	1
Totals	22	17	17	17	17	14	13	13	12	12	11

(Please list in order from 1 – 11)

- a. Fire Protection Organization
- b. Building Construction and Fire Ordinances
- c. Fire Protection Water Systems
- d. Fire Fighting Tactics and Strategy 1
- e. Chemistry of Hazardous Materials
- f. Fire Prevention, Inspection, and Protective Systems
- g. Hazardous Materials/Incident Response
- h. Fire Department Health and Safety
- i. Emergency and Disaster Planning
- j. Fire Department Management
- k. Fire Investigation

Of the remaining students surveyed who were not full time firefighters most indicated they preferred the following courses offered at MATC:

- Fire Fighting Tactics and Strategy 1
- Building Construction

These were followed closely by:

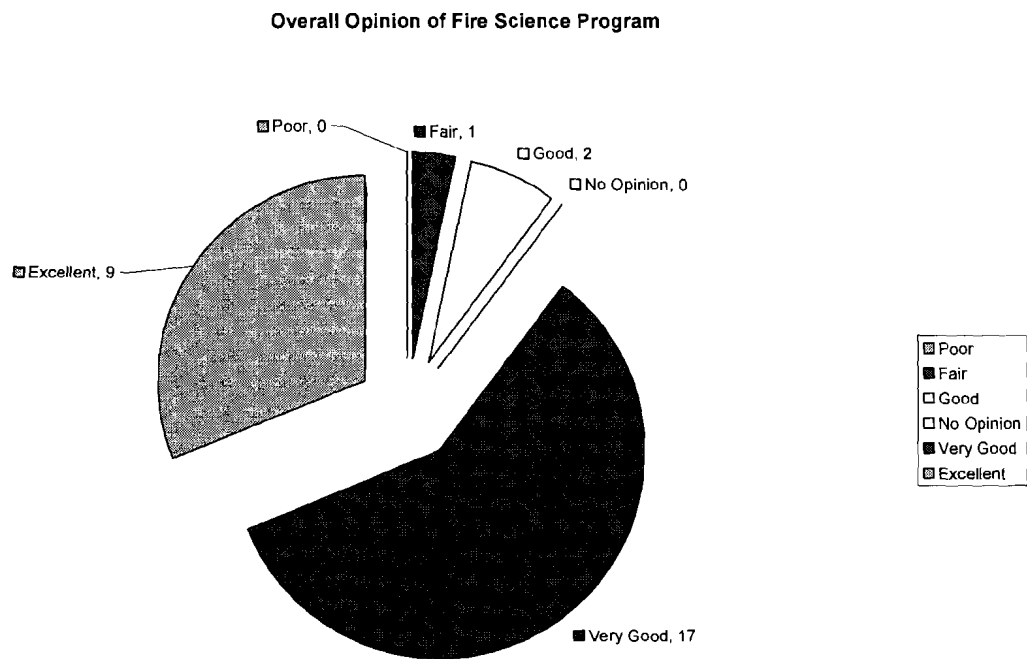
- Fire Protection Water Systems

The classes rated poorly were:

- Fire Protection Organization
- Fire Prevention, Inspection, and Protective Systems
- Fire Department Management

Both questions seven and eight were used to obtain which courses were liked by the students and had more value.

Graph 9: Question #9 – Overall opinion of the fire science program:



The fire science program scored well in the overall opinion question with the results as follows:

- Excellent 9
- Very Good 17
- Good 2
- Fair 1
- Poor 0
- No Opinion 0

Questions 10 and 11 were open to discussion on the likes and dislikes of the classes offered and the students' overall opinions of the program at MATC in fire science. This information was read for content and used to get the students' opinion in their own words. This information can be found in Appendix I.

Chapter 5: Discussion

Introduction

At present MATC's Fire Science Program has not been evaluated for its effectiveness in teaching the students graduating in the Associated Degree Program. This chapter will identify the thoughts and feelings of the students graduating the Associate Degree Program at MATC in Fire Science. The dissection of the survey given to the graduating students will assess to identify what the likes and dislikes are regarding the program offered at MATC.

Results of Research

This research is designed to evaluate the students' reactions/feelings related to the instruction received at MATC in the Fire Science Program. The survey consisted of the following areas:

- i. Background of the students enrolled in the Fire Science Program.
- j. Current employment status in the fire service.
- k. Reason for enrollment in the Fire Science Program.
- l. Value assessment of the program offered at MATC in Fire Science.
- m. Value rating of the courses offered at MATC in Fire Science.
- n. General rating of the Fire Science program.
- o. Thoughts from students on likes of program offered at MATC
- p. Thoughts from students on dislikes of program offered at MATC

Limitations of the study

The results of this survey were limited to one semester of the graduating class of May, 2005. Enrollment does change every semester and the results might change as a result. This snap-

shot was a beginning to looking at the program and further surveys would be required to obtain a more complete view of the fire science program and the feelings of students.

Conclusion

This survey was to identify how well the fire science program at Milwaukee Area Technical College (MATC) served its' students. It also allowed feedback of the program offered at MATC. Of the 29 students given the survey a list was created to identify the program. The students were allowed to state if the program offered at MATC was of value and if it meet their needs. Nine of the students gave the program an excellent grade, and seventeen rated the program very good. Two students rated the program good and one student who rated the program fair.

Of the 29 students surveyed 24 stated obtaining a job in the fire service was the goal while five of the students stated promotion was why the attended the program at MATC. When given the question, "do you feel the program curriculum is current and useful?), all the students responded yes. When given the question, "do you feel the program was of value to your needs, all of the students responded yes.

Questions seven and eight asked the students to rate the courses offered at MATC. This question was separated by a response from fulltime firefighters and students that were not fulltime firefighters. The reason that these two groups were separated was to get a feel for which courses fulltime firefighters gave priority and which courses non-fulltime firefighters priority. The fulltime firefighters gave high ratings to firefighting tactics and strategy one, fire department management, and building construction and fire ordinances. Rating low on the scale was fire protection organization, fire prevention inspection and protective systems, and fire department health and safety.

Of the responses received from non-fulltime firefighters, Firefighting Tactics and Strategy-One was rated highest with Building Construction also getting a high rating the classes that rated poorly with non-fulltime firefighters were Fire Protection Organization, Fire Prevention Inspection and Protective Systems, and Fire Department Management.

Recommendations

Milwaukee Area Technical College appears to be offering a program that is valued by the students in attendance. The students rate the program high in value and satisfaction. The associate degree program however does not provide certifications which the students must obtain in order to take out application for employment. Many of the students must continue their education in the certification program to obtain these certifications that should be offered in the Associate Degree Program. I believe this would serve the student with obtaining an associate degree and allowing the student the certifications needed to their career in the fire service.

Many of the classes mirror the certification classes that the students must take in addition to the classes offered an associate degree. Of the 24 students that did not work for fire service fulltime all wanted to obtain a job in the fire service. Currently this program forces students to go outside of the associate degree program to get the certifications needed to even qualify to be considered hireable.

The program at MATC should put a focus on obtaining employment in the fire service which this survey has clearly demonstrated. With this in mind, the curriculum should be changed so the student would have a better chance in the application and hiring process for fulltime employment in the fire service. An employability class would be of value to the students to allow the students to compete for job openings in the fire service. Certifications should also be given

while in the associate degree program. The certifications would allow the students the ability to take out applications with the fire departments that require these before an application is given.

MATC's curriculum is unique as are all of the technical colleges that offer an associate degree in fire science. The Wisconsin Technical College System should standardize the curriculum used in the state of Wisconsin. The consistency with each program would allow any student the opportunity to obtain a degree using the college of choice. The standardization of programs should be coordinated and consistent so a degree earned in the fire science program would mean the same at any technical college.

Milwaukee Area Technical College has always strived to meet the needs of its students. Education, training, and development are its main function. With these three main focuses employment of the student should be paramount. This program is successful as it is, however it could be improved by merging the two different programs and stressing employment in the fire-service as the two primary focuses.

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Appendix A: Cover Letter

March 18, 2005

To Graduating Students in the Fire Science Program at Milwaukee Area Technical College:

I am a University of Wisconsin-Stout Graduate student working on my thesis for the Training and Development Master's Program. The topic chosen is to conduct an exit survey of the Fire Science Program you are currently enrolled in.

The attached, voluntary survey contains various questions that will enable the necessary feedback to make proper conclusions and suggestions on the program we offer here at MATC. Your answers are completely confidential. Please complete this survey and return it to your instructor so your responses can be analyzed.

Right to Withdraw:

Your participation in this study is entirely voluntary. You may choose not to participate without any adverse consequences to you. However, should you choose to participate and later wish to withdraw from the study, there is no way to identify your anonymous document after it has been turned in to the investigator.

Please return the survey in the enclosed envelope to your instructors' mail box.

NOTE: If you have any questions or concerns about the research study please feel free to talk to your Instructor, Michael J. Olinger the researcher at (414) 328-0786 or James Piech, Coordinator, Fire Science Program at (414) 571-4533. Questions about the rights of research subjects can be addressed to Sue Foxwell, Human Protections Administrator, UW-Stout Institutional Review Board for the Protection of Human Subjects in Research, 152 Voc Rehab Building, UW Stout, Menomonee, WI 54751, (715) 232-2477. Dr. Joseph A. Benkowski is the research advisor for this project. He can be reached at (715) 232-5266.

Statement of Consent:

By completing the following survey you agree to participate in the project entitled, **(Exit Survey - Fire Science Program MATC - Milwaukee).**"

I greatly appreciate your assistance!

Sincerely,

Michael J. Olinger

Michael J. Olinger

University of Wisconsin-Stout Graduate Student

This research has been approved by the UW-Stout IRB as required by the Code of Federal Regulations Title 45 Part 46.

APPENDIX B - Exit Survey - Fire Science Program MATC - Milwaukee
PAGE 1

All of your answers will be completely confidential!

Directions: Please read the following questions carefully and answer to the best of your ability. Thank you!

2. Gender

- a. _____ Male
- b. _____ Female

3. Age

- a. _____ 18 to 19
- b. _____ 20 to 21
- c. _____ 22 to 25
- d. _____ 26 to 30
- e. _____ 31 >

4. Current firefighting employment status:

(Check all that might apply)

- a. _____ Full time – Professional
- b. _____ Paid on call
- c. _____ Volunteer – No pay
- d. _____ Not a member of any fire department

5. Reason for enrollment in program:

(Choose one of greatest importance)

- a. _____ Obtaining job in the fire service
- b. _____ Promotion in the fire service
- c. _____ General interest in topics offered in program
- d. _____ Other

6. Do you feel the program was of value to your needs?

- a. _____ yes
- b. _____ no

7. Do you feel the programs curriculum is current and useful?

- a. _____ yes
- b. _____ no

MATC Exit Survey
PAGE 2

Please only Full time firefighter answer question 7.

8. Which course did you feel was most important to you in your success in the fire service:

(Please list in order from 1 – 11)

- a. _____ Fire Protection Organization
- b. _____ Building Construction and Fire Ordinances
- c. _____ Fire Protection Water Systems
- d. _____ Fire Fighting Tactics and Strategy 1
- e. _____ Chemistry of Hazardous Materials
- f. _____ Fire Prevention, Inspection, and Protective Systems
- g. _____ Hazardous Materials/Incident Response
- h. _____ Fire Department Health and Safety
- i. _____ Emergency and Disaster Planning
- j. _____ Fire Department Management
- k. _____ Fire Investigation

Please only students who are looking to enter the fire service answer question 8.

9. Which course did you feel was most important to you in your success in the fire service:

(Please list in order from 1 – 11)

- a. _____ Fire Protection Organization
- b. _____ Building Construction and Fire Ordinances
- c. _____ Fire Protection Water Systems
- d. _____ Fire Fighting Tactics and Strategy 1
- e. _____ Chemistry of Hazardous Materials
- f. _____ Fire Prevention, Inspection, and Protective Systems
- g. _____ Hazardous Materials/Incident Response
- h. _____ Fire Department Health and Safety
- i. _____ Emergency and Disaster Planning
- j. _____ Fire Department Management
- k. _____ Fire Investigation

10. Please give your overall opinion of the fire science program:

Poor____ Fair____ Good____ Very Good____ Excellent____ No Opinion____

11. What did you like the best about your experience in the fire science program?

Please explain below:

12. What do you feel should be changed in the fire science program? Please explain below:

Thank you for taking the time to fill out the survey! I greatly appreciate your efforts! This information will be used as a research tool to gain further insight and continuous improvement of the fire science program. Please return your survey to your instructor.

***Sincerely,
Michael J. Olinger
University of Wisconsin-Stout Researcher***

Appendix B: MATC Course Descriptions

FIRE-100 Fire Protection Organization

The organizational structure of a municipal fire department is discussed. Topics of discussion include fire department organization, fire company organization, the battalion, the company officer, personnel administration, communications, maintenance, training, and company fire fighting capabilities.

FIRE-108 Building Construction and Fire Ordinances

Students are acquainted with the basic principles of structural design such as masonry, frame, veneer, structural steel and reinforced concrete constructions. Building codes and fire ordinances as they apply to basic construction are also covered.

Prerequisite: FIRE-100 Fire Protection Organization.

FIRE-101 Fire Protection Water Systems

Students are provided with knowledge and understanding of fire service hydraulics theory, applications, water distribution systems, fire service pumps, hoses, nozzles, sprinkler systems, stand pipes, and foam. Principles of water at rest and in motion, friction loss calculations, and engine and nozzle pressure calculations are studied. Practical aspects cover flow testing of water distribution systems, hydrants, and fire service pumpers.

Prerequisite: FIRE-100 Fire Protection Organization, FIRE-108 Building Construction and Fire Ordinances, Math-151.

FIRE-102 Fire Fighting Tactics and Strategy 1

An introductory class where students apply basic fire fighting tactics to fire and non-fire emergency responses commonly encountered by fire departments. Students will be expected to

know, understand and apply basic fundamental strategy and tactical methods of employment of fire units at structural fire fighting and other emergency situations.

Prerequisite: FIRE-100 Fire Protection Organization, FIRE-108 Building Construction.

FIRE-105 Chemistry of Hazardous Materials

A study of the properties, uses, and hazards of materials classified by the Environmental Protection Agency as hazardous. Such items include explosives, compressed gases, cryogenics, flammable and combustible liquids, flammable solids, oxidizers, toxic agents, infectious agents, etiologic agents, radioactive materials, and corrosives. Emphasis is placed on the safe handling of these hazardous materials in emergency situations.

Prerequisite: FIRE-101 Fire Protection Water Systems, NATSCI-110 or NATSCI-155.

FIRE-115 Fire Prevention, Inspection, and Protective Systems

This course covers the history and philosophy of fire prevention and private sector prevention efforts. Students gain an awareness of local, state, federal, and NFPA fire safety codes and fire inspection procedures. Students also receive instruction on instilling awareness to the public on how to act in the event of a fire or other disaster. Students receive information on the latest private fire protection equipment and systems. This includes operation, inspection, and tactical considerations.

Prerequisite: FIRE-100 Fire Protection Organization, FIRE-108 Building Construction.

FIRE-106 Hazardous Materials/Incident Response

Safe response procedures for use by emergency response personnel at hazardous materials emergencies are integrated into the Incident Command System as developed and recommended for use by the Federal Emergency Management Agency at the National Fire Academy, as well as the National Fire Protection Association. Course completion satisfies all objectives through First

Responder Awareness and First Responder Operational as established by the National Fire Protection Association.

Prerequisite: FIRE-100 Fire Protection Organization, FIRE-108 Building Construction.

FIRE-107 Fire Department Health and Safety

This course introduces students to the importance of a Fire Department Health and Safety Program and the knowledge required to develop a Fire Department Safety and Health Plan or to perform an analysis of a current plan. Students will receive knowledge to make an identification and analysis of exposure to hazards, selection of appropriate risk management techniques to handle exposures, implementation of chosen techniques, and monitoring of results regarding the health and safety of fire department members.

FIRE-109 Emergency and Disaster Planning

The purpose of this course is to provide students with the knowledge and information to assess current programs and/or to develop, implement, and maintain a program to mitigate, prepare for, respond to, and recover from disasters and emergencies. Students identify hazards, the likelihood of their occurrence, and the vulnerability of people, property, the environment, and the community to those hazards. Hazards to be considered at a minimum include, but are not limited to, natural events, technological events, and human events.

FIRE-116 Fire Department Management

Students are introduced to beginning management principles in dealing with personnel on the Fire Company and departmental level. These principles are adapted to both nonemergency and fire ground situations. The course includes the management functions of planning and organizing as well as the problems and guidelines related to the functions of the budgeting process and personnel management.

Prerequisite: FIRE-100 Fire Protection Organization, FIRE-108 Building Construction.

FIRE-110 Fire Investigation

This course will cover the responsibilities of firefighters/offers police and investigators.

Many topics will be covered including arson detection, conducting a fire investigation, determining whether the fire is accidental or incendiary, fire cause and origin, fire behavior, combustion properties, sources of ignition, electrical causes, structural fires, arson as a crime, evidence, laboratory services, fire deaths, wildland, automobile, elements of proof and other investigative topics. The role of technology is used extensively and will include the use of computers and Internet. An e-mail account is required and will be provided. This class is a blended course incorporating internet and face to face content delivery.

Prerequisite: FIRE-100 Fire Protection Organization, FIRE-108 Building Construction, FIRE-115 Fire Prevention, Inspection, and Protective Systems

A total of 68 Credits is required to attain an Associate Degree in Fire Science (Milwaukee Area Technical College - Classes & Programs, (2003).

Appendix C: WCTC Course Descriptions

First Semester

503-100 Fire Service Orientation 3 Credits

This course provides the student with an overview of the fire service with an emphasis on the municipal fire department. Specific objectives include careers in the fire service, American fire service history, fire service organizations, fire department organization and operation, current issues facing the fire service, and fire service terminology. A segment of the course is also devoted to fire departments' hiring practices which will prepare the student for job-entry requirements.

503-135 Firefighter Fitness 1 Credits

This course will assess students' physical fitness and offer the potential for improving levels of physical performance. Taught by a certified health and fitness instructor, the course also prepares students to successfully pass fire departments' physical agility tests.

503-140 Fire Protection Hydraulics 4 Credits

This course presents the basic fundamentals of fire protection hydraulics and focuses on water flow, pressure and velocity; fire streams and the appliances which produce them; fire hose; pump discharge pressure; the effects of friction loss; fire pumps and pumpers; common hydraulic operations; water supplies; fire hydrants; water flow testing; and determining fire flow requirements for structures. Practical training illustrates the principles studied.

503-154 Building Construction 3 Credits

The basic principles of structural designs as they apply to fire prevention and safety will be covered in this course. The student will become familiar with the various types of

construction, as well as, building codes and fire prevention ordinances related to construction. In addition, students will learn how different building structures react in fire situations.

801-195 Written Communication 3 Credits

A course providing learning experiences designed to study and practice the transfer of information, ideas, and experiences in written form through reports, letters, memoranda, etc., with an emphasis on organization, clarity, accuracy, and directness.

Elective 3 credit course is required for semester 1. It is recommended to take 503-132 Fire Protection Independent Study. A total of 17 Semester Credits is outlined.

Second Semester

503-102 Firefighting Principles 4 Credits

This course includes classroom and practical training sessions on the basic fundamentals needed by entry-level firefighters and meets the objectives of the Wisconsin Firefighter I certification course. Practical training at the FVTC Regional Fire Training Center is a major part of the course. Upon completion, students are encouraged to take the certification exam for Firefighter I, state of Wisconsin.

503-104 Fire Prevention 4 Credits

This course prepares students to become fire inspectors and meets all the objectives of Wisconsin's Fire Inspector I certification course. The course culminates with a fire inspection performed by the student, who will submit a formal report. Each student will also prepare and deliver a fire prevention presentation to a selected public group. Upon completion, students are encouraged to take the certification exam for Fire Inspector I, state of Wisconsin.

503-111 Tactical Operation/Disaster Plan 4 Credits

The student will study fire ground tactics from a battalion and company level utilizing the Incident Command System. The student will also learn the procedures used in developing disaster plans and the relationship of various local, state, and federal agencies. During the course, the student will develop a realistic pre-fire and disaster plan.

801-196 Oral/Interpersonal Communication 3 Credits

A general course in oral communication emphasizing study and practice in the skills of effective speech delivery, listening, assertiveness, conflict resolution, small group presentation, and general interpersonal communication principles.

107-006 Intro to Windows and Internet 1 Credits

The focus of this course is to familiarize participants with the basic skills needed to use Windows and Internet. Files and folders will be discussed. Windows explorer and My Computer will be used to practice functions on files and folders. Applications included with Windows will also be discussed. In the Internet Explorer portion, students will learn how to use URLs, search engines and how to set up an email account. Students will be shown how to attach files and how to work with attached files.

107-007 Introduction to Microsoft Word 1 Credits

This is an introductory course on word processing concepts and fundamentals, using microcomputer hardware and software. The student will become a proficient user of the most often used business word processing software: Microsoft Word. Seventy percent of the course time will be used with hands-on lecture methodology.

Elective 2 credit course is required for semester 2. It is recommended to take 503-131 Fire Protection Internship/Extended. A total of 19 Semester Credits is outlined.

Third Semester

503-108 Chemistry of Hazardous Materials 4 Credits

This course is designed to familiarize the student with the properties and characteristics of the most common hazardous materials currently being manufactured, stored, and transported in the United States. The student will study the problems related to the transportation and storage of hazardous materials, as well as the marking and identification of hazardous materials. Through realistic case studies and group activities, the student will learn procedures to control hazardous materials incidents.

503-130 Fire Protection Internship 2 Credits

This course allows second-year program students to actively participate as a "working" member of a fire department. Students work the 24-hour shift schedule at one of eight local fire departments (excluding class times), and perform the same duties as the firefighters. Evaluation is determined by fire department officials and the course instructor.

809-195 Economics 3 Credits

A general introduction to major institutions and principles which underlie our contemporary American economic system. Topics considered are the free enterprise system, supply and demand, circular flow, government involvement, federal reserve system, economic growth and development, effects of international trade, comparative economic systems, and global economic issues.

503-103 Fire Service Employ Strategies 1 Credits

This course will assist students in making a successful transition from school to work. The course will center on the strategies of getting a job in the fire service field and the

promotional process. Topics include: trends in correspondence, applications for employment, job interviewing, interpersonal skill development, and promotional skills and strategies.

531-102 Emergency Med Technician/Basic 3 Credits

Training in emergency care procedures qualifying candidates for certification as an Emergency Medical Technician and licensure as an ambulance attendant.

804-169 Fundamentals of Mathematics 3 Credits

Concepts of algebra are presented including signed numbers, operations with algebraic terms, linear equations, formula substitution, factoring, algebraic fractions, ratios and proportions, exponents, and scientific notation. Statistical concepts include samples and populations, frequency distributions, measure of central tendency, and dispersion. Indirect measurement is addressed using similar triangles, trigonometric ratios, and the Pythagorean Theorem.

Elective 1 credit course is required for semester 1. It is recommended to take 503-133 Fire Protection Independent Study 2. A total of 17 Semester Credits is recommended.

Fourth Semester

503-114 Fire Investigation 3 Credits

This course covers the fundamentals of fire investigation practices and procedures. The student will be given an understanding of the role of the modern fire investigator and the techniques used to determine the cause and circumstances of various fire situations, including arson.

503-120 Fire Protection Systems 3 Credits

This course examines the various fire suppression and detection systems used throughout the United States. A thorough study of fire extinguishers, standpipe systems, sprinkler systems,

foam systems, carbon dioxide systems, dry and wet chemical systems, explosion suppression systems, and common detection systems are included. Students will become familiar with typical code requirements for sprinkler systems and participate in the procedures used to inspect and test wet and dry pipe sprinkler systems using working models.

809-196 Introduction to Sociology 3 Credits

An introduction to the basic concepts of sociology as one of the intercultural disciplines. Emphasis is given to the following specific areas: culture, socialization, social stratification and the five institutions including family, politics, economics, religion, and education. Examples of other topics include: the sociology of the workplace, domestic and international issues associated with social change, demography, technology, and deviance.

809-199 Psychology of Human Relations 3 Credits

This course covers principles of interaction as applied to human relations at home and on the job. Topics include self concept personality development, learning, motivation, emotions, stress, human relations processes, and special relationships. Classroom interaction and discussions are emphasized along with cognitive achievement in this introductory psychology course.

599-101 Health & Wellness/Firefighters 1 Credits

Describes the physical, emotional, intellectual, social and spiritual dimensions of health. Provides tools to use in making life style changes for health and wellness. Topics include, health, stress, common diseases and life style choices affecting health and self-care. This is an internet course taken by students in the Fire Protection Associate Degree program shared with FVTC. Students take the course through FVTC.

806-174 General Chemistry I 4 Credits

This course addresses introductory aspects of inorganic chemistry in both lecture and laboratory. Included are: atomic theory and structure, chemical reactivity, molecular bonding, stoichiometry, solutions, acid/base concepts, gases, and thermo chemistry.

A total of 19 Semester Credits is outlined.

A total of 70 Credits is required to attain an Associate Degree in Fire Science (Waukesha County Technical College – Fire Protection 2004).

Appendix D: Fox Valley Course Descriptions

10-503-100 Fire Service Orientation (3 cr.)

Lists significant historical events affecting the fire service, outlines the organizational structure of a municipal fire department, describes the purpose of fire service organizations, defines terminology and discusses current events and trends affecting the fire service.

Department consent required.

10-503-102 Firefighting Principles (4 cr.)

Describes basic fire behavior, techniques used to control structural and related fire emergencies, and life safety practices. Students perform all practical evolutions necessary to control and extinguish fires and otherwise meet all requirements for Firefighter I certification with the State of Wisconsin. Department consent required.

10-503-104 Fire Prevention (4 cr.)

Explains the purpose and value of an effective fire prevention program for a community and describes the role of the fire inspector in public fire safety education. Students prepare and deliver a fire safety presentation and otherwise meet all requirements for Fire Inspector I certification with the State of Wisconsin.

Co requisite: Firefighting Principles (10-503-102) or instructor consent

10-503-108 Hazardous Materials (4 cr.)

Describes the characteristics of various hazardous materials from each of the nine designated classes, identifies methods used to determine the presence of hazardous materials at an incident site, and outlines protective safety measures and procedures to follow to control hazardous material emergencies.

Co requisite: Firefighting Principles (10-503-102) or instructor consent

10-503-111 Tactical Operations and Disaster Planning (4 cr.)

Outlines tactics used to control structural and related fire emergency situations at company and battalion levels using the Incident Command System. This course also covers the development of a pre-fire plan and a disaster plan and explains the role of local, state and federal agencies in community disasters.

Prerequisite: Firefighting Principles (10-503-102)

10-503-114 Fire Investigation (3 cr.)

Identifies the most common causes and circumstances of fire emergencies including arson. This course also describes the duties of the typical fire investigator, the techniques used to determine the cause of fires and the legal aspects of such investigations.

Prerequisite: Firefighting Principles (10-503-102)

10-503-120 Fire Protection Systems (4 cr.)

Examines fire protection systems including automatic sprinklers, standpipes, carbon dioxide, foam, dry chemicals, wet chemicals, clean agent, portable extinguishers and fire alarm/detection systems. Students perform sprinkler inspections and testing.

Co requisite: Fire Service Orientation (10-503-100) or instructor consent

10-503-130 Fire Protection Internship (2 cr.)

Provides an opportunity for students to perform the duties of a municipal firefighter while serving the typical 24-hour shift, excluding FVTC class periods, at one of several fire departments. Fire department officers evaluate student performance. Department consent required.

10-503-131 Fire Protection Internship - Extended (2 cr.)

Provides an opportunity for students to perform the duties of a municipal firefighter while serving the typical 24-hour shift, excluding FVTC class periods, at one of several fire departments. Fire department officers evaluate student performance.

Prerequisite: Fire Protection Internship (10-503-130)

10-503-132 Fire Protection Independent Study 1 (1 cr.)

Requires the learner to research and write an 8-10 page report on a topic in the fire protection field. The student reviews the literature, surveys expert opinion, searches the Internet and consults with the instructor. Department consent required.

10-503-133 Fire Protection Independent Study 2 (1 cr.)

Requires the learner to research and write an 8-10 page report on a topic in the fire protection field. The student reviews the literature, surveys expert opinions, searches the Internet and consults with the instructor. Department consent required.

10-503-135 Firefighter Fitness (1 cr.)

Assess existing physical fitness abilities; improve upon the existing physical fitness level; and survey requirements for fire department physical agility testing as part of the hiring process.

Co requisite: Firefighting Principles (10-503-102) or instructor consent

10-503-140 Fire Protection Hydraulics (4 cr.)

Describes the duties of a typical fire department driver/operator. Participants properly drive a fire department pumper, perform various pumping evolutions and otherwise meet all requirements for driver/operator-pumper certification by the State of Wisconsin.

Prerequisite: Math-Technical 1 (10-804-121); Co requisite: Firefighting Principles (10-503-102) or instructor consent

10-503-154 Building Construction (3 cr.)

Examines the five most common types of building construction. Students discuss how each building type reacts in a fire situation, identify the building codes relating to construction and deliver an oral presentation about building types and characteristics.

Co requisite: Firefighting Principles (10-503-102) or instructor consent

10-503-160 Fire Protection Systems (3 cr.)

Compare and contrast the variety of fire protection systems in current use to include automatic sprinklers, standpipes, carbon dioxide, foam, dry chemical, wet chemical, clean agent portable extinguishers, and fire alarm/detection systems.

Co requisite: Fire Service Orientation (10-503-100) or instructor consent; OR

Prerequisite: Admission to Security and Loss Prevention plan

10-503-190 Security Safety, Principles of (2 cr.)

Examines the security specialist's role in the area of safety procedures. Fire and life safety applications are examined as they relate to door locking hardware, exit paths, emergency lighting, biochemical hazard storage, flammable material storage, and related issues. Students learn applicable OSHA safety rules and regulations for business and industry.

A total of 70 Credits is required to attain an Associate Degree in Fire Science (Fox Valley Technical College, 2004).

Appendix E: Gateway Course Listings

Occupational Specific Course List

503-108 Building Construction for the Fire Service (3 Credits)

503-114 Fire Protection Organization / Intro (3 Credits)

503-121 Firefighting Principles I (4 Credits)

503-122 Fire Prevention and Inspection (3 Credits)

503-124 Fire Detection and Suppression Systems (3 Credits)

503-105 Chemistry of Hazardous Materials (3 Credits)

503-110 Fire Safety Communication (3 Credits)

503-106 Firefighting Principles II (3 Credits)

503-123 Fire Ground Tactics/Strategies (3 Credits)

503-125 Fire Protection & Systems Hydraulics (3 Credits)

503-135 Fire and Arson Investigation (3 Credits)

Total Credits (34)

Occupational Support Course List

503-127 Changing Techniques in the Fire Service (2 Credits)

804-113 College Technical Math 1A (3 Credits)

503-115 Hazards and Causes of Fire (3 Credits)

806-123 Physics (3 Credits)

Total Credits (11)

General Education Course List

801-195 Written Communication (3 Credits)

801-197 Technical Reporting (3 Credits)

809-197 Contemporary American Society/Multicultural (3 Credits)

809-195 Economics (3 Credits)

809-198 Psychology, Introduction to (3 Credits)

Total Credits (15)

Electives

The following courses are the suggested electives offered and Gateway Technical

College:

101-112 Accounting for Business (3 Credits)

503-120 Fire Science Student Internship (3 Credits)

503-128 Fire Department Management (3 Credits)

Total Credits (6)

A total of 66 Credits is required to attain an Associate Degree in Fire Science (Gateway Course List – Fire Science, 2005).

Appendix F: Blackhawk Course Listings

Technical Core Courses

503-108 Building Construction & Fire Ordinances (4 Credits)

The basic principles of structural design, masonry, frame, veneer, structural steel and reinforced construction are studied, with fire ordinances that apply during construction.

503-109 Chemistry of Hazardous Materials (3 Credits)

This course provides an introduction to the Hazardous materials problem by presenting the foundation needed to go further in the study of hazardous materials, such as "hands on" courses and incident-command courses. The chemistry presented in this course is designed to be the minimum a firefighter will need to understand and recognize in each hazard class. In general, each hazard class shows what a firefighter can expect in fire and non-fire situations.

503-113 Supervisory Techniques for Fire Service (3 Credits)

This course is designed to give the student an overview of such supervisory skills as leadership and interpersonal skills, planning, staffing, organizing, and control at the first-time supervision level. The duties and responsibilities of supervisors, the role of supervision in an organization and making the transition to supervisor are also included.

503-115 Handling Hazardous Materials (3 Credits)

This is a study of the properties, derivations, and uses of explosives and other dangerous chemicals such as flammable liquids, flammable solids, oxidizing materials, corrosive liquids and solids, compressed gasses, radioactive materials, poisons and their modes of transportation and storage. The procedures as to dealing with these chemicals on the foreground are also studied.

503-117 Fire Prevention/Systems (4 Credits)

This course discusses the organization and function of fire prevention and fire protection systems. Topics include inspection, surveying and mapping procedures, recommendations for correction of fire hazards, engineering as a solution to fire hazards, code enforcement at the federal, state, and local levels, public relations as affected by fire prevention, portable fire extinguisher equipment, sprinkler systems, standpipe systems, protection systems for special hazards, and fire alarm and protection systems.

Students will visit local facilities to make mock inspections and to see how fire protection equipment and systems work in order that critical appraisals can be made.

503-122 Fire Service Hydraulics (3 Credits)

This course is designed to give the student a basic knowledge of hydraulics relative to the fire service field. The theoretical aspects as well as the practical fire ground approach are studied.

503-126 Fire Department Administration (3 Credits)

The scope and functions of administrative management personnel in the fire department are studied. Discussions include fire service role in the community, selection, training and advancement, line and staff functions, and developing and conducting short courses on fire protection subjects.

503-135 Fire/Arson Investigation (3 Credits)

Problems and techniques of fire and arson investigation are studied with emphasis on the application and assistance of various aids to the investigation.

503-148 Tactical Problems & Disaster Planning (3 Credits)

This course allows the student to make knowledgeable decisions regarding fire ground tactics both from a battalion and company level, and provides insight into unusual circumstances

often encountered in the fire service. The student will also learn the procedures used in the development of disaster planning and the relationship between various local, state, and federal agencies from an administrative viewpoint.

503-150 Personnel Management for Fire Service (3 Credits)

Students need to understand how officers and personnel units work together to manage firefighters. This course presents basic ideas that all officers need to effectively manage personnel activities.

General Education Courses

801-195 Written Communication (3 Credits)

801-196 Oral/Interpersonal Communication (3 Credits)

804-105 General Math (3 Credits)

806-121 Basic Chemistry (3 Credits)

809-195 Economics (3 Credits)

809-196 Introduction to Sociology (3 Credits)

809-198 Introduction to Psychology (3 Credits)

Technical Support Courses

154-103 Basic Computer Concepts (3 Credits)

503-144 Directed Independent Research I (3 Credits)

This course is designed to allow a student to research and dissect a problem area in Fire Science.

Suggested Electives (Minimum of 6 credits required)

503-118 Fire Suppression 3

503-146 Directed Independent Research II (2 Credits)

This course is designed to allow a student to research and dissect a second problem area in Fire Science.

504-118 Procedures in Interviewing (3 Credits)

This course emphasizes the general and specialized skills in human communication. The student will be introduced to the various techniques and fundamentals in interviewing and interrogation as well as nonverbal communication skills as they relate to law enforcement.

531-301 EMT-Basic (4 Credits)

This course prepares individuals to care for patients at accident scenes and transport by ambulance to the hospital under medical direction. The course emphasizes emergency skills such as managing respiratory and cardiac emergencies, medical emergencies, trauma emergencies and patient assessment, and teaches these skills in a job-related context. The National Registry of EMT's test is required at the completion of the course for licensure in the State of Wisconsin. The course is also a prerequisite for EMT-Intermediate and EMT-Paramedic training. EMT-Basic is 4 credits at 8 hours per week totaling 144 hours plus 10+ hours in a hospital emergency room setting and ambulance ride-along training.

A total of 65 Credits is required to attain an Associate Degree in Fire Science (Blackhawk Catalog Course List pg. 82 – Fire Science, 2005).

Appendix G: MATC (Madison) Course Descriptions

10-503-105 Chemistry of Hazardous Materials 4 credits

Survey course presents an analysis of hazardous materials classifications as well as specific hazards of materials found in today's environment. Students are given practice in research skills to enable them to prepare for the safe handling of a hazardous materials incident.

Prerequisites: 10-503-108, 10-503-114, 10-503-131 and 10-503-134.

10-503-108 Building Construction and Design 3 credits

Covers the basic principles of construction and specific classifications of construction as they relate to fire prevention, fire resistance, fire and smoke containment, and performance under fire conditions. Specific building styles, including high-rise and multi-family dwelling units, are also studied. Co requisite: 10-503-134 503-135

10-503-110 Fire Investigation 3 credits

Covers fundamentals of fire investigation practices. Students examine the role of the firefighter in the investigative process as well as the modern fire investigator techniques used to determine cause and origin of accidental, incendiary and arson fires. Prerequisites: 10-503-108, 10-503-114, 10-503-131 and 10-503-134.

10-503-112 Fire Prevention 4 credits

Examines and explores the need for a thorough fire prevention program in all areas of society. Fire prevention organizations both public and private, pre-fire inspection, plan review, code enforcement, and records and reports, are covered. Public education programs are emphasized. Prerequisites: 10-503-108, 10-503-114, 10-503-131 and 10-503-134.

10-503-114 Fire Protection Systems 4 credits

Students survey and examine various detection and suppression systems. High-tech fire, heat and smoke detection devices, as well as portable fire extinguishers, automatic sprinklers, and foam, carbon dioxide, dry chemical and other special systems are studied. Prerequisites: 10-503-108 and 10-503-134.

10-503-125 Fire Service Management 3 credits

A survey of the management system requirements of today's fire department. Included are units on the evolution of the fire service, planning, organizing and evaluating community fire protection, personnel, labor relations, budgeting, training, legal aspects, affirmative action and information systems. The implementation of special services, including emergency medical service and hazardous materials response, are discussed along with the future of the fire service including alternative delivery systems. Prerequisites: 10-503-105, 10-503-108, 10-503-110, 10-503-112, 10-503-114 and 10-503-120.

10-503-131 Principles of Fire Control 3 credits

Covers the procedures involved in the task and tactical levels of fire suppression. Basic company functions are studied in accordance with their role in an incident management system. Prerequisites: 10-503-108 and 10-503-134.

10-503-134 Introduction to Fire Organization 3 credits

Presents an overview of the fire service both in the public and private sectors. Emphasis on public fire protection includes its history, fire safety, fire behavior and fire loss. Also surveys the topics presented in other Fire Protection Technician Program courses. Corequisite: 10-503-108.

10-503-145 Water Supply Hydraulics 4 credits

Provides a basic study of hydraulics in theory and practice. Students compute water-flow problems for industrial and municipal fire service applications. An actual field laboratory demonstrates practical application at the conclusion of this course. Prerequisites: 10-503-105, 10-503-108, 10-503-110, 10-503-112, 10-503-114, 10-503-131, 10-804-129.

10-503-153 Strategic Operations 4 credits

Students learn the procedures involved in developing an incident management system. Emphasis is on the strategic level; however, practice includes simulations ranging from single company responses to multi-agency and multi-jurisdictional responses. Prerequisites: 10-503-105, 10-503-108, 10-503-110, 10-503-112, 10-503-114 and 10-503-131.

Recommended Electives:

10-503-106 Hazardous Materials Tactics 3 credits

Provides a study of tactics for the handling of a hazardous materials incident. Simulations involve preparation, safety, communications, site control, material identification, risk analysis, resource coordination, control, confinement, containment, decontamination and incident termination. Prerequisites: 10-503-105, 10-503-108, 10-503-110, 10-503-112, 10-503-114 and 10-503-131.

10-503-120 Equipment and Apparatus 3 credits

Involves a complete study of conventional and custom firefighting apparatus and equipment. Includes the theory of operation and problems of maintenance as well as considerations for new apparatus and equipment purchases. Prerequisites: 10-503-131 and 10-503-134.

10-503-169 Rescue Techniques 2 credits

Reviews all aspects of extrication, including auto, agricultural, industrial, water and other areas in which the paramedic may be involved in gaining access and assessing/treating patients.

Field settings with hands-on experience included in this course.

(Madison Area Technical College – Fire Protection 2003).

Appendix H: MATC Annual Client Report Summary

The following table represents the demographics reported in the Annual Client Report for the Fiscal Year 2002 – 2003:

WE215910 09
09 MILWAUKEE

WISCONSIN TECHNICAL COLLEGE SYSTEM
CLIENT REPORTING SYSTEM - (WE215910)
ANNUAL CLIENT REPORTING SUMMARY
ENROLLMENTS BY AGE CATEGORY
FISCAL YEAR 2002-2003

15:06:43 01/06/04
PAGE: 73

AGE	CONTINUING EDUCATION TOTAL		FTEES	MALES	FEMALES	SEX		--INDIAN--		--ASIAN--		--BLACK--		HISPANIC-		---WHITE---		UNKNOWN-RACE	
	ENROLLED					UNKNOWN	MAL	FEM	MAL	FEM	MAL	FEM	MAL	FEM	MAL	FEM	MAL	FEM	MAL
NOT REPORTED	601		9.8541	420	159	22	3	1	2	5	14	14	12	3	128	47	261	89	
15 AND UNDER	66		0.9817	40	28	0	0	0	0	2	0	0	0	1	31	18	5	9	
16	188		2.4455	121	63	4	0	0	1	0	5	2	4	4	73	45	34	12	
17	363		4.0720	242	118	3	0	3	2	3	21	6	10	2	162	85	47	19	
18	468		7.1910	290	174	4	0	0	3	2	22	14	21	9	199	137	40	13	
19	547		8.6636	309	240	4	1	3	2	3	20	25	19	16	219	178	42	15	
20	538		9.0565	301	235	2	1	3	3	6	29	34	21	10	213	158	34	24	
21	575		10.7216	338	235	2	5	0	3	5	31	34	25	12	229	162	40	22	
22	569		11.8935	322	246	1	5	1	9	3	31	33	19	8	211	152	47	19	
23	594		10.7594	327	234	3	0	2	3	5	24	34	19	13	216	134	60	26	
24	517		11.2410	335	175	7	5	1	7	3	29	29	28	12	220	112	46	18	
25	476		10.7621	299	176	1	1	1	10	4	20	23	22	19	214	117	32	12	
26	415		7.8511	266	148	1	5	2	5	2	28	26	19	12	178	95	31	10	
27	424		9.3379	284	139	1	2	3	7	3	35	26	21	12	185	84	30	11	
28	391		8.0676	246	144	1	1	2	7	4	28	35	21	9	169	80	20	14	
29	388		8.5275	258	128	0	2	0	9	3	26	22	13	12	181	77	25	14	
30	414		7.8246	275	137	2	4	1	14	5	45	34	23	9	174	79	15	9	
31	394		7.1251	249	144	1	2	1	2	5	36	35	15	3	171	91	23	9	
32	412		8.6154	273	138	1	1	2	3	4	32	24	12	8	191	93	23	7	
33	364		7.7916	245	117	2	2	3	6	3	31	23	27	6	156	63	24	13	
34	384		7.0930	252	132	0	1	1	7	0	48	33	16	6	155	80	25	12	
35	336		7.0261	211	124	1	1	1	5	4	24	19	12	9	144	62	25	9	
36	396		8.2092	266	128	2	1	4	2	4	33	24	20	8	125	75	25	13	
37	361		7.5029	244	125	2	1	0	7	3	25	20	16	12	170	90	25	10	
38	321		6.3891	215	104	2	2	0	2	3	19	20	7	2	163	70	22	9	
39	347		8.0450	207	135	1	0	2	3	4	24	32	6	5	153	92	21	4	
40	382		6.9227	225	126	1	0	0	5	1	27	28	19	6	154	84	20	7	
41	353		7.2230	229	123	1	2	0	7	3	26	18	15	4	160	92	19	6	
42	350		6.8699	214	136	0	2	2	6	6	27	19	12	6	132	87	18	16	
43	361		7.6293	229	126	6	2	1	9	0	20	19	14	5	166	86	17	15	
44	318		6.2684	205	113	0	2	1	5	1	28	9	14	4	135	69	21	9	
45	349		7.5635	233	115	1	2	0	3	0	21	16	10	6	173	87	24	6	
46	265		5.0401	174	91	0	1	1	1	0	20	9	8	5	128	68	16	5	
47	280		5.1241	185	95	0	1	0	5	2	24	14	10	4	132	70	13	5	
48	284		5.2535	177	106	1	1	0	3	4	21	24	5	3	129	67	15	8	
49	270		5.8030	174	95	1	3	2	3	0	20	14	8	4	121	63	19	12	
50 - 54	940		13.9807	593	343	4	3	2	9	6	49	52	27	10	436	242	69	31	
55 - 59	465		11.8788	281	153	1	0	0	5	5	29	21	7	3	215	141	25	13	
60 - 61	128		4.2239	74	54	0	0	0	2	1	9	5	0	1	58	43	5	4	
62 AND OVER	1,243		91.0852	379	864	0	0	4	3	5	25	35	2	6	315	768	54	46	
TOTAL	16,757		399.0925	10,201	6,450	56	65	50	211	121	1,036	904	589	289	6,963	4,519	1,237	597	
MEAN AGE	36.3		43.1	34.9	35.5	30.4	32.9	34.6	33.6	34.7	35.1	35.0	32.1	31.8	35.5	40.1	32.9	35.8	
MEDIAN AGE	34.0		45.0	33.0	35.0	26.5	30.0	32.0	32.0	32.0	34.0	33.0	31.0	29.0	34.0	37.0	30.0	33.0	
MODAL AGE	21.0		22.0	21.0	22.0	24.0	21.0	36.0	33.0	20.0	34.0	23.0	24.0	25.0	21.0	22.0	23.0	20.0	

COUNTS ON THIS REPORT ARE ALLOCATED TO CATEGORIES BY PROGRAM AND COURSE. FOR EXAMPLE, IF AN FTE RECORD FOR A STUDENT TAKING A VOCATIONAL COURSE IS REPORTED AS BEING IN AN ASSOCIATE DEGREE PROGRAM, THOSE CREDITS FOR THE VOCATIONAL COURSE ARE ASSIGNED TO THAT ASSOCIATE DEGREE PROGRAM. AID CATEGORY TOTALS WILL VARY FROM REPORTS FOR WHICH COUNTS ARE ASSIGNED SOLELY ON A COURSE BASIS. FTEES ARE SPLIT IN HALF AND ASSIGNED BY AID CATEGORY IN CASES WHERE A COURSE APPLIES TO 2 PROGRAMS.

Appendix I: Question 10 Responses

(What do you like the best about your experience in the fire service program? Please explain below:)

- “The instructors knew their materials and shared great knowledge, book and personal experiences. Very helpful with everything insuring the students understand and know the materials before quizzes and exams.”
- “Flexible schedule”
- “I liked it that we were shown many aspects of the fire service. I learned how to make the portfolio management, something I never knew how to do previously. It’s these types of things they give us a heads up of what’s in the future.”
- “I enjoyed all of the different types of classes. I thought the instructors were from the highs, which made it more interesting and easier to learn.”
- “The fact that every instructor is a current war was a firefighter.”
- “The teachers have a real world experiences to draw from.”
- “The instructors had good knowledge in the fire service.”
- “Instructors with a lot of real firefighting experience.”
- “The ability to attend the same class on different days and if we need to.”
- “The staff has a great deal of experience and does a good job of using it to teach.”
- “Oral interview – mock incident – real world scenarios are great.”
- “The knowledge available from experience firefighters.”
- “I like the diverse teaching staff. I like getting the view of different instructors. Since being a good firefighter requires experience and the program does not include it the experience the teachers brings helps everyone.”

- “Class schedule, usefulness of criteria learned. Management class, actually putting together a portfolio.”
- “The ability to choose my classes when I needed them. I also think the instructors were excellent. I have a problem with online instruction. I myself do better with teacher student one on one.”
- “Teaching, and the info from the instructors.”
- “There were lots of references to real life situations for the classes, and not just written book work.”
- “The fun and energy of the instructors, making it easy to learn the material.”
- “All the instructors are/have been firefighters so the personal experience was helpful in relating to topics.”
- “Instructors bring experience to classes. Small classes.”
- “Wide exposure to different tactics. Large and small department.”
- “The knowledge real firefighters give me about experiences.”
- “Although the instructors are current or former firefighters and have lots of valuable experience to help us learn.”
- “Flexibility as scheduled.”
- “Coordination between classes.”
- “Instructors are knowledgeable and bring with experience. Able to easily apply most lessons to real life.”
- “I enjoyed all of the instructors. Some were more serious, some were funny, but most of all, the only what they were talking about.”

- “The relax environment makes me feel more comfortable in class, and it makes it easier to ask questions.”

Appendix J: Question 11 Responses

(What do you feel should be changing the fire service program? Please explain below:)

- “Nothing. It’s running great.”
- “I feel that more hands on time should be allowed. With some of the things we talked about in class, it would be nice to go out to the tower or the apparatus floor, and get some more practical looks at the subjects.”
- “Get some more videos in a few of the classes to mix things up a bit. Some of the course’s, the instructor stand up and lecture for three hours some cool videos might spark more of an interest and we’ll mix it up a bit. Also, some instructors don’t need to keep the students for a full three hours if they don’t have a full three hours worth of material.”
- “To do a few fire classes in the summer. No one line fire classes. In – class experience and instruction is far too valuable.”
- “There should be what tactics to type class. Online classes should be taken out!!! IP twitch and so would teacher can teach me for the sixteen weeks, not eight. I don’t learn anything by reading text pages myself.”
- “More of a mix of classroom and practical.”
- “If we already have firefighter one that are not on a department, we should still be able to skip the firefighter protection organization class.”
- “Some classes only use true and false multiple choice tests, though easy, I don’t think it challenges the students and forces them to know learn the material.”
- “If it was possible, I would like to see more hands on or field trips that relate to the subject that was being talked.”
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- “I think that some of the classes are repetitive from firefighter one and firefighter two. I wish there were some sort of transfer equivalency. Sometime was wasted.”
- “I believe that the program overall should be more difficult. Students need to put in an effort to pass. The initial block of classes are too easy. Easy classes pass students who do not belong in an associate program.”
- “Get some summer classes to better fit the needs of students.”
- “Not to go to half computer have classroom classes. I could have gotten much more from the fire investigator and if it was all classroom.”
- “Not sure.”
- “Instructor base should be widened to bring on smaller department instructors.”
- “I feel the program is well organized and shouldn’t change anything.”
- “More real life scenarios and practical application in the curriculum.”
- “More lessons dealing with how to get a job test taking interviewing etc.”
- “The only thing I’m not a big fan of his the use of tool many power points. They are useful, but for some topics they are to a boring.”
- “Nothing”