Articulation Agreement between
Rochester Community and Technical College,
Rochester, Minnesota
and
The Institute of Technology, The University of Minnesota,
Minneapolis, Minnesota

Statement of Purpose
This agreement has been entered into by Rochester Community and Technical College (RCTC) and The Institute of Technology, University of Minnesota, for the benefit of students and prospective students at the two institutions. The purpose of this agreement is to ensure programs of high academic quality, to encourage student achievement, and to facilitate credit transfer and a smooth transition from one related degree program to another. The attached appendices (A-J) describe the required programs of study at Rochester Community and Technical College, for admission eligibility to The Institute of Technology, University of Minnesota, in engineering programs. This agreement identifies all required and equivalent courses at each institution.

Terms and Conditions of Credit Transfer
Students who complete the Associate of Science in Engineering at Rochester Community and Technical College may apply a minimum of 64 semester credits towards a degree in engineering in The Institute of Technology at the University of Minnesota, Minneapolis, Minnesota. This coursework includes science and mathematics requirements common to all engineering degrees. In addition, this AS in Engineering degree at RCTC includes the Minnesota Transfer Curriculum.

Articulation Implementation and Agreement Review
The Chief Academic Officer, or designee of the collaborating institutions, shall be responsible for implementing this agreement, for identifying and incorporating any changes into subsequent agreement, and for conducting a periodic review of this agreement. The appendices may be updated as necessary, without re-negotiation of the articulation agreement in its entirety. This agreement becomes effective on June 1, 2004, and remains in effect unless terminated or amended by either party with prior written notice.

Rochester Community and Technical College		**The Institute of Technology, University of Minnesota**	
_____	_____	_____	_____
Don Supalla, President	Date	Peter Hudleston, Associate Dean for Student Affairs	Date
_____	_____	_____	_____
Jay Lee, Interim Vice President of Academic Affairs	Date	Benjamin Sharpe, Director of Admissions	Date

Appendix A: RCTC Curriculum for Transfer to Aerospace Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Aerospace Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Comp 2243: Programming and Problem Solving	3	CSci 1103: Introduction to Computer Programming in Java	4
Engr 2211: Statics	3	AEM 2011: Statics	3
Engr 2212: Dynamics	3	AEM 2012: Dynamics	3
Engr 2213: Linear Circuit Analysis I **and** Engr 1152: Logic Design	8	EE 3005/3006: Fundamentals of Electrical Engineering (including lab)	5

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

Appendix B: RCTC Curriculum for Transfer to Biomedical Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Biomedical Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Biol 1220: Concepts of Biology	4	Biol 1009: General Biology	4
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Chem 1128: Chemical Principles II	4	Chem 1022: Chemical Principles II	4
Chem 2127: Organic Chemistry I	5	Chem 2301: Organic Chemistry I	3
Comp 2243: Programming and Problem Solving	3	CSci 1103: Introduction to Computer Programming in Java	4

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

Appendix C: RCTC Curriculum for Transfer to Biosystems and Agricultural Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Biosystems and Agricultural Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Biol 1220: Concepts of Biology	4	Biol 1009: General Biology	4
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Chem 1128: Chemical Principles II	4	Chem 1022: Chemical Principles II	4
Comp 2243: Programming and Problem Solving	4	CSci 1103: Introduction to Computer Programming in Java	4
Engr 2211: Statics	3	AEM 2011: Statics	3
Engr 2212: Dynamics	3	AEM 2012: Dynamics	3
Engr 2213: Linear Circuit Analysis I and Engr 1152: Logic Design	8	EE 3005/3006: Fundamentals of Electrical Engineering (including lab)	5

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

Appendix D: RCTC Curriculum for Transfer to Chemical Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Chemical Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Chem 1128: Chemical Principles II	4	Chem 1022: Chemical Principles II	4
Chem 2127: Organic Chemistry I	5	Chem 2301: Organic Chemistry I	3
Chem 2128: Organic Chemistry II	5	Chem 2302: Organic Chemistry II **and** Chem 2311: Organic Lab	3 4

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

- **Special Note**

Because of the need for Chemical Engineering students to take the University of Minnesota's ChEn 4001 - Material and Energy Balances, and also Chem 3501—Physical Chemistry I, during the spring semester, it is recommended that these students transfer to the University of Minnesota after the fall semester. These courses are prerequisites for classes ONLY offered during the fall semester.

Appendix E: RCTC Curriculum for Transfer to Civil Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Civil Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Chem 1128: Chemical Principles II	4	Chem 1022: Chemical Principles II	4
Engr 2211: Statics	3	AEM 2011: Statics	3
Engr 2212: Dynamics	3	AEM 2012: Dynamics	3

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

Appendix F: RCTC Curriculum for Transfer to Computer Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Computer Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Comp 2243: Programming and Problem Solving	4	CSci 1103: Introduction to Computer Programming in Java	4
Comp 2247: Algorithms and Data Structures	4	CSci 1902: Structure of Computer Programming II	4
Engr 1152: Logic Design	4	EE 2301: Introduction to Digital System Design	4
Engr 1153: Microprocessors	4	EE 2361: Introduction to Microcontrollers	4
Engr 2213: Linear Circuit Analysis I	4	EE 2001/2002: Introduction to Electronic and Electrical Circuits (including lab)	4
Engr 2214: Linear Circuit Analysis II	4	EE 2011: Linear Systems and Circuits	3
Math 2218: Discrete Mathematics	4	CSci 2011: Discrete Structures of Computer Science	4

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

Appendix G: RCTC Curriculum for Transfer to Electrical Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Electrical Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Comp 2243: Programming and Problem Solving	4	CSci 1103: Introduction to Computer Programming in Java	4
Engr 1152: Logic Design	4	EE 2301: Introduction to Digital System Design	4
Engr 1153: Microprocessors	4	EE 2361: Introduction to Microcontrollers	4
Engr 2213: Linear Circuit Analysis I	4	EE 2001/2002: Introduction to Electronic and Electrical Circuits (including lab)	4
Engr 2214: Linear Circuit Analysis II	4	EE 2011: Linear Systems and Circuits	3
Chem 1128: Chemical Principles II	4	Chem 1022: Chemical Principles II	4

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

Appendix H: RCTC Curriculum for Transfer to Geological Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Geological Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Chem 1128: Chemical Principles II	4	Chem 1022: Chemical Principles II	4
Engr 2211: Statics	3	AEM 2011: Statics	3
Engr 2212: Dynamics	3	AEM 2012: Dynamics	3
Esci 1114: Physical Geology	4	Geo 1001: The Dynamic Earth: An Introduction to Geology	4

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

Appendix I: RCTC Curriculum for Transfer to Material Science Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Material Science Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Chem 1128: Chemical Principles II	4	Chem 1022: Chemical Principles II	4
Chem 2127: Organic Chemistry I	5	Chem 2301: Organic Chemistry I	3
Engr 2211: Statics	3	AEM 2011: Statics	3

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.

Appendix J: RCTC Curriculum for Transfer to Mechanical Engineering

- **Engineering Core Courses**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Math 1127: Calculus I	5	Math 1271: Calculus I	4
Math 1128: Calculus II	5	Math 1272: Calculus II	4
Math 2237: Multivariable and Vector Calculus	5	Math 2263: Multivariable Calculus	4
Math 2238: Differential Equations & Linear Algebra	5	Math 2243: Linear Algebra and Differential Equations	4
Phys 1127: Classical Physics I	5	Phys 1301: Introductory Physics I	4
Phys 1128: Classical Physics II	5	Phys 1302: Introductory Physics II	4

- **Additional technical courses for transfer to Mechanical Engineering**

RCTC College Courses	credits	IT Requirements Satisfied by RCTC Courses	credits
Chem 1127: Chemical Principles I	4	Chem 1021: Chemical Principles I	4
Biol 1220: Concepts of Biology OR Chem 1128: Chemical Principles II	4	Science Elective	4
Engr 2211: Statics	3	AEM 2011: Statics	3
Engr 2212: Dynamics	3	AEM 2012: Dynamics	3
Engr 2213: Linear Circuit Analysis I and Engr 1152: Logic Design	8	EE 3005/3006: Fundamentals of Electrical Engineering (including lab)	5

- **MNTC courses**

In addition to the above courses, RCTC students will take courses to satisfy Minnesota Transfer Curriculum requirements.