




**ROCKINGHAM COMMUNITY COLLEGE**  
**VOCATIONAL PROGRAMS**



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# VOCATIONAL PROGRAMS



Vocational programs teach the skills that people need to find a job or to advance in a job. The objective of each program is immediate employment.

While the programs may be completed in one year (12 months) by full-time students, some are offered on a part-time schedule of evening classes requiring more than one year.

Rockingham Community College offers nine vocational programs:

AUTOMOTIVE MECHANICS  
BASIC ELECTRONICS  
EARLY CHILDHOOD ASSISTANT  
ELECTRICAL INSTALLATION  
AND MAINTENANCE

COSMETOLOGY  
LIGHT CONSTRUCTION  
MACHINIST  
MECHANICAL DRAFTING  
WELDING

Tuition for North Carolina residents is \$3.25 per credit hour. The maximum tuition charge per quarter is \$39.

During the fall, winter and spring quarters, a \$9 activity fee is charged full-time students (those enrolled in 12 quarter hours or more). Part-time students pay activity fees at the following rate:

- 1 - 4 quarter hours, \$2
- 5 - 7 quarter hours, \$4
- 8 - 11 quarter hours, \$6

Each student (full or part time) pays a \$1 activity fee during the summer quarter.

Tuition and fees should be paid at the time of registration.

Textbooks and supplies, which may be purchased from the college bookstore, are other expenses for which students should plan. The cost will vary with each program, but expenses for vocational courses average between \$30 and \$60 each quarter.

Financial aid is available to students who qualify. Full in-

formation on grants, scholarships and loan funds, as well as applications, may be obtained from the Financial Aids Officer.

Veterans attending the college are assisted by a Veterans Affairs Officer, who helps veterans, children of disabled or deceased veterans, and wives and children of MIA's or POW's, to obtain the benefits they are due.

A full range of counseling and guidance services is offered by the Student Affairs Office. Counseling and necessary testing begins when a student first applies and continues throughout enrollment. While the college does not guarantee job placement, assistance in finding suitable jobs is given to graduates.

The Learning Resources Center (LRC) offers an attractive, relaxed place for study, research, browsing and self-improvement. Students have access to over 22,000 books, numerous magazines and periodicals, phonograph and tape recordings, and a variety of audio-visual aids. Located in the center of the campus, the LRC is open to students 65 hours a week. A Study Skills Laboratory offers tutorial services in reading and mathematics and assists students in developing effective learning skills.



Co-curricular activities are encouraged as part of the total educational experience at Rockingham Community College. The Student Government Association, class-related activities, publications, and clubs give students the opportunity to develop leadership skills and to pursue individual interests.

College policy makes it possible for students to participate competitively not only in sports, but in many games such as billiards, chess, bridge and pool. Basketball, tennis, volleyball and archery are just a few of the sports students may enjoy for recreation or competition.

Social activities at Whitcomb Student Center include dances, concerts, cookouts, films and special events developed by student committees. Since these are supported by the activity fees paid at registration, they are generally free to college students.

Ping pong, pool, air hockey, television, records and tapes, quiet rooms to study or talk with friends—Whitcomb Student Center is "a place to be" between and after classes.

Automotive Mechanics trains the student in the upkeep and repair of gasoline-powered automobiles, trucks, buses, and tractors. Instruction includes various types of repair work including transmissions, alignment and steering, air conditioning, engine overhaul, carburetion, and ignition systems. This instruction prepares the graduate for future jobs with trucking firms or automobile dealerships or jobs repairing industrial equipment. Safety practices, tool maintenance and shop management are stressed. The full-time day student spends approximately 20 hours per week in lab practice. The Automotive Mechanics program requires the student to train by using tools in limited space and to apply concepts in a problem solving manner.

*GROUP I					*GROUP II				
Course Title	Lec Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.	Course Title	Lec Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>					<b>FALL QUARTER</b>				
MEC 1511 Metrology	1	0	2	2	MEC 1511 Metrology	1	0	2	2
AUT 1101 Int Combustion Engrs	4	12	0	8	AUT 1102 Eng Elec/Fuel Systems	4	12	0	8
MAT 1101A Fund of Math	3	0	0	3	MAT 1101A Fund of Math	3	0	0	3
PHY 1101 Applied Science I	3	0	2	4	PHY 1101 Applied Science I	3	0	2	4
ISA 101 Industrial Safety	1	0	0	1	ISA 101 Industrial Safety	1	0	0	1
SSD 100 Study Skills Development	1	0	0	1	SSD 100 Study Skills Development	1	0	0	1
	<u>13</u>	<u>12</u>	<u>4</u>	<u>19</u>		<u>13</u>	<u>12</u>	<u>4</u>	<u>19</u>
<b>WINTER QUARTER</b>					<b>WINTER QUARTER</b>				
AUT 1102 Eng Elec/Fuel Systems	4	12	0	8	AUT 1101 Int Combustion Engrs	4	12	0	8
MAT 1101B Fund of Math	2	0	0	2	MAT 1101B Fund of Math	2	0	0	2
PHY 1102 Applied Science II	3	0	2	4	PHY 1102 Applied Science II	3	0	2	4
WLD 1101 Basic Welding	0	0	3	1	WLD 1101 Basic Welding	0	0	3	1
	<u>9</u>	<u>12</u>	<u>5</u>	<u>15</u>		<u>9</u>	<u>12</u>	<u>5</u>	<u>15</u>
<b>SPRING QUARTER</b>					<b>SPRING QUARTER</b>				
AUT 1103 Brks/Chassis/Suspensn	5	12	0	8	AUT 1103 Brks/Chassis/Suspensn	5	12	0	8
AHR 1101 Auto Air Cond	2	0	3	3	AHR 1101 Auto Air Cond	2	0	3	3
MEC 1512 Prac Mch Operatns	1	0	3	2	MEC 1512 Prac Mch Operations	1	0	3	2
ENG 1102 Communication Skls	3	0	1	3	ENG 1102 Communication Skls	3	0	1	3
	<u>11</u>	<u>12</u>	<u>7</u>	<u>16</u>		<u>11</u>	<u>12</u>	<u>7</u>	<u>16</u>
<b>SUMMER QUARTER</b>					<b>SUMMER QUARTER</b>				
AUT 1104 Servcng/Power Train	4	18	0	10	AUT 1104 Servcng/Power Train	4	18	0	10
PSY 1101 Human Relations	3	0	0	3	PSY 1101 Human Relations	3	0	0	3
BUS 1103 Business Operations	3	0	0	3	BUS 1103 Business Operations	3	0	0	3
	<u>10</u>	<u>18</u>	<u>0</u>	<u>16</u>		<u>10</u>	<u>18</u>	<u>0</u>	<u>16</u>
TOTAL QUARTER HOURS CREDIT (GROUP I) 66					TOTAL QUARTER HOURS CREDIT (GROUP II) 66				

\* Group I and Group II indicate two separate one year programs of study. The student may choose to follow either of these two groups. An equal number of credit hours must be completed in either program.



## AUTOMOTIVE MECHANICS



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**AHR 1101 AUTOMOTIVE AIR CONDITIONING** 2-3-3  
General introduction to the principles of air conditioning systems including study of the assembly of components and connections necessary for proper operation of these systems. Principles of operations, controls, trouble shooting, adjustments, and general servicing procedures are included. Safety and proper handling of refrigerants used in charging the system are stressed.

**AUT 1101 INTERNAL COMBUSTION ENGINES** 4-12-8  
This course is concerned with the theory of operation, design and construction, disassembly and assembly of internal combustion engines. The use and care of hand tools and power equipment are stressed. Prerequisite: permission of instructor.

**AUT 1102 ENGINE ELECTRICAL AND FUEL SYSTEMS** 4-12-8  
A thorough study of the electrical and fuel systems such as starting, charging, and ignition systems, the accessories and wiring of automobile body, fuel pump, and all types of carburetors. Basic theory relating to operation of the above items will be provided so as to enable the student to apply the theory to the use of testing equipment and to procedures for repair used during his laboratory experience. Prerequisite: AUT 1101 or permission of the instructor.

**AUT 1103 AUTOMOTIVE BRAKES, CHASSIS, AND SUSPENSION SYSTEMS** 5-12-8  
A complete study of braking systems, frames, and suspension systems to include conventional brakes, disc brakes, shocks, torsion bars, leaf and coil springs, manual and power steering systems. Emphasis in system diagnosis, use of proper service tools and machines, proper adjustment of brakes, torsion bars, front and rear suspension systems. Prerequisite: AUT 1102 or permission of instructor.

**AUT 1104 AUTOMOTIVE SERVICING AND POWER TRAIN SYSTEMS** 4-18-10  
This course is concerned with the study of power flow from the automobile's power plant to the drive wheels and shop procedures necessary for diagnosis and repair of all automotive systems. To include manual and automatic transmissions, clutches, drive shafts and universal joints, differential and rear axles, with experience in overall diagnosis and repair using advanced testing equipment on all systems of the automobile. Prerequisite: AUT 1103 or permission of instructor.

**BUS 1103 BUSINESS OPERATIONS** 3-0-3  
An introduction to the business world, problems of business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations.

**ENG 1102 COMMUNICATION SKILLS** 3-1-3  
Designed for the vocational student, this course emphasizes written and oral communication, grammar fundamentals, job applications, order forms, memos, letters, and job interviews. Upon completing this course, the student should be equipped with the written and oral communication skills necessary for a vocational career.

**ISA 101 INDUSTRIAL SAFETY** 1-0-1  
Development of industrial safety, causes and costs of acci-

dents, basic factors of accident control, hand, heat, and power tools, safety problems of handling materials, vehicular safety, protective equipment, safety codes, first aid, fire prevention, fire fighting, emphasis on personal responsibility for safety; related movies, local speakers.

**MAT 1101 FUNDAMENTALS OF MATHEMATICS** 5-0-5  
This course includes the following: review of common fractions, decimal fractions, and percent. Algebraic operations substituting in formulas and equations, using equations in shop problems, exponents, square root, formulas, ratio and proportion are also studied.

**MAT 1101A(3-0-3) and MAT 1101B(2-0-2)**  
MAT 1101A (Part One of MAT 1101) and MAT 1101B (Part Two of MAT 1101) are the equivalent of MAT 1101.

**MEC 1511 METROLOGY** 1-2-2  
The purposes of this course are (1) to teach the various systems and standards as related to the science of measurements; and (2) to teach the care, construction, and use of the various measuring instruments as related to these standards.  
This course is required in certain vocational programs but may be taken by any individual who has a need for or an interest in such training.

**MEC 1512 PRACTICAL MACHINING OPERATIONS** 1-3-2  
To teach the student proper selection, use, care, and storage of the following tools; hacksaws, files, reamers, grinders, lathes, drills, taps, dies, milling machine and lapping equipment.  
This course is designed to be taken by any individual who has a need for or an interest in such training.

**PHY 1101 APPLIED SCIENCE I** 3-2-4  
An introduction to physical principles and their applications. Topics in this course include measurements, motion, forces, work, power simple machines, and fluids. Prerequisite or corequisite: MAT 1101.

**PHY 1102 APPLIED SCIENCE II** 3-2-4  
A Continuation of Applied Science I. Topics introduced in this course are temperature, heat, thermal expansion, static electricity, electric current, magnetism and electric motors and generators. Prerequisite or corequisite: MAT 1101.

**PSY 1101 HUMAN RELATIONS** 3-0-3  
A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation.

**SSD 100 STUDY SKILLS DEVELOPMENT** 1-0-1  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.

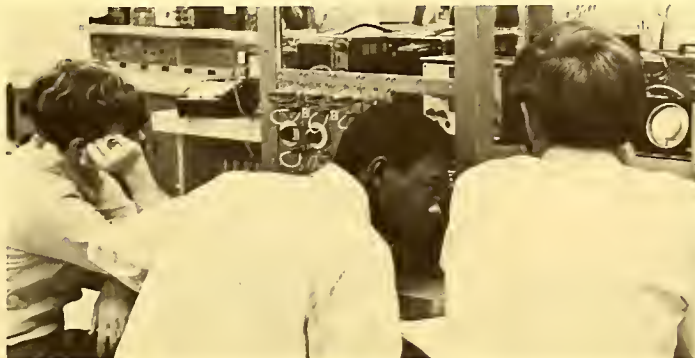
**WLD 1101 BASIC WELDING** 0-3-1  
Welding demonstrations by the instructor and practice by students in the welding shop. Safe and correct methods of assembling and operating the welding equipment. Practice will be given for surface welding, bronze welding, silver soldering, and flame-cutting methods applicable to mechanical repair work.

The Basic Electronics program trains the student to repair and service many types of electronic equipment. The graduate is a qualified and competent technician who may find jobs in businesses and industries throughout the area as a radio and/or television serviceperson or electronic office machinery or two-way communications serviceperson.

The emphasis during the summer quarter will be alternated each year between industrial applications and television servicing. In the summer of 1977 industrial application, leading to a job in the electronics industry, will be featured. Television servicing to become radio and television service persons will be offered during the summer of 1978.

The full-time Basic Electronics day program gives the student the basic knowledge needed to be successful in the field. Approximately 15 hours a week are spent in lab work, developing skills and gaining experiences. The student in electronics is required to organize concepts in a systematic manner, read detailed plans, work with miniature electronic parts and apply mathematic skills.

Course Title	Lec Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>				
ELN 1112 Dir/Alter Current	5	0	10	10
ISA 101 Industrial Safety	1	0	0	1
MAT 1115 Electrical Mathematics	5	0	1	5
SSD 100 Study Skills Development	1	0	0	1
	<u>12</u>	<u>0</u>	<u>11</u>	<u>17</u>
<b>WINTER QUARTER</b>				
ELN 1122 Vacuum Tubes/Circuits	4	0	8	8
ELN 1123 Amplifier Systems	2	0	4	4
MAT 1116 Electrical Mathematics	5	0	1	5
	<u>11</u>	<u>0</u>	<u>13</u>	<u>17</u>
<b>SPRING QUARTER</b>				
ELN 1125 Communications Systems	2	0	4	4
ELN 1126 Transistor Theory	5	0	10	10
ENG 1102 Communication Skills	3	0	1	3
	<u>10</u>	<u>0</u>	<u>15</u>	<u>17</u>
<b>SUMMER QUARTER</b>				
ELN 1128 Ind Applications Electrician	6	0	12	12
PSY 1101 Human Relations	3	0	0	3
BUS 1103 Business Operations	3	0	0	3
	<u>12</u>	<u>0</u>	<u>12</u>	<u>18</u>
TOTAL QUARTER HOURS CREDIT 69				



## BASIC ELECTRONICS



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- BUS 1103 BUSINESS OPERATIONS 3-0-3**  
An introduction to the business world, problems of business operation, basic business law, business forms and records, financial problems, ordering and inventorying, layout of equipment and offices, methods of improving business, and employer-employee relations.
- ELN 1112 DIRECT AND ALTERNATING CURRENT 5-10-10**  
A study of the structure of matter and the electron theory, the relationship between voltage, current and resistance in series, parallel and series-parallel circuits. Analysis of direct current circuits by Ohm's Law and Kirchhoff's Law; sources of direct current potentials. Fundamental concepts of alternating current; a study of reactance, impedance, phase, resonance and alternating current circuit analysis.
- ELN 1122 VACUUM TUBES AND CIRCUITS 4-8-8**  
An introduction to vacuum tubes and their developments; the theory, characteristics and operation of vacuum diodes, rectifier circuits, filter circuits, triodes and simple voltage amplifier circuits. Prerequisites: ELN 1112; MAT 1115.
- ELN 1123 AMPLIFIER SYSTEMS 2-4-4**  
An introduction of commonly used servicing techniques as applied to monophonic and stereophonic high fidelity amplifier systems and auxiliary equipment. The operation and servicing of inter-communication amplifiers and switching circuits will also be taught. Each student will build an amplifier on which he will practice servicing techniques.
- ELN 1125 COMMUNICATIONS SYSTEMS 2-4-4**  
A study of principles of radio reception and practices of servicing; included are block diagrams of radio receivers, servicing techniques of AM and FM receivers by resistance measurements, signal injection, voltage analysis, oscilloscope methods of location, faulty stages and components and the alignment of AM and FM receivers. Each student will build a radio on which to practice servicing techniques. Prerequisite: ELN 1122; ELN 1123.
- ELN 1126 TRANSISTOR THEORY AND CIRCUITS 5-10-10**  
Transistor theory, operation, characteristics and their application to audio and radio frequency amplifier and oscillator circuits. Prerequisite: ELN 1123.
- ELN 1127 TELEVISION RECEIVER CIRCUITS AND SERVICING 6-12-12**  
A study of principles of television receivers, alignment of radio and intermediate frequency amplifiers, adjustment of horizontal and vertical sweep circuits will be taught. Techniques of troubleshooting and repair of TV receivers with the proper use of associated test equipment will be stressed. Additional study of more specialized servicing techniques and oscilloscope waveform analysis will be used in the adjustment, troubleshooting and repair of the color television circuits. Prerequisite: ELN 1125, ELN 1126.
- ELN 1128 INDUSTRIAL APPLICATIONS OF ELECTRONICS 6-12-12**  
Theory of logic gates such as "and," "or," "not," etc., are considered. Emphasis is on applications such as decoders, memory circuits, counters, registers, etc. Attention is also given to circuit simplification using the Karnaugh map.
- ENG 1102 COMMUNICATION SKILLS 3-1-3**  
Designed for the vocational student, this course emphasizes written and oral communication, grammar fundamentals, job applications, order forms, memos, letters, and job interviews. Upon completing this course, the student should be equipped with the written and oral communication skills necessary for a vocational career.
- ISA 101 INDUSTRIAL SAFETY 1-0-1**  
Development of industrial safety, causes and costs of accidents, basic factors of accident control, hand, heat, and power tools, safety problems of handling materials, vehicular safety, protective equipment, safety codes, first aid, fire prevention, fire fighting, emphasis on personal responsibility for safety; related movies, local speakers.
- MAT 1115 ELECTRICAL MATHEMATICS 5-1-5**  
An introductory algebra course with trigonometry and vector, needed in alternating current; algebraic operations of addition, subtraction, multiplication and division; use of letters and signs, grouping, factoring; exponents, ratios and proportions; algebraic and graphic solutions of first degree equations; introduction to trigonometric functions, their graphs and applications to right triangles. Addition, subtraction and resolution of vector quantities.
- MAT 1116 ELECTRICAL MATHEMATICS 5-1-5**  
A working knowledge of the powers of ten. Ohm's Law for series and parallel circuits, quadratic equations. Kirchhoff's Laws, trigonometric functions, plane vector algebra and circuit solutions. Prerequisite: MAT 1115.
- PSY 1101 HUMAN RELATIONS 3-0-3**  
A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation.
- SSD 100 STUDY SKILLS DEVELOPMENT 1-0-1**  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.



The Cosmetology program trains the student to provide a variety of beauty services for customers. Today's cosmetologist advises men and women on problems of makeup, diet and care of the hair, skin, and hands, including nails. Cosmetology has become a science through the use of cosmetics based on scientific principles.

In this full-time day program, instruction is offered in manicuring, shampooing, permanent waving, chemical relaxing, facials, massages, scalp treatments, hair cutting and styling, hair coloring, pressing, marcel waving and curling—for blacks and whites.

Upon completion of 1200 hours of attendance in Cosmetology, the student may take the State Board of Cosmetics Arts Certification Exam and after six months active apprenticeship and recommendation of Apprenticeship advisor, may become a licensed beautician. Upon completion of the prescribed curriculum, the student is awarded a diploma. The Cosmetology student spends approximately 25 hours a week in lab work. The student in Cosmetology should be able to establish amiable and pleasing relationships with other people and should possess the ability to be creative in his/her work.

Course Title	Lec. Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>				
COS 1150 Cosmetology I	5	0	0	5
COS 1151 Cosmetology I Lab	0	24	0	8
SSD 100 Study Skills Development	1	0	0	1
	<u>6</u>	<u>24</u>	<u>0</u>	<u>14</u>
<b>WINTER QUARTER</b>				
COS 1160 Cosmetology II	5	0	0	5
COS 1161 Cosmetology II Lab	0	25	0	8
	<u>5</u>	<u>25</u>	<u>0</u>	<u>13</u>
<b>SPRING QUARTER</b>				
COS 1170 Cosmetology III	5	0	0	5
COS 1171 Cosmetology III Lab	0	21	0	7
ENG 1102 Communication Skills	3	0	1	3
	<u>8</u>	<u>21</u>	<u>1</u>	<u>15</u>
<b>SUMMER QUARTER</b>				
COS 1180 Cosmetology IV	5	0	0	5
COS 1181 Cosmetology IV Lab	0	25	0	8
	<u>5</u>	<u>25</u>	<u>0</u>	<u>13</u>
<b>TOTAL QUARTER HOURS CREDIT 55</b>				



## COSMETOLOGY



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- COS 1150 COSMETOLOGY I** 5-0-5  
Introduction to Cosmetology. Study of bacteriology, sanitation, and first-aid. Theory of shampoo and rinses, finger waving, and pin curling. The care of hands and nails. The student is guided toward the development of a pleasing personality, charm and poise.
- COS 1151 COSMETOLOGY I LAB** 0-24-8  
Orientation to use and care of equipment, supply dispersal, and lab procedures. Demonstrations and practice in methods of applying shampoo, rinses, finger waves, and pin curl patterns. The application of scientific principles to manicuring and hand make-up.
- COS 1160 COSMETOLOGY II** 5-0-5  
Theory and practice of hair shaping, styling, tinting, and bleaching. The care and use of natural and artificial hair wigs.
- COS 1161 COSMETOLOGY II LAB** 0-25-8  
Demonstrations and practice in cutting, shaping, and styling natural hair, wigs, and hairgoods. Chemistry and application of tints and bleaches.
- COS 1170 COSMETOLOGY III** 5-0-5  
Provides a foundation of the practical art of permanent waving. An introduction to anatomy concerning the structure and function of bones, muscles, and nerves applied to facial and scalp treatment.
- COS 1171 COSMETOLOGY III LAB** 0-21-7  
Application of permanent waving solutions and heat waving. Manipulation of facial treatments and the proper application of basic and theatrical make-up.
- COS 1180 COSMETOLOGY IV** 5-0-5  
A study of the principles, techniques and materials used in scalp treatments. A continuation of anatomy with increased emphasis on application to cosmetology procedures. Body chemistry and electricity and disorders of skin, nails and hair are included. Operational management is introduced.
- COS 1181 COSMETOLOGY IV LAB** 0-25-8  
Application of principles of body electricity and chemistry to beauty culture processes. Hair and scalp types, treatments, and products.
- ENG 1102 COMMUNICATION SKILLS** 3-1-3  
Designed for the vocational student, this course emphasizes written and oral communication, grammar fundamentals, job applications, order forms, memos, letters, and job interviews. Upon completing this course, the student should be equipped with the written and oral communication skills necessary for a vocational career.
- SSD 100 STUDY SKILLS DEVELOPMENT** 1-0-1  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.

The Early Childhood Assistant aids professional personnel in implementing a planned program of activities. This requires understanding of a wide variety of activities: how to prepare materials, how to assist children to participate and how to care for materials at the completion of an activity. The worker must be able to perform these functions and carry out routine procedures while continuously observing the children and relating to each according to the child's needs.

The graduate of this basic course with a one-year vocational degree may find employment in day care centers, nursery schools, kindergartens, child development centers, hospitals, institutions, camps and recreation centers.

The student may spend from 3-12 hours per week in day care centers, nurseries, and public school kindergartens gaining practical lab experience.

ONE YEAR PROGRAM Full-Time Day Program				
Course Title	Lec Hrs.	Shop Hrs.	Lsb Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>				
ENG 100 English Fundamentals	4	0	0	4
SSD 100 Study Skills Development	1	0	0	1
EDU 1001 Nature and Scope of Early Childhood Programs	3	0	0	3
EDU 1002 Health and Safety of the Young Child	3	0	0	3
EDU 1007 Creative Activities in Music	3	0	3	4
EDU 1015 Group Care of Infants	3	0	0	3
	<u>17</u>	<u>0</u>	<u>3</u>	<u>18</u>
<b>WINTER QUARTER</b>				
PSY 100 Personal Awareness	2	0	0	2
EDU 1005 The Developing Child	3	0	6	5
EDU 1009 Creative Activities in Art	3	0	3	4
EDU 1012 Literature in Early Childhood Programs	3	0	0	3
	<u>11</u>	<u>0</u>	<u>9</u>	<u>14</u>
<b>SPRING QUARTER</b>				
PSY 107 Roles and Relationships	2	0	0	2
EDU 1006 Communicating Effectively With the Young Child	3	0	0	3
EDU 1008 Science in Early Childhood Programs	3	0	3	4
EDU 1014 Readiness Skills for Young Children	3	0	0	3
EDU 1018 Field Experience in Early Childhood Programs	0	0	6	2
	<u>11</u>	<u>0</u>	<u>9</u>	<u>14</u>
<b>SUMMER QUARTER</b>				
EDU 1010 Special Problems in Early Childhood Programs	3	0	0	3
EDU 1013 Working with Parents	3	0	0	3
EDU 1017 The Handicapped Child	3	0	3	4
ECO 101 Consumer Economics	3	0	0	3
	<u>12</u>	<u>0</u>	<u>3</u>	<u>13</u>
TOTAL QUARTER HOURS CREDIT	59			



## EARLY CHILDHOOD ASSISTANT



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- ECO 101 CONSUMER ECONOMICS** 3-0-3  
A survey course designed to help the layman better understand the process of consumer economics. Some of the areas covered include record keeping, insurance, budgeting, income tax, consumer loans and credit, investing, real estate and planning for retirement.
- EDU 1001 THE NATURE AND SCOPE OF EARLY CHILDHOOD PROGRAMS** 3-0-3  
Intended for those who plan to work with young children in a nursery or day care facility; also for those already working in such an institution. The student examines personal philosophy, goals, and objectives and plans stimulating environments with appropriate equipment, materials, and happenings. A careful study is made of the teacher-child relationships. The student completing this course will have a better understanding of the characteristics and responsibilities of the day care worker and facility.
- EDU 1002 HEALTH AND SAFETY OF THE YOUNG CHILD** 3-0-3  
Intended for anyone working with or planning to work with young children. The student will study nutrition, first aid, grooming, and physical development of children. Special attention will be given to the important role of mental health in the early childhood program. The student completing this course will be able to plan and implement a healthy and safe program for young children.
- EDU 1005 THE DEVELOPING CHILD** 3-6-5  
Intended for anyone working with or planning to work with young children. The student will study the development of children from age two to age five. Theories of learning, methods of discipline, and the value of play will be emphasized. The student completing this course will be better able to care for the physical, emotional, and intellectual needs of children two to five years of age.
- EDU 1006 COMMUNICATING EFFECTIVELY WITH THE YOUNG CHILD** 3-0-3  
Intended for anyone working with or planning to work with young children. The student will study the factors determining language development in young children, the development of listening skills, and ways of improving communication skills of adults who serve as models. The student completing this course will have a working knowledge of how language is used as a way of entering a child's world effectively.
- EDU 1007 CREATIVE ACTIVITIES IN MUSIC** 3-3-4  
Intended for anyone working with or planning to work with young children. The student will study music appropriate for young children and ways of integrating music into the total program. Upon completing this course, the student will have a wide repertoire of children's songs and a working knowledge of how they can be incorporated into a total program.
- EDU 1008 SCIENCE IN EARLY CHILDHOOD PROGRAMS** 3-3-4  
Intended for anyone working with or planning to work with young children. The student will explore science as spontaneous and planned experiences. The student will study scientific facts and concepts appropriate for young children. Upon completion of the course, the student will have a collection of activities in basic scientific areas.
- EDU 1009 CREATIVE ACTIVITIES IN ART** 3-3-4  
Intended for anyone working with or planning to work with young children. The student will study art in relation to the creative process and the stages of artistic development in children. Practical experience will be provided for experimentation in various media. Upon completion, the student will have a file of art activities and a plan for incorporating each into a total program.
- EDU 1010 SPECIAL PROBLEMS IN EARLY CHILDHOOD PROGRAMS** 3-0-3  
Intended for anyone working with or planning to work with young children. The student will explore his/her role in recognizing, understanding, and working with various behaviors of young children. Upon completing the course, the student will have a better understanding of the behavior of young children and how to most effectively cope with it.
- EDU 1012 LITERATURE IN EARLY CHILDHOOD PROGRAMS** 3-0-3  
Intended for anyone working with or planning to work with young children. The student will gain experience in the art of storytelling, using various methods of presentation. A careful survey will be made of various types of children's literature and the role they play in the total program for young children. The student completing this course will have a wide repertoire of children's stories and a working knowledge of children's books.
- EDU 1013 WORKING WITH PARENTS** 3-0-3  
Intended for anyone working with or planning to work with young children. The student will study the role of parents in preschool programs and will practice techniques for working with parents and conducting parent meetings. The student completing this course will be able to more effectively work with and incorporate parents into the preschool program.
- EDU 1014 READINESS SKILLS FOR YOUNG CHILDREN** 3-0-3  
Intended for those who work with preschool children and slow learners. A study of the development of physical, emotional, and intellectual skills that determine a child's readiness to pursue activities involving areas of reading, writing, and mathematics. A survey will be made of various methods used to teach reading. The student completing the course will have a workable collection of specific activities to determine and to develop readiness skills for young children.
- EDU 1015 GROUP CARE OF INFANTS** 3-0-3  
Intended for all working with or planning to work with infants in any setting. The student will study the development of children from birth to age two and the problems and needs specific to this group of children. The student completing this course will be able to care for the physical, the emotional, and the intellectual needs of children from birth to two years of age.
- EDU 1016 FIELD EXPERIENCE IN EARLY CHILDHOOD PROGRAMS** 0-6-2  
This course is intended for the student in his/her final quarter of study in the Early Childhood Assistant curriculum and is designed to provide the student with an opportunity to apply classroom learnings to practical working situations. The student completing this course and this program will be able to adequately plan and implement a stimulating program for preschool children.
- EDU 1017 THE HANDICAPPED CHILD** 3-3-4  
Intended for anyone planning to work with young children. Course will focus on different types of handicaps which one will encounter in any classroom of young children—behavioral, emotional, educational, language, intellectual, and physical disabilities. Field work will be with handicapped children.
- ENG 100 ENGLISH FUNDAMENTALS** 3-1-3  
A grammar/writing course for students whose entrance examination indicates a need for a review of fundamentals. Students will complete this course when they pass the departmental grammar exam and when they demonstrate a satisfactory knowledge of the language in their writing assignments.
- PSY 100 PERSONAL AWARENESS** 2-0-2  
This course is designed for people of all ages who are interested in discovering and capitalizing on their personal capabilities and strengths. Upon successful completion of this course, the participant will have a more realistic awareness of his/her values, motivators and added personal data for career and life goal decision making. The course is composed of structured experiences in a small group setting.
- PSY 107 ROLES AND RELATIONSHIPS** 2-0-2  
This course is designed for people of all ages who are interested in or plan to work in group settings, large organizations, or with the public. The participant will acquire a more realistic understanding of the dynamics of groups, interrelationships between people, and expectations and hazards in work and group situations. The course is designed to utilize structured experiences and discussion.
- SSD 100 STUDY SKILLS DEVELOPMENT** 1-0-1  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.

The increasing development of new electrical products provide a growing need for qualified persons to install and maintain electrical systems and equipment. The diploma graduate of the electrical trades program will be qualified to enter any one of the electrical trade areas as an on-the-job trainee or apprentice, where the student can assist in the planning, layout, installation, testing, and maintenance of systems in residential, commercial, and industrial plants. Also, the student will have a basic knowledge of motors and motor control systems; solid-state electronic control systems; business procedures, organization, business practices and communicative skills. The program will provide the background necessary for the student to advance himself through on-the-job experience, and on-the-job training. The program also offers opportunities for updating skills and knowledge related to the electrical trade. The Electrical Installation and Maintenance student spends approximately 15 hours per week in lab or shop work. If the EIM graduate plans to contract work, that person is required to work a two-year apprenticeship before eligible to take the North Carolina Electrician's Examination; (the EIM program is approved training and credit for this examination.) The Electrical Installation and Maintenance program requires the student to problem-solve effectively and to plan installations maintenance processes efficiently and safely.

FULL-TIME NIGHT PROGRAM				
Course Title	Lac Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>				
ELC 1801 AC and DC Electricity I	2	0	2	3
MAT 1824 Electrician's Math I	4	0	0	4
DFT 1813 Electrical Blueprint Reading I	1	0	2	2
ELC 1821 Electrical Wiring I	2	0	2	3
ELC 1822 Electrical Wiring Lab I	0	0	8	4
OR				
ELC 1891 Electrical Wiring Co-op I	0	40	0	4
SSD 100 Study Skills Development	1	0	0	1
	10	40	14	17
<b>WINTER QUARTER</b>				
ELC 1802 AC and DC Electricity II	2	0	2	3
MAT 1825 Electrician's Math II	4	0	0	4
DFT 1814 Electrical Blueprint Reading II	1	0	2	2
ELC 1824 Electrical Wiring II	2	0	2	3
ELC 1825 Electrical Wiring Lab II	0	0	8	4
OR				
ELC 1892 Electrical Wiring Co-op II	0	40	0	4
ISA 101 Industrial Safety	1	0	0	1
	10	40	14	17
<b>SPRING QUARTER</b>				
ELC 1831 National Electrical Code I	4	0	0	4
ELC 1841 Electrical Machines I	2	0	2	3
ELC 1851 Electrical Controls I	2	0	2	3
ELC 1852 Electrical Controls Lab I	0	0	8	4
OR				
ELC 1895 Electrical Controls Co-op I	0	40	0	4
ENG 1102 Communications Skills	3	0	1	3
	11	40	13	17
<b>SUMMER QUARTER</b>				
ELC 1832 National Electrical Code II	4	0	0	4
ELC 1842 Electrical Machines II	2	0	2	3
ELC 1854 Electrical Controls II	2	0	2	3
ELC 1855 Electrical Controls Lab II	0	0	8	4
OR				
ELC 1895 Electrical Controls Co-op II	0	40	0	4
PSY 1101 Human Relations	3	0	0	3
	11	40	12	17
TOTAL QUARTER HOURS CREDIT 68				



## ELECTRICAL INSTALLATION AND MAINTENANCE



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- DFT 1813 ELECTRICAL BLUEPRINT READING I 1-2-2**  
A starting course for the student unfamiliar with electrical blueprints. Subject areas will involve identification of symbols, layouts, diagrams and blueprints applicable to electrical installations, with emphasis on electrical plans for domestic and commercial buildings. The student should be able to read and interpret a simple electrical blueprint to specify the given information or install the electrical circuits.
- DFT 1814 ELECTRICAL BLUEPRINT READING II 1-2-2**  
A continuation of Electrical Blueprint Reading I with emphasis on electrical plans for industrial buildings. The course will focus on the advanced installation of electrical loads, control centers, voltage feeders and substations. The student should be able to read and interpret an industrial blueprint.
- ELC 1801 DIRECT AND ALTERNATING ELECTRICITY I 2-2-3**  
A beginning course for the student with no background in electrical principles. The course covers the fundamental concepts of direct and alternating electricity used in the electrical field. Emphasis will be placed on the practical application and calculation of current, voltage, resistance, and power rules to electrical circuits. In addition, the course will emphasize construction of electrical circuits to verify electrical principles and use of test equipment to obtain electrical measurements. The student will be able to apply the knowledge of electrical circuits and test equipment to electrical wiring and control circuits.
- ELC 1802 DIRECT AND ALTERNATING ELECTRICITY II 2-2-3**  
Continuation of Direct and Alternating Electricity I, with instruction in alternating current circuits. Emphasis will be placed on inductance, capacitance, and electromagnetism in single and three-phase electrical circuits. The student should be able to apply the course topics to electrical devices and wiring.
- ELC 1821 ELECTRICAL WIRING I 2-2-3**  
A starting course for the student with no electrical wiring experience. This introductory course provides instruction covering electrical wiring devices and basic wiring techniques. Electrical circuits will be constructed in the classroom building mock-up. The student should be able to wire residential or small commercial electrical installations.
- ELC 1822 ELECTRICAL WIRING LAB I 0-8-4**  
Lab exercises designed to apply and verify the knowledge given and demonstrated in Electrical Wiring I.
- ELC 1824 ELECTRICAL WIRING II 2-2-3**  
The second wiring course for the student having basic wiring skills. This course provides instruction on industrial wiring devices and wiring techniques. Electrical circuits will be constructed in the classroom, with live projects when available. The student should be able to wire industrial circuits and systems.
- ELC 1825 ELECTRICAL WIRING LAB II 0-8-4**  
Lab exercises designed to apply and verify the knowledge given and demonstrated in Electrical Wiring II.
- ELC 1831 NATIONAL ELECTRICAL CODE I 4-0-4**  
An introductory course for the student with no background with the Electrical Code. Coverage of the purposes, interpretations, applications and calculations that an electrician would need to utilize in performing electrical work. The student should be able to properly apply those covered areas of the National Electrical Code to electrical installations.
- ELC 1832 NATIONAL ELECTRICAL CODE II 4-0-4**  
A continuation of National Electrical Code I. The course completes the coverage of other special electrical wiring areas and systems. The student should be able to properly apply those covered areas of the National Electrical Code to electrical installations.
- ELC 1841 ELECTRICAL MACHINES I 2-2-3**  
A course for the student with a knowledge of the basic electrical principles. The student will study the various types of machines that operate on direct, single, and polyphase current. This course will also focus on application, maintenance and measurements common to the various types of motors. The student should select, maintain and troubleshoot various types of motors.
- ELC 1842 ELECTRICAL MACHINES II 2-2-3**  
A continuation of Electrical Machines I. An advanced coverage of three-phase circuits, transformers, and special topics. The student should be able to select, maintain and troubleshoot these advanced circuits.
- ELC 1851 ELECTRICAL CONTROLS I 2-2-3**  
A basic course for the student with no skills in working with electrical controls. The topics covered are motor controls, pilot devices, controllers, sequential operations, and typical control circuits. Laboratory activities will apply the knowledge of devices and principles of various control circuits. The student should be able to construct, maintain and troubleshoot simple control circuits.
- ELC 1852 ELECTRICAL CONTROLS LAB I 0-8-4**  
Lab exercises designed to apply and verify the knowledge given and demonstrated in Electrical Controls I.
- ELC 1854 ELECTRICAL CONTROLS II 2-2-3**  
The second basic course in Electrical Controls providing advanced coverage of motor controls and associated devices. The student should be able to construct, maintain and troubleshoot advanced electrical motor control circuits.
- ELC 1855 ELECTRICAL CONTROLS LAB II 0-8-4**  
Lab exercises designed to apply and verify the knowledge given and demonstrated in Electrical Controls II.
- ELC 1891 ELECTRICAL WIRING CO-OP I 0-40-4**  
The student is employed as an electrician or an electrician trainee involved with electrical wiring for at least 20 hours with a participating firm. The student will follow those rules and guidelines as established for this cooperative education course.
- ELC 1892 ELECTRICAL WIRING CO-OP II 0-40-4**  
The second cooperative wiring course. The student is employed as an electrician or an electrician trainee involved with electrical wiring for at least 20 hours with a participating firm. The student will follow those rules and guidelines established for this cooperative education course.
- ELC 1895 ELECTRICAL CONTROLS CO-OP I 0-40-4**  
The student is employed as an electrician or an electrician trainee involved with electrical controls for at least 20 hours with a participating firm. The student will follow those rules and guidelines as established for this cooperative education course.
- ELC 1896 ELECTRICAL CONTROLS CO-OP II 0-40-4**  
The second quarter the student is involved with the cooperative education plan. The student is employed as an electrician or an electrician trainee involved with electrical controls for at least 20 hours with a participating firm. The student will follow those rules and guidelines as established for this cooperative education course.
- ENG 1102 COMMUNICATION SKILLS 3-1-3**  
Designed for the vocational student, this course emphasizes written and oral communication, grammar fundamentals, job applications, order forms, memos, letters, and job interviews. Upon completing this course, the student should be equipped with the written and oral communication skills necessary for a vocational career.
- ISA 101 INDUSTRIAL SAFETY 1-0-1**  
Development of industrial safety, causes and costs of accidents, basic factors of accident control, hand, heat, and power tools, safety problems of handling materials, vehicular safety, protective equipment, safety codes, first aid, fire prevention, fire fighting, emphasis on personal responsibility for safety; related movies, local speakers.
- MAT 1824 ELECTRICIAN'S MATH I 4-0-4**  
A course for the beginning student with a limited mathematics background. Topics covered will be directed to those mathematical areas employed in the electrician's field. Emphasis will be placed on whole numbers; fractions; decimals; simple formulas; powers and roots. Practical application and problems furnish the trainee with experience in wire size, electrical loads and simple electrical formulas. The student should be able to solve simple electric mathematical problems.
- MAT 1825 ELECTRICIAN'S MATH II 4-0-4**  
Continuation of Electrician's Math I to apply those basic mathematical skills to single and three-phase alternating current circuits. The student should be able to solve mathematical problems of alternating current circuits.
- PSY 1101 HUMAN RELATIONS 3-0-3**  
A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation.
- SSD 100 STUDY SKILLS DEVELOPMENT 1-0-1**  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.

The Light Construction program prepares the student for future jobs in residential construction, remodeling, and light commercial construction. The student spends approximately 16 hours a week in practical lab or shop experience and receives instruction in the following areas: building trades and construction blueprint reading, construction estimating, carpentry, masonry, industrial safety and building codes.

Upon completion of the one-year, full-time, night-only program, the student will be awarded a diploma in Light Construction. The person who can perceive angles, use tools, perform physically demanding functions, and apply mathematical skills in estimating is most successful in this field.

Course Title	Lec. Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>WINTER QUARTER</b>				
MAS 1101 Masonry I	1	7	0	3
MAT 1101 Fundamentals of Math	5	0	0	5
PSY 100 Personal Awareness	2	0	0	2
SSD 100 Study Skills Development	1	0	0	1
ISA 101 Industrial Safety	1	0	0	1
BPR 1131 Introduction to Building Trades and Blueprint Reading	1	0	3	2
	<u>11</u>	<u>7</u>	<u>3</u>	<u>14</u>
<b>SPRING QUARTER</b>				
CAR 1121 Carpentry I	2	10	0	5
MAT 1151 Building Trades Math	4	0	0	4
BPR 1132 Construction Blueprint Reading	1	0	3	2
Approved Elective*	1	3	0	2
	<u>8</u>	<u>13</u>	<u>3</u>	<u>13</u>
<b>SUMMER QUARTER</b>				
CAR 1122 Carpentry II	4	12	0	8
CAR 1108 Building Codes	2	0	0	2
ENG 1102 Communication Skills	3	0	1	3
Approved Elective*	2	0	0	2
	<u>11</u>	<u>12</u>	<u>1</u>	<u>15</u>
<b>FALL QUARTER</b>				
CAR 1171 Carpentry III	4	12	0	8
CAR 1109 Construction Estimating	2	0	2	3
Approved Elective*	2	0	2	3
	<u>8</u>	<u>12</u>	<u>4</u>	<u>14</u>

TOTAL QUARTER HOURS CREDIT 55-58

(\* Approved Electives may be taken from the following listing: CAR 1181 Insulation and Soundproofing, ELC 1829 Residential Wiring, CAR 1172 Interior and Exterior Finishes, MAS 1104 Masonry II.)



## LIGHT CONSTRUCTION

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- BPR 1131 INTRODUCTION TO BUILDING TRADES BLUEPRINT READING 1-3-2**  
The principles of interpreting blueprints and trade specifications common to the building trade will be taught in this introductory course for the beginning construction student and the person wishing to increase his/her skills in reading blueprints. Basic scale reading, three-view drawings and pictorial sketches will be utilized in BPR 1131. Upon successful completion of the course, the student should be able to interpret blueprint and trade specifications.
- BPR 1132 CONSTRUCTION BLUEPRINT READING 1-3-2**  
For the student with previous experience in blueprint reading, this course provides a more advanced study of blueprint reading. Major emphasis will be on plot plan, floor plan, foundation and basement plans, wall sections, roof systems, and other various detailed drawings. The student will be able to successfully read and interpret more advanced blueprint specifications upon completion of this course. Prerequisite: BPR 1131 or proficiency in BPR 1131.
- CAR 1108 BUILDING CODES 2-0-2**  
For the contractor, carpenter, or future home owner, this course provides the necessary information on the various state and local building codes pertaining to concrete, masonry, plumbing, electricity, and carpentry. On completion of the course, the student should possess important information about current building codes and restrictions.
- CAR 1109 CONSTRUCTION ESTIMATING 2-2-3**  
This course is designed for the student wishing to increase his/her knowledge in the more detailed points of construction. With both lecture and laboratory work, the student will become familiar with basic methods of estimating quantities and labor for different types of construction. This course provides essential information for the student planning a career in construction. The student will be able to estimate quantities of building material and labor needed to construct a building upon completion of the course. Prerequisite: BPR 1131 or proficiency in BPR 1131.
- CAR 1121 CARPENTRY I 2-10-5**  
For the beginning construction student, Carpentry I is an introduction to basic carpentry and hand tools used in the building process. Through theory and experience, the student will learn to establish building lines, erect batten boards, and erect various floor, wall and ceiling framing. At the end of the course, the student should be able to successfully initiate the building process.
- CAR 1122 CARPENTRY II 4-12-8**  
Designed for the student with some degree of construction skills, this course is a continuation of the building process through study and shop work. The student will prepare gable ends, soffits, vents and trim; the student will also gain skills in cutting stairways and installation of exterior doors and windows. Upon completion of this phase of the building process, the student should have acquired skills in exterior work and special interior work.
- CAR 1171 CARPENTRY III 4-12-8**  
This course concentrates on exterior and interior wall trim for the more advanced carpentry student. The student will also be exposed to finish flooring, interior doors, and installation procedures for paneling. Shop work will increase student ability in utilizing building materials. Upon completion of Carpentry III, the student will have acquired skills in interior finish work.
- CAR 1172 INTERIOR AND EXTERIOR FINISHES 2-2-3**  
This course provides additional information for the student interested in increasing his/her knowledge of interior and exterior finish work. Each student will be given the opportunity to apply different stains, clear finishes, and/or paints to various types of wood. The student can expect increased skill in application and additional knowledge of finish work upon completion of this course.
- CAR 1181 INSULATION AND SOUNDPROOFING 2-0-2**  
Insulation and Soundproofing is a study of commercially available insulation materials and characteristics of the materials. The course will concentrate on the application, thermal properties, sound absorbency, fire resistance and weather proofing ability of these products. Upon completion of the course, the student will be aware of the characteristics and use of insulation and soundproofing materials.
- ELC 1829 RESIDENTIAL WIRING 1-3-2**  
Residential Wiring is an introductory course that provides instruction and application in the fundamentals of electrical blueprint reading, physical planning, and physical layout. The student will study physical installation of electrical wiring in a building mock-up and practice using hand tools and related equipment used in the electrical field. Also general requirements for wiring installation including lighting, switching and distribution will be taught in the course. The student who successfully completes this course will have acquired the necessary fundamentals for wiring residences.
- ENG 1102 COMMUNICATION SKILLS 3-1-3**  
Designed for the vocational student, this course emphasizes written and oral communication, grammar fundamentals, job applications, order forms, memos, letters, and job interviews. Upon completing this course, the student should be equipped with the written and oral communication skills necessary for a vocational career.
- ISA 101 INDUSTRIAL SAFETY 1-0-1**  
Development of industrial safety, causes and costs of accidents, basic factors of accident control, hand, heat, and power tools, safety problems of handling materials, vehicular safety, protective equipment, safety codes, first aid, fire prevention, fire fighting, emphasis on personal responsibility for safety; related movies, local speakers.
- MAS 1101 MASONRY I 1-7-3**  
For the student with little or no previous experience in masonry, Masonry I provides an introduction to various types of masonry construction including brick and concrete block primarily through shop work. The use and care of the basic masonry tools such as the level, trowel, slicker, and brickhammer will be emphasized. The Masonry I student will have acquired the basic skills in masonry at the end of the course.
- MAS 1104 MASONRY II 1-3-2**  
Designed for the student with previous masonry study, Masonry II offers information and application on building fireplaces, arches, and other complex masonry construction projects. This elective will increase knowledge of and experience in the more difficult and skilled areas of masonry. Prerequisite: Masonry I.
- MAT 1101 FUNDAMENTALS OF MATHEMATICS 5-0-5**  
This course includes the following: review of common fractions, decimal fractions, and percent. Algebraic operations substituting in formulas and equations, using equations in shop problems, exponents, square root, formulas, ratio and proportion are also studied.
- MAT 1151 BUILDING TRADES MATH 4-0-4**  
This math class is designed for the person interested in furthering his/her knowledge of construction concepts. The major emphasis will be on the practical applications of various calculations used in construction work including grade, rafter layout, stairway layout, ratios and proportions, volumes and areas of odd shapes, and weights of materials. The course will also offer an introduction to plane trigonometry. At the end of the class, the student should be able to calculate the information needed for construction work.
- PSY 100 PERSONAL AWARENESS 2-0-2**  
This course is designed for people of all ages who are interested in discovering and capitalizing on their personal capabilities and strengths. Upon successful completion of this course, the participant will have a more realistic awareness of his/her values, motivators and added personal data for career and life goal decision making. The course is composed of structured experiences in a small group setting.
- SSD 100 STUDY SKILLS DEVELOPMENT 1-0-1**  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.



The person with mathematical ability and an interest in mechanics may find many employment opportunities in the modern industrial society. The machinist program, providing the student with machine shop theory as well as approximately 17 hours a week practical shop experience, trains the student in developing the mechanical skill and patience needed for successful job performance.

Some of the manufacturing industries which employ the machinist graduate are textiles, furniture, cigarette, transportation and communication equipment and plastics.

For the student who is unable to attend classes full-time, a part-time night program which takes two years to complete is offered. The student is awarded a diploma at the completion of the program.

ONE YEAR PROGRAM (Full-time Day Curriculum)				
Course Title	Lec Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>				
MEC 1101 Machine Shop Theory/Practice I	3	12	0	7
MAT 1101 Fund of Mathematics	5	0	0	5
DFT 1104 Blueprint Reading Mechanical I	1	0	2	2
ISA 101 Industrial Safety	1	0	0	1
PHY 1101 Applied Science I	3	0	2	4
SSD 100 Study Skills Development	1	0	0	1
	14	12	4	20
<b>WINTER QUARTER</b>				
MEC 1102 Machine Shop Theory/Practice II	3	12	0	7
PHY 1102 Applied Science II	3	0	2	4
MAT 1103 Geometry	3	0	0	3
DFT 1101 Industrial Specifications	1	0	0	1
DFT 1105 Blueprint Reading Mechanical II	1	0	2	2
	11	12	4	17
<b>SPRING QUARTER</b>				
MEC 1103 Machine Shop Theory/Practice III	3	12	0	7
ENG 1102 Communication Skills	3	0	1	3
MAT 1104 Trigonometry	3	0	0	3
DFT 1106 Blueprint Reading Mechanical III	1	0	2	2
MEC 1115 Properties of Metals	3	0	2	4
	13	12	5	19
<b>SUMMER QUARTER</b>				
MEC 1104 Machine Shop Theory/Practice IV	3	12	0	7
PSY 1101 Human Relations	3	0	0	3
MAT 1123 Machinist Mathematics	3	0	0	3
WLD 1101 Basic Welding	0	0	3	1
MEC 1116 Treatments of Metals	3	0	2	4
	12	12	5	18
TOTAL QUARTER HOURS CREDIT 74				
(Part-time Night Curriculum)				
FIRST YEAR				
Course Title	Lec Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>				
DFT 1104	1	0	2	2
MAT 1101	5	0	0	5
MEC 1101A	2	6	0	4
	8	6	2	11
<b>WINTER QUARTER</b>				
DFT 1105	1	0	2	2
MAT 1102	3	0	0	3
MEC 1101B	1	6	0	3
	5	6	2	8
<b>SPRING QUARTER</b>				
MAT 1104	3	0	0	3
MEC 1102A	2	6	0	4
PHY 1101	3	0	2	4
	8	6	2	11
<b>SUMMER QUARTER</b>				
DFT 1106	1	0	2	2
MEC 1102B	1	6	0	3
PHY 1102	3	0	2	4
	5	6	4	9
SECOND YEAR				
Course Title	Lec Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>				
MEC 1103A	2	6	0	4
PSY 1107	2	0	0	2
WLD 1101	0	3	0	1
	4	9	0	7
<b>WINTER QUARTER</b>				
MAT 1123	3	0	0	3
MEC 1102B	1	6	0	3
ENG 1102	3	0	1	3
SSD 100	1	0	0	1
	8	6	1	10
<b>SPRING QUARTER</b>				
ISA 101	1	0	0	1
DFT 1101	1	0	0	1
MEC 1104A	2	6	0	4
MEC 1115	3	0	2	4
	7	6	2	10
<b>SUMMER QUARTER</b>				
MEC 1104B	1	6	0	3
MEC 1116	3	0	2	4
	4	6	2	7
TOTAL QUARTER HOURS CREDIT 73				



## MACHINIST TRADE



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- DFT 1101 INDUSTRIAL SPECIFICATIONS** 1-0-1  
A study of the structure and content of Machinery's Handbook with practice in the use of the handbook as an aid in solving practical machine shop and elementary design problems.
- DFT 1104 BLUEPRINT READING: MECHANICAL I** 1-2-2  
Interpretation and reading of blueprints. Information on the basic principles of the blueprint: lines, views, dimensioning procedures, and notes. Prerequisite or corequisite: MAT 1101.
- DFT 1105 BLUEPRINT READING: MECHANICAL II** 1-2-2  
Further practice in interpretation of blueprints as they are used in industry; study of prints supplied by industry; making plans of operations; introduction to drafting room procedures; sketching as a means of passing on ideas, information, and processes. Prerequisite: DFT 1104.
- DFT 1106 BLUEPRINT READING: MECHANICAL III** 1-2-2  
Advanced blueprint reading and sketching as related to detail and assembly drawings used in machine shops. The interpretation of drawings of complex parts and mechanism for features of fabrication construction, and assembly. Prerequisite: DFT 1105.
- ENG 1102 COMMUNICATION SKILLS** 3-1-3  
Designed for the vocational student, this course emphasizes written and oral communication, grammar fundamentals, job applications, order forms, memos, letters, and job interviews. Upon completing this course, the student should be equipped with the written and oral communication skills necessary for a vocational career.
- ISA 101 INDUSTRIAL SAFETY** 1-0-1  
Development of industrial safety, causes and costs of accidents, basic factors of accident control, hand, heat, and power tools, safety problems of handling materials, vehicular safety, protective equipment, safety codes, first aid, fire prevention, fire fighting, emphasis on personal responsibility for safety; related movies, local speakers.
- MAT 1101 FUNDAMENTALS OF MATHEMATICS** 5-1-5  
This course includes the following: review of common fractions, decimal fractions, and percent. Algebraic operations substituting in formulas and equations, using equations in shop problems, exponents, square root, formulas, ratio and proportion are also studied.
- MAT 1101A (3-0-3) and MAT 1101B (2-1-2)**  
MAT 1101A (Part One of MAT 1101) and MAT 1101B (Part Two of MAT 1101) are the equivalent of MAT 1101.
- MAT 1103 GEOMETRY** 3-0-3  
Fundamental properties and definition, plane and solid geometric figures, selected general theorems, geometric construction of lines, angles, and plane figures, volumes of solids. Geometric principles are applied to shop operations. Prerequisite: MAT 1101.
- MAT 1104 TRIGONOMETRY** 3-0-3  
Trigonometric ratios, solving problems with right triangles, using tables, and interpolating; solution of oblique triangles using law and sines and law of cosines; graphs of the trigonometric functions; inverse functions; trigonometric equations. All topics are applied to practical problems. A study of logarithmic computations will be included. Prerequisite: MAT 1103.
- MAT 1123 MACHINIST MATHEMATICS** 3-0-3  
Introduces gear ratio, lead screw, and indexing problems with emphasis on application to the machine shop. Practical applications and problems furnish the trainee with experience in geometric problems. Prerequisite: MAT 1104.
- MEC 1101 MACHINE SHOP THEORY AND PRACTICE I** 3-12-7  
An introduction to the machinist trade. Deals primarily with the identification, care and use of basic hand tools and precision measuring instruments. Elementary layout procedures and processes of the drill press and lathe will be introduced in both theory and practice. Prerequisite or corequisite: MAT 1101; DFT 1104.
- MEC 1101A (2-6-4) and MEC 1101B (1-6-3)**  
MEC 1101A (Part One of MEC 1101) and MEC 1101B (Part Two of MEC 1101) are the equivalent of MEC 1101.
- MEC 1102 MACHINE SHOP THEORY AND PRACTICE II** 3-12-7  
Advanced operations in the use of layout tools and procedures, power sawing, drill press, surface grinder, milling machine, shaper, and selected projects encompassing all the operations, tools, and procedures thus far used and those to be stressed throughout the course. Prerequisite: MEC 1101. Prerequisite or corequisite: MAT 1103; DFT 1105; DFT 1101 or permission of instructor.
- MEC 1102A (2-6-4) and MEC 1102B (1-6-3)**  
MEC 1102A (Part One of MEC 1102) and MEC 1102B (Part Two of MEC 1102) are the equivalent of MEC 1102.
- MEC 1103 MACHINE SHOP THEORY AND PRACTICE III** 3-12-7  
Advanced work on the engine lathe, grinders, milling machine, and shaper. Introduction to basic indexing and the calculating, cutting, and measuring of spur, helical, and worm gears. The trainee will use precision tools and measuring instruments such as vernier height gauges, protractors, comparators, etc. Basic exercise will be given on the turret lathe. Prerequisite: MEC 1102. Prerequisite or corequisite: MAT 1104, DFT 1106 or permission of instructor.
- MEC 1103A (2-6-4) and MEC 1103B (1-6-3)**  
MEC 1103A (Part One of MEC 1103) and MEC 1103B (Part Two of MEC 1103) are the equivalent of MEC 1103.
- MEC 1104 MACHINE SHOP THEORY AND PRACTICE IV** 3-12-7  
Development of class projects using previously learned procedures in planning, blueprint reading, machine operations, final assembly, and inspection. Additional processes on the turret lathe, tool and cutter grinder, cylindrical and surface grinder advanced milling machine operations, etc. Special procedures and operations, processes and equipment, observing safety procedure, and establishing of good work habits and attitudes acceptable to the industry. Prerequisite: MEC 1103. Prerequisite or corequisite: MAT 1123 or permission of instructor.
- MEC 1104A (2-6-4) and MEC 1104B (1-6-3)**  
MEC 1104A (Part One of MEC 1104) and MEC 1104B (Part Two of MEC 1104) are the equivalent of MEC 1104.
- MEC 1115 PROPERTIES OF METALS** 3-2-4  
A study of the chemical and physical metallurgy of ferrous and non-ferrous metals from extraction to application. Laboratory experience in methods of determining physical properties through the use of impact testing, tensile testing, and preparation of specimen for microscopic analysis. Identification and classification of metals by chemical and physical characteristics.
- MEC 1116 TREATMENT OF METALS** 3-2-4  
Principles, methods, and techniques of heat treating processes for ferrous and non-ferrous metals. Heat treating terminology, testing procedures, and equipment will also be covered in classroom and laboratory situations. Principal attention will be focused on the characteristic changes in the physical properties of steel and its alloys as they are affected by various heat treating processes. Prerequisite: MEC 1115.
- MEC 1900 SPECIAL PROBLEMS IN MACHINE SHOP AND MATERIALS TESTING** 1-3-2  
Directed study to provide individualized study, practice, and analysis in specialized areas of machine shop and materials testing.
- PHY 1101 APPLIED SCIENCE I** 3-2-4  
An introduction to physical principles and their applications. Topics in this course include measurements, motion, forces, work, power simple machines, and fluids. Prerequisite or corequisite: MAT 1101.
- PHY 1102 APPLIED SCIENCE II** 3-2-4  
A continuation of Applied Science I. Topics introduced in this course are temperature, heat, thermal expansion, static electricity, electric current, magnetism and electric motors and generators. Prerequisite or corequisite: MAT 1101.
- PSY 107 ROLES AND RELATIONSHIPS** 2-0-2  
This course is designed for people of all ages who are interested in or plan to work in group settings, large organizations, or with the public. The participant will acquire a more realistic understanding of the dynamics of groups, interrelationships between people, and expectations and hazards in work end group situations. The course is designed to utilize structured experiences and discussion.
- PSY 1101 HUMAN RELATIONS** 3-0-3  
A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation.
- SSD 100 STUDY SKILLS DEVELOPMENT** 1-0-1  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.
- WLD 1101 BASIC WELDING** 0-3-1  
Welding demonstrations by the instructor and practice by students in the welding shop. Safe and correct methods of assembling and operating the welding equipment. Practice will be given for surface welding, bronze welding, silver soldering, and flame-cutting methods applicable to mechanical repair work.

The program in Mechanical Drafting gives the student specialized training needed for preparing detailed scale drawings for designers, engineers, inventors or architects.

The person who can draw, who has mathematical skills and who desires to be accurate is most successful in this field. Other qualities that help the draftsman to be successful are patience, imagination, originality, initiative, resourcefulness, and common sense.

A part-time night curriculum is suggested for the student who is unable to undertake the full-time day curriculum program. The student should note that this part-time program requires two years of study. The Mechanical Drafting student spends approximately 17 hours a week in lab or shop work. Upon completion of the course of study, the student is awarded a diploma in Mechanical Drafting.

<b>ONE YEAR PROGRAM (Full-Time Night Program)</b>				
Course Title	Lec Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER</b>				
DFT 1123 Drafting I	3	10	0	6
MAT 1101 Fundamentals of Mathematics	5	0	0	5
MEC 1113 Shop Processes	1	3	0	2
PSY 107 Roles and Relationships	2	0	0	2
	<u>11</u>	<u>13</u>	<u>0</u>	<u>15</u>
<b>WINTER QUARTER</b>				
DFT 1124 Drafting II	4	12	0	8
ENG 1102 Communication Skills	3	0	1	3
MAT 1103 Geometry	3	0	0	3
SSD 100 Study Skills Development	1	0	0	1
	<u>11</u>	<u>12</u>	<u>1</u>	<u>15</u>
<b>SPRING QUARTER</b>				
DFT 1133 Mechanical Drafting I	3	8	0	5
MAT 1104 Trigonometry	3	0	0	3
MEC 1115 Properties of Metals	3	0	2	4
PHY 1101 Applied Science I	3	0	2	4
	<u>12</u>	<u>8</u>	<u>4</u>	<u>16</u>
<b>SUMMER QUARTER</b>				
DFT 1134 Mechanical Drafting II	4	10	0	7
MEC 1116 Treatment of Metals	3	0	2	4
PHY 1102 Applied Science II	3	0	2	4
	<u>10</u>	<u>10</u>	<u>4</u>	<u>15</u>
<b>TOTAL QUARTER HOURS CREDIT 61</b>				



## MECHANICAL DRAFTING



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- DFT 1123 DRAFTING I** 3-10-6  
An introduction to drafting and the study of drafting practices, instruction is given in the selection, use, and care of instruments; lettering, applied geometry, freehand sketching consisting of orthographic and pictorial drawings. The student then proceeds into the basic forms of orthographic projection with use of instruments. As the quarter progresses, the student becomes more involved with advanced drawings, using the principle views with emphasis on dimensioning, lettering, overall neatness and locating views. Methods of reproducing prints will be included during the first quarter. (Formerly DFT 1121) Prerequisite or corequisite: MAT 1101.
- DFT 1124 DRAFTING II** 4-12-8  
In the second quarter the student proceeds into more complex three-view drawings which originate from given pictorial views. Also during this time period, section and auxiliary views are introduced into the course. Toward the end of this period descriptive geometry is integrated into the existing course work with emphasis on graphic analysis of space problems. The problems deal with practical design elements involving points, lines, planes, connectors, and a combination of these. (Formerly DFT 1122) Prerequisite: DFT 1123.
- DFT 1133 MECHANICAL DRAFTING I** 3-8-5  
Using the information covered in the previous quarters, the student will be introduced to tolerancing, threads, fasteners, and springs. The student will also become familiar with piping and pipe schematics, intersections and developments, gearing, cams and welding representation. By the end of this quarter the integrated course in Descriptive Geometry will be completed. The student will also become fairly proficient in the area of checking prints. (Formerly DFT 1131) Prerequisite: DFT 1124.
- DFT 1134 MECHANICAL DRAFTING II** 4-10-7  
In this course the student will develop a complete set of working drawings of a tool, jig, fixture, or simple machine while utilizing the drafting principles acquired in the earlier quarters. The student will make up a complete bill of materials and use catalogs which will be pertinent to his particular project. Upon completion each student will thoroughly check another student's prints for all factors involved in the previous course. (Formerly DFT 1132) Prerequisite: DFT 1133.
- ENG 1102 COMMUNICATION SKILLS** 3-1-3  
Designed for the vocational student, this course emphasizes written and oral communication, grammar fundamentals, job applications, order forms, memos, letters, and job interviews. Upon completing this course, the student should be equipped with the written and oral communication skills necessary for a vocational career.
- ISA 101 INDUSTRIAL SAFETY** 1-0-1  
Development of industrial safety, causes and costs of accidents, basic factors of accident control, hand, heat, and power tools, safety problems of handling materials, vehicular safety, protective equipment, safety codes, first aid, fire prevention, fire fighting, emphasis on personal responsibility for safety; related movies, local speakers.
- MAT 1101 FUNDAMENTALS OF MATHEMATICS** 5-0-5  
This course includes the following: review of common fractions, decimal fractions, and percent. Algebraic operations substituting in formulas and equations, using equations in shop problems, exponents, square root, formulas, ratio and proportion are also studied.
- MAT 1103 GEOMETRY** 3-0-3  
Fundamental properties and definition, plane and solid geometric figures, selected general theorems, geometric construction of lines, angles, and plane figures, volumes of solids. Geometric principles are applied to shop operations. Prerequisite: MAT 1101.
- MAT 1104 TRIGONOMETRY** 3-0-3  
Trigonometric ratios, solving problems with right triangles, using tables, and interpolating; solution of oblique triangles using law of sines and cosines; graphs of the trigonometric functions; inverse functions; trigonometric equations. All topics are applied to practical problems. A study of logarithmic computations will be included. Prerequisite: MAT 1103.
- MEC 1113 SHOP PROCESSES** 1-3-2  
Study of basic machining operations of drilling, turning, milling, and grinding. Emphasis is placed on machine capabilities and limitations as well as the planning of operation sequences and control of quality. Films and field trips for observation and study of processes outside the realm of the school shop.
- MEC 1115 PROPERTIES OF METALS** 3-2-4  
A study of the chemical and physical metallurgy of ferrous and non-ferrous metals from extraction to application. Laboratory experience in methods of determining physical properties through the use of impact testing, tensile testing, and preparation of specimen for microscopic analysis. Identification and classification of metals by chemical and physical characteristics.
- MEC 1116 TREATMENT OF METALS** 3-2-4  
Principles, methods, and techniques of heat treating processes for ferrous and non-ferrous metals. Heat treating terminology, testing procedures, and equipment will also be covered in classroom and laboratory situations. Principal attention will be focused on the characteristic changes in the physical properties of steel and its alloys as they are affected by various heat treating processes. Prerequisite: MEC 1115.
- PHY 1101 APPLIED SCIENCE I** 3-2-4  
An introduction to physical principles and their applications. Topics in this course include measurements, motion, forces, work, power simple machines, and fluids. Prerequisite or corequisite: MAT 1101.
- PHY 1102 APPLIED SCIENCE II** 3-2-4  
A continuation of Applied Science I. Topics introduced in this course are temperature, heat, thermal expansion, static electricity, electric current, magnetism and electric motors and generators. Prerequisite or corequisite: MAT 1101.
- PSY 107 ROLES AND RELATIONSHIPS** 2-0-2  
This course is designed for people of all ages who are interested in or plan to work in group settings, large organizations, or with the public. The participant will acquire a more realistic understanding of the dynamics of groups, interrelationships between people, and expectations and hazards in work and group situations. The course is designed to utilize structured experiences and discussion.
- SSD 100 STUDY SKILLS DEVELOPMENT** 1-0-1  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.

The Welding program is designed to give the student a sound understanding of the principles, methods, techniques, and skills essential for successful employment in the welding field and the metals industry. Welding is available in a part-time night and a full-time day program with the student spending approximately 15 hours a week in lab or shop work. Upon the recommendation of the instructor, the student may take the third quarter as on-the-job training and complete the curriculum in three quarters; other students will be required to take an additional two quarters on campus. If the industrial evaluation is satisfactory, or if the student successfully completes the four quarter curriculum, he/she will be awarded a diploma.

The principal duty of the welder who uses manual techniques is to control the fusion of metals by directing the heat from either an electric arc or a gas welding torch and to add filler metal where necessary to complete the joint. The student should possess manipulative skills with a knowledge of jigs, mathematics, metal identification and blueprint reading.

Upon completing the required procedures and curriculum which includes the above listed options, the student will be awarded a diploma. If working for bonded companies, the student may be required to take a certifying test prior to employment. The student with a diploma in Welding may find jobs in construction, fabricating shops, or maintenance shops. To be successful in Welding, the student must be able to follow written instructions and perform welding skills under varying conditions.

A 9 MONTH PROGRAM					A ONE YEAR PROGRAM				
Course Title	Lec. Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.	Course Title	Lec. Hrs.	Shop Hrs.	Lab Hrs.	Cr. Hrs.
<b>FALL QUARTER OR SPRING QUARTER</b>					<b>FALL QUARTER OR SPRING QUARTER</b>				
WLD 1120 Welding Theory/Practice I	3	15	0	8	WLD 1120 Welding Theory/Practice I	3	15	0	8
MAT 1101 Fund of Mathematics	5	0	0	5	MAT 1101 Fund of Mathematics	5	0	0	5
ISA 101 Industrial Safety	1	0	0	1	ISA 101 Industrial Safety	1	0	0	1
SSD 100 Study Skills Development	1	0	0	1	SSD 100 Study Skills Development	1	0	0	1
DFT 1117 Blueprint Reading Welding I	1	0	2	2	DFT 1117 Blueprint Reading Welding I	1	0	2	2
	11	15	2	17		11	15	2	17
<b>WINTER QUARTER OR SUMMER QUARTER</b>					<b>WINTER QUARTER OR SUMMER QUARTER</b>				
WLD 1121 Welding Theory/Practice II	3	15	0	8	WLD 1121 Welding Theory/Practice II	3	15	0	8
DFT 1118 Blueprint Reading: Welding II	1	0	2	2	DFT 1118 Blueprint Reading: Welding II	1	0	2	2
PSY 1101 Human Relations	3	0	0	3	PSY 1101 Human Relations	3	0	0	3
MEC 1117 Test/Identification Metals/Anal	1	0	2	2	MEC 1117 Test/Identification Metals/Anal	1	0	2	2
	8	15	4	15		8	15	4	15
<b>SPRING QUARTER OR FALL QUARTER</b>					<b>SPRING QUARTER OR FALL QUARTER</b>				
WLD 1130 Weld Skills Dev Industrial I	1	40	0	5	WLD 1131 Weld Theory/Practice III	3	15	0	8
	1	40	0	5	DFT 1119 Blueprint Reading: Welding III	1	0	2	2
						4	15	2	10
<b>TOTAL QUARTER HOURS CREDIT</b>	<b>37</b>				<b>SUMMER QUARTER OR WINTER QUARTER</b>				
					WLD 1132 Welding Theory/Practice IV	3	15	0	8
					DFT 1120 Blueprint Reading: Welding IV	1	0	2	2
						4	15	2	10
					<b>TOTAL QUARTER HOURS CREDIT</b>	<b>52</b>			



## WELDING



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- DFT 1117 BLUEPRINT READING: WELDING I** 1-2-2  
A thorough study of trade drawings in which welding procedures are indicated. Interpretations, use and application of welding symbols, abbreviations, and specifications.
- DFT 1118 BLUEPRINT READING: WELDING II** 1-2-2  
Continued study of welding symbols, methods used in layout of sheet steel, sketching of projects, jigs, and holding devices involved in welding. Prerequisite: DFT 1117.
- DFT 1119 BLUEPRINT READING: WELDING III** 1-2-2  
Project drawing for the student designing and fabricating projects in Welding 1131. Corequisite, Welding 1131.
- DFT 1120 BLUEPRINT READING: WELDING IV** 1-2-2  
Project drawing for the student designing and fabricating projects in Welding 1132. Corequisite, Welding 1132.
- ISA 101 INDUSTRIAL SAFETY** 1-0-1  
Development of industrial safety, causes and costs of accidents, basic factors of accident control, hand, heat, and power tools, safety problems of handling materials, vehicular safety, protective equipment, safety codes, first aid, fire prevention, fire fighting, emphasis on personal responsibility for safety; related movies, local speakers.
- MAT 1101 FUNDAMENTALS OF MATHEMATICS** 5-0-5  
This course includes the following: review of common fractions, decimal fractions, and percent. Algebraic operations substituting in formulas and equations, using equations in shop problems, exponents, square root, formulas, ratio and proportion are also studied.
- MEC 1117 TESTING AND IDENTIFYING METALS AND ALLOYS** 1-2-2  
A study of the physical testing, identification and classification of metals and commercial alloys. The laboratory experience will consist both of physical testing and identification. The physical testing will consist of impact toughness, tensile, shear, compression, hardness and fatigue. Methods of identification will be color, hardness, melting temperature, specific gravity, chemical reaction, spark, and magnetic.
- PSY 1101 HUMAN RELATIONS** 3-0-3  
A study of basic principles of human behavior. The problems of the individual are studied in relation to society, group membership, and relationships within the work situation.
- SSD 100 STUDY SKILLS DEVELOPMENT** 1-0-1  
An orientation to college life and study, describing special services, academic regulations, with emphasis on techniques in reading and learning. Required of all students.
- WLD 1120 WELDING THEORY AND PRACTICE I** 3-15-8  
Orientation on all shop equipment including ARC, Oxy-acetylene, Mig and Tig units. Basic fundamentals of machine set-up, safety demonstrations, practice procedures with group, and individual demonstrations by the instructor. Basic manipulative practice by the student.
- WLD 1120A (1-5-3), WLD 1120B (1-5-3) and WLD 1120C (1-5-2)** 1120A (F); 1120B (W); 1120C (F)  
WLD 1120A (Part One of WLD 1120), WLD 1120B (Part Two of WLD 1120) and WLD 1120C (Part Three of WLD 1120) are the equivalent of WLD 1120 when taken on a part-time basis.
- WLD 1121 WELDING THEORY AND PRACTICE II** 3-15-8  
Continued practice in manipulative procedures of all equipment on a rotational basis. A study of the electrical current (polarity) and the effects, proper electrode selection and continued safety practices. Prerequisite: WLD 1120.
- WLD 1121A (1-5-3), WLD 1121B (1-5-3) and WLD 1121C (1-5-2)** 1121A (W); 1121B (S); 1121C  
WLD 1121A (Part One of WLD 1121), WLD 1121B (Part Two of WLD 1121) and WLD 1121C (Part Three of WLD 1121) are the equivalent of WLD 1121 when taken on a part-time basis.
- WLD 1130 WELDING SKILL DEVELOPMENT IN INDUSTRY I** 1-40-5  
The student is employed as a welder trainee on a full-time basis with a participating firm. Welding skills are developed through on-the-job training. Progress is evaluated jointly by the student's supervisor and the instructor. Prerequisite: WLD 1120.
- WLD 1131 WELDING THEORY AND PRACTICE III** 3-15-8  
Development of advanced techniques in ARC, Mig, and Tig welding through continued practice and project work under supervision.
- WLD 1132 WELDING THEORY AND PRACTICE IV** 3-15-8  
Primary project work that would give experience in layout, fitting, aligning and a variety of welding procedures.



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