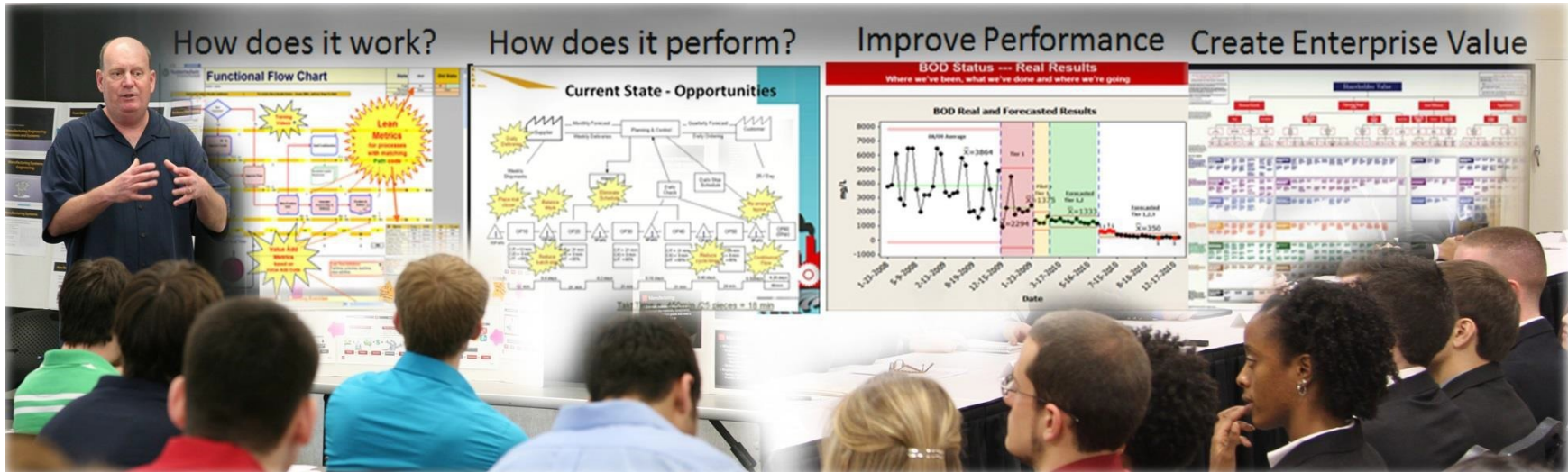


# Industrial and Systems Engineering Master of Science Program Integrated Lean Six Sigma (ILSS)

Department of Integrated Systems  
Engineering

The Ohio State University



**Program Description.** This program provides the opportunity to attain a Black Belt Certificate in Integrated LeanSigma and a Green Belt

Certification in ILSS (upon successful passing of BB exam and successful completion of the GB Certification Project) to augment a Masters Degree in ISE. The ILSS Foundation Course, 5810, is rigorous and focuses on understanding the process improvement 'roadmaps' (DMAIC and DCDOV) in addition to measurement and analysis skill development. The Project Portion of the program (practicum), 5811-12, involves a 2 semester, applied project in a business/organization in the Columbus area and will require proof that the candidate can successfully apply the appropriate roadmap and tools to improve a process. Confirmation of improvement and sustainability are required for certification. The blend of an MS in ISE and a Certification in ILSS is in great demand, and our candidates have had great success in the job market and then in the early stages of their careers.

**Admission Requirements.** Prior to admission, students interested in admission to this Masters Program should be proficient in the following areas. (Students without evidence of this material on their transcripts will have to demonstrate proficiency with the subject matter. This can be accomplished via appropriate coursework, at either the undergraduate or graduate level, to be determined in consultation with the academic adviser.)

Vector calculus  
Calculus-based  
Linear algebra

Computer programming (e.g., C, C++, Java)  
Probability-based statistics

As part of admission to the program, the candidate must complete a 'profile' and also an 'interview' (by phone and/or in person). This program requires strong communication skills (oral and written). The project portion of the program (practicum) is a part time, unpaid internship. The candidate is part of that organization and works with senior Leaders and Managers while improving the process.

**Graduation Requirements.** All Integrated Lean Six Sigma (ILSS) M.S. students must satisfy degree requirements defined in the Industrial and Systems Engineering [Graduate Student Handbook](#).

In general terms, to complete the ISE ILSS Masters Program, students must complete a total of 30 graduate credit hours. The course work consists of:

- 10 semester hours of ISE courses focusing on ILSS, including completion of a project designed to meet the exit requirements of the ILSS M.S. program, with an associated project write-up. (Students must obtain a B or above on this project in order for it to count toward meeting graduation requirements.)
- 9 semester hours of ISE courses in operations research
- 2 semester hours for the department seminar.

- 3 semester hour 5000-level or higher ISE course in manufacturing or human factors in order to meet the ISE secondary sub-discipline requirement.
- 6 semester hours of approved electives.

More specifically, the following courses would be required:

**Required ILSS Courses:**

- ISE 5810—Integrated LeanSigma Foundations (4)
- ISE 5811—ILSS Certification Project—Define, Measure, Analyze or Define, Concept Design, Detailed Design (3)
- ISE 5812—ILSS Certification Project—Analyze, Improve, Control or Detailed Design, Optimize, Verify (3)

**Required Operations Research Courses:**

- ISE 5200 Linear Optimization (3)
- ISE 6300 Performance Modeling and Simulation (3)
- ISE 7250 Operations Research Models and Methods (3)

**Required Department Seminar Courses:**

- ISE 7883 (Department Seminar) (2)

**Recommended Elective Courses:**

- ISE
  - ISE 5110 Design of Engineering Experiments (3)
  - ISE 5610 Ergonomics in the Product Design Process (3)
  - ISE 5682 Fundamentals of Product Design Engineering (4) -
  - ISE 5830 Decision Analysis (3)
- Business (Fisher)
  - One course, approved by advisor, in an industry cluster (health care, manufacturing, consumer packaged goods, business analytics).

- An ERP foundational course--BUSMGT 4232 Operations Planning and Control (instructor permission required)
- A corporate finance course BUSFIN 4211—Corporate Finance (an example) AMIS 5000 - Accounting and Cost Analysis (3)