MT. HOOD
COMMUNITY COLLEGE

# Program Application for Integrated Metals Associate of Applied Science Degrees and Certificates:

## Integrated Metals Degree
## Machine Tool Technology Degree
## Machine Tool Operator Certificate
## CNC/CAD/CAM Certificate
## Welding Technology Certificate
## Fall 2012 Entry

**APPLICATION OPEN AND CLOSE DATES:**

- Open date: November 1, 2011 – applicants may begin submitting program applications.
- Close date: Open until filled

**Please mail all application materials to:**

Mt. Hood Community College
Admissions, Registration, and Records
Integrated Metals - Application
26000 SE Stark Street
Gresham, OR 97030

Applicants will need to obtain an email address if they do not already have one. Mt. Hood Community College's Admissions, Registration and Records office will send all application notification by email. If email is not an option, please contact the Integrated Metals admissions evaluator at 503-491-7256.

Dear Prospective Student:

Thank you for your interest in the Integrated Metals programs at Mt. Hood Community College. Enclosed are a number of resources that will help explain our program and aid you in applying for admission. They include:

- Program Outline
- Admissions Guidelines and Criteria
- Application Packet Checklist
- MHCC Student Admission Form
- Program Curriculum
- Required Tool List
- Program Costs
- Helpful Hints for Success

Sincerely,

Tim Polly
Faculty Adviser
Machine Tool Technology
503-491-7207
Tim.Polly@mhcc.edu

Mark Thomas
Faculty Adviser
Machine Tool Technology
503-491-7569
Mark.Thomas@mhcc.edu

Rick Walters
Faculty Adviser
Welding Technology
503-491-7209
Richard.Walters@mhcc.edu

Steven Davis
Faculty Adviser
Welding Technology
503-491-7629
Steve.Davis@mhcc.edu

## PROGRAM OUTLINE

**THE PROGRAM BEGINS EACH YEAR**
Fall term entry is preferred. Admission is based on the date of application and satisfactory completion of placement criteria. Application packets are available on our web site at http://www.mhcc.edu/LRadmissions/. Once you have read the application packet, if you have questions, please call 503-491-7256.

Entry may be permissible other terms based on individual qualifications, completion of admission criteria and space available in the program option. Students must apply and be accepted into the program to have their major changed to one of the Integrated Metals program majors.

**DEGREE AND CERTIFICATE OPTIONS AWARDED WITH COMPLETION OF REQUIRED COURSEWORK - A description of each program begins on the following pages.**

- Integrated Metals Degree
- Machine Tool Technology Degree
- Machine Tool Operator Certificate
- CNC/CAD/CAM Certificate
- Welding Technology Certificate

Also available is a six-course AWS Welding Certificate evening program which has a separate admissions packet.

**SCHEDULE OF CLASSES**

Most of the program classes are scheduled during the traditional school day, fall term through spring term. However, there are options for students desiring to attend evening classes to complete some of the core requirements in either an evening or weekend format. Scheduling of classes in these non-traditional times will be dependent on student demand, so the class schedule for each term should be watched for sections in these non-traditional times. Required general education courses may be able to be completed during the evenings and/or summer term, depending on class offerings. See the MHCC quarterly schedule of classes on the web for open-entry evening courses in Integrated Metals / Machine Tool / Welding.

Integrated Metals students are expected to maintain a minimum grade level of "C" on core curriculum classes to progress in the program. Those interested in pursuing a degree in Integrated Metals should contact a program advisor for assistance in planning their program of instruction.

**AVERAGE NUMBER OF GRADUATES PER YEAR: 15-25 students per year.**
**NOTE:** Certificate program options may be completed in 3 terms, and degree options are designed to be completed after 2 years (six terms). However, some students may take longer completing their general education requirements making the actual length of study 4 terms to 2-1/2 or 3 years respectively.

### Integrated Metals Degree

The purpose of the Integrated Metals Associate of Applied Science degree is to prepare students to confidently enter the machine tool and welding technologies workforce. Students in this program will receive instruction during daytime hours in precision measurement, material layout, blueprint reading, machine tool and welding machinery setup and operation. Manual and CNC (computer numerical controlled) aspects of machine tool, welding and cutting technologies will be explored. Participants will be introduced to the basic concepts of CAD/CAM (computer assisted design/computer assisted manufacturing) processes as relevant to metals manufacturing. Integrated Metals students are expected to maintain a minimum grade level of "C" on core curriculum classes to progress in the program. Those interested in pursuing a degree in Integrated Metals should contact a program advisor for assistance in planning their program of instruction.

### Machine Tool Technology Degree

The purpose of the two-year Machine Tool Technology curriculum is to prepare students for entry into machining occupations. Students participating in the program will spend considerable time in study and actual operation of industrial equipment and tools used by machinists. This includes emphasis on the setup and operation of CNC (computer numerical controlled) lathes and milling machines. Students will also be introduced to CAD/CAM (computer assisted design/computer assisted manufacturing) software and its applications. The program is designed to offer a broad background of experiences in the metalworking occupations. Students are expected to have a set of machinist tools. They are expected to maintain a minimum grade level of "C" on core curriculum classes to progress in the program.

### Machine Tool Operator Certificate

The Machine Tool Operator Certificate is an option in the Integrated Metals programs that will provide the student with the basic skill sets necessary for basic entry level positions in a manufacturing company. The program is designed to provide the basic introduction to metal removal using manual machining processes such as milling, turning (lathe), drill press, as well as surface and cylindrical grinding. There is also instruction in basic measurement and blueprint reading. The student will have a basic introduction to CNC machining. Students are expected to have a set of machinist tools. They are expected to maintain a minimum grade level of "C" on core curriculum classes to progress in the program.

### CNC/CAD/CAM Certificate

The Integrated Metals CNC/CAD/CAM Certificate is a block of instruction that prepares the student for work in the world of computerized manufacturing. The student is introduced to the application of computerized equipment for engineering CAD (Computer Assisted Design) design as well as material processing involving CNC burning, CNC turning, and CNC machining centers. This will assist students seeking either entry level skills or skills upgrade for those already working in the metals manufacturing environment. Students seeking this certificate should contact a program advisor for assistance in planning their educational plan. Students will be required to enroll in the listed courses as they are scheduled in the standard Integrated Metals Program and therefore should apply for admissions to the Integrated Metals program. Students are expected to maintain a minimum grade level of "C" on core curriculum classes to progress in the program.

**Welding Technology Certificate**

The courses and certificate options under the Integrated Metals - Welding Technology program are designed to prepare the person with little or no welding skill to enter the welding field with skill, knowledge and confidence. It is also a good choice for those wishing to upgrade their welding skills or to learn a new process. The MHCC Welding Technology curriculum is a day program designed to provide instruction for obtaining AWS Welder Certification in Shielded Metal Arc, Gas Metal Arc, Flux Cored Arc and Gas Tungsten Arc Welding processes. Training in manual and CNC plasma cutting is included. This program provides students the training necessary to successfully complete specified weld test plates in various positions and processes. Students are expected to maintain a minimum grade level of "C" on core curriculum classes to progress in the program.

Students completing the 1 year certificate will have completed nearly one half of the degree requirements for the Integrated Metals AAS (Associate of Applied Science) Degree. Students will also have the opportunity to complete their testing for AWS certification in one or more positions and processes that will provide the skill credential for entry into a position in industry as a certified welder.

**TRANSFER OPTIONS**

Some students transfer to OIT (Oregon Institute of Technology) in either the Manufacturing Engineering or Industrial Management programs. Selected courses transfer to the Bachelor of Science in Manufacturing Engineering Technology program through a formal articulation agreement with OIT. Other options include courses being accepted by OIT on a course-by-course basis depending on the degree sought. If this is your desire, check with program advisors early in your study at MHCC so you may be better served in preparing for transfer to OIT.

## ADMISSIONS GUIDELINES

Admission of all students is centralized in the Admissions, Registration and Records Office. Admission to the college does not guarantee admission to the Integrated Metals programs. The Admissions Office has the final authority on what constitutes equivalency for all admission criteria and has the sole authority to inform students of their admission status. If you have questions regarding admissions procedures please contact the Admissions Evaluator at 503-491-7256.

### DATE OF APPLICATION and PROGRAM OPTIONS

Students may submit applications beginning November 1, 2011. Once applicants have met all program criteria, they are admitted on a first come, first served basis until the program is full. Up to fifteen alternates may be placed onto an alternate list once the program is full. The Integrated Metals program requires that students be admitted to a specific option of study. There are five options in the program: Integrated Metals Degree, Machine Tool Technology Degree, Machine Tool Operator Certificate, CNC/CAD/CAM Certificate, and Welding Technology Certificate.

### TRANSFER CREDITS

Upon acceptance to the program, students who have prior college coursework applicable to their Integrated Metals program may request a transcript evaluation. Transcript evaluation request forms are available in the Admissions, Registration and Records Office or on-line at **http://www.mhcc.edu/Registration.aspx?id=1174.**

## ADMISSIONS CRITERIA

1. **A COMPLETED MHCC INTEGRATED METALS ADMISSION FORM** (Please see Application Packet Checklist.)
2. **SKILLS PROFICIENCY**:
   Success in the program requires certain skill levels in reading, writing and math. The minimum skill proficiencies are equal to:

| | **Completion of** | | **Placement into** |
|---|---|---|---|
| Reading: | Reading 90 | or | Reading 115 |
| Writing: | Writing 90 | or | Writing 115 or Writing 101 |
| Math: | Math 20 | or | Math 60 |

   You can demonstrate your skill proficiencies by **one** of the following ways:

   a. **The Mt. Hood Community College Placement Test (CPT)**
   The CPT is a non-timed skills assessment test given on a walk-in basis. There is no fee to take the CPT, and scores will be available upon completion of the test. For purposes of admission to the Integrated Metals Technology program, the CPT must be taken at Mt. Hood Community College. Applicants who live more than two hours away can take the test by proctor. Please call Testing Services for more information, 503-491-7678. College Placement Test results will remain valid for two years.

**Continued on next page …**

Students who choose to retest in reading, writing or math will need to complete a *Retest Self-Referral Form,* which is available in the Testing Center or Academic Advising and Transfer Center. If your CPT scores indicate you are not ready for the Integrated Metals program, you will be advised to take a course or courses in preparation to begin the program at a later date. Exceptions to the CPT requirement may be made when a program has unfilled positions.

**OR**

b. **Prior college coursework***

The CPT may be waived if an applicant has completed RD90, WR90 and MTH20 with a "C" grade or higher or college level coursework with a "C" grade or higher in writing and math. Official transcripts must be submitted to the Admissions, Registration and Records Office.

**TRANSFER CREDITS**: Upon acceptance to the program, students who have prior college coursework applicable to their Integrated Metals degree / certificates may request a transcript evaluation. Transcript evaluation request forms are available on the web at http://www.mhcc.edu/docs/Graduation/TranEvalRequestform.pdf.

***Transcript Requirements:**

Recent documents: we recommend that you send recently dated official transcripts. Any transcripts received in prior years will not be guaranteed to be on file.

Non-accredited college transcripts: They will not be considered in the initial evaluation of your application nor can they be considered toward any degree requirements.

Transfer coursework from foreign Institutions: Such coursework must be evaluated by the application deadline by an outside credential evaluation service. The evaluation company must be either

AACRAO Foreign Education Credential Service (www.aacrao.org) or a member of the National Association of Credential Evaluation Services (NACES). For a list of NACES memberships, please refer to their web site at www.naces.org. The evaluation must be a course-by-course evaluation with an official copy submitted to the Admissions, Registration and Records Office. The coursework must be considered to be at a post-secondary level, have comparable MHCC accreditation status and be parallel in content to MHCC coursework. The outside evaluation must also be completed for secondary level education for any evaluation of that coursework toward MHCC admission requirements.

## INTEGRATED METALS APPLICATION PACKET CHECKLIST

Name: _____ Email: _____

**Your completed packet should include the following items:**

- ❑ **This Integrated Metals Application Packet Checklist**
- ❑ **MHCC Integrated Metals Admission Form** - **This form is required as part of the limited/restricted entry application process** even if you were or are a student at MHCC.

**SKILLS COMPETENCY DOCUMENTATION** Submit **one** of the following:

- ❑ College Placement Test scores from Mt. Hood Community College
- ❑ Included ❑ On file at MHCC

**OR**

**COLLEGE COURSEWORK** Submit official (unopened) college transcripts. Transcripts must show completion of RD90, WR90 and MTH20, or higher college coursework with a "C" grade or higher.

- ❑ Included ❑ Being mailed. Requested on_____ ❑ On file at MHCC

**Select the option that you are applying for**:

- ❑ Integrated Metals - Associate of Applied Science Degree
- ❑ Integrated Metals – Machine Tool Technology Associate of Applied Science Degree
- ❑ Integrated Metals – Machine Tool Operator 1 Year Certificate
- ❑ Integrated Metals – CNC/CAD/CAM Certificate
- ❑ Integrated Metals – Welding Technology Certificate

**EMAIL ACCOUNT:**

Applicants will need to obtain an email address if they do not already have one. Mt. Hood Community College's Admissions, Registration and Records office will send all application notification by email. If email is not an option, please contact the Integrated Metals admissions evaluator at 503-491-7256**.**

NOTE: It is the applicant's responsibility to set their 'spam filter' system to accept email addresses containing @mhcc.edu. Do this even if currently receiving emails from MHCC. We cannot be responsible for notices which are not received due to spam or junk mail handling.

_____

Applicant's Signature Date

**Return your completed application materials to:**
MHCC – Admissions, Registration and Records
Integrated Metals Application
26000 SE Stark Street
Gresham, OR 97030

# Integrated Metals Student Admission Form

**Admissions, Registration and Records Office, 26000 S.E. Stark Street, Gresham, OR 97030**

This form is required as part of the limited/restricted entry application process even if you were or are a student at Mt. Hood Community College (MHCC).

*Providing your social security number (SSN) is voluntary. If you provide it, Mt. Hood Community College (MHCC) will use your SSN for keeping records, doing research, reporting, extending credit, and collecting debts. MHCC will not use your number to make any decision directly affecting you or any other person. Your SSN will not be given to the general public. If you choose not to provide your SSN, you will not be denied any rights as a student. Please refer to the Disclosure Statement listed on the MHCC Web site at www.mhcc.edu/ssn, which describes how your number will be used. Providing your SSN means that you consent to the use of your number in the manner described. **It will be necessary for you to provide your SSN if applying for federal financial aid, tax credits and the MHCC *Student Installment Note*.**

**Returning Students: MHCC ID Number** _____

*** Social Security Number**___ ___ ___-___ ___-___ ___ ___ ___

**Name** _____
LAST FIRST M.I.

**Previous name(s)** _____

**Address**_____ Apt#_____

_____
CITY STATE ZIP

COUNTY (i.e. Multnomah) _____

**E-mail** _____

**MHCC Major** ___Integrated Metals_____
(see www.mhcc.edu/programs)

**Phone**_____ **Gender**: M ❒ F ❒

**Racial / Ethnic Information:** (Your response is voluntary)
**Do you consider yourself to be Hispanic or Latino:**
❒ Yes ❒ No

**In addition, select one or more of the following racial categories to describe yourself:**
❒-American Indian or Alaskan Native ❒-Asian
❒-African American or Black ❒-White
❒- Native Hawaiian or Other Pacific Islander

**Date of Birth** _____ / _____ / _____

**Mother's Maiden Name**
_____

**Residency Status** – required for assessing tuition charges.
Will you have lived in Oregon 90 days prior to the 1st day of the term?
❒-yes ❒-no **AND, check one below:**

❒-Permanent resident of Oregon, CA, ID, WA or NV
❒-Permanent resident outside of Oregon, CA, ID, WA or NV
❒-International Student (requires an I-20)
❒-International Visitor (B, J, H or other non-student Visa)
Please tell us your Visa type: _____

**Term** Summer ❒ Fall ❒ Winter ❒ Spring ❒
**Year** _____

**Previous college(s) attended**

_____

_____

**What is your attendance history at MHCC?**
❒-New Student
❒-Attended MHCC more than four terms ago

**What is the date (or expected date) of your high school graduation?**
❒ (H)-High School Graduate, Yr _____
❒ (S)-Still in High School, Yr _____

**If GED or Adult High School Diploma, what is the date awarded or expected date?**
❒ (D)-Adult High School Diploma, Yr_____
❒ (G)-GED, Yr _____

**OR**
❒ (N)-Did not complete high school
❒ Check here if Home Schooled

**Name of last high school attended:**
_____

State: _____

**What is the highest level of education / training you have received beyond high school?**
❒ (0)-None
❒ (1)-Some college, short-term training, private vocational school
❒ (2)-1-year certificate from a community college
❒ (3)-2-year degree from a community college
❒ (4)-Bachelor's degree
❒ (5)-Master's degree
❒ (6)-Ph.D. / Professional degree

**Do you plan to earn a degree, certificate or diploma at MHCC?**
❒ (A)-Yes, a 1-year certificate or 2-year degree
❒ (B)-Yes, High School diploma or GED
❒ (C)-No, here to take classes
❒ (D)-Undecided

**Select the one main reason for attending MHCC this term.**
❒ (A)-Take classes to transfer to a 4-year college
❒ (B)-Learn skills to get a job
❒ (C)-Improve existing job skills
❒ (D)-Explore career or educational options
❒ (E)-Take classes to finish High School or GED
❒ (F)-Improve reading, writing or math skills
❒ (G)-Learn English
❒ (H)-Personal interest / enrichment
❒ (I)-Other

**Will you be employed while attending classes this term?**
❒ (F)-Yes, full-time (35+ hours per week)
❒ (P)-Yes, part-time (Less than 35 hours per week)
❒ (N)-No, not employed

**Check here if you are a U.S. Veteran:**
❒ Yes

**"Student Right to Know" information is available at www.mhcc.edu/righttoknow.**
**If you need assistance due to a disability, please contact the Disability Services Office at (503)-491-6923 or at (503)-491-7670 (TDD).**

**A person voluntarily becomes a student at MHCC and thereby assumes the obligation of abiding by the standards prescribed in the "Student Code of Conduct" found at www.mhcc.edu/com.**

**Student Signature**_____Date:_____

**Read before submitting**: I acknowledge I am legally obligated to pay all charges incurred by registering. Charges may include late fees, reasonable collection costs, attorney fees, and Oregon Department of Revenue charges for the collection of all delinquent debts owed to the college. By not paying all charges at the time they are incurred, I acknowledge that this debt is considered education debt/loan and that the educational debt is non-dischargeable under Section 523 (a) (8) of the US Bankruptcy Code. There is no statute of limitation on the collection of educational debt. To have course tuition/fee charges removed, I must process a drop or withdrawal on MyMHCC or through the Admissions, Registration and Records Office within the refund period.

(Form Updated 10/18/11)

# PROPOSED CURRICULUM for 2012-2013
# INTEGRATED METALS – 2 YEAR DEGREE

| | | Credits |
|---|---|---|
| **FIRST QUARTER** | | |
| IMTL110 | Machine Shop I Theory | 3 |
| IMTL111 | Machine Shop I Lab | 3 |
| IMTL114 | Blueprint Reading for the Metals Industry | 4 |
| IMTL116 | Introduction to Precision Measuring | 3 |
| WR101 | Workplace Communications **OR** WR121 English Composition | 3-4 |
| | **TOTAL** | **16-17** |
| **SECOND QUARTER** | | |
| IMTL130 | Machine Shop II Theory | 3 |
| IMTL131 | Machine Shop II Lab | 3 |
| IMTL134 | Metallurgy Theory | 3 |
| IMTL135 | Metallurgy Lab | 1 |
| IMTL136 | Introduction to CNC Machining | 3 |
| | Distribution Requirement‡ | 3 |
| | **TOTAL** | **16** |
| **THIRD QUARTER** | | |
| IMTL150 | Machine Shop III Theory | 3 |
| IMTL151 | Machine Shop III Lab | 3 |
| IMTL153 | CNC (Computer Numerical Control) Machining | 4 |
| IMTL157 | Introduction to Computer-Aided Design for Machinists** | 2 |
| MTH095 | Intermediate Algebra | 5 |
| | **TOTAL** | **17** |
| **FOURTH QUARTER** | | |
| IMTL120 | SMAW (Shielded Metal Arc Welding Stick) Theory | 2 |
| IMTL121 | SMAW (Shielded Metal Arc Welding Stick) Lab | 4 |
| IMTL128 | GTAW (Gas Tungsten Arc Welding, TIG) Theory | 2 |
| IMTL129 | GTAW (Gas Tungsten Arc Welding, TIG) Lab | 2 |
| IMTL215 | Inspection & Measurement | 4 |
| IMTL155 | Industrial Safety | 3 |
| | **TOTAL** | **17** |
| **FIFTH QUARTER** | | |
| IMTL140 | GMAW/FCAW (Gas Metal & Flux Cored Arc Welding, Wire Feed) Theory | 2 |
| IMTL141 | GMAW/FCAW (Gas Metal & Flux Cored Arc Welding, Wire Feed) Lab | 4 |
| IMTL143 | CNC Cutting | 4 |
| IMTL236 | Quality Control – Statistical Methods | 3 |
| PSY101 | Psychology of Human Relations or HUM202 Age of Technology: Ethics in the Workplace | 3 |
| | **TOTAL** | **16** |
| **SIXTH QUARTER** | | |
| IMTL160 | Fabrication Practices Theory | 2 |
| IMTL161 | Fabrication Practices Lab | 3 |
| IMTL163 | Welding Certification Preparation Lab | 4 |
| IMTL256 | Quality Issues – ISO9000 & GDT | 3 |
| HPE295 | Health and Fitness for Life or HE250 Personal Health **OR** HE252 First Aid: Responding to Emergencies | 3 |
| | **TOTAL** | **15** |

Courses listed here are the proposed curriculum for 2011-2012. The official curriculum will be published in the College catalog.

‡ See College Catalog

** Minimal computer literacy required. See program advisor.

**Note:** Students interested in transferring to O.I.T. should consult with program advisors early in the first quarter.

The course requirements for this program are subject to change each academic year. For MHCC certificate/degree requirements, a student must follow the program requirements the year the student is officially admitted to the program or the year the student is completing the program.

*Students in this program are to register for day Integrated Metals core-classes only.*

## PROPOSED CURRICULUM for 2012-2013
## INTEGRATED METALS – MACHINE TOOL TECHNOLOGY - 2 YEAR DEGREE

| | | Credits |
|---|---|---|
| **FIRST QUARTER** | | |
| IMTL110 | Machine Shop I Theory | 3 |
| IMTL111 | Machine Shop I Lab | 3 |
| IMTL114 | Blueprint Reading for the Metals Industry | 4 |
| IMTL116 | Introduction to Precision Measuring | 3 |
| WR101 | Workplace Communications **or** | |
| | WR121 English Composition | 3-4 |
| | **TOTAL** | **16-17** |
| **SECOND QUARTER** | | |
| IMTL130 | Machine Shop II Theory | 3 |
| IMTL131 | Machine Shop II Lab | 3 |
| IMTL134 | Metallurgy Theory | 3 |
| IMTL135 | Metallurgy Lab | 1 |
| IMTL136 | Introduction to CNC Machining | 3 |
| | Distribution Requirement‡ | 3 |
| | **TOTAL** | **16** |
| **THIRD QUARTER** | | |
| IMTL150 | Machine Shop III Theory | 3 |
| IMTL151 | Machine Shop III Lab | 3 |
| IMTL153 | CNC (Computer Numerical Control) Machining | 4 |
| IMTL157 | Introduction to Computer-Aided Design for Machinists** | 2 |
| MTH095 | Intermediate Algebra | 5 |
| | **TOTAL** | **17** |
| **FOURTH QUARTER** | | |
| IMTL155 | Industrial Safety | 3 |
| IMTL215 | Inspection and Measurement | 4 |
| MFG213 | Integrated Machine Shop I Theory | 2 |
| MFG214 | Integrated Machine Shop I Lab | 3 |
| MFG216 | CNC/CAM Applications | 4 |
| | **TOTAL** | **16** |
| **FIFTH QUARTER** | | |
| IMTL236 | Quality Control - Statistical Methods | 3 |
| MFG212 | CAM Concepts I | 4 |
| MFG231 | Integrated Machine Shop II Theory | 2 |
| MFG232 | Integrated Machine Shop II Lab | 3 |
| WLD116 | General Welding I | 3 |
| | **TOTAL** | **15** |
| **SIXTH QUARTER** | | |
| IMTL256 | Quality Issues: ISO 9000 and GDT (Geometric Dimensioning and Tolerancing) | 3 |
| MFG250 | Applied Machine Shop Theory | 3 |
| MFG251 | Applied Machine Shop Lab | 3 |
| HPE295 | Health and Fitness for Life or HE250 Personal Health or HE252 First Aid: Responding to Emergencies | 3 |
| | Human Relations requirement‡ | 3 |
| | **TOTAL** | **15** |

Courses listed here are the proposed curriculum for 2011-2012. The official curriculum will be published in the College catalog.

** Minimal computer literacy required. See program advisor.

‡ See College Catalog

**Note:** Students interested in transferring to O.I.T. should consult with program advisors early in the first quarter.

The course requirements for this program are subject to change each academic year. For MHCC certificate/degree requirements, a student must follow the program requirements the year the student is officially admitted to the program or the year the student is completing the program.

*Students in this program are to register for day Integrated Metals core-classes only.*

## PROPOSED CURRICULUM for 2012-2013
## INTEGRATED METALS – MACHINE TOOL OPERATOR - 1 YEAR CERTIFICATE

| **FIRST QUARTER** | **Credits** |
|---|---|
| IMTL110 Machine Shop I Theory | 3 |
| IMTL111 Machine Shop I Lab | 3 |
| IMTL114 Blueprint Reading for the Metals Industry | 4 |
| IMTL116 Introduction to Precision Measuring | 3 |
| IMTL155 Industrial Safety | 3 |
| WR101 Workplace Communications or WR121 English Composition | 3-4 |
| **TOTAL** | **19-20** |
| **SECOND QUARTER** | |
| IMTL130 Machine Shop II Theory | 3 |
| IMTL131 Machine Shop II Lab | 3 |
| IMTL134 Metallurgy Theory | 3 |
| IMTL135 Metallurgy Lab | 1 |
| IMTL136 Introduction to CNC Machining | 3 |
| MTH095 Intermediate Algebra | 5 |
| **TOTAL** | **18** |
| **THIRD QUARTER** | |
| IMTL150 Machine Shop III Theory | 3 |
| IMTL151 Machine Shop III Lab | 3 |
| IMTL153 CNC (Computer Numerical Control) Machining | 4 |
| Human Relations requirement ‡ | 3 |
| **TOTAL** | **13** |

Courses listed here are the proposed curriculum for 2011-2012. The official curriculum will be published in the College catalog.

‡ See college catalog.

Note: Students interested in transferring to O.I.T. should consult with program advisors early in the first quarter.

The course requirements for this program are subject to change each academic year. For MHCC certificate/degree requirements, a student must follow the program requirements the year the student is officially admitted to the program or the year the student is completing the program.

## PROPOSED CURRICULUM for 2012-2013
## INTEGRATED METALS –CNC/CAD/CAM CERTIFICATE

| Students completing the following block of courses will be Eligible for the CNC/CAD/CAM Certificate | **Credits** |
|---|---|
| **FIRST QUARTER - WINTER** | |
| IMTL136 Introduction to CNC Machining | 3 |
| IMTL143 CNC (Computer Numerical Control) Cutting | 4 |
| **SECOND QUARTER - SPRING** | |
| IMTL153 CNC Machining | 4 |
| IMTL157 Introduction to CAD (Computer Aided Design) | 2 |
| **THIRD QUARTER - FALL** | |
| MFG216 CNC/CAM | 4 |
| MTH095 Intermediate Algebra | 5 |
| **FOURTH QUARTER - WINTER** | |
| MFG212 CAM (Computer Assisted Machining) Concepts I | 4 |
| **TOTAL** | **26** |

*Students in these programs are to register for day Integrated Metals core-classes only.*

## PROPOSED CURRICULUM for 2012-2013
## INTEGRATED METALS – WELDING TECHNOLOGY
## 1-YEAR CERTIFICATE DAY PROGRAM

| | Credits |
|---|---|
| **FIRST QUARTER** | |
| IMTL124 Blueprint Reading for the Welding Applications | 4 |
| IMTL120 SMAW (Shielded Metal Arc Welding, Stick) Theory | 2 |
| IMTL121 SMAW (Shielded Metal Arc Welding, Stick) Lab | 4 |
| IMTL128 GTAW (Gas Tungsten Arc Welding, TIG) Theory | 2 |
| IMTL129 GTAW (Gas Tungsten Arc Welding, TIG) Lab | 2 |
| WR101 Workplace Communications or WR121 English Composition | 3-4 |
| **TOTAL** | **17-18** |
| **SECOND QUARTER** | |
| IMTL134 Metallurgy Theory | 3 |
| IMTL135 Metallurgy Lab | 1 |
| IMTL140 GMAW/FCAW (Gas Metal & Flux Cored Arc Welding, Wire Feed)Theory | 2 |
| IMTL141 GMAW/FCAW (Gas Metal & Flux Cored Arc Welding, Wire Feed)Lab | 4 |
| IMTL143 CNC Cutting | 4 |
| MTH060 Beginning Algebra I | 4 |
| **TOTAL** | **18** |
| **THIRD QUARTER** | |
| IMTL152 Welding Processes and Procedures | 2 |
| IMTL160 Fabrication Practices Theory | 2 |
| IMTL161 Fabrication Practices Lab | 3 |
| IMTL163 Welding Certification Preparation Lab | 4 |
| MTH065 Beginning Algebra II | 4 |
| PSY101 Psychology of Human Relations or HUM202 Age of Technology – Ethics in the Workplace | 3 |
| **TOTAL** | **18** |

Courses listed here are the proposed curriculum for 2011-2012. The official curriculum will be published in the College catalog.

**Note:** Students interested in transferring to O.I.T. should consult with program advisors early in the first quarter.

The course requirements for this program are subject to change each academic year. For MHCC certificate/degree requirements, a student must follow the program requirements the year the student is officially admitted to the program or the year the student is completing the program.

*Students in this program are to register for day Integrated Metals core-classes only.*

## REQUIRED TOOL LIST

The following tools are required for training in both the Integrated Metals and Machine Tool Technology options. Note that students seeking the Integrated Metals degree will also be required to have the tools for welding listed on page 16. The tools on this list represent a basic job entry requirement, some jobs may require more but few require less. Students are advised to wait for the vendor list that will be available the first day of lab classes. Tools will not be required until safety tests and lab orientation is completed.

We encourage students to buy quality precision tools that should last a lifetime, anything less may not satisfy accuracy requirements or have a short life expectancy. Our advisory committee strongly suggests students have their own tools and learn to care for them properly.

| Buy one of each item listed below | These are the acceptable brands with ID numbers |
|---|---|
| Safety Glasses | ❑ Any (ANSI Z87.1) |
| Lock | ❑ Any |
| Adjustable Wrench 10” | ❑ Crescent (AC110BK)<br>❑ Proto (J710)<br>❑ Armstrong (28-410) |
| Hex Key Metric to 10 mm (Long Handle) | ❑ Eklind (10213)<br>❑ Bondus (J710)<br>❑ Allen (56081) |
| Hex Key Metric to 10mm (Long Handle) | ❑ Eklind (10213)<br>❑ Bondus (12137)<br>❑ Allen (56149) |
| Screwdriver ¼ “ Straight Blade | ❑ Stanley (66-164)<br>❑ Proto (J88004)<br>❑ SK (81002)<br>❑ Armstrong (66-156) |
| Screwdriver #2 Phillips | ❑ Stanley (64-102)<br>❑ Proto (88324B)<br>❑ SK (8)<br>❑ Armstrong (66-156) |
| Slip Joint Pliers | ❑ Channellock (526)<br>❑ Proto (J276G)<br>❑ Armstrong (67-657) |
| Ball Peen Hammer 12oz. | ❑ Proto (J1312PD)<br>❑ Armstrong (69-446)<br>❑ Vaughan (15430) |
| Prick Punch ¼” | ❑ Proto (J441-4)<br>❑ Armstrong (70-251)<br>❑ Starrett (816A) |
| Center Punch 5/16th | ❑ Proto (J413-8)<br>❑ Armstrong (70-235)<br>❑ Starrett (117D) |
| Scribe | ❑ General (88CM) |

| Buy one of each item listed below | These are the acceptable brands with ID numbers |
|---|---|
| Measuring Tape 12” | ❑ Lufkin (2212)<br>❑ Stanley (33-212)<br>❑ Starrett (827A) |
| Edge Finder 3/8” Shank .2000” Tip | ❑ Mitutoyo (MTI 050101)<br>❑ Fisher (Model “A”)<br>❑ Starett (827A) |
| Steel Rule Flexible 6” 4R | ❑ Mitutoyo (182 203)<br>❑ Starrett (C304R-6)<br>❑ PEC (401-006) |
| Combination Square Set (4 piece) | ❑ Mitutoyo (108-905)<br>❑ Starrett (C434-12-4R) |
| Micrometer 0-1” .0001 Grad. Carbide Faces | ❑ Mitutoyo (103-260)<br>❑ Mitutoyo (103-135)<br>❑ Starrett (T436XRL-2)<br>❑ Starrett (T436CFL-1) |
| Micrometer 1-2” .0001 Grad. Carbide Faces | ❑ Mitutoyo (103-262)<br>❑ Mitutoyo (103-135)<br>❑ Starrett (T436XRL-2)<br>❑ Starrett (T436XFL-2) |
| Caliper .001 Grad. 6 inch<br>Dial<br>Dial<br>Digital | <br>❑ Mitutoyo (505-637-56)<br>❑ Starrett (120-6)<br>❑ Mitutoyo (500-196-20) |
| Magnetic Base | ❑ SPI (98-281-9)<br>❑ Mitutoyo (7010SN)<br>❑ Noga (10100D) |
| Dial Indicator 0-1” Range .0001 Grad. | ❑ SPI (24-333-7)<br>❑ Mitutoyo (2416F)<br>❑ Starrett (25 441J)<br>❑ Teaclock (A1-921) |
| Tool Box | ❑ Kennedy (526) |
| ½” Square HSS Tool Bit (3) | ❑ Any HSS |

## PROGRAM COSTS

All costs may vary. Books and lab fees may change depending on selected course and section. Tool cost may change depending on supplier.

These costs are estimates and are subject to change without notice. The costs listed reflect tuition but not the other costs associated with required general or related electives.

Students who drive to school need to calculate in the **Parking Permit fee** of $25 per term to the program total cost.

| **TWO YEAR COST SHEET** | |
|---|---|
| **Integrated Metals** | |
| Tuition | $8,845.50 |
| Books | $1,740.00 |
| Lab Fees | $705.00 |
| Tools | $1,575.00 |
| College Service Fee | $180.00 |
| **TOTAL** | **$13,045.50** |

| **ONE YEAR COST SHEET** | |
|---|---|
| **Machine Tool Operator Certificate** | |
| Tuition | $4,491.25 |
| Books | $975.00 |
| Lab Fees | $325.00 |
| Tools | $1,050.00 |
| College Service Fee | $ 90.00 |
| **TOTAL** | **$6,931.25** |

| **TWO YEAR COST SHEET** | |
|---|---|
| **Machine Tool Technology** | |
| Tuition | $8,677.50 |
| Books | $1,550.00 |
| Lab Fees | $610.00 |
| Tools | $1,050.00 |
| College Service Fee | $180.00 |
| **TOTAL** | **$12,067.50** |

| **ONE YEAR COST SHEET** | |
|---|---|
| **Welding Technology Certificate** | |
| Tuition | $4,800.75 |
| Books | $275.00 |
| Lab Fees | $365.00 |
| Tools See **Required Equipment and Supplies** | |
| College Service Fee | $ 90.00 |
| **TOTAL** | **$5,530.75** |

| **CNC/CAD/CAM Certificate** | |
|---|---|
| Tuition | **$2,385.50** |

## REQUIRED EQUIPMENT AND SUPPLIES FOR WELDING TECHNOLOGY

| | | | |
|---|---|---|---|
| GTAW (TIG) Gloves | $9.23 | Work Gloves | $5.50 |
| GTAW (TIG) Torch Kit (10 pk. 3/32" pure, 10 pk. 3/32"2% thoriated, back cap, 4-3/32" collets, 2-3/32" collet bodies, nos. 6, 7 & 8 nozzles | $65.00 | One Dozen 4-1/2" Grinding wheels (for steel) | $32.00 |
| 4 Stainless Steel Wire Brushes (toothbrush size) | $12.00 | 4-1/2" Angle Grinder | $36.00 |
| Gauge Wheel (for determining gauge metal thickness) | $14.00 | MIG Needle Nose Pliers w/side cutter (Multitool or Welper) | $21.00 |
| Welding Cap | $8.00--$12.00 | Tool/Helmet Bag | $11.00 |
| Padlock (combination style) | $4.50 | Ear Plugs (box) | $15.75 |
| Hammer, 2 lb. Ball Peen | $8.50 | Carhart Heavy Duty Overall | $39.99 |
| Burning Goggles (with #5 lens) | $8.25 | Tape Measure 25' | $8.50 |
| Carrera Auto-Darkening Helmet (black) | $75.00 | Adjustable Open-End Wrench 10" | $7.00 |
| One Dozen Spare Cover Lenses *(for Carrera helmet)* | $12.00 | Aluminized Hand Pads | $6.75 |
| Leather Welding Jacket (XXL and larger add $4.00) | $45.00 | Hex Key Set | $6.50 |
| 12LC Vice-Grip (curved jaw) | $19.00 | Liquid Paper Correction Pen | $4.50 |
| 11R Vice-Grip (C-clamp style) | $19.00 | Leather Welding Gloves *(good quality)* | $8.50 |
| Slag Hammer | $4.50 | Soapstone and Holder | $1.35 |
| Safety Glasses | $5.00 | Fillet Weld Gauges | $19.25 |
| Tip Cleaner Sets (WYPO ONLY!!) | $3.00 | Combination Square | $18.00 |
| Single Flint Striker | $2.25 | Steel-Toed Boots, 8" high | $65.00 |
| Steel Wire Brush (standard size) | $2.25 | 3-Ring Binder, 2-1/2" | $5.00 |
| **WELDING TOOL LIST TOTAL: $652.07 – $656.07** | | | |

*The above items are available at any welding supply store, but are quite specific with regard to style, configuration and quality. Some of the safety clothing is available at department stores or uniform shops.* ***THE ABOVE COSTS ARE APPROXIMATE AND ARE SUBJECT TO CHANGE WITHOUT NOTICE.*** *Equipment for WLD116 General Welding and other single classes is not as extensive, is the subject of a separate list and will be covered the first day of class. Please wait for Student orientation the first week and consult with your instructor* ***BEFORE YOU BUY ANY ITEM ON THIS LIST!***

## HELPFUL HINTS FOR SUCCESS

**GOING TO SCHOOL IS LIKE A FULL-TIME JOB!**
Some students expect their 12- 18 hours of class time per week to feel like a part-time job. When you add the 1-3 hours of homework for each class hour, you end up with the equivalent of a full-time job!

**BEING A STUDENT IS HARD WORK**
The numerous responsibilities of school, work, family, child care, friends and so on can combine to create "killer stress". Scheduling time for relaxation is important.

**COLLEGE IS A NEW WORLD**
Learning how the college operates is also part of the process of your education. Reading directions, asking questions, allowing plenty of time, and being patient can help you be successful.

**STUDY SKILLS**
To enhance your success with your coursework, many former students recommend taking a class called Study Skills. The class teaches techniques to assist you in preparing for examinations, taking notes and reading for understanding. Another class that would be very beneficial would be keyboarding. Much of your coursework will involve computers and typing is a critical part of working efficiently.

**CHECK OUT FINANCIAL AID**
Everyone qualifies for some kind of aid. All students should file the FASFA form as early as possible in planning their enrollment in college programs. Early filing will alleviate delays in financial aid awards as the new school year and term begins. Federal programs include grants, loans, and work-study options. We also offer many kinds of scholarships. Call 503-491-7262 for more details.