

Fall 2005, Revised Summer 2008, Effective Fall 2009¹, Updated Spring 2017 Statewide Engineering AS-T Track 2 Major Related Program (MRP) Agreement

These pathways are applicable to students planning to prepare for various engineering majors at universities in Washington.

This document represents agreement regarding expanded detail for the existing Associate in Science - Transfer, Track 2 between the baccalaureate institutions offering engineering bachelor's degrees and the community and technical college system. Baccalaureate institutions parties to this agreement are: University of Washington Seattle, Washington State University, Eastern Washington University, Gonzaga University, Saint Martin's University, Seattle Pacific University, Seattle University, and Walla Walla University.

Community colleges agree:

- When community colleges list the AS-T, Track 2 in their publications, they will provide the expanded detail shown below regarding the three major pathways in the field of engineering while retaining the current AS-T, Track 2 description for purposes of students majoring in computer science, physics and atmospheric sciences.
- When community colleges award the AS-T degree for engineering students following these expanded details, rather than using AS-T #2 on the transcript, colleges will designate completion as follows for clarity on the transcript and use by SBCTC for tracking reporting purposes:
 - AS-T Bio/Chem E/MRP Exit Code of B (eventually will be O), EPC BIOE and CIP of 14.0701
 - AS-T Comp E EE/MRP Exit Code of B (eventually will be P), EPC of CEE and CIP of 14.1001
 - AS-T Other Engineer/MRP Exit Code B (eventually will be Q), EPC of OTRE and CIP of 14.1901
- If community colleges find that changes to the MRP are needed, they will notify the Instruction Commission, which will, in turn, notify the Joint Transfer Council (JTC). JTC will review the changes, as detailed in the section below (review process here: <http://www.wsac.wa.gov/sites/default/files/TransferAgreementRevisions-Oct2011.pdf>).
- Where the pathway lists student choice in engineering classes, the published associate degree listing will include advice to students about contacting potential transfer institutions regarding their choices.

¹ 2008/09 Modifications applicable to all options:

- Removed General Chemistry from Physics requirement and added to new **Chemistry** requirement.
- Moved Computer Programming requirement to **Other Pre-major Prerequisites & Electives** category. Increased credit requirement in this category by 4/5 credits. Removed 'Computer Programming' category (to align with AS-T Track 2 modifications approved by the Higher Education Coordinating Board on September 18, 2008).
- The **Humanities/Fine Arts/English and Social Science** requirements were clarified by duplicating AS-T Track 2 requirements and adding "A course in Economics is recommended" to each option.

The participating baccalaureate institutions agree:

- Students completing the AS-T Track 2 degrees, including those who follow these expanded details will, if admitted to the university, be admitted as juniors with all or most prerequisites for the specific engineering major completed (depending on choices made among engineering electives). In addition, these students will have lower division general education courses partially completed in a manner similar to the partial completion by freshmen-entry engineering students.
- The same 2.0 GPA requirement that applies to AS-T in general applies to these expanded details pathways. Engineering programs are competitive and may require a higher GPA overall or a higher GPA in specific courses.
- Baccalaureate institutions will apply up to 110 quarter credits required under this agreement to the credits required in the bachelor's degree, subject to institutional policy on the transfer of lower division credits.
- Baccalaureate institutions will each build an **alert mechanism** into their curriculum review process for changes related to the prerequisites for the engineering degree.
 - The alert will go to the institution or sector JTC member.
 - If the proposed change will affect lower division course taking, the JTC member will bring the issue to JTC's attention for action to review or update this Major Related Program Agreement.
- Prior to making changes in the admission requirements, institutions agree to participate in the JTC-designed **review process** and to abide by the related implementation timelines (review process here: <http://www.wsac.wa.gov/sites/default/files/TransferAgreementRevisions-Oct2011.pdf>).
- This statewide process applies only to changes² in the requirements for admission to the major. References to changes do not include changes in graduation requirements that are completed at the upper division level or the GPA an institution may establish for admission to a program.

The Joint Transfer Council will:

- Notify the Washington Student Achievement Council when undertaking a review of possible changes in the pathway and of subsequent changes made to the agreement.

² As judged by impact on students. This statewide process comes into play when potential majors need to complete specific courses not previously identified or present test results or information not included in the agreement.

Associate in Science – Transfer, Track 2 Expanded Detail for Engineering MRPs

Engineering is a broad discipline and one pathway will not fit the requirements for all sub-disciplines contained within engineering. Therefore, these pathways within the Associate of Science – Transfer, Track 2 Degree are designed for the following major areas:			
Associate of Science – Transfer, Track 2 Degree Requirements	Bioengineering and Chemical pre-Engineering (BIO and CHEM E) Pathway	Computer and Electrical pre-Engineering (Comp E and EE) Pathway	Mechanical/Civil/Aeronautical/ Industrial/ Materials Science/ pre- Engineering (Other Engineering) Pathway
Communication Skills (Min. 5 quarter credits) College level composition course.	Communication Skills College Writing - <i>5 credits</i>	Communication Skills College Writing - <i>5 credits</i>	Communication Skills College Writing - <i>5 credits</i>
Mathematics (15 quarter credits) Two courses at or above introductory calculus level (10 cr). Third quarter calculus or approved statistics course chosen with the help of an advisor based on the requirements of the specific discipline at the baccalaureate institution the student plans to attend (5 cr).	Mathematics Calculus 1,2,3 - <i>15 credits</i> Differential Equations - <i>3-5 credits</i>	Mathematics Calculus 1,2,3 - <i>15 credits</i> Differential Equations - <i>3-5 credits</i> Linear Algebra - <i>5 credits</i>	Mathematics Calculus 1,2,3 - <i>15 credits</i> Differential Equations - <i>3-5 credits</i> Linear Algebra - <i>5 credits</i>
Physics (15 quarter credits) Calculus-based or non-calculus based sequence including laboratory. Students should be advised that some baccalaureate programs require physics with calculus.	Engineering Physics 1,2,3 + labs - <i>15-18 credits</i>	Engineering Physics 1,2,3 + labs <i>15-18 credits</i>	Engineering Physics 1,2,3 + labs <i>15-18 credits</i>
Chemistry with laboratory (5 quarter credits) required for Engineering majors. Others should select 5 credits of science based on advising.	General Chemistry 1,2,3 + labs <i>15-18 credits</i> Organic Chemistry 1 + lab - <i>4-6 credits</i> Organic Chemistry 2 or Biology for Science Majors + labs - <i>4-6 credits</i>	General Chemistry 1 + lab <i>5-6 credits</i>	General Chemistry 1,2 + labs <i>10-12 credits</i>

Associate of Science – Transfer, Track 2 Degree Requirements	Bioengineering and Chemical pre-Engineering (BIO and CHEM E) Pathway	Computer and Electrical pre-Engineering (Comp E and EE) Pathway	Mechanical/Civil/Aeronautical/ Industrial/ Materials Science/ pre- Engineering (Other Engineering) Pathway
<p>Other Pre-major Prerequisites & Electives</p> <p>The remaining 35-quarter credits should be planned with the help of an advisor based on the requirements of the specific discipline at the baccalaureate institution the student selects to attend.</p>	<p>Engineering (14-15 credits) <u>Select 3 electives as appropriate for intended major and intended bachelor's institution:</u></p> <ul style="list-style-type: none"> • Computer Programming - 4-5 credits • Linear Algebra • Calculus 4 (Advanced or Multi-variable Calculus) • Technical Writing • Electrical Circuits • Statics • Thermodynamics • Chemical Process, Principles and Calculations • Biology for Science Majors I + labs • Biology for Science Majors II + labs • Organic Chemistry 2 + labs 	<p>Engineering Required (8-10 credits)</p> <ul style="list-style-type: none"> • Electrical Circuits - 4-5 credits • Computer Programming - 4-5 credits <p>Math, Science & Engr. Electives (20-25 credits) <u>Select 5 electives as appropriate for intended major and intended bachelor's institution:</u></p> <ul style="list-style-type: none"> • A second course in Computer Programming – object oriented - 4-5 credits • Innovation in Design • Calculus 4 (Advanced or Multi-variable Calculus) • Technical Writing • Statics • Dynamics • Thermodynamics • Digital Logic • Biology for Science Majors I + labs • General Chemistry 2 + lab • Applied Numerical Methods • Microprocessors 	<p>Engineering Required (15 credits)</p> <ul style="list-style-type: none"> • Statics - 5 credits • Mechanics of Materials - 5 credits • Dynamics - 5 credits <p>Math/Engr Electives – (15 credits) <u>Select 4 Electives (15-20 credits) as appropriate for intended major and intended bachelor's institution:</u></p> <ul style="list-style-type: none"> • Computer Programming - 4-5 credits • Innovation in Design • Calculus 4 (Advanced or Multi-variable Calculus) • 3-D Visualization and CAD (Engineering Graphics) • Technical Writing • Thermodynamics • Electrical Circuits • Materials Science • Applied Numerical Methods

<p>Humanities and Social Science (minimum 15 quarter credits) Minimum 5 credits in Humanities, minimum 5 credits in Social Science, plus an additional 5 credits in either Humanities or Social Science for a total of 15 credits. Courses taken at the community or technical college to meet the Humanities and Social Sciences requirements in the AS-T will be accepted toward those requirements and counted as General Education Requirements/General University Requirements (GERs/GURs) by the receiving institution.</p>	<p><u>Humanities /Fine Arts / English and Social Science (15 credits)</u> Minimum 15 quarter credits: Minimum 5 credits in Humanities, minimum 5 credits in Social Science, plus an additional 5 credits in either Humanities or Social Science for a total of 15 credits.</p> <p>A course in Economics is recommended.</p>	<p><u>Humanities /Fine Arts / English and Social Science (15 credits)</u> Minimum 15 quarter credits: Minimum 5 credits in Humanities, minimum 5 credits in Social Science, plus an additional 5 credits in either Humanities or Social Science for a total of 15 credits.</p> <p>A course in Economics is recommended.</p>	<p><u>Humanities /Fine Arts / English and Social Science (15 credits)</u> Minimum 15 quarter credits: Minimum 5 credits in Humanities, minimum 5 credits in Social Science, plus an additional 5 credits in either Humanities or Social Science for a total of 15 credits.</p> <p>A course in Economics is recommended.</p>
	<p>Total Maximum Credits 90 - 103</p>	<p>Total Maximum Credits 95 - 104</p>	<p>Total Maximum Credits 102 – 110</p>

SIGNATURE PAGE
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Participants to the Agreement

The Joint Access Oversight Group (Joint Transfer Council in 2017) reviewed revisions to the 2005 agreement on May 19, 2008 and forwarded it, pending final approval of the proposed changes to the AS-T Track 2 (removing computer science from the requirements in all Track 2 degrees) by the chief academic officers and Engineering Deans at UW Seattle, WSU, EWU, Gonzaga U, Saint Martin's U, Seattle Pacific U, Seattle U, Walla Walla U.

On behalf of the Washington State Community and Technical Colleges

Deputy Executive Director

Date

Approved by the Baccalaureate Institutions:

Date _____
Dean, Eastern Washington University

Date _____
Provost/Chief Academic Officer. Eastern Washington University

Date _____
Dean, Washington State University

Date _____
Provost/Chief Academic Officer. Washington State University

Date _____
Dean, University of Washington, Seattle

Date _____
Provost/Chief Academic Officer. University of Washington, Seattle

Date _____
Dean, Gonzaga University

Date _____
Provost/Chief Academic Officer, Gonzaga University

Date _____
Dean, Saint Martin's University

Date _____
Provost/Chief Academic Officer, Saint Martin's University

Date _____
Dean, Seattle Pacific University

Date _____
Provost/Chief Academic Officer, Seattle Pacific University

Date _____
Dean, Seattle University

Date _____
Provost/Chief Academic Officer, Seattle University

Date _____
Dean, Walla Walla University

Date _____
Provost/Chief Academic Officer, Walla Walla University

These signatures are on file at the Washington Student Achievement Council.

Engineering AS-T/MRP Workgroup Participants

Co-Chairs: Robert (Bob) Olsen and Jeff McCauley

Community and Technical Colleges:

Jack Surendranath
Jim Hamm
Chris Byrne
Muhammad Mir
Jill Davishahl
Eric Davishahl

Jeff McCauley
Keith Clay
Bob Maplestone
Dennis Schaffer
Patricia Cheadle
Larry Smith

Kenneth Schroeder
Nancy Verheyden
Art West
Jim Bellotty
Kelly Casey
Jane Twaddle

Baccalaureate Institutions:

Anthony de Sam Lazaro
Bill Bender
George Simmons
Brian Miller
Mara Rempa
Carolyn Denney

Chen-Ching Liu
Frank Ashby
Robert (Bob) Olsen
David McLean
Donald Richter
Steve Dillman

Carlos Oncina,
Bob Wood
Dennis Horn
Jennifer Payne
Joan Sarles

Staff Support:

Loretta Seppanen, State Board for Community and Technical Colleges
Andi Smith, Higher Education Coordinating Board
Violet Boyer, Independent Colleges of Washington
Cynthia Morana, Council of Presidents

Joint Access Oversight Group Members (Original 2005 MRP)

Randy Lawrence, Vice President of Instruction, Olympic College, Co-Chair
Jane Sherman, Vice Provost for Academic Policy and Evaluation, WSU, Co-Chair

Bill Eaton, Senior Vice President of Educational Services, Peninsula College
Ivan Gorne, Vice President, Student Services, Bates Technical College
Patricia Onion, Vice President for Educational Services, Whatcom Community College,
Pam Praeger, Vice President for Learning/Chief Academic Officer, Spokane Falls Community College
Laurie Kaye Clary, Vice President of Instruction, Grays Harbor College
Rassoul Dastmozd, Vice President of Instruction, Clark College
Sandra Fowler Hill, Vice President of Instruction, Everett Community College
Tracy Pellett, Associate Vice President for Undergraduate Studies, CWU
Kris Bulcroft, Vice Provost for Undergraduate Education, WWU
John Sahr, Associate Dean, Undergraduate Academic Affairs, UW
Larry Briggs, Associate Vice President for Enrollment Services, EWU

Doug Scrima, Director of Admissions, TESC
Brad Tomhave, Registrar, UPS
Vi Boyer, President and CEO Independent Colleges of Washington

Randy Spaulding, Director, Academic Affairs, HECB
Loretta Seppanen, Assistant Director, Educational Services, SBCTC
Cindy Morana, Associate Director, COP

Joint Access Oversight Group Members (for 2008 modifications)

Jane Sherman, Vice Provost for Academic Policy and Evaluation, Washington State University, Co-chair
Sandra Fowler-Hill, Vice President of Instruction, Everett Community College, Co-chair

Ivan Gorne, Vice President, Student Services, Bates Technical College
Rassoul Dastmozd, Vice President of Instruction, Clark College
Laurie Kaye Clary, Vice President of Instruction, Grays Harbor College
Jeff Wagnitz, Vice President of Instruction Highline Community College
Dorna Bullpitt, Interim Vice President for Instruction, South Puget Sound Community College
Jim Minkler, Vice President for Academic Services, Community Colleges of Spokane
Pam Praeger, Vice President for Learning/Chief Academic Officer, Spokane Falls Community College
Patricia Onion, Vice President for Educational Services, Whatcom Community College
Larry Briggs, Associate Vice President for Enrollment Services, Eastern Washington University
Tracy Pellett, Associate Vice President for Undergraduate Studies, Central Washington University
Steven Vanderstaay, Vice Provost for Undergraduate Education – Western Washington University
John Sahr, Associate Dean, Undergraduate Academic Affairs, University of Washington
Doug Scrima, Director of Admissions, The Evergreen State College
Brad Tomhave, Registrar, University of Puget Sound

Michelle Andreas, Associate Director, Educational Services, State Board for Community and Technical Colleges
Randy Spaulding, Director, Academic Affairs, Higher Education Coordinating Board
Jim West, Associate Director, Academic Affairs, Higher Education Coordinating Board
Mike Reilly, Assistant Director, Council of Presidents
Vi Boyer, President and CEO, Independent Colleges of Washington