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ABSTRACT

Described in detail in this report are the processes and procedures involved in the development of a State funded curriculum and program for a new emerging technology, in this instance a Coal Mining Technology Program, to be taught at Wabash Valley College in Illinois. The document provides a step-by-step account of the determination of need, curriculum development, instructor recruitment and training, planning and development of a simulated mine, funding and procurement of equipment and materials, program promotion, and an evaluation of the program for training coal mine workers. Initial cost and the feasibility of providing initial program support are emphasized. Recommendations are discussed in terms of job training needs, the need for supplementary funding, the educational value of the program's resource materials, and the project's continuation, supplemented by followup studies. The 66-page appendix contains course briefs for nine courses, including objectives, course outlines, and materials needed, other course related materials, and a four-page bibliography. (BP)

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COAL MINING TECHNOLOGY  
AN INNOVATIVE PROGRAM

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Funded by:

State of Illinois  
Division of Vocational-Technical Education  
Research and Development Unit

RFP #C32-2

January 1, 1974

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Prepared by:

Herman E. Ahlfield  
Project Director

Wabash Valley College  
an  
Illinois Eastern Junior College

CE 002 881

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## INTRODUCTION

This activity was designed to look at special kinds of funding procedures that could possibly be established for school districts initiating new kinds of occupational programs and to look at what kinds of initial costs are incurred by a school district in establishing new programs. This paper will provide information in terms of initial cost and the feasibility of providing initial program support for new and emerging occupations on a permanent basis. This project included an in depth study of the processes and procedures for the development of a curriculum, program, and follow-up of a new and emerging technology. It provides a step by step account with the problems and pitfalls explained in detail. It illustrates the initial cost and the feasibility of providing initial program support for new and emerging occupations. Materials are complete to the extent that others may duplicate the process for program development.

In addition, course briefs are included for each course in the curriculum which includes objectives, course outlines, materials needed and a bibliography of other available materials.

The procedures followed were:

1. Collection of data on initial cost of starting an occupational program for a new and emerging occupation on a permanent basis.

2. Assemble data and determine significant outcomes of the project.
3. Have project evaluated by the Coal Mining Industry, the State Department of Mines and Minerals, and the Federal Bureau of Mines to determine if the above are satisfied with the services offered by our educational institution.
4. Make Recommendations for future developments.

This research project was written in response to R.F.P. #C32-2 from the State of Illinois, Division of Vocational-Technical Education, the details of which follows:

#### REQUEST FOR PROPOSAL

Issued by: Research and Development Unit  
 Division of Vocational and Technical Education  
 State of Illinois  
 1035 Outer Park Drive  
 Springfield, Illinois 62706  
 Telephone: Area Code (217) 525-4620

Issued to: Research and educational agencies--public and private, and other agencies or parties interested in developing proposals.

Activity Requested: Pilot Programs for New and Emerging Technologies (RFP #C32-2)

Estimated DVTE Resources: \$60,000.00

Time Frame: September 26, 1972 through June 30, 1973

Geographic Limitation: No Limitation

Activity Goal: This activity will be designed to look at special kinds of funding procedures that could possibly be established for school districts initiating new kinds of occupational programs and to look at what kinds of initial costs are incurred by a school district in establishing new programs.

**Objectives:**

1. To provide instructional support for selected institutions (secondary, area center, and post-secondary) that have indicated an immediate manpower need in their area and determine the feasibility of establishing permanent cooperative agreements between educational agencies and industries requiring trained workers.
2. To study the feasibility of providing initial program support for new and emerging occupations on a permanent basis.
3. To evaluate the pilot program(s) objectives to determine:
  - a. If the industry is satisfied with the services offered by the educational institution.
  - b. If numerous initial costs are incurred by an educational institution when implementing new programs.
  - c. If supportive funding is necessary for initial development of new programs.

**Procedures for Implementation:**

In order for an institution to qualify for for this RFP, it must be able to substantiate need based on:

- a. Industry interest demonstrated by initial request for program.
- b. Manpower need must be substantiated.
- c. Program can not be currently existing in other institutions (new or emerging).
- d. Must have procedure for determining all initial cost over and above regular vocational reimbursement.

Note: One Pilot program will be selected at the secondary, area center, and post-secondary levels for a cost of \$30,000 each.

**End Result:**

This project will provide information in terms of initial cost and the feasibility of providing initial program support for new and emerging occupations on a permanent basis.

One Hundred (100) copies of a final report will be submitted to the Research and Development Unit including the following:

- a. Reporting procedures employed
- b. Instruments and procedures used in the collection of data.
- c. Significant outcomes of the project.
- d. Recommendations for future developments.

Deadline: Proposals should be submitted to the Research and Development Unit prior to August 1, 1972 at 4:30 p.m.

The proposal as submitted by Wabash Valley College was approved after minor budget alterations and the addition of the following research objectives:

1. Writing a thorough report on the processes used and the problems encountered on the development of a new innovative occupational program, (Coal Mining Technology.) It will be complete to the extent of a step-by-step process which can be used as a guide for duplication.
2. Preparation of course briefs for each course in the curriculum which will include measurable objectives, outline, materials used, and a bibliography.
3. Preparation of extensive audio visual aids to assist in the instruction of classes.
4. Conduct a personal follow-up of graduates approximately three (3) months after their completion of the program.
5. Compile a listing of sources for teaching materials for coal mining.
6. Evaluate the program in terms of meeting the needs of students and the industry by a follow-up study of the employing industry.
7. Conduct a follow-up study evaluation by the Advisory Council.

8. Conduct an in-depth description of instructor development and training.
9. Analyze the cost of establishing such a program and determine the types of supportive funding needed.

To be certain that all aspects of good planning and the necessary approvals were received, a "Program Evaluation and Review Techniques" was utilized. The following chart illustrates all essential steps and the date that each must be completed.

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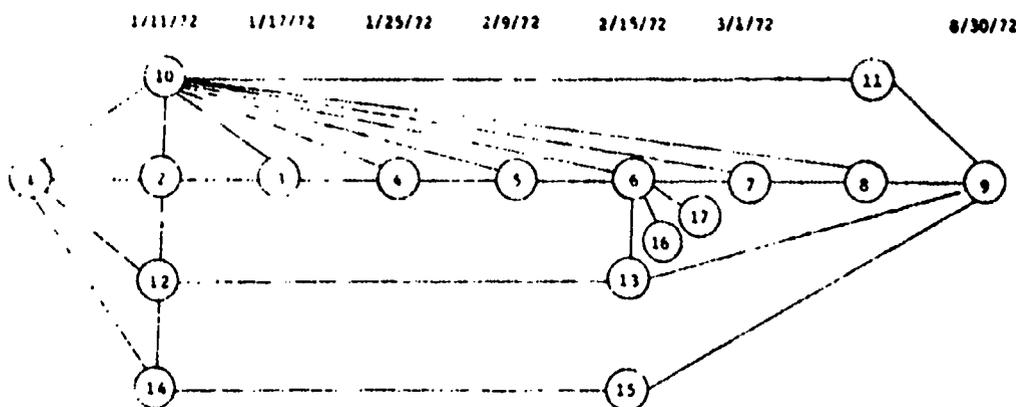


Fig. 1—Stages in developing a curriculum for training coal mine workers.

1. Develop curriculum
2. Wabash Valley College Curriculum Committee
3. Illinois Eastern Junior Colleges VOTEC Committee
4. Illinois Eastern Junior Colleges District Advisory Council
5. Illinois Eastern Junior Colleges Citizen's Advisory Council
6. Illinois Eastern Junior Colleges Board of Trustees
7. Illinois Junior College Board
8. Board of Higher Education
9. Start classes
10. Research existing programs, teaching materials, and equipment needs
11. Secure teaching materials and equipment
12. Research instructional staff needs
13. Hire or train instructional staff
14. Research possible funding
15. Apply for funding
16. Organize permanent Advisory Committee
17. Publicize program

Each step was completed on time and classes were in operation on August 30, 1972. This project was designed to run through December 1973 to provide the advantage of the students completing the one year certificate program. The evaluation process includes a follow-up study of the students which is included later in the paper.

## DETERMINATION OF NEED

The need for training of people to work in coal mines first came to the attention of Wabash Valley College in November of 1971. Representatives from the AMAX Coal Company visited Wabash Valley College and expressed their need for trained people to work in coal mines. They discussed the opening of their new mine in the immediate area and gave the following approximate needs:

1. AMAX will take over operation from the tunneling company about January 1, 1973, and will employ about 50 people at that time.
2. January, 1974--will employ about 50 more for a total of 100.
3. January, 1975--will employ about 50 more for a total of 150.
4. January, 1976--to add about 375 for a total of 525.
5. Approximate turnover of 10% per year.

On January 26, 1972, the AMAX representative accompanied by Mr. Harold Odle of the State of Illinois Department of Mines and Minerals again visited Wabash Valley College and talked with Dr. John Cox, President of Wabash Valley College, and me about the possibility of starting a training program in Coal Mining Technology. They supplied us with information about the industry, and what might be needed for the development of such a program. They offered their services and their knowledge

of the industry to assist in the development of this program. As a result of these meetings, we at Wabash Valley College learned that the coal industry is now the largest in this area of Illinois. The yearly production is great now, with a forecast of an increase of several thousand tons by 1972.

After a thorough discussion and evaluation of the problem and need as submitted to us by Mr. Odle and Mr. Harrison, the information was compiled in relationship to our objectives as a comprehensive community college.

In the area of region served by a community college, it should be the objective of that school to serve the needs of the region for each particular area of vocational education that is required. This area might be in vocational agriculture, distributive education, business and office, health occupations, or trades and industry.

Illinois Eastern Junior Colleges, District #529 is dedicated to meeting the educational needs of the people of the area it serves. Its mission is to provide opportunities for the continuing process of education for individuals according to their needs. The District is committed to excellence in a context of concern for all.

To develop responsible citizenship, students are encouraged to:

1. Acquire wisdom and understanding as well as to pursue knowledge;
2. Develop and exercise independent judgment;
3. Think logically without bias and prejudice.

As an institution of continuing education, an atmosphere of confidence and trust is fostered in order to encourage participation in learning. Illinois Eastern Junior Colleges, District #529 endeavors to challenge its service area with the significance of higher education in American life. It strives to develop the individual to his full potential to the services of mankind, and to provide opportunity for the continuation of education on a comprehensive and democratic basis throughout adult life.

Illinois Eastern Junior Colleges, District #529 maintains an open door policy which permits college age youth and adults who can benefit from higher education to take advantage of the opportunity which has been provided for them. It is hoped that the programs of education will help students to adjust themselves to the working situations in which they will be employed so that they will be productive workers and employees upon graduation. The District believes in offering vocational and technical training to meet the needs of people who wish to improve their skills, prepare students for entry level competency in an occupation, prepare for entry level as technicians in some occupations, prepare for advancement or change of employment, gain a vocational experience, or expand their general education in these fields. It is intended to provide programs and services to allow every citizen to reach their maximum capability in order to become useful citizens trained in occupational areas and to be intelligent consumers.

Illinois Eastern Junior Colleges, District #529 intends to keep abreast of all emerging occupations to develop programs to fit the needs of all citizens within the District.

## OBJECTIVES OF ILLINOIS EASTERN JUNIOR COLLEGES

1. To provide programs for students broadly defines as follows:
  - a. Liberal arts and sciences, general education and pre-professional.
  - b. Occupation oriented for entry level competence in an occupation.
  - c. Prepare some students for entry level as occupational technicians.
  - d. Adult and continuing education.
  - e. General studies.
2. Provide guidance with the discovery and development of abilities and talents of individual students, including especially those uncertain as to future education plans.
3. To serve as a cultural, intellectual, and resource center for the area.
4. To adapt to present curricula and programs to meet the ever changing needs of the district served, and to develop new curricula and programs, through continuous research within the limitations of available resources.

### OBJECTIVES IN MEASURABLE TERMS

1. Vocational and technical training to meet the needs of persons who wish to improve their skills, prepare themselves for advancement or change of employment or expand their general education in these fields.
2. To prepare students for gainful employment in the occupations for which they are being trained at an entry level of competency.
3. To prepare students for gainful employment in the occupation for which they are being trained at a technician level of competency.
4. To provide opportunities for employed persons to increase their job competence.
5. To develop safety work habits, improve work habits and attitudes.

6. To promote the economic well-being of the community through services to the public, business, industry, and labor.
7. To provide students with the opportunity to explore their interests and abilities.
8. To aid students in attaining a better understanding of the world in which they live.
9. To help students develop desirable social attitudes and abilities.
10. To cultivate proper habits of health and living.
11. To assist all students to become active, responsible citizens in our democratic society.
12. To aid students in attaining a better understanding of occupational opportunities through extensive counseling and guidance.
13. To provide counseling services to assist students in choosing and following educational programs most profitable to them.
14. To cooperate with the professions, business, and industry in the area of establishing internship programs in which students can gain practical experience.

A broad comprehensive education program is required to achieve these objectives. This must be a vital, flexible program that can be adapted to the changing needs of our society. In order to meet these requirements, the present and proposed occupational education programs are an integrated part of the junior college curricula and the facilities for these programs are designed to flexibly serve a whole family of occupations.

The coal industry in this area is very large and expanding. The need for better trained and safer coal miners is obvious. Since there is a manpower need for trained employees, since there are untrained and unemployed persons in Southern Illinois,

and since our charge as a community college includes vocational training it seems obvious that these needs be alleviated through training.

In 1972 the needs have not been met and many new ones have now arisen and are standing, once again, as a threat to the production of the coal industry.

A few years ago the needs were being felt in the strip mine phase of the industry. These needs are no longer as demanding as they once were. The reason is that as time goes by, the surface coal is fast being stripped out, and because of a tough program for returning land to productive use, coupled with the environmental control laws, the industry is now largely concerned with underground mining.

The coal industry is now the largest industry in this area of Illinois. The yearly production is great now, with a forecast of an increase of several thousand tons by 1972.

The opening of new mines in this area, along with several billion tons of unmined coal, gives a bright outlook for the industry. The only dark spot facing the industry in the near future is the lack of trained personnel.

Modernization of the coal industry over the last 25 or 30 years has made it necessary to have trained and skilled people to place in the various mines of the area. The age of the average coal miner is such that in just a few short years there will be an alarming shortage in this field. The younger, unskilled workers are not getting the chance to be employed and work their way up on the job. These two facts in themselves are enough to cause alarm in this industry.

It seemed ironic that on the one hand there are large numbers of unemployed, unskilled persons who must be trained for service in the mining industry, yet we, the general public, have not been concerned enough to set up training programs to help our largest industry in this area.

At the present time, there is not a training facility in Illinois which will train a person to be a mine mechanic, mine electrician, a hydraulic specialist, haulage maintenance man or other fields that this mining program would cover.

New mines have opened and have therefore thrown a great demand for trained or experienced personnel upon the industry.

It can be shown at the present time that none of the training in the preparatory phase of our schools is directed toward the coal industry. This is not saying that training of any kind is not offered. There is a continuous training program for Mine Examiner and Mine Manager in the Department of Mines and Minerals, but this program is designed to help men presently employed. This in itself is good, but does not justify the absence of training for new mining personnel.

The coal industry itself has requested training programs to be conducted through the Wabash Valley College. This should show us that the coal industry is interested in and willing to work with vocational education, and is a cause within itself that could be used to justify a training program.

## DEVELOPMENT OF TRAINING PROGRAM

It was then the decision of Wabash Valley College to proceed with all haste in the development of a program to meet the needs as related to us by industry and by the State of Illinois, Department of Mines and Minerals. With the able assistance of a temporary steering committee composed of: Mr. Kenneth Wells, United Mine Workers of America; Mr. Clem Dovidas, U.S. Department of the Interior, Bureau of Mines; Mr. Charles Harrison, AMAX Coal Company; Mr. Harold Odle, Illinois Department of Mines and Minerals; Dr. John Cox, President, Wabash Valley College; and Mr. Herman Ahlfield, Dean of Instruction, Wabash Valley College, we developed and proposed a formalized one year pilot project with the following objectives:

1. Upgrade and improve training of the safety phases of underground miners with the ultimate goal of reducing accidents mostly caused by inadequate training and instructions.
2. Improve the productivity of underground miners as one means of meeting the ever increasing energy demands. (It is almost impossible to meet health and safety requirements and production goals with the large number of untrained, inexperienced new hires now being introduced to the underground mines.)
3. Alleviate the current shortage of underground miners who need to be trained in health and safety practices as well as production methods by formal classes of instruction conducted by competent instructors.
4. Provide a semi-permanent vehicle for teaching fundamental, safe coal mining habits and practices relating to mine ventilation, roof control, and safe machine maintenance and operation.
5. Since the Southern Illinois coal field is one of the most rapidly expanding ones in our country, some means must be found to improve the accident frequency ratios and the production of coal.

## CURRICULUM DEVELOPMENT

The curriculum development for this new and innovative program had to follow all the procedures of good curriculum development and in addition, a few extra steps were necessary. The extra steps for the Coal Mining Technology Program included the visitation of mines and their differing requirements since no training program existed in the state of Illinois. In fact, I could not locate another junior college in the United States which offered accredited, college credit courses for the training of coal miners.

The following information has been prepared concerning the proposed program in Coal Mining Technology. Information presented concerns national, state, and local manpower requirements. It was compiled with the assistance of a steering committee composed of Mr. Harold Odle, Safety Training Coordinator for the state of Illinois, Department of Mines and Minerals; Mr. Charles Harrison, Supervisor-Training, AMAX Coal Company; Mr. Kenneth Wells, President-District 12, United Mine Workers of America; Mr. Clem Dovidas, U.S. Department of the Interior, Bureau of Mines; Dr. John Cox, President, Wabash Valley College; and Mr. Herman Ahlfield, Dean of Instruction, Wabash Valley College.

### Physical Requirements

Strength (lift, carry, push, pull) - Very heavy, over 100 lbs., maximum lift, frequent lift/carry - over 50 lbs. Other characteristics: climb, balance, stoop, kneel, crouch, crawl, reach, handle, finger and feel.

### Working Conditions

Inside (75% or more); noise, vibration, hazards, fumes, odors, toxic conditions, dust, poor ventilation.

### Training Time

Specific Vocational Preparation: 9 months to 1 year

General Education Development:

(Reasoning Development) - Apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.

(Mathematical Development) - Perform ordinary arithmetic, algebraic, and geometric procedures in standard, practical application.

(Language Development) - Comprehension and expression of a level to interpret technical manuals as well as drawings and specifications such as layouts, blue prints, and schematics.

### Applicant Quality & Quantity

It should be emphasized that the available labor pool for drawing a quantity of persons is adequate. The application of a 5% unemployment figure would result in well beyond 1,000 persons

available for training. This figure does not include other types of persons who are a source of potential trainees. The labor pool would be comprised of approximately three groups of persons as follows:

1. Those presently employed and desiring to change occupations.
2. Those presently unemployed and desiring employment.
3. High school students selecting an occupation.

### Employment Turnover

It is estimated that the employment turnover resulting from new hires, retirement, replacements, and separations would result in approximately 5-15% per year. This figure is applied until the 1976 employment figure is reached. It is then estimated that the projected turnover will approximate 10%. The minimum age of those employed would be 18 years. The maximum age would be 65 years. The estimated average age of employees would be 35-40 years of age.

### Physical Requirements

The employee must pass a medical examination which shows no lung disease or health problems related to lungs and no hearing loss. These physical requirements are not only the result of company policy, but state law.

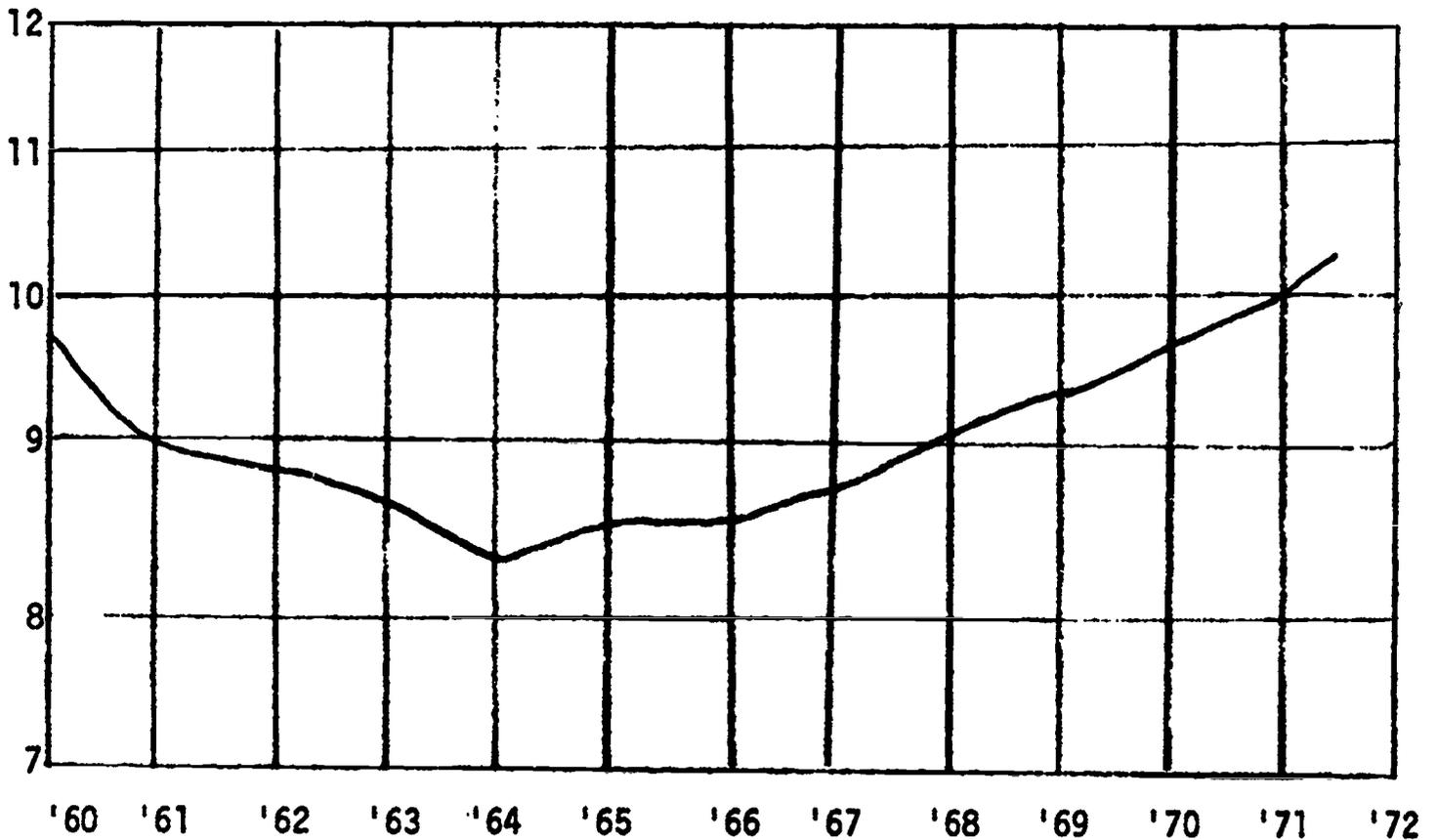
### Hazardous Conditions

It is reported that in the state of Illinois between 11 and 15 fatalities occur per year. This is in a labor force of approximately 10,000 persons. The actual fatalities are then one-tenth of one percent.

### State Employment Trend

The employment trend for the state of Illinois declined moderately from 1958 to 1964, as the following chart illustrates. Then a slight rise and leveling off point occurred with employment never reaching the same height that it held in the 50's. This same trend is expected to occur in the 1970's.

Persons Employed (1000's)



### Salary-State of Illinois

The average hourly wage for coal miners in 1960 was \$3.64. It rose to \$4.37 an hour by 1968. The average weekly wage for 1960 was \$143.36 which rose to \$191.73 in 1968.

## Local Manpower Requirements

### Education Requirements

The coal mining operations require a high school level education with additional training specifically oriented to the coal mining operation. The additional education experiences may vary in length from one to two years.

### Wage Rates

The projected beginning wage rates for laborers in the coal mining industry is \$250 per week. While it is rather speculative as to the nature of wage rates within the next five years, certain information does bear upon wage rate projections. The state average of wage rates increased at approximately 3% per year for the previous 8 years. The current negotiated national wage rates have been approved by the Wage-Price Board at the rate of 15% for the next three years. From this information it is logical to assume that over the next three year period wage rates in coal mining will increase from approximately 8 to 10 per cent. This would result in a beginning wage rate of from \$270 to \$275 per week in 1975. This particular estimate is somewhat conservative.

### Mining Operation in Southern Illinois

There are approximately 20 surface mines and approximately an equal number of underground mines in the Southern one quarter of Illinois. The 52 mines in the state of Illinois account for approximately 10,000 employees. Eighty percent of the coal produced in Illinois is produced in 20 of the underground mines and 13 of the surface mines located in Southern Illinois.

The thick, relatively level seams (beds) of coal in Illinois make it possible to use some of the largest mining machinery for both underground and surface mining. As a result, Illinois mines are among the most productive and efficient in the nation.

#### How is Illinois Coal Mined?

In Illinois there are two main ways of mining coal: strip (open-cut), and underground. Strip or open-cut mines usually operate where the coal is at very shallow depths, although such mining is done as much as 100 feet deep or more in some places. Many old underground mines produced coal from seams that were less than 100 feet deep because they did not have the large machinery for strip mining when these mines were started. An abandoned mine, 1,004 feet deep, near Assumption is the deepest underground coal mine in the state. Coal is now being mined at depths somewhat over 800 feet in Jefferson County.

#### How Does Illinois Rank as a Coal Producer?

Illinois ranks fourth in production of coal in the United States. It is exceeded only by West Virginia, Kentucky, and Pennsylvania. Some of the largest and most efficient mines in the country are operated in Illinois. Underground mines in Illinois have the highest rate of tons mined per man each day in the country, and this rate is increasing. Increased mining efficiency has made it possible to hold the price of coal low enough so that it can successfully compete against other fuels for many uses.

### How Much Coal is Produced in Illinois Annually, and How Valuable is It?

In the last 10 years, an average of about 46 million tons of coal have been mined each year. In 1963, approximately 51.6 million tons were produced, which were valued at about \$196,000,000 at the mine. Since 1961 strip mines have produced over half of the coal mined in Illinois.

### How Long Will Our Coal Supplies Last?

It will take well over 1,000 years at the present rate of mining in Illinois to exhaust our coal reserves. An estimated 140 billion tons of coal in seams of minimal thickness remain in the ground in our state; these are the largest known reserves of bituminous coal of any state in the United States.

### What is Coal Used For?

Electric power generation consumes the greater part of the annual coal production in Illinois. Coal is also used for home and commercial heating for production of coke, and for manufacturing various chemical compounds from coal tar. Products derived from coal include drugs and medicines, plastics, synthetic fibers, perfumes, flavorings, dyes, synthetic rubbers, explosives, specialized oils, solvents, wood preservatives, tarlike paving and roofing materials, and some gas. The gas is both produced and utilized in the coke industry.

During World War II, Illinois coal production rose, reaching 77.4 million tons in 1944, only to decline again after the war. Coal's decline in the late 1940's resulted from the loss of many of the traditional markets to other fuels. The railroads, which

had been one of the largest users of coal, replaced all their coal-fired locomotives with diesels that were more economical to operate. New pipelines were built to bring natural gas into the state from the southwest, and many households, commercial firms, and industrial plants switched to this fuel. Others changed to oil as their source of energy. The one large market that coal retained was the utility companies, which used coal for the generation of electric power, and that market grew rapidly. In 1967 utilities used approximately 70% of the coal produced.

#### Facilities for Training

It is the opinion of this writer as well as several others, that the training program would fare better away from the WVC school program. This is due mainly to the operation of the large unusual machines. If included in the school, several problems would be evident such as safety, noise, sufficient space, and curiosity from other students. It is felt that enough room should be available to construct model mine tunnels in order to create a realistic atmosphere.

The machinery spoken about is to be furnished by the mining industry for study purposes as well as to avail the students the opportunity to operate them.

#### Supporters for Mine Training Program

With such tremendous amounts of coal reserves remaining, and the shortage of trained personnel, many individuals who are in positions of importance in the coal industry see and realize the need for such training.

Peabody and AMAX Coal Companies have long noted the need for adequate training programs for the mining industry in the Southern Illinois coal field. They state: "As the coal industry becomes more mechanized, there is an increasing demand for specially trained personnel. Presently, there is a particular shortage of men who are trained in underground mine maintenance." Their reasons for supporting such a program is that coal companies and safety engineers are finding it extremely difficult to properly train personnel in this field. As they undertake this endeavor, they find it most hazardous and very costly due to the increased accidents from the lack of knowledge, and also this causes unnecessary delay of production and the destruction of vital mine machinery due to improper assembling and maintenance of such equipment.

#### DEVELOPMENT OF CURRICULUM

The first step of curriculum development was to determine general and specific program objectives. The following objectives were developed:

##### General Objectives

The Coal Mining Technology Program is designed to prepare students to get initial entry level jobs to work in underground coal mines. At completion of the program, students will have the necessary technical skill to operate mine equipment in a safe and efficient manner. They will know how to react to possible dangers and what to do in case of emergencies.

### Specific Objectives

1. To train young men in the various phases of the mining industry in order that they may have the necessities of life and contribute to the betterment of their respective communities.
2. To have set times, and established courses of study whereby this may be accomplished by the best possible means, and each teacher or administrator to give unselfishly of his time in order to help each individual achieve the set goals.
3. To determine if the existing program being offered is operated in a sufficient manner that will help the student as well as all of the people of the region, by working with all advisory groups and the mining industry.
4. To serve people according to their needs and age levels, in order that they may be trained, retrained or brought up to date in their work area.
5. To promote professional training courses in order to have the best staff and teachers that is possible in vocational education.
6. To promote group relationships among students and teach them to have respect for the rights and property of others.
7. To contribute to the development of the individual's knowledge in the selection, use, and care of the various instruments and equipment used in the mining industry.
8. To develop attitudes that will make them better students and better citizens of the community and nation.
9. To project into the future and determine the needs beforehand in order to plan wisely for them, and thereby always have a sound planning device for the area mining industry.

Having developed objectives for the program, it was then necessary to proceed as rapidly as possible to develop the curriculum. In the development of the curriculum we were constantly aware that neither mine operators, nor their employees have ever had the benefit of a properly oriented, formal and organized means of teaching safe, proper underground mining techniques. Such training has been on-the-job by those who were never taught teaching techniques.

The ever increasing demand for energy in the form of coal demands better safety and mining practices in order to cope with the latest and most advanced kinds of mining machinery now being used in Southern Illinois coal fields.

After a thorough evaluation of the essential steps for the beginning of classes on August 30, 1973, two definite dates which had to be adhered to in order to have the program approved and in operation were determined. The deadline for having programs submitted to the Illinois Junior College Board to begin during the Fall Quarter was March 1, 1972. Since classes start on August 30, it appeared to be an almost impossible task. It meant that the curriculum had to be developed within a matter of days, and that it had to receive approval at the first reading of each committee. The following curriculum was presented to all in-district committees and received a unanimous approval.

ILLINOIS EASTERN JUNIOR COLLEGES  
 District 529  
 WABASH VALLEY COLLEGE

PROPOSAL FOR OCCUPATIONAL PROGRAM IN  
COAL MINING TECHNOLOGY  
1 YEAR CERTIFICATE PROGRAM

DATES PRESENTED TO:  
 Gen'l Vo-Tech Adv. 1/17/72  
 WVC Curriculum 1/11/72  
 District Adm. Council 1/25/72  
 Citizen's Adv. 2/9/72  
 Board of Trustees 2/15/72

CONTACT HOURS PER WEEK  
 CREDIT  
CLASS LABORATORY HOURS

FIRST QUARTER

CMT 112	Introduction to Coal Mining	4	0	4
CMT 122	Mining Law	4	0	4
CMS 112	First Aid & Mine Rescue	4	0	4
MTH 112	Applied Mathematics	4	0	4
ORT 111	Freshman Orientation	<u>1</u>	<u>0</u>	<u>1</u>
TOTAL HOURS FOR FIRST QUARTER		17	0	17

SECOND QUARTER

CMS 122	Coal Mine Atmosphere	4	0	4
DLR 132	Basic Welding	2	4	4
CMT 132	Lamp & Detection Instruments	4	0	4
CMS 132	Accident Prevention & Safety	<u>4</u>	<u>0</u>	<u>4</u>
TOTAL HOURS FOR SECOND QUARTER		14	4	16

THIRD QUARTER

CMT 142	Mining Equipment	4	0	4
CMS 142	Coal Mine Ventilation	4	0	4
CMT 152	Roof & Rib Control	4	0	4
CMT 162	Problems of Operating Underground Mines	<u>4</u>	<u>0</u>	<u>4</u>
TOTAL HOURS FOR THIRD QUARTER		16	0	16
TOTAL HOURS FOR PROGRAM		47	4	49

## COAL MINING TECHNOLOGY COURSE DESCRIPTIONS

**CMT 112 INTRODUCTION TO COAL MINING**

4-0-4

An introduction to the fundamental concepts of coal mining. Geological factors affecting coal from the origin of the earth. How coal was formed and coal resources of the United States. The choices and methods of mining coal. Four classroom hours per week. 4 quarter hours credit.

**CMT 122 MINING LAW**

4-0-4

An introduction to the coal mining laws of the federal government and state government. This course deals with regulations relating to mining practices. The Mining Act of Illinois covering the installation, operation and safety in bituminous coal mining and also the Federal Mine Safety Code. Four classroom hours per week. 4 quarter hours credit.

**CMS 112 FIRST-AID & MINE RESCUE**

4-0-4

Training by instruction and demonstration, information is disseminated regarding safe and unsafe practices, with a view to reducing accidents as well as teaching the correct emergency aid for injured persons. The additional purpose of this course is to familiarize the student with the principles of mine rescue operations and the actions to be taken by men underground in case of a mine disaster. Four classroom hours per week. 4 quarter hours credit.

**MTH 112 APPLIED MATHEMATICS**

4-0-4

This course is designed primarily for the vocational-technical student. The course material emphasizes the fundamental operations with whole numbers, fractions and decimals, and studies the applications of those operations to areas related to specific vocational programs. PREREQUISITE: MTH 010 or its equivalent. Four classroom hours per week. 4 quarter hours credit.

**ORT 111 FRESHMAN ORIENTATION**

1-0-1

Designed to give incoming freshmen an introduction to college life. One classroom hour per week. 1 quarter hour credit.

**CMS 122 COAL MINE ATMOSPHERE**

4-0-4

A study or analysis of mine air. Mine air as it relates to health and safety of the men. The gases commonly encountered in coal mines and the properties of them. The fundamental physical laws pertaining to air and atmospheric pressure. The effect of temperature and pressure on gases within a mine. Four classroom hours per week. 4 quarter hours credit.

DLR 132 BASIC WELDING

2-4-4

This is a practical course in the use of oxy-acetylene and electric arc welding equipment. Students will practice cutting, bronze welding, fusion welding, and hard-facing with the oxy-acetylene flame. They will also practice selection of electrodes, running bends, and welding common joints in all positions. Familiarization with semi-automatic inert gas processes will be provided. Two classroom hours per week. Four lab hours per week. 4 quarter hours credit.

CMT 132 LAMP & DETECTION INSTRUMENTS

4-0-4

The purpose of this course is to instruct in the proper use and care of the permissible flame safety lamp and the various permissible methane detectors. The ability to determine methane concentrations using these instruments and the ability to properly maintain them. To train persons to test mine atmospheres with the various instruments and gauges. Four classroom hours per week. 4 quarter hours credit.

CMS 132 ACCIDENT PREVENTION & SAFETY

4-0-4

Because the injury and fatality rates of coal mines are consistently worse than those of most other industries the need for safety education is a prerequisite to safety in coal mines. Of all causes of accidents, the most numerous and baffling are those due to human behavior and personality. Four classroom hours per week. 4 quarter hours credit.

CMT 142 MINING EQUIPMENT

4-0-4

Practices and devices involved in the extraction and transportation of coal. The study of equipment used in drainage and roof support. The use of electric, hydraulic and compressed air power in coal mines. Coal preparation equipment and machinery. Timbering and pinning equipment. Four classroom hours per week. 4 quarter hours credit.

CMS 142 COAL MINE VENTILATION

4-0-4

The goal of this course is to help the student understand mine ventilation control devices from the main fan to the working face. Four classroom hours per week. 4 quarter hours credit.

CMT 152 ROOF AND RIB CONTROL

4-0-4

The purpose of this course is to develop a total awareness to the dangers of falls of roof, face and ribs for related mining personnel and to acquaint them with methods for preventing injuries and fatalities resulting from such danger. Four classroom hours per week. 4 quarter hours credit.

CMT 162 PROBLEMS OF OPERATING UNDERGROUND MINES

4-0-4

A total picture of the problems of management in the operating of a coal mine. Union, management relations, grievances and contract disputes. Also the responsibilities and duties of management. Four classroom hours per week. 4 quarter hours credit.

After the basic curriculum was developed, it was then necessary for more detailed and specific information to be compiled and or developed for the introduction of classes. The following information is included in detail in the appendix:

1. Course briefs and material outlines for each course.
2. Listing of Audio-Visual materials which have been compiled at Wabash Valley College.
3. IJCB Form 7 which requests pursuing the program development.
4. IJCB Form 9 and attachments which request formal approval from the Illinois Junior College Board for the curriculum in the final stages of development.

## INSTRUCTOR RECRUITMENT AND TRAINING

Instructor training for the Coal Mining Technology Program offered many problems which are not present in most training programs. For instance, in many of the college transfer areas there is a surplus of trained instructors. Since there are currently no instructor training programs as well as no coal mining technology programs in the state of Illinois, instructors must of necessity come from other sources. The possibilities that were available to us at Wabash Valley College for hiring instructors for Coal Mining Technology were:

1. Hiring instructors from the Federal Bureau of Mines
2. Hiring instructors from the state of Illinois, Department of Mines and Minerals
3. Hiring instructors from related areas and training them about coal mining
4. Hiring coal miners and training them in instructional methods
5. Finding someone in the coal mining industry who also has training in educational methods and procedures.

Many of the above listed alternatives would create problems for an educational institution that has instructors hired in other instructional areas. For instance, Wabash Valley College instructors are placed on a salary schedule which is determined by education, years of instructional experience, and years of industrial experience. The salary schedule is not sufficient

in nature to attract instructors from the coal mining industry or to entice instructors from the Federal Bureau of Mines or the state of Illinois Department of Mines and Minerals. This actually leaves only two alternatives; one, training persons who are already instructors in related areas about coal mining, and two, training coal miners in instructional methods.

The decision was made to attempt to convert Mr. Joe Berberich, who was on our present staff in the area of mechanization and hydraulics, to a coal mining instructor. Mr. Berberich was very interested in the Coal Mining Technology Program, and felt that it would be a great challenge as well as a great opportunity to learn a new field yet work in the related areas of which he already had some expertise. This decision was made after having several of the existing faculty members take field trips through mines, watching films about coal mining, having discussions with personnel from the mining industry, the Federal Bureau of Mines, the state of Illinois Department of Mines and Minerals, and the United Mine Workers of America. In addition to having Mr. Berberich trained as an instructor for the Coal Mining Technology Program, it was decided that there were other areas of expertise which others of the existing staff at Wabash Valley College could supply. Wabash Valley College currently offered a two-year program in Electronic Technology. Both Mr. Greatline and Mr. Slankard have considerable experience in industry relating to electrical controls. It was decided that they would be prime prospects for learning how electrical controls relate to the coal mining

machines as well as the other areas in which they already have experience. It was then decided that Mr. Bob Adams, who teaches Chemistry and Physics could provide expertise to the instruction of Mine Atmosphere.

After the initial decisions on how to proceed with the development of instructors for the 1972-73 school year were made, an intensive program was begun for the training of our instructors. The following is a report of the activities, field trips, speakers, etc., conducted by the Coal Mining Technology Program at Wabash Valley College from August 1972 through December 1973. Reference will also be made to the scheduling of events through the 1972-73 school year. This report will be made in chronological order as viewed by Mr. Joe Berberich, the first lead teacher of the Coal Mining Technology Program at Wabash Valley College.

AUGUST 8 AND 9, 1972

INSTRUCTOR TRAINING: SAHARA #21 COAL MINE  
HARRISBURG, ILLINOIS

The first day, Herman Ahlfield, Joe Berberich, Stanley Greatline, Bob Adams, and Garry Slankard toured the Sahara #21 coal mine to observe a conventional mining system. The operation of the coal cutter, coal drill, coal blasting (using compressed air to blast down the coal), coal loader, shuttle cars, rock dusting, coal conveyor belts, were viewed and explained by mine personnel. A track hauling system for transportation of personnel and equipment into and out of the mine was illustrated to show how a conventional mining system is operated.

On August 9, we toured the same Sahara #21 coal mine and went through a continuous mining section of the mine. We received first hand experience and knowledge of the operation of a continuous mining section with all the associated pieces of equipment and personnel. These two days proved to be very educational. It was our first real experience and training in the actual operation of mining of coal in the mine itself. During these two days, we were escorted by Mr. G. B. Wiley from Sahara Mine, and Ted Plumley and Bob Pate from the State of Illinois Department of Mines and Minerals.

AUGUST 15, 1972

INSTRUCTOR TRAINING: SAHARA #5 COAL MINE  
HARRISBURG, ILLINOIS

At the Sahara #5 mine we viewed the complete operation of a surface mine. This included going through a stripping shovel which has a 65 cubic yard bucket while the machine was in operation. We observed the removing of the overburden, and the coal loading

operation in which the coal was being removed from the seam and loaded onto the trucks. The coal was then hauled to a coal cleaning station. We then toured the coal cleaning facilities where this coal and also the coal from the Sahara #21 mine is belted, cleaned, sized, and loaded onto railroad cars. This trip to the Sahara #5 mine proved to be very educational. It illustrated a complete operation of a surface mine, including the cleaning, sizing, and loading of coal.

AUGUST 24, 1972

INSTRUCTOR TRAINING: KENTUCKY AREA SECONDARY VOCATIONAL SCHOOL  
MADISONVILLE, KENTUCKY

At this location we observed students, who were enrolled in a coal mining program, in a class actually operating coal mining machines during their regular class period. This experience was very educational. We saw what another school was actually doing. We also saw the location of the planned simulated mine, located in the town of Madisonville. There were in a preliminary stage of the erection of the building and the simulated mine.

AUGUST 28, 1972

INSTRUCTOR TRAINING: OLD BEN #24 MINE  
BENTON, ILLINOIS

In this mine we saw a continuous miner operating on a pillar technique of mining, which removes about 85% of the coal from the ground. We also very thoroughly studied the ventilation system used for this technique of mining. We then went to the back side of the mine where the "gob" had fallen, and looked through the "bleeders" as they call them in this ventilation system. Again, we saw a new type of mining. The pillaring technique proved to be very interesting.

We were conducted through the total mining operation. Old Ben #24 is a shaft mine. The operation in which the coal was pulled up in "skips" from underground and dumped at the top part of the mine to be loaded into train cars was demonstrated. We also went through the electrical controls used for the operation of this mine and the hoisting equipment used for raising the skips and mantrips in and out of the mine.

During our first four field trips to area coal mines, we saw four different types of mining operations. The Sahara #21 mine used continuous miner sections and conventional sections on room and entry type mining. At the Sahara #5 mine we saw surface mining, and at Old Ben #24 we saw the continuous miner being used on a pillaring type mining system.

SEPTEMBER 6, 1972  
FIELD TRIP: INLAND STEEL COMPANY  
WALTONVILLE, ILLINOIS

This field trip was taken on the first day of Fall Quarter classes, and included all of the Coal Mining Technology students. While on this field trip, the students were taken underground in two shifts. They entered the mine through the mantrip, and the students were taken to a working section of the mine where they saw a continuous miner in operation. This particular miner was working on a pillaring type section in which 85% of the coal was being removed. While one group was underground, the other group viewed a film, and was taken through an area of the above ground section of the mine where the coal was cleaned and prepared.

The students were also able to watch the skips raising the coal out of the ground, etc. This trip proved to be very educational for the students, as this was the first time most of them had been in a coal mine. They were able to see first hand the actual operation of a coal mine.

FALL QUARTER - 1972  
GUEST SPEAKERS

Mr. Ted Plumlee, a representative of the Illinois Bureau of Mines, spent most of the month of August indoctrinating us into the background and operation of coal mines and the mining industry. During the first part of the Fall Quarter, both Mr. Harold Odle and Mr. Ted Plumlee were on campus to assist with the instructional program.

Mr. Chuck Harrison and Mr. Andy Copp visited classes during the month of September as guest lecturers.

SEPTEMBER 19, 1972  
FIELD TRIP: LEIGH COAL MINE  
CAMPBELL HILL, ILLINOIS

At this particular mine we saw the complete operation of a strip mine, including the removal of the overburden, the drilling and blasting of the overburden, the removing and loading of the coal onto the coal trucks, and the coal haulage to the cleaning and preparation plant. Here we watched, from start to finish, the sizing and cleaning of the coal to remove the impurities.

OCTOBER 2, 1972  
GUEST SPEAKER: MR. MIKE KENSEK

Mr. Mike Kensek of AMAX Coal Company lectured to the class on the subject of mine rescue.

OCTOBER 5 & 6, 1972  
FIELD TRIP: ILLINOIS MINING INSTITUTE  
SPRINGFIELD, ILLINOIS

The Illinois Mining Institute meeting proved to be of great educational value to the Coal Mining Technology students by allowing them to learn from industry leaders what was actually happening in the coal mining industry. It also gave the students an opportunity to meet and talk with many of the people involved in coal mining operations. During the meeting, they listened to presentations from many different speakers including representatives from industry, the Federal Bureau of Mines, etc. This meeting held special importance to the students of Wabash Valley College since a major portion of the program was a presentation entitled "Education for Industry" presented by Herman Ahlfield, Dean of Instruction at Wabash Valley College. This presentation outlined the development of the Coal Mining Technology Program at Wabash Valley College. Dean Ahlfield introduced the students and Mr. Harold Odle for special recognition.

OCTOBER 17 & 18, 1972  
GUEST SPEAKER: MR. ANDY COPP  
FEDERAL BUREAU OF MINES

Mr. Copp, from the Federal Bureau of Mines, spoke to the class on Federal Law. At the completion of his presentation, the students were eligible to receive their Federal Law Certification.

OCTOBER 24, 1972  
GUEST SPEAKER: BILL BRENT  
MC NALLY PILLSBURY MANUFACTURING COMPANY

Mr. Brent gave a presentation to the class on the methods and machines used in the preparation of coal. He explained all the different processes used by McNally-Pittsburg in preparing coal for the consumer.

NOVEMBER 6, 1972  
GUEST SPEAKER: MR. TED PLUMLEE

During the month of November, Mr. Ted Plumlee visited the Coal Mining Technology class as a guest lecturer.

NOVEMBER 9, 1972  
FIELD TRIP: BENTON MINE RESCUE STATION  
MAT INDUSTRIES

At the Benton Mine Rescue Station students had an opportunity to observe the chemist making the different types of tests that are made on mine air samples after they are taken in the mine. The students had an opportunity to wear a mine rescue self breathing apparatus for about 15 minutes. In this way, the students were able to learn first hand what the self-breathing apparatus is, how it operates, some of the problems involved, and the different operations that are involved in mine rescue work. While at MAT industries, we were given an excellent tour of their facilities, and observed the rebuilding of mining equipment with machines in all phases of rebuilding. They are completely stripped down and then rebuilt, piece by piece, until they are completely refinished. This field trip gave the students a good insight into the operations involved in repairing these types of machines. Later in the afternoon, we visited Budman Hydraulics, located in West Frankfort, Illinois.

DECEMBER 18, 1972  
FIELD TRIP: VALLEY STEEL MANUFACTURING PLANT  
FLORA, ILLINOIS

While touring this plant, the students were able to watch the complete operations involved in the manufacture of roof bolts used in coal mines. This included the incoming steel and rods which are manufactured into roof bolts, the flat steel which

is made into plates, and the expanders which are put on the end of the roof bolts. By learning what was involved in the manufacturing of these roof bolts, the students were able to gain some knowledge of what to expect when they are actually working in a mine, and using these roof bolts for their protection and safety.

JANUARY 9, 1973

GUEST SPEAKER: MR. DON SIMPSON  
ILLINOIS DEPARTMENT OF MINES AND MINERALS

Mr. Simpson's presentation to the Coal Mining Technology class concerned explosives used in the mining industry. To help the students become familiar with the equipment and explosives, he brought along samples, and demonstrated the various types of explosives, caps, detonators, cords, etc., that are used in coal mining.

JANUARY 16 AND 17, 1973

FIELD TRIP: SAHARA #21 MINE  
HARRISBURG, ILLINOIS

The students were taken underground in two shifts to watch a conventional mining unit in operation. They saw the cutting, drilling, blasting of coal with the use of compressed air, and the ventilation used with the room entry type of mining. Later in the day, they viewed the operation of a continuous miner in another section of the same mine. The students gained a good understanding of what the continuous miner is, how it operates, and the associated equipment used with the continuous miner in the room and entry type of mining.

JANUARY 18, 1973

GUEST SPEAKERS: MR. G.B. WILEY, MR. RON MORRIS, MR. DWANE MCCLUSKY  
SAHARA COAL COMPANY

These gentlemen answered any questions the students had concerning the field trip they had taken the previous two days to the Sahara #21 mine in Harrisburg, Illinois.

JANUARY 23, 1973

GUEST SPEAKER: MR. RALPH BEERBOWER, PRESIDENT  
AMAX COAL COMPANY

The Coal Mining Technology students were invited to attend the Chamber of Commerce meeting at the American Legion Hall in Mt. Carmel, Illinois. Mr. Beerbower was guest speaker for the evening.

JANUARY 29, 1973

GUEST SPEAKER: MR. SAM BEARD, SUPERINTENDENT  
WABASH MINE

Mr. Beard visited the class, and gave his views on the operation of the mine at Keensburg and the stage of development which the coal mine was in at that time.

JANUARY 31, 1973

GUEST SPEAKER: MR. HAROLD ODLE  
ILLINOIS DEPARTMENT OF MINES AND MINERALS

Mr. Odle spoke to the class concerning the coal reserves in the state of Illinois.

FEBRUARY 6, 1973

GUEST SPEAKER: MR. GARY SHAW, INSTRUCTOR  
WABASH VALLEY COLLEGE

Mr. Shaw worked with the students on the preparation and usage of resumes.

FEBRUARY 13, 1973  
GUEST SPEAKER: MR. GARY SHAW, INSTRUCTOR  
WABASH VALLEY COLLEGE

Mr. Shaw again met with the class to answer any questions they had on writing their resumes. He emphasized the importance of a profit attitude on the job.

FEBRUARY 17, 1973  
FIELD TRIP: AMAX COAL MINE  
KEENSBURG, ILLINOIS

On this trip, the class went down the slope of the mine to the working area, and went through the silos which were being built. Both were nearing completion. They also toured the coal the coal preparation plant at the mine site.

FEBRUARY 21, 1973  
STUDENT INTERVIEWS: MR. LARRY HORTIN  
AMAX COAL COMPANY

Mr. Hortin was on campus, and interviewed several of our students for possible electrical jobs with AMAX Coal Company. Mr. Harold Odle also visited on February 21, giving a presentation to the class.

MARCH 21, 1973  
STUDENT INTERVIEWS: MR. ROD LINDER AND MR. GARY SHAW  
INSTRUCTORS, WABASH VALLEY COLLEGE

Mr. Shaw and Mr. Linder served as employers, and conducted mock interviews with the students. The students were applying for jobs as coal miners at a particular coal mine (Inland Steel Company). The importance of job readiness or the lack of it and the profit attitude were stressed.

MARCH 22, 1973

GUEST SPEAKERS: MR. RICK WILLIAMS AND MR. LEONARD KNOWLES  
COUNTRY COMPANIES INSURANCE COMPANY

Mr. Williams and Mr. Knowles spoke to the class on the subject of life and health insurance. The students were able to ask questions concerning the effect their employment as coal miners would have on their ability to obtain insurance.

MARCH 28, 1973

GUEST SPEAKER: MR. CHUCK HARRISON  
AMAX COAL COMPANY

Mr. Harrison spoke to the class about the operation of a coal mine, and the stage of progress of the Wabash Mine.

MARCH 28, 1973

STUDENT INTERVIEWS: MR. LEO SCARPINO  
AMAX COAL COMPANY

Mr. Scarpino interviewed four of the Coal Mining Technology students, who had previous electronics background, for possible jobs with AMAX Coal Company.

MARCH 29, 1973

GUEST SPEAKER: MR. CHARLES JONES  
AMAX COAL COMPANY

Mr. Jones spoke to the class, at the Wabash Mine, on dust samplers and noise control. This gave the students more insight as to what the law requires on the taking of dust and noise samples, and what is involved in the noise and dust control areas of mining. The students also had an opportunity to use the equipment which is used to take noise and dust samples in a coal mine.

FIELD TRIP: U.S. BUREAU OF MINES AND HEALTH AND SAFETY SEMINAR  
EVANSVILLE, INDIANA

Five students and one instructor attended this seminar which was concerning coal mine safety, and the new types of machinery used in coal mining.

APRIL 5, 1973

FIELD TRIP: ARYCO COAL MINE                      WRIGHT MINE  
                    OAKLAND CITY, INDIANA                      YANKEETOWN, INDIANA

At the Aryco Mine, the students saw the complete procedures of the surface mining operation. The students were permitted to ride in some of the coal stripping machines while they were in operation to see exactly what was involved in the removal of the overburden of the coal. They watched the haulage of the coal from the mine to the coal dump, and from the coal dump to conveyor belt, up into the rock and coal crushing building in which the coal was sized and loaded onto train cars.

At the Wright Mine, the students watched the blasting of the overburden and the haulage of coal with large coal trucks which dumped directly into train cars located below them. The coal was then hauled to the Yankeetown dock where it was loaded onto barges.

APRIL 9, 1973

GUEST SPEAKER: MR. MIKE KENSEK

Mr. Kensek spoke to the class on the subject of roof and rib control as used in coal mines.

APRIL 27, 1973

INSTRUCTOR TRAINING: INLAND STEEL COMPANY  
                                    WALTONVILLE, ILLINOIS

Mr. Berberich and Mr. Linder visited the Inland Steel Company's training facilities and studied the use of mining

machines, electricity, hydraulics, etc. Later in the afternoon, they visited with Mr. Brad Evilsizer at Orient #6 mine. They toured the training facilities and discussed requirements for classes in the maintenance of electricity, hydraulics, etc.

MAY 7, 1973

GUEST SPEAKER: MR. HAROLD ODLE  
ILLINOIS DEPARTMENT OF MINES AND MINERALS

Mr. Odle spent the afternoon with the Coal Mining Technology class bringing them up to date on what was happening in the coal mining industry relating to the State of Illinois Department of Mines and Minerals.

MAY 14, 1973

STUDENT INTERVIEWS: INLAND STEEL COMPANY  
WALTONVILLE, ILLINOIS

Three students from the Coal Mining Technology class interviewed at Inland Steel Company.

MAY 14, 1973

GUEST SPEAKER: MR. MIKE KENSEK  
AMAX COAL COMPANY

Mr. Kensek spent the afternoon with the class on the subject of roof and rib control.

MAY 16, 1973 AND MAY 17, 1973

FIELD TRIP: KINGS STATION MINE  
PRINCETON, INDIANA

The students toured this mine in two groups, one each day, and saw continuous miners being used with the room and entry type of mining.

MAY 21-23, 1973  
INSTRUCTOR TRAINING: U.S. BUREAU OF MINES  
BENTON, ILLINOIS

A WVC instructor attended a Federal Law, Teacher's Certification course sponsored by the U.S. Bureau of Mines. During the class, federal law was discussed in detail. At the end of the course, the instructor was qualified to teach federal law to the Coal Mining Technology students.

MAY 24, 1973  
INFORMATION MEETING: AMERICAN LEGION  
MT. CARMEL, ILLINOIS

Wabash Valley College co-sponsored a coal mine information meeting with the Mt. Carmel Chamber of Commerce. Herman Ahlfield chaired the meeting which included personnel from the State of Illinois Department of Mines and Minerals, Public Service Indiana, and AMAX Coal Company. Speakers examined the effects that the coal mining industry would have on this area. Mr. Berberich gave a short presentation on the Coal Mining Technology Program at Wabash Valley College. This meeting was open to the general public.

JUNE 1, 1973

Wabash Valley College administrators met with Mr. Leo Scarpino of AMAX Coal Company to determine meeting times and requirements for the Electrical Mine Maintenance II and III classes to be offered by AMAX at Wabash Valley College during the Summer.

JUNE 4-6, 1973

INSTRUCTOR TRAINING: AMAX COAL COMPANY  
MILLERSBURG, INDIANA

Two instructors and one student attended this noise and dust control clinic sponsored by AMAX Coal Company. At the end of this course, the instructors were certified by the U.S. Bureau of Mines to teach noise and dust control to the Coal Mining Technology students. Instruction included the sampling of noise, repair and maintenance of machinery, calibration of machinery, etc. to get accurate readings from both noise and dust control instruments.

JUNE 5-21, 1973

Mine Electricity Maintenance II and III were offered at Wabash Valley College in cooperation with AMAX Coal Company. Mr. Leo Scarpino, along with WVC instructors taught the courses in Mine Electrical Maintenance. At the completion of the courses, WVC Coal Mining Technology instructors were certified by the U.S. Bureau of Mines as instructors for Mine Electrical Maintenance I, II, and III.

JULY 8-12, 1973

INSTRUCTOR TRAINING: JOY TRAINING SCHOOL  
FRANKLIN, PENNSYLVANIA

Four WVC instructors visited the Joy Training School and toured the manufacturing plants where the mining machines are made and assembled, and also the chain plant where the chains and tracks for the cutting machines, etc. are manufactured and assembled. The instructors were able to observe what Joy was doing in the area of training and maintenance for people in the

coal mining industry, learn how their machines were made, and what training aids were available for their particular machines and equipment.

AUGUST 8, 1973  
INSTRUCTOR TRAINING: SIMULATED MINE  
CRANE NAVAL DEPOT

A tour was taken of the simulated mine located at the Crane Naval Depot in Indiana. Instructors gained information as to what would be needed to construct the WVC simulated mine.

AUGUST 22, 1973  
INSTRUCTOR TRAINING: PENNSYLVANIA STATE UNIVERSITY  
JOHNSVILLE, PENNSYLVANIA

Mr. Herman Ahlfield, Mr. Rod Linder, Mr. Joe Berberich, and Mr. Charles Harrison toured the simulated coal mine constructed by Pennsylvania State University as a training facility. Information was gained on methods for construction of their simulated mine, and the arrangements made with cooperating coal companies in their area.

SEPTEMBER 10, 1973  
STUDENT INTERVIEWS: MR. SAM BEARD  
WABASH MINE

Mr. Beard interviewed three students, and hired two of them, both sophomores in the Coal Mining Technology Program.

OCTOBER 11 AND 12, 1973  
FIELD TRIP: ILLINOIS MINING INSTITUTE  
SPRINGFIELD, ILLINOIS

Two instructors and most of the Coal Mining Technology students attended the Illinois Mining Institute in Springfield, Illinois. The institute included presentations by representatives from the U.S. Bureau of Mines, and from the coal industry.

Some of the topics included were the Long-Wall operation and the safety devices being incorporated into new mining machines and operations. The students had an opportunity to meet and talk with many people from the coal mining industry.

OCTOBER 18, 1973

FIELD TRIP: NATIONAL MINE SERVICE MANUFACTURING PLANT  
NASHVILLE, ILLINOIS

During this field trip the students observed the stages of assembly of a continuous mining machine, and saw different types of boring machines and rippers manufactured by National Mine Services. An engineer for the company explained at some length the advances they had made in the area of safety in the use of this type of mining equipment.

DECEMBER 5, 1973

FIELD TRIP: INLAND STEEL COMPANY  
SESSER, ILLINOIS

This field trip included all of the Coal Mining Technology students during a tour of the Inland Steel Mine near Sesser, Illinois. The Inland Steel visit was the last prior to the ending of this project. The current status of project director and instructors are illustrated on the following data sheets.

PERSONAL RECORD

BEST COPY AVAILABLE

Herman E. Anifield, Project Director  
421 Lone Street  
West Salem, Illinois 62476

Telephone: 456-8470

Personal Details:

Age	39
Birthdate	March 16, 1935
Birthplace	West Salem, Illinois
Height	5'11 1/2"
Weight	187
Health	Excellent
Married	
Four Children	



Education:

B.S. in Education - Southern Illinois University

M.S. in Education - Southern Illinois University

Post Graduate - 50 quarter hours - Educational Administration  
Higher Education  
Occupational Education  
-Southern Illinois University

- 12 quarter hours - Curriculum Development  
-University of Illinois

- 4 quarter hours - Junior College Administration  
-University of S. Dakota

Work Experience:

Oil Field, Driller's Helper, Shell Oil Company and Laughlin Brothers  
Sales and Sales Management, Brunner Office Supply, Carbondale, Illinois  
Grade School Principal, Pinckneyville, Illinois  
Bookkeeping Income Tax Service, Insurance Sales - Owner-operator  
All-Fields Bookkeeping and Insurance  
Office Occupations Coordinator, Wabash Valley College  
District Director of Business and Related Occupations - Illinois  
Eastern Junior Colleges  
District Director, Vocational Education - Illinois Eastern Junior  
Colleges  
Director of Instructional Services, Wabash Valley College  
Dean of Instruction, Wabash Valley College

Mine Certification:

Use of Self Rescuer

PERSONAL RECORD

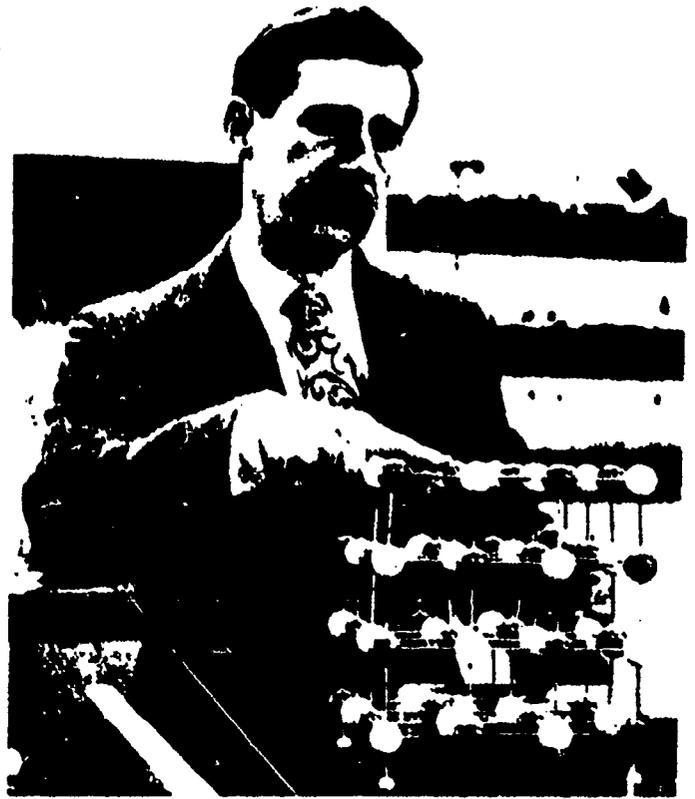
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Robert W. Adams, Instructor  
1217<sup>1</sup>/<sub>2</sub> Chestnut  
Mt. Carmel, Illinois 62863

Telephone: 262-8597

Personal Details:

Age	40
Birthdate	March 26, 1934
Birthplace	Bridgport, Illinois
Height	5'4"
Weight	140
Health	Excellent
Married	
Four Children	



Education:

B.S. - Vocational Agriculture Education - University of Illinois

M.A. - Science Education - Washington University, St. Louis, Mo.

Post Graduate 30+ semester hours - Mathematics, Geology, Higher Education  
and Physics

- Washington University
- University of Oklahoma
- Illinois State University
- Northern Illinois University
- Eastern Illinois University
- Southern Illinois University

Work Experience:

Total of 19 years in teaching, including four years in vocational agriculture, five years at Illinois State University in training of student teachers, and teaching physical science and physics, and four years in teaching at the junior college level.

Experience in Coal Mining Technology:

In-service training in Spring and Summer of 1972, including visitation to a number of coal mines in Indiana, Southern Illinois, and Kentucky.

Instructor for Coal Mine Atmosphere and Coal Mine Ventilation at Wabash Valley College during the Winter and Spring Quarters of 1973.

Additional Work Experience:

Relief Clerk for G. M. & O. Railroad during Summer of 1967, 1968, and 1969.

PERSONAL RECORD

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Rodney Linder, Instructor  
107 South Spring  
Princeton, Indiana 47670

Telephone: 812-385-3560

Personal Details:

Age	32
Birthdate	December 22, 1941
Birthplace	Centralia, Illinois
Height	5'11"
Weight	190
Health	Excellent
Married	
Three Children	



Education:

B.S. in Management - Southern Illinois University

Various State and Federal Mining Schools

Mining Certification:

Mine Manager - First Class - State of Illinois

Competency Certificate as Coal Miner - State of Illinois

Certification as Instructor by U.S. Department of the Interior in most areas of Mining

Mining Experience:

Industrial Engineer

Administrative Manager

Project Foreman

Section Foreman

Instructor

Teaching Experience:

Industrial

Junior College level

## PERSONAL RECORD

Joseph H. Berberich, Instructor  
R. R. 3  
Mt. Carmel, Illinois

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Telephone: 618-262-8120

### Personal Details:

Age	33
Birthdate	September 23, 1940
Birthplace	Mt. Carmel, Illinois
Height	5'8½"
Weight	170 lbs.
Health	Excellent
Married	
One Child	



### Education:

B.S. - Agricultural Education - Southern Illinois University  
M.S. - Agronomy - Southern Illinois University  
Post Graduate - 27 quarter hours - Occupational Curriculum Development  
Agricultural Education  
-University of Illinois  
- 12 quarter hours - Planning Occupational Facilities  
Occupational Guidance  
Administration and Guidance of Occ. Ed.  
-Southern Illinois University

### In-Service Training and Technical Schools

Massey-Ferguson Service Training School - Hydraulics & Combines  
Joy Maintenance Training School - Coal Mine Machines  
U.S. Bureau of Mines - Dust and Noise Control  
U.S. Bureau of Mines - Electrical Maintenance II and III  
U.S. Bureau of Mines - Health & Safety Seminar  
Illinois Bureau of Mines - Training Course in Coal Mining  
Vickers Industrial Hydraulics Training School  
Illinois State University - Mobile Hydraulic System  
International Haverstor Service Training School - Hydraulics and  
Diesel Fuel Pumps  
Allis-Chalmers Service Training School - Hydraulics, Diesels,  
Turbochargers  
Briggs & Stratton Service Training School - Carburetors, Starters,  
Engines

### Work Experience:

Instructor - Wabash Valley College - Coal Mining Technology, Agri-Mechanics  
and Hydraulics - 1967 to present  
Instructor - Teutopolis High School - Vocational Agriculture  
Field Technician & Salesman - Dow Chemical Company  
Foreign Student Orientation - Southern Illinois University

### Mining Certifications:

Certified by the U.S. Department of the Interior as an instructor in  
virtually every area of coal mining.

## PERSONAL RECORD

Stanley E. Greatline, Instructor  
R. R. 3, Box 85  
Albion, Illinois 62806

Telephone: 447-3379

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### Personal Details:

Age	39
Birthdate	February 22, 1935
Birthplace	Olney, Illinois
Height	5'10"
Weight	200
Married	
Two Children	



### Education:

Elkins Radio School - FCC Radio Telephone Operators License  
Fort Gordon Signal School - Radio and Communication Repair and Maintenance  
University of Evansville - B.S. Degree - Electrical Engineering  
- Computer courses - Cobal Language Programming  
RCA Data Processing School - Training in the use of RCA Spectra 70 Series  
Computers specializing in the use of Fortran IV  
RCA Institutes - Course in Logic Design of Digital Systems and  
specialized computing equipment with emphasis on hardware flexibility  
Southern Illinois University - M.S. Degree - Electrical Engineering  
Digital Equipment Corporation - mini-computer interfacing  
Joy Manufacturing Company - Electrical systems of Mining Equipment

### Work Experience:

Lead Instructor - Electronic Technology - Wabash Valley College  
Southern Illinois University - Scientific Programming Methods and Techniques  
Potter and Brumfield Division of A.M.F. - Manager of Digital Applications  
Telesis Engineering, Inc. - Senior Engineer Digital Electronics Group  
McDonnell Aircraft Corporation - Staff Design Engineer  
Martin Company - Junior Engineer  
WGBF, Inc. - Transmitter Engineer  
Illinois Broadcasting Company - Broadcasting Chief Engineer  
Military Service - U.S. Army Signal School  
Evansville Television, Inc. (WTVW) - Staff Engineer  
Olney Broadcasting Company - Radio announcer and equipment maintenance  
Boonville Broadcasting Company - Control Room Operator and Announcer

### Other Qualifications:

First Class FCC Radio-Telephone License since 1956

### Mining Certifications:

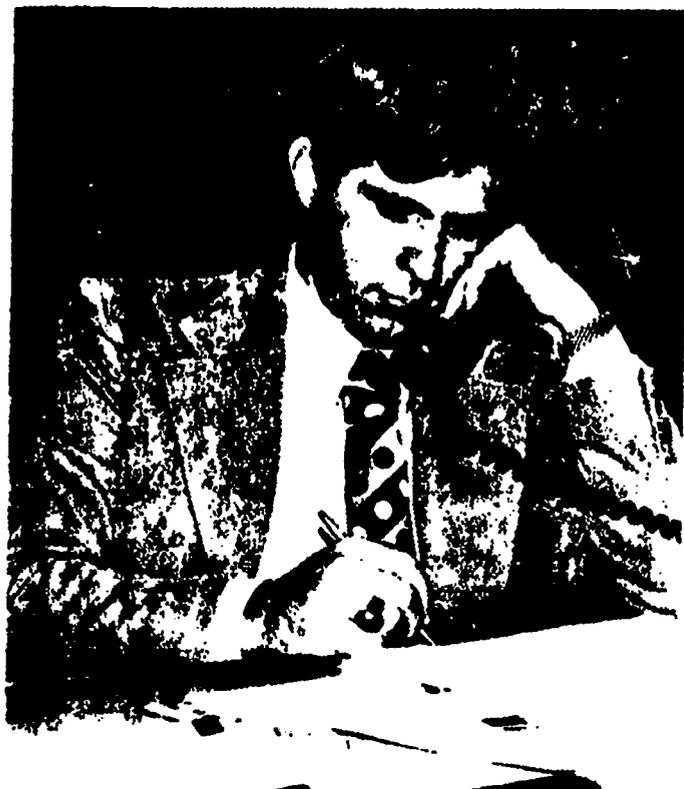
Qualified by U.S. Bureau of Mines for work on both surface and underground electrical systems.

## PERSONAL RECORD

Garry L. Slankard, Instructor  
P.O. Box 124  
Allendale, Illinois 62410

Telephone: 618-299-3621

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### Personal Details:

Age	28
Birthdate	September 30, 1945
Birthplace	Olney, Illinois
Height	5'8"
Weight	180
Health	Excellent
Married	
One child	

### Education:

Electronics Ordnance Systems - U.S. Navy Fire Control  
A.A.S. - Electronics Technology - Southern Illinois University - V.T.I.  
B.S. - Occupational Education - Southern Illinois University  
Graduate School - 12 quarter hours - Occupational Education  
Joy Miner's Vacation School - Franklin Pennsylvania  
Digital Equipment Corporation - Minicomputer Inter-facing - Maynard, Mass.  
Various Technical Courses

### Work Experience:

Mechanic - 1½ years

Oil Field Rotary Drilling - 2 years

U.S. Navy - radar, computers, & ordnance  
equipment operation & maintenance 4 years

Lowrey Organ Sales & Service - 1½ years

Electronics Instructor - Wabash Valley College - 3 years

Technician in R & D project (communications system) - 6 months

### Other Qualifications:

First class FCC radio telephone license

### Mine Certification:

Certified by U.S. Bureau of Mines as Underground/surface electrical  
instructor

## PLANNING AND DEVELOPMENT OF SIMULATED MINE

The training facilities needed for a new and innovative program like Coal Mining Technology are considerably different from the facilities needed for other occupational programs. The ultimate training, of course, would be in an actual mining situation, with the students working underground, operating equipment under the direct supervision and guidance of a trained instructor. However, training of this kind would necessitate one instructor for each student in the training program. It would also necessitate large expenditures for insurance, etc., since the students would be working under hazardous conditions. Through discussions with mining personnel and visits to mining operations in Southern Illinois, it was easy to determine that the actual training of an underground miner was very small, and in many cases almost non-existent. Our challenge for developing training facilities at Wabash Valley College was to as nearly as possible simulate mining conditions above ground in less hazardous surroundings.

Two different simulated mining facilities were inspected; the Madisonville Area Vocational Center at Madisonville, Ky., and the Pennsylvania State University project at Florence, Pa. The equipment operation at these two schools differed greatly. Many valuable ideas were derived for the development of a simulated mine for Wabash Valley College.

The following is a description of facilities taken from the Pennsylvania State University project:

"A simulated coal mine above ground and about an acre in overall dimensions will be built by the Association on a site located on Florence Mining Company property near New Florence, Pennsylvania, which has been approved by the Association and the Pennsylvania State University mining personnel. The proposed facility will include the necessary power, heat, telephone, heaters, fans, mobile mining machines, classroom office space, blackboards, storage areas, lamp racks, lockers, desks, and other items of equipment and supplies, required by the University for conduct of the training program. Sufficient space for trainees to operate machines will be part of the general design of the simulated mine.

Mining equipment will consist of one or more types of modern mining machines, shuttle cars, roof bolters, loading machines, rock dusters, and related equipment now in use in the field."

The planning for the Pennsylvania State project was very beneficial in determining procedures and facilities needed for Wabash Valley College, however, it should be kept in mind that they were awarded \$568,705.00 for the fulfillment of their objectives in this project.

From the initial stages of the development of the Coal Mining Technology program at Wabash Valley College, it was obvious that developmental and operational expenditures had to be kept to a minimum. Several discussions were held within the initial steering committee for the Coal Mining Technology Program concerning the different ways possible for the development of a simulated mine at a price that was in our reach. After many avenues were explored, it was decided to purchase an industrial

building shell and complete industrial site owned by the Mt. Carmel Industrial Committee. This non-profit citizen formed organization had constructed a 20,000 square foot three way expandable building in Mt. Carmel for the purpose of attracting an industry. Since no industry had accepted the offer of the building, it was offered to Wabash Valley College at a token price for the development of the simulated mine. A copy of the building and its specifications as promoted by the Mt. Carmel area industrial committee follows:

**NOW!**

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**READY FOR  
IMMEDIATE OCCUPANCY**

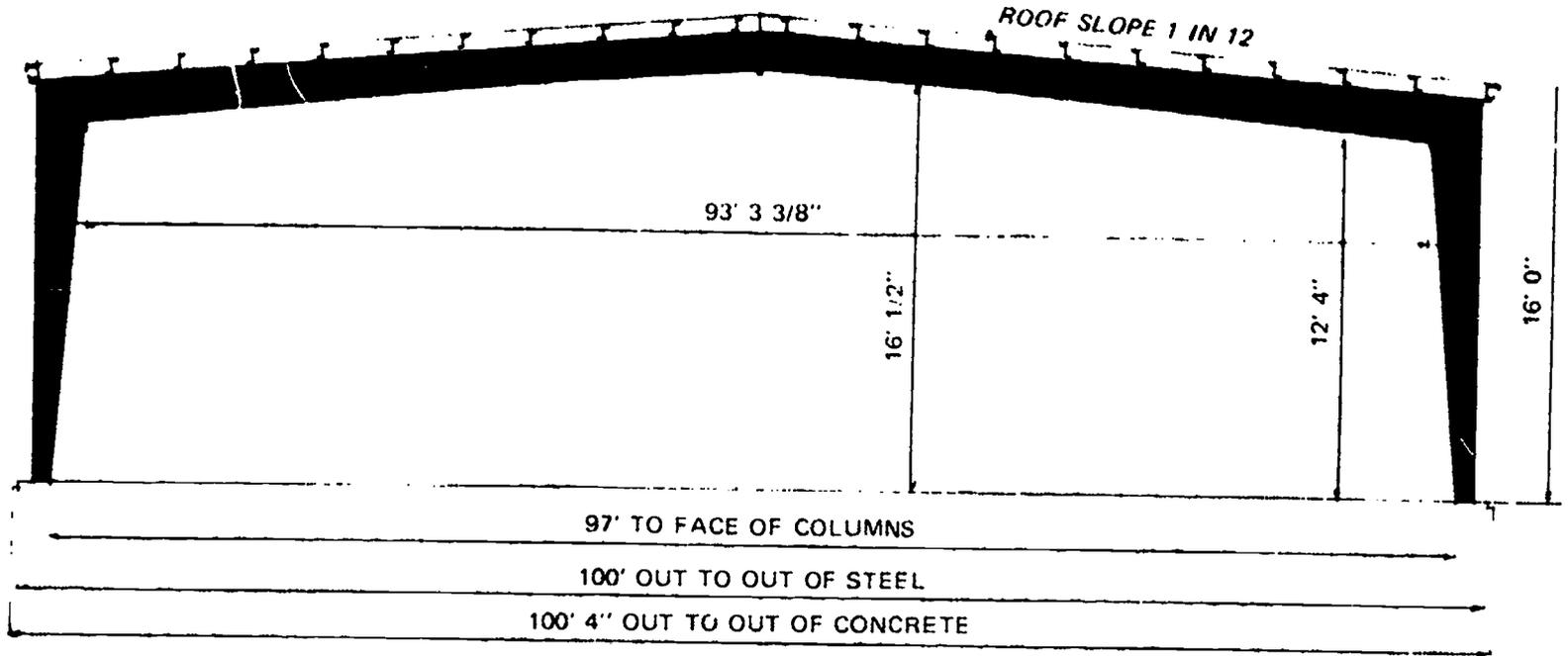


**20,000ft. 3 Way Expandable Building**

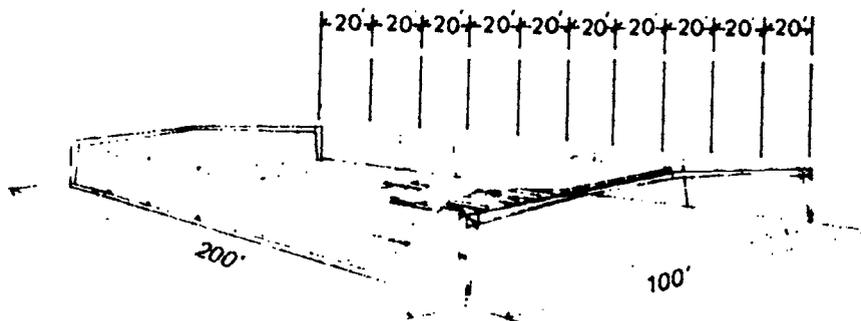
**In**

**Mt. Carmel, Illinois**

# BUILDING SPECIFICATIONS



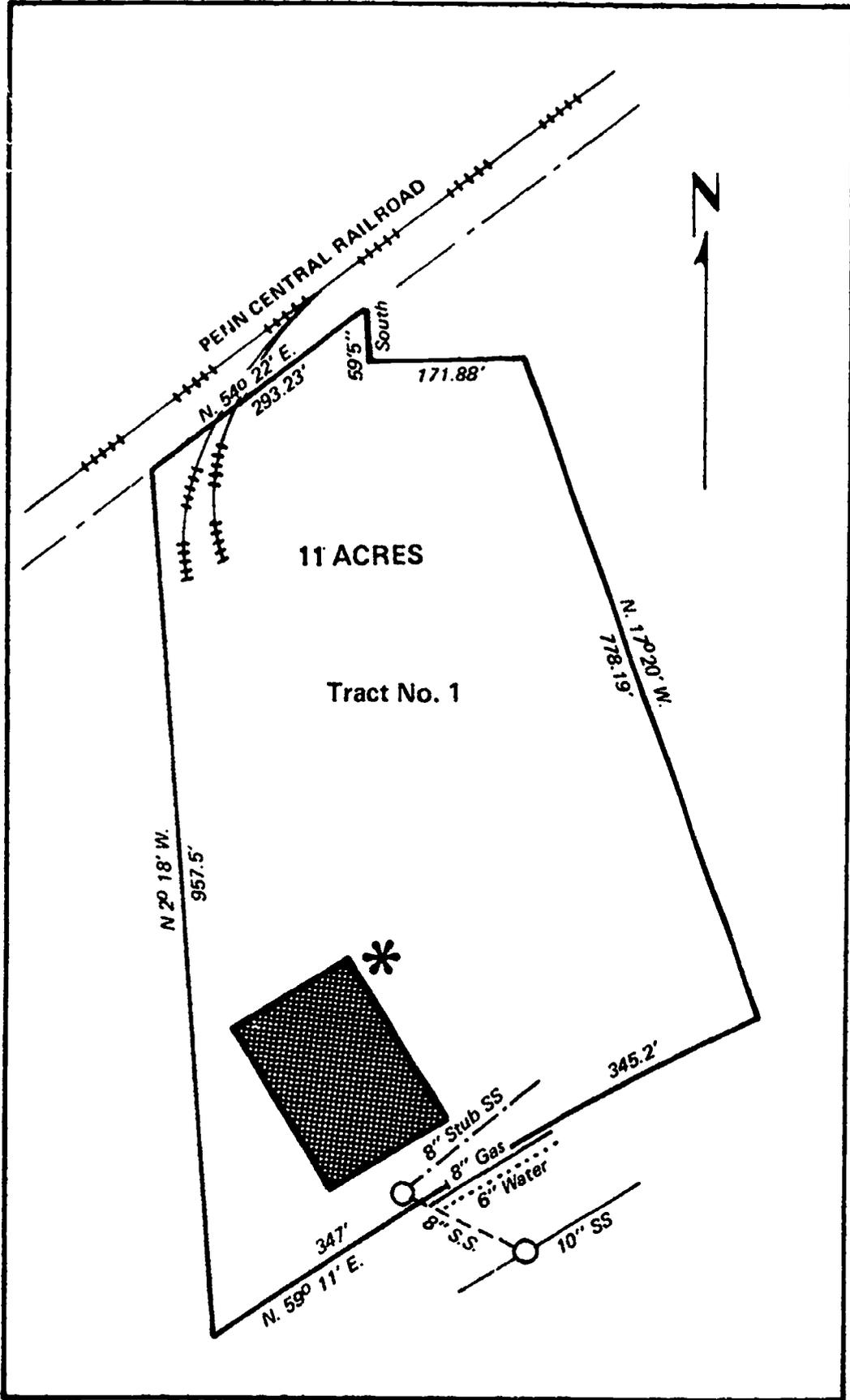
This building has concrete footings and foundation design based on 3,000 p.s.f. for continuous footings and 4,000 p.s.f. for isolated footings. This is an inland rigid frame, clear span building designed for 20 p.s.f. wind load plus 15 p.s.f. live load.



This building can be extended to any length in increments of 20 or 24 feet. The roof cover is 26 gauge galvanized inland AW panels with duo color finish. Wall cover is on piece 26 gauge galvanized inland AW panels with duo color finish. The roof and wall insulation is 1 1/2" thick reinforced foil laminate having a flame spread rating of less than 25.

Figure 1-C

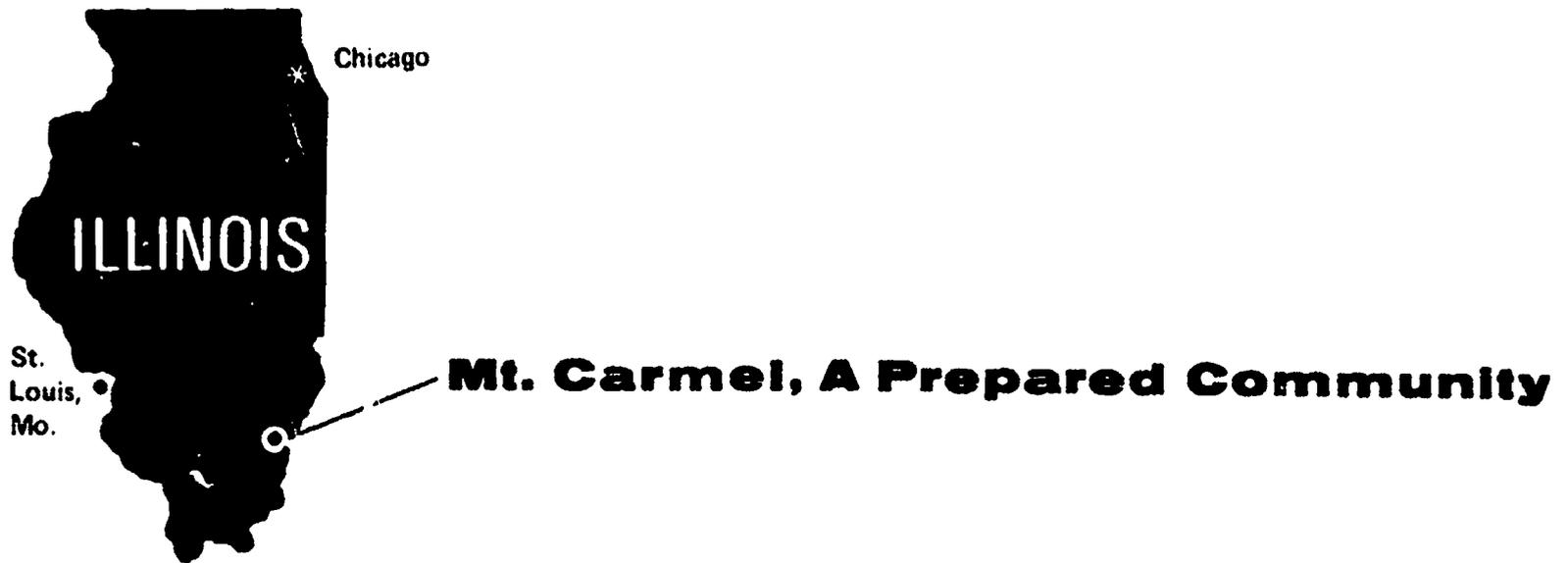
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This industrial site has been completely engineered. The analysis in detail with conjunction with many other facts on Mt. Carmel, Illinois is available upon request.

\* This 20,000 sq. ft. shell building on the above described land is owned by the Mt. Carmel Area Industrial Development Committee. This site is complete with water, sewer, gas and electricity.

Figure 1-D



## LOCATION

Located in southeastern Illinois, on the Wabash River, Mt. Carmel is 255 miles south of Chicago, Illinois; 140 miles east of St. Louis, Missouri; and 120 miles west of Louisville, Kentucky.

## TRANSPORTATION

Mt. Carmel is served by the southern Railroad, east and west, and the Penn-Central, north and south. Mt. Carmel is also served by State Route No. 1 and No. 15 with short distance to four major highways, U. S. No. 41 to the east, U. S. No. 50 to the north, U. S. No. 45 to the west, and No. 460 to the south. Mt. Carmel is but a short distance to Interstate No. 64 running from Evansville, to St. Louis, Missouri. By overnight and second day transportation you can reach more than 40,000,000 customers.

## LABOR

Mt. Carmel, with a population of approximately 9,000, has in its labor radius an excellent labor pool with a population in excess of 250,000 people. This labor is predominantly rural in nature and shows a high degree of productivity with a low absentee rate which lends itself to a very stable-type labor pool.

## OWNERSHIP

This industrial building shell and the complete industrial site is owned by the Mt. Carmel Area Industrial Committee. This non-for-profit citizen-formed organization is prepared to aid in financing for substantial manufacturers with long-term amortization.

### For Further Information

Mr. George Fisher  
Chairman Industrial Commission  
Mt. Carmel Public Utility Company  
Public Utility Building  
Mt. Carmel, Illinois  
Phone (Area 618) 262-5151

R. S. Henderson & Associates  
P. O. Box 556  
Carbondale, Illinois 62901  
(618) 457-5040

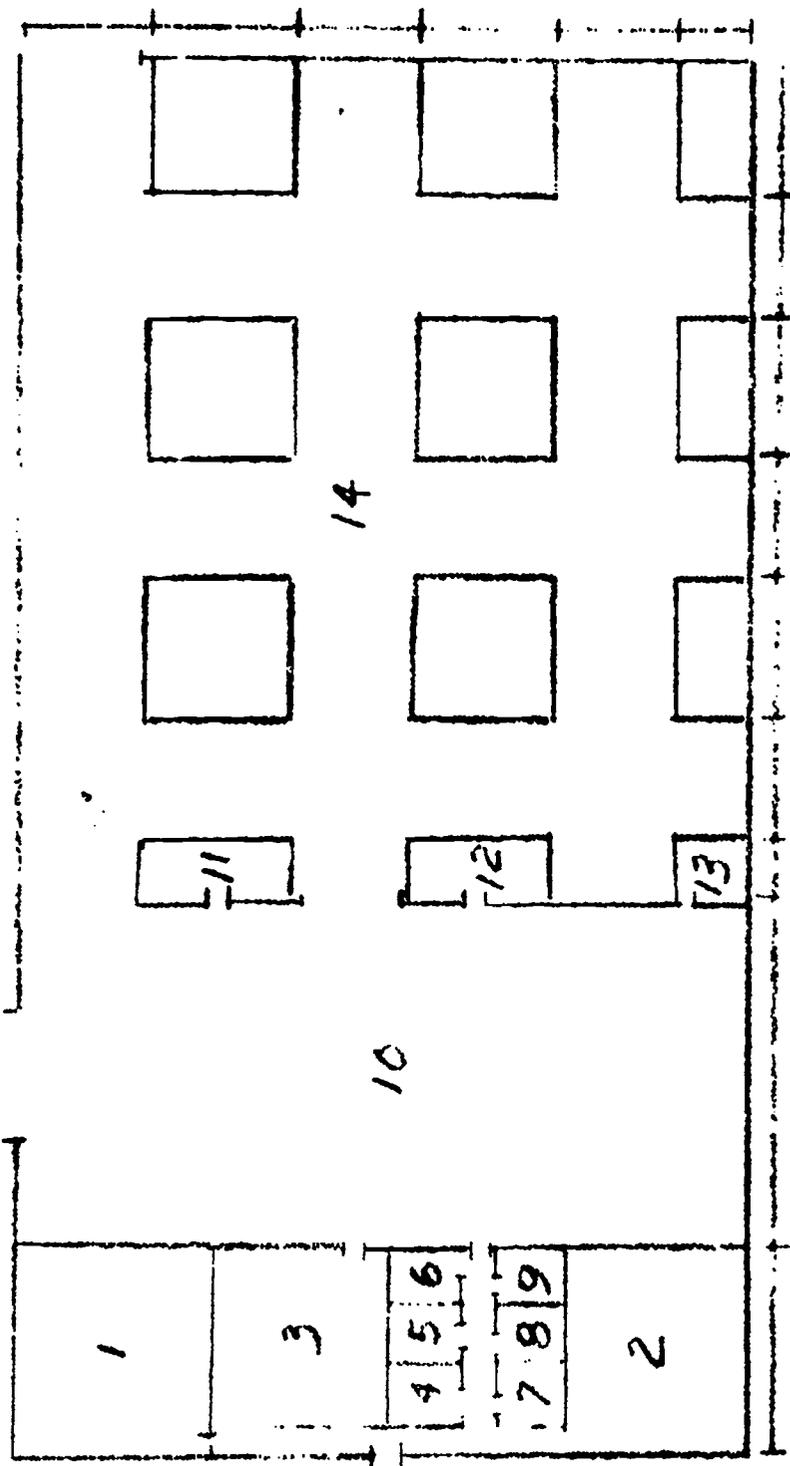
Once the building had been secured from the Mt. Carmel Area Industrial Committee, the original steering committee for the Coal Mining Technology program immediately set forth in developing a plan to use for the development of a simulated mine. The first proposal, listed as attachment 2 which follows, included classrooms, restrooms, offices, repair area, and the simulated mine itself. Figure 2 illustrates the cross-cuts as planned. There was a planned coal conveyor system along the exterior wall of the building, however, the length was not ample with the maintenance area toward the front of the building. After considerable discussions, and consulting help, it was determined to be more feasible to turn the repair area lengthwise with the building and extend the coal conveyor system down the center of the building. This layout is illustrated in figure 3.

With the development of the simulated mine according to figure 3, it is possible to operate a loading machine loading the coal off of the end of the conveyor system on to a shuttle car which in turn takes the coal back to the "tailpiece" of the conveyance system and dumps the coal for a continuous mining operation.

Once the decision on the floor plan for the simulated mine was established, it was essential to proceed with all haste for the development according to the plan. The development of the interior portion of the simulated mine was actually divided into two operations. One operation was the building of

classrooms, restrooms, offices, storage area, janitor's area and maintenance area including doors from the outside of the building. The second portion of the development was the simulated mine itself. Bids were received on the construction of the classrooms, restrooms, repair area, etc. After the bids had been reviewed, it was decided to defer the construction of the second classroom as illustrated in figure 3 until a later date. The contracts were awarded for the construction of all but the second classroom. The coal mining technology class, under the guidance of Mr. Joe Berberich, instructor, and Mr. Rod Linder, consultant, built the simulated mining area. It was our hope that the simulated mine be built strong enough so that if students should crash against the pillars of coal or the sides with a piece of mining equipment, the equipment would bounce off similar to hitting a heavy block of coal in a mine instead of tearing up the facilities. At the present time, the simulated mine is nearly completed. The coal conveyance system is strung, mining equipment is moved inside, and will be operational in the near future. The roof bolting simulation area has not yet been started, but will be developed as funds and time permit.

Figure 2



COAL MINING TECHNOLOGY BUILDING

SCALE: 1/32" = 1'

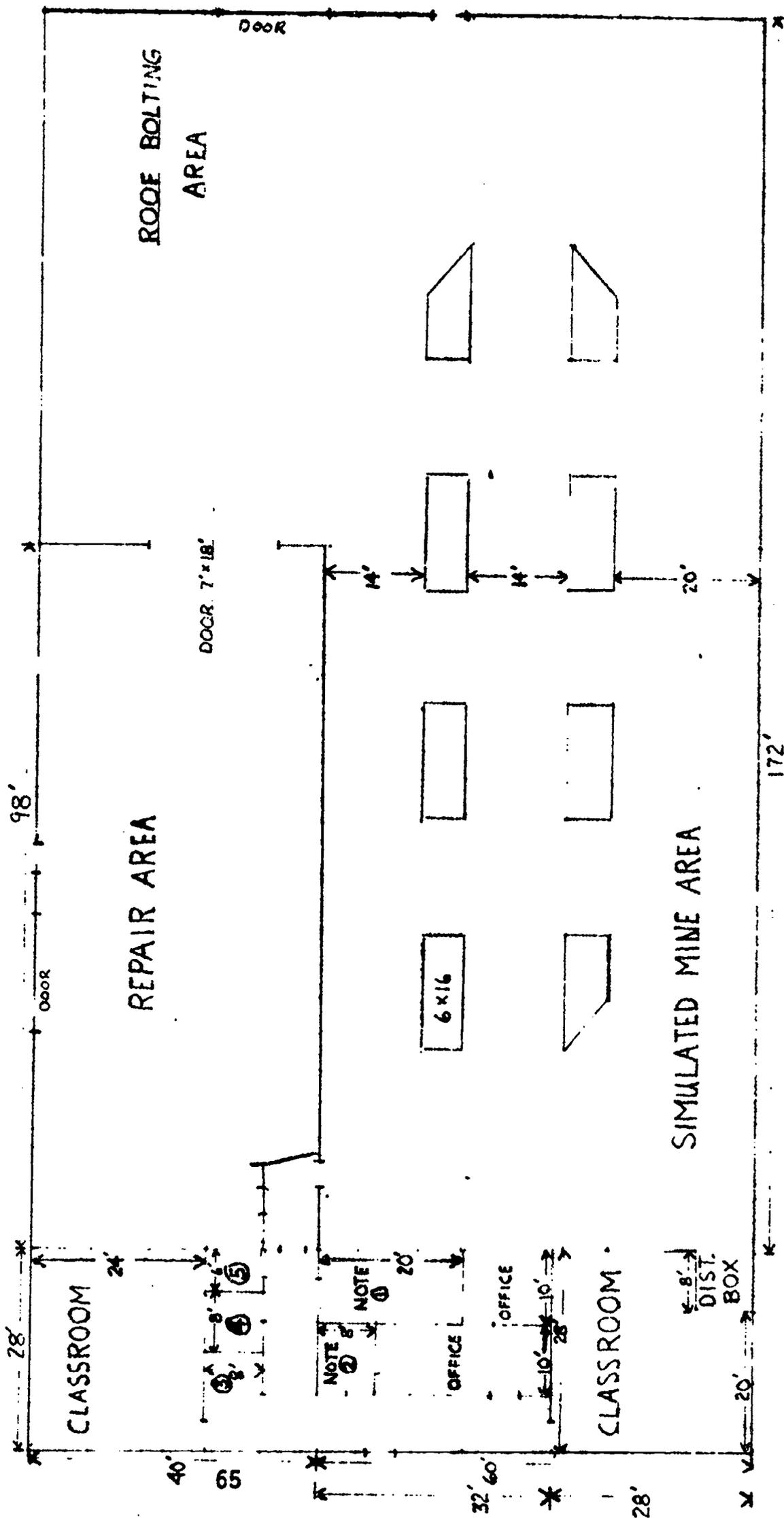
- 1 - Classroom #1 (25' x 30')
- 2 - Classroom #2 (25' x 30')
- 3 - Men's Restroom & Shower (25' x 25')
- 4 - Secretary's Office (10' x 9')
- 5 - Furnace Room (10' x 9')
- 6 - Ladies Restroom (10' x 7')
- 7 - Office (10' x 9')
- 8 - Office (10' x 8')
- 9 - Office (10' x 8')
- 10 - Hydraulic & Electrical Repair (100' x 50')
- 11 - Storage (20' x 9')
- 12 - Tool Room (20' x 9')
- 13 - Custodian Closet (10' x 9')
- 14 - Simulated Coal Mine (100' x 120')

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NOTES

- ① MENS SHOWER
- ② LADIES RESTROOM
- ③ DISPLAY AREA
- ④ FURNACE ROOM
- ⑤ CUSTODIAL STORAGE

Figure 3



FUNDING  
PROCUREMENT OF EQUIPMENT AND MATERIALS

The funding and procurement of equipment and materials for the Coal Mining Technology Program has probably been the most difficult, but also the most interesting part of the planning, development, and implementation for this new and innovative program. It is also one of the major research objectives of this total project, since recommendations are to be made regarding future funding for new and innovative program development. Many approaches were made to get the project funded both before and after the proposal was submitted to DVTE for this Research and Development contract. The different approaches and funding requests will be illustrated in the order in which they were developed, altered, and resubmitted, etc.

From the beginning it was known that a program of this kind would be very expensive and assistance with funding would be necessary. Mr. Harold Odle had discussed requirement of funds and also possibilities of funding from the Federal Bureau of Mines or from Manpower. Mr. Chuck Harrison from AMAX Coal Company had discussed the possibility of providing some salvaged mining equipment if some could be located. The Honorable Roman C. Pucinski discussed coal mining with the writer at the American Vocational Association meeting in Chicago and offered his assistance in trying to promote funding.

As a result of this governmental interested, I contacted Representatives George Shipley, and Kenneth Gray, and Senator Charles Percy (as well as state officials) for their assistance in getting the project funded. Replies were received from all parties. Letters were written in our behalf by all except Senator Percy who felt that it should be a state affair, and that it would not be appropriate for a U.S. Senator to become involved. Copies of letters are included in the appendix. Many persons showed a great deal of interest in the future of coal mining, and our program to train miners.

The first major donation came when AMAX announced the closing of the Thunderbird mine near Terre Haute, Indiana. The following announcement was released by AMAX on November 22, 1972.

Indianapolis, November 22, 1972--Amax Coal Company officials met recently with representatives of Wabash Valley College, Mt. Carmel, Illinois, to donate to the College eight large underground coal mining machines for use in Illinois' first Coal Mine Technology program.

The program, the first accredited training program in coal mine technology in Illinois and the second such program at the junior college level in the nation, aims to provide participants with entry level skills in the coal industry. The equipment will be used by students for practical training under simulated mine conditions.

The curriculum encompasses fundamental, safe underground mining procedures in such areas as mine ventilation, roof control, machine operation and maintenance, and mine rescue and safety. A pilot run of the nine-month program began in September with 20 students.

#### Answering a Need

Modernization of the coal industry over the past few years has created a demand for highly skilled

persons to man the 23 underground coal mines in southern Illinois. Those mines account for over 6,500 jobs, according to the Illinois Department of Mines and Minerals.

Besides the manpower needed at the various mines already in existence in the area, AMAX Coal Company is constructing a new underground mine near Keensburg, Illinois, that will come on stream next year.

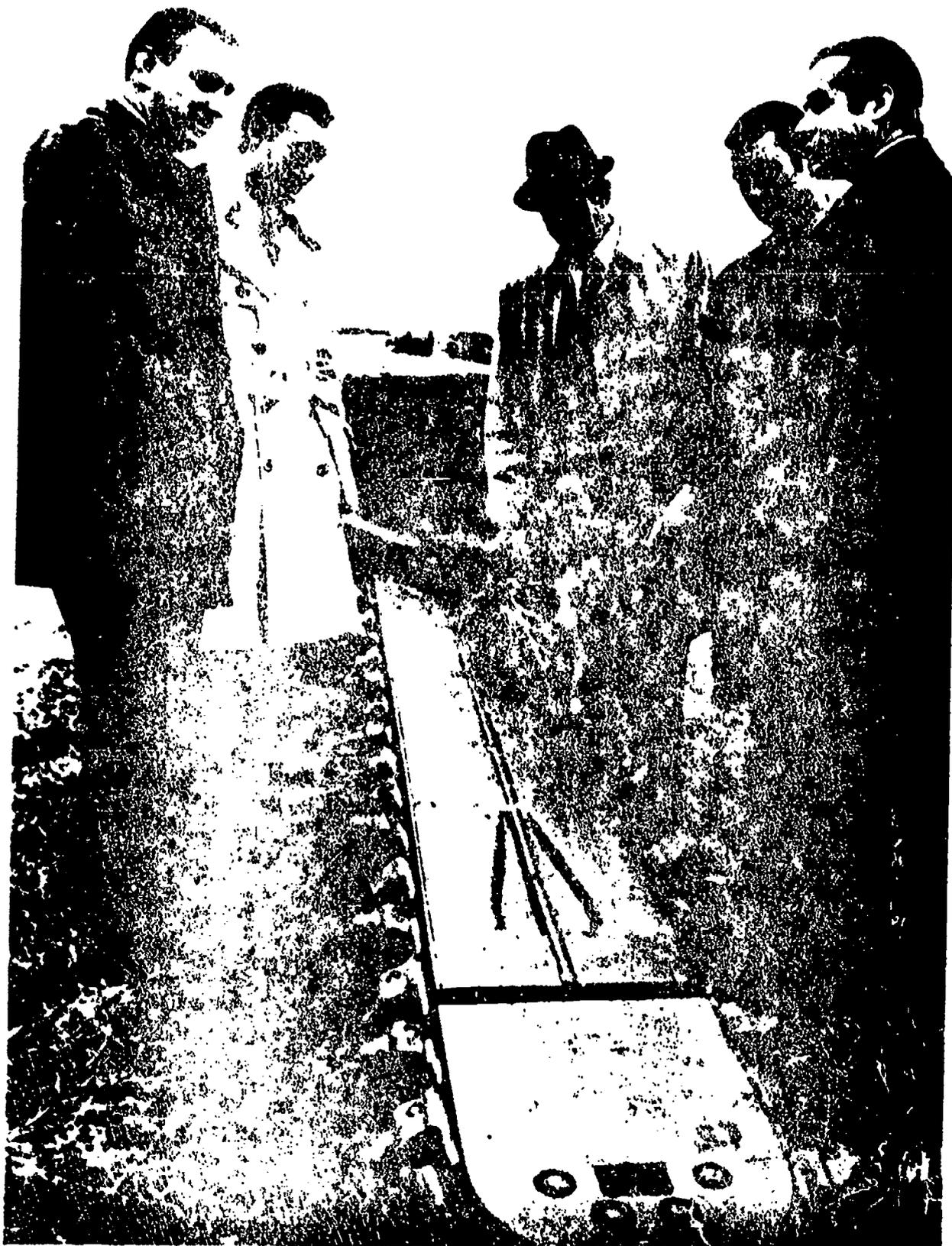
We will employ 600 persons when the Wabash Mine reaches full production, said H. Elkins Payne, Jr., AMAX Coal Company vice president for industrial relations. The mine is scheduled to produce 3.6 million tons of coal annually for Public Service of Indiana's Gibson generating station at Princeton, Indiana.

To help meet the rapidly expanding demand for skilled personnel at the Wabash facility and other mines being planned for southern Illinois, Wabash Valley College responded by developing the mine program in less than one year.

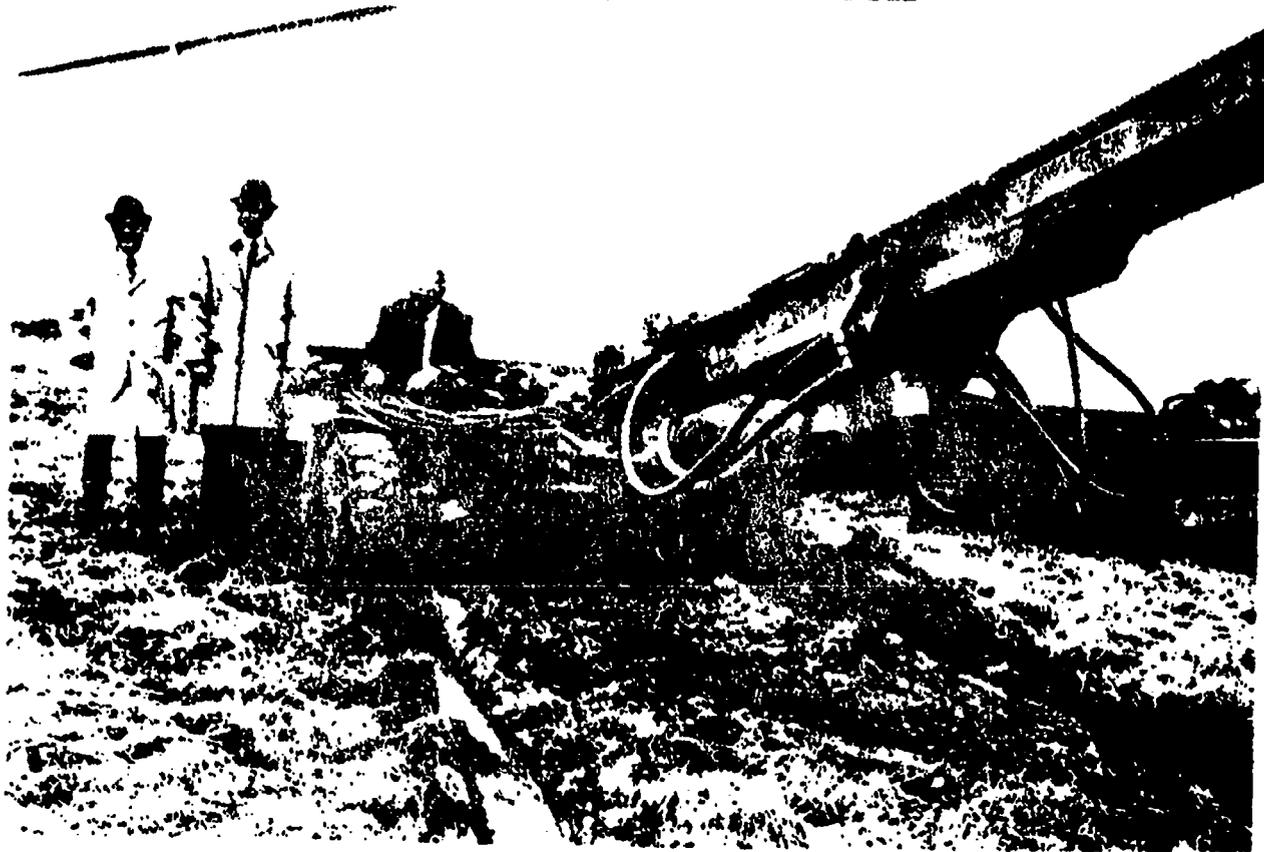
Dr. John L. Cox, president of the College, in receiving the AMAX donation of equipment, credited the efforts of many people involved in the development of the program, including Harold Odle, Illinois Department of Mines and Minerals; Clem Dovidas, Federal Bureau of Mines; Herman Ahlfield, Dean of Instruction, Wabash Valley College; Kenneth Wells, United Mine Workers of America; M.E. Hopkins, Illinois Mining Institute; Sam Beard, Superintendent of Wabash Mine, AMAX Coal Company, and Charles Harrison, Manager of Employee Development, AMAX Coal Company.

Pictures and illustrations of part of the donated equipment follows:

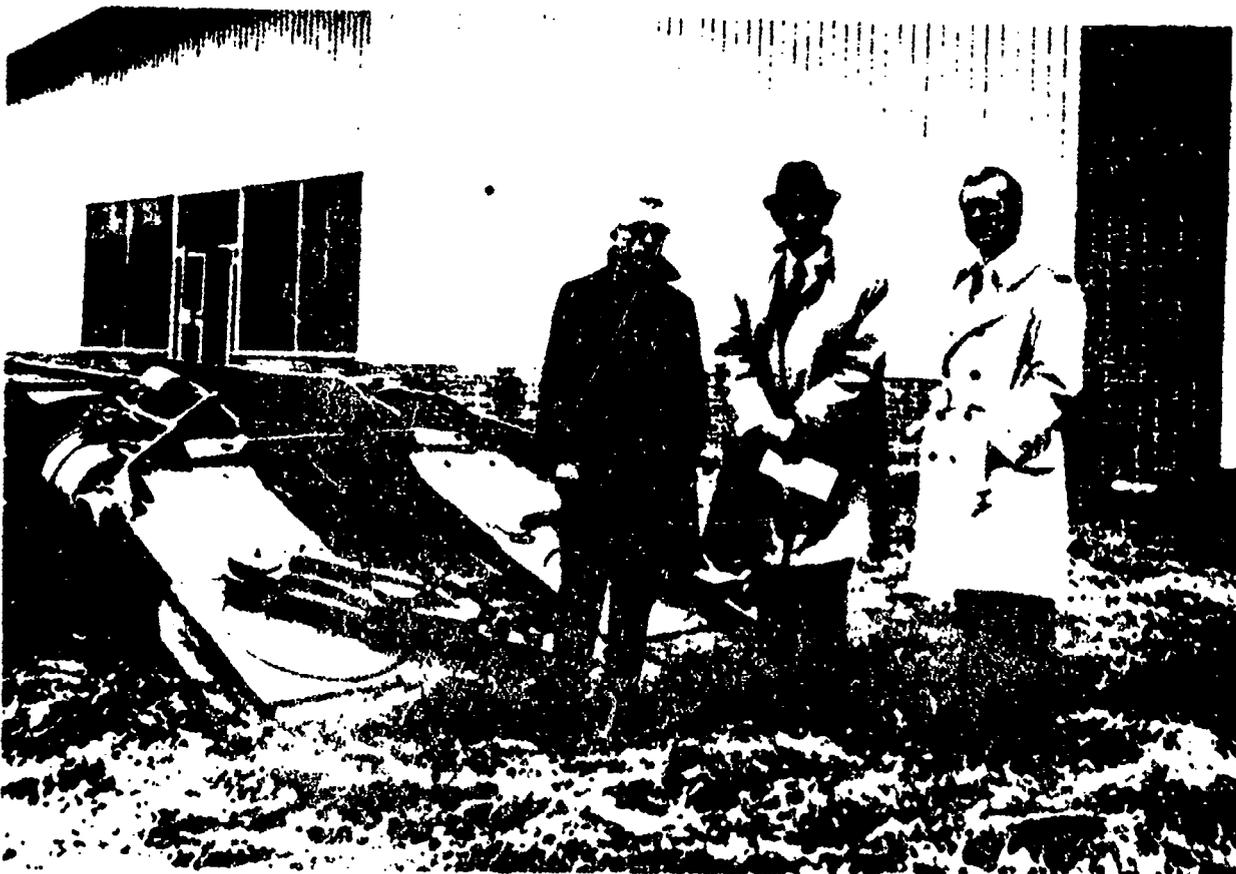
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**IT WORKS JUST LIKE a big chain saw explains Charles Harrison as he shows a coal loading machine to members of Illinois Eastern Junior Colleges administration. Left to right are Herman Arnold, dean of instruction; Dr. John Cox, president, Wabash Valley College; Dr. James ... , chancellor, Illinois Eastern Junior Colleges; Jesse H. Keyser, dean of intercampus affairs, IEJC; and Charles Harrison, manager, employee development, AMA Coal Company.**



**THE ODD LOOKING** equipment is fascinating to board members and the chancellor of Illinois Eastern Junior Colleges. Left to right are William Brubeck, Dr. James Spencer, chancellor, and Conrad Bauer.

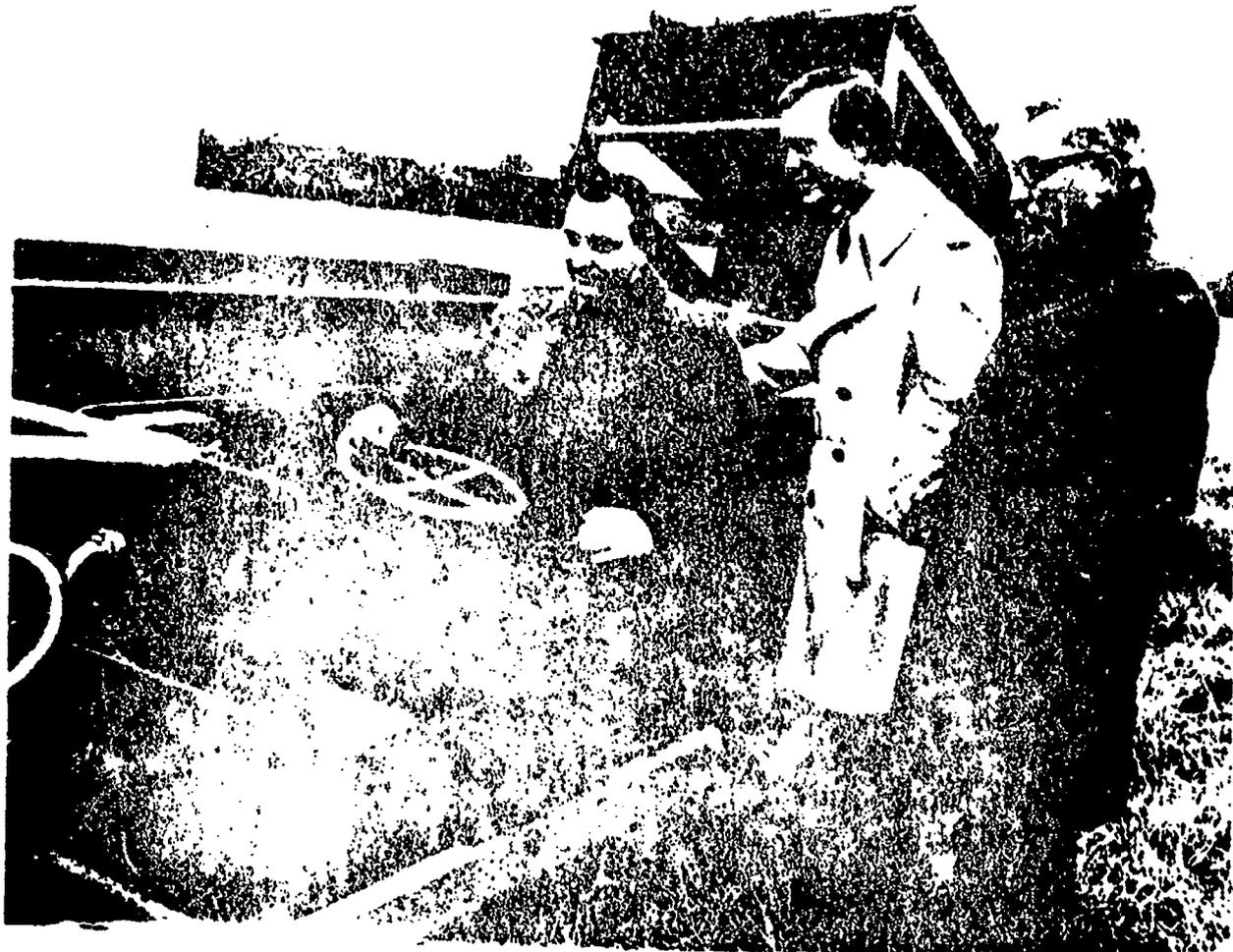


**POSING IN FRONT** of the new home of the Coal Mining Technology Program and a loading machine donated by AMAX Coal Company are, left to right, Sam Beard, Dr. James Spencer and Dr. John Cox.



**FORMAL PRESENTATION OF** coal mining equipment from AMAX Coal Company to Wabash Valley College takes place with Sam Beard, left, Keensburg Mine Manager handing over title to Dr. John Cox, center, president, Wabash Valley College and Dr. James Spencer, connceller, Illinois Eastern Junior Colleges.

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"JUST LIKE DRIVING a car!" says Herman Ahlfield, dean of instruction with the encouragement of Dr. John Cox, president of Wabash Valley College, and under the guidance of Sam Beard, right, Keensburg Mine Manager.

Soon after receiving the donation of mining equipment, a proposal was submitted by Mr. Harold Odle on our behalf to Mr. Bob Gray, Special Assistant to Governor Ogilvie, asking the State Department for special funding. The budget was set at bare minimum figures and included only those items which we knew it would be impossible to operate without. A copy of this budget as submitted in September, 1972 follows:

ILLINOIS EASTERN JUNIOR COLLEGES  
WABASH VALLEY COLLEGE

COAL MINING TECHNOLOGY PROGRAM

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September, 1972 - June, 1973

EXHIBIT I INSTRUCTION

1. Direct Costs

Personnel

Project Director (1) (Part Time)	\$4,200
Instructors (2)	22,000
Guest Lecturers - State and Federal Agencies	Contributed
Administrative Coordination	2,400
Secretarial and Clerical Assistance	1,200
In-Service Training for Instructors	5,000
Total Personnel	\$34,800

Travel

Expenses for project staff to plan and conduct the program	\$1,800
Expenses for guest lecturers	Contributed

All travel by project staff to be in accordance with college travel regulations

Total Travel	\$1,800
--------------	---------

<u>Learning Resource Materials</u>	\$ 500
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Instructional Supplies & Materials

Including but not limited to such items as hand outs materials, duplicating and testing	\$1,250
-----------------------------------------------------------------------------------------	---------

Instructional Equipment

Dust sampler, methane detector, gas test hood unit, safety lamps and magnet	\$1,500
-----------------------------------------------------------------------------	---------

Office Supplies & Communications

Including but not limited to such items as letter-head, envelopes, brochures, telephone, telegraph, postage, etc.	\$ 350
-------------------------------------------------------------------------------------------------------------------	--------

Total Direct Costs	\$40,200
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2. <u>Indirect Costs</u>	3,300
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Grand Total	<u>\$43,500</u>
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## BUDGET

Wabash Valley College proposes to administer the described Pilot Project during a twelve-month period following a start up period of no more than three months after funds are made available for a total cost of \$99,700.00 . Local contribution to be 20% or \$19,940.00.

### ILLINOIS EASTERN JUNIOR COLLEGES WABASH VALLEY COLLEGE

#### A. Personnel

Project Co-ordinator (1-part time)	\$5,200
Accounting Assistants	1,200
Secretarial & Clerical Assistance	1,000
Total Personnel	<u>\$7,400</u>

#### Travel

Expenses for Project Co-ordinator to supervise the programs	\$1,000
-------------------------------------------------------------	---------

#### Office Supplies & Communications

Including, but not limited to, such items as letterhead, envelopes, brochures, telephone, postage, etc.	\$ 400
---------------------------------------------------------------------------------------------------------	--------

#### Mining Equipment Rental & Purchase

Including, but not limited to, such items as a miner, shuttle car, roof bolter and loading machine, etc. Original purchase price of approximately \$300,000.00.	\$7,000
-----------------------------------------------------------------------------------------------------------------------------------------------------------------	---------

#### Insurance

Public liability & Personal property damage	\$ 400
---------------------------------------------	--------

#### Simulated Mine & Classroom Facilities

Including, but not limited to, such items as site preparation, grading, access road, parking facilities, construction of simulated mine, heating equipment and furnishings, including but not limited to, desks, chairs, etc.	\$40,000
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

#### B. INSTRUCTION (WABASH VALLEY COLLEGE)

See the Wabash College Proposal, which is attached as Exhibit I, for details of their budget).	\$42,500
------------------------------------------------------------------------------------------------	----------

TOTAL PROJECT COST

\$99,700.00

The proposal as submitted by the state of Illinois Department of Mines and Minerals in our behalf was rejected with the recommendation that it be revised in the proper form, and submitted to the State of Illinois, Division of Vocational-Technical Education for a grant under the Research and Development Unit. The budget portion of the revised proposal follows:

## Proposal Budget Summary

	Estimated Budget Requested from the DVTE	Local Contribution	Total
<b>I. <u>Salaries</u></b>			
1. Project Director 30% for 12 mo.	-0-	\$ 5250.00	\$ 5250.00
2. Secretary and Accounting 50% for 12 months.	-0-	2175.00	2175.00
3. Instructors 100% Two for 12 mo. or equivalent.	-0-	24,000.00	24,000.00
<b>I. <u>Contractual Service</u></b>			
1. Simulated Mine and facilities: Including, but not limited to such items as site preparation, grading, access road, parking facilities, construction of sim- ulated mine, heating equipment & furnishings, including but not limited to, desks, chairs, etc.	\$60,000.00	-0-	60,000.00
2. Mining Equipment Rental & Purchase Including, but not limited to, such items as a miner, shuttle car, roof bolter and loading machine, etc. Original purchase price of approximately \$300,000.00.	10,000.00	-0-	10,000.00
3. Teacher training expense In-Service Training for Instructors	4,000.00	-0-	4,000.00
<b>I. <u>Commodities:</u></b>			
1. Learning Resource materials (Text- books, films, Audio-Visual equip- ment, etc.)	5,000.00	-0-	5,000.00
2. Instructional Equipment: Including, but not limited to safety lamps and magnet, dust sampler, methane detector and gas test hood unit.	5,000.00	-0-	5,000.00
3. Safety Equipment: Including, but not limited to, steel toe shoes, hard hats, safety glasses, etc.	2,000.00	-0-	2,000.00

	Estimated Budget Requested from the DVTE	Local	Total
<b>IV. <u>Travel</u></b>			
Expenses for project staff to plan and conduct the program			
Expenses for guest lecturers (Contributed)			
All travel by project staff to be in accord- ance with college travel regulations	\$ 1,500.00	\$ 500.00	\$ 2,000.00
<b>V. Other Expense (Including but not limited to office supplies, telephone, duplicating, testing, reporting, etc.)</b>	<u>2,800.00</u>	<u>200.00</u>	<u>30,000.00</u>
	\$ 90,300.00	\$ 32,125.00	\$ 122,425.00

After submission of the proposal to Dr. Ronald McCage of the Research and Development Unit of DVTE, we were informed of their interest in the project and invited to discuss specific items, since \$30,000 was all the funds which were available to a post secondary project of this nature. The research objectives and budget were revised by adding objectives and decreasing the DVTE portion of the budget. After the revisions, the project received formal approval with the following budget:

	Estimated Budget Requested from the DVTE	Local Contribution	Total
<u>Salaries</u> (Fiscal year 1972-73 school year)			
1. Project Director 50% for 12 mo.	-0-	\$ 5,250.00	\$ 5,250.00
2. Secretary	-0-	1,000.00	1,000.00
3. Instruction:			
Joe Berberich 100% for 9 mo.	-0-	11,700.00	11,700.00
Bob Adams (part time)	-0-	2,000.00	2,000.00
Stanley Greatline (part time)	-0-	1,000.00	1,000.00
Garry Slankard (part time)	-0-	1,000.00	1,000.00
4. Research and Development			
Joe Berberich (2 mo. summer)	\$ 2,600.00	-0-	2,600.00
Bob Adams (1 mo. summer)	1,255.00	-0-	1,255.00
Stanley Greatline (1 mo. summer)	1,266.67	-0-	1,266.67
Garry Slankard (1 mo. summer)	1,033.33	-0-	1,033.33
AV Media Coordinator 20% 12 mo.	1,440.00	-0-	1,440.00
Secretary 3 months	1,000.00	-0-	1,000.00
<u>Contractual Services</u>			
1. Lease of Simulated Mine, etc.	-0-	81,000.00	81,000.00
2. Mining Equipment	-0-	300,000.00	300,000.00
3. Consultant Services 48 days @ \$75	3,600.00	-0-	3,600.00
<u>Commodities</u>			
1. Learning Resource Materials (Testbooks, films, transparencies, slides, audio-visual supplies, etc.) This includes development of teaching material and purchase of pre-developed materials. It does not include equipment	9,000.00	-0-	9,000.00
2. Supplies & Materials	6,500.00	750.00	7,250.00

Estimated Budget  
 Requested from  
 the DVTE

Local  
 Contributions

Total

IV. Travel

Expenses for project staff to  
 and conduct the program. Expenses  
 for guest lecturers (contributed).  
 All travel by project staff to be  
 in accordance with state travel  
 regulations

\$ 500.00	\$ 1,500.00	\$ 2,000.00
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V. Other Expense

1. Postage, supplies and duplication  
 of final report of project

800.00	-0-	800.00
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2. Telephone, office supplies,  
 testing, etc.

-0-	2,000.00	2,000.00
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3. Registration--Instructor training

<u>1,000.00</u>	<u>                    </u>	<u>1,000.00</u>
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\$29,995.00	\$407,200.00	\$437,195.00
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One can readily tell that the items which were funded were the extra expenses, devoted to research, development and instructor training which would not have been possible within our normal operating budget. However, they are items which greatly enhance the value of the instructional program for the students. It must be kept in mind that this was only a projected budget. Actual expenditures for the project are summarized as follows. Specific conclusions and recommendations on funding of new and innovative occupational programs will be illustrated in a later chapter entitled, Findings and Conclusions.

ACTUAL EXPENDITURES  
COAL MINING TECHNOLOGY

	<u>D.V.T.E.</u>	<u>Local</u>	<u>Total</u>
I. Salaries	\$8,595.00	\$ 2,725.00	\$ 35,845.00
II. Contractual Services	3,600.00	420,765.96	424,365.96
III. Materials and Supplies	15,250.13	750.00	16,000.13
IV. Travel	500.00	1,500.00	2,000.00
V. Other Related Expenses	<u>1,515.00</u>	<u>-0-</u>	<u>1,515.00</u>
 TOTAL EXPENDITURES	 \$29,460.13	 \$450,265.96	 \$479,726.09

In addition to the funding by Research and Development of the Division of Vocational-Technical Education, the program qualified for normal funding of on-going programs of the Community College Board and the Division of Vocational-Technical Education.

#### OTHER FUNDS AND EQUIPMENT

JOY MANUFACTURING: Donation of numerous teaching aids and electrical parts valued at approximately \$10,000 to \$15,000.

COMMONWEALTH EDISON: Donation of three used transformers valued at approximately \$5,000 to \$10,000.

ILLINOIS MINING INSTITUTE: Donation of \$750 for the advancement of the Coal Mining Technology program. (Another \$500 donation was received in 1973.)

The Illinois Mining Institute has for its object the advancement of the mining industry by encouraging and promoting the study and investigation of mining problems, by encouraging education in practical and scientific mining, and by diffusing information in regard to mining that would be of benefit to its members.

Membership includes any person directly engaged or interested in any branch of mining, mining supplies, mining appliances, or mining machinery. Any person desiring to become a member of the Institute shall fill out a blank for that purpose, giving his name, residence, age and occupation. This application shall be accompanied by the current year's dues as established by the Executive Board. Each application for membership shall be submitted to the Executive Board, who shall make an investigation as to the qualifications of the applicant, and shall be authorized

to elect to membership and issue a certificate of membership to such applicant subject to the ratification of the next regular meeting of the Institute.

Any person of distinction in mining may be elected an honorary member of the Institute by two-thirds vote of the members present at any regular meeting. Any member who has been an active member of the Institute and shall have retired from active business in mining may become an honorary member.

The annual dues for active members shall be determined by action of the Executive Board and any person in arrears on August 1, of the current year, after having been sent two notifications of dues, shall be dropped from membership. Members in arrears for dues will not receive the printed proceedings of the Institute.

Any active member may become a life member by the payment of \$50.00 and shall be exempt from further payment of dues during his lifetime.

The annual meeting shall be held in the fall of each year and on such days and in such places as may be determined by the Executive Board of the Institute. Notice of all meetings shall be given at least thirty days in advance of such meetings.

Meetings of the executive board shall be held on the call of the president, or at the request of three members of the executive board, the president shall call a meeting of the board.

ROYAL ORDER OF THE RACCOONS: Scholarship of \$1,000 to given to one or two worthy students pursuing the Coal Mining Technology program. (Another \$1,000 scholarship was awarded in 1973)

The Royal Order of Raccoons is a fraternal organization composed of people who work in all levels of the coal mining industry. Membership is also held by employees of support industries that supply and service the coal mining industry.

The society of the Royal Order of Raccoons was organized in 1946, and the first convention was called by the Chief Coon to be held in Marion, Illinois in January, 1947.

In 1973 the Order elected to promote the development of technical skills in the coal mining industry by sponsoring two \$500 scholarships to students interested in pursuing a degree in the mining field, the money to fund the scholarship to be provided by the membership fees contributed by each member of the Royal Order of the Raccoons.

Wabash Valley College was selected as the college to receive the scholarships, which were to be awarded to two outstanding students enrolled in the Coal Mining Technology Program.

MINING ELECTRICAL GROUP: Plans to donate to a scholarship fund in 1973.

The Mining Electrical Group (MEG) of Southern Illinois is composed of members who represent most of the major coal companies of Illinois and West Kentucky, major manufacturers, and suppliers who service their mines. The MEG meets on the first Thursday of each month excepting June, July, and August.

The program theme for 1974 is "Education and Training in the Coal Industry" and gives local schools in the area an opportunity to tell the members what type of training is available, and just how their curriculum is oriented to the coal mines.

AMAX FOUNDATION: Donations of \$1,500 for 1973-74, and other \$1,500 for 1974-75 school years. It is anticipated that these funds will be used for the advancement of the Coal Mining Technology program.

D.V.T.E. - VE-10 EQUIPMENT: Wabash Valley College receives 60% reimbursement of equipment approved and purchased through normal funding.

A complete inventory of available equipment is included in the appendix.

## PROGRAM PROMOTION

Many of the items on program promotion are self-explanatory and will be of interest in their entirety. For this reason, the bulk of this subject will be newspaper articles, articles from national coal mining magazines, etc., as they were published. All articles which were selected for this publication relate directly to the development and implementation of this new and innovative program in Coal Mining Technology. Not nearly all of the related articles are included due to space. I feel that an apology should be made on the quality of some of the picture reproduction; however, in many cases, the original photographs were destroyed in a fire at the Republican Register in Mt. Carmel, Illinois.

All normal procedures which were utilized for program promotion by Wabash Valley College will not be illustrated. They are Student Personnel Services presentations to area high schools, presentations to all local advisory councils and administrative boards, and presentations to civic organizations by administrators and staff, etc.

The first formal presentation was to the Economic Development Conference. An article follows. Comments will be made only when additional explanation or information is needed on the following articles.

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## EVALUATION

Evaluation of this project as well as most other projects is one of the most difficult tasks. The research objectives stated that evaluation would be solicited from students through follow-up surveys and interviews, from the employing industry, from the state of Illinois Department of Mines and Minerals, from the Federal Bureau of Mines, and from the Coal Mining Technology instructional staff. Evaluation by the Program Advisory Council will in one sense be omitted, but in reality, it is one and the same collectively of the representatives mentioned above.

Of the nineteen (19) initial students, (names and addresses are included in the appendix) fifteen (15) completed the first year program. They are employed as follows:

COAL MINING TECHNOLOGY GRADUATES - 1973

<u>NAME</u>	<u>PRESENT EMPLOYMENT</u>
Storckman	Employed by AMAX Coal Company
Newkirk	Employed by AMAX Coal Company
Smith	Will be employed by Inland Steel Company when he loses enough weight
Hastings	Employed by AMAX Coal Company as an instructor
Armstrong	Continuing in the 2nd year of the program
Crooks	Continuing in the 2nd year of the program
Harvey	Continuing in the 2nd year of the program
Xanders	Continuing in the 2nd year of the program
Minter	Selling real estate
Horrall	Has established a TV Repair Business
Reece	Is a Pepsi-Cola salesman
Patterson	Is working for Rafter-Truss Company
Garner	Is employed at Snap-on-Tools
Kidd	Is employed at Pacific Press & Shear

The reason given by graduates who are not employed in the coal mining industry is that jobs in mining were not available upon completion of the program. This problem is a direct result of the delays that AMAX Coal Company has experienced with the initial development of the Wabash Mine at Keensburg, Illinois. The graduates are local residents who prefer to wait for employment in the local mine operation, rather than move to a new locality to begin work in the mining industry. They are interested in jobs in mining as soon as opportunity for employment at the Wabash Mine is available.

Comments from the graduates reveal that no major changes in the curriculum are needed. Comments received were:

1. more lab time needed
2. some type of simulated experience (This comment was made before the simulated mine was operational.)
3. newer models of equipment and machines
4. classes scheduled closer together

From the comments from students, I conclude that the students are satisfied with the educational program received. There is also evidence that a high percent of the students are working in the mining industry, and that an even greater percentage will be working in the mining industry with the expansion of the Wabash Mine.

Evaluation by the employing industries was requested from Mr. Charles Harrison, Manager of Personnel and Employee Development, AMAX Coal Company. His evaluation is self-explanatory, and is included in its entirety as follows:



COAL MINING TECHNOLOGY  
WABASH VALLEY COLLEGE  
Mt. Carmel, Illinois

Evaluation of Program

General

AMAX Coal Company has found the staff and faculty at Wabash Valley College extremely cooperative in all our relationships. With a minimum of administrative problems, a Coal Mining Technology Program began seven months after an original idea was presented. The speed in which the College and Vocational Technical Board reacted to a community developing need is to be commended.

The speed of development did not distract in any way from obtaining a sound program. Goals were set up in relation to time perimeters and priorities set. Everyone just works a little harder to obtain their goals and quality was not sacrificed.

Wabash Valley College played a further admirable role in they developed a consensus from several governmental, union, and industrial interests. The obtaining of Mr. Rod Linder as lead instructor is an example of placing the right man in the right role. The college should be complemented in every way for all of its efforts.

The opening of AMAX Coal Company's Wabash Mine just South of Mt. Carmel will play an important factor in the future growth of the Coal Mining Technology Program. The mine has been plagued by construction problems, causing over a year's delay. Initial underground work requires by law, experienced miners, therefore, making it difficult to hire the Coal Mining Technology student graduates. However, even with this delay in operations at the mine, two students are presently working underground at the mine, and another was hired for an electrical instructor trainee.

When Wabash Mine reaches a final operation level it will employ over 700 with openings continuing on an annual basis of about 70 employees. It is anticipated at that time almost all graduates will have opportunity for employment. Presently other companies are also interested in the employment of the graduates.

## Recommendations

A course CMT-100, Orientation to Underground Coal Mining Safety be added to the catalog. This course would be primarily directed toward the working miner who does not wish to follow one or two year programs, however, needs a refresher course to enable him to be current on safety practices - Underground. This course would not be for the one and two year Coal Mining Technology student. Content would be a general overview of many of the items covered in depth in other courses. Content to include but not be limited to: Responsibility of Mine Management, Use of the Self-Rescuers, Mine Check-in and out Systems, Roof and Rib Control, Fundamentals of Accident Prevention, Dust and Noise Control, Rock Dusting, Permissibility, First Aid, Fire Fighting, Ventilation, Mine Gases, and Oxygen Deficiency. All topics would be of a refresher nature without depth.

All present courses listed in the Coal Mining Technology Program and their present plans for improvement are excellent. The Coal Mining Technology building is an excellent facility, and shows much forward thinking from the Wabash Valley College Staff and Faculty.

## Summary

In summary, the total program is an excellent one. The State of Illinois should be very proud of its accomplishments.

The evaluation from the State of Illinois, Department of Mines and Minerals was requested from Mr. Harold Odle, Mining Safety Training Specialist. This evaluation is self-explanatory, and is included in its entirety.





STATE OF ILLINOIS  
DEPARTMENT OF MINES AND MINERALS

EXPLOSIVES DIVISION  
503 EAST MAIN STREET  
BENTON, ILLINOIS 62812



April 11, 1974

Mr. Herman E. Ahlfield  
Dean of Instruction  
Wabash Valley College  
Mount Carmel, Illinois

Dear Mr. Ahlfield:

I appreciate the opportunity to evaluate your coal mine technology program. It has been a privilege for me personally to represent the state in helping establish your program. I count it a privilege to have been one of the first to suggest that Illinois should establish this type of program. It has been a good experience for me to represent the state of Illinois, Department of Mines and Minerals, both to you and our interest to the Illinois Board of Higher Education. You are to be commended for taking the initiative in the development of this training program to produce safer and more productive coal miners.

Adequate training for coal miners and prospective coal miners has recently come into great demand in the United States and in each coal mining state. Legislators, administrators, labor unions, and many other interested groups have lobbied over the past decade to establish proper training facilities for coal miners, mine inspectors, and prospective coal miners. Now the desire has become reality and with reality has come responsibility of implementation. Most states have facilitated training through legislation and with the assistance of federal grants. In many cases new state laws have required that all coal miners should successfully complete a basic training course. Also, mine training for mine electricians and mine foremen is being provided by some states including Illinois but we have been in need of help from educational institutions to better upgrade the necessary skills.

There are many questions still unanswered concerning the necessary skills which are required to perform the job in the field (in the mine). The basic training course for new miners would contain different material than a course for presently employed miners. You at Wabash have developed a training program which can satisfy some of the needs of both an entry level miner and a presently employed miner. Your curriculum has been built on sound adult

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educational principles, conforming to the legal requirements of the state and federal governments. As more and more emphases is placed on safety in mines, mine training must be based on the relevant needs of the mine activities and tasks in the Illinois coal mine.

In short, the objective of the Department of Mines and Minerals has been to meet the responsibility to the industry for both employed and entry level training which will enhance the coal miner's job by making him a more thorough and knowledgeable man.

I know that your primary objectives have been approximately the same as the Department's and you have been meeting the responsibilities to the people of your Junior College District and also to our industry. You have taught not only job skills but have also instructed the student in his responsibilities toward himself, the employer, the community, and the law. This has been a major task since not all participants have had the same educational background. Therefore, you have really had multiple starting places in your curriculum and you have overcome this obstacle with good skill.

You have accomplished your objectives and ours in realizing the training of unskilled men so that they will be equipped with the necessary information to perform their tasks with more excellence. However, often the employees have not been given the tools nor the comprehension or community resources or psychological preparation to keep up with the technological and recent developments. You are, therefore, preparing your students to react favorably to new technology and new laws with proper understanding.

The key, in my opinion, to modern day training should be a program to help the student understand the economics of productivity and participate in it as a safe and responsible employee. The effort to make mining safer and more responsive has been the goal of Wabash Valley College. In order to assist the miner in attaining his rightful place in our society, he must gain confidence in himself as a safe, productive individual. He must be technologically prepared and trained on the latest equipment used in the mining activity. The miner, to contribute to the society, must be kept abreast of all legal and technological advances affecting their lives. Therefore, we feel that educational institutions such as yours is the place for a miner or prospective miner to upgrade his skills.

In the development of this program you have drawn on the expertise of the mining industry both operator and employee and also some representatives of the U.S. Bureau of Mines and the State Department of Mines and Minerals. It was my privilege to serve on the original committee and later the advisory board for this program. You have always touched base with all segments of our industry which makes your program a meaningful program with much input from the industry itself. I believe that one of the things which has made your program an outstanding program is that you have listened to those people who are in a position to know what was needed, and then made your program decisions based on your accumulated information. Too often, educational institutions have dictated through their own educators what should be in a techni-

cal program of this type and have turned out people who really didn't have the needed skills required by the industry. I definitely feel that the coal mine program at Wabash College is based upon the needs of the industry. This is especially important since Wabash College was the first college to be involved in the training of coal miners in the State of Illinois.

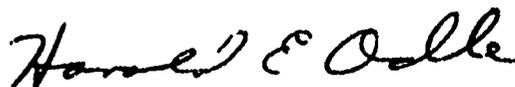
You at Wabash Valley College can be justly proud of the training facilities which you have worked so diligently to construct. This being the first such facility in the State of Illinois, and the fact that it contains a simulated mine which surpasses others which has been built at greater cost in other states is indeed a tribute to your staff. It will provide the opportunity for your students to get operational experience without the hazards of an underground situation. The operation of the various pieces of underground equipment under the direct supervision of experience operators will without question make your students safer, more productive miners. You are to be commended for your untiring efforts and total disregard for the cost factors involved in establishing such a program. I personally regret that I have thus far been unable to help you in attaining any state or federal monies to assist you in developing this very worthy program. I would recommend that we continue to explore the possibilities for additional funding for the purpose of further developing your simulated mine and your coal mine building. Also, to further develop your coal mine technology program and to supplement your staff.

The staff which you were able to acquire and train in such a period of time has indeed been a marvel to me after dealing with some of the companies who have been remiss in training and developing their staffs. You have expertise on your present staff in most all of the important areas required for both surface and underground mining; such as, roof and rib control, ventilation, first aid, and various repair technologies. I personally appreciate the fact that you have on your staff a man with several years as a union man and also as a supervisory employee who also has the degree in the teaching field. Your instructors are certainly above the normal classroom teacher who complains about being required to teach several subjects. Your instructors appear very enthusiastic about their subject matter and also toward their students. It is obvious that your teachers are dedicated to providing quality instruction in your coal mine technology program. I have counted it a privilege to be a visiting lecturer and to have personally witnessed on many occasions the genuine interest and dedication on the part of both the instructor and student. I have also been happy to see that you have used many movies, slides, and other visual aides to supplement your lecture and discussion. It has also been my privilege to accompany your students on some of their field trips to the various coal mines to witness your students receive both on the field trips and in your simulated mine and repair area speaks very highly of your program. As we all know, it is most difficult to transfer curriculum skills to actual work experience, but I believe that your program is doing an excellent job in preparing your student to do this.

In summary, I would say that the coal mining technology program at Wabash Valley College is a great asset to the safety and produc-

tivity of the coal mine industry. You have been a pioneer in establishing excellent training facilities to train people of your district for a new and progressive industry coming into your area. I would definitely recommend that you not only continue with this program, but you would consider further development of your simulated mine, your shop area, your curriculum, and your staff to keep in tune with the industry's needs for more and more employees and better trained employees. I further recommend that your program include, in your extension and adult education areas, the presently employed coal miners in your area. As additional educational needs arise in our field, your institution will be called upon to take a leadership role in the development and implementation of any necessary program based upon the excellent cooperation and implementation that you have made thus far with your present program. My sincere appreciation and congratulations to you, to Dr. John Cox, President, to your board, and your staff.

Sincerely,



Harold E. Odle  
Mine Safety Training  
Specialist

HEO:jeo

The evaluation from the Federal Bureau of Mines was requested from Mr. Clem Dovidas, Supervisor - Training Center #5, U.S. Department of the Interior, Bureau of Mines, and is included in its entirety.

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United States Department of the Interior  
MINING ENFORCEMENT AND SAFETY ADMINISTRATION

HEALTH AND SAFETY TRAINING CENTER  
10600 HIGGINS ROAD  
ROSEMONT, ILLINOIS 60018

April 18, 1974

SPECIAL DELIVERY

Mr. Herman E. Ahlfield  
Dean of Instruction  
Wabash Valley College  
2200 College Drive  
Mt. Carmel, Illinois 62863

Dear Mr. Ahlfield:

Thank you very much for requesting my evaluation of your Coal Mining Technology Program. It has been a great privilege for me to represent the Mining Enforcement and Safety Administration (MESA) steering committee, and later on your permanent advisory committee for the program. You are the first person in an educational setting in Illinois and Wabash Valley College is the first community college in Illinois to make a real effort to provide training for the coal mining industry. You are to be commended for taking the initiative in developing a training program which will produce safer and more productive coal miners.

The development of this program has drawn on the expertise of all areas of the coal mining industry. By this I mean the original steering committee included persons from mine management, mining labor, the State Department of Mines and Minerals, and the Mining Enforcement and Safety Administration. Whenever any segment was not present, you touched base by telephone, letters, and/or minutes of meetings with information and in turn you requested information and recommendations. I think the thing that really makes this an outstanding program is that you listened to those persons who were in a position to know what was needed, and then made program decisions based on the cumulation of the information. Too often, curriculum in educational settings is dictated by what is easy or cheap instead of what is needed. I can definitely state that the Coal Mining Program at Wabash Valley College is based on what is needed by the industry even though the start up expense and planning has been great.

Wabash Valley College can be proud of the wonderful training facility which your simulated mine will provide. This is the first such

facility in the State of Illinois and it surpasses others which have been built at much greater costs in other states. It will provide the opportunity for your students to get operational experience without the hazards of an underground situation. The machine operation practice under the direct supervision of experienced operators will without question make your students safer and more productive miners. You are to be commended for the commitment which you have shown by your expenditures of local funds for this facility. I regret that you were unable to obtain some Federal money to assist in your development of this worthy project. I would recommend that you continue to explore possibilities for additional funding for the further development of your simulated mine and the Coal Mining Technology program.

The staff which you were able to acquire and train in such a short time is very adequate for this program. You have compiled expertise from your present staff in hydraulics, electricity, and ventilation. This expertise has been improved through industry training which I'm proud to have participated in. The staff was rounded out by the addition of a full time teacher with several years experience in the coal mining industry. The instructional staff is to be commended for their efforts to become certified in the many areas in which they teach. They are certainly a cut above the normal classroom teacher who complains about being required to teach more than two different subjects. Your teachers appear very enthusiastic about their subject matter, and are obviously dedicated to providing quality instruction through a varied and interesting approach. By this I mean they utilize a many media approach such as lecture, discussion, demonstration, movies, slides, etc. They then reinforce the classroom instruction with laboratory experiences and field trips or visits to actual mining operations.

In summary, I would have to say that the Coal Mining Technology program at Wabash Valley College is a great asset to the safety and productivity of the coal mining industry. I would definitely recommend that you not only continue with the program, but consider further development of the simulated mine, and keep attuned to the industry for determination of additional educational needs.

Sincerely yours,

*C. M. Dovidas*

C. M. Dovidas, Chief  
Chicago Training Center

The evaluations from the Coal Mining Technology instructional staff were requested from Mr. Joseph Berberich, Mr. Stanley Greatline, Mr. Garry Slankard, Mr. Robert Adams, and Mr. Rod Linder. Their evaluations are as follows:

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## COAL MINING TECHNOLOGY EVALUATION

In view of the energy crisis, the need for a program to train coal miners should be quite apparent. Those associated with the coal industry are aware of this need, and have contributed a great deal to the program.

The first year of the Coal Mining Technology program gives the student a background in all of the basic aspects of coal mining. The selection of courses for the first year of the program was excellent in this respect.

The classrooms and simulated mine training is reinforced with field trips where the student observes the actual mining process.

After completion of the first year of the Coal Mining Technology Program, the student has obtained entry level skills that will enable him to be a safe and efficient worker.



Rodney Linder, Lead Instructor  
Coal Mining Technology Program

## EVALUATION OF COAL MINING TECHNOLOGY PROGRAM

In evaluating the program I will briefly consider the following five areas: (1) facilities, (2) equipment, (3) students, (4) industry, and (5) program.

In general, the facilities which we have are fine, and will serve us well. However, another classroom is needed and an area for simulating roof bolting is needed. It is also evident that all of the Coal Mining Technology classes would be most effectively taught at one location at the Coal Mining Technology building.

We have a sufficient number of mining machines on hand for our teaching purposes. Our simulated coal mine is working fine. We do, however, need much more in the area of tools and equipment to furnish the repair shop so that the hydraulics, electricity, and machine repair and maintenance can be effectively taught at the Coal Mining Technology building.

The students who completed the first year of the program should have a very excellent background in the area of coal mining and be capable of performing entry level skills. The second year, graduates will have the above and also be capable of performing many machine skills in hydraulics, electricity, repair, maintenance, and operation.

I feel like the coal mining industry, Illinois Bureau of Mines, and the U.S. Bureau of Mines have been very cooperative with our program in Coal Mining Technology. I feel that the industry believes that we can be of help to them and that we need their support. I believe that further progress will be forthcoming in this area.

Joseph H. Berberich, Instructor  
Coal Mining Technology Program

## COAL MINING TECHNOLOGY EVALUATION

The Coal Mining Technology Program at Wabash Valley College has been very rewarding to me as well as to the students involved.

In general, I feel that historic opinions of the coal mining industry are shared by people who have not been associated with the industry, or have not had the opportunity to experience actual facts. The mythical image of a coal miner is rapidly being replaced by one of a highly skilled worker operating sophisticated electrical machinery, coupled with some of the best geological engineering techniques available today.

After an extensive education program during the Summer months by the exceptionally cooperative and qualified people with the State of Illinois Department of Mines and Minerals, I feel qualified to discuss many areas of mining outside my field of Electronics as well as the direct application of electrical principles to mining machinery. This is augmented by our visit to the Joy Manufacturing Company plant where we were schooled in the operation and maintenance of the latest types of mining machinery.

In this critical time of our country's struggle for energy independence, I feel we at Wabash Valley College have an opportunity to play an important role in the advancement of the coal industry through education of the public as well as upgrading the quality of the work force within the mine.

The product of our program is a better educated, more qualified employee for the coal industry. This employee contributes as a more efficient worker, as well as a safety conscious member of the industry. In years to come, I feel this type of program will prove to be well worth the time, effort and money spent.

## COMMENTS ON COAL MINING TECHNOLOGY PROGRAM

I feel honored to have participated, if only to a limited degree, in the development and implementation of our Coal Mining Technology program at Wabash Valley College. I am extremely delighted at the support by the coal mining industry and state and federal agencies.

In touring coal mines in Illinois and Indiana, I have met with people of the industry and discussed their problems with them. I feel that a need exists for training in this area, and although it will be a challenge to both education and the industry, the combined efforts of both will certainly not fail with the momentum the program has already gained. But it will take more hard work and the same kind of excellent leadership and management already exhibited by Wabash Valley College and the industry.

As a Federal Bureau qualified instructor of the electricity courses in our program, I have never before felt that it was so important to do as good job. Members of several coal companies and Federal and State agencies have already expressed their confidence in our program, and I am determined, as are the other members of our Coal Mine Technology team, that I will do my part to provide the best service possible to the industry, and to deliver more than we promised.

I think I can safely say that Wabash Valley College will reach out as far as necessary to provide the best educational opportunities in any area where a need exists.

**111** Garry L. Slankard, Instructor  
Electronics Technology Program

## EVALUATION OF THE COAL MINING TECHNOLOGY PROGRAM

The first year of Coal Mining Technology at Wabash Valley College was very rewarding largely because of the excellent cooperation with industry and other groups and agencies. The amount of assistance from the State Department and the Federal Bureau of Mines was invaluable. I was favorably impressed by the overall long-range planning and the generous attitudes on the part of the many diverse groups that were willing to give of their time and talents to help in development of a workable program. Our students were very receptive and came with a strong desire to learn the correct procedures of coal mining with employment the number one goal.

I believe that the first year program would have been strengthened had the students been able to spend more time in actual participation. If the Wabash Mine could have opened on schedule during the first year, the students would have been given further inspiration. With the development of the Wabash Valley College simulated mine, the students now can become involved in the actual mining operations which will be very helpful in the future.

Robert W. Adams  
Physical Science Instructor

## FINDINGS AND CONCLUSIONS

The findings and conclusions of this project are few, but they are very far reaching. The total contact with personnel from the Coal Mining Industry, the State of Illinois Department of Mines and Minerals, and the Mining Enforcement and Safety Administration bear out the necessity for training persons to work in coal mines. This need for training can be categorized into three general areas, but it must be more specifically defined for job training.

The three general areas would be: (1) training persons with no prior experience or training to work at entry level jobs in coal mines; (2) train persons or retrain persons who have previously worked in coal mines, but have little or no training in safety, first aid, and profit attitude; and (3) upgrading skills of presently employed miners.

Wabash Valley College is attempting training for all three areas. This project covered the first year classes which teach entry level skill to prepare them for beginning jobs in the mines. The two-year Associate in Applied Science Degree program, which was approved after this project began, trains persons in equipment operation and repair. These persons must have the one-year program or previous experience in coal mining. The two major areas of training are hydraulics and electrical maintenance. Wabash Valley College has been conducting classes for different mining companies, to train their employees to meet the requirements of M.E.S.A. for electricians.

This training has been conducted both at the school facilities and at the mining locations. There is evidence that much more training will be required to meet the needs of industry through this "Out Reach" approach. We are also providing orientation classes for new employees of AMAX Coal Company. We are assured that this need will also increase in the near future. The recommendations from the State Department of Mines and Minerals and from AMAX request that a new course be developed specifically for this purpose instead of using our basic Introduction to Coal Mining Course. This will probably be submitted for approval sometime in the near future. Its' need can be shown by the over one hundred AMAX employees that are ready for orientation at the present time.

With the formation of each budget since the very first estimate, one must conclude that supplementary funding is needed for the development and implementation of a new and innovative program. It is possible to plan all known expenditures and estimate other known areas of need, but it is impossible to even guess all the expenses and pitfalls one will encounter when entering into a new venture with many unknowns. The process of developing a project which will meet any R.F.P. with a realistic itemized budget is not possible. If this were possible, there would be no need for the research and development project in the first place. Since it is not possible to determine costs in advance, I would recommend that some latitude be included in future funding of new and innovative occupational programs. I would recommend that DVTE should first determine that a school has indeed discovered a need, and

then set limits of funding, but not earmark the funds for specific items. DVTE would, of course, have to closely monitor the progress of the project.

This contract has provided funds for many items which will be of great benefit to the Coal Mining Technology Program at Wabash Valley College. These items would not have been available from normal budget funds. The program could have proceeded without some of the items, but the educational value is greatly enhanced by their availability. The major items of importance are the audio visual materials which were purchased and developed. The ones which were developed will be the most beneficial since many are taken directly from parts manuals and schematics of equipment used in the industry. The most expensive item of the total program was the development of the simulated mine. In my opinion, this is the most beneficial part of the instruction in this program. It is also a function which this R.F.P. would not fund. The development of the simulated mine is well underway; however, much remains to be accomplished. There are many possibilities for further simulation as time and funds permit.

It would be my recommendation that DVTE consider the extension of the project. Since much has been accomplished, it could be considered a demonstration project for others to view the developments on an organized basis. It would be well worth the expense and effort to collect and assemble follow-up information on the coal mining students in more than a cursory manner. I would recommend funds for personal interviews at the end of one year and again at the end of the second year to ascertain the effectiveness of the

students in comparison to workers who go to work in coal mines without formal training. It would give information regarding advancements to management, etc.

The project has been very interesting, even though very demanding for the writer. No greater area of job satisfaction is possible than knowing that a need exists and being able to meet that need. The two needs which will be alleviated by this program are the need of industry for trained employees, and the needs of the unemployed or underemployed by providing them with a salable skill through training.



APPENDIX

## APPENDIX

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ILLINOIS EASTERN JUNIOR COLLEGES

COURSE BRIEF

Prepared by Joseph Berberich Approved by \_\_\_\_\_  
(Department Chairman)

Date Oct. 19, 1972

COURSE: Title Introduction to Coal Mining Number CMT-112

Current Course Description:

An introduction to the fundamental concepts of coal mining. Geological factors affecting coal from the origin of the earth. How coal was formed and coal resources of the United States. The choices and methods of mining coal.

Number of Hours: A) Credit 4 B) Lecture 4 C) Contact 4 D) "Lab" 0  
D) "Lab" \_\_\_\_\_ E) Quiz \_\_\_\_\_

Prerequisites:

Course Objectives:

The students will achieve an understanding of the fundamental concepts of the coal mining industry, coal formation, coal reserves, methods of mining, and mining terminology, and show their achievement both orally and in writing

Topical Outline (Attach with approximate amount of time allocated to each unit.)

See attachment

Text or Texts:

"Coal Mining" Volume I by Jones, Donald C. and Hunt, Joseph W.

Bibliography (Attach if applicable.)

Required Reading:

See attached reading assignment sheet

Other Course Requirements (Field Trips, Special Projects, Recommended Reading, etc.)

Several field trips will be taken to underground mines, coal preparation plants, and surface mines.

Methods of Instruction (By Type):

lecture, films, overhead transparencies, guest speakers

Names of Instructors who have taught the course during the last two years:

J.H. Berberich

(Please attach other pertinent prepared materials.)

READING ASSIGNMENTS  
INTRODUCTION TO COAL MINING

TEXT: "COAL MINING" Volume I, by Jones and Hunt

You are responsible for knowing the answers to the questions at the end of each section.

<u>DATE</u>	<u>TOPIC</u>	<u>PAGES</u>
9/7	1. Geology of Coal - General 2. Origin of the Earth 3. Glossary of Mining Terms	1 1-5 322-324
9/11-14	1. Forces of Weathering, Erosion & Deposition 2. Rocks, Fractures, & Faulting, Mountain Formation 3. Mining Terms	5-19 19-29 325-327
9/19-21	1. Historical Geology 2. Terms	29-61 328-330
9/25-28	1. Origin of Coal 2. Terms	61-76 331-333
10/2-5	1. Structural Features of Coal Beds 2. Mining Terms	76-94 334-336
10/9-12	1. Coal Classification 2. Coal Resources of the World by Continents 3. Coal Resources of the United States 4. The Eastern Province 5. Mining Terms	94-97 97-104 104-106 106-116 337-339
10/16-19	1. The Eastern Province (con't) 2. The Interior Province 3. Mining Terms	116-128 128-133 340-342
10/23-26	1. The Gulf Province 2. The Northern Great Plains Province 3. The Rocky Mountain Province 4. The Pacific Coast Province 5. Mining Terms	133-134 134-139 139-144 144-146 343-345
11/2	1. Mining Physics - General 2. Mining of Thords 3. Mining Terms	146-152 152-162 346-348
11/6-8	1. The effect of Pressure and Temperature on Gases 2. Weight and Solubility of Gases 3. Mining Terms	162-169 169-174 349-351
11/13-14	1. Moisture in Mine Air 2. Mining Terms	174-183 352-354

ILLINOIS EASTERN JUNIOR COLLEGES

COURSE BRIEF

Prepared by Rod Linder Approved by \_\_\_\_\_  
(Department Chairman)

Date December 7, 1973

COURSE: Title Mining Equipment Number CMT-142

Current Course Description: Practices and devices involved in the extraction and transportation of coal. The study of equipment used in drainage and roof support. The use of electric, hydraulic and compressed air power in coal mines. Load preparation equipment and machinery. Timbering and pinning equipment.

Number of Hours: A) Credit 4 B) Lecture 2 C) Contact \_\_\_\_\_ D) "Lab" 4  
E) Quiz \_\_\_\_\_

Prerequisites: None

Course Objectives: It is the objective of this course to have the students understand the use of each type of mining equipment. The student must also develop the ability to operate various machines used in mining operations.

Topical Outline (Attach with approximate amount of time allocated to each unit.) See attached sheet

Text or Texts:

Underground Mining Volume I by Joy Manufacturing Co.

Bibliography (Attach if applicable.)

See attached list applicable to Coal Mining Technology

Required Reading:

- Coal Age Magazine (Current issues)
- Coal Mining and Processing (Current Issues)

Other Course Requirements (Field Trips, Special Projects, Recommended Reading, Etc.)

Field Trip to Coal Mines

Methods of Instruction (By Type):

- 1. Actual Machine operation
- 2. Lecture
- 3. Demonstration
- 4. Films
- 5. Overhaeds

Names of Instructors who have taught the Course during the last two years:

J. H. Berberich

JHK:amb (Please attach other pertinent prepared materials.) 3/6/70



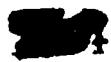
COURSE OUTLINE  
MINING EQUIPMENT - CMT-142

<u>Week</u>	<u>Hours</u>	<u>Topic</u>
1-3	12	1. Mining Systems <ul style="list-style-type: none"> <li>A. Continuous Miners               <ul style="list-style-type: none"> <li>1. Boring</li> <li>2. Oscillating</li> <li>3. Ripper</li> <li>4. Continuous Ore</li> </ul> </li> <li>B. Conventional Mining               <ul style="list-style-type: none"> <li>1. Cutting Machines</li> <li>2. Coal drill</li> <li>3. Shooting Equipment</li> <li>4. Loaders</li> </ul> </li> <li>C. Longwall               <ul style="list-style-type: none"> <li>1. Cutters</li> <li>2. Pan lines</li> <li>3. Hydraulic jacks</li> <li>4. Belt lines</li> </ul> </li> </ul>
4-6	12	2. Haulage Systems <ul style="list-style-type: none"> <li>A. Shuttle Cars               <ul style="list-style-type: none"> <li>1. Electric cable                   <ul style="list-style-type: none"> <li>a. A.C.</li> <li>b. B.C.</li> </ul> </li> <li>2. Battery</li> <li>3. Diesel</li> </ul> </li> <li>B. Track Mounted Locomotives</li> <li>C. Battery powered equipment               <ul style="list-style-type: none"> <li>1. Personnel carriers</li> <li>2. Clean up</li> <li>3. Material haulage</li> </ul> </li> <li>D. Bolt conveyors               <ul style="list-style-type: none"> <li>1. Floor mounted</li> <li>2. Roof mounted</li> </ul> </li> </ul>
7-8	8	3. Roof Control Systems <ul style="list-style-type: none"> <li>A. Roof Bolters</li> <li>B. Timbering</li> <li>C. Cribbing</li> <li>D. Roof Jacks</li> </ul>
9-10	5	4. Electrical <ul style="list-style-type: none"> <li>A. A.C.</li> <li>B. D.C.</li> </ul>

10	2	5. Drainage
		A. Pumps
		B. Sumps
11-12	5	6. Coal Preparation
		A. Processing
		B. Screening
		C. Stacking
		D. Loading
	4	7. Tests and Quizzes

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ILLINOIS EASTERN JUNIOR COLLEGES

COURSE BRIEF

Prepared by Rod Linder Approved by \_\_\_\_\_  
(Department Chairman)

Date January 8, 1974

COURSE: Title Accident Prevention and Safety Number CMS-132

**Current Course Description:**

Because the injury and fatality rates of coal mines are consistently worse than those of most other industries the need for safety education is a prerequisite to safety in coal mines. Of all causes of accidents, the most numerous and baffling are those due to human behavior and personality.

Number of Hours: A) Credit 3 B) Lecture 3 C) Contact 3 D) "Lab" \_\_\_\_\_  
E) Quiz \_\_\_\_\_

Prerequisites: None

**Course Objectives:** It is the objective of this course to have the students understand the causes and the reasons for the occurrence of most coal mine accidents and develop the ability to recognize unsafe working habits and conditions, and have the students develop a positive attitude toward preventing accidents and safe working habits.

**Topical Outline** (Attach with approximate amount of time allocated to each unit.) See attached sheet

**Text or Tests:**

1. Pass out material from Bureau of Mines

**Bibliography** (Attach if applicable.)

See attached list applicable to coal mining Technology

**Required Reading:**

**Other Course Requirements** (Field Trips, Special Projects, Recommended Reading, Etc.)

Field Trips to Coal Mines

**Methods of Instruction (By Type):**

1. Lecture
2. Guest Speakers
3. Movies
4. Demonstration
5. Overhead Transparencies
6. Tape Recorder

**Names of Instructors** who have taught the Course during the last two years:

J. H. Berberich

JHK:amb (Please attach other pertinent prepared materials.) 3/6/70

Topical Course Outline

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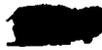
"Accident Prevention and Safety"

Days

Topic

1. Introduction
2. Background of and need for the course
3. Magnitude of the problem
4. Accident costs
  - a. Direct
  - b. Indirect
  - c. Total cost
5. Attitudes towards accident prevention and training in safety.
6. What accident prevention is, what it accomplishes, and how it can be achieved.
7. Why and how accidents occur
  - a. Definition of an accident
  - b. Causes of accidents
  - c. The four "imps"
  - d. Demonstration of the accident sequence
8. The three E's of accident prevention
  - a. Engineering
  - b. Enforcement
  - c. Education
  - d. Basic needs and wants
  - e. Individual differences
  - f. Why people take chances
  - g. Need to change attitudes
9. Accidents from falls of roof and coal (ri~~w~~)
  - a. Factors affecting falls of roof and coal
  - b. Study and analysis of roof fall fatalities
  - c. Testing roof
  - d. Timbering
  - e. Roof bolting
  - f. Removing pillars
10. Accidents from explosions and fires
  - a. Mine explosions and factors in their prevention
    1. Ventilation
    2. Coal dust
    3. Methane
  - b. Mine fires
    1. causes
    2. Prevention
    3. Control
11. Electrical accidents
  - a. Causes
  - b. Prevention
  - c. Danger signs

12. Accidents from hoisting and hauling coal
  - a. Mine openings and transportation facilities
  - b. underground haulage
  - c. Haulage equipment
  - d. Transporting equipment
13. Accidents from transportation of personnel
14. Miscellaneous accidents
  - a. Surface protection
  - b. Underground protection
  - c. Health and sanitation
  - d. General safety measures
15. The supervisor's place in safety
  - a. Qualifications of a good foreman
  - b. Working climate
  - c. Discipline
16. Rules and regulations
17. Job analysis for accident prevention
18. Accident investigation and reports
19. Placing responsibility for accidents
  - a. Management's responsibility
  - b. Employer responsibility



ILLINOIS EASTERN JUNIOR COLLEGES

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COURSE BRIEF

Prepared by Rod Linder Approved by \_\_\_\_\_  
(Department Chairman)

Date December 7, 1973

COURSE: Title Lamp and Detection Instruments Number CMT-132

Current Course Description: The purpose of this course is to instruct in the proper use and care of the premissible flame safety lamp and the various premissible methane detectors. It is also the purpose of this course to develop the students ability to determine methane concentrations using these instruments and the ability to properly maintain them, and to test mine atmospheres with other instruments and gauges.

Number of Hours: A) Credit 4 B) Lecture 4 C) Contact 4 D) "Lab" \_\_\_\_\_  
E) Quiz \_\_\_\_\_

Prerequisites:

Course Objectives: It is the objective of this course to have the students know and understand the instruments that are used in coal mines and how to properly use, read them, care for, and maintain them. The student knowledge and abilities will be evaluated by written tests and actual performance using the instruments in a coal mine or simulated coal mine cond. Topical Outline (Attach with approximate amount of time allocated to each unit.) See Attached sheet

Text or Texts:

Underground mining Volume I by Joy Mfg. Co.

Bibliography (Attach if applicable.)

Required Reading:

Other Course Requirements (Field Trips, Special Projects, Recommended Reading, Etc.)

Field Trips to Coal Mines

Methods of Instruction (By Type):

- |                        |                            |                   |
|------------------------|----------------------------|-------------------|
| 1. Lecture             | 4. Tape Recorder           | 7. Guest Lectures |
| 2. Demonstration       | 5. Overhead Transparencies |                   |
| 3. Student Performance | 6. Movies                  |                   |

Names of Instructors who have taught the Course during the last two years.

J. H. Berberich

JHK:amb (Please attach other pertinent prepared materials.) 3/6/70



Topical Course Outline

Days

- 3
  - 1. Self Rescuer
    - A. MSA model W-65
      - 1. Purpose
      - 2. Operation and use
    - B. Drager model 810
      - 1. Purpose
      - 2. Operation and use
  
- 6
  - 2. Permissible Flame Safety Lamp. (Koehler)
    - A. Development of gas detectors
    - B. Description
    - C. Care and maintenance
    - D. Use
    - E. Limitations
  
- 1
  - 3. Oxygen Deficiency and Methane Detecting Devices
  
- 3
  - 4. Methanometer (MSA model M 402)
    - A. Introduction
    - B. Description
    - C. Procedure for operation
    - D. Maintenance
  
- 2
  - 5. Methane Spotter (MSA)
    - A. Introduction
    - B. Description
    - C. Operation of Instrument
  
- 2
  - 6. Methane Indicating Detector (Bacharach)
    - A. Introduction
    - B. Description
    - C. Operation of the instrument
    - D. Maintenance
  
- 2
  - 7. Carbon Dioxide Indicator (Fyrite)
    - A. Introduction
    - B. Description
    - C. Operation
    - D. Maintenance
  
- 3
  - 8. Carbon Monoxide Tester (MSA colormetric)
    - A. Description
    - B. Inspection
    - C. Operation
    - D. Maintenance

- 2            9. Hydrogen Sulphide detector (MSA)  
A. Description, origin, and hazard of Hydrogen Sulphide  
B. Description of MSA H<sub>2</sub>S detector  
C. Inspection of MSA H<sub>2</sub>S detector  
D. Operation of MSA H<sub>2</sub>S detector  
E. Maintenance of MSA H<sub>2</sub>S detector

- 2            10. Explosimeter (MSA)  
A. Description of model 2A  
B. Operation  
C. Maintenance

- 6            11. Sampling of Air  
A. Method of sampling  
B. Location to set samples  
C. Sampling for laboratory testing  
D. Sampling devices

- 6            12. Self Contained Breathing apparatus (Mc Caa 2hr.)  
A. Parts  
B. Operation  
C. Testing and checking  
D. Maintenance

(If time permits the following will be covered)

- 3            13. Anemometers  
A. Use  
B. Care and Maintenance  
C. Reading

- 2            14. Velometer  
A. Operation  
B. Care and maintenance  
C. Reading

- 2            15. Methane Monitors  
A. Purpose  
B. Design  
C. Operation  
D. Maintenance

- 3            16. Tests and miscellaneous

48 Hours Total

COURSE BRIEF

Prepare by Robert W. Adams Approved by \_\_\_\_\_  
 (Department Chairman)

Date January 10, 1973

COURSE: Title Coal Mine Atmosphere Number CMS-122

Current Course Description:

A study or analysis of mine air. Mine air as it relates to health and safety of the men. The gases commonly encountered in mines and the properties of them. The fundamental physical laws pertaining to air and atmospheric pressure. The effect of temperature and pressure on gases within a mine.

Number of hours: A) Credit 4 B) Lecture 4 C) Contact 4 D) "Lab" \_\_\_\_\_  
 D) "Lab" \_\_\_\_\_ E) Quiz \_\_\_\_\_

Prerequisites:

Course Objectives:

This course is designed to provide students with opportunity to study the nature of mine air and the gases encountered in mines. Principles of physics as they relate to gases are stressed.

Topical Outline (Attach with approximate amount of time allocated to each unit.)

Text or Texts: Coal Mining, Jones and Hunt, Volume I, Pennsylvania State College, 1952.

Bibliography (Attach if applicable.)

Required Reading:

Other Course Requirements (Field Trips, Special Projects, Recommended Reading, etc.)

Methods: \_\_\_\_\_ Lecture

Names of students who have taken this course during the last two years:

(Please attach \_\_\_\_\_ materials.)



Text: Coal Mining, Pennsylvania State College 1952

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course Objectives:

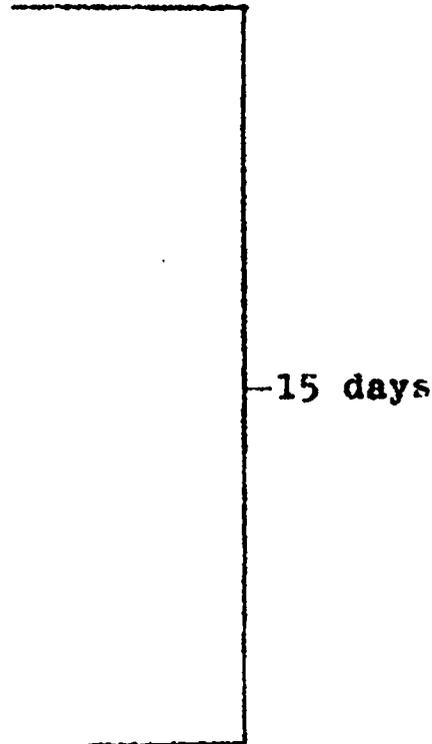
This course is designed to provide students with opportunity to study the nature of mine air and to become familiar with nature of gases encountered in mines. Principles of physics as they relate to gases are emphasized. Student should understand nature of harmful gases, and the chemical and physical properties of gases as they relate to health and safety of men.

Course Outline

Coal Mine Atmosphere

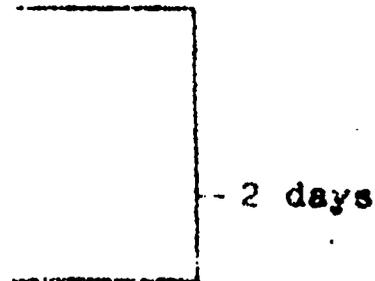
1. Mine gases

- A. Atmospheric and mine air
- B. Atmospheric air
- C. Gases commonly found in coal mines
  - 1. Oxygen
  - 2. Nitrogen
  - 3. Carbon dioxide
  - 4. Carbon monoxide
  - 5. Methane
- D. Gases rarely found in coal mines
  - 1. Ethane
  - 2. Ethylene
  - 3. Hydrogen
  - 4. Acetylene
  - 5. Hydrogen sulfide
  - 6. Nitrogen dioxide
- E. Mine Damps



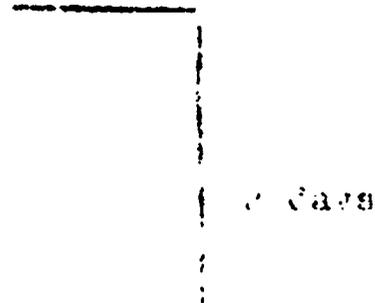
2. Mining Physics

- A. Forms of matter
- B. Weight
- C. Density
- D. Specific gravity



3. Pressure of Fluids

- A. Pressure and forces
- B. Pressure of liquid
- C. Force on a vertical wall
- D. Transmission of pressure
- E. Pressure of the atmosphere



**F. The Barometer**

- 1. Mercurial
- 2. AVeroid
- 3. Barograph

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pressure, air, water and mercury columns

2 days

**V. Effect of pressure and temperature on gases**

- A. Theory of gas P and V
- B. Relation of P and V of Gases (Boyle's Law)
- C. Theory of Gas T and V (Charles' Law)
- D. Relation of V, T, and P of gases

4 days

**V. Weight and solubility of gases**

- A. Weight of air

**I. Relation of weight and volume of a gas**

- A. Weight of gases
- B. Solubility of gases in water (Henry's Law)

**Practical Mining Course - (Lesson No. 7)**

**I. Moisture in Mine Air**

- A. Relation of moisture in air to mining
- B. Ability of a space to hold moisture

**I. Absolute and relative humidity**

- A. Absolute humidity
- B. Relative humidity

10 days

**X. Measurement of Relative humidity**

- A. Hygrometer
- B. Sling psychrometer

**X. Calculation of Moisture of mine air**

**I. Introduction to mine ventilation**

- A. Purpose of Ventilation
- B. Ventilating current
- C. Factors involved in
- D. Circulating air
- E. Ventilating pressure
- F. Measurement of air pressures
  - 1. Water gauge

5 days

**I. Velocity and Quantity of Air**

**I. Measurement of Air Velocity**

- A. Anemometer

**V. Quantity of Air**

- Evaluation is based on:
- 1 Interaction with student and instructor
  - 2 Observation
  - 3 Examination

ILLINOIS EASTERN JUNIOR COLLEGES

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COURSE BRIEF

Prepared by Rod Linder Approved by \_\_\_\_\_  
(Department Chairman)

Date December 7, 1973

COURSE: Title Mining Law Number CMT-122

Current Course Description:

An introduction to the coal mining laws of the federal government and the state government. This course deals with the regulations relating to mining practices. The mining act of Illinois covering the installation, operation, and safety in bituminous coal mining and also the federal Mine Safety Code.

Number of Hours: A) Credit 4 B) Lecture 4 C) Contact 4 D) "Lab" \_\_\_\_\_  
E) Quiz \_\_\_\_\_

Prerequisites: None

Course Objectives:

The student will know the state and federal laws governing bituminous coal mines in Illinois and it relates and affects to coal miners.

Topical Outline (Attach with approximate amount of time allocated to each unit.) See Attached Sheets

Text or Texts: 1. "The Coal Mining Act" (Ill. Dept. of Mines & Minerals Rev. Ed. July 1971) 2. Federal Register (Vol. 35 No. 226 Nov. 1970, Part II Dept of Interior Bureau of Mines)

Bibliography (Attach if applicable.)

See Bibliography list applicable to Coal Mining Technology.

Required Reading:

See Attached Sheets

Other Course Requirements (Field Trips, Special Projects, Recommended Reading, Etc.)

Field Trips

Methods of Instruction (By Type):

1. Lecture
2. Student Presentations
3. Movies
4. O'heads
5. Special Speakers

Names of Instructors who have taught the Course during the last two years:

J. H. Berberich

JHK:amb (Please attach other pertinent prepared materials.) 3/6/70

Reading Assignments  
"Mining Law"  
CMT-122 4 Qt. hrs.

BEST COPY AVAILABLE

1. "The Coal Mining Act" (Illinois Dept. of Mines & Minerals  
Revised ed. July 1971.)
2. "Federal Register" (Vol. 35, No. 226, Nov. 1970, Part II  
Dept. of the Interior, Bureau of Mines  
Mandatory Safety Standards, Underground  
Coal Mines.)

Each student will give a class presentation on the material that he selects

<u>Week</u>	<u>Article</u>	<u>Pages</u>
1	1. Definition of Terms	2-3
	2. Administration of Act	3-6
	3. Certificates of Competency	6-7
	4. State Mine Inspectors & Mine Inspection	7-15
	5. Mine Manager: Requirements & Duties	15-22
2	6. Mine Examiners - Requirements & Duties	22-26
	7. Hoisting Engineer & Hoisting	27-33
	8. Miners' Examining Board & Miners Examination	33-38
	9. Employment of Boys and Women	38
	10. Accidents and Injuries	38-40
	11. Mine Rescue	41-42
	12. Analytical Laboratory	42
	13. Miscellaneous Regulations	42-44
	3	14. Buildings on Surface
15. Compressed Air		45-46
16. Cages		46-47
17. Crosscuts and Stoppings		48-49
18. Electricity Regulations		49-51
19. Escapements		52-55
20. Permissible Explosives and Regulations for Breaking Dow Coal		55-61
21. Fire Prevention and Fire Control		61-63
4		22. Haulage and Transportation Underground
	23. Refuge Underground	65
	24. Rock Dust and Coal Dust	65-66
	25. Safety Lamps and Barometers	66-67
	26. Shafts	67-70
	27. Drillers & Shooter or Shot Firers	70-71
	28. Stables Underground	71-72
	29. Telephone	72
	30. Timbering	72-73

<u>Week</u>	<u>Articles</u>	<u>Pages</u>
	31. Ventilation, Mine Gases, & Gassy Mine Classification	73-80
	32. Weighman and Scales	80-81
	33. Maps and Surveys	81-85
5	34. Abandoned Mines	85-86
	35. Pay of Mines	85-86
	36. General Penalty	87
	37. Final Provisions	87-88
	38. Explosives in General	88-95
	39. Release of Record of Mineral Leases	96-102
6.	40. Chapter 94 Mines	102-106
	41. Illinois Mined Coal for Public	106-107
	42. Authority of Mfg. and Mining Companies to hold stock in Railway Companies	107
	43. Intimidation and Trespass	108
	44. Washrooms	108-110
<u>"FEDERAL REGISTER"</u> <u>Subpart</u>		
	A. General	5
	B. Qualified and Certified Persons	5-7
7	C. Roof Support	7-10
	D. Ventilation	10-18
	E. Combustible Materials and Rock Dusting	18-19
8	F. Electrical Equipment - General	19-23
	G. Trailing Cables	23-24
	H. Grounding	24-26
9	I. Underground High-Voltage Distribution	26-28
	J. Underground Low- and Medium-Voltage Alternating Current Circuits	28-29
	K. Trolley Wires and Trolley Feeder Wires	29
10	L. Fire Protection	29-32
	M. Maps	32-33
	N. Blasting and Explosives	33-34
11	O. Hoisting and Mantrips	34-37
	P. Emergency Shelters	37
	Q. Communications	37
12	R. Miscellaneous	37-41
	S. Approved Books and Records	41

COURSE BRIEF

Prepared by Rod Linder Approved by \_\_\_\_\_  
 (Department Chairman)

Date December 7, 1973

COURSE: Title Coal Mine Ventilation Number CMS-142

Current Course Description: The goal fo this course is to help the student understand mine ventilation control devices from the main fan to the working face

Number of Hours: A) Credit 4 B) Lecture 4 C) Contact 4 D) "Lab" \_\_\_\_\_  
 E) Quiz \_\_\_\_\_

Prerequisites: None

Course Objectives: The student must be knowledgeable of ventilation procedures and devices used in coal mines.

Topical Outline (Attach with approximate amount of time allocated to each unit.) See attached Sheet

Text or Texts: 1. Underground Mining Vol I by Joy Manufacturing Co.  
 2. Coal Mine Ventilation by Dept. of Interior Bureau of Mines

Bibliography (Attach if applicable.)

See attached list applicable to Coal Mining Technology

Required Reading:

~~Field Trips~~

Other Course Requirements (Field Trips, Special Projects, Recommended Reading, Etc.)

Field Trips

Methods of Instruction (By Type):

- |                  |              |
|------------------|--------------|
| 1. Lecture       | 4. Overheads |
| 2. Demonstration | 5. Films     |
| 3. Field Trips   |              |

Names of Instructors who have taught the Course during the last two years:

Robert Adams

JHK:amb (Please attach other pertinent prepared materials.) 3/6/70

COURSE OUTLINE  
COAL MINE VENTILATION

HOURS

2	1. Introduction
3	2. Terms and Definitions
10	3. Ventilation Plans
	a. Installation
	b. Explosion Protection
	c. Fireproof Doors
	d. Main Fan Motor
	e. Operation
	f. Inspection Examination and Records
5	4. Air Distribution
	a. Splitting
	b. Quantity
3	5. The Main Intake
	a. Velocity
	b. Control Devices
8	6. Face Ventilation
	a. Blowing and Exhaust Methods
	b. Bratice
	c. Auxillary Fans and Tubing
	d. Combination Blow and Exhaust System
4	7. Return Air
	a. Tests and Adjustments
	b. Methane Content
	1. Tests
	2. Location
3	8. Bleeder Ventilation Plan
4	9. Haulage and Ventilation
	a. Belt
	b. Track
3	10. Information to be submitted by Operator
1	11. Weekly Ventilation Examinations
<u>2</u>	Exams

48 Total Hours

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ILLINOIS EASTERN JUNIOR COLLEGES

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COURSE BRIEF

Prepared by Rod Linder Approved by \_\_\_\_\_  
(Department Chairman)

Date December 7, 1973

COURSE: Title First Aid and Mine Rescue Number CMS-112

**Current Course Description:**

The training by instruction and demonstration, information is disseminated regarding safe & unsafe practices, with a view to reducing accidents as well as teaching the correct emergency aid for unjured persons. The additional purpose of this course is to familiarize the student with the principles of mine rescue operations and the actions to be taken by men underground in case of a mine disaster.

Number of Hours: A) Credit 3 B) Lecture 3 C) Contact 3 D) "Lab" \_\_\_\_\_  
E) Quiz \_\_\_\_\_

Prerequisites: None

**Course Objectives:** 1. The student will perform the necessary and proper first-aid treatment to injured persons. 2. The student will recognize when an emergency has occurred and is present in a mine. 3. The student will exercise proper method of exit from the mine during an emergency.

**Topical Outline** (Attach with approximate amount of time allocated to each unit.)

See attached sheets

**Text or Texts:** 1. "First Aid for the Mineral and Allied Industries" by U.S. Dept. of Interior bureau of Mines. 2. "First Aid and Mine Rescue Manual", Dept of Mines and Mineral State of Illinois.

**Bibliography** (Attach if applicable.)

See bibliography list applicable to Coal Mining Technology  
**Required Reading:**

See Attached Sheet

**Other Course Requirements** (Field Trips, Special Projects, Recommended Reading, Etc.)

Field Trips

**Methods of Instruction (By Type):**

1. Demonstration
2. Lecture
3. Movies
4. Overhead Transparencies
5. Actual Practice and Participation

**Names of Instructors** who have taught the Course during the last two years:

J. H. Berberich

JHK:amb (Please attach other pertinent prepared materials.) 3/6/70

## READING ASSIGNMENT

### FIRST AID

TEXT: "First Aid for the Mineral and Allied Industries - A Bureau of Mines Instruction Manual" United States Department of the Interior - Bureau of Mines

<u>Week</u>	<u>Topic</u>	<u>Pages</u>
1	Ch. 1 - Introduction to First Aid	1-9
2	Ch. 2 - Anatomy of the Human Body	10-15
	Ch. 3 - First Aid Dressings	15-20
	Ch. 4 - Artificial Respiration	20-37
3	Ch. 5 - Control of Bleeding	40-51
	Ch. 6 - Shock and Fainting	52-57
4	Ch. 7 - Wounds and Dressing	58-86
	Ch. 8 - Closed Wounds & Foreign Bodies	87-93
5	Ch. 9 - Burns and Scalds	94-100
	Ch. 10 - Fractures and Dislocations	101-139
6	Ch. 11 - Handling and Transportation of Injured	140-153
	Ch. 12 - Miscellaneous	154-163
	Ch. 13 - Poisons	164-176

COURSE OUTLINE  
FIRST AID AND MINE RESCUE

HOURS

- |   |                                                                                                                                                                                    |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | 1. Introduction to First Aid                                                                                                                                                       |
| 3 | 2. Anatomy of Human Body <ul style="list-style-type: none"><li>a. Head</li><li>b. Trunk</li><li>c. Extremities</li><li>d. Pressure Points</li></ul>                                |
| 1 | 3. First Aid Dressings                                                                                                                                                             |
| 4 | 4. Artificial Respiration <ul style="list-style-type: none"><li>a. Mouth to Mouth</li><li>b. Holger Nielson Method</li><li>c. Silvester Method</li><li>d. Schafer Method</li></ul> |
| 2 | 5. Control of Bleeding <ul style="list-style-type: none"><li>a. Veins</li><li>b. Arteries</li><li>c. Capillaries</li></ul>                                                         |
| 1 | 6. Shock and Fainting                                                                                                                                                              |
| 1 | 7. Wounds and Dressing                                                                                                                                                             |
| 1 | 8. Burns and Scalds                                                                                                                                                                |
| 1 | 9. Fractures and Dislocations                                                                                                                                                      |
| 1 | 10. Transportation and Handling of Injured                                                                                                                                         |
| 1 | 11. Examination                                                                                                                                                                    |

HOURS

(MINE RESCUE)

- |   |                              |
|---|------------------------------|
| 6 | 1. Mine Fires and Explosions |
|   | a. Causes                    |
|   | b. Effects                   |
|   | c. Procedure                 |
| 3 | 2. Mine Rescue Apparatus     |
|   | a. McCaa Breathing Apparatus |
|   | b. All Service Gas Mask      |
| 8 | 3. Mine Rescue Efforts       |
|   | a. Barricades                |
|   | b. Ventilation               |
|   | c. Procedure                 |
| 1 | Examinations                 |

COURSE BRIEFPrepared by Rod Linder Approved by \_\_\_\_\_  
(Department Chairman)Date Jan. 8, 1974Course: Title Roof and Rib Control Number CMT-152

Current Course Description: The purpose of this course is to develop a total awareness to the dangers of falls of roof, face, and ribs for related mining personnel and to acquaint them with methods for preventing injuries and fatalities resulting from such danger.

Number of Hours: A) Credit 4 B) Lecture 4 C) Contact 4 D) "Lab" \_\_\_\_\_  
E) Quiz \_\_\_\_\_

Prerequisites: None

Course Objectives: The student must be able to recognize dangerous conditions and when such recognition is forthcoming know how to render such conditions

Typical Outline (Attach with approximate amount of time allocated to each)

Text or Texts: 1. Elements of Practical Coal Mining by Society of Mining Engineers. 2. Underground Mining Vol. I by Joy Manufacturing Co.

Bibliography (Attach if applicable.)

See attached list applicable to Coal Mining Technology

Required Reading:

Roof and Rib Control by Department of Interior Bureau of Mines

Other Course Requirements (Field Trips, Special Projects, Recommended Reading, Etc.)

Field Trips to coal mine.

Methods of Instruction (by Type):

- |                  |                   |
|------------------|-------------------|
| 1. Lecture       | 4. Films          |
| 2. Demonstration | 5. Field Trip     |
| 3. Overheads     | 6. Guest Speakers |

Name of Instructors who have taught the Course during the last two years:

J. H. Berberich

(Please attach other pertinent prepared materials.)

COURSE OUTLINE  
ROOF AND RIB CONTROL

1. Introduction
  - a. Statistics of fatal and nonfatal injuries to demonstrate the hazards from falls of roof and rib.
  - b. The most hazardous part of a coal mine is within 25 feet of the working face
2. Roof Structure
  - a. Primary roof is the main roof overlying the coalbed.
  - b. Secondary roof is the immediate roof above the coalbed.
3. Conditions contributing to bad roof and rib:
  - a. Stresses resulting from extraction
  - b. Defects in overlying strata:
    1. Pots, clay veins, kettle bottoms, fossils, horsebacks, rolls, "slickensides", draw slate
    2. Faults, fissures, cavities
  - c. Pressures from:
    1. Gas
    2. Water
  - d. Air changes:
    1. Moisture
    2. Temperature
4. Roof inspection and testing:
  - a. Visually inspectional
  - b. Sound and vibration method
  - c. Other methods
  - d. Limitations of roof testing methods
5. Methods of supporting roof:
  - a. general
  - b. timbering - conventional:
    1. definition of the method
    2. Requirements for timbering
    3. Special timbering problems
    4. Advantages of timbering

6. Causes of falls of roof and rib:
  - a. improper evaluation
  - b. Insufficient and improper support
  - c. Excessive pressures
  - d. Removing timber and rock
  - e. Faults and fissures and bumps
7. Roof Control plan:
  - a. general
  - b. Spot roof bolting plan
  - c. Pillar recovery pain and methods
  - d. Open end pillaring
8. Role of mining personnel in preventing falls of roof and rib:
  - a. Duties of supervisors:
    1. Examine working areas thoroughly
    2. Adhere to adopted roof and rib control plan
    3. Instruct men concerning roof and rib plan
    4. Train timbermen and roof bolters
    5. Supervise proper installation of roof supports
    6. Flow up to see if roof control plan is strictly adhered to
  - b. Duties of workmen:
    1. Make proper roof and rib examinations
    2. Trim down all loose material
    3. Set temporary supports
    4. Adhere to standard plan of minimum roof support
    5. Report unsafe conditions
    6. Do not advance beyond support roof in face area
    7. Alert fellow worker

## LISTING OF AUDIO-VISUAL MATERIALS AVAILABLE AT WABASH VALLEY COLLEGE

1. AC & DC Motor Video Tape Program **BEST COPY AVAILABLE**
2. Joy Belt Conveyors Video Tape Program
3. Longwall Introduction Slide Tape Program
4. Orientation Slide Tape Programs Attached
5. How to Read AC Wiring Diagram Slide Tape Program
6. Fluid Filled Motors Slide Tape Program
7. How to Read Volt Ohm Meter Slide Tape Program
8. Longwall Assembly and Operation Video Tape Program
9. Flame Propagation Video Tape Program
10. Permissible Enclosures
11. Hydraulics General Slide Tape Program
12. Coal Mine Ventilation 35 MM Slide
13. MSA Hydrogen Sulfide Detector 35 MM Slide
14. MSA Nitrogen Dioxide Detector 35 MM Slide
15. Fundamentals of Noise Measurement 35 MM Slide
16. Monoxor Carbon Monoxide Indicator 35 MM Slide
17. Principles of Mine Rescue 35 MM Slide
18. Roof and Rib Control 35 MM Slide
19. MSA Carbon Monoxide Tester 35 MM Slide
20. Mine Emergency Training 35 MM Slide
21. Mine Rescue Apparatus Scott Draeger B6174 35 MM Slide
22. Auxillary Rescue Apparatus MSA Chemox 35 MM Slide
23. MSA McCaa Rescue Apparatus 35 MM Slide
24. Job Safety Guide-Continous Miner Operations 35 MM Slide
25. First Aid Instruction Course 35 MM Slide

26. Target: Lower Cost Coal (Movie)
27. Automation Comes to Coal (Movie)
28. Invisible Power of Coal (Movie)
29. Basic Hydraulics (Movie)
30. How Fluids Flow (Movie)
31. Cavitation (Movie)
32. Principles of Lubrication (Movie)
33. Basic Electricity (Movie)
34. A.C. & D.C. Generation (Movie)
35. Longwall Mining (Movie)

ILLINOIS JUNIOR COLLEGE BOARD  
 544 Iles Park Place  
 Springfield, Illinois 62706

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REQUEST FOR INITIAL DISCUSSION REGARDING A NEW CURRICULUM OR PROGRAM\*

Illinois Eastern Junior Colleges  
 Wabash Valley College

529 January 26, 1972  
 District No. Date  
 Institution  
233 East Chestnut, Olney, Illinois 62450  
 Mailing Address

I. What is the area or title of proposed curriculum? Mining Technology

II. Is this curriculum intended to be:

Baccalaureate Oriented \_\_\_\_\_, Occupational Oriented X, Adult Oriented \_\_\_\_\_,  
 General Studies \_\_\_\_\_ (Neither Baccalaureate nor Occupational Oriented)

III. What are the reasons which appear to make the development of this curriculum at your college seem desirable?

Wabash Valley College was approached by AMAX Corporation, who is starting a new mine in Wabash County, Illinois. The mine has given us a reasonable guarantee of the employment of all graduates which we will be able to produce from a Mining Technology curriculum, for the next several years. Southern Illinois has a dire need for jobs, and this has every indication of providing up to 550 jobs for the 1976-77 school year.

IV. Who will have direct administrative responsibility for planning this curriculum?

Name Herman E. Ahlfield Title Director of Instructional Services

V. What is your anticipated timetable for developing and initiating this curriculum?

Activity	Time	
	Month	Year
a. Submission of application for priority to develop this curriculum (Applies to a new occupational oriented curriculum only)	<u>January</u>	<u>1972</u>
b. Submission of application for approval of this curriculum	<u>March</u>	<u>1972</u>
c. Initiation of Classes	<u>September</u>	<u>1972</u>

Date \_\_\_\_\_ Signed \_\_\_\_\_  
 President of College

\*Note: Please submit one copy to the Illinois Junior College Board.

Copies 7-11-72: Dr. Cox, Mr. Heltie



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- MEMBERS
- REY W. BRUNE, CHAIRMAN
  - MERLIN KARLOCK, VICE CHAIRMAN
  - WILLARD A. BROWN
  - JOHN K. COX
  - FRANK F. FOWLE
  - TOUSSAINT L. HALE, JR.
  - MRS. CARL H. NEYHART
  - JAMES W. SANDERS
  - MICHAEL J. BANALIS

STATE OF ILLINOIS  
**ILLINOIS JUNIOR COLLEGE BOARD**  
 544 ILES PARK PLACE  
 SPRINGFIELD, ILLINOIS 62716  
 PHONE (217) 525-2495  
 July 7, 1972

- EXECUTIVE SECRETARY  
FRED L. WELLMAN
- ASSOCIATE SECRETARIES  
G. ROBERT DARNES  
JOHN L. FORBES  
RICHARD L. FOX
- CONSTRUCTION ENGINEER  
LAWRENCE E. STONE
- FINANCE OFFICER  
WILLIAM G. MAYLACK
- AUDITOR-FISCAL ANALYST  
ROBERT M. ROSS
- LEGAL COUNSEL  
KENNETH H. LEMMER

Mr. Jesse H. Keyser, Dean  
 Inter-Campus Affairs  
 Illinois Eastern Junior Colleges  
 233 East Chestnut Street  
 Olney, Illinois 62450

Dear Mr. Keyser:

Your application for the following curriculum has been approved by the Illinois Junior College Board and the Board of Higher Education:

Unit No. 529-0.0.W.-42, Coal Mining Technology, (Cert.)

Enclosed is your copy of the application which has been endorsed by Dr. Fred L. Wellman indicating approval.

The new courses which are included in this approved program are now eligible to be included in your master course card deck. Please submit a master course card and print-out for the new courses in this program to Dr. Richard L. Fox at your earliest convenience. When you send Dr. Fox these master course cards, include a program master card and print-out with them.

Sincerely yours,  
  
 G. Robert Darnes  
 Associate Secretary

GRD:ag  
Enclosure

- cc: Dr. James S. Spencer
- Mr. Walter J. Bartz w/signature page
- Dr. Fred L. Wellman
- Dr. Richard L. Fox w/course descriptions on new courses

ILLINOIS JUNIOR COLLEGE BOARD  
514 T. Lee Park Place  
Springfield, Illinois 62706

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FEB 25 1972

APPLICATION FOR APPROVAL OF  
A NEW OCCUPATIONAL CURRICULUM\*

Illinois Eastern Junior Colleges  
Wabash Valley College                      529                      February 21, 1972  
Institution                                      Dist. No.                                      Date

233 East Chestnut Street, Olney, Illinois 62450  
Mailing Address

Staff members of the Illinois Junior College Board and other agencies involved with program approval will be available to meet with representatives of the college to discuss the following criteria for curriculum development. (The school should provide exhibit or narrative wherever warranted.)

I. Type and Scope of Program

a. Code Number and Title of proposed curriculum (as shown in the State of Illinois, Board of Vocational Education and Rehabilitation) "Descriptions, Definitions and Occupational Coding," Misc. Pub. No. 203, Revised 3/15/68.

Title Coal Mining Technology

Code Number 2173299                      Unit 529-O.O.U.-42  
(I.J.C.B. Office Use Only)

b. For what jobs is the curriculum preparatory?  
Entry level jobs in a Coal Mine

c.  Associate Degree                       Certificate

II. Statement of Objectives - as related to this specific program:

See attached sheet II.

III. Financing

What are the estimated costs of this program?

	<u>First Year</u>	<u>Third year</u>
a. Direct Salaries	\$ <u>5,000.00</u>	\$ <u>20,000.00</u>
b. Departmental Support	\$ <u>5,000.00</u>	\$ <u>5,000.00</u>
c. Learning Resource Center (Allocated Cost)	\$ <u>1,000.00</u>	\$ <u>1,000.00</u>
d. Other Allocated Costs	\$ <u>1,000.00</u>	\$ <u>2,000.00</u>
e. Total Estimated Cost	\$ <u>12,000.00</u>	\$ <u>28,000.00</u>

\* Please submit two copies to I.J.C.B.

IV. Facilities

Cost

Present Facilities Adequate

Present Facilities Modified

\$ \_\_\_\_\_

Facilities will be leased

\$ \_\_\_\_\_

New Facilities will be constructed

\$ \_\_\_\_\_

V. Students

(Use of relevant objective and subjective materials in identifying individuals for enrollment in vocational and technical education programs.)

a. Recruitment

See attached sheet V. (a).

b. Estimated Enrollments

<u>30</u>	<u>40</u>	<u>50</u>
First year	Third year	Fifth year

c. Selectivity - (Admissions)

See attached sheet V. (c).

d. Job Placement

See attached sheet V. (d).

e. Follow-up (Grads - Non-Grads)

See attached sheet V. (e)

VI. Advisory Committee

(Utilization - Membership, including individual business and professional affiliations)

See attached sheet VI.

VII. Curriculum

(list courses - credit hours by terms)

See attached sheet VII.

VIII. Describe how instruction will be occupationally oriented.

(Internship, field experience, cooperative, laboratory)

Laboratory

IX. Program Evaluation

See attached sheet IX.

\*\*\*\*\*

Approval of this curriculum is requested.

Jean H. Keyser  
 Dean - Director of Career Programs

2/22/72  
 Date

James [Signature]  
 President of College

2/27/72  
 Date

Kent Waltham  
 Chairman of Local Board

2/28/72  
 Date

Approval of this curriculum has been granted by the  
(granted or denied)  
Illinois Junior College Board and the Board of Higher Education.

The granting of approval entitles the College to claim State  
Apportionment for students pursuing the courses included in the  
curriculum.

Date JUL 7 1972

Signed

Fred L. Wellman  
Executive Secretary, Illinois  
Junior College Board

IJCB-9  
Revised 12/15/69

II. STATEMENT OF OBJECTIVES

The Coal Mining Technology program is designed to prepare students to get initial entry level jobs to work in underground coal mines. At completion of the program, students will have the necessary technical skill to operate mine equipment in a safe and efficient manner. They will know how to react to possible dangers and what to do in case of emergencies.



V. STUDENTS.

(a) Recruitment.

The Vocational Guidance Department at Wabash Valley College conducts a vigorous recruitment program in all the high schools within Illinois Eastern Junior Colleges, District #529. High Schools are all visited at least twice per year, administrators and high school counselors are invited to the campus for group meetings, career days are attended by counselors, and student groups are invited to visit the campus.

V. STUDENTS.

(c) Selectivity - (Admissions)

1. All high school graduates are eligible.
2. Non-high school graduates over the age of 18 may enroll if they have shown proficiency through G.E.D. tests.
3. Non-graduates of high school may also apply for admission, if scholastic records and other information indicates to the satisfaction of the Student Personnel Service office that the student is able to do the calibre of work required to complete the program, the student may be admitted.
4. Students will be required to have a physical examination to determine eligibility for employment prior to being accepted.

## V. STUDENTS.

### (d) Job Initial Placement.

The local district will provide a placement service for students in the occupational programs. Files will be kept on each individual in three separate areas; permanent student files in the Student Personnel Office, individual files in the Office of the Counselors in the occupational areas and individual files in the major interest area of the student which will be an advisor.

Interviews will be held to determine interest areas and etc. for each student who is to be placed. Information will be collected from this method and local forms and questionnaires will be used to help in placement procedures.

Counseling will be provided on a group and individual basis concerning placement procedures, methods, and opportunities.

A file and information will be provided on job opportunities that are available plus information on campus visitation by local and/or out-of-district potential employers.

V. STUDENTS.

(e) Follow-up (Grads - Non-Grads).

Follow-up procedures on the One (1), Three (3), and Five (5), year plan will be established with employers of initial placement.

Time Table for first occupational students:

- 1973 Placement of the first occupational students.
- 1974 First year follow-up of 1973.
- 1975 First year follow-up of 1974.
- 1976 Third year follow-up of 1973 and  
First year follow-up of 1975.
- 1977 Third year follow-up of 1974 and  
First year follow-up of 1976.
- 1978 Fifth year follow-up of 1973 and  
Third year follow-up of 1975 and  
First year follow-up of 1977.
- 1979 Continued.

VI. ADVISORY COMMITTEE

WABASH VALLEY COLLEGE

COAL MINING TECHNOLOGY ADVISORY COMMITTEE

Mr. Charles R. Harrison  
Supervisor - Training  
AMAX Coal Company  
105 S. Meridian Street  
Indianapolis, Indiana 46225

(Ex-Officio Members)

Dr. John Cox, President  
Wabash Valley College  
2200 College Drive  
Mt. Carmel, Illinois 62863

Mr. Harold Odle  
Safety Training Coordinator  
State of Illinois  
Department of Mines & Minerals  
503 E. Main Street  
Benton, Illinois

Mr. Herman Ahlfield  
Director of Instructional Services  
Wabash Valley College  
2200 College Drive  
Mt. Carmel, Illinois 62863

Mr. Clem Dovidas  
Supervisor-Training Center #5  
U.S. Department of the Interior  
Bureau of Mines  
501 Busseron Street  
Vincennes, Indiana 57591

Mr. Edward Bennett  
Vocational Counselor  
Wabash Valley College  
2200 College Drive  
Mt. Carmel, Illinois 62863

Mr. Kenneth Wells  
President District 12  
United Mine Workers of America  
800 Reisch Building  
Springfield, Illinois 62701

Advisory committee meetings will be held at least once per quarter. The committee recommendations will receive due consideration and whenever feasible will be recommended to be put into effect. The committee will assist the instructors with recruitment, placement, and curriculum planning.

VII CURRICULUM

ILLINOIS EASTERN JUNIOR COLLEGES  
 District 529  
 WABASH VALLEY COLLEGE

PROPOSAL FOR OCCUPATIONAL PROGRAM IN  
COAL MINING TECHNOLOGY

1 YEAR CERTIFICATE PROGRAM

DATES PRESENTED TO:  
 Gen'l Vo-Tech Adv. 1/17/72  
 WVC Curriculum 1/11/72  
 District Adm. Council 1/25/72  
 Citizen's Adv. 2/9/72  
 Board of Trustees 2/15/72

CONTACT HOURS PER WEEK  
 CREDIT  
CLASS LABORATORY HOURS

FIRST QUARTER

• CMT 112	Introduction to Coal Mining	4	0	4
• CMT 122	Mining Law	4	0	4
• CMS 112	First Aid & Mine Rescue	4	0	4
MTH 112	Applied Mathematics	4	0	4
ORT 111	Freshman Orientation	<u>1</u>	<u>0</u>	<u>1</u>
TOTAL HOURS FOR FIRST QUARTER		17	0	17

SECOND QUARTER

• CMS 122	Coal Mine Atmosphere	4	0	4
DLR 132	Basic Welding	2	4	4
• CMT 132	Lamp & Detection Instruments	4	0	4
• CMS 132	Accident Prevention & Safety	<u>4</u>	<u>0</u>	<u>4</u>
TOTAL HOURS FOR SECOND QUARTER		14	4	16

THIRD QUARTER

• CMT 142	Mining Equipment	4	0	4
• CMS 142	Coal Mine Ventilation	4	0	4
• CMT 152	Roof & Rib Control	4	0	4
• CMT 162	Problems of Operating Underground Mines	<u>4</u>	<u>0</u>	<u>4</u>
TOTAL HOURS FOR THIRD QUARTER		16	0	16
TOTAL HOURS FOR PROGRAM		47	4	49

## COAL MINING TECHNOLOGY COURSE DESCRIPTIONS

**CMT 112 INTRODUCTION TO COAL MINING**

4-0-4 ✓

An introduction to the fundamental concepts of coal mining. Geological factors affecting coal from the origin of the earth. How coal was formed and coal resources of the United States. The choices and methods of mining coal. Four classroom hours per week. 4 quarter hours credit.

**CMT 122 MINING LAW**

4-0-4 ✓

An introduction to the coal mining laws of the federal government and state government. This course deals with regulations relating to mining practices. The Mining Act of Illinois covering the installation, operation and safety in bituminous coal mining and also the Federal Mine Safety Code. Four classroom hours per week. 4 quarter hours credit.

**CMS 112 FIRST-AID & MINE RESCUE**

4-0-4 ✓

Training by instruction and demonstration, information is disseminated regarding safe and unsafe practices, with a view to reducing accidents as well as teaching the correct emergency aid for injured persons. The additional purpose of this course is to familiarize the student with the principles of mine rescue operations and the actions to be taken by men underground in case of a mine disaster. Four classroom hours per week. 4 quarter hours credit.

**MTH 112 APPLIED MATHEMATICS**

4-0-4 ✓

This course is designed primarily for the vocational-technical student. The course material emphasizes the fundamental operations with whole numbers, fractions and decimals, and studies the applications of those operations to areas related to specific vocational programs. PREREQUISITE: MTH 010 or its equivalent. Four classroom hours per week. 4 quarter hours credit.

**ORT 111 FRESHMAN ORIENTATION**

1-0-1 ✓

Designed to give incoming freshmen an introduction to college life. One classroom hour per week. 1 quarter hour credit.

**CMS 122 COAL MINE ATMOSPHERE**

4-0-4 ✓

A study or analysis of mine air. Mine air as it relates to health and safety of the men. The gases commonly encountered in coal mines and the properties of them. The fundamental physical laws pertaining to air and atmospheric pressure. The effect of temperature and pressure on gases within a mine. Four classroom hours per week. 4 quarter hours credit.

**DLR 132 BASIC WELDING**

2-4-4 ✓

This is a practical course in the use of oxy-acetylene and electric arc welding equipment. Students will practice cutting, bronze welding, fusion welding, and hard-facing with the oxy-acetylene flame. They will also practice selection of electrodes, running bends, and welding common joints in all positions. Familiarization with semi-automatic inert gas processes will be provided. Two classroom hours per week. Four lab hours per week. 4 quarter hours credit.

**CMT 132 LAMP & DETECTION INSTRUMENTS**

4-0-4 ✓

The purpose of this course is to instruct in the proper use and care of the permissible flame safety lamp and the various permissible methane detectors. The ability to determine methane concentrations using these instruments and the ability to properly maintain them. To train persons to test mine atmospheres with the various instruments and gauges. Four classroom hours per week. 4 quarter hours credit.

**CMS 132 ACCIDENT PREVENTION & SAFETY**

4-0-4 ✓

Because the injury and fatality rates of coal mines are consistently worse than those of most other industries the need for safety education is a prerequisite to safety in coal mines. Of all causes of accidents, the most numerous and baffling are those due to human behavior and personality. Four classroom hours per week. 4 quarter hours credit.

**CMT 142 MINING EQUIPMENT**

4-0-4 ✓

Practices and devices involved in the extraction and transportation of coal. The study of equipment used in drainage and roof support. The use of electric, hydraulic and compressed air power in coal mines. Coal preparation equipment and machinery. Timbering and pinning equipment. Four classroom hours per week. 4 quarter hours credit.

**CMS 142 COAL MINE VENTILATION**

4-0-4 ✓

The goal of this course is to help the student understand mine ventilation control devices from the main fan to the working face. Four classroom hours per week. 4 quarter hours credit.

**CMT 152 ROOF AND RIB CONTROL**

4-0-4 ✓

The purpose of this course is to develop a total awareness to the dangers of falls of roof, face and ribs for related mining personnel and to acquaint them with methods for preventing injuries and fatalities resulting from such danger. Four classroom hours per week. 4 quarter hours credit.

CMT 162 PROBLEMS OF OPERATING UNDERGROUND MINES

4-0-4

A total picture of the problems of management in the operating of a coal mine. Union, management relations, grievances and contract disputes. Also the responsibilities and duties of management. Four classroom hours per week. 4 quarter hours credit.

## IX. PROGRAM EVALUATION.

The Dean of Vocational-Technical Education with the cooperation of the administrative staff, student personnel services, the faculty, employers, and students themselves will evaluate.

### CRITERIA TO BE USED:

- (1) Number of students served in the various areas.
- (2) Costs of the benefits received.
- (3) Impact on area labor force.
- (4) Effective use of facilities and equipment.
- (5) Student achievement.
- (6) Program flexibility.

The program advisory committee will periodically review the curriculum to help it be germane to the world of work.

# COAL MINING TECHNOLOGY

## Equipment Inventory

<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	Belt Cutter 400-436
1	Carpenters Brace
5	Belt Punch #1
10	#1 Boring Bit
5	Belt Wrench
5	Bolt Breaker
10	Flexco Belt Splice 36"
1	Belt Template
90	2" compress bandages gauze (roller)
60	3" compress bandages gauze (roller)
90	4" compress bandages gauze (roller)
12	Blankets (Acrylic 66 x 90)
48	Ampules of Spirits Ammonia
48	7001-02 med. triangular arm bandages
1	Cable and supplies to make belt drive operational
1	Cable and supplies for roof bolter
1	Cable and supplies for loader
1	Cable and supplies for shuttle car
1	Cable and supplies for cutter machine
1	Cable and supplies for drill machine
1	Cable and supplies for rock duster
2	3/4 ton cossing P-6 puller

<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	5351-GS-B General Service Tool
1	Methane Spotter w/case MSA
1	Model G-70-D Methane Spotter
1	Battery Charger for MSA Methane Spotter
1	Battery Charger for G-70 Methanometer
4	Fire Extinguishers, 9½ lbs. model A10A
1	402 Methanometer w/case
1	Battery Charger for 402 Methanometer
1	Oxygen indicator 244
1	Amprobe - Campon Ammeter and voltmeter
1	MGT OHM Meter
1	Multimeter - Simpson-260
1	3/4 hp single phase capacitor start 3450 apm blue point bench grinder
1	Cap lamp charger
15	Large round and flat brass brushes set for safety lamps
5	Chemical smoke bulb ejector (smoke tube)
2	Chemical smoke bulb ejector (aspirator)
1	bottle of methane gas 200 qt. ft. 4% meth.
1	Pressure reducer and regulator on meth. bottles
10	Miners self rescuer MSA W65
1	Miners self rescuer trainer model
2	Inflatable plastic bandages and splint
40	Miners cap lamps MSA ML-2
40	Miners belts 3" leather, 2 holding
1	Miners Hard Hats - White - MSA comfo - cap
39	Miners Hard Hats - Red MSA Comfo - cap

<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	Anemometer 4" w/case
10	Safety Lamps (Koehler Lamp)
2	Safety Lamp unlocking magnets
1	Water Gauge (0-8")
5	Cardoxide (41b. can)
1 unit	Mask for Mouth to Mouth Resuscitation
1 unit	Bag for lungs
1	velometer
1	Joy Coal Drill GD-71
1	Joy Loading Machine 15Bu
1	Joy Cutting Machine 11RU
10	Belt Splicers
1	Long Airdox LRB-6 Roof Bolter
1	Rock Duster
2	30 hp Joy motors
1 lot	Electrical parts used
1 lot	Bolts and nuts
1	Conveyor drive Roller
1	Conveyor Belt Structure
1	Conveyor Tail Piece
1	Conveyor Drive Unit for belt
1	Power Distribution Box

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QUANTITYDESCRIPTION

(Located in Applied Arts Building)

1	Spray Paint gun
1	Axial piston hyd. pump (Vickers from Joy PVB-5
1	Axial piston hyd. pump (Vickers from Joy PVB-5
1	Hyd. cylinder (joy) 6' x 24"
2	Hyd. Ram (Joy) 4" x 6"
4	External gear hyd. pumps from Electrical Machine Co. 15 GPM
1	External gear hyd. pumps from Elecyrical Machine Co. 30 GPM
1	External gear water pump from Electrical Machine Co. 20 GPM
1	External gear hyd. pump from Electrical Machine Co. 2 section pump 20 GPM each
1	Axial piston hyd. pump from Electrical Machine Co.
2	Hyd. motors, axial piston
1	Hyd. directional control - 6 unit stack
1	Hyd. directional control - 5 unit stack
1	Hyd. directional control - 3 unit stack
1	Hyd. directional control - 2 unit stack
1	Hyd. directional control - 1 unit stack
1	Hyd. pressure reducing valve
3	Hyd. flow volume control valve
1	Hyd. cylinder, 2 way, 1½ x 6"
1	Hyd. cylinder, 2 way, 1½ x 4"
1	Hyd. cylinder, 2 way, 3" x 8"
1	Hyd. cylinder, ram, 2 stage
1	Hyd. cylinder, 2 way cylinder
1	Gear case drive unit for roof drill
1	Universal joint drive for 15 BU loader
1	Universal joint dirve unit

QUANTITYDESCRIPTION

1	Differential ring gear and differential
2	Shuttle car conveyor chain
1	Roller chain, size 80H, 1 ft. length
1	Roller chain, size about 50, double roller
1	Roller chain for loader conveyor, 4 links
1	Spanner wrench, 10
1	Electrical switch box
4	AC welders (180 amp)
2	AC-DC welders (225 amp)
6	Oxy-acetylene welders
1	Weld tester
2	Grinders
4	Vices
1	Power hack saw
1	Nu-Day Hydraulic Analyzer
1	O.T.C. Hydraulic analyzer
1	Hydraulic test bench
4	Simpson 260 Multimeter
5	Fluke 8000A Digital Meter
4	516 Tektronix scope
3	Wavetek signal scope
4	Philco Ford Electronic Training Sets
1 lot	Contactors and assorted components

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HERMAN BADILLO, N.Y.  
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225-4368

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CONGRESS OF THE UNITED STATES  
HOUSE OF REPRESENTATIVES  
COMMITTEE ON EDUCATION AND LABOR  
GENERAL SUBCOMMITTEE ON EDUCATION  
B-345C RAYBURN HOUSE OFFICE BUILDING  
WASHINGTON, D.C. 20515

*Dr. Coy*  
*Joe Beberich*

September 13, 1972

Mr. Herman E. Ashfield  
Dean of Instruction  
Wabash Valley College  
2200 College Drive  
Mt. Carmel, Illinois 62863

Dear Mr. Ashfield:

Thank you very much for sending me a copy of your proposal for a pilot program in Coal Mining Technology.

I have sent a letter to Dr. Ronald McCage of the Illinois Vocational Research and Development Unit encouraging his funding of your proposal. And I have also sent a letter to Mr. Rogers Morton, Secretary of the Interior, urging that the Federal Bureau of Mines consider funding your program.

Thank you for keeping me informed and I hope that we will be successful in obtaining funding for your very worthy program. If I can be of further assistance, please feel free to contact me.

With best wishes.

Sincerely,

*Roman C. Pucinski*

Roman C. Pucinski  
Chairman, General  
Subcommittee on Education

RCP:eb

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CONGRESS OF THE UNITED STATES

HOUSE OF REPRESENTATIVES

COMMITTEE ON EDUCATION AND LABOR

GENERAL SUBCOMMITTEE ON EDUCATION

B-343C RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, D.C. 20515

*Dr. Cof  
J. Beberich*

225-4388

September 13, 1972

Dr. Ronald McCage, Coordinator  
Research and Development Unit  
Board of Vocational Education and  
Rehabilitation  
1035 Outer Park Drive  
Springfield, Illinois 62706

Dear Dr. McCage:

It has come to my attention that the Wabash Valley College has submitted a proposal to you for a program in Coal Mining Technology.

Since I was among the first people to suggest that the Wabash Valley College offer this course in Coal Mining Technology and since I have reviewed the application submitted to your office, I would like to urge that you give this proposal the most careful consideration possible. I believe that such a course at Wabash Valley College would fill a great need in that area and therefore ought to be worthy of being funded by your division.

Thank you very much for your consideration of this request and I look forward to your response.

With best wishes.

Sincerely,

Roman C. Pucinski  
Chairman, General  
Subcommittee on Education

RCP:eb

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MAJORITY MEMBERS:

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ROMANO L. MAZZOLI, KY.  
HERMAN BADILLO, N.Y.  
EDITH GREEN, OREG.

225-4368

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CONGRESS OF THE UNITED STATES

HOUSE OF REPRESENTATIVES

COMMITTEE ON EDUCATION AND LABOR

GENERAL SUBCOMMITTEE ON EDUCATION

8-345C RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, D.C. 20515

*Dr. Coy*  
*Joe Beberich*

September 13, 1972

Mr. Rogers Morton, Secretary  
U.S. Department of Interior  
Washington, D.C.

Dear Mr. Secretary:

I have enclosed for your information a proposal drafted by the Wabash Valley College to fund a Coal Mining Technology course.

I believe that this proposal has a great deal of merit and would fill a great need in that part of the country for such expertise. Therefore, I would urge you and the Federal Bureau of Mines to review all possible sources of funding in order to find Federal funding for this proposal.

Thank you very much for your consideration of this request.

With best wishes.

Sincerely,

Roman C. Pucinski  
Chairman, General  
Subcommittee on Education

RCP:eb

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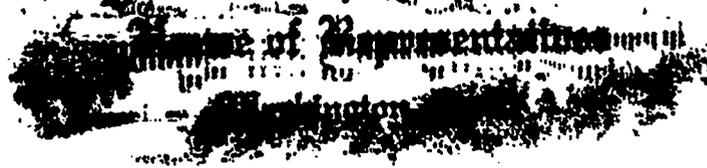
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GEORGE E. SHIPLEY  
23rd DISTRICT, ILLINOIS

HOME:  
OLNEY, ILLINOIS 62450

Administrative Assistant  
Donald H. Watson

Congress of the United States



WASHINGTON OFFICE  
237 HOUSE OFFICE BUILDING  
WASHINGTON, D C 20515

MEMBER, COMMITTEE ON  
APPROPRIATIONS

SUBCOMMITTEES  
INDEPENDENT OFFICES  
AGRICULTURE

September 21, 1972

*J. Cog*  
*J. Beberich*

Herman E. Ahlfield  
Dean of Instruction  
Wabash Valley College  
2200 College Drive  
Mt. Carmel, Illinois 62863

Dear Mr. Ahlfield:

Thank you very much for sending me a copy of the proposal for the pilot project in Coal Mining Technology.

Please be assured I do want to be of assistance with regard to funding for this project, and will be happy to express my interest in the proposal. I hope this will be of some help.

With kind personal regards, I remain

Sincerely yours,

  
George E. Shipley, MC.

GES/ge

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JOHN L. MC CLELLAN, ARK., CHAIRMAN	
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# United States Senate

COMMITTEE ON  
GOVERNMENT OPERATIONS  
WASHINGTON, D.C. 20510

JAMES R. CALLOWAY  
CHIEF COUNSEL AND STAFF DIRECTOR

September 13, 1972

*J. Cox*  
*J. Beberich*

Mr. Herman E. Ahlfield  
Dean of Instruction  
Wabash Valley College  
2200 College Drive  
Mt. Carmel, Illinois 62863

Dear Mr. Ahlfield:

Thank you for your recent letter. I was pleased to learn of your proposal for a pilot project in Coal Mining Technology. Certainly such a curriculum would be beneficial to the Coal Mine Industry and to those receiving training and possible employment in this area.

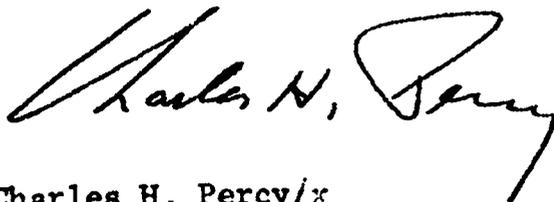
As a United States Senator, I feel that it would be improper to become involved in matters relating solely to State funding. Such matters are not within my jurisdiction and therefore, I do not wish to interfere.

It is my understanding that the Federal Bureau of Mines currently funds only direct research programs in advanced aspects of mining health and safety.

Possible sources of Federal funding would be the Office of Education and the National Science Foundation.

I wish you every success in this worthwhile endeavor. If I may be of assistance on any Federal matters relating to this project, please contact me.

Sincerely,



Charles H. Percy/x  
United States Senator

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## EDUCATION FOR INDUSTRY

HERMAN E. AHLFIELD  
*Dean of Instruction*  
*Illinois Eastern Junior Colleges*  
*Wabash Valley College*  
*Mt. Carmel, Illinois 62863*

### INTRODUCTION

I am delighted to be here at the annual meeting of the Illinois Mining Institute. I would say especially delighted since I am a novice to the Coal Mining Industry. My being on the program came as a result of a small introduction which I gave to the new Coal Mining Technology Program at Wabash Valley College as a part of a panel discussion at Wabash Valley College. Mr. Hopkins requested that he and the Illinois Mining Institute be brought up to date. To explain the Coal Mining Program, I feel that it is essential to give you a little background of Wabash Valley College, its philosophy and objectives for occupational education or education for industry. Wabash Valley College is one of three sister institutions which make up Illinois Eastern Junior Colleges. The other two campuses are Lincoln Trail College at Robinson and Olney Central College at Olney, Illinois.

### DISTRICT PHILOSOPHY OF VOCATIONAL-TECHNICAL EDUCATION

Illinois Eastern Junior Colleges, District #529, is dedicated to meeting the educational needs of the people of the area it serves. Its mission is to provide opportunities for the continuing process of education for individuals according to their needs. The District is committed to excellence in a context of concern for all.

To develop responsible citizenship, students are encouraged to:

- (1) Acquire wisdom and understanding as well as to pursue knowledge;
- (2) Develop and exercise independent judgment;
- (3) Think logically without bias and prejudice.

As an institution of continuing education, an atmosphere of confidence and trust is fostered in order to encourage participation in learning. Illinois Eastern Junior Colleges, District #529, endeavors

to challenge its service area with the significance of higher education in American life. It strives to develop the individual to his fullest potential in the services of mankind, and to provide opportunity for the continuation of education on a comprehensive and democratic basis throughout adult life.

Illinois Eastern Junior Colleges, District #529 maintains an open door policy which permits college-age youth and adults who can benefit from higher education to take advantage of the opportunity which has been provided for them. It is hoped that the programs of education will help students to adjust themselves to the working situations in which they will be employed so that they will be productive workers and employees upon graduation. The District believes in offering vocational and technical training to meet the needs of people who wish to improve their skills, prepare students for entry level competency in an occupation, prepare for entry level as technicians in some occupations, prepare for advancement or change of employment, gain a vocational experience, or expand their general education in these fields. It is intended to provide programs and services to allow every citizen to reach their maximum capability in order to become useful citizens trained in occupations and to be intelligent consumers.

Illinois Eastern Junior Colleges (District #529) intends to keep abreast of all emerging occupations to develop programs to fit the needs of all citizens within the District.

#### OBJECTIVES OF ILLINOIS EASTERN JUNIOR COLLEGES

1. To provide programs for students broadly defined as follows:
  - (a) Liberal arts and sciences, general education and pre-professional.
  - (b) Occupation oriented for entry level competence in an occupation.
  - (c) Prepare some students for entry level as occupational technicians.
  - (d) Adult and continuing education.
  - (e) General studies.
2. Provide guidance with the discovery and development of abilities and talents of individual students, including especially those uncertain as to future education plans.
3. To serve as a cultural, intellectual, and resource center for the area.
4. To adapt to present curricula and programs to meet the ever changing needs of the district served, and to develop new

## EDUCATION FOR INDUSTRY

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curricula and programs through continuous research within the limitations of available resources.

## OBJECTIVES IN MEASURABLE TERMS

1. Vocational and technical training to meet the needs of persons who wish to improve their skills, prepare themselves for advancement or change of employment or expand their general education in these fields.
2. To prepare students for gainful employment in the occupation for which they are being trained at an entry level competency.
3. To prepare students for gainful employment in the occupation for which they are being trained at a technician level of competency.
4. To provide opportunities for employed persons to increase their job competence.
5. To develop safety work habits, improve work habits and attitudes.
6. To promote the economic well-being of the community through services to the public, business, industry, and labor.
7. To provide students with the opportunity to explore their interests and abilities.
8. To aid students in attaining a better understanding of the world in which they live.
9. To help students develop desirable social attitudes and abilities.
10. To cultivate proper habits of health and living.
11. To assist all students to become active, responsible citizens in our democratic society.
12. To aid students in attaining a better understanding of occupational opportunities through extensive counseling and guidance.
13. To provide counseling services to assist students in choosing and following educational programs most profitable to them.
14. To cooperate with the professions, business, and industry in the area in establishing internship programs in which students can gain practical experience.

A broad comprehensive educational program is required to achieve these objectives. This must be a vital, flexible program that can be adapted to the changing needs of our society. In order to meet these requirements, the present and proposed occupational education programs are an integrated part of the Junior College curricula and the facilities for these programs are designed to flexibly serve a whole family of occupations.

## ILLINOIS MINING INSTITUTE

## NEED FOR OCCUPATIONAL TRAINING

Each year the ranks of school drop-outs increase by three quarters of a million young men and women. They enter the job market without the skills and attitudes employers require. The number of jobs which the unskilled can fill is declining rapidly. The number requiring a liberal arts college education, while growing, is increasing far less rapidly than the number demanding a technical skill. The national advisory council for vocational education stated, "In the 1980's, it will still be true that fewer than 20% of our job opportunities will require a 4 year college degree. In America, every child must be educated to his highest potential, and the height of the potential is not measured by the color of the collar. Plumbers, carpenters, electricians," (and coal miners), "make more than many school superintendents and college presidents: only the arrogant will allow themselves to feel that one is more worthy than the other."

## NEED FOR PEOPLE TRAINED IN COAL MINING

On November 22, 1971 Mr. Charles Harrison from AMAX Coal Company visited Wabash Valley College and expressed their need for trained people to work in coal mines. He discussed the opening of their new mine in this immediate area and gave the following approximate needs:

- (1) AMAX will take over operation from the tunneling company about January 1, 1973 and will employ about 50 people at that time.
- (2) January, 1974—will employ about 50 more for a total of 100
- (3) January, 1975—will employ about 50 more for a total of 150
- (4) January, 1976—to add about 375 for a total of 525
- (5) Approximate turnover of 10% per year.

On January 26, 1972, Mr. Charles Harrison accompanied by Mr. Harold Odle of the Illinois Department of Mines and Minerals again visited Wabash Valley College and talked with Dr. John Cox, President of Wabash Valley College and me about the possibility of starting a nine month pilot program to train people to work in coal mines. They supplied us with information about the industry and what might be needed for the development of such a program. They offered their services and their knowledge of the industry to assist in the development of this program. As a result of these meetings, we at Wabash Valley College, learned that the coal industry is now the largest in this area of Illinois. The yearly production is great now, with a forecast of an increase of several thousand tons by 1972.

## EDUCATION FOR INDUSTRY

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The opening of new mines in this area, along with several billion tons of unmined coal, gives a bright outlook for the industry. A dark spot facing the industry in the near future is the lack of trained personnel.

Modernization of the coal industry over the last 25 or 30 years has made it necessary to have trained and skilled people to place in the various mines of the area. The age of the average coal miner is such that in just a few short years there will be an alarming shortage in this field. The younger, unskilled workers are not getting the chance to be employed and work their way up on the job. These two facts in themselves are enough to cause alarm in this industry.

It seems ironic to me that on the one hand there seems to be large numbers of unemployed, unskilled persons who must be trained for service in the mining industry, yet we, the general public, have not been concerned enough to set up training programs to help our largest industry in this area.

At the present time there is not a training facility in Illinois which will train a person to be a mine mechanic, a mine electrician, a hydraulic specialist, a haulage maintenance man, or a specialist in other fields that this program would cover.

New mines have opened and have therefore created a great demand for trained or experienced personnel in the industry.

It can be shown at the present time that none of the training in the preparatory phase of our schools is directed totally toward the coal industry. This is not saying that training of any kind is not offered. There is a continuous training program for Mine Examiners and Mine Managers in the Department of Mines and Minerals, but this program is designed to help men presently employed. This in itself is good, but does not justify the absence of training for new mining personnel.

The coal industry itself has requested training programs to be conducted through Wabash Valley College. This should show us that the coal industry is interested in, and willing to work with vocational education, and is a cause within itself that could be used to justify a training program.

## DEVELOPMENT OF TRAINING PROGRAM

It was then the decision of Wabash Valley College to proceed with all haste in the development of a program to meet the needs as related to us by industry and by the State of Illinois, Department of Mines and Minerals. With the able assistance of a temporary steering committee composed of: Mr. Kenneth Wells, United Mine Workers of America; Mr. Clem Dovidas, U.S. Department of the

Interior, Bureau of Mines; Mr. Charles Harrison, AMAX Coal Company; Mr. Harold Odle, Illinois Department of Mines and Minerals; Dr. John Cox, President, Wabash Valley College; and Mr. Herman Ahlfield, Dean of Instruction, Wabash Valley College, we developed and proposed a formalized one-year pilot project with the following objectives:

1. Upgrade and improve training of the safety phases of underground miners with the ultimate goal of reducing accidents mostly caused by inadequate training and instructions.
2. Improve the productivity of underground miners as one means of meeting the ever increasing energy demands. (It is almost impossible to meet health and safety requirements and production goals with the large number of untrained, inexperienced new hires now being introduced to the underground mines.)
3. Alleviate the current shortage of underground miners who need to be trained in health and safety practices as well as production methods by formal classes of instruction conducted by competent instructors.
4. Provide a semi-permanent vehicle for teaching fundamental, safe coal mining habits and practices relating to mine ventilation, roof control, and safe machine maintenance and operation.
5. Since the Southern Illinois coal field is one of the most rapidly expanding ones in our country, some means must be found to improve the accident frequency ratios and the production of coal.

#### DEVELOPMENT OF CURRICULUM

Having developed general objectives for the program, it was then necessary to proceed as rapidly as possible to develop the curriculum. In the development of the curriculum we were constantly aware that neither mine operators, nor their employees have ever had the benefit of a properly oriented, formal and organized means of teaching safe, proper underground mining techniques. Such training has been on-the-job by those who were never taught teaching techniques.

The ever increasing demand for energy in the form of coal demands better safety and mining practices in order to cope with the latest and most advanced kinds of mining machinery now being used in the Southern Illinois coal fields.

The diagram (Figure 1) will illustrate the essential steps, in brief form, for the beginning of classes on August 30, 1972. There were two definite dates which had to be adhered to in order to have the

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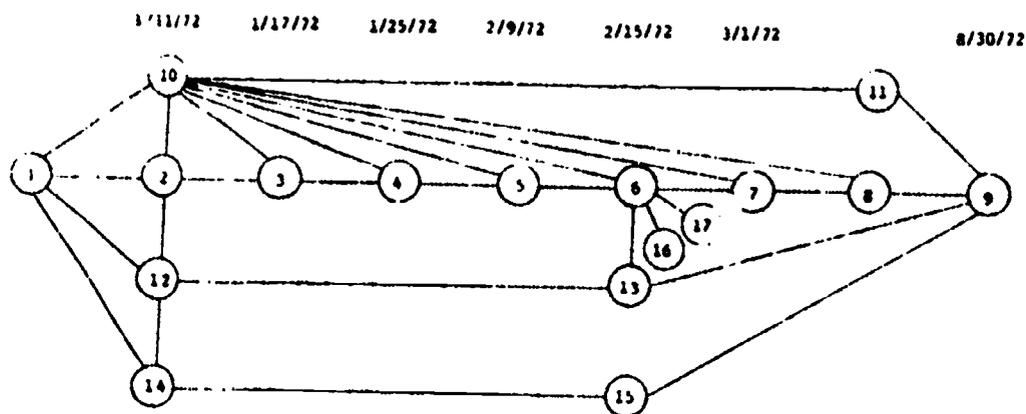


Fig. 1—Stages in developing a curriculum for training coal mine workers.

1. Develop curriculum
2. Wabash Valley College Curriculum Committee
3. Illinois Eastern Junior Colleges VOTEC Committee
4. Illinois Eastern Junior Colleges District Advisory Council
5. Illinois Eastern Junior Colleges Citizen's Advisory Council
6. Illinois Eastern Junior Colleges Board of Trustees
7. Illinois Junior College Board
8. Board of Higher Education
9. Start classes
10. Research existing programs, teaching materials, and equipment needs
11. Secure teaching materials and equipment
12. Research instructional staff needs
13. Hire or train instructional staff
14. Research possible funding
15. Apply for funding
16. Organize permanent Advisory Committee
17. Publicize program

program approved and in operation. The deadline for having programs submitted to the Illinois Junior College Board to begin during the Fall Quarter was March 1, 1972. Since classes start on August 30, at Wabash Valley College, it was necessary to have all phases of program development completed by that date.

After outlining the essential requirements to put the program in operation by August 30, it appeared to be an almost impossible task. It meant that the curriculum had to be developed within a matter of days and that it had to receive approval at the first reading of each committee. The following curriculum was presented to all in-district committees and received a unanimous approval.

ILLINOIS MINING INSTITUTE

ILLINOIS EASTERN JUNIOR COLLEGES  
DISTRICT 529  
WABASH VALLEY COLLEGE  
PROPOSAL FOR OCCUPATIONAL  
PROGRAM IN COAL MINING  
TECHNOLOGY 1 YEAR  
CERTIFICATE PROGRAM

DATES PRESENTED TO:  
Gen'l Vo Tech Adv. 1/17/72  
WVC Curriculum 1/11/72  
District Adm. Council 1/25/72  
Citizen's Adv. 2/9/72  
Board of Trustees 2/15/72

		CONTACT HOURS PER WEEK		Credit
		Class	Laboratory	Hours
<i>First Quarter</i>				
CMT 112	Introduction to Coal Mining	4	0	4
CMT 122	Mining Law	4	0	4
CMS 112	First Aid & Mine Rescue	4	0	4
MTH 112	Applied Mathematics	4	0	4
ORT 111	Freshman Orientation	1	0	1
TOTAL HOURS FOR FIRST QUARTER		17	0	17
<i>Second Quarter</i>				
CMS 122	Coal Mine Atmosphere	4	0	4
DLR 132	Basic Welding	2	4	4
CMT 132	Lamp & Detection Instruments	4	0	4
CMS 132	Accident Prevention & Safety	4	0	4
TOTAL HOURS FOR SECOND QUARTER		14	4	16
<i>Third Quarter</i>				
CMT 142	Mining Equipment	4	0	4
CMS 142	Coal Mine Ventilation	4	0	4
CMT 152	Roof & Rib Control	4	0	4
CMT 162	Problems of Operating Underground Mines	4	0	4
TOTAL HOURS FOR THIRD QUARTER		16	0	16
TOTAL HOURS FOR PROGRAM		47	4	49

COAL MINING TECHNOLOGY COURSE DESCRIPTIONS

- CMT 112 INTRODUCTION TO COAL MINING** 4-0-4  
An introduction to the fundamental concepts of coal mining. Geological factors affecting coal from the origin of the earth. How coal was formed and coal resources of the United States. The choices and methods of mining coal. Four classroom hours per week. 4 quarter hours credit.
- CMT 122 MINING LAW** 4-0-4  
An introduction to the coal mining laws of the federal government and state government. This course deals with regulations relating to mining practices. The Mining Act of Illinois covering the installation, operation and safety in bituminous coal mining and also the Federal Mine Safety Code. Four classroom hours per week. 4 quarter hours credit.
- CMS 112 FIRST-AID & MINE RESCUE** 4-0-4  
Training by instruction and demonstration. information is disseminated regarding safe and unsafe practices, with a view to reducing accidents as well

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as teaching the correct emergency aid for injured persons. The additional purpose of this course is to familiarize the student with the principles of mine rescue operations and the actions to be taken by men underground in case of a mine disaster. Four classroom hours per week. 4 quarter hours credit.

**MTH 112 APPLIED MATHEMATICS** 4-0-4

This course is designed primarily for the vocational-technical student. The course material emphasizes the fundamental operations with whole numbers, fractions and decimals, and studies the applications of those operations to areas related to specific vocational programs. **PREREQUISITE:** MTH 010 or its equivalent. Four classroom hours per week. 4 quarter hours credit.

**ORT 111 FRESHMAN ORIENTATION** 1-0-1

Designed to give incoming freshmen an introduction to college life. One classroom hour per week. 1 quarter hour credit.

**CMS 122 COAL MINE ATMOSPHERE** 4-0-4

A study or analysis of mine air. Mine air as it relates to health and safety of the men. The gases commonly encountered in coal mines and the properties of them. The fundamental physical laws pertaining to air and atmospheric pressure. The effect of temperature and pressure on gases within a mine. Four classroom hours per week. 4 quarter hours credit.

**DLR 132 BASIC WELDING** 2-4-4

This is a practical course in the use of oxy-acetylene and electric arc welding equipment. Students will practice cutting, bronze welding, fusion welding, and hard-facing with the oxy-acetylene flame. They will also practice selection of electrodes, running bends, and welding common joints in all positions. Familiarization with semi-automatic inert gas processes will be provided. Two classroom hours per week. Four lab hours per week. 4 quarter hours credit.

**CMT 132 LAMP & DETECTION INSTRUMENTS** 4-0-4

The purpose of this course is to instruct in the proper use and care of the permissible flame safety lamp and the various permissible methane detectors. The ability to determine methane concentrations using these instruments and the ability to properly maintain them. To train persons to test mine atmospheres with the various instruments and gauges. Four classroom hours per week. 4 quarter hours credit.

**CMS 132 ACCIDENT PREVENTION & SAFETY** 4-0-4

Because the injury and fatality rates of coal mines are consistently worse than those of most other industries the need for safety education is prerequisite to safety in coal mines. Of all causes of accidents, the most numerous and baffling are those due to human behavior and personality. Four classroom hours per week. 4 quarter hours credit.

**CMT 142 MINING EQUIPMENT** 4-0-4

Practices and devices involved in the extraction and transportation of coal. The study of equipment used in drainage and roof support. The use of electricity, hydraulic and compressed air power in coal mines. Coal preparation equipment and machinery. Timbering and pinning equipment. Four classroom hours per week. 4 quarter hours credit.

## CMS 112 COAL MINE VENTILATION

1 0 4

The goal of this course is to help the student understand mine ventilation control devices from the main fan to the working face. Four classroom hours per week. 4 quarter hours credit.

## CMT 152 ROOF AND RIB CONTROL

1 0 4

The purpose of this course is to develop a total awareness to the dangers of falls of roof, face and ribs for related mining personnel and to acquaint them with methods for preventing injuries and fatalities resulting from such danger. Four classroom hours per week. 4 quarter hours credit.

## CMT 162 PROBLEMS OF OPERATING UNDERGROUND MINES

1 0 4

A total picture of the problems of management in the operating of a coal mine. Union, management relations, grievances and contract disputes. Also the responsibilities and duties of management. Four classroom hours per week. 4 quarter hours credit.

## ADVISORY COUNCIL

All of the developmental steps having been completed, at least to the necessary degree, a beginning class of 20 students started August 30, 1972. The permanent Advisory Council consisting of:

Mr. Ray Farrar, Geologist  
 Mr. Charles R. Harrison, AMAX Coal Company  
 Mr. M. E. Hopkins, Illinois Mining Institute  
 Mr. Harold Odle, Department of Mines and Minerals  
 Mrs. Louise Williams, Mt. Carmel Chamber of Commerce  
 Mr. John R. Sutton, Southern Illinois University  
 Mr. Roger Scholes, Inland Steel Company  
 Mr. Elkins Payne, AMAX Coal Company  
 Mr. Ted Plumlee, Department of Mines and Minerals  
 Mr. Sam Beard, Keensburg Mine  
 Mr. Clem Dovidas, U.S. Department of the Interior, Bureau of Mines  
 Mayor Joe McGuire, Mt. Carmel, Illinois  
 Mr. C. Dayton McReaken, Department of Mines and Minerals  
 Mr. Kenneth Wells, United Mine Workers of America

*(Ex-Officio Members)*

Dr. John Cox, President, Wabash Valley College  
 Mr. Herman Ahlfield, Dean of Instruction, Wabash Valley College  
 Mr. Joe Berberich, Instructor, Wabash Valley College  
 Mr. Stanley Greatline, Instructor, Wabash Valley College  
 Mr. Garry Slankard, Instructor, Wabash Valley College  
 Mr. Bob Adams, Instructor, Wabash Valley College

held its first meeting on September 27, 1972. The Advisory Committee recommended that we consider expanding this nine-month

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pilot project into a two-year Associate in Applied Science Degree program for the training of mine maintenance personnel and mine electricians. They expressed a desire that a profit attitude be stressed to the students since it is essential to the operation of any successful business.

Thank you very much for your interest in Wabash Valley College, the Coal Mining Technology Program, and for having me on your program.

*Bob Grimm:* Thank you, Dean Ahlfield, for an interesting report on your program at Wabash Valley. Our next paper is coauthored by Dr. Samuel R. Jewell and Mr. Ronnie J. Haynes. Both of these men are associated with the Cooperative Wildlife Research Laboratory at Southern Illinois University in Carbondale. Dr. Jewell is Assistant Director of this wildlife program and Mr. Haynes is presently a Graduate Research Assistant. I noted from his pedigree that he, too, hopes to have his Doctorate completed in the summer of 1973. Without further ado, I give you, Dr. Samuel Jewell.

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WABASH VALLEY COLLEGE

COAL MINING TECHNOLOGY  
Class List 1972-1973

<u>Name</u>	<u>Address</u> (Present)	(Permanent)
Armstrong, Gabe	107 Evergreen Lane Mt. Carmel, Illinois	Same
Arnold, Larry	Route 1 Mt. Carmel, Illinois	Same
Corrie, Bryan	R. R. 3 Mt. Carmel, Illinois	Same
Crooks, David	Route 1 Grayville, Illinois	Same
Grastz, James	112 Froman Drive Mt. Carmel, Illinois	Same
Harvey, Steve	R. R. 3 Albion, Illinois	Same
Hastings, Warren	Box 111 Bellmont, Illinois	R. R. 2 Louisville, Illinois
Horrall, Larry	Box 403 Mt. Carmel, Illinois	Same
James, Frank	R. R. 4 Mt. Carmel, Illinois	Same
Kidd, James	514 Walnut Street Mt. Carmel, Illinois	Route 1 Mechanicsburg, Illinois
Minter, Jack	1211 Walnut Street Mt. Carmel, Illinois	Same
Newkirk, Steve	1207 Mulberry Street Mt. Carmel, Illinois	Same
Patterson, Myles S.	224 W. 2nd Street Mt. Carmel, Illinois	Same
Reece, James D.	415 E. 9th Street Mt. Carmel, Illinois	Same
Smith, Carl	Box 23 Mt. Carmel, Illinois	Same

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<b>Spitzner, James</b>	<b>Route 2 Mt. Carmel, Illinois</b>	<b>Same</b>
<b>Storckman, Robert</b>	<b>R. R. 3 Mt. Carmel, Illinois</b>	<b>Same</b>
<b>Xanders, Greg</b>	<b>1026 Landes Mt. Carmel, Illinois</b>	<b>Same</b>

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