2015-2016 Catalog

Published 7.1.2015
Volume 4.1

Engineering Focused Education:

- **Bachelor of Science Degrees**
- **Associate of Applied Science Degrees**
- **Continuing Education Courses**

Evening:	All Programs & Courses
Low Tuition:	$5,400 / year
Textbooks Included:	Lend from WEI Library
Instruction:	By Industry Professionals

Civil Engineering Technology

Mechanical Engineering Technology

Washington Engineering Institute, 1414 Meador Avenue Suite 104, Bellingham WA 98229
website: www.weiedu.org email: admin@weiedu.org phone: (360) 739-1428

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Institute Mission Statement:

"The mission of the Washington Engineering Institute is to provide practical engineering technology curriculum, driven by industry needs, and instructed by engineers, surveyors, and technicians with practical industry experience. The goal is to produce positive and motivated engineering technologists with technical job skills that are highly desirable to engineering and related industries."

Institute Purpose Statements:

1. **Keep Private College Tuition Low:** Tuition for a 45-Credit school year is $5,400 per year.
2. **All Evening Classes:** The Institute provides all of its classes in the evenings. This allows our students and instructors to work during the day and meet for engineering classes in the evenings.
3. **Instruction by Industry:** The Institute provides classes instructed by engineers, land surveyors, planners, technicians, designers, and other industry professionals. A detailed list of faculty members and their qualifications can be found in this catalog.
4. **Commitment to Private Education:** The Institute was founded by private industry professionals with the strong belief that private industry should manage and teach engineering technology education.
5. **Monthly and Quarterly Classes:** The Institute provides focused classes with one, two, or three month durations, so that professionals can take or teach them for continuing education credit.
6. **Engineering Career Advocates:** The Institute advocates engineering and surveying career options to high school students, industry, and the general public.

College Authorization Statement:	**Equal Opportunity Statement:**
Washington Engineering Institute is authorized by the Washington Student Achievement Council and meets the requirements and minimum education standards established for degree-granting institutions under the Degree-Granting Institutions Act. This Authorization is subject to periodic review and authorizes the Washington Engineering Institute to offer specific degree programs. The Council may be contacted for a list of currently authorized programs. Authorization by the Council does not carry with it an endorsement by the Council of the institution or its programs. Any person desiring information about the requirements of the act or the applicability of those requirements to the institution may contact the Council at P.O. Box 43430, Olympia, WA 98504-3430	The Washington Engineering Institute provides equal opportunity in education and employment, and does not discriminate on the basis of race, ethnicity, creed, color, sex, national origin, age, marital status, religious preference, the presence of any sensory, mental, or physical disability, reliance on public assistance, sexual orientation, or status as a disabled person. Questions regarding this policy should be directed to the Academic Director, 360-739-1428

Washington Engineering Institute

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Washington Engineering Institute, 1414 Meador Avenue Suite 104, Bellingham WA 98229
website: www.weiedu.org email: admin@weiedu.org phone: (360) 739-1428

Washington Engineering Institute

Address and Map

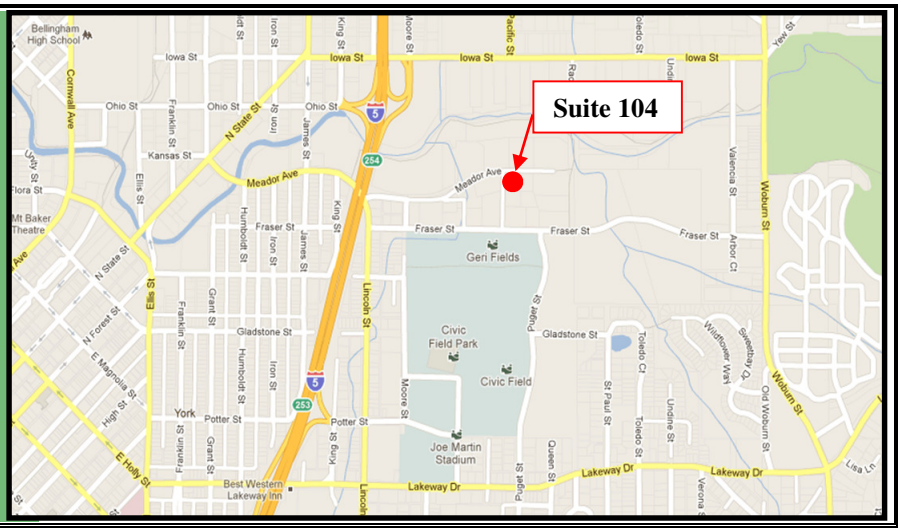
Address
Washington Engineering Institute
1414 Meador Avenue, Suite 104
Bellingham, WA 98229
Web: www.weiedu.org

Admissions
Phone: (360) 795-7485
Email: kdaheim@weiedu.org

Administration
Phone: (360) 739-1428
Email: admin@weiedu.org

Map

1. **Find the Haskell Business Center, which is directly across from the Civic Center Softball Fields**
2. **Take Express Drive North into the Business Center**
3. **At the corner of Meador Avenue and Express Drive**
4. **Look for the Lettered Building H, Suite 104**



Academic Calendar 2015-2016

Fall Quarter 2015	
September 7	Labor Day Holiday, No Classes
September 8	Fall Quarter Begins
November 11	Veteran's Day, No Classes
November 26-27	Thanksgiving Holiday, No Classes
December 19	Fall Quarter Ends
December 20- Jan. 3	Winter Break

Winter Quarter 2016	
January 4	Winter Quarter Begins
January 18	Martin Luther King, Jr. Day, No Classes
February 15	President's Day, No Classes
March 26	Winter Quarter Ends
March 27 - April 3	Spring Break

Spring Quarter 2016	
April 4	Spring Quarter Begins
May 30	Memorial Day, No Classes
June 23	Graduation
June 25	Spring Quarter Ends
June 26 - July 3	Summer Break

Summer Quarter 2016	
July 4	Independence Day, No Classes
July 5	Summer Quarter Begins
August 27	Summer Quarter Ends
Aug. 28 – Sept. 4	Fall Break

Fall Quarter 2016	
September 5	Labor Day Holiday, No Classes
September 6	Fall Quarter Begins
November 11	Veteran's Day, No Classes
November 24-25	Thanksgiving Holiday, No Classes
December 17	Fall Quarter Ends
December 18- Jan. 1	Winter Break

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Accreditation Status: The Institute is currently pursuing national accreditation. However, the national accreditation process can take several years. Accreditation is not automatic, it must be earned. The Institute is following an accreditation plan to provide national accreditation as-soon-as practicable.

Private Ownership: The Institute is privately owned and operated by Dave and Katherine Bren. Mr. Bren is a Washington State Licensed Professional Engineer and acts as the Engineer of Record for the Institute with his license. Dave and Katherine both hold Master of Science Degrees in Engineering, many years of private engineering experience, and many years of teaching experience. The Institute is primarily funded by students working during the day and paying for their own tuition.

Advisory Committees: Program areas have advisory committees made up of industry professionals and faculty members who support and guide the curriculum, facilities, equipment, and instruction.

Civil Engineering Technology Advisory Committee Members:

Mike Hames
Heavy Civil Contractor

Martin Kjelstad, PE
Civil Engineer

Bob Morse, PLS
Land Surveyor

Jeff Vanderyacht, PE
Civil Engineer

Mechanical Engineering Technology Advisory Committee Members:

Dustin Durham
Process Piping Designer

Ben Schouten, PE
Mechanical Engineer

John Vanden Bosche, PE
Mechanical Engineer

Dave Weidkamp, M.Ed.
Software Trainor and Educator

Administrative Officers: The Institute is very small and our administrators are involved in teaching coursework as well as administrative functions. The administrative officers for the Institute are as follows:

Dave C. Bren, PE, MSCE
President and Academic Director

Kristina Daheim, MA
Admissions and Student Services

Katherine Bren, EIT, MSE
Business and Library Services

Janelle Miner, M.Ed.
Registrar

Faculty Members: Many of the Institute faculty are practicing professionals that work in the industry during the day. Practicing professionals bring the industry to the classroom ensuring that the curriculum is driven by industry needs. A detailed list of faculty and credentials can be found in this catalog.

Degree Program Admissions: Degree program admission requires candidates to complete the following steps:

1) **Admissions Interview:** Candidates must complete an admissions interview before they can begin the admissions process.

2) **Registration Form:** Candidates must complete a registration form.

3) **Enrollment Agreement:** All candidates must complete an enrollment agreement form.

4) **Previous Education Verification:** All incoming **freshman** candidates must hold a high school diploma, GED, or previous degree in order to be accepted into a degree program. All incoming **junior** year transfer candidates must hold a prerequisite associate degree for their area of study as follows:

   - **Associate of Applied Science in Civil Engineering Technology (AASCET)**
   - **Associate of Applied Science in Mechanical Engineering Technology (AASMET)**

5) **Entrance Exam:** All candidates must take the Washington Engineering Institute Entrance Exam. The results of the Entrance Exam will be used to determine a candidate's ability-to-benefit from the coursework.

6) **Letter of Acceptance:** A candidate shall not be considered enrolled until they have received a signed Letter of Acceptance from the Institute. The letter of acceptance includes start date, name of advising instructor, student identification number (SID), and if necessary; remedial coursework requirements.

Continuing Education Students are Welcome: Individual classes may be taken without program enrollment on a space available basis. However, enrolled degree program students have registration seniority over continuing education students. The registration process for continuing education is as follows:

1) **Register for the Course:** All continuing education students must complete a registration form.

2) **Registration Confirmation:** Registration will be confirmed by email, subject to course space availability and degree program seniority.

3) **Tuition Payment:** Pay tuition promptly after confirmation to hold a space in the class.

Degree Program Seniority: Students that has successfully completed the program admissions process shall be considered program enrolled. Program enrolled students have coursework registration seniority over continuing education students.

Articulation Agreement Credits: Students may request transfer of credit for courses that have been completed under a written articulation agreement between the Washington Engineering Institute and a college or high school. Courses to be transferred must be identified in the articulation agreement. In addition, the articulation documentation must identify the student, the courses they completed, and be signed by authorized parties in both institutions.

Transfer of Credits in to WEI: Students may request the transfer of credit for prior education for any course(s) in their program. The Registrar shall have full authority to evaluate student provided transcripts and grant transfer credit for the requested course(s). At a minimum, twenty five percent (25%) of the total program credits required for a program must be completed at the Institute. The transfer credit award process is as follows:

1. Have an **official transcript** sent by mail to the Registration Office from your transfer institution
2. Notify the Registrar by email at jminer@weiedu.org that an official transcript is being sent and detail which classes you are requesting prior education credit
3. The Registrar will evaluate the prior education and update the student's official transcript for any prior education credit awarded. The student may request a copy of the updated transcript per standard transcript policy.

Course Challenge Credits: Students may request credit for industry training and work experience through the course challenge process. The course challenge process is a measurable and documentable way for a student to prove their knowledge in a course subject. Course challenge credit may not exceed twenty five percent (25%) of the total program credits. The Instructor of Record for the course shall have full authority to evaluate a course challenge under the following process steps:

1. The student will register for the course as normal.
2. The student will meet with the course instructor and present training and work experience for evaluation.
3. If the course instructor approves of the students presented knowledge they will then administer a course challenge, typically in the form of a final exam or final project and pass the exam to a standard B grade or better.
    - Should the student fail the course challenge they will continue the course, **paying full tuition.**
    - Should the student pass the course challenge the course instructor will notify the registrar of a successful course challenge and the student will pay a **$50 course challenge fee.**

No Experiential Learning Credits: The Institute **does not** award experiential learning credit. As an alternative, the Institute provides a course challenge process, where students can show their knowledge in a measurable and documentable way.

No Advanced Placement Credits: The Institute **does not** award advanced placement credit. In short, the results of an entrance exam are **not** to be used to place students into higher level coursework. However, the results of an entrance exam may be used to require remedial coursework for the student. As an alternative, the Institute provides a course challenge process, where students can show their knowledge in a measurable and documentable way.

Transfer of Credit out of WEI: The Washington Engineering Institute is a working college **not** a transfer college. Credits earned at the Institute are unlikely to transfer to other colleges for two reasons:

1) The curriculum is heavily **focused on applied work skills**. Courses that prepare you for work do-not line-up well with academic theory based colleges for transfer.

2) The college and its degrees are State authorized, but they are not nationally accredited (see accreditation status). Therefore, Institute **credits are unlikely to transfer** to other colleges. A bachelor's degree at the Washington Engineering Institute is meant to be an end-all degree, to set you up for working **not** for transferring to another college.

Tuition Schedule: WEI is a private college, so the tuition rates are the same for everyone. The tuition rate schedule is as follows:

Fee	Amount	Unit
Tuition by Course Credit	$120	Per Course Credit
Typical Yearly Tuition	$5,400	Per (45) Credit Year
Course Challenge Tuition	$50	Per Course Challenge

No Fees: WEI does not have academic fees.

Tuition Payment: Payment for courses is typically conducted as follows:

1. **Tuition Invoice Email:** Students are sent tuition invoices by email. Tuition invoices are typically emailed the week before a course begins.
2. **Bring Check on First Night:** Students typically pay by check at the beginning of class on the first night of the course. Please avoid paying tuition by cash.
3. **One Course at a Time:** Students typically take one course at a time. Therefore, students typically just pay for one course at a time.

Refunds: Students may request a tuition refund for tuition paid on courses not yet completed. The refund request must be in the form of a signed note or letter to the academic director. The amount of the tuition refund is based on the following schedule:

Course Percent Completed	Refund Amount
Refund requested before the course start date	100%
Refund requested before the course midpoint	50%
Refund requested on or after the course midpoint	0%

Course Cancellation Refunds: The Institute reserves the right to cancel courses that do not have at least (8) students, with at least 24 hours' notice of class start. Students will receive a full refund for the cancelled course tuition.

Tax Credit Information (Cannot Issue 1098T Forms): The Institute cannot take federal financial aid and is not an "eligible institution" for qualified education expenses. This means that Institute cannot issue 1098T forms to students, which makes deduction more difficult. Please consult your tax advisor for deduction methods and tax information.

Textbook Lending from WEI Library: Course textbooks are available from the WEI library for check-out. This avoids the overhead costs of a bookstore. **Textbook lending** from the WEI library **saves students thousands of dollars** over a bachelor's degree program.

Supplies: Supplies purchasing is spread out through the program and item costs vary greatly on student choices for quantity and quality. The following list is **not** comprehensive; additional supplies may be required to meet the demands of the curriculum.

Typical Program Supplies
• 17" Laptop (~$500 to 800)
• Student Version of MS Office (~$100)
• Clear Presentation Binders (3 ring) for 12 Classes (~$35)
• Mechanical Pencils and Erasers (~$35)
• Engineer's Scale Stick (~$8)
• Color Highlighters (~$10)
• 11x17 Itoya Presentation Portfolio (~$20)
• Scientific Calculator (~$20+)
• Engineers' calculation paper pads (~$35)
• Engineers' scale tape measure 25' (**CET Only**~$35)
• Rite in the Rain Survey Field Book (**CET Only**~$10)
• Survey Vest (**CET Only**~$100)
• Student Version of Rhino (**MET Only**~200)
• Student Version of Solidworks (**MET Only**~$200)
• (2) Months The Foundry Lab Fee (**MET Only** ~$100)
• Basic Welding & Fabrication Equipment Kit (**MET Only** ~$300)

Grading System: The Instructor holds the sole authority to issue grades based on a 4.0 schedule as shown below. Grades are generally determined by a combination of attendance, assignments, exams, quizzes, projects, verbal questions, observed equipment skill competencies, tardiness, and/or classroom behavior to determine a grade.

Grading legend

4.0	A
3.7	A-
3.3	B+
3.0	B
2.7	B-
2.4	C+

2.0	C
1.7	C-
1.3	D+
1.0	D
0.7	D-
0.0	F

AU	Class audited with no grade earned
CC	Course Challenge credit granted per policy
TR	Prior education credit granted per policy
INC	Incomplete – Instructor Allows Extra Time to Complete
W	Withdrawn from class

(AU) Auditing: No grade is awarded for classes taken as an audit. Continuing education student typically take classes for audit credit only.

(CC) Course Challenge Credit: The Institute policy on challenging coursework is defined earlier in this Catalog.

(TR) Transfer Credit: The Institute policy on educational transfer credit is defined earlier in this Catalog.

(INC) Incomplete: The instructor may issue an incomplete grade for a course. It is the student's responsibility to complete the course by the end of the next following quarter. All incomplete grades will be replaced with the grade, as earned, at the end of the following quarter.

(W) Withdrawal: Students can withdraw from a course up till the middle of a course. A special "W" is recorded on the student transcript.

Attendance Drops: Students that stop attending classes after the first week will receive the grade they have earned in the course up to that point.

First Week No Shows: Not showing up for the first two class meetings will result in administrative withdrawal.

Credit System: The Institute conducts curriculum under a quarterly system and calculates course credit hours by using the following standard:

Course Activity	Hours	Credit
Lecture	10	1 Cr
Lab Work	20	1 Cr
External Work	40	1 Cr

Course Blocks: The Institute has organized its courses into course blocks. A course block is a focused course with many hours over a shorter duration. Students typically take one evening course at a time, as they work through the program. Typical course credit hours are calculated as follows:

Block	Credits	Weeks	Total Lecture Hours
1	4 CR	4	40
2	5 CR	6	50

Registration After Enrollment is Automatic: Enrolled degree program students are automatically registered for their next courses as shown on their degree plan. This eliminates the quarterly registration process paperwork completely. Should a student be unable to attend the next automatically registered course, they will need to withdraw from the course per catalog policy.

Degree Planning: Enrolled degree program students will typically graduate under the degree requirements of the catalog they entered the program under. Your program advisor will prepare a degree plan to guide you through the program. Your degree plan will typically show completed courses marked in green and upcoming courses marked in yellow. Please work with your program advisor to keep your degree plan up to date.

Graduation Requirements – Associate of Applied Science: Graduating candidates must meet all of the following requirements:

1. Completion of all Freshman and Sophomore level coursework required by the degree program
2. Hold a minimum GPA of 2.0 at time of graduation

Graduation Requirements – Bachelor of Science: Graduating candidates must meet all of the following requirements:

1. Completion of an Associate's Degree in the prerequisite area of study
2. Completion of all Junior and Senior level coursework required by the degree program
3. Hold a minimum GPA of 2.0 at time of graduation

Program Coursework Changes: Enrolled degree program students typically graduate under the catalog volume coursework that they entered the degree program with. However, the degree programs are frequently updated to adapt to changing industry needs and the new curriculum is higher desirable to enrolled students. Therefore, students may end up graduating under a newer catalog volume's coursework.

Program Acceleration: It is possible to take extra courses and finish your degree early. You will need to work closely with your program advisor to adjust your degree program plan, as degree plans are paced for the typical student.

Part-Time: It is possible to take less courses each quarter than the typical student schedule. You will need to work closely with your program advisor to adjust your degree program plan to accommodate a part-time schedule. Taking courses part-time will lengthen the time required to obtain a degree.

Course Prerequisites: Students must meet prerequisite requirements to be automatically registered for a course that has prerequisites. The course instructor may provide permission for a student to take the course without the required prerequisites.

Academic Status: Academic status is reviewed at the end of each quarter, to gauge student performance and ability to continue with a degree program. Status will be based on credits completed and quarterly and cumulative Grade Point Average (GPA).

> **Program Inactivity:** Students must complete one course per quarter to remain active in a degree program. Students that are inactive for a quarter will be placed on academic probation for program inactivity. A student on academic probation for inactivity that remains inactive for another quarter shall be dismissed. Exceptions may be granted for medical and work reasons by the Academic Director.
>
> **Academic Progress:** Students shall maintain a quarterly GPA of at least 2.0. Students that fall below a 2.0 quarterly average shall be placed on academic probation for academic progress. A student on academic probation that falls below a 2.0 quarterly average for another quarter shall be dismissed. Exceptions may be granted for medical and work reasons by the Academic Director.

Dismissal: A student that is on academic probation and who does not correct the deficiency in the following quarter shall be dismissed.

Reinstatement: A student may appeal dismissal by writing a "request for reinstatement" letter to the Academic Director. The Academic Director has the sole authority to review submitted materials and to offer reinstatement.

Student Grievance: A student may appeal any action taken by faculty, staff, or administration with a written "statement of grievance" to the Academic Director, 1414 Meador Avenue Suite 104, Bellingham, WA 98229. The Academic Director has the sole authority to review submitted materials and determine grievance actions.

Absences, Tardiness, and Make-Up Work: Absences and tardiness may affect grades and can be made-up at the Instructor discretion. The Instructor may issue make-up coursework at their discretion. In all cases, it shall be the initiative of the student to make-up any missed work or lectures.

Withdrawal: Students may withdraw from a course and/or their degree program as follows:

Course Withdrawal: A student that does not show up for class and/or does not pay for tuition for the first two class meetings will result in administrative withdrawal from the course. A student can also withdraw from a course by requesting withdrawal in writing to the Academic Director. The withdrawal process is completed by the registrar noting course withdrawal on the student's transcript.

Program Withdrawal: A student can withdraw from the program by requesting withdrawal in writing to the Academic Director. The program withdrawal process is completed by the registrar noting program withdrawal on the student's transcript. Please see the Program Inactivity section on the previous page, for when students stop attending all classes, without notification.

Transcripts Policy: An official final transcript is mailed with the completion of any degree program. Official and unofficial transcripts are provided to students upon email request to the registrar at jminer@weiedu.org.

Student Records: A student that is enrolled or has been enrolled may review educational records maintained by the college under the following policy.

Educational Records: Any record in whatever form including; handwritten, electronic, recorded, printed, filmed, or other mediums which are maintained by the college.

Staff Exception: Personal records kept in the sole possession of a college staff member may not be reviewed. A good example is the grade book of an instructor. The student may review the final grades submitted to the college by the instructor, but not the personal grade book of the instructor.

Student Rights: Students have the right to:

- Review the student's own educational records.
- Request that the student's educational records be amended to ensure the records are not inaccurate, misleading or otherwise in violation of a student's privacy.
- Consent to disclosure of personally identifiable information contained in the student's educational records.
- Obtain a copy of the college's Student Records Policy.

Procedure to Review Educational Records: Students will use the following process to access their records:

- Students may review their own educational records upon written request to the College's Academic Director. The request should identify as precisely as possible the record(s) the student wishes to review.
- Access will provided within 10 working days of receipt of the written request.
- The college reserves the right to refuse to permit a student to review the following information:
    1. Letters of recommendation for which the student has waived his or her right of access.
    2. Records which are excluded from the above definition of educational records.
    3. Any records which contain information about other students.
- The College reserves the right to refuse to provide copies of records to students with outstanding financial obligations to the college or where there is an unresolved disciplinary action pending against the student.

Amendment of Educational Records: Students will use the following process to amend their records:

- A student must notify the college in writing of information in the student's educational record which the student believes is inaccurate, misleading or in violation of a student's privacy. Requests for grade changes are not included in this policy.
- If the college does not amend the student's record at the student's request, the student is entitled to a hearing with the College President. The decision of the College President will be considered final.

Disclosure of Educational Records: The College will disclose information contained in a student's educational records only with written consent of the student, with the following exceptions:

- To school officials, including teachers, who have a legitimate educational interest in the student records.
- To officials of a local, state or federal agency in connection with a student's request for financial assistance for college expenses from that agency.
- To federal, state and local agencies and authorities as provided by law.
- To comply with a judicial order or lawfully issued subpoena.
- In response to an emergency where the student or others are in immediate physical danger. Determination to disclose records under this provision will be made solely by the College President.

Disruptive Behavior: The Instructor has full authority to maintain control in the classroom in order to provide a positive learning environment. Disruptive behavior is defined as any action that negatively effects the classroom-learning environment.

Behavior Rising to the Level of Dismissal: Threats and any criminal activity are clear grounds for dismissal. In addition, disruptive behavior can rise to the level of dismissal. The Academic Director has full authority to determine dismissal. Class re-admission is possible, only with Academic Director permission.

Drug-Free Campus: In compliance with the Drug Free Workplace Act, the unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited in and on Institute controlled property. Any instructor or student determined to have violated this policy shall be subject to termination of employment or expulsion from the Institute.

Cheating, Plagiarism and Dishonesty : The Washington Engineering Institute maintains a high standard of academic integrity. Learning in a small, cohesive environment is based on trust, honesty and a common desire to develop applicable skills and knowledge in the field of engineering. In the event of cheating, plagiarism and academic dishonesty, the ability for the Institute to be a provider of education, and student learning is compromised.

> The Oxford English Dictionary definition of **Cheating**: *To act dishonestly or unfairly in order to gain an advantage, especially in a game or examination.*
>
> The Oxford English Dictionary definition of **Plagiarism**: *The practice of taking someone else's work and passing them off as one's own.*

Disciplinary Actions: In the event of cheating and plagiarizing the following disciplinary actions may be taken by the program instructor:

1) Review at which time, the Instructor may consult the Academic Director.
2) The Instructor may decide if the coursework, exam, or paper are required to be repeated.
3) The Instructor may determine if the exam, project, or paper grade be a zero (0).
4) The Instructor may determine if the final course grade should be a zero (0).
5) The Instructor may refer to the case to the Academic Director, who can, in collaboration with the Student Services Director and the Instructor, determine if probation, suspension, or expulsion is the best course of action.

Disciplinary Appeals: In the event of disciplinary action, expulsion, or suspension the student may appeal to the Academic Director in writing. The Academic Director has the sole authority to review submitted materials and determine appeal actions.

Distance Learning (None): The Institute **does not** provide distance learning. Our industry advisors and our faculty members both agree that engineering is not an online subject. In addition, industry clearly is skeptical of online engineering degrees and may not hire them at all. Therefore, we have decided to have all our coursework conducted as structured lectures and labs.

Financial Aid Services (None): The Institute does not provide financial aid services, so we can keep our tuition low with **minimal administration**. In addition, the Institute is not a Title IV school and **cannot receive government funding** of any kind. That being stated, the Institute's tuition is low and our courses are only offered at night for a reason. In short, our students work during the day, pay as they go, and avoid getting in debt as follows:

- **Self-Pay:** Most WEI students work during the day and pay for their own tuition. This is why all WEI classes are in the evening. Low tuition provides the opportunity for students to work and pay as they go.
- **Scholarships:** Program enrolled WEI students should consider putting some effort into obtaining career changing scholarships. Engineering is a good subject area to be in for scholarships.
- **Employer Tuition Reimbursement:** A small portion of our students have their tuition fully or partially paid for by their employer. Check with your employer, you may be surprised at how supportive they will be for you to gain technical job skills.
- **Paid Engineering Internships:** Students that have studied hard in their freshman and sophomore years, should have enough skills to test the engineering career waters with a paid internship. All of our classes are in the evenings so our students will be available during the day for internships.

Placement Services (None): The Institute does not provide job placement services. That being stated, the instructors, who are practicing professionals, do recommend impressive students to their peers in the industry. In addition, industry professionals take classes for continuing education purposes and student networking, mentoring, and internships are encouraged.

Book Store (None): The Institute does not provide a bookstore. There are plenty of office supply stores that can provide student supplies. In addition, course textbooks are available from the WEI library for check-out. **Textbook lending** from the WEI library **saves students thousands of dollars** over a bachelor's degree program.

Student Email (None): The Institute does not provide college email addresses for students. That being stated, students are required to obtain an their own email account to use throughout their time at the Institute. A Gmail or Hotmail account will suffice, so long as the student acknowledges that important information between the school, including instructors and school administration, will be sent to that account.

Personal Laptop Required: The Institute does not provide a computer lab. All enrolled students are required to have a personal laptop so they can study anywhere and at anytime.

The good news is that laptop prices are reasonable. You should be able to get a good laptop for somewhere **between $500 and $800**. WEI recommends the following laptop specifications:

- 17" Screen with a full size keyboard
- Windows 7 (best) or Windows 8 (acceptable)
- Dedicated Video Card
- Fast 7200rpm **or** Solid State Drive

Personal Software Required: All of the degree programs require students to purchase Microsoft Office to conduct the coursework. In addition, the Mechanical program requires students to purchase the student version of Solidworks and Rhino to conduct their coursework. Other coursework software can be downloaded for free including; AutoCAD, Civil 3D, Inventor, and Revit.

Industry Equipment Use: Some of the Institute courses utilize equipment borrowed from local industry. A good example is Construction GPS or Surveying Equipment. Thanks to the generosity of local industry we have access to this equipment. Therefore, students and faculty must take great care with the borrowed equipment so as to ensure future courses have access to the equipment.

Student ID Numbers (SID): Each student is issued a unique student ID number. This number is used on school paperwork to avoid use of the social security numbers. Students should always use their student ID number instead of social security numbers on required school documents.

Institute Catalog: The Institute has the following policies relating to the catalog.

Reduction of Paper Waste: The Washington Engineering Institute is committed to reducing paper waste in the environment. Therefore, we have made the green commitment not to send out course schedules or catalogs by bulk mail. Instead, a limited number of course schedules and catalogs will be printed for internal and advising table use.

Online Catalog Availability: Marketing efforts will direct candidate students to our online catalog and course schedules. The catalog and course schedules will be available for viewing or download in PDF format on the Institute website: www.weiedu.org. Alternatively, any employee can provide a digital copy of the catalog in PDF format by email.

Individual Hardcopies on Request: On occasion, candidates or agencies may request a catalog or course schedule in hardcopy format. Individual hardcopies will be provided free of cost by mail on request.

Catalog Changes and Approvals: The Academic Director shall approve all changes to the Institute's Catalog prior to issuance. The Catalog shall have the volume number and date of publication clearly printed on the front page. The Catalog shall have contact information printed in the footer of every page.

Student Evaluations of Faculty: Student evaluations of faculty shall be conducted quarterly or by course. The typical evaluation process is as follows:

1) The instructor shall designate one student as the evaluation lead and provide them blank evaluation forms and a large envelope.
2) The instructor shall leave the classroom while the students fill out their evaluation forms.
3) The student evaluation lead shall collect the evaluations, place them in the envelope, seal the envelope, and submit the sealed envelope to the Academic Director.
4) The Academic Director will then review and compile the evaluations.
5) The Academic Director may then meet with the instructor, provide a compiled evaluation, and/or discuss the results.
6) The Academic Director may use the evaluations for corrective actions or use them for positive recognition.

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Civil Engineering Technology

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Mechanical Engineering Technology

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AAS in Civil Engineering Technology

Associate of Applied Science in Civil Engineering Technology

Engineering Technician Degree Program

Program Objective: The Civil Engineering Technology Associate of Applied Science degree prepares graduates to work as engineering technicians. The program focuses on software and equipment job skills required for careers in government agencies and the private Civil Engineering Industry. Hands-on coursework includes field surveying, two years of CADD design, GIS mapping, permitting, and heavy construction fundamentals.	**Typical Career Paths for Graduates:** The associate of science program prepares students to work at the engineering technician level with typical job titles including the following: • **Engineering Technician** • **Civil Drafter** • **Civil Designer** • **Stormwater Technician** • **Stormwater/Erosion Control Inspector** • **Public Works Permit Specialist** • **Construction Materials Inspector/Tester** • **Construction Inspector** • **Public Works Inspector**

Program Outcomes: Graduates of the baccalaureate degree program must demonstrate knowledge and technical competency, appropriate to the objectives of the program, to:

a. Utilize principles, hardware, and software that are appropriate to produce drawings, reports, quantity estimates, and other documents related to civil engineering;

b. Conduct standardized field and laboratory tests related to civil engineering;

c. Utilize surveying methods appropriate for land measurement and/or construction layout;

d. Apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to civil engineering.

Civil Engineering Technology CIVE

Associate of Applied Science Coursework

Freshman - Year 1	**Fall**	CADD	111	AutoCAD 2D Drawings	4
		CIVE	101	Civil Engineering and Land Surveying Careers	4
		HCON	122	Earthmoving Fundamentals	4
		MATH	131	Engineering Math – Algebra I	4
	Winter	CADD	112	AutoCAD 3D Drawings	4
		COMP	151	Spreadsheets for Engineering Modeling	4
		MATH	132	Engineering Math – Algebra II	4
	Spring	CMST	210	Interpersonal Communications	4
		MATH	133	Engineering Math – Trigonometry I	4
		PHYS	121	Physics I	4
	Summer	SURV	132	Topographic Land Surveying	4
		SURV	134	Construction Land Surveying	4
Sophomore - Year 2	**Fall**	CIVE	211	Civil 3D Level 1 – Plan and Profile	4
		CIVE	221	Statics for Building Construction	4
		ENGL	205	Oral and Written Communications	4
		MATH	231	Engineering Math – Trigonometry II	4
	Winter	CIVE	201	Roadway Geometry and Design	4
		CIVE	212	Civil 3D Level 2 – Utilities and Intersections	4
		MATH	232	Engineering Math – Plane Analytic Geometry	4
	Spring	CIVE	202	Storm Design and Modeling	4
		CIVE	213	Civil 3D Level 3 – Advanced Grading	4
		CIVE	222	Civil Engineering Materials	4
	Summer	CIVE	203	Water System Design and Modeling	4
		SURV	231	Control Network Land Surveying	4
Year 3	**Fall**	MATH	233	Engineering Math – Calculus Preparatory	4
					100

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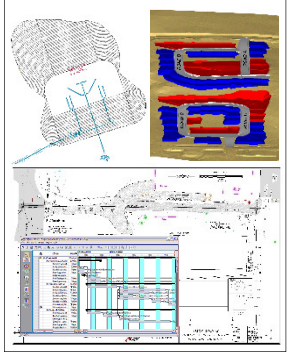
BS in Civil Engineering Technology



Bachelor of Science in Civil Engineering Technology

Engineering Technologist Degree Program

Program Objective: The Civil Engineering Technology Bachelor of Science degree prepares graduates to work as design engineers or engineering technologists. This program includes all of the hands-on technical skills coursework of the associate's degree program, along with two years of calculus level mathematics, statics, dynamics, and engineering physics curriculum.

Typical Career Paths for Graduates: The bachelor of science program prepares students to work at the design engineer and engineering technologist level with typical job titles including the following:

- **Civil Engineering Designer**
- **Construction Manager**
- **Engineering Manager**
- **Public Works Director**
- **Construction Estimator, Planner, or Scheduler**
- **Construction Engineer**

Program Outcomes: Graduates of the baccalaureate degree program must demonstrate knowledge and technical competency, appropriate to the objectives of the program, to:

a. Utilize principles, hardware, and software that are appropriate to produce drawings, reports, quantity estimates, and other documents related to civil engineering;

b. Conduct standardized field and laboratory tests related to civil engineering;

c. Utilize surveying methods appropriate for land measurement and/or construction layout;

d. Apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to civil engineering;

e. Plan and prepare documents appropriate for design and construction;

f. Perform economic analyses and cost estimates related to design, construction, operations and maintenance of systems associated with civil engineering;

g. Select appropriate engineering materials and practices, and;

h. Perform standard analysis and design in at least three sub-disciplines related to civil engineering.

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Civil Engineering Technology CIVE

Bachelor of Science Coursework

Obtain an Associate of Applied Science in Civil Engineering Technology					**100**
Junior – Year 3	**Fall**	MATH	233	Engineering Math – Calculus Preparatory	*
		PHYS	301	Applied Engineering Physics I	5
	Winter	MATH	301	Engineering Math – Calculus I	5
		PHYS	302	Applied Engineering Physics II	5
	Spring	MATH	302	Engineering Math – Calculus II	5
		PHYS	303	Applied Engineering Physics III	5
	Summer	COMP	301	C for Engineers	5
		ECON	301	Engineering Economics	5
Senior – Year 4	**Fall**	ENGL	301	Proposals and Grant Writing	5
		ENGR	401	Engineering Mechanics – Statics I	5
		MATH	303	Engineering Math – Calculus III	5
	Winter	ENGR	402	Engineering Mechanics – Statics II	5
		MATH	401	Engineering Math – Multi Variable Calculus	5
	Spring	ENGR	403	Engineering Mechanics – Dynamics I	5
		MATH	402	Engineering Math - Linear Algebra	5
	Summer			Listed Engineering Elective I	5
				Listed Engineering Elective II	5
Year 5	**Fall**			Listed Engineering Elective III	5
				Listed Engineering Elective IV	5
					190

Geotechnical Engineering Electives		
CIVE	451	Soil Mechanics
CIVE	452	Foundation Engineering
CIVE	453	Earth Retaining Structures

Structural Engineering Electives		
CIVE	441	Concrete Design
CIVE	442	Steel Design
CIVE	443	Structural Analysis

Construction Engineering Electives		
HCON	421	Contracts and Construction Law
HCON	422	Construction Project Controls
HCON	423	Construction Resource Accounting

General Engineering Elective		
ENGR	471	FE/EIT Exam Preparatory

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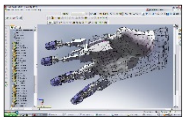
AAS Mechanical Engineering Technology

Mechanical Design

3D Printing Prototyping



CADD Drafting Solidworks

Associate of Applied Science in Mechanical Engineering Technology

Engineering Technician Degree Program

Program Objective: The Mechanical Engineering Technology associate degree program prepares graduates with knowledge, problem solving ability, and hands-on skills to enter careers in the design, installation, manufacturing, testing, evaluation, or maintenance of mechanical systems. Graduates of the associate degree program have strengths in specifying, installing, fabricating, testing, documenting, operating, selling, or maintaining basic mechanical systems.

The Mechanical Engineering Technology discipline encompasses the areas of computer-aided drafting/design, manufacturing, analysis of engineering data, machine/mechanical design/analysis, conventional or alternative energy system design/analysis, maintenance, and heating, ventilation, and air conditioning (HVAC).

Typical Career Paths for Graduates: The associate of applied science program prepares students to work at the engineering technician level with typical job titles including the following:

- **Engineering Technician**
- **Manufacturing Technician**
- **Process Technician**
- **CADD Drafter**
- **CADD Designer**
- **3D Printing Technician**
- **CNC Machine Technician**

Program Outcomes: Graduates of the associate degree program must demonstrate knowledge and technical competency, appropriate to the objectives of the program, to:

a. The ability to apply specific program principles to the specification, installation, fabrication, testing, operation, maintenance, sales, or documentation of basic mechanical systems.

b. Have an understanding of engineering materials, applied mechanics, and manufacturing methods

c. The ability to computer-aided draft emphasizing mechanical components and systems, as well as fundamentals of descriptive geometry, orthographic projection, sectioning, tolerancing and dimensioning, and basic computer aided drafting and design with technical depth in at least one of these areas

d. Have an understanding of the application of physics and engineering materials having an emphasis in applied mechanics, or in-depth application of physics having emphasis in mechanical components and design.

Mechanical Engineering Technology MECH

Associate of Applied Science Coursework

Freshman - Year 1	**Fall**	CADD	111	AutoCAD 2D Drawings	4
		MATH	131	Engineering Math – Algebra I	4
		MECH	101	Mechanical Engineering Careers	4
		MECH	131	Rhino 3D Modeling	4
	Winter	CADD	112	AutoCAD 3D Drawings	4
		COMP	151	Spreadsheets for Engineering Modeling	4
		MATH	132	Engineering Math – Algebra II	4
	Spring	CADD	113	Geometric Dimensioning & Tolerancing	4
		MATH	133	Engineering Math – Trigonometry I	4
		PHYS	121	Physics I	4
	Summer	MECH	121	Material Fabrication and Safety Lab	4
		MECH	122	Material Fabrication and Welding Lab	4
Sophomore - Year 2	**Fall**	ENGL	205	Oral and Written Communications	4
		MATH	231	Engineering Math – Trigonometry II	4
		MECH	201	CNC Programming	4
		MECH	211	Solidworks Mechanical Design Level 1	4
	Winter	MATH	232	Engineering Math – Plane Analytic Geometry	4
		MECH	202	Process Piping Design	4
		MECH	212	Solidworks Mechanical Design Level 2	4
	Spring	CMST	210	Interpersonal Communications	4
		MECH	213	Solidworks Mechanical Design Level 3	4
		MECH	221	Applied Mechanics for Engineering Technology	4
	Summer	MECH	222	Materials Science I	4
		MECH	231	Design Project	4
Year 3	**Fall**	MATH	233	Engineering Math – Calculus Preparatory	4
					100

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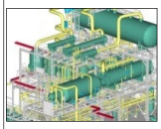
BS in Mechanical Engineering Technology



Process Piping &

Aero/ Auto/Wind Manufacturing

Bachelor of Science in Mechanical Engineering Technology

Engineering Technologist Degree Program

Program Objective: The baccalaureate degree program in Mechanical Engineering Technology will prepare graduates with knowledge, problem solving ability, and hands-on skills to enter careers in the design, installation, manufacturing, testing, evaluation, or maintenance of mechanical systems. Graduates of the baccalaureate degree program have strengths in the analysis, applied design, development, implementation, or oversight of more advanced mechanical systems and processes.

The Mechanical Engineering Technology discipline encompasses the areas of computer-aided drafting/design, manufacturing, analysis of engineering data, machine/mechanical design/analysis, conventional or alternative energy system design/analysis, maintenance, and heating, ventilation, and air conditioning (HVAC).

Typical Career Paths for Graduates: The bachelor of science program prepares students to work at the design engineer or engineering technologist level with typical job titles including the following:

- **Process Engineer**
- **Industrial Engineer**
- **Manufacturing Designer**
- **Manufacturing Technologist**
- **Engineering Technologist**
- **Manufacturing Supervisor**
- **Production Supervisor**

Program Outcomes: Graduates of the baccalaureate degree program must demonstrate knowledge and technical competency, appropriate to the objectives of the program, to:

a. The ability to apply specific program principles to the specification, installation, fabrication, testing, operation, maintenance, sales, or documentation of basic mechanical systems.

b. Have an understanding of engineering materials, applied mechanics, and manufacturing methods

c. The ability to computer-aided draft emphasizing mechanical components and systems, as well as fundamentals of descriptive geometry, orthographic projection, sectioning, tolerancing and dimensioning, and basic computer aided drafting and design with technical depth in at least one of these areas

d. Have an understanding of the application of physics and engineering materials having an emphasis in applied mechanics, or in-depth application of physics having emphasis in mechanical components and design.

e. The ability to apply specific program principles to analysis, design, development, implementation, or oversight of more advanced mechanical systems or processes.

f. The ability to design machine elements, advanced drafting including current three dimensional computer representations as related to mechanical design, and manufacturing methods. Advanced proficiency must be demonstrated in at least three drafting / design related areas, consistent with the technical orientation of the program.

g. Have an understanding of the in-depth application of physics and engineering materials having emphasis in drafting, manufacturing, and design of mechanical components.

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Mechanical Engineering Technology MECH

Bachelor of Science Coursework

Obtain an Associate of Applied Science in Mechanical Engineering Technology					100
Junior – Year 3	Fall	MATH	233	Engineering Math – Calculus Preparatory	*
		PHYS	301	Applied Engineering Physics I	5
	Winter	MATH	301	Engineering Math - Calculus I	5
		PHYS	302	Applied Engineering Physics II	5
	Spring	MATH	302	Engineering Math – Calculus II	5
		PHYS	303	Applied Engineering Physics III	5
	Summer	COMP	301	C for Engineers	5
		ECON	301	Engineering Economics	5
Senior – Year 4	Fall	ENGR	401	Engineering Mechanics – Statics I	5
		ENGL	301	Proposals and Grant Writing	5
		MATH	303	Engineering Math – Calculus III	5
	Winter	ENGR	402	Engineering Mechanics – Statics II	5
		MATH	401	Engineering Math – Multivariable Calculus	5
	Spring	ENGR	403	Engineering Mechanics – Dynamics I	5
		MATH	402	Engineering Math – Linear Algebra	5
	Summer			Listed Engineering Elective I	5
				Listed Engineering Elective II	5
Year 5	Fall			Listed Engineering Elective III	5
				Listed Engineering Elective IV	5
					190

Hydro Power Design – Elective Emphasis		
PENG	431	Hydro Power Testing and Experiments Lab
PENG	432	Hydro Power Site Analysis
PENG	433	Hydro Power Design Project

Wind Power Design – Elective Emphasis		
PENG	441	Wind Power Testing and Experiments Lab
PENG	442	Wind Power Analysis
PENG	443	Wind Power Design Project

Industrial Engineering - Technical Electives		
INDE	401	Probability and Statistics Engineering
INDE	451	Plant Layout and Materials Handling
INDE	452	Engineering Quality Control
INDE	453	Production Management Systems

Patent Process - Technical Electives		
PATA	421	Patent Process
PATA	422	Patent Drafting

General Engineering Elective		
ENGR	471	FE/EIT Exam Preparatory

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CADD 111 4 CR
AutoCAD 2D Drawings
This is an entry-level CAD class focused on the 2D use of the AutoCAD software. Students will learn 2D drawing fundamentals by conducting Engineering and Land Surveying applications. Course material coverage includes points, lines, layers, osnaps, properties, text, blocks, paperspace, polylines, and basic dimensioning.
Prerequisites: NONE

CADD 112 4 CR
AutoCAD 3D Drawings
This is an intermediate level CAD class for the 3D use of the AutoCAD software. Students will learn 3D drawing fundamentals by conducting Engineering and Land surveying applications. Course material coverage includes 3D wireframes, 3D surfaces, 3D solids, rendering, materials, solid modeling, and AutoCAD customization.
Prerequisites: CADD 111

CAD 113 4 CR
Geometric Dimensioning & Tolerancing
This is an intermediate level CAD course. Students will learn Geometric Dimensioning and Tolerancing (GD&T) standards using AutoCAD software by conducting various projects.
Prerequisites: CADD 111

CIVE 101 4 CR
Civil Engineering and
Land Surveying Careers
This class provides an introduction to the Civil Engineering and Land Surveying careers. Students will learn about the site survey, civil design, construction survey, construction inspection, and asbuilt survey process for development and public works projects. Career areas discussed include field inspector, party chief, chainman, COGO technician, civil engineering technician, surveying technician, civil designer, civil engineer in training, civil engineer, land surveyor in training, and land surveyor. Students will learn about the RCW/WAC regulations that govern the profession. **Prerequisites: NONE**

CIVE 211 4 CR
Civil 3D Level 1 – Plan and Profile
This class is a practical hands-on experience. Students will work through a basic road design project from beginning to end using Civil 3D, showing many different methods of using Civil 3D to accomplish certain tasks and solve problems along the way. The class covers the basics of basemap preparation, preliminary layout, survey plan, surfaces generation, horizontal alignments, profiles, corridor modeling, and grading.
Prerequisites: CADD 111

CIVE 212 4 CR
Civil 3D Level 2 –
Utilities and Intersections
This class is a practical hands-on experience. Students will work through an advanced Civil 3D project, showing many different methods of using Civil 3D to accomplish certain tasks and solve problems along the way. The course covers advanced elements of horizontal and vertical alignments, corridor modeling, plan production tools, pipe design tools, grading tools, data shortcuts and Autodesk Vault project management tools. **Prerequisites: CIVE 211**

CIVE 213 4 CR
Civil 3D Level 3 – Advanced Grading
This class is a practical hands-on experience. Students will work through an advanced Civil 3D grading project. The course covers parking lot grading, pond grading, road grading, detailed TIN and edge editing, composite surface grading, and Google earth surfaces.
Prerequisites: CIVE 212

CIVE 201 4 CR
Roadway Geometry and Design
This class provides the fundamentals of road design. This course focuses on horizontal and vertical geometry and their associated calculations. This course includes background material on sight distance, functional classification, ADT traffic volumes, design speed, travel lanes, shoulders, medians, barriers, guardrails, side slopes, and curbing.
Prerequisites: MATH 133

CIVE 202 4 CR
Storm Design and Modeling
This class provides the fundamentals of storm water design and modeling. This course focuses on conveyance, treatment, detention, and infiltration design utilizing storm water modeling software. The course includes the preparation of a storm water report for a civil engineering project.
Prerequisites: MATH 133

CIVE 203 4 CR
Water System Design and Modeling
This class provides the fundamentals of pressurized public water systems design and modeling. This course focuses on conveyance, pressure, pumping, pressure reduction, and system losses design utilizing water system modeling software. The course includes the preparation of a water system report for a civil engineering design project.
Prerequisites: MATH133

CIVE 221 4 CR
Statics for Building Construction
This class provides a fundamental introduction to engineering mechanics for rigid structures in equilibrium with building construction applications. This statics course is limited to trigonometric and algebra level calculations (no calculus). The intent is to provide associate's level students with the ability to determine forces and stresses in elementary structural systems.
Prerequisites: PHYS 121

CIVE 222 4 CR
Civil Engineering Materials Lab
This course provides an introduction to the engineering properties and testing requirements of heavy civil construction materials. Focuses on aggregates, asphalt, Portland cement concrete, wood and steel as construction materials to meet various ASTM Standards. **Prerequisites: NONE**

CIVE 441 5 CR
Concrete Design
This course provides a fundamental introduction to strength analysis and design of reinforced concrete members along with current code provisions. Topics include: combined bending and compression, development and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to pre-stressed concrete, and design issues with multi-story buildings.
Prerequisites: ENGR 401

CIVE 442 5 CR
Steel Design
This course provides a fundamental introduction to strength analysis and design of steel members along with current code provisions. Topics include: familiarity with AISC Manual of Steel Construction, layout and design of building components using steel products, fundamental principles of structural steel design, and design issues for typical multi-story buildings. **Prereq: CIVE 441**

CIVE 443 5 CR
Structural Analysis
This course provides an advanced structures course which includes the use of structural computer modeling software. Topics include: modeling of structures, supports, and loads to determine stability of trusses, beams, frames, and arches when subjected to axial forces, shear forces, and bending moments.
Prerequisites: CIVE 442

CIVE 451 5 CR
Soil Mechanics
This course provides a fundamental introduction to the physical properties of soils including compaction, flow of water through soils, stress distribution, and consolidation. This course includes fieldwork, lab work, and report preparation. **Prerequisites: ENGR 401**

CIVE 452 5 CR
Foundation Engineering
This course focuses on the geotechnical design of shallow and deep foundations. Topics include: subsurface exploration, deep foundations, short and long term monitoring, bearing capacity, settlement, and lateral loads for spread footings, driven piles, and drilled piers.
Prerequisites: CIVE 451

CIVE 453 5 CR
Earth Retaining Structures
This course focuses on the geotechnical design of soil slopes and various soil retaining methods. Topics include: Soil compaction, drainage, slope stability, and soil pressures. **Prerequisites: CIVE 452**

CMST 210 4 CR
Interpersonal Communications
Focuses on interpersonal communication in relationships. Students explore perception, language, self-concept, self-disclosure, listening, and conflict resolution management, and experience the concepts through class activities.
Prerequisites: NONE

COMP 151 4 CR
Spreadsheets for Engineering Modeling
This course provides a practical hands-on experience with spreadsheet modeling. Students will work through a series of engineering project activities while learning spreadsheet skills including: job time sheet preparations, data formatting, basic functions, functions, imbedded logic, and lookup tables. **Prerequisites: NONE**

COMP 301 5 CR
C for Civil Engineers
This course introduces structured computer programming and problem solving, specifically for civil engineering technology students, using the C language. Problem examples emphasize numerical solutions common to engineering. Emphasis is placed on programming principles, programming techniques and the process of solving civil engineering problems using computers.
Prerequisites: NONE

ECON 301 5 CR
Engineering Economics
This class provides the fundamentals of traditional Time Value of Money methods to form an economic basis for improvement decisions. The course covers decision methods, economic consideration, and system optimization using economic variables.
Prerequisites: NONE

ENGL 205 4 CR
Oral and Written Communications
This class provides an introduction to technical writing and presentation methods. The course focuses on the preparation of various documents including; resumes, letters, papers, presentations, forms, and a company brochure. **Prerequisites: COMP 151**

ENGL 301 5 CR
Proposals and Grant Writing
This course provides basic principles in persuasive technical writing for the engineering workplace. Students work on persuasive technical documents to improve their ability to write clear, detailed prose, while persuading the intended audience. Competence in mechanics and standard English usage is assumed of all students.
Prerequisites: NONE

ENGL 302 5 CR
Technical Report Writing
This course provides an overview of civil engineering technical documents production. The course emphasizes such skills as clarity, objectivity, audience analysis and adherence to format. Students use subjects within their intended majors or career fields to write business correspondence, memoranda, resumes, mechanism descriptions, progress reports and analytical research reports.
Prerequisites: NONE

ENGR 299 1-4 CR
Internship Work Experience
This course provides an employer evaluated internship work experience. The course provides 1CR for each (40) hours of verified internship work experience, up to a maximum of 4CR. The course requires a signed Employer Internship Agreement and a signed Supervisor Evaluation Form to be submitted to the assigned faculty advisor for grading.
Prerequisites: NONE

ENGR 401 5 CR
Engineering Mechanics – Statics I
This class provides a fundamental course in engineering mechanics for particles and rigid bodies in equilibrium with civil engineering applications. Applied problems include two and three dimensions using both scalar and vector algebra methods. **Prereq: MATH 301**

ENGR 402 5 CR
Engineering Mechanics – Statics II
This class provides a fundamental course in engineering mechanics for particles and rigid bodies in equilibrium with civil engineering applications. Applied problems include two and three dimensions using both scalar and vector algebra methods. **Prereq: ENGR 401**

ENGR 403 5 CR
Engineering Mechanics – Dynamics I
This class provides a fundamental course in engineering mechanics for particles and rigid bodies experiencing acceleration. Students study unbalanced forces and torques acting on bodies, and the resulting motion using scalar and vector algebraic methods. **Prerequisites: ENGR 402**

ENGR 471 5 CR
FE/EIT Exam Preparatory
This course prepares the EIT candidate to take the NCEES Civil FE Exam. In addition, the class provides a venue for candidates to meet and form study groups to further prepare for the exam. This class specializes in the Civil FE Exam specialization. However, the morning exam is the same for everyone, so candidates from other disciplines would gain from this class as well.
Prerequisites: BSCET Program Senior

GIS 121 4 CR
ArcGIS Level 1
This course is a practical hands-on experience. Students will work through a mapping project using ArcView and ArcEditor to accomplish certain tasks and solve problems along the way. The class covers the software interface, map data, map attributes, data acquisition, symbolizing features and rasters, classifying features and rasters, labeling features, querying data, joining tables, feature selection by location, preparing data by analysis, analyzing spatial data, and projecting data in ArcMap.
Prerequisites: NONE

HCON 121 4 CR
Heavy Construction Estimation
This course combines the learning of the MS Excel software with a classic heavy civil construction estimation course. Students will learn conceptual project estimating as well as detailed unit cost estimation concepts. Students will practice timely quantity take offs for water, sewer, and stormwater piping and structures from civil plans. In addition, students will learn average end area methods for roadway material volumes and the grid method for site grading volumes. The course concludes with bid process fundamentals and a timely competitive bid.
Prerequisites: NONE

HCON 122 4 CR
Earthmoving Fundamentals
This course provides an introduction to earthmoving production fundamentals of construction equipment. The production of heavy equipment, including excavators, scrapers, trucks, bulldozers, and front end loaders is examined from a production prospective. In addition, earthwork conversions between loose cubic yards, bank cubic yards, and compacted cubic yards is covered.
Prerequisites: NONE

HCON 421 5 CR
Contracts and Construction Law
This course provides a fundamental introduction to construction law specific to the heavy civil construction industry. The course focuses on contracts and subcontracts, business law basics, and construction law fundamentals.
Prerequisites: NONE

HCON 422 5 CR
Construction Project Controls
The course provides a fundamental introduction to the methods for controlling heavy civil construction projects. The course focuses on job estimate review, cost account codes, budget monitoring, performance forecasting, and project schedule review.
Prerequisites: HCON 421

HCON 423 5 CR
Construction Resource Accounting
This course provides a fundamental introduction to resource accounting for the heavy civil construction industry. The course focuses on the reading of real world example project budgets and the preparation of project budgets based on project estimates and heavy civil construction plans. In addition, the fundamentals of time value of money are covered to support the budget process.
Prerequisites: HCON 422

INDE 201 4 CR
Manufacturing Methods and Standards
This course provides an introduction to the Lean Manufacturing standards. Students will learn about Sorting, Straightening, Shine, Standardizing, and Sustaining manufacturing methodology for modeling efficient manufacturing processes.
Prerequisites: MECH 101

INDE 401 5 CR
Probability and Statistics for Engineering
This class covers quantitative analysis of uncertainty and risk for engineering applications. Fundamentals of probability, random processes, statistics, and decision analysis are covered, along with random variables and vectors, uncertainty propagation, risk-based decision, estimation of distribution parameters, hypothesis testing, simple and multiple linear regressions.
Prerequisites: MATH 301

INDE 451 5 CR
Plant Layout and Materials Handling
Modeling and analysis of structural and operational issues associated with material-flow system design including facility location, warehouse/inventory systems, and distribution/transportation systems.
Prerequisites: AASMET Degree

INDE 452 5 CR
Engineering Quality Control
This course provides an introduction to quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. The course includes an overview of Six Sigma and DMAIC methodology.
Prerequisites: INDE 401

INDE 453 5 CR
Production Management Systems
Design and operation of production systems, including lean production concepts, just-in-time/kanban, facility layout and material flow issues.
Prerequisites: INDE 451

MATH 131 4 CR
Engineering Math – Algebra I
This course provides an applied precalculus algebra course. Topics to be covered include coordinate systems, graphing, slopes, transformations, composite functions, inverse functions, distance and midpoint, and modeling with functions. Students will gain an understanding of these mathematical tools in the context of practical problem solving, particularly for engineering applications.
Prerequisites: Demonstrated Intermediate Algebra Skills

MATH 132 4 CR
Engineering Math – Algebra II
This course provides an applied precalculus algebra course. Topics to be covered include complex numbers, quadratic functions, polynomial functions, dividing polynomials, zeros of polynomials, rational functions, polynomial inequalities, and exponential functions. Students will gain an understanding of these mathematical tools in the context of practical problem solving, particularly for engineering applications.
Prerequisites: MATH131

MATH 133 4 CR
Engineering Math – Trigonometry I
This course provides an applied precalculus algebra course. Topics to be covered include radians, units circles, right triangles, trigonometric functions, trigonometric graphing, and trigonometric identities. Students will gain an understanding of these mathematical tools in the context of practical problem solving, particularly for engineering applications.
Prerequisites: MATH132

MATH 231 4 CR
Engineering Math – Trigonometry II
This course provides an applied precalculus algebra course. Topics to be covered include law of sines, law of cosines, polar coordinates, vectors, and dot product. Students will gain an understanding of these mathematical tools in the context of practical problem solving, particularly for engineering applications.
Prerequisites: MATH133

MATH 232 4 CR
Engineering Math –
Plane Analytic Geometry
A beginning course in plane analytic geometry including the straight line, the circle, parabola, and the transformation of coordinates. Students will gain an understanding of these mathematical tools in the context of practical problem solving, particularly for engineering applications.
Prerequisites: MATH231

MATH 233 4 CR
Engineering Math –
Calculus Preparatory
A preparation course for Calculus. This course is designed to review and prepare the student for the junior level calculus coursework. Students will gain an understanding of these mathematical tools in the context of practical problem solving, particularly for engineering applications.
Prerequisites: MATH232

MATH 301 5 CR
Engineering Math – Calculus I
This is the first quarter of a course of study in calculus and analytic geometry. This course includes an introduction to limits, rates of change and continuity. The course also deals with the definition of derivative of a function and rules of differentiation, curve sketching and other application of differentiation, introduction to integrals and the Fundamental Theorem of Calculus. **Prerequisites: MATH 233 or Instructor Permission**

MATH 302 5 CR
Engineering Math - Calculus II
This is the second quarter of a three-quarter course of study in calculus, analytic geometry, probability and statistics. This course begins with Newton's Method and the Fundamental Theorem of Calculus. The focus of the course is on techniques of integration and applications, including inverse trigonometric, exponential, logarithmic, hyperbolic functions, partial fractions, and improper integrals. **Prerequisites: MATH 301**

MATH 303 5 CR
Engineering Math - Calculus III
This is the third quarter of a course of study in calculus and analytic geometry. Continued techniques of integration, differential equations, topics in probability and statistics, infinite sequences and series, Taylor and Maclaurin series, Fourier series, Fourier and Laplace transforms. **Prerequisites: MATH 301**

MATH 401 5 CR
Engineering Math –
Multi-Variable Calculus
A course designed to give students an introduction to the basic concepts of multivariable calculus using the tools of linear algebra as applicable; vector functions, real valued functions, differentiation of scalar functions, multiple integration, vector differentiation and integration, transformation of coordinates, Green's Theorem, Stoke's Theorem, Gauss' Theorem and Lagrange Multipliers.
Prerequisites: MATH 303

MATH 402 5 CR
Engineering Math - Linear Algebra
Introduction to linear transformations, matrix theory, vector products, finite dimensional spaces, subspaces, spanning sets, bases, eigenvalues and eigenvectors.
Prerequisites: MATH 401

MECH 101 4 CR
Mechanical Engineering Careers
This course provides an introduction to the mechanical engineering technology profession. Students will learn about the various software and equipment job skills required for careers in aerospace manufacturing, renewable energy manufacturing, and process piping design. Various jobs specialties include; engineering technician, manufacturing technician, CADD Drafter, CADD Designer, 3D Printing Technician, and CNC Machine Technician.
Prerequisites: NONE

MECH 121 4 CR
Material Fabrication and Safety Lab
This course provides an introduction to traditional manufacturing materials and fabrication safety. Topics include metal shop orientation, bending, cutting, lathing, drilling, and welding.
Prerequisites: MECH 101

MECH 122 4 CR
Material Fabrication and Welding Lab
This course provides a hands-on introduction to traditional fabrication shop tools and their safe usage. Topics include metal shop orientation, bending, cutting, lathing, drilling, and welding.
Prerequisites: MECH 121

MECH 131 4 CR
Rhino 3D Modeling
This course is a practical hands-on experience. Students will work through a basic mechanical design project using Rhinoceros software, showing many different methods to accomplish certain tasks and solve problems along the way. Students will learn Rhinoceros 3D modeling software by conducting mechanical industry applications. Thus students are learning fundamentals of the profession at the same time as learning the Rhinoceros software. Course material includes software interface, free-form surfaces, curves, point objects, curve manipulation, solids, polysurfaces, polygon meshes, object transformation, rendering, and data exchange.
Prerequisites: NONE

MECH 201 4 CR
CNC Programming
Students will learn how to program GCODE by text editing. Then students will use a program that will prepare GCODE and conduct detailed editing of the GCODE by text editing. Students will then use a mini-CNC machine to run their GCODE as the final project.
Prerequisites: NONE

MECH 202 4 CR
Process Piping Design
This course provides an introduction to process piping design.
Prerequisites: CADD 111

MECH 211 4 CR
Solidworks Mechanical Design Level I
This course is a practical hands-on experience. Students will work through a mechanical design project using Solidworks software to accomplish tasks and solve problems along the way. The course covers the basics of the software interface, sketching solid models, adding sketch constraints, adding sketch dimensions, editing sketches, extruding, revolving sketches, modeling options, modeling tools, editing features, and automatic dimensioning.
Prerequisites: CADD 111

MECH 212 4 CR
Solidworks Mechanical Design Level II
This course is a practical hands-on experience. Students will work through a mechanical design project using Solidworks software to accomplish tasks and solve problems along the way. The course covers advanced elements of modeling tools, assembly modeling, drawing views, presentation, design tools, sheet metal components, and weldments.
Prerequisites: MECH 211

MECH 213 4 CR
Solidworks Mechanical Design Level III
Students will work as a team to design a final project using Solidworks software accomplish tasks and solve problems along the way. The STL output from this project will be used in the following MECH 221 CNC and 3D Printer Fundamentals course. **Prerequisites: MECH 212**

MECH 221 4 CR
Applied Mechanics for Engineering Technology
This class provides a fundamental introduction to engineering mechanics for rigid structures in equilibrium with mechanical applications. This statics course is limited to trigonometric and algebra level calculations (no calculus). The intent is to provide associate's level students with the ability to determine forces and stresses in elementary mechanical systems. **Prerequisites: MATH 133**

MECH 222 4 CR
Materials Science I
This course provides an introduction to the engineering properties and testing requirements of materials. Focuses on metals, woods, plastics, and composite materials to meet various ASTM Standards.
Prerequisites: MECH 221

MECH 231 4 CR
Design Project
Students will work as a team to prepare a full set of plans and specifications for their design project as a capstone portfolio project for the program. The course includes a presentation of the design project to an industry panel.
Prerequisites: MECH 213

PATA 421 5 CR
Patent Process
This course provides an overview of patent law, focusing on the federal patent laws (35 U.S.C. 1 et seq.). This course introduces students to the U.S. patent system, issues relating to patent law, patentability, benefits of obtaining patent protection, defenses to and remedies for patent infringement, and patent issues abroad.
Prerequisites: ENGL 301

PATA 422 5 CR
Patent Drafting
This is a practical skills course that teaches the fundamentals of preparing a patent application, with particular emphasis on claim drafting. Drafting techniques useful for all technical subject matters will be covered. Students will draft a claim and prepare patent application documents suitable for filing in the U.S. Patent and Trademark Office as a course project.
Prerequisites: PATA 421

PENG 431 5 CR
Hydro Power Testing and Experiments Lab
This course provides a hands-on experience with the development of a demonstration micro-hydro power project. Students will conduct a site assessment, site surveying, and flow testing utilizing log weirs. In addition, students will design, fabricate, test, and experiment with an 8" to 12" pelton wheel system for micro-hydro power generation.
Prerequisites: ENGR 401

PENG 432 5 CR
Hydro Power Site Analysis
This course provides a hands-on experience with the development of a demonstration micro-hydro power project. Students will prepare a written system plan to include all mechanical drawing, mechanical specifications, power generation analysis, return on investment analysis, installation scope, installation budget, and installation schedule. Includes a presentation of the system plan to an industry panel. .
Prerequisites: PENG 431

PENG 433 5 CR
Hydro Power Design Project
This course provides a hands-on experience with the development of a demonstration micro-hydro power project. Students will acquire intake materials, piping, power house materials, and pelton wheel assembly materials. Students will then pre-fabricate the system as much as possible before transport and final assembly on site. After the system is assembled on-site, it will need trouble shooting, monitoring, and testing so that it can be adjusted to produce as much power as possible. This demonstration project will be temporary and off-grid in nature. All materials are to be recovered for use by the next class year.
Prerequisites: PENG 432

PENG 441 5 CR
Wind Power Testing and Experiments Lab
This course provides a hands-on experience with the development of a demonstration wind power project. Students will conduct a site assessment, site surveying, and wind resource testing. In addition, students will design, fabricate, test, and experiment with a gin pole cable tower and a 9' to 12' diameter blade system for wind power generation.
Prerequisites: ENGL 301

PENG 442 5 CR
Wind Power Site Analysis
This course provides a hands-on experience with the development of a demonstration wind power project. Students will prepare a written system plan to include all mechanical drawing, mechanical specifications, power generation analysis, return on investment analysis, installation scope, installation budget, and installation schedule. Includes a presentation of the system plan to an industry panel. .
Prerequisites: PENG 441

PENG 443 5 CR
Wind Power Design Project
This course provides a hands-on experience with the development of a demonstration wind power project. Students will acquire gin pole pipe, tower pipe, tower cables, power house materials, turbine, and blades assembly materials. Students will then pre-fabricate the system as much as possible before transport and final assembly on site. After the system is assembled on-site, it will need trouble shooting, monitoring, and testing so that it can be adjusted to produce as much power as possible. This demonstration project will be temporary and off-grid in nature. All materials are to be recovered for use by the next class year.
Prerequisites: MECH 442

PHYS 121 4 CR
Physics I
This course provides a broad survey of mechanics, heat, and sound for engineering technology students. This physics course is limited to trigonometric and algebra level calculation (no calculus). The intent is to provide associate's level students with a fundamental understanding of physics in order to conduct the Statics for Building Construction course. The course includes a weekly physics lab and report preparation.
Prerequisites: MATH 133

PHYS 301 5 CR
Applied Engineering Physics I
This is the first quarter of a three-quarter course of study in engineering physics. This course includes engineering physics applications with an emphasis on mechanics. Topics include physical measurements, 1D kinematics, vectors, 2D kinematics, Newton's laws, circular motion, and energy of a system.
Prerequisites: MATH 233 or Demonstrated Pre-Calculus Skills

PHYS 302 5 CR
Applied Engineering Physics II
This is the second quarter of a three-quarter course of study in engineering physics. This course includes engineering physics applications with an emphasis on mechanics. Topics include conservation of energy, linear momentum & collisions, rotational kinematics, angular momentum, static equilibrium, universal gravitation, and fluid mechanics.
Prerequisites: PHYS 301

PHYS 303 5 CR
Applied Engineering Physics III
This is the third quarter of a three-quarter course of study in engineering physics. This course includes engineering physics applications with an emphasis on thermodynamics and wave mechanics. Topics include laws of thermodynamics, thermal properties of matter, mechanical waves, sound and light.
Prerequisites: PHYS 302

PLAN 121 4 CR
Zoning, Permitting, and Government Agencies
The course introduces students to the local planning, zoning, permitting process, and government agency process. Students will develop a basic understanding of the local government project review process from application through approval. Students will prepare development applications for a project and present the project as if to a Hearing Examiner or Planning Commission. The class covers the basics of zoning, SEPA, SMA, GMA, public hearings, and the development review process. **Prerequisites: NONE**

SURV 132 4 CR
Topographic Land Surveying
This course provides a hands-on field experience with robotic total station and construction grade GPS equipment. Students practice timely setup, control orientation, topographic mapping techniques, and FG surface cut/fill staking.
Prerequisites: NONE

SURV 134 4 CR
Construction Land Surveying
This class provides a hands-on field experience with construction surveying. Students practice construction surveying in teams with traditional total station surveying equipment including; roadway staking, utility staking, grade staking, grid surveys, and stockpile volume surveys.
Prerequisites: NONE

SURV 231 4 CR
Control Network Land Surveying
This course provides a hands-on field experience with total station and autolevel surveying equipment based on traditional ground control. Students practice timely total station setup, control orientation, advancing traverse control, sideshots, timely autolevel setup, and level loops.
Prerequisites: NONE

Washington Engineering Institute

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Program and Course Description Index:

The Wolverine Back Story:

Why the Washington Engineering Institute has a Wolverine as its mascot

The Wolverine was extint in Washington State and is now making a tremendous comeback. They have traveled south from Canada and have begun to recolonize their native habitat in Washington States's high snowy woodlands.
The Wolverine is a carnivore and largest member of the Weasel family with some specimens getting up to 45 pounds. Pound-per-pound one of the most ferocious, independent, hardy, nimble, clever, and determined animals in Washington State.

Shawn Sartorius, a wildlife biologist based in Helena, Montana, for the U.S. Fish and Wildlife Service provided an excellent quote on how the Wolverine challenges itself as follows:

> ***Wolverines*** *"are the superheroes of the animal world … when you follow the tracks of these things, you see they are* ***not*** *taking the easy way around; they will go straight over mountaintops, craggy peaks, the rockiest, steepest, cliffiest place; they will go right over that in the middle of winter, at night."*

The Wolverine's impressive characterists compliment the Washington Engineering Institute motto: "**Challenge Yourself**." In short, the Wolverine challenges itself every-moment of every-day.