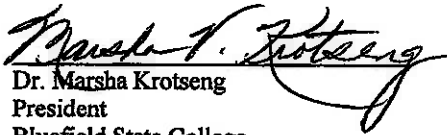



ARTICULATION AGREEMENT


**Monroe County Technical Center
Computer Integrated Manufacturing Program**

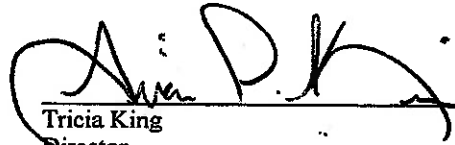
**Bluefield State College
Engineering Technology and Computer Science**

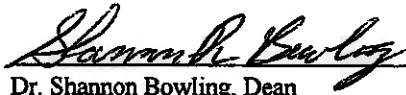
Entered into this 1 day of May, 2015
(date) (month)



Dr. Marsha Krotseng
President
Bluefield State College


Joetta Basile
Superintendent
Monroe County Schools


Dr. Zak Hossain, Provost
Vice President of Academic Affairs
Bluefield State College


Tricia King
Director
Monroe County Technical Center


Dr. Shannon Bowling, Dean
School of Engineering Technology
and Computer Science
Bluefield State College


David Williams
CIM Instructor
Monroe County Technical Center

This agreement is effective with new Bluefield State College admits Fall 2015.

This agreement will be reviewed biennially.

ARTICULATION AGREEMENT

Monroe County Technical Center and Bluefield State College, Engineering Technology and Computer Science.

Monroe County Technical Center (hereafter referred to as MCTC), a technical education center in Lindsie, WV and Bluefield State College (hereafter referred to as BSC), a college in Bluefield, West Virginia agree to offer an articulated program allowing students who have complete specified classes in the Computer Integrated Manufacturing Program (hereafter referred to as CIM), at MCTC to transfer credits into the Engineering Technology Program at Bluefield State College. They further agree that students from MCTC will be accepted in the A.S. and/or B.S. Engineering Technology program given that the students meet the required acceptance criteria. The following general principles guide the operation of this Agreement:

1. The program is designed for student who have complete courses in the CIM Program at MCTC. A maximum of 19 credit hours from MCTC will be allowed toward fulfillment of the minimum 120 credit hours required for baccalaureate completion at BSC.
2. Students must maintain a 3.0 cumulative grade point average in order to transfer courses.
3. Students must complete and submit a provisional enrollment form from BSC to receive transfer credit. Students must then register for the equivalent transfer course(s) as a fee waiver course at BSC.
4. MCTC students who have completed the CIM Program will be given every consideration for financial assistance and will be eligible to compete for academic scholarships once they are enrolled as a full-time student at BSC.
5. This agreement becomes effective on the date set forth on the first page of this document. MCTC and BSC agree to publicize this program. They further agree to monitor the performance of this agreement and to revise it as necessary. The agreement may be terminated for due cause by either party 60 days after written notice is received. Termination of the agreement will not affect any students currently enrolled at MCTC in the CIM Program at the time of termination, and they shall be able to transfer credits pursuant to this agreement.

PURPOSE OF AGREEMENT

This agreement is entered into to serve the instructional needs of MCTC students and graduates. The general purpose of this agreement is to make clear the terms of this articulation agreement.

There are three specific goals under this agreement. First, it is the intent that this articulation agreement will facilitate a smooth transition from MCTC CIM Program to Engineering Technology programs at BSC as efficiently as possible. MCTC graduates will understand how BSC transfers the credits they earn at MCTC, as well as the changes in requirements that may permit more flexible scheduling once the student has been admitted to and enrolled at BSC. This agreement provides a systematic plan for students to continue their higher education beyond the certificates from MCTC.

Second, this agreement is a publication of a clear set of understandings and expectations for both institutions and programs. Making our expectations clear to students and between institutions not only contributes to the first goal, but also allows institutions to work collaboratively to meet the needs of MCTC graduates. Like any policy agreement, this articulation agreement will need to be updated, revised and refined as instructional programs are revised.

Third, MCTC encourages graduates to continue their educational pathway for both personal and professional development, as well as career advancement in a technical profession. This articulation agreement facilitates students' successful achievement of credentials in the field.

The following sections describe the specifics of the agreement.

Transfer Courses from MCTC CIM to BSC

The following courses will transfer from MCTC CIM into BSC Engineering Technology Program

CIM I 2031 Engineering Drafting	MEET 111 Engineering Drafting
CIM II 2032 Computer Aided Drafting	MEET 112 Computer Aided Drafting
CIM III 2033 Manufacturing Processes	MEET 201 Manufacturing Processes
CIM IV 2034 CNC Manufacturing	MEET 202 Computer Aided Manufacturing
CIM VII 2037 Advanced CAD	ENGR Technical Elective
Technical Mathematics Material covered from CIM 1,2,3,4,7	GNET 115 Technical Mathematics

Course descriptions of MCTC classes and BSC classes.

2031 CIM I Engineering Drafting

Introduces students to engineering design concepts and applies ANSI engineering standards and techniques to the design process. Students are involved in preparing complex drawing, selecting materials, detailing designs, and technical writing specifications. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are required to become active members of the student organizations, WV Skills USA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

2032 CIM II Computer Aided Drafting

Introduces students to generate graphics by interactive communication and countless methods and tools for producing, viewing, and editing two-dimensional drawings and three-dimensional models. The software permits the students to create, revise, model, and document industrial parts and assemblies for prototyping, mold-making, and manufacturing. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are required to become active members of the student organizations, WV Skills USA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

2033 CIM III Manufacturing Processes

The manufacturing process course is divided into two categories:

1. **Materials and Processes** which introduces the students to a solid introduction into the fundamentals of manufacturing processes and the concepts that enable these processes to produce quality products in a competitive manner. **Materials, Measurement & Quality Assurance, Casting Processes, Forming Processes, Material Removal Processes, Joining Processes, & Processes Related to Manufacturing.**
2. **Machining fundamentals** which furnish students with actual hands-on experience in modern machine shop practices which include: turning, milling, drilling, sawing, shaping & abrasive machining. This enables the student to plan and carry through the operations needed to turn out a product, and to switch readily from one job or product to another.

Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are required to become active members of the student organizations, WV Skills USA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

2034 CIM IV CNC Manufacturing

Introduces students to new manufacturing technology that has resulted from the concepts of **automation** and **integration** in manufacturing. The students discover that CNC equipment is among the most sophisticated machinery a company owns. The students are taught the basic principles of programming CNC equipment, setup applications, manual programming (G & M codes), and computer-assisted programming which consist of a

CAD/CAM workstation utilizing FeatureCAM, SolidCAM, SolidWorks, Inventor & InventorCAM software. The students use hands-on training sessions in a lab which consists of a Enco CNC lathe, Enco CNC turret lathe, Enco CNC mill, Intelitek 3-Axis CNC Vertical milling center, Intelitek 2-Axis CNC turning center and a micro robot. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are required to become active members of the student organizations, WV Skills USA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship, and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

BSC Equivalent Courses

MEET 111 Engineering Drafting

Designed to develop the student's ability to read and draw orthographic projections including sectional and auxiliary views and freehand sketches. Emphasis is placed on industrial drafting practices including techniques which show principles of design and fabrication. Dimensioning, notations, and precision in lettering are also stressed.

MEET 112 Computer Aided Drafting

General introduction to the principles of computer aided drafting including the study of CAD system components, entity creation, and methods of editing and manipulation, with the major emphasis placed on hands-on practice in the CAD laboratory.

MEET 201 Manufacturing Processes

A study of the commonly used methods of manufacturing. These methods include casting, stamping, welding, rolling, forging, extrusion and machining. Laboratory experiments allow the student to perform actual manufacturing processes.

MEET 202 Computer Aided Manufacturing

A study of the basic concepts of automation. These concepts include machine language, computer programming, computer process monitoring, process-computer interfaces, and automation problem solving. The laboratory will consist of team problem solving in automation and the actual operation of CAM system.

ENGR Technical Elective

Technical electives are courses of a technical nature that support the student's career interests, such as additional mathematics, basic sciences, engineering technology courses in the student's own or other disciplines, computer science, etc. Sound professional judgment is expected in the student-advisor role when choosing electives.

GNET 115 Technical Mathematics I

A study of fundamental algebraic concepts and operations, functions and graphs, trigonometric functions and their graphs, linear equations and determinates, factoring, fractions, vectors, and triangles.

Overview and Summary

For students following this agreement, the steps are as follows:

Step 1: Enroll in Computer Integrated Manufacturing Program at MCTC.

Step 2: Complete and submit a provisional enrollment form from BSC.

Step 3: Register for the equivalent transfer course(s) as a fee waiver course at BSC.

Step 4: Complete the required course(s) and obtain at least a 3.0 GPA in all courses offered.

Step 5: Apply for admission at BSC in an Engineering Technology program and provide BSC with copy of official transcripts.

Students should link to www.bluefieldstate.edu to begin the admissions process.