

Madison Area Technical College Engineering Technology Articulation

Articulation Agreement Proposal for Engineering Technology Associate's Degree programs at Madison Area Technical College and the BS programs in Mechanical and Electrical Engineering Technology at UW-Green Bay

In accordance with the University of Wisconsin System guidelines for articulation agreements between UW System institutions and WTCS (Wisconsin Technical College System) districts, the following associates programs at MATC will count for significant block credit transfers into the Mechanical and Electrical Engineering Technology programs at UW-Green Bay. Each will be discussed separately with material required by the ACIS 6.2 guidelines for developing program-to-program articulation agreements. Students are required to successfully complete all UWGB degree requirements in order to earn a UWGB degree.

1. UW-Green Bay Electrical Engineering Technology BS

Presented below is the curriculum for UWGB's Electrical Engineering Technology Program.

UWGB Electrical Engineering Technology BS requirements

(without general education and graduation requirements, unless fulfilled by degree requirements)

Support Group (20 credits)

ET 101	Fundamentals of Engineering Technology (2 cr)
MATH 202	Calculus & Analytic Geometry I (4 cr)
MATH 203	Calculus & Analytic Geometry II (4 cr)
PHYSICS 103 or 201	Fundamentals of Physics I or Principles of Physics I (5 cr) – either algebra or calculus based
PHYSICS 104 or 202	Fundamentals of Physics II or Principles of Physics II (5 cr)-either algebra or calculus based

Fundamentals Group (26 credits)

ET 105	Fundamentals of Drawing (3 cr)
ET 130	Basic Electrical Circuits I (3 cr)
ET 131	Basic Electrical Circuits II (3 cr)
ET 142	Introduction to Programming (3 cr)
ET 150	Codes, Safety, and Standards (2 cr)
ET 232	Semiconductor Devices (3 cr)
ET 233	Linear Circuits (3 cr)
ET 240	Microcontrollers & Programmable Logic Controllers (3 cr)
ET 250	Signals and Systems (3 cr)

Advanced Study Group (34 credits)

ET 311	Digital Electronics (3 cr)
ET 324	Motors and Drives (3 cr)
ET 340	Advanced PLCs (3 cr)
ET 342	Supervisory Control and Data Acquisition (3 cr)
ET 344	Industrial Electronics and Control (3 cr)
ET 346	Electric Power Systems (3 cr)
ET 348	Electromagnetic Fields and Applications (3 cr)

ET 350	Data Communication and Protocols (3 cr)
ET 360	Project Management (3 cr)
ET 390	Mechatronics (4 cr)
<i>One of</i>	
ET 400	Co-op/Internship in Engineering Technology (3 cr)
ET 410	Capstone Project (3 cr)

A. MATC Electrical Engineering Technology Associate, Program #106621

Rationale for how programs are related: The Associate’s program in Electrical Engineering Technology is a good fit for the fundamentals group of courses in UW-Green Bay’s Electrical Engineering Technology (ElecET) program. Students completing the Associate’s degree will meet the desired learning outcomes for much of the fundamentals course array and some of the supporting courses in UWGB’s BS ElecET degree. Presented below are the curriculum for MATC’s Associate’s program and the array of courses in the UWGB program that the Associate’s program will fulfill in a block transfer.

Articulated Block of Courses

Note that the two lists below, MATC Associate’s degree requirement and block list of UWGB classes that the Associate’s will fulfill, are not equivalent course lists. The MATC list is the required course list for the Associate’s degree and the UWGB list is the fundamentals and supporting course block that the MATC degree will fulfill. Students are required to successfully complete all UWGB degree requirements in order to earn a UWGB degree.

MATC Electrical Engineering Technology

<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>
10-605-112	AC/DC Electronics 1	3
10-605-113	Analog Circuit Techniques	3
10-605-118	Digital Circuit Techniques	3
<i>One of:</i>	10-801-195 Written Comm.	3
	20-801-201 English 1	
<i>One of:</i>	10-809-199 Psych. of Human Rel.	3
	20-809-225 Social Psychology	
	20-809-231 Intro. Psychology	
	20-809-233 Developmental Psych	
10-605-114	AC/DC Elec. 2	3
10-605-115	Analog Cir. Prin.	3
10-605-119	Digital Cir. Prin.	3
10-605-173	Embedded Program.	3
<i>One of:</i>	10-804-196 Trig. w Apps.	3
	20-804-213 Trigonometry	

UWGB Courses

<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>
ET 101	Funds. Engineering Technology	2
ET 130	Basic Electrical Circuits 1	3
ET 131	Basic Electrical Circuits 2	3
ET 142	Intro. to Programming	3
ET 150	Codes, Safety, & Standards	2
ET 311	Digital Electronics	3
ET 232	Semiconductor Devices	3
ET 240	Microcontrollers & PLCs	3
ET 250	Signals & Systems	3
ET 324	Motors & Drives	3
Math 202	Calculus & Analytic Geo I	4
Math 203	Calculus & Analytic Geo II	4
Physics 103	Fundamentals of Physics I	5
ENG COMP	Competency	3
Social Science		3

One of:	10-809-195	Economics	3	Social Science	3
	20-809-211	Macro Economics		Social Science	3
	20-809-212	Micro Economics		Communication	3
	20-809-214	Intro. Internat. Econ.		First Year Seminar	3
10-605-131	Tech. Calculus 1	4	Elective Credit Block (may vary)	7-11	
10-605-176	Microcontrollers	3		66-70	
10-662-112	AC/DC Elec.	3			
One of:	10-801-197	Tech. Reporting	3		
	20-801-260	Tech. Communication			
One of:	10-806-143	College Physics 1	3 or 5		
	20-806-221	University Physics 1			
	20-806-222	University Physics 2			
	20-806-223	Uni.Phy.1 Calc. based			
	20-806-224	Univ. Phy 2 Calc. based			
10-605-132	Technical Calculus 2	4			
10-605-143	Motors & Control Cir.	3			
10-605-145	PLCs	3			
10-605-178	Net., Int., & Prog	3			
10-662-124	Adv. Circuit Analysis	3			
One of:	20-809-203	Intro. Sociology	3	Direct Course Equivalent	
	10-809-197	Con. Amer. Society		General Education Course	
		66-70			

Courses still needed at UWGB

Course	Credits
ET 105 Fundamentals of Drawing	3
ET 233 Linear Circuits	3
Physics 104 Fund. of Physics II	5
Advanced study group (except ET 324)	28
Remaining pre-requisite courses, general education, and graduation requirements:	
Biologic Sciences	3
Ethnic Studies Perspective	3
Fine Arts	3
Global Culture	3
Humanities	6
Sustainability Perspective	3
Lower Level Writing Emphasis	3
Upper Level Writing Emphasis	6 (usually taken as part of major requirements)
Capstone (ET 400 or 410)	(major requirement – Advanced Study Group)
Total gen ed./graduation requirements	30 credits

Total remaining credits to B.S. - 69 credits (some requirements such as UL WE may be taken as part of major requirements thereby reducing total number of credits to earned degree)

B. MATC Electronics Associate, Program #106051

Rationale for how programs are related: The Associate’s program in Electronics is a good fit for the fundamentals group of courses in UW-Green Bay’s Electrical Engineering Technology (ElecET) program. Students completing the Associate’s degree will meet the desired learning outcomes for much of the fundamentals course array and some of the supporting courses in UWGB’s BS ElecET degree. Presented below are the curriculum for MATC’s Associate’s program and the array of courses in the UWGB program that the Associate’s program will fulfill in a block transfer. Students are required to successfully complete all UWGB degree requirements in order to earn a UWGB degree.

Articulated Block of Courses

Note that the two lists below, MATC Associate’s degree requirement and block list of UWGB classes that the Associate’s will fulfill, are not equivalent course lists. The MATC list is the required course list for the Associate’s degree and the UWGB list is the fundamentals and supporting course block that the MATC degree will fulfill. Students are required to successfully complete all UWGB degree requirements in order to earn a UWGB degree.

MATC Electronics

<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>
10-605-112	AC/DC Electronics 1	3
10-605-113	Analog Circuit Techniques	3
10-605-118	Digital Circuit Techniques	3
One of:	10-801-195 Written Comm. 20-801-201 English 1	3
10-605-114	AC/DC Electronics 2	3
10-605-115	Analog Circuit Prin.	3
10-605-119	Digital Circuit Prin.	3
10-605-123	Embed Device Con.	3
One of:	10-809-195 Economics 20-809-211 Macro Economics 20-809-212 Micro Economics 20-809-214 Intro. Internat. Econ.	3
10-605-151	Instr./Troubleshoot.	3
10-605-152	Digital Syst. Anal.	3
One of:	10-801-197 Tech. Reporting 20-801-260 Tech. Communication	3
One of:	10-806-143 Coll. Physics 1 20-806-221 University Physics 1 20-806-223 Uni. Phy 1 Calc. based	3 - 5
xx-xxx-xxx	Elective	3
10-605-116	Adv.Circuit Tech.	3
10-605-143	Motors & Control	3
10-605-178	Net., Int., & Prog.	3
One of:	10-809-199 Psych. of Human Rel. 20-809-225 Social Psychology 20-809-231 Intro. Psychology 20-809-233 Devel. Psychology	3

UWGB Courses

<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>
ET 101	Funds. Engineering Technology	2
ET 130	Basic Electrical Circuits 1	3
ET 131	Basic. Electrical Circuits 2	3
ET 142	Intro. Programming	3
ET 150	Codes, Safety & Standards	2
ET 311	Digital Electronics	3
ET 232	Semiconductor Devices	3
ET 250	Signals & Systems	3
ET 324	Motors & Drives	3
ET 344	Ind Electronics & Control	3
Physics 103	Fundamentals of Physics I	5
	First Year Seminar	3
	ENG COMP Competency	3
	Communication	3
	Social Science	3
	Social Science	3
	Social Science	3
	Humanities	3
	Communiation	
	Elective Credit Block (may vary)	6-8
		<hr/> 56-58

One of:	10-809-166	Intro. Ethics	3
	20-809-262	Cont. Moral Issues	
	20-809-268	Social Ethics	
	20-809-276	Business Ethics	
One of:	10-809-197	Cont. Amer. Society	3
	20-809-202	Social Problems	
	20-809-203	Intro. Sociology	
	20-809-204	Marriage & Family	
	20-809-206	Intro Women's Studies	
56-58			Direct Course Equivalent General Education Course

Courses still needed at UWGB

Course	Credits
ET 105 Fundamentals of Drawing	3
ET 233 Linear Circuits	3
ET 240 Microcontrollers and PLCs	3
Math 202 Calculus and Analytic Geometry I	4
Math 203 Calculus and Analytic Geometry II	4
Physics 104 Fundamentals of Physics II	5
Advanced study group (except ET 324 and ET 344)	25
Remaining pre-requisite courses, general education, and graduation requirements:	
Biologic Sciences	3
Ethnic Studies Perspective	3
Fine Arts	3
Global Culture	3
Humanities	3
Quantitative Literacy (MATH 202 or 260)	(major requirement – Support Group)
Sustainability Perspective	3
Lower Level Writing Emphasis	3
Upper Level Writing Emphasis	6 (usually taken as part of major requirements)
Capstone (ET 400 or 410)	(major requirement – Advanced Study Group)
Total gen ed./graduation requirements	27 credits

Total remaining credits to B.S – 74 credits (some requirements such as UL WE may be taken as part of major requirements thereby reducing total number of credits to earned degree)

For students planning to pursue this path, we strongly recommend taking Calculus at MATC.

20-804-231	Calc & Analytic Geo. 1	5 cr	UWGB Math 202	5 cr
20-804-232	Calc & Analytic Geo. 2	5 cr	UWGB Math 203	5 cr

2. UW-Green Bay Mechanical Engineering Technology BS

Presented below is the curriculum for UWGB's Mechanical Engineering Technology Program.

UWGB Mechanical Engineering Technology BS requirements

(without general education and graduation requirements, unless fulfilled by degree requirements)

Support Group (32-37 credits)

ET 101	Fundamentals of Engineering Technology (2 cr)
ET 130	Basic Electrical Circuits I (3 cr)
<i>either both</i>	
CHEM 211, 213	Principles of Chemistry I Lecture and Lab (5 cr)
CHEM 212, 214	Principles of Chemistry II Lecture and Lab (5 cr)
<i>or</i>	
ET 206	Chemistry for Engineers (5cr)
MATH 202	Calculus & Analytic Geometry I (4cr)
MATH 203	Calculus & Analytic Geometry II (4cr)
MATH 260	Introductory Statistics (4 cr)
PHYSICS 103 or 201	Fundamentals of Physics I or Principles of Physics I (5 cr) – either algebra or calculus based
PHYSICS 104 or 202	Fundamentals of Physics II or Principles of Physics II (5 cr) – either algebra or calculus based

Fundamentals Group (27 credits)

ENGR 213	Mechanics I (3 cr)
ENGR 214	Mechanics II (3 cr)
ET 105	Fundamentals of Drawing (3 cr)
ET 116	Basic Manufacturing Processes (3 cr)
ET 118	Fluids I (3 cr)
ET 142	Introduction to Programming (3 cr)
ET 207	Parametric Modeling (3 cr)
ET 220	Mechanics of Materials (3 cr)
ET 221	Machine Components (3 cr)

Advanced Study Group (28 credits)

CHEM 320	Thermodynamics & Kinetics (3 cr)
ENGR 301	Engineering Materials (4 cr)
ET 308	Finite Element Analysis (3 cr)
ET 318	Fluids II (2 cr)
ET 322	Design Problems (3 cr)
ET 324	Motors & Drives (3 cr)
ET 360	Project Management (3 cr)
ET 390	Mechatronics (4 cr)
<i>One of</i>	
ET 400	Co-op/Internship in Engineering Technology (3 cr)
ET 410	Capstone Project (3 cr)

A. MATC Mechanical Design Technology Associate's Degree, Program #106061

Rationale for how programs are related: The Associates program in Mechanical Design Technology is a good fit for the fundamentals group of courses in UW-Green Bay's Mechanical Engineering Technology (MET) program. Students completing the Associate's degree will meet the desired learning outcomes for the fundamentals course array and some of the supporting courses in UWGB's BS MET degree. Presented below are the curriculum for MATC's Associate's program, the array of courses in the UWGB program that the Associate's program will fulfill in a block transfer, and recommendations for students pursuing this completion route.

Articulated Block of Courses

Note that the two lists below, MATC Associate's degree requirement and block list of classes that the Associate's will fulfill, are not equivalent course lists. The MATC list is the required course list for the associate's degree and the UWGB list is the fundamentals and supporting course block that the MATC degree will fulfill. Students are required to successfully complete all UWGB degree requirements in order to earn a UWGB degree.

MATC Mechanical Design Technology

	<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>
One of:	10-606-100	Eng. Tech. Comm.	3
	20-606-231	Intro. Eng. Graphics	
	10-606-101	Eng. Tech. Fund.	2
	10-606-120	2D CAD	2
	10-606-130	Solidworks 1	2
	10-606-160	Fund. Mfg/Eng Mats.	2
One of:	10-801-195	Written Comm.	3
	20-801-201	English 1	
	10-804-114	Coll. Tech.Math 1B	2
	10-606-131	Solidworks 2	2
	10-606-140	Dimensioning/GDT	3
	10-606-155	Statics & Mech.	3
	10-606-161	Manu. Process.	2
	10-606-170	Strength of Mats.	3
	10-804-116	Coll. Tech. Math 2	4
One of:	10-809-199	Psych. of Human Rel.	3
	20-809-225	Social Psychology	
	20-809-231	Intro. Psychology	
	20-809-233	Develpmntal Psych	
	10-606-104	Eng. Tech.Practices	3
	10-606-116	Machine Design	3
	10-606-125	Plastics for Mech Des	3
	10-606-163	ET Proj. Manage.	2
	10-606-164	Quality Systems	2
	10-606-193	Career Devel.	1
One of:	10-809-166	Intro. to Ethics	3
	20-809-262	Cont. Moral Issues	
	20-809-268	Social Ethics	
	20-809-276	Business Ethics	
	10-606-112	Tool Design Tech.	3

UWGB Courses

<u>Course #</u>	<u>Course Name</u>	<u>Credits</u>
ET 101	Funds. Engineering Technology	2
ET 105	Fundamentals of Drawing	3
ET 116	Basic Manufacturing Processes	3
ET 118	Fluids I	3
ET 207	Parametric Modeling	3
ET 220	Mechanics of Materials	3
ET 221	Machine Components	3
ENGR 301	Engineering Materials	4
Physics 103	Fundamentals of Physics I	5
	First Year Seminar	3
	Communication	3
	Humanities	3
	Social Science	3
	ENG COMP Competency	3
	Communication	3
	Elective Credit Block (may vary)	23-24
		70-71

10-606-150	CAE Apps.	2
10-606-152	PLC, Hyd.,Pneu.	2
10-606-186	ET Apps.	3
One of:	10-801-197 Tech. Reporting	3
	20-801-202 English 2	
	20-801-260 Tech. Communication	
One of:	10-806-154 Gen. Physics 1	4 - 5
	10-806-153 Tech. Physics	
	20-806-221 University Physics 1	
	20-806-223 Uni. Phy. 1 Calc based	
		70-71

Direct Course Equivalent

General Education Course

Courses still needed at UWGB

Course	Credits
ENGR 213 Eng. Mechanics I	3
ENGR 214 Eng. Mechanics II	3
ET 130 Basic Electrical Circuits I	3
ET 142 Intro. to Programming	3
ET 206 Chemistry for Engineers	5
Math 202 Calculus and Analytic Geometry I	4
Math 203 Calculus and Analytic Geometry II	4
Math 260 Introductory Statistics	4
Physics 104 Fundamentals of Physics II	5
Advanced study group (except ENGR 301)	24
Remaining pre-requisite courses, general education, and graduation requirements:	
Biologic Sciences	3
Ethnic Studies	3
Fine Arts	3
Global Culture	3
Humanities	3
Quantitative Literacy (MATH 202 or 260)	(major requirement – Support Group)
Social Science	3
Sustainability Perspective	3
Lower Level Writing Emphasis	3
Upper Level Writing Emphasis	6 (usually taken as part of major requirements)
Capstone (ET 400 or 410)	(major requirement – Advanced Study Group)
Total gen ed./graduation requirements	30 credits

Total remaining credits to B.S - 85 credits (some requirements such as UL WE may be taken as part of major requirements thereby reducing total number of credits to earned degree)

For students planning to pursue this path, we strongly recommend taking Calculus at MATC.

20-804-231	Calc & Analytic Geo. 1	5 cr	UWGB Math 202	5 cr
20-804-232	Calc & Analytic Geo. 2	5 cr	UWGB Math 203	5 cr

The above Engineering Technology articulation agreement is effective August 1, 2016. This agreement will be reviewed every 5 years. Both Madison Area Technical College and the University of Wisconsin-Green Bay agree to notify each other of any curricular changes. Programmatic changes from either institution may render this agreement void.

Signatures

John Katers
Dean, College of Science and Technology
UW-Green Bay

Denise Reimer
Dean, School of Applied Science, Engineering
and Technology
Madison Area Technical College

Gregory Davis
Provost
UW-Green Bay

Todd Stebbins
Dean, School of Arts and Sciences
Madison Area Technical College

Gary Miller
Chancellor
UW-Green Bay

Terrance Webb
Provost
Madison Area Technical College