



ARTICULATION AGREEMENT



College Tech Prep Program

Montgomery County Public Schools Program: **Network Operations**
 Montgomery College Programs: **Network and Wireless Technologies A.A.S.: Wireless Technologies Track: 354A; Microsoft Track: 354B; Cisco Track: 354C; Microcomputer Technician Certificate: 210; Network Engineer Certificate: Microsoft Windows System Administrator (MCSA) Track: 215A; Cisco Certified Network Associate (CCNA) Track: 215B**

INTRODUCTION: In the past several years, technological advances have changed the processes and equipment used in a growing number of technical fields. Today's workforce is confronted with diverse and complex technical concepts and equipment and must have a broad understanding of the comprehensive principles that govern the behavior of the systems and subsystems that make up the work environment.

Administration, curriculum coordinators, and the respective faculties of Montgomery County Public Schools (MCPS) and Montgomery College (MC) have examined the course competencies and content taught at both institutions in **Network Operations** and **Network and Wireless Technologies** and have agreed to develop, for the maximum benefit of students, an articulated program in **Network Operations** to prepare students for careers in microcomputer installation, configuration and control systems, wired and wireless network installation, configuration, operation, and troubleshooting. Students completing a two semester sequence should be able to pass the vendor-neutral CompTIA A+ and Network+ examinations. These certifications are rapidly becoming part of the basic credentials that help those going into network management.

CERTIFICATION: Students who wish to enter Montgomery College will present an official high school transcript attached to a completed Articulation Agreement Credit Award Form verifying successful completion of the articulated courses with a grade of B or better and appropriate certificates as described below to Lesley Robinson, Montgomery County Public Schools, Office of Curriculum and Instruction, 850 Hungerford Drive, Rockville, MD 20850. Students will receive credit if they enroll at MC within five years of the date of his/her receipt of the A+ and/or Network+ Certifications as shown on said certificate. Credit will be transferred upon admission into MC in an applicable program.

MCPS PROGRAM	APPLICABLE MC PROGRAMS
Network Operations	<p>Network and Wireless Technologies A.A.S.: Wireless Technologies Track: 354A; Microsoft Track: 354B; Cisco Track: 354C; Microcomputer Technician Certificate: 210; Network Engineer Certificate: Microsoft Windows System Administrator (MCSA) Track: 215A; Cisco Certified Network Associate (CCNA) Track: 215B</p>

MCPS COURSES	CORRESPONDING MC COURSES
4202 Network Operations (1.5 credits) <i>and</i> 4203 Network Operations (1.5 credits) <i>or</i> 4242/4243 Network Operations (2 credits) <i>and</i> 4244 Network Operations (1 credit)	NW 127 Microcomputer Control Programs (3 credits) <i>and</i> NW 140 Microcomputer Configuration and Installation (3 credits) <i>and</i> NW 151 Introduction to Networking (3 credits)

OTHER SPECIAL CONSIDERATIONS:

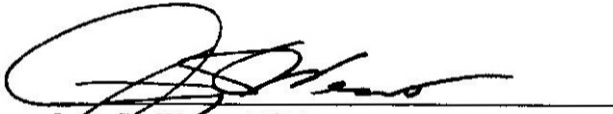
Students seeking Montgomery College credits under this Articulation Agreement must additionally provide satisfactory evidence of having passed certain CompTIA examinations, via original exam score sheets or certificates, for articulated courses to be awarded, as follows:

Montgomery College Course	Required CompTIA Certification
NW 127 <i>and</i> NW 140	A+ Certification
NW 151	Network+ Certification

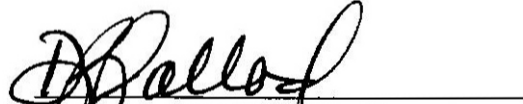
IMPLEMENTATION: To implement this agreement, the participating institutions agree to:

1. Offer approved Montgomery County Public Schools courses during grades nine through twelve in mathematics, science, and technology that include prerequisite skills and content for courses offered in the Montgomery College curriculum in the Network and Wireless Technologies Programs. Students will be encouraged to pursue a challenging academic program in grades nine through twelve. Students may be required to take developmental courses in English, reading, and mathematics before moving on to the next level course in their chosen MC program.
2. Upon completion of the specific MCPS technical courses, outlined in this agreement, students may receive college credit if they enroll at MC within five years of the date of his/her receipt of the applicable required CompTIA Certification as shown on said certificate.
3. Jointly develop promotional materials to describe the program to students, staff, faculties, parents, and the community.
4. Jointly develop and implement a procedure to monitor, evaluate, and assess the effectiveness of the program.
5. Communicate this agreement to all concerned, including counselors, faculty, students, and parents.
6. Designate one MCPS administrator and one MC representative with responsibility for coordinating and supervising the agreement.
7. Review the agreement annually and coordinate any curricular changes that may affect the agreement.

THIS AGREEMENT, having been formulated by the responsible faculties and administrative personnel of the Montgomery County Public Schools and Montgomery College, and having been certified by the chief academic officers of both institutions, is herewith agreed to for implementation beginning with the most recent date inscribed below.



Jeffrey D. Weast, Ed.D.
Superintendent of Schools
Montgomery County Public Schools



DeKenne P. Pollard, Ph. D.
President
Montgomery College

10/13/10
Date

1-20-11
Date



Articulation Agreement Credit Award Form

College Tech Prep Program



MCPS Program: Network Operations

MC Programs: **Network and Wireless Technologies A.A.S.: Wireless Technologies Track: 354A; Microsoft Track: 354B; Cisco Track: 354C; Microcomputer Technician Certificate: 210; Network Engineer Certificate: Microsoft Windows System Administrator (MCSA) Track: 215A; Cisco Certified Network Associate (CCNA) Track: 215B**

Montgomery County Public Schools and Montgomery College have an articulation agreement for the **Network Operations** and **Network and Wireless Technologies** programs. Students may earn up to nine college credits toward their college degrees through the **Network and Wireless Technologies** College Tech Prep Program if they maintain a B average or better in the high school portion of these. Students will receive advanced standing credit upon their full admission to the College in the relevant degree programs listed below.

Student Name: _____

Student E-Mail: _____

Address: _____

Home Phone: _____

City, State, Zip: _____

Cell Phone: _____

High School Attended: _____

Date of High School Graduation: _____

High School Official Signature and Title: _____

Date: _____

Certification:

1. Students should obtain a copy of the appropriate Articulation Agreement Credit Award Form from their Tech Prep teacher.
2. Students must complete the form and mark the letter grade obtained for each articulated course.
3. Students must return the completed Articulation Agreement Credit Award Form and their A+ and/or Network+ certifications to their Tech Prep teacher.
4. The Tech Prep teacher will check grades for accuracy, sign the form, and forward the form and certifications to the registrar at the student's home school.

5. The registrar will attach a copy of the student’s official transcript to the Articulation Agreement Credit Award Form and certifications and mail it to Lesley Robinson, Montgomery County Public Schools, Office of Curriculum and Instruction, 850 Hungerford Drive, Rockville, MD 20850.

Please check the appropriate Montgomery College curriculum.	Please indicate grade received for high school courses. (Must be a B or better to earn articulated credit)	Check CompTIA certification tests passed. Must provide score sheet of passed certifications as follows to earn articulated credit for the respective courses shown: A+ - NW 127/NW 140 Network+ - NW 151	Corresponding college courses. Check course(s) for which credit has been earned
Network and Wireless Technologies A.A.S.: Wireless Technologies Track 354A; Microsoft Track: 354B; Cisco Track: 354C; Microcomputer Technician Certificate: 210	4202 Network Operations A, TP (1.5 credits) <i>or</i> 4242/4243 Network Operations 1, DP (2 credits)	CompTIA A+ Certification	NW 127 Microcomputer Control Programs (3 credits) <i>and</i> NW 140 Microcomputer Configuration and Installation (3 credits)
Network Engineer Certificate: Microsoft Windows System Administrator (MCSA) Track: 215A Cisco Certified Network Associate (CCNA) Track: 215B	4203 Network Operations B TP (1.5 credits) <i>or</i> 4244 Network Operations 2, DP (1 credit)	CompTIA Network+	NW 151 Introduction to Networking (3 credits)

Note: Some of these courses may not transfer to four-year institutions. DP = double period; TP = triple period. Students may also be required to pass industry certifications before earning credits under this agreement.

MCPS Program: Network Operations
MC Program: Network Engineer Certificate, Microsoft Windows
System Administrator (MCSA) Track: 215A

HIGH SCHOOL PROGRAM PLANNER

Grade 9	Grade 10	Grade 11	Grade 12
English	English	English	English
Social Studies	Social Studies	Social Studies	Social Studies (elective)
Algebra I Geometry	Geometry Algebra 2 w/ Analysis	Algebra 2 Precalculus w/ Analysis	Precalculus AP Calculus
Science (PC) Matter & Energy	Science (BC) Biology	Science (PC) Chemistry	Science (Elective) Physics (PC)
Physical Education	Health (.5) Elective (.5)	Network Operations A (1.5) Network Operations B (1.5) Triple Period	Network Operations Elective (1),* <i>or</i> Network Operations Guided Research (1), <i>or</i> Network Operations Internship (1)
Technology Education	Fine Arts (1)		
Foreign Language	Foreign Language		

*Network Operations Electives

- Web Site Development
- Discovering Programming Concepts
- Computer Programming 1
- Digital Electronics
- Microcomputer Technologies-Computer Maintenance



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COLLEGE PROGRAM PLANNER

Network Engineer Certificate, Microsoft Windows System Administrator (MCSA) Track: 215A

This career curriculum prepares technically skilled individuals in network engineering and administration. Graduates complete a comprehensive program preparing them for positions involving client needs assessment, network design, network installation and maintenance, internetwork communication and connectivity, specialized network functions, and on-site network administration. Extensive classroom work and lab experience—mirroring real-world production network scenarios—augment academic instruction. This curriculum helps prepare students for the CompTIA A+, CompTIA Network+, CompTIA Security+, Microsoft Certified Professional (MCP), Microsoft Certified Systems Administrator (MCSA), and/or Cisco Certified Network Associate (CCNA) certification exams. Completion of courses leading to the award of the network engineer certificate include 36 credit hours of courses, with 30-31 required credits and 6 credits of selected electives that meet program specifications.

Fundamental Requirements (30-31 Credit Hours)

CS 136	Systems Analysis and Design	3
CS 140	Introduction to Programming	3
NW 127	Microcomputer Control Programs	3
NW 140	Microcomputer Configuration and Installation	3
NW 151	Introduction to Networking	3
NW 170	Network Operating Systems	3

Microsoft Windows System Administrator (MCSA) Track: 215A

NW 199	Microsoft Windows Client Operating System	3
NW 203	Microsoft Windows Server	3
NW 204	Supporting Microsoft Windows Network Infrastructure	3
NW 205	Implementing and Administering Microsoft Windows Directory Services	3

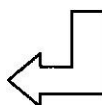
Select from the Following List (6 Credits):

CS 216	UNIX Operating System	3
NW 173	Network Security	4
NW 199	Microsoft Windows Client Operating System	3
NW 203	Microsoft Windows Server	3
NW 204	Supporting Microsoft Windows Network Infrastructure	3
NW 205	Implementing and Administering Microsoft Windows Directory Services	3
NW 252	Cisco Routers and Routing Basics	3
NW 253	Cisco Router Configuration and Management II	3
NW 254	Cisco Router Configuration and Management III	3
NW 255	Cisco Advanced Routing	6
NW 256	Cisco Remote Access Networks	4
NW 257	Cisco Multi-layer Switching	4
NW 258	Cisco Internetwork Troubleshooting and Support	4

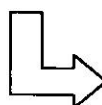
Total Credit Hours 36-37

Note: Some of these courses may not transfer to four-year institutions. Bolded courses articulate from MCPS to MC.

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MCPS Program: Network Operations
MC Program: Microcomputer Technician Certificate: 210

HIGH SCHOOL PROGRAM PLANNER

Grade 9	Grade 10	Grade 11	Grade 12
English	English	English	English
Social Studies	Social Studies	Social Studies	Social Studies (elective)
Algebra I Geometry	Geometry Algebra 2 w/ Analysis	Algebra 2 Precalculus w/ Analysis	Precalculus AP Calculus
Science (PC) Matter & Energy	Science (BC) Biology	Science (PC) Chemistry	Science (Elective) Physics (PC)
Physical Education	Health (.5) Elective (.5)	Network Operations A (1.5) Network Operations B (1.5) Triple Period	Network Operations Elective (1),* <i>or</i> Network Operations Guided Research (1), <i>or</i> Network Operations Internship (1)
Technology Education	Fine Arts (1)		
Foreign Language	Foreign Language		

*Network Operations Electives

- Web Site Development
- Discovering Programming Concepts
- Computer Programming 1
- Digital Electronics
- Microcomputer Technologies-Computer Maintenance



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COLLEGE PROGRAM PLANNER

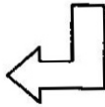
Microcomputer Technician Certificate: 210

This certificate curriculum will allow students to enter the computer technician field at an entry level with a good background in computer configuration and troubleshooting, networks, and electronics. With additional test practice, students should be ready to take the nationwide CompTIA A+ certification examination and the nationwide network certification examination. Students may also elect to apply all of these credits toward completion of the A.A.S.

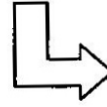
NW 101	Introduction to Wireless Technologies	3
NW 127	Microcomputer Control Programs	3
NW 130	Network Cabling Technology	3
NW 140	Microcomputer Configuration and Installation	3
NW 151	Introduction to Networking	3
NW 170	Network Operating Systems	3
NW 264	Network and Wireless Troubleshooting	3
	<u>Total Credit Hours</u>	<u>21</u>

Note: Some of these courses may not transfer to four-year institutions. Bolded courses articulate from MCPS to MC.

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MCPS Program: Network Operations
MC Program: Network and Wireless Technologies, A.A.S.,
Microsoft Track: 354B

HIGH SCHOOL PROGRAM PLANNER

Grade 9	Grade 10	Grade 11	Grade 12
English	English	English	English
Social Studies	Social Studies	Social Studies	Social Studies (elective)
Algebra I Geometry	Geometry Algebra 2 w/ Analysis	Algebra 2 Precalculus w/ Analysis	Precalculus AP Calculus
Science (PC) Matter & Energy	Science (BC) Biology	Science (PC) Chemistry	Science (Elective) Physics (PC)
Physical Education	Health (.5) Elective (.5)	Network Operations A (1.5) Network Operations B (1.5) Triple Period	Network Operations Elective (1),* <i>or</i> Network Operations Guided Research (1), <i>or</i> Network Operations Internship (1)
Technology Education	Fine Arts (1)		
Foreign Language	Foreign Language		

*Network Operations Electives

- o Web Site Development
- o Discovering Programming Concepts
- o Computer Programming 1
- o Digital Electronics
- o Microcomputer Technologies-Computer Maintenance



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COLLEGE PROGRAM PLANNER

Network and Wireless Technologies A.A.S., Microsoft Track: 354B

This degree provides entry-level skills in the field of Microsoft. The career curriculum is designed to accommodate both students and the business community.

The Microsoft track will prepare technically skilled individuals in network engineering and administration. Graduates complete a comprehensive program preparing them for positions involving client needs assessment, network design, network installation and maintenance, internetwork communication and connectivity, specialized network functions, and on-site network administration. This program will also help students prepare for the Microsoft Certified Professional (MCP) and Microsoft Certified Systems Administrator (MCSA) certification exams.

General Education and Other Requirements (23 Credit Hours)

EN 101	Techniques of Reading and Writing	3
	<i>English foundation</i>	3
	<i>Health foundation</i>	1
	<i>Mathematics foundation*</i>	3
	<i>Speech foundation</i>	3
	<i>Arts or humanities distribution</i>	3
	<i>Behavioral and social sciences distribution</i>	3
	<i>Natural sciences distribution with lab</i>	4

Core Requirements (21 Credit Hours)

NW 101	Introduction to Wireless Technologies	3
NW 127	Microcomputer Control Programs	3
NW 130	Network Cabling Technology	3
NW 140	Microcomputer Configuration and Installation	3
NW 151	Introduction to Networking	3
NW 170	Network Operating Systems	3
NW 173	Network Security	3

Microsoft Track: 354B (16 Credit Hours)

NW 199	Microsoft Windows Client Operating System	3
NW 203	Microsoft Windows Server	3
NW 204	Supporting Microsoft Windows Network Infrastructure	3
	Technical Electives†	7

Total Credit Hours 60

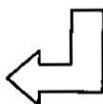
Note: Some of these courses may not transfer to four-year institutions. Bolded courses articulate from MCPS to MC. Italicized courses satisfy general education requirements.

* *Students should consult with an advisor regarding the requirements of transfer institutions. It is strongly recommended that in the event students want to transfer or be considered for a higher level position in industry, they take MA 180 Precalculus for their mathematics foundation course*

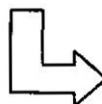
† *Acceptable electives are any combination of 4-credit and 3-credit NW courses or any other combination of NW courses that totals at least seven credits.*

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Articulation Agreement #13



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Technologies AAS, Microsoft Track: 354B

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MCPS Program: Network Operations

MC Program: Network Engineer Certificate, Cisco Certified Network Associate (CCNA) Track: 215B

HIGH SCHOOL PROGRAM PLANNER

Grade 9	Grade 10	Grade 11	Grade 12
English	English	English	English
Social Studies	Social Studies	Social Studies	Social Studies (elective)
Algebra I Geometry	Geometry Algebra 2 w/ Analysis	Algebra 2 Precalculus w/ Analysis	Precalculus AP Calculus
Science (PC) Matter & Energy	Science (BC) Biology	Science (PC) Chemistry	Science (Elective) Physics (PC)
Physical Education	Health (.5) Elective (.5)	Network Operations A (1.5) Network Operations B (1.5) Triple Period	Network Operations Elective (1),* <i>or</i> Network Operations Guided Research (1), <i>or</i> Network Operations Internship (1)
Technology Education	Fine Arts (1)		
Foreign Language	Foreign Language		

*Network Operations Electives

- Web Site Development
- Discovering Programming Concepts
- Computer Programming 1
- Digital Electronics
- Microcomputer Technologies-Computer Maintenance



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COLLEGE PROGRAM PLANNER

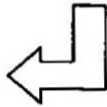
Microcomputer Technician Certificate: 210

This certificate curriculum will allow students to enter the computer technician field at an entry level with a good background in computer configuration and troubleshooting, networks, and electronics. With additional test practice, students should be ready to take the nationwide CompTIA A+ certification examination and the nationwide network certification examination. Students may also elect to apply all of these credits toward completion of the A.A.S.

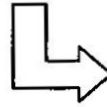
NW 101	Introduction to Wireless Technologies	3
NW 127	Microcomputer Control Programs	3
NW 130	Network Cabling Technology	3
NW 140	Microcomputer Configuration and Installation	3
NW 151	Introduction to Networking	3
NW 170	Network Operating Systems	3
NW 264	Network and Wireless Troubleshooting	3
	<u>Total Credit Hours</u>	<u>21</u>

Note: Some of these courses may not transfer to four-year institutions. Bolded courses articulate from MCPS to MC.

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MCPS Program: Network Operations
MC Program: Network and Wireless Technologies, A.A.S.,
Cisco Track: 354C

HIGH SCHOOL PROGRAM PLANNER

Grade 9	Grade 10	Grade 11	Grade 12
English	English	English	English
Social Studies	Social Studies	Social Studies	Social Studies (elective)
Algebra I Geometry	Geometry Algebra 2 w/ Analysis	Algebra 2 Precalculus w/ Analysis	Precalculus AP Calculus
Science (PC) Matter & Energy	Science (BC) Biology	Science (PC) Chemistry	Science (Elective) Physics (PC)
Physical Education	Health (.5) Elective (.5)	Network Operations A (1.5) Network Operations B (1.5) Triple Period	Network Operations Elective (1),* <i>or</i> Network Operations Guided Research (1), <i>or</i> Network Operations Internship (1)
Technology Education	Fine Arts (1)		
Foreign Language	Foreign Language		

*Network Operations Electives

- o Web Site Development
- o Discovering Programming Concepts
- o Computer Programming I
- o Digital Electronics
- o Microcomputer Technologies-Computer Maintenance



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COLLEGE PROGRAM PLANNER

Network and Wireless Technologies A.A.S., Cisco Track: 354C

This degree program provides entry-level skills in the Cisco environment. The career curriculum is designed to accommodate both students and the business community.

The Cisco track will prepare technically skilled individuals in network engineering and administration. Graduates complete a comprehensive program preparing them for positions involving client needs assessment, network design, network installation and maintenance, internetwork communication and connectivity, specialized network functions, and on-site network administration.

The Cisco track will assist students in preparing for the CompTIA Network+ exams and depending on which electives are taken; it will also help prepare students for the Certified Novel Administrator (CNE) and Cisco Certified Network Associate (CCNA) exams.

General Education and Other Requirements (23 Credit Hours)

EN 101	Techniques of Reading and Writing	3
	<i>English foundation</i>	3
	<i>Health foundation</i>	1
	<i>Mathematics foundation*</i>	3
	<i>Speech foundation</i>	3
	<i>Arts or humanities distribution</i>	3
	<i>Behavioral and social sciences distribution</i>	3
	<i>Natural sciences distribution with lab</i>	4

Core Requirements (21 Credit Hours)

NW 101	Introduction to Wireless Technologies	3
NW 127	Microcomputer Control Programs	3
NW 130	Network Cabling Technology	3
NW 140	Microcomputer Configuration and Installation	3
NW 151	Introduction to Networking	3
NW 170	Network Operating Systems	3
NW 173	Network Security	3

Cisco Track: 354C (16 Credit Hours)

NW 252	Cisco Routers and Routing Basics	3
NW 253	Cisco Router Configuration and Management II	3
NW 254	Cisco Router Configuration and Management III	3
	Technical Electives †	

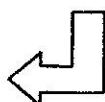
Total Credit Hours 60

Note: Some of these courses may not transfer to four-year institutions. Bolded courses articulate from MCPS to MC. Italicized courses satisfy general education requirements.

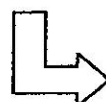
* *Students should consult with an advisor regarding the requirements of transfer institutions. It is strongly recommended that in the event students want to transfer or be considered for a higher level position in industry, they take MA 180 Precalculus for their mathematics foundation course*

† *Acceptable electives are any combination of 4-credit and 3-credit NW courses or any other combination of NW courses that totals at least seven credits.*

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