## Industrial Engineering and Management (IE\&M)

Undergraduate Curriculum Guide effective Fall 2024 ~ North Dakota State University

STUDENT

| Fall |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Course |  | Crs | Sem | Grade |
|  | CHEM 121 | General Chemistry I | 3 |  |  |
|  | CHEM 121L | General Chem Lab I | 1 |  |  |
|  | [C] ENGL 110 | College Composition I | 3 |  |  |
|  | ENGL 120 | College Composition II | 3 |  |  |
|  | MATH 165 | Calculus I | 4 |  |  |
|  | Comp Sci Elect | (see side bar) | 3 |  |  |
|  |  |  |  |  |  |
|  |  |  | 17 |  |  |
|  | COMM 110 | Fund of Public Speaking | 3 |  |  |
|  | IME 330 | Mfg Processes | 3 |  |  |
|  | MATH 129 | Basic Linear Algebra | 3 |  |  |
|  | MATH 259 | Multivariate Calculus | 3 |  |  |
|  | ME 222 | Engr Mechanics II | 3 |  |  |
|  | Gen Ed Elect | (see side bar) | 3 |  |  |
|  |  |  | 18 |  |  |
|  | IME 456 | Program \& Project Mgmt | 3 |  |  |
|  | IME 460 | Evaluation of Engr Data | 3 |  |  |
|  | ENGL 321 | Writing in Tech Profession | 3 |  |  |
|  | CE 309 | Fluid Mechanics | 3 |  |  |
|  | IME 440 | Engineering Economy | 3 |  |  |
|  |  |  |  |  |  |
|  |  |  | 15 |  |  |
|  | IME 480 | Production \& Inventory Cnt | 3 |  |  |
|  | IME 482 | Automated Mfg Systems | 3 |  |  |
|  | IME 485 | Indl \& Mfg Facility Design | 3 |  |  |
|  | ENGR 327 | Ethics, Engr, \& Techn. | 3 |  |  |
|  | Technical Elect | (see side bar) | 3 |  |  |
|  |  |  |  |  |  |
|  |  |  | 15 |  |  |

ID \#


Advisor

| General Education Electives |  |  |  |
| :--- | :---: | :---: | :---: |
| See Registration Schedule for approved courses. |  |  |  |
| Humanities/Fine Arts [A] | Crs | Sem | Grade |
| ENGR 327 | 3 |  |  |
| $* *$ | 3 |  |  |
| Social/Behavioral Sciences [B] |  |  |  |
| $*$ | 3 |  |  |
| $*$ | 3 |  |  |
| $*$ | 2 |  |  |
| W- Wellness | 14 |  |  |
|  |  |  |  |

Check off once completed
D - Cultural Diversity: double up with $[A]$ or $[B]$ G- Global Perspectives: double up with $[A]$ or $[B]$

| IE\&M Electives |  |  |  |
| :---: | :---: | :---: | :---: |
| Approved electives are listed on the back of this page. |  |  |  |
|  | Crs | Sem | Grade |
| Computer Science Elective | 3 |  |  |
| Take ONE of the following 5 courses: |  |  |  |
| CSCI 122, ECE 173, CSCI 159, CSCl 160, or CSCl 227 |  |  |  |
| Engineering Science | 12 |  |  |
| CE 309, ME 223, \& ME 350 | 9 |  |  |
| Choose ONE of the following 3 courses below: |  |  |  |
| ECE 275 or ECE 301 or EE 206 | 3-4 |  |  |
|  |  |  |  |
| Technical Electives | 9 |  |  |
| * |  |  |  |
| * |  |  |  |
| * |  |  |  |

"T" indicates requirement satisfied with transfer credits.

* See reverse side for elective information.

Grades less than "C" will not be accepted for CHEM, MATH, and PHYS.
[C] First Year students with an ACT score of 18 or higher in English may register for ENGL 120. A passing grade will be awarded for ENGL 110 by completing ENGL 120 with a "C' or better.

## IE\&M Approved Electives/Requirements

| Computer Science Electives (3 credits) |  |  |  |
| :--- | :--- | :--- | :---: |
| CSCI | 122 | Visual BASIC | 3 |
| ECE | 173 | Introduction to Computing | 4 |
| CSCI | 159 | Computer Science Problem Solving | 3 |
| CSCI | 160 | Computer Science I | 4 |
| CSCI | 227 | Computing Fundamentals in Pythor | 3 |


| Engineering Science Requirement (12 credits) |  |  |  |
| :--- | :--- | :--- | :---: |
| CE | 309 | Fluid Mechanics | 3 |
| ME | 223 | Mechanics of Materials | 3 |
| ME | 350 | Thermodynamics/Heat Trsf | 3 |
| Take 1 of the following 3 courses: |  |  |  |
| EE | 206 | Circuit Analysis I | 4 |
| ECE | 275 | Digital Systems I | 4 |
| ECE | 301 | Electrical Engineering I | 3 |


| Technical Electives (9 credits) |  |  |  |  |  |  |
| :--- | :--- | :--- | :---: | :--- | :---: | :---: |
| Approved Courses |  |  |  |  |  |  |
| Credits | Pre-requisites | *Offered |  |  |  |  |
| IME | 335 | Welding Technology | 3 |  | s (even yrs) |  |
| IME | 380 | CAD.CAM for Manufacturing | 3 | ME 212 | f |  |
| IME | 411 | Human Factors Engr | 3 | IME 311, IME 460 | f (odd yrs) |  |
| IME | 427 | Packaging for Electronics | 3 | Jr standing | f (even yrs) |  |
| IME | 430 | Process Engineering | 3 | IME 330 | f |  |
| IME | 431 | Production Engineering | 3 | IME 330, junior standing | s |  |
| IME | 432 | Composite Materials Mfg | 3 | IME 330, ME 331 | See ME 474 below |  |
| IME | 433 | Additive Manufacturing | 3 | MATH 166, IME 330, co-req IME 430 | s (odd yrs) |  |
| IME | 435 | Plastics \& Polymer Processing | 3 | MATH 166 \& MATH 266 | f (even yrs) |  |
| IME | 437 | Methods for Precision Mfg | 3 | IME 430 ME 331 | s (even yrs) |  |
| IME | 451 | Logistics Engr \& Mgmt | 3 | IME 470, co-requisite IME 450 | See AGEC 378 below |  |
| IME | 453 | Hospital Management Engineering | 3 |  | s (odd yrs) |  |
| IME | 462 | Total Quality in Indl Mgmt | 3 |  | f (odd yrs) |  |
| IME | 463 | Reliability Engineering | 3 | IME 460 | f (even yrs) |  |
| IME | 464 | Reliability Analysis | 3 | IME 460, IME 463 | s (even yrs) |  |
| CSCI | 425 | Machine Learning | 3 |  | f |  |
| AGEC | 378 | Intro to Transportation \& Logistics | 3 | Econ 201 | f |  |
| ME | 474 | Mechanics of Composite Material | 3 | ME 331 | Subst. for IME 465 |  |

Maximum of 1 of the following 5 courses may be counted as technical elective.

| BUSN | 340 | International Business | 3 |
| :--- | :--- | :--- | :--- |
| $\wedge$ MGMT | 320 | Foundations of Mgmt | 3 |
| MIS | 320 | Mngt Information Systems | 3 |
| MRKT | 320 | Foundations Marketing | 3 |
| BUSN | 431 | Business Law I | 3 |

${ }^{\wedge}$ 300-400 level BUSN courses require at least Junior standing and a minimum 2.50 cumulative GPA.

[^0]Note: Students may request approval for other 300-400 level engineering or related courses to be approved as technical electives. To request approval, a student should submit a memo to the IME dept indicating the course of interest and why the course should be approved. This memo will be reviewed by the IME department Chair and advisor for approval. Two of the three technical electives must be IME courses.


[^0]:    * Tech elective course schedules may change based on faculty availability and course enrollment.

