**Cal Poly Humboldt Energy Systems Engineering (ESYS) Graduation Contract**

**for Second Bachelor's Students**

Double-click in the gray text boxes below to fill:

**Name:** **ID#:** **Email:**

**Major Advisor:** **Date:**

Please consult with your major advisor if you have questions as you complete the agreement below and/or if you plan to propose any course substitutions. All requirements for this major, including detailed course descriptions and GE requirements, can be found in the [Cal Poly Humboldt catalog](https://catalog.humboldt.edu/preview_program.php?catoid=10&poid=6298&returnto=1615).

Each of the courses listed below is required for the ESYS major. Please UNCHECK the box (double-click and select ‘not checked’) next to any requirement for which you are proposing to substitute another class or classes - either from Cal Poly Humboldt or another institution. For each unchecked box, you’ll provide details on your substitutions in the next section.

A checked box indicates that you plan to complete the requirement by taking the specific Humboldt course listed.

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| **Lower Division (LD - 49 Units)** | **Upper Division (UD - 32 Units)** |
| [x]  BIOL 105 - Principles of Biology I (4) | [x]  ENGR 313 - Systems Analysis (3) |
| [x]  CHEM 109 - General Chemistry I (5) | [x]  ENGR 322 – Risk and Data Analysis for Engineers (4) |
| [x]  CHEM 110 - General Chemistry II (5) | [x]  ENGR 326 - Computational Methods for Engr III (3) |
| [x]  ENGR 115 - Introduction to Engineering (3) | [x]  ENGR 331 - Thermodynamics and Energy Systems I (3) |
| [x]  ENGR 205 - Introduction to Design (3) | [x]  ENGR 333 - Fluid Mechanics (4) |
| [x]  ENGR 210 - Solid Mechanics: Statics (3) | [x]  ENGR 355 - Energy Systems Engineering Fundamentals (3) |
| [x]  ENGR 225 - Computational Methods for Engr I (3) | [x]  ENGR 411 – Energy Project Development and Policy (3) |
| [x]  ENGR 226 - Computational Methods for Engr II (3) | [x]  ENGR 417 - Heat and Mass Transport Processes (3) |
| [x]  MATH 109 - Calculus I (4) | [x]  ENGR 492W - Capstone Design (3) |
| [x]  MATH 110 - Calculus II (4) | [x]  PHYX 315 - Intro Electronics and Elec Instrumentation (3) |
| [x]  MATH 210 - Calculus III (4) |  |
| [x]  PHYX 109 - General Physics A: Mechanics (4) |  |
| [x]  PHYX 211 - General Physics C: Electricity, Magnetism (4) |  |

For any unchecked requirement above, please indicate below the course(s) you are proposing to substitute. Examples are shown in gray. You may add rows if necessary. *Please note that courses taken at Junior Colleges are typically not accepted for upper division requirements. A grade of C- or better is required in all major classes.*

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| **Humboldt LD or UD Requirement** | **Alternate Course(s) to Be Substituted for Lower Division and/or** **Upper Division MECH Requirements** |
| **Course Catalog #** | **Units** | **Institution** | **Course Catalog #** | **Course Title** | **Units** | **Term Taken (or planned)** |
| *CHEM 109* | *5* | *Example: Made-Up Valley JC* | *Chem 101* | *Gen Chem A* | *3* | *Fall 2021* |
| *“* | *“* | *Example: Made-Up Valley JC* | *Chem 102* | *Gen Chem B* | *3* | *Spring 2022* |
| *PHYX 315* | *3* | *Example: CSU New* | *Phys 356* | *Electronics* | *4* | *Spring 2022* |
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### Major Elective Program (15 Units)

Please CHECK the box (double-click to select “Checked”) for the one (1) Energy and Environmental Justice course, the one (1) Geoscience and Climate Science elective course, and the three (3) Engineering Design electives you would like to count toward your ESYS degree. If you are proposing to substitute another class or classes - either from Cal Poly Humboldt or another institution - for any of these electives, please enter information on the substitutions in the table below.

**Energy and Environmental Justice Elective Courses: Select ONE course from the following.**

[ ]  ESM 305 - Environmental Conflict Resolution (3)

[ ]  ESM 325 - Environmental Law and Regulation (3)

[ ]  ENST 295 - Power, Privilege, and the Environment (4)

[ ]  ENST 480 - Special Topics (3) (special topic “Energy Justice” only)

[ ]  ENGR 305 - Appropriate Technology (3)

[ ]  NAS 331 - Indigenous Natural Resource Management Practices (3)

[ ]  NAS 332 - Environmental Justice (3)

[ ]  NAS 364 - Federal Indian Law (4)

**Geoscience and Climate Science Elective: Select ONE course from the following.**

[ ]  CHEM 370 - Earth Systems Chemistry (3)

[ ]  GEOL 303 - Earth Resources and Global Change (3)

[ ]  OCN 420 - Oceans and Climate (3)

**Energy Systems Engineering Design Elective Courses: Select THREE courses from the following.**

[ ]  ENGR 471 - Thermodynamics and Energy Systems II (3)

[ ]  ENGR 473 – Building Energy Analysis (3)

[ ]  ENGR 475 - Renewable Energy Power Systems (3)

[ ]  ENGR 478 - Electricity Grids and Distributed Renewable Energy (3)

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| **Humboldt Elective Category** | **Alternate Course(s) to Be Substituted for Life Science or Engineering Design Elective** |
| **Env Justice;****GeoSci/Climate;** **or** **ES ENGR Design** | **Institution** | **Course Catalog #** | **Course Title** | **Units** | **Term Taken (or planned)** |
| *GeoSci* | *Example: CSU New* | *GEO 345* | *Climate Topics* | *3* | *Fall 2022* |
| *ES ENGR Design* | *Example: Elsewhere Univ* | *ENG 444* | *Fun w/ Energy* | *3* | *Spring 2023* |
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**When completed, please email this form (without signatures) to** **engineering@humboldt.edu****. It will be routed via Adobe Sign for student and faculty signatures. Signed copy will be sent to the Registrar’s Office.**

Student Signature Advisor Signature Department Chair Signature