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| **Catalog Year 2021-2022**Industrial Cybersecurity Eng Tech - AAS | ***(For internal use only)***[x]  *No change*[ ]  *UCC proposal* |

A Major Academic Plan (MAP) is one way to complete a degree in a set number of semesters. The *example* below is only one strategy. Actual plans for individual students will vary based on advisor recommendations and academic needs. Official Program Requirements including Major, General Education, Electives, and university requirements (see pg.2) are based on Catalog Year.

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| **Course Subject and Title** | **Cr.**  | **Min.** **Grade** | **\*GE,** **UU or UM** | **\*\*Sem. Offered** | **Prerequisite** | **Co-Requisite** |
| Semester One |
| ESET 0100: Introduction to Engineering Technology | 1 | C- |  | F, S, D |  | ESET 0100L |
| ESET 0100L: Introduction to Engineering Technology Laboratory | 1 | C- |  | F, S, D |  | ESET 0110 |
| ESET 0121: Basic Electricity and Electronics **AND** ESET 121L: Basic Electricity and Electronics Lab **(Recommended)****OR**ESET 0101: Electrical Circuits I **AND** ESET 0102: Electrical Circuits II  | 710 | C-C- |  | F, D |  | ESET 0121L |
| ESET 0140: Applied Technical Intermediate Algebra **(Recommended)****OR**ESET 0141: Applied Mathematics I **AND** ESET 0142: Applied Mathematics 0142 | 58 | C-C- |  | F, D |  |  |
| ESET 0181: Information Technology Fundamentals | 3 | C- |  | F, D |  |  |
|  Total | 17 |  |  |  |  |  |
| Semester Two |
| ESET Elective: ESET 0120: Introduction to Energy Systems **(Recommended)** | 2 | C- |  | F, S, D |  | ESET 0120L |
| ESET Elective: ESET 0120L: Introduction to Energy Systems Lab **(Recommended)** | 1 | C- |  | F, S, D |  | ESET 0120 |
| ESET Elective: ESET 0122: Electrical Systems and Motor Control Theory **(Recommended)** | 3 | C- |  | S, D | ESET 0121 | ESET 0122L |
| ESET Elective: ESET 0122L: Electrical Systems and Motor Control Theory Lab **(Recommended)** | 1 | C- |  | S, D | ESET 0121L | ESET 0122L |
| PHYS 1101: Elements of Physics | 3 | C- | GE | F, S |  |  |
| PHYS 1101L: Elements of Physics Lab | 1 | C- | GE | F, S |  |  |
| ENGL 1101: English Composition | 3 | C- | GE | F, S |  |  |
| MATH 1153: Introduction to StatisticsorMath 1160: Applied CalculusorMath 1170: Calculus I | 334 | C- | GE | F, S |  |  |
|  Total | 17-18 |  |  |  |  |  |
| Semester Three |
| ESET Elective: ESET 0223: Digital Control Theory **(Recommended)** | 2 | C- |  | F, S, D |  |  |
| ESET Elective: ESET 0227: Digital Control Systems Laboratory **(Recommended)** | 1 | C- |  | F, S, D |  |  |
| ESET Elective: ESET 0242: Practical Process Measurements and Control **(Recommended)** | 2 | C- |  | F, D |  |  |
| ESET 0282A: Introduction to Networking I | 1 | C- |  | F, D | ESET 0181 |  |
| ESET 0282B: Introduction to Networking II | 2 | C- |  | F, D | ESET 0282A or instructor approval |  |
| ESET 3383: Security Design for Cyber-Physical Systems | 3 | C- |  | F, D | Pre- or Co-Req: ESET 0181, 0282B, 0223, 0227, or instructor approval | Pre- or Co-Req: ESET 0181, 0282B, 0223, 0227, or instructor approval |
| ESET 3384: Risk Management for Cyber-Physical Systems | 3 | C- |  | F, D | ESET 0181 or instructor approval | ESET 0282 A/B; ESET 0223, 0227, 3384 or instructor approval |
|  Total | 14 |  |  |  |  |  |
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| Semester Four |
| ESET 4481: Defending Critical Infrastructure & Cyber Physical Systems | 3 | C- |  | S, D | ESET 0282B, 3383, 3384, or instructor approval |  |
| ESET 4486: Network Security for Industrial Environments | 3 | C- |  | S, D | ESET 0282B, 3383, or instructor approval |  |
| ESET 4487: Professional Development and Certification | 3 | C- |  | S, D | ESET 3383 | ESET 4481, 3384, 4486 |
| ESET 4489: Capstone in Industrial CS | 3 | C- |  | D | Pre- or Co-Req: ESET 4486, 4481, or instructor approval | Pre- or Co-Req: ESET 4486, 4481, or instructor approval |
| COMM 1101: Principles of Speech | 3 | C- | GE | F, S |  |  |
| GE: Objective 6 | 3 | C- | GE | F, S |  |  |
|  Total | 18 |  |  |  |  |  |
| \*GE=General Education Objective, UU=Upper Division University, UM= Upper Division Major\*\*See Course Schedule section of Course Policies page in the e-catalog (or input F, S, Su, etc.)  |

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| **2021-2022 Major Requirements** | **CR** | **GENERAL EDUCATION OBJECTIVES****Satisfy Objectives 1,2,3,4,5,6 (7 or 8) and 9** | **16 cr. min** |
| **MAJOR REQUIREMENTS** |  | 1. Written English (6 cr. min) ENGL 1101 | 3 |
| ESET 0100: Introduction to Engineering Technology | 1 |   |  |
| ESET 0100L: Introduction to Engineering Technology Laboratory | 1 | 2. Spoken English (3 cr. min) COMM 1101 | 3 |
| ESET 0181: Information Technology Fundamentals | 3 | 3. Mathematics (3 cr. min) MATH 1153, 1160, or 1180 | 3-4 |
| ESET 0282A: Introduction to Network Security I | 1 | 4. Humanities, Fine Arts, Foreign Lang.  |
| ESET 0282B: Introduction to Network Security II | 2 | N/A |  |
| ESET 3383: Security Design for CPS | 3 | 5. Natural Sciences **(1 lecture, 1 lab; 4 cr. Min)** |
| ESET 3384: Risk Management for CPS | 3 | PHYS 1101, PHYS 1101L | 4 |
| ESET 4481: Defending Critical Infrastructure and Cyber Physical Systems | 3 |  |  |
| ESET 4486: Network Security for Industrial Environments | 3 |  |  |
| ESET 4487: Professional Development and Certification | 3 |  |  |
| ESET 4489 (Capstone in Industrial CS (Can take twice) | 3-6 | 6. Behavioral and Social Science **(1 course – 3 cr. Min)** |
| **Choose a minimum of 7 credits** |  | Any course that fills this Objective | 3 |
| ESET 0121: Basic Electricity and Electronics **AND** ESET 121L: Basic Electricity and Electronics Lab **(Recommended)****OR**ESET 0101: Electrical Circuits I **AND** ESET 0102: Electrical Circuits II | 710 |  |  |
| One Course from EITHER Objective 7 OR 8 **(1course; 3 cr. Min)** |
| 7. Critical Thinking |  |
| 8. Information Literacy  |
| **Choose a minimum of 5 credits** |  | 9. Cultural Diversity **(1 course; 3 cr. Min)** |
| ESET 0140: Applied Technical Intermediate Algebra **(Recommended)****OR**ESET 0141: Applied Mathematics I **AND** ESET 0142: Applied Mathematics 0142 | 58 |  |  |
| General Education Elective to reach 36 cr. Min. **(if necessary)** |
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|  **Total GE** | **16-17** |
| **ESET Elective Courses: Choose a minimum of 12 credits** |  | Undergraduate Catalog and GE Objectives by [Catalog Year](https://www.isu.edu/advising/academic-support/general-education/) [*http://coursecat.isu.edu/undergraduate/programs/*](http://coursecat.isu.edu/undergraduate/programs/) |
| ESET 0120: Introduction to Energy Systems | 2 |
| ESET 0120L: Introduction to Energy Systems Laboratory | 1 |  |
| ESET 0122: Electrical Systems and Motor Control Theory | 3 |
| ESET 0122L: Electrical Systems and Motor Control Theory Laboratory | 1 |
| ESET 0220: Thermal Cycles and Heat Transfer | 2 | **MAP Credit Summary** | **CR** |
| ESET 0221: Boiler Reactor and Turbine Principles | 2 | Major  | 53-59 |
| ESET 0222: Process Control Theory | 3 | General Education  | 16-17 |
| ESET 0223: Digital Control Theory | 2 | Upper Division Free Electives to reach 36 credits | - |
| ESET 0226: Process Control Devices Laboratory | 1 | Free Electives to reach 120 credits | - |
| ESET 0227: Digital Control Systems Laboratory  | 1 |  TOTAL | 69-76 |
| ESET 0242: Practical Process Measurement and Control | 2 |  |
| ESET 0245: Fundamentals of Heat Exchange | 2 |
| ESET 0251: Reactor Theory Safety and Design | 4 |
| ESET 0292: Electrical Engineering Technology I | 7 |
| ESET 0292L: Electrical Engineering Technology I Laboratory | 5 | **Graduation Requirement Minimum Credit Checklist** | **Confirmed** |
| INST 0281: Electrical Automation Theory | 8 | Minimum 36 cr. General Education Objectives (15 cr. AAS) | X |
| INST 0282: Electrical Automation Laboratory | 5 | Minimum 15 cr. Upper Division in Major (0 cr. Associate) |  |  |
|  |  | Minimum 36 cr. Upper Division Overall (0 cr. Associate) |  |  |
| MATH 1153, MATH 1160, or MATH 1170 (counted in GE Obj. 3) | Minimum of 120 cr. Total (60 cr. Associate) | X |
| PHYS 1101/L (counted in GE Obj. 5) |  |  |
| **Advising Notes** | ***MAP Completion Status (for internal use only)*** |
| It is advised those seeking a 2nd AAS in Industrial Cyber Security |  | *Date* |
| take ESET 4489 twice for a total of 6 credits. Those seeking their 1st |  |  |
| AAS in Industrial Cyber Security need to only take ESET 4489 once for | *CAA or COT:* | TIM 10/21/2019 |
| 3 credits. |  |  |
|  | **Complete College American Momentum Year****Math and English course in first year-Specific GE MATH course identified****9 credits in the Major area in first year****15 credits each semester (or 30 in academic year)****Milestone courses** |
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