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**The Computerized Drafting
Technology Program CIP 15.1303**

Instructor: Ralph Stock
rstock@rmctc.org

Have Questions?

Reading Muhlenberg Career &
Technology Center 2615 Warren Rd
Reading, PA 19604
Telephone: 610-921-7310

READING MUHLENBERG CAREER & TECHNOLOGY CENTER

MISSION STATEMENT

The Reading Muhlenberg Career & Technology Center, in partnership with our diverse community, sponsoring districts, and business and industry, is committed to providing quality career and technical education, resulting in opportunities for students to gain employment, pursue post-secondary education, and develop an appreciation for lifelong learning.

VISION STATEMENT

To empower Reading Muhlenberg Career & Technology Center students with the technical knowledge and skills to confidently pursue a career.

BELIEFS

- We believe in valuing the diversity of each student
- We believe education leads to opportunity
- We believe quality education starts with quality leadership
- We believe a career and technical education is a critical component of workforce development
- We believe technology is vital to learning and will help students connect with a rapidly changing world
- We believe technology must be embraced by teachers as a tool to help prepare students to meet current and future labor market demands
- We believe in providing all students with a positive educational experience
- We believe students should feel proud of what they have accomplished each day
- We believe students will be provided the opportunity to achieve their highest potential
- We believe students will be provided the opportunity to acquire and cultivate leadership skills
- We believe in providing students with a safe school environment
- We believe the success of a student is enhanced by parents and/or other influential adults through their support and involvement
- We believe in encouraging students to maintain a lifelong affiliation with the school
- We believe change is an ongoing process, not an event, and is fundamental for building quality programs of study
- We believe instruction must accommodate individual student learning styles

Dear Parent / Guardian

I'd like to welcome new students to Computer Drafting Technology. My name is Mr. Stock and I'm the teacher in CDT. I've been teaching at RMCTC since September 1997. I earned an Architectural Engineering degree from Wentworth Institute of Technology in Boston and my teaching certification from Temple University. After graduation, I worked in the drafting field for 20 years producing architectural, structural and mechanical drawings for various companies in the Reading, Allentown and Philadelphia areas. I also teach four different evening classes at Penn State Berks.

When I started here, drafting was a two dimensional process using manual drafting and a computer program called AutoCad. Times and technology have certainly changed over the years. Now most of our drafting is three dimensional utilizing multiple software programs. Your son/ daughter will be taught using AutoCad, Inventor (3D mechanical) and Revit (3D architectural) software. They will also be required to complete a small amount of manual drafting. This technology is constantly changing and improving. These are very exciting times in the drafting field. We have a 3D printer which allows students to create a physical model from their designs.

I would like to contact parents or guardians this year to keep them informed of their child's work in my classroom. I believe that parents or guardians can play an important part in his or her child's education. If possible, I would like you to contact me in the next few weeks. Email works best for me. My email is rstock@rmctc.org or call 610-921-7300 extension 7446.

In the beginning of the school year I will be sending home many forms that you need to return as soon as possible. Please take the time to read and sign all forms and the school handbook which outlines the school's policies and procedures. Administration now requires each student wear a class specific polo shirt. One shirt will be provided to each student purchased with money from my class budget. You may purchase additional shirts through the school's web site if necessary. Each student will be required to wear the shirt each day in our school. Failure to do so will result in loss of points from the daily grade.

Over the course of the next few years your child will spend a great amount of time in this program. If they apply themselves they will have the opportunity to learn about drafting and be able to secure a job in the drafting field which will provide them a living wage and a bright future. The world will always need designers to provide drawings for manufacturing and building industries. Please help me keep your child on a path to success.

Sincerely,

' 44

Ralph Stock
Computer Drafting Technology Teacher



Computerized Drafting

- Earn user certifications for industry-standard softwares.
- Prepare for a professional career as a certified drafter in the architectural or mechanical design fields.
- Model and create objects with a 3D printer.
- Design a future home for a client, yourself, or your family.
- Utilize the latest software in the drafting and entertainment industries on powerful, high-speed computers with dual monitors.



CTC knowledge transfers to college credits at:

Berks Technical Institute
Lincoln Technical
Institute
Pennsylvania College of Technology
Triangle Technology

Student Certifications

NOCTI – National Occupational Competency Testing
Institute Certification
* Architectural
Drafting Certified
Drafter Autodesk
Certified User

Accreditations

ADDA – American Design Drafting Association

Job Titles – Career Pathways

17-3011 Architectural and Civil Drafters
17-3012 Electrical and Electronics Drafter
17-3013 Mechanical Drafters
17-3019 Drafters, All Other
27-1014 Multi-Media Artists and Animators
41-2031 Retail Salespersons
LOCAL Copy Persons



Instructor – Mr. Ralph Stock

Biography

I graduated from Exeter High School and then received an associate degree in architectural engineering. I then worked in the architectural design field for 20 years. My father owned a small machine shop and would bring home drawings that

I found amazing. I used to enjoy using his drafting tools to draw. I am in love with buildings and like to see different styles around the world, in my travels.

I started doing manual drafting after graduating from college, then moved to computer drafting when it was new. Computer drafting has come a long way to the point where it's hard to tell if it is real or a computer image. I enjoy traveling abroad and have been to many exciting places. I like to play golf and watch all Philly sports teams. My wife and I enjoy ballroom dancing and walking our dogs. I still enjoy working on the computer to design and draw.

Education

Associates Degree in Architectural Engineering, Wentworth Institute of Technology

Vocational Instructional II Teaching Certification, Temple University

Work Experience

I worked for various architectural firms in the Reading, Allentown, and Philadelphia areas for 20 years before becoming a teacher. I've worked on projects from single-family houses to multi-story commercial office buildings, schools, hospitals, and manufacturing clean rooms. I started design work on the drafting board and then, in 1988, started computer drafting. I use AutoCAD, Revit, Inventor, and SolidWorks software. I also teach night school for Penn State Berks.

Hire Date

1997

Community Service

I am involved with aiding disabled children horseback ride and I am chairman of the Property Committee at my church.



Program Planning Tool



Program Title: CIP 15.1303 COMPUTERIZED DRAFTING TECHNOLOGY

Student Name: _____

This document has been designed as a tool to facilitate student placement decisions and provides important information about the program. The chart on the reverse side is designed to assist in the identification of necessary skills, present educational levels, and supports, if any, that are needed to foster program success.

Program Completion Requirements

A successful student will...

- Secondary Academic Course Requirements: The PA Dept. of Education's focus is to ensure every student is college and career ready, therefore all students are recommended to follow a college prep sequence of academic classes. Courses such as applied math or general science are not appropriate for this program. PDE's goal is to have all students perform at the competent or advanced level on the Keystone Exams and Program of Study end-of-program assessment (NOCTI).
- Complete an Occupational Competency Assessment (i.e. NOCTI end-of-program exam) and score at the "competent" or "advanced" level. This end-of-program exam will cover the full scope of the program of study curriculum and includes (1) a multiple choice test and (2) a performance test consisting of occupational related tasks scored and evaluated by industry judges.
- Earn a minimum of one industry recognized certification. Students will be encouraged and expected to earn all recognized industry certifications that make up the scope of the curriculum. Accommodations are not permitted for industry certifications. The program is accredited by the American Design Drafting Association's (ADDA), and the students can attain AutoDesk, AutoCad, Revit & Inventor Certified User and Certified Drafter.
- Complete the approved program curriculum and earn a minimum of one RMCTC Job Title aligned with the student's career objective. Job titles are identified on the program task list, aligned with local workforce needs and high priority employment occupations, and annually reviewed and approved by the program's occupational advisory committee.
- Successful completion of Keystone Exams as determined by sending school district.
- Maintain a 95% attendance rate or better.
- Transition on to a post-secondary institution, military or related fulltime employment aligned to their CTC program of study.

Instructional Process/Specifications

A successful student will...

- Perform a wide variety of tasks in a laboratory environment with equipment consistent with industry standards. Up to 25 students are assigned to work "independently" and in "small teams". Students progress by using learning guides in a self-directed manner.
- Students will be required to sit and work at a computer terminal for the majority of the class time. Students will be required to use a computer, mouse, scales, scanners, printers and plotters.
- Participate in classroom theory and laboratory applications for generally 2 ½ hours each day; students will spend 25% of their time in classroom theory and 75% of their time doing laboratory applications and live work.
- Participate in Career & Technical Student Organizations including SkillsUSA and/or National Technical Honor Society and HBA.
- Participate in a paid or unpaid work based learning related to the Program of Study (cooperative education, clinical internship, and/or job shadowing).
- Complete written and performance tests. Students will be evaluated weekly on occupational skill performance using rubrics. In addition, students will be evaluated daily on work ethics. Progress is measured by test performance, task completion and work ethic.
- Read and study textbooks and technical manuals. Most textbooks are written at a 11th – 12th grade reading level and most technical manuals are written at a higher level and are accessed on line.
- Complete homework on time. Homework typically involves chapter or workbook assignments, on line research assignments and writing assignments.

Program Planning Tool

CTE Requirements	Present Educational Ability/Level	Support Needs
Program Completion – Strong self-determination skills and understanding of personal strengths and weaknesses. Ability to meet industry established standards of performance, complete the program of study without curriculum modifications, and earn industry certifications without testing accommodations.		
Reading & Language Arts Level - Text and manuals written on a 11 th -12 th grade reading level. Proficient on end-of-course exam (Keystone). Continue reading at grade level. Understanding written sentences and paragraphs in work related documents. Ability to review and analyze specifications, sketches, drawings, ideas, and related data to assess factors affecting component designs and the procedures and instructions to be followed. NOCTI assessment and industry certification exams require a proficiency in English language skills.		
Math Level - At grade level and proficient on end-of-course exam (Keystone). Knowledge of arithmetic, algebra, geometry and their applications. Ability to compute mathematical formulas to develop and design detailed specifications for components or machinery using computer-assisted equipment.		
Aptitude – Mechanical aptitude, visualization, deductive reasoning, inductive reasoning, oral comprehension, oral expression, critical thinking, complex problem solving and trouble shooting skills, selective attention. Artistic ability and creativity. Spatial relations.		
Safety & Physical – Finger dexterity, manual dexterity, arm-hand steadiness, near vision (ability to see details at close range – within a few feet of the observer). Hand-eye coordination. Color discrimination.		
Interpersonal/ Social – Integrity, self-control, concern for others, stress tolerance, adaptability/flexibility, dependability, cooperative. Ability to work independently and in a team.		
Other Occupational/Program Considerations - Ability to work independently, depth perception, excellent self-discipline and stamina to focus for long periods of time at work station, visual acuity, computer and keyboard experience.		

Scope and Sequence Computerized Drafting Technology 15.1303

Academic Subjects – Career success and postsecondary education success require the same level of college prep coursework. The Pennsylvania Department of Education's (PDE) focus is to ensure that every student is prepared for college and a career. Academic courses such as applied math or general science cannot be listed on the program's scope and sequence. PDE's goal is to have all students perform at the competent or advanced level on the PSSA, and earn the Pennsylvania Skills Certificate on the end-of-program assessment.

	Secondary School				Postsecondary Institution			
Subject (Hours)	Grade 9 (Hours)	Grade 10 (Hours)	Grade 11 (Hours)	Grade 12 (Hours)	First Semester	Second Semester	Third Semester	Fourth Semester
Technical		Measuring and Scaled Objects	Inventor Projects	3D Models with Inventor Software	CCD 101: Technical Drawing I	CCD 121: Technical Drawing II	CD 235: Design & Prod. Drawing	CCD 243: Tooling Design and Drawings
		Manual Drafting - Views and Shapes	Solid Materials Project	User Interface, Commands, and Basic Objects	CCD 102: Detailing I	CCD 122: Detailing II	CCD 236: Civil and Structural Drawings	
		Two & Three Dimensional AutoCad	Work Based Learning	Coordinates and Drawing Files to Create Objects		AD 119: 3D CAD and Parametric Modeling Solids		CAD 247: CAD Mgmt & Customization
		Job Seeking/Keeping Skills	Residential design Using Revit	Panning, Zoom and Viewing	MMT 211: Mfg Materials and Processes			
		Sketching and Basic Tools	User coordinate systems	Duplicating and Moving Objects				
			Job Seeking/Keeping Skills	Layers and Linetypes				
				Blocks and Isometric View				
				Job Seeking/Keeping Skills				
English	College Prep English 9	College Prep English 10	College Prep English 11	College Prep English 12	ENL 111: English Comp I	ENL 201: Technical & Professional Communication		
Math	Algebra I	Geometry	Algebra II	Trigonometry		MTH 180: College Algebra and Trig I	MTH 182: College Algebra and Trig II	
Science	Accl Integrated Science	Biology	Chemistry				PHS 115: College Physics	HS 125: College Physics II
Humanities	Citizenship	World Cultures	American History I	American Government		SSE: Elective: Social Science		
Other	Physical Education	Physical Education	Physical Education	Physical Education			FIT: Elective: Fitness	
	Health	Health	Driver's Ed Theory					
Math	Algebra I	Geometry	Algebra II	Trigonometry				

15.1303 Architectural Drafting and Architectural CAD/CADD

Learn Manual Drafting

Introduction to drafting.

Develop proper use of basic drafting tools.

Discover proper use of sketching techniques.

Interpret measuring objects using various scales.

Develop orthographic drawing views.

Illustrate drawing orthographic views workbook.

Analyze drawing axonometric views.

Demonstrate reproduction of drawings.

Two Dimensional AutoCad

Complete exploring AUTO CAD.

Complete organizing workspaces.

Complete creating the user interface.

Complete inputting commands.

Demonstrate creating basic objects.

Demonstrate selecting objects.

Demonstrate entering coordinates.

Demonstrate getting help and file maintenance.

Demonstrate using object snaps.

Describe drawing features that are helpful.

Describe drawing construction aids.

Demonstrate zooming.

Describe panning and viewing.

Demonstrate drawing solid and curved objects.

Complete adding and altering objects.

Demonstrate moving and duplicating objects.

Demonstrate modifying and maneuvering.

Demonstrate hatching and sketching.
Complete creating text.
Demonstrate text editing and spell checking.
Complete creating tables.
Demonstrate drawing setup.
Demonstrate using layers and linetypes.
Define plotting and printing.
Describe utilizing multiple viewports.
Demonstrate basic dimensioning.
Demonstrate advanced dimensioning.

Describe fine-tuning dimensions.
Complete performing geometric calculations.
Demonstrate creating blocks.
Describe using dynamic blocks.
Define utilizing symbol libraries.

Senior Project

Develop a project using revit.

LEVEL 2 - SOLIDWORKS

Identify the tools needed to get started with SolidWorks
Examine parametric modeling
Develop the use of boolean operations to construct solid geometry
Test using the model history tree
Develop geometric relations fundamentals
Imagine utilizing geometric construction tools
Build the parent / child relationship
Construct creating part drawings
Create reference geometry and auxiliary views
Examine 3D printing

Discuss modeling symmetrical features

Discover lofting, shelling and sweeping advanced 3D construction

Compile sheet metal designs

Test assembling models

Develop basic motion analysis

Prepare for the CSWA Exam

Designing 3D Models with Inventor Software

Discover getting started with Inventor.

Examine parametric modeling.

Develop the use of boolean operations to construct solid geometry.

Test using the model history tree.

Develop applying parametric constraints.

Imagine utilizing geometric construction.

Build the parent / child relationship.

Construct creating part drawings.

Create datum features and auxiliary views.

Discuss modeling symmetrical features.

Discover lofting, shelling and sweeping advanced 3D construction.

Test assembling models.

Compile sheet metal designs.

Develop basic motion analysis.

Solve collision and contact analysis.

Residential Design Using Revit

Discover getting started with Revit.

Invent a basic lake cabin.

Compile overview of linework.

Create drawing 20 architectural objects.

Develop the first floor plan.

Develop the basement and second floor plans.

Design the roof.

Combine floor systems and reflected ceiling plans.

Build, create and view parametric exterior elevations.

Construct drawing building sections.

Experiment with adding features to the floor plan.

Compile building schedules.

Develop photo-realistic rendering.

Create and set up a sheet and then print a set of drawings.

Value Added

80.1 - Establish Career Goals.

80.2 - Complete Job Application.

80.3 - Compose Resume.

80.4 - Prepare for Job Interview.

80.5 - Compose Employment Letters.

80.6 - Participate in Online Job Search.

80.7 - Prepare Career Portfolio.

Computer Drafting Technology



Policies – Procedures – Safety

Computer Drafting Technology Policies – Procedures – Safety

Staff Protocol

**As a student of Computer Drafting Technology (CDT) you are considered a member of our staff.
Conduct of all staff members is expected to be:**

Professional – In the manner expected for an individual in a technologically advanced vocation.

Attire – You will be expected to dress in a business casual attire which is normal in the industry. You will be provided a polo shirt which you will be required to wear each day. You will have the opportunity to purchase additional shirts if you feel the need. The class shirts will be a color that is unique to the CDT program and will be cleaned each week by the CTC at no additional cost to the student.

Courteous – Civil, polite, refined, with respect to the feelings of others.

Mature – Act as you would if you were working in an office with other professional adults.

Respectful – Tolerable and non-judgmental of others.

Conduct which is unacceptable and may result in demerits, suspension, or removal from shop includes, but is not limited to:

Insubordination – Blatant disregard for orders, procedures, and policies.

Arguing, verbal abuse, fighting - Violence of any kind is unacceptable at RMCTC. Students caught fighting are prosecuted to the fullest extent of the law.

Unauthorized computer use – To include but not limited to, setting unauthorized passwords, willful damage, erasure, or manipulation of student or system files, tampering or accessing system files and settings, unauthorized use of or attempt to access the internet or prohibited areas on the Internet, unauthorized loading of any data or programs from an outside source. Any data or materials on disk, flash drives or CD that have been introduced or been in contact with another computer outside CDT will first be checked for virus content. Computers may be used only for work assigned by the instructor. Any other usage will be considered in violation of this policy.

Music – In accordance with RMCTC policy, there will be no CD players, MP3 players, cell phones or headsets outside of the classroom, Music will be allowed in the classroom with the use of headphones so as not to disturb others. This topic is covered in depth in the student handbook.

Game playing – Games will not be accessed on line, brought in from home, or downloaded from the internet. In short, NO games. We're here to learn. Play at home.

Staff Attitude

All staff members are expected to display an attitude that reflects:

Positive thinking – Show confidence in your abilities.

Personal pride – Self-respect for quality and accomplishments.

Desire to Achieve – Eagerness to reach new levels of knowledge and skill.

Team player – Since much of our work is done in groups, team members are expected to work for the good of the team and not criticize the work of others.

Staff Skills

Federal, State and Local regulations require each student to meet standards of excellence in their chosen vocation. Failure to do so will result in denying certification or graduation.

Skill requirements for graduation as ‘Competent’ are as follows:

- Satisfactory completion of a job title, completed senior project, basic performance on the NOCTI Exam
- Ability to follow rules and procedures
- Ability to work and cooperate with peers and supervisors
- Ability to communicate both verbally and written
- Ability to solve problems

Safety & Equipment

Electrical:

Do not attempt to service, install or remove computer wiring while the equipment is connected to electrical outlets. Always ensure electrical equipment is disconnected from the power source or turned off to prevent electrical shock.

Never touch bare, exposed, or damaged wires.

Never allow wiring and cables to lie in normal traffic paths to prevent the possibility of tripping and injury.

Never allow moisture, liquids or magnetic items to come in contact with electrical equipment. This is a very dangerous combination and could result in electrocution.

Chairs & Tables:

Desks are designed for placement of work material, and as a surface to do productive work. They were not designed to sit upon. You will be responsible for the cost of repair or replacement of any equipment damaged through misuse.

Standard four-leg chairs were designed to sit on with all four legs remaining on the floor. Rocking back or balancing on two legs not only reduces the life of the chair but also may result in personal injury. You will be responsible for any injuries resulting from failure to follow safety regulations.

Cushioned roller chairs are to remain at the computer locations assigned. If misuse occurs students will lose their privilege of using these chairs.

Computer units:

Computer equipment is very costly and not designed to take abuse by rough handling or careless, unsafe operations. You will be responsible for the cost of replacement or repair to any equipment damaged by such misuse.

Fire:

There are fire extinguishers designed to handle electrical fires. Be sure to familiarize yourself with the location of these fire extinguishers. Directions for use are printed on the device.

General fire or emergency exiting from the building is conducted in the following manner:

When the fire alarm sounds, immediately stop what you are doing and calmly exit the building according to the emergency exit route posted by the door

Once outside the building, continue to the parking lot in the front of the school and stand with the rest of the class, as attendance may need to be taken.

You will be instructed when it is safe to reenter the building.

Medical:

It is extremely important to provide accurate information on the medical card to ensure proper treatment should a medical emergency arise.

The school nurse is located in the industrial wing of the building and is available should you require medical attention.

If you are taking medication that will need to be administered during school hours, please be sure it is kept in the nurse's office. Students are not allowed to take any form of medication in the classroom, whether it be prescription or over-the-counter.

Procedures

Restricted areas:

Students are not allowed to enter the storage closet at any time.

Teacher's computers and desks are also off limits.

Pass Policy:

No Student will leave the instructional area without specific reason and authority to do so.

One student at a time may use the lavatory. After receiving permission from the teacher, you may sign out on the lav sheet and take the lav pass with you. Students will not be permitted to use the lav during the change of classes.

Students are not allowed to use the school phone except in the case of an emergency. Student must have a phone pass filled out and signed by the teacher. Student will take the pass to the main office where a school secretary will dial the number.

Food:

There will be no food, drinks, or gum allowed in the classroom at any time.

Cell Phones:

Cell phones are to be put away and turned off while at RMCTC. If a student is seen with a cell phone in school it WILL be confiscated. Parents will be called and must come to the school to pick up the cell phone. This is an inconvenience for the parent and extra paperwork for the staff. If you absolutely must carry a cell phone, keep it in your locker and TURNED OFF while in school!

Valuables:

Students are urged not to bring anything of value to school with them. Lockers are provided for each student. It is advised that each student lock their belongings in their locker upon arriving at school. This will greatly reduce the chance of valuables being lost or stolen. The school or its employees will not be held responsible for stolen or misplaced valuables.

Personal Hygiene:

Students should practice acceptable standards of personal hygiene at all times. Not only does personal hygiene prevent an individual from being offensive, but greatly reduces the spread of disease and illness.

Start Up & Shut Down:

All students regardless of level or session will immediately take their assigned seat upon entering class. Do not turn on computers or engage in any other activity until released or instructed by the teacher.

Students should remain quiet during announcements.

Students are expected to work until 10 minutes before dismissal, at which time you may begin clean up and shut down. All of your personal work should be put away in your locker and books should be returned to their assigned location.



(Detach here)



We have read and understand the policies and procedures of the Computerized Drafting class.

Date _____

Signatures

Parent/Guardian print name here _____

Parent/Guardian sign name here _____

Student print name here _____

Student sign name here _____

Computerized Drafting Technology Ergonomic Safety

Eyes & Safety

Computer operators often suffer from the following: Visual fatigue, blurred or clouded vision, burning & tearing eyes, headaches and frequent changes in eyeglass prescription.

Glare is the main problem.

Always:

- Adjust your monitor so that the angle prevents the light source from shining on the screen & washing out characters
- Use blinds, drapes, or shades to block the glare from windows
- Avoid light colored clothing
- If possible use a micromesh antiglare filter on the screen

In order to prevent visual fatigue which is caused by: staring at the screen without varying focus, dry eyes caused by not blinking or low humidity, maintaining a viewing angle that is above the horizon, poor image quality due to lack of contrast, intense display colors, or incorrect eyeglass prescription

Always:

- Exercise the eyes by looking away at objects of varying distance
- Keep the screen and document holder at the same distance from the eyes (if possible)
- Practice blinking regularly
- Try to add moisture to the air w/ a steam humidifier, pans of water, or plants
- Adjust the screen height or height of the chair so the top line of the monitor is no higher than your eyes
- Adjust brightness control for comfort
- Keep the screen clean
- Adjust contrast control so characters appear crisp
- Have regular eye exams

Musculoskeletal

Problems: Muscle fatigue, neck/back ache, cumulative trauma disorders (associated w/tasks that require repetitive motions over long periods of time.)

Cumulative Trauma Disorders: Tenosynovitis and Carpal Tunnel Syndrome (CTS)

Tenosynovitis: an inflammation of the sheaths through which the tendons of the fingers pass. It is caused by the rapid flexing of the fingers and wrists. It can lead to Tendonitis which is the inflammation of the tendon itself.

Symptoms: pain in the wrist and back of the hand

Carpal Tunnel Syndrome (CTS:) a condition caused by compression or squeezing of the median nerve which passes through the carpal tunnel of the wrist bones. This problem can intensify over time, spreading up the arm and weakening the muscles so that one may drop objects being carried or fail to sense hot or cold. CTS can be aggravated by swelling of the tendon sheaths such as in tenosynovitis.

Symptoms: Pressing on the nerve causes numbness, tingling, burning or pain in the palms, fingers, or wrists

Musculoskeletal problems occur from the following:

- Maintaining an unnatural or unhealthy posture while using the computer
- Inadequate lower back support
- Static load placed on the body by sitting in the same position for an extended period of time
- An ergonomically poor workstation design

To avoid musculoskeletal problems the following should be done: The

Monitor:

- Should swivel, tilt and elevate
- Should be located so the top line of the monitor is no higher than the user's eyes or no lower than 20 degrees below the horizon of the user's eyes
- Should be at the same level and beside the document holder
- Should be between 18-24 inches away from the user's face

The Keyboard:

- Should be detached and adjustable
- Should be placed to allow the forearm to be parallel to the floor without raising the elbows
- Should allow the wrist to be in line with the forearm so the wrist is not flexed up or down
- Should include 2 inches of space to rest the wrist or should be provided with a padded detachable wrist rest
- Should be placed directly in front of the monitor and at the same elevation as the mouse, track ball or touch pad

The Chair:

- Should support the back
- Should have a vertically adjustable independent back rest that returns to its original position and has tilt adjustments to support the lower back
- Should have a pneumatic height adjustment, so that the chair height can be adjusted while the user is in a seated position
- Should be adjusted so the back crease of the knee is slightly higher than the pan of the chair
- Should be supported by a five prong caster base
- Should have removable armrests that are adjustable in all three dimensions
- Should have a contoured seat with breathable fabric and rounded edges to distribute the weight and should be adjustable to allow the seat pan to tilt forward or back

The Table/Desk:

- Should provide sufficient leg room
- Should allow for adjustable height
- Should have enough surface area to support the computer equipment and space for documents
- Should provide at least 30 inches in depth
- Should have rounded corners and edges

Wrist Rest:

- Should be a minimum depth of two inches
- Should be the same length as the keyboard
- Should be the same height as the front edge of the keyboard
- Should be constructed of firm supportive foam or gel material
- Should have a flat top with rounded edges
- Should be attached to the work surface

The Keyboard Tray:

- Should have adjustable height options
- Should have a forward and back tilt feature
- Should be large enough for the keyboard and mouse

- Should be retractable for storage
- Should clamp under the work surface and have position lock
- Should be able to rotate 360 degrees

The Document Holder:

- Should be adjustable to fit monitors from 8.5 to 17 inches wide
- Should be fully adjustable to permit left or right, up or down, forward or backward, and tilted movement
- Should be sturdy enough to support stacks of papers and heavy documents
- Should have a wide lip to hold books and manuals open
- Should have an adjustable line guide for data entry
- Should have a non-reflective material to minimize glare
- Should be stable and able to be attached to either side of the monitor

Useful Tips:

- Provide a 15 minute break for every 2 hours of continuous computer use
- Alternate work tasks
- Use a stretching routine to relax the body
- Keep the mouse at keyboard level
- Do not grip the mouse tightly
- Hold the mouse lightly with all fingers clicking gently

Students will be administered a safety skill & knowledge test, as well as a, knowledge test on the handbook and this packet. They must pass the knowledge tests with an 80% or higher and the skill test with a 100% before they are permitted to use the computers.

We have read and understand the policies and procedures of Computerized Drafting Technology as well as the Ergonomics Safety packet.

Date _____

Signatures

Parent/Guardian print name here _____

Parent/Guardian sign name here _____

Student print name here _____

Student sign name here _____

GRADE REPORTING

Purpose: The intent of this grading procedure is to provide a student grade that accurately reflects student achievement. Progress is measured in the areas of work ethics, knowledge and the practical skills aligned to the program area learning guides. Student performance for learning guide activities and assignments are reflected in the knowledge grade. Students will be evaluated according to established program standards on an individual basis. The student information system automatically calculates student grades using the following formula:

Work Ethic	40%
Knowledge	<u>60%</u>
	100%

Teachers must be able to justify grade percentages in the event of inquiries or concerns.

Interpreting a Grade:

Work Ethics Grade (40%): Each school day, every student receives a Work Ethics or daily grade. Criteria that compromise these grades are safety, student behavior, preparation/participation, productivity or time on time on task, professional appearance and extra effort. The Work Ethics grade range is based on a 0 to 10 model that students may earn each day depending on how many criteria they criteria they satisfactorily meet.

NOTE: Impact of Absenteeism, Tardiness/Early Dismissals – The direct effect of absenteeism on a student's grade will be through the Work Ethic component of the grading formula. If a student is Tardy or has an Early Dismissal the Work Ethic can reflect a deduction in points earned for that class period. The instructor may change this value as they see fit.

Knowledge Grade (60%): Throughout the marking period, a student's cognitive knowledge about various career-specific topics will be evaluated and recorded by the instructor. Examples of knowledge activities include: lab/shop assignments, homework, quizzes, tests, and research activities. The knowledge grade range is based on actual points earned divided by the total accumulative points.

Skill (Learning Guide): A task list guides every RMCTC program. Tasks are evaluated on a scale with a 4 or 5 considered proficient. Learning guides are normally aligned to lab assignments or shop projects where a student will physically perform a task. The student and teacher will discuss, at the beginning of each quarter, student expectations and the required tasks that must be completed or "contracted" by the end of the marking period. This allows a student to work productively with the expectation to make constant progress during the marking period. All assignments, activities and rubrics associated with learning guides are documented in the "knowledge" grading component. It is important to note that poor productivity will have a negative impact on a student's grade.

NOTE: For the purpose of students earning a job title associated with their program area, teachers track students' skill/task work. Teachers identify specific criteria to evaluate each task performed, ranging from a 0 to 5 (not completed to mastery). Students must earn a 4 or 5, in order to credit the task towards earning the specific job title. Students have the opportunity to revisit a task multiple times until successfully receiving credit. The job titles a student earns will be listed on the student's RMCTC certificate that is awarded at Senior Recognition Night.

Student grades will be reflected as a percentage, and will be reported directly to the student's sending school to be added to the report cards.

Final Grade average is based on the student's four (4) numerical marking period grades.

If a student has three (3) marking period grades of "F" consideration will be given to that student not passing for the year. If a student is on an upward trend at the end of the school year, this may justify having the student pass for the year. If the opposite is true, and the student is on a downward trend, the student may be asked to select a new program or return to the sending school on a full-time basis.

The individual teacher must evaluate each student's achievements in terms of the expected goals for their program area.

Failure to complete assignments, frequent lateness or absence, and demonstrated indifference to school are major contributors to student failures. **Blatant refusal** to attempt or to complete a significant number of course requirements may lead to poor performance and possible removal.

The following divisions are given as a guide to recording and interpreting the grading system. It remains for each teacher to objectively and fairly rate each student, not based upon personality, but performance.

Determination of Grades: Teachers will give thorough consideration using all grading components in determining students' grades to both class work and test results.

A = Excellent

1. This grade represents **superior work** and is distinctly an honor grade.
2. The excellent student **has reached all course objectives** with high quality achievement.
3. The excellent student displays unusual effort and works willingly and effectively in reaching required objectives.

B = Good

1. This grade represents **above average** quality achievements.
2. The good student **has reached a large majority of course objectives.**
3. The good student is industrious and willing to follow directions.

C = Average

1. This grade represents **satisfactory** achievement.
2. The average student **has reached a majority of course objectives.**
3. The average student is cooperative and follows direction, yet extra effort and improvement are needed for more complete mastering of the material.

D = Passing

1. This grade represents a **minimally satisfactory** achievement.
2. The failing student **has not reached necessary course objectives.**
3. This achievement level indicates there is a great need for improvement, daily preparation and improved dedication and attendance.

F = Failure

1. This grade represents **unsatisfactory** achievement.
2. The failing student has **not reached necessary course objectives.**

Incomplete Grades: Incomplete grades must be updated no later than ten (10) days from the close of the marking period. As soon as the work is completed and the grade is available, it must be reported to the appropriate person.

Failures: Students who receive a failing final grade in a program area are permitted to repeat that program, but are urged not to do so. If this situation presents itself, students and parents are advised to consider an alternative program which is probably more suited to the student's true interests and aptitudes are not merely satisfying a short-term or unrealistic desire.

Attendance and its Impact upon Grades: The importance of regular school attendance and its positive impact upon students' performance grade cannot be overstated. If a student is absent, he or she does not have the opportunity to keep pace with their classmates and must work independently to acquire the information missed during any absence. Regardless of how well a student performs when he/she is present, habitual absenteeism usually results in a failing performance grade. This situation is not unlike the conditions of the business or industry for which the student is being trained.

Makeup Work for Absences: Students have the opportunity to make-up schoolwork due to an illness/being absent from school. Students must submit make-up work within the following timelines:

1. One (1) to three (3) days excused absence – five (5) school days to complete assigned work.
2. Four (4) or more days excused – ten (10) school days to complete assigned work. All work missed through unexcused absences will be graded zero (0).

Report Cards (see Progress Reports): Students will receive a report card from the sending school district which will reflect the student's grade from their Career & Technology classes. Students will also receive a report card from RMCTC reflecting their program grade and Social Studies grade, where applicable. In addition, grades are available on the parent portal.

Student Recognition Night: Reading Muhlenberg Career & Technology Center hosts an annual Student Recognition Night, which honors our senior students. During this event, senior students in attendance are recognized and may also receive awards that they have earned relevant to their accomplishments while attending Reading Muhlenberg CTC.

CAREER & TECHNICAL STUDENT ORGANIZATIONS (CTSO)

All students enrolled in Reading Muhlenberg Career & Technology Center have the opportunity to participate in at least one Career & Technical Student Organization (CTSO) while enrolled at the CTC. Students who become members in these co-curricular organizations have the opportunity to participate in team building, leadership, community service and social events.

Students also have the opportunity to attend skill competitions where the skills they have learned are "put to the test" against other competitors. These competitions include testing of knowledge and hands-on skills in a variety of trade and leadership events. Students who are fortunate enough to win their events at a district or state competition are able to compete at the national level and travel to locations such as Louisville, KY, Kansas City, MO, San Diego, CA, Orlando, FL, and Cleveland, OH.

SkillsUSA



<http://skillsusa.org>

SkillsUSA is a national organization of students, teachers and industry representatives who are working together to prepare students for careers in technical, skilled and service occupations. SkillsUSA provides quality education experiences for students in leadership, teamwork, citizenship and character development. It builds and reinforces self-confidence, work attitudes and communications skills. It emphasizes total quality at work, high ethical standards, superior work skills, life-long education, and pride in the dignity of work. SkillsUSA also promotes understanding of the free-enterprise system and involvement in community service.

Home Builders of America (HBA)



<http://www.pabuilders.org/>

The purpose of the HBA Student Chapter Program is to give students first hand exposure to the "real world" of the building industry and an invaluable complement to their academic studies.

National Technical Honor Society (NTHS)



www.nths.org

NTHS is the acknowledged leader in the recognition of outstanding student achievement in career and technical education. Over 2000 schools and colleges throughout the U.S. and its territories are affiliated with the NTHS. Member schools agree that NTHS encourages higher scholastic achievement, cultivates a desire for personal excellence, and helps top students find success in today's highly competitive workplace.

NTHS members receive: the NTHS membership certificate, pin, card, window decal, white tassel, official NTHS diploma seal, and three personal letters of recommendation for employment, college admission, or scholarships. Students will have access to our online career center including these valuable services: MonsterTRAK, Wells Fargo, Career Safe, and Career Key.

READING-MUHLENBERG CAREER & TECHNOLOGY CENTER

WORK BASED LEARNING Cooperative Education & Internships RULES / GUIDELINES

1. All Work Based Learning (WBL) students must have school WBL forms completed and sign up for the school Remind App before starting the job/internship. Any student who is less than 18 years of age must also have a transferable work permit.
2. **ABSENT FROM SCHOOL???? – NO WORK!!!!!!!**
 - If you are absent from school in the morning, you may **NOT** go to work in the afternoon. **YOUR JOB IS PART OF YOUR SCHOOL DAY.** If you are at a **medical, social service, or court appointment** in the AM, you **may** go to work that day. However, you must bring a note **from the agency where you were**, to your attendance secretary, the next school day.
 - If you are ill, **YOU** must call your employer to inform him/her that you will not be reporting for work.
 - **IMPORTANT:** If your name is going to appear, for any reason, on your sending school absentee list, you must also **report off to Mrs. Albarran @ 610-921-7301. Failure to report off may result in removal from WBL.**
 - If **school is closed** for a holiday, in-service day, or a snow day, you **DO** go to work on those days, if you are scheduled. If you are not scheduled, you can work additional hours if your employer allows you to work. Labor Laws need to be followed.
 - If you are suspended **out of school**, you may not work at your WBL job. This includes jobs that are scheduled with after school hours.
 - **REPETITIVE ABSENCES** at school or work will result in your removal from Work Based Learning.
3. All WBL students are required to **report to the CTC every Monday**. Any additional classroom time is at the discretion of your program area teacher. You are responsible for communicating this to your employer. On the **first Monday of each month or the first day, you are at RMTC for the month**, you must report to the **Work Based Learning Office**, where you will sign in with Mrs. Hughes. Co-op students will record hours and earnings, and then return to your program area for the remainder of the school day. **Do not forget to bring your check stubs to record your hours and earnings!** Internship students will record hours. **If you miss two monthly meetings, you will be removed from WBL.**
 - Any violations of these rules will result in the following **discipline action:**
 - 1st violation – VERBAL WARNING**
 - 2nd violation – REMOVAL FROM WORK BASED LEARNING**
4. When at work, you are guided by and are responsible to your employer. Be sure to follow all of the Employers' rules and regulations because you will be terminated for the same reasons as any other employee. Upon your first week of work, obtain a contact number in case you need to call your supervisor.
5. If your work experience is terminated for any reason, you must return to school the next day, and inform your CTC teacher and the Work Based Learning Coordinator.
6. If you wish to terminate your employment, you must discuss this with your teacher and the Work Based Learning Coordinator, and leave the job properly by giving the employer a two-week notice and a letter of resignation.
7. If you have any questions concerning the rules and guidelines of Work Based Learning, please contact the WBL coordinator at 610-921-7337.

STUDENT SIGNATURE

PARENT/GUARDIAN SIGNATURE