

# Industrial Engineering, M.S.I.E.

## Curriculum in Masters of Science in Industrial Engineering

A candidate for the M.S. degree in industrial engineering must comply with the rules and regulations as outlined in the WVU Graduate Catalog and the specific requirements of the Statler College and the Industrial and Management Systems Engineering Department.

### Program Requirements

All M.S. degree candidates are required to perform research and follow a planned program of study. The student's research advisor, in conjunction with the student's Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student's needs. The underlying principle of the planned program is to provide the students with the necessary support to complete their degree and prepare them for their career.

### Curriculum Requirements

Code	Title	Hours
A minimum cumulative GPA of 3.0 is required in all courses		
<b>Course Requirements *</b>		
A minimum of 60% of courses must be from 500 level or above		
Plan of Study		
Complete one of the following options:		31
<b>Thesis Option - 31 total credit hours</b>		
Foundation Courses (12 credit hours)		
IMSE Elective Courses (3 credit hours)		
General Elective Courses (9 credit hours)		
IENG 697	Research (6 hours)	
IENG 796	Graduate Seminar (1 credit hour)	
Final Oral or Written Examination		
Thesis		
<b>Problem Report Option - 31 total credit hours</b>		
Foundation Courses (12 credit hours)		
IMSE Elective Courses (6 credit hours)		
General Elective Courses (9 credit hours)		
IENG 697	Research (3 hours)	
IENG 796	Graduate Seminar (1 credit hour)	
Final Oral or Written Examination		
Formal written report or professional report/paper		
<b>Coursework Option - 31 total credit hours</b>		
Foundation Courses (12 credit hours)		
IMSE Elective Courses (9 credit hours)		
General Elective Courses (9 credit hours)		
IENG 796	Graduate Seminar (1 credit hour)	
Final Oral or Written Examination		
Total Hours		31

### FOUNDATION COURSES

Code	Title	Hours
IENG 455	Simulation by Digital Methods	3
IENG 503	Additive Manufacturing Technology and Materials	3
IENG 505	Computer Integrated Manufacturing	3
IENG 514	Design of Industrial Experiments	3
IENG 542	Advanced Production Control	3
IENG 551	Quality and Reliability Engineering	3

IENG 553	Applied Linear Programming	3
IENG 554	Applied Integer/Heuristic Programs	3
IENG 564	Industrial Ergonomics	3
IENG 660	Human Factors System Design	3
IENG 577	Advanced Engineering Economy	3
IH&S 460	Ergonomics	3

## IMSE ELECTIVE COURSES <sup>+</sup>

Code	Title	Hours
IENG 455	Simulation by Digital Methods	3
IENG 503	Additive Manufacturing Technology and Materials	3
IENG 505	Computer Integrated Manufacturing	3
IENG 506	Computer Aided Process Planning	3
IENG 507	Robotics and Flexible Automation	3
IENG 514	Design of Industrial Experiments	3
IENG 518	Technology Forecasting	3
IENG 542	Advanced Production Control	3
IENG 551	Quality and Reliability Engineering	3
IENG 553	Applied Linear Programming	3
IENG 554	Applied Integer/Heuristic Programs	3
IENG 556	Supply Chain Management	3
IENG 564	Industrial Ergonomics	3
IENG 577	Advanced Engineering Economy	3
IENG 660	Human Factors System Design	3
IENG 756	Applied Stochastic Processes	3
IENG 754	Inventory Theory	3
IH&S 460	Ergonomics	3

Any IENG, EMGT, IH&S, or courses 400-795 as approved by the student's AEC

## GENERAL ELECTIVES <sup>+</sup>

Code	Title	Hours
Any IMSE Elective Course		
Any BIOM, BMEG, CE, CHE, CHEM, CPE, CS, EE, EMGT, IENG, IH&S, MAE, MATH, MINE, PNGE, PHYS, SAFM, SENG, or STAT courses 400-795 as approved by the student's AEC		

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Students who do not hold a baccalaureate degree in industrial engineering are required to take a set of undergraduate industrial engineering courses above and beyond the minimum coursework requirements.

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A course cannot be used to fulfill more than one requirement.

## FINAL EXAMINATION

M.S. students following the thesis or problem report option must prepare a written research proposal. The proposal must be approved by the student's AEC at least one semester prior to the final oral examination.

All students, regardless of option, are required to pass a final oral or written examination, administered by their AEC, covering the thesis or problem report and/or related course material.

## Major Learning Outcomes

### INDUSTRIAL ENGINEERING

1. Practice industrial engineering and to initiate and develop leadership roles in business, industry and/or government.
2. Continue professional development and life-long learning.
3. Interact in society and business in a professional and ethical manner.

4. Be proficient in written and oral communication and to utilize people-oriented skills in individual and team environments.
5. Apply the skills from industrial engineering to be proficient in his/her chosen field or further advanced studies.