# Appendix I:

The following page indicates the ***course-to-course equivalency***, including general education requirements, as agreed upon within the articulation agreement between the engineering A.S. program of Harford Community College and the engineering B.S. with a focus in material engineering program of Frostburg State University.

| HARFORD COMMUNITY COLLEGE to FROSTBURG STATE UNIVERSITY | | | | |
|---|---|---|---|---|
| | | | | |
| **Transferrable Prerequisite Requirements** | | | | |
| **HCC Course** | **Credits** | **FSU Equivalent** | **Credits** | **Area Fulfillment** |
| Arts/Humanities Elective (GH) | 3 | Humanities | 3 | (B) Humanities |
| Arts/Humanities Elective (GH)* | 3 | Humanities OR Fine & Performing Arts | 3 | (B) Humanities **OR** (A) Fine & Performing Arts |
| Behavioral/Social Sciences Elective (GB)* | 3 | The Social Sciences | 3 | (D) The Social Sciences |
| Behavioral/Social Sciences Elective (GB)* | 3 | The Social Sciences | 3 | (D) The Social Sciences |
| CHEM 111: General Chemistry I (GL) OR CHEM 135: Chemistry for Engineers | 4 | CHEM 201: Gen. Chemistry I | 4 | (C) Natural Science/Program req. |
| ENG 101: English Composition (GE) | 3 | ENGL 101/111: Freshman Composition | 3 | Core Skills 1 |
| ENGR 103: Intro. to Engineering Design | 4 | ENES 100: Introduction to Engineering Design | 3 | Program requirement |
| See note*** | | General elective *** | 1 | See note |
| MATH 203: Calculus I (GM)** | 4 | MATH 236: Calculus I** | 4 | Core skill 3 |
| MATH 204: Calculus II (GM)** | 4 | MATH 237: Calculus II** | 4 | Program requirement |
| MATH 206:Calculus III** | 4 | MATH 238: Calculus III** | 4 | Program requirement |
| MATH 208: Elementary Differential Equations** | 3 | MATH 432: Differential Equations ** | 3 | Program requirement |
| PHYS 203: General Physics: Mechanics and Practical Dynamics (GS)** | 3 | PHYS 261: Principles of Physics I: Mechanics ** | 4 | Program requirement |
| PHYS 204: General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (GS)** | 4 | PHYS 262: Principles of Physics II: Electricity & Magnetism ** | 4 | (C) Natural Science/Program req. |
| Physical Education | 1 | - - - - - - - - | 1 | General elective |
| **HCC TRACK ELECTIVES :** | | | | |
| ENGR 104: Statics | 3 | ENES 102: Statistics | 3 | Materials Eng. req. |
| ENGR 202: Mechanics of Materials | 3 | ENES 220: Mechanics of Materials | 3 | Materials Eng. req. |
| ENGR 201: Dynamics | 3 | ENES 221: Dynamics | 3 | Materials Eng. req. |
| PHYS 205: General Physics: Electrodynamics, Light Relativity & Modern Physics (GL) ** | 4 | PHYS 263: Principles of Physics III: Acoustics and Optic ** AND PHYS 264: Principles of Physics IV: Thermodynamics & Modern Physics ** | 4 | Program requirement |
| ENGR 232 Thermodynamics | 3 | ENME 232 Thermodynamics | 3 | |
| **Total:** | **62** | **Credits to Transfer:** | **62** | |

**Notes:**

*See FSU General Education Program for approved courses & choose accordingly.

**Per FSU program requirements, all majors must earn a grade of C or better in this course.

***One credit of HCC's ENGR 103 will count as a general elective at FSU.

# Appendix II: Additional & Upper Division Requirements

All HCC transfer students will be required to take a minimum of **48** credit hours of upper division coursework at Frostburg State University and **3-9** credit hours of additional degree requirements. Completion of the B.S. in engineering program at Frostburg State University requires students to successfully complete the following coursework:

| **Additional Requirements** | | | |
|---|---|---|---|
| | | | |
| **Course Number** | **FSU Course Title** | **Credit Hours** | **Explanation** |
| | | | |
| **Modes of Inquiry (GEP) Requirements: 6 credits** | | | |
| A or B | Humanities OR Fine & Performing Arts | 3 | Depends on which GH courses were taken at HCC. Can be completed at HCC. |
| F | Identity & Difference (300-400 Level) | 3 | Can be completed at HCC |
| | | | |
| **Core Skills Courses: 3 credits** | | | |
| IDIS | First Year FSU Colloquium | 3 | |
| | | | |
| **Upper Level Program Requirements** | | | |
| | | | |
| **Major Requirements: 42** | | | |
| ENGL 338: Technical Writing | | 3 | Core Skills 2: Advanced Writing |
| ENME 331: Fluid Mechanics | | 3 | |
| ENME 332: Transfer Processes | | 3 | |
| ENME 350: Electronics and Instrumentation I | | 3 | |
| ENME 351: Electronics and Instrumentation II | | 3 | |
| ENME 373: Introduction to Computer-Aided Design | | 3 | |
| ENME 382: Engineering Materials and Manufacturing | | 3 | |
| ENME 405: Fundamentals of Materials Engineering | | 4 | |
| ENME 410: Capstone Design Project for Materials Engineering | | 3 | |
| ENME 425: Microfabrication | | 3 | |
| ENES 401: Fundamentals of Energy Engineering | | 3 | |
| ENES 491: Seminar | | 3 | |
| PHYS 499: Special Projects - Programming Concepts for Engineering | | 4 | Substituted for ENEE 114 |
| PHYS 499: Special Projects - Mechanics | | 1 | To be completed to fulfill the lab portion missing from PHYS 203 taken at HCC. |
| | | | |
| **Upper Level Electives: 6 credits** | | | |
| 300-400 level ENES, ENEE, or ENME, or CHEM 304 (2 total) | | 6 | |
| | | | |
| **Total credits to be taken :** | | **51-57** | Credits will vary depending on student completion of FSU GEPs. |

**Summary:**

| | |
|---|---|
| Total credit hours to transfer from HCC: | 62 (or up to 70) |
| Total credit hours needed in Core Skills & Modes of Inquiry: | 3-9 |
| Total credits of upper-level course work: | 48 |
| Total credit hours for B.S degree: | 120 |