IIT School of Applied Technology
ILLINOIS INSTITUTE OF TECHNOLOGY

BSMP ORIENTATION
WELCOME TO ILLINOIS TECH
Welcome to Illinois Tech

Dean’s Welcome

School of Applied Technology (SAT)

Dr. C. Robert Carlson
Courses blend theory, practical application and management. Students learn about current practices in industry, new and emerging technologies, how to analyze systems and integrate technology, and the managerial approaches used to effectively manage a range of activities, systems and operations.

**Educational Programs:**

- FOOD SCIENCE AND NUTRITION (FdSN)
- INDUSTRIAL TECHNOLOGY AND MANAGEMENT (INTM)
- INFORMATION TECHNOLOGY AND MANAGEMENT (ITM)
- OFFICE OF PROFESSIONAL DEVELOPMENT (OPD)
IIT/SAT RESEARCH

- Sponsored Research for External Entities
  - Competitive research grants pursued by IIT faculty
  - Often multi-year, multimillion dollar projects serving government agencies, non-government foundations, or private industry
  - Requires detailed data collection, documentation on research approach and experiments, and regular reports on findings

- Graduate Student Special Projects
  - Individual projects, investigating a topic related to student’s major
  - Duration: 1 to 2 semesters (4 to 6 months), averaging 15-20 hours of research activities per week
  - Culminates with 40-50 page final report and presentation to faculty
Interprofessional Projects (IPROs)

- Distinctive IIT undergraduate research experience
- Multidisciplinary teams (~10-12 students) work to propose solutions to real-world problems for industry or society
- Duration: 1 semester (4 months), requiring ~10-12 hours/week
- Culminates with final report of 20+ pages, a team video, and a poster board exhibit at IPRO Day (a judged competition)
- Awards are presented to teams demonstrating outstanding accomplishment and/or innovative problem solving
IIT/SAT Research Continued

- BSMP Summer Research Projects
  - Format allows for team, small group and individual projects (determined by faculty advisor)
  - Projects generally have specific research objectives
  - Certain projects focus on utilizing new technologies to envision, design and/or create a new device or system
  - Duration: 2 months, requiring 32-40 hours/week
  - Culminates with a formal research report, presentation (as determined by faculty advisor), and a team video explaining the project basis, objectives and outcomes
INTM 498-01  ENERGY CONSUMPTION MONITORING
Research and development of a web-based Energy Consumption Monitoring dashboard for buildings and facilities. Utilization of physical meter data and development of virtual meters through Building Automation System points, and analysis of historical energy consumption data to populate dashboard.

INTM 497-02  FACILITIES DATABASE DEVELOPMENT
Research involves determining how best to gather, preserve and organize facilities data for ease of recall, coordination and future use, inclusive of AutoCAD/Revit drawings, archival drawings, specifications, BIM integrated materials, and facilities operational information.

INTM 497-03  DESIGN OF SMALL SCALE INFRASTRUCTURE SYSTEMS & DEVICES TO SUPPORT SUSTAINABLE LIVING
Using the Micro Grid trend within the electric transmission and distribution environment as an example, this research will explore the creation of various utility systems for micro-areas or individual use.

Education
Master of Architecture, Illinois Institute of Technology
B.A. Geography, Environmental Planning, Southern Illinois University

Expertise/Experience
Licensed Architect; specializes in creating, funding and implementing facilities management, sustainability and energy efficiency master plans for existing and new buildings and communities. IPRO facilitator and advisor.
INTM 498-04 ADVANCING MICROCLIMATE DESIGN IN URBAN CLIMATES

Via research, analysis and microclimate model simulation, microclimate data will be used to go beyond reducing thermal stress and develop building blocks with the potential to create new relationships between human experience, energy and shelter.

Education
Master of Design Research in Architecture, Southern California Inst of Arch.
Bachelor of Architecture, University of Illinois at Chicago

Expertise
Design educator with professional experience in spatial and product design. Academic focus on design processes and “mega-topics” relative to future livability and environmental survival.

Experience
Adjunct Faculty with IIT’s Institute of Design, which offers premier graduate programs in Design, cited for excellence in strategy and design research. IPRO facilitator and advisor.
INTM 497-05  ADDITIVE PRINTING APPLICATIONS FOR BICYCLE COMPONENTS
Additive manufacturing/3-D Printing applications for creating specialty components for an off-road, multi-gear bicycle. Determine capabilities for durable components without sacrificing performance, while applying lean manufacturing principles to design, build and manage the production of actual products.

INTM 497-06  DEVELOP CUSTOM FOOTWEAR USING 3-D PRINTING
Research capabilities of additive manufacturing/3-D printing to produce custom shoes without sacrificing performance, and identify how additive manufacturing can provide a performance advantage. Examination of market requirements for custom shoes, leading competitors, customer requirements, and market trends.

Education
MS, Project Management, Keller Graduate School of Management
B.S., Biology, University of Illinois

Expertise

Experience
IPRO facilitator and advisor. Professional industry experience in manufacturing processes, production management, new product development, manufacturing capacity, P & L management
INTM 498-07/-08  ENERGY EFFICIENCY RESEARCH I and II
Design solutions to improve energy efficiency in commercial buildings by integrating new technologies, alternative energy sources, and energy conservation strategies. Two research teams will conduct energy analysis of IIT’s Hermann Hall (-07) and Siegel Hall (-08).

INTM 498-09  UTILITY VAULT SUSTAINABILITY
Conduct in-depth energy analysis of electric or steam vaults to include thermal measurements, use of smart technologies for communication systems, control and monitoring, energy use, and improvements.

Education
Ph.D., Administration & Supervision, Bowling Green State University, OH
M.A., Industrial Education, Ball State University, IN
B.S., Industrial Education, Ball State University, IN

Expertise
Electronics technology, electrical technology, human resource management, educational management, technical communications

Experience
IPRO facilitator and advisor, published author of 19 books and multiple journal articles, seminar facilitator, business consultant, IIT liaison to Chicago Chapter of the National Electrical Contractors’ Association
INTM 498-10 ENERGY SAVING INNOVATIONS

Research into economic factors, energy sourcing, energy alternatives, and environmental impacts to develop innovative approaches to energy conservation options both immediate and in the future.

Education

D.B.A., Business Administration, Nova-Southeastern University
M.S., Chemical Engineering, Northwestern University
B.S., Chemical Engineering, Purdue University

Expertise

Petroleum, Petrochemicals and Plastics, Global Environmental Issues, Sustainability of Energy and Natural Resources, Materials and Manufacturing Processes, International Management, Registered Professional Engineer

Experience

Published author, inventor/co-inventor of 21 patents ranging from enhanced oil recovery systems to food packaging/preservation. R&D executive (retired) at Viskase/Union Carbide Corporation and Borg Warner
INTM 498-11 INTELLIGENT GROWING MODULE
INTM 498-12 DESIGN OF A FAN TO MEET 4-INCH RULE
INTM 498-13 USE OF POWER TAKE-OFF SYSTEMS IN TRACTORS
INTM 498-14 WHOLE HOUSE FILTERING SYSTEM FOR AIR POLLUTION

Education
M.A., City and Regional Planning, Illinois Institute of Technology
B.A., City and Regional Planning, Illinois Institute of Technology

Expertise
Urban Planning and Development, Environmental Sustainability, Industrial Ecology, Urban Agriculture and Regional Food Systems, Residential Design

Experience
IPRO facilitator and advisor. Involved in start-up and development of “The Plant”, one of the first urban vertical farms in the world. Recipient of grants and awards for research and project work on climate change and the connects between biology and technology.
Philip Lewis
Adjunct Professor, INTM

INTM 497-15 SMART: SUBURBAN METROPOLITAN AREA RAPID TRANSIT
Research into benefits and practicality of monorail, utilization of existing highway right of way, analysis of population density and travel patterns, system utilization and capital investment, to develop a plan for SMART in the Chicagoland area.

INTM 497-16 GREAT LAKES INTERMODAL: PORT AUTHORITY OF CHICAGO
Research into the potential of water borne freight in and out of Chicago’s Lake Michigan Port and Calumet River Port. Analysis of freight moving through Chicago via rail, truck and air, and utilization a wide array of information resources related to land planning, public works, IL DOT regulations, environmental impact studies.

Education
B.S., Industrial Management, Milwaukee School of Engineering

Expertise

Experience
IPRO facilitator and advisor. 30 years of manufacturing experience in electronics, stainless steel industrial products, motor controls/valves and process control systems integration.

**Education**
M.I.T.M., Master of Information Technology & Management, IIT
B.I.T.M., Bachelor of Information Technology and Management, IIT

**Expertise**

**Experience**
ITM Project Lead: GPU Passthrough of VFIO in Linux with KVM, Using Ubuntu MAAS & Juju to Build a CEPH Cluster, Eucalyptus Cloud Platform Build
Dr. C. Robert Carlson  
Dean, School of Applied Technology

**SUMMER RESEARCH FACULTY**

**ITM 498-01** ANTI-DROWSY SENSOR FOR DRIVING  
**ITM 498-02** ANIMAL AND POTHOLE AVOIDANCE SYSTEM  
**ITM 498-03** RETROFITTING AUTOS WITH 360 DEGREE VISUAL DRIVING SYSTEMS

- Dean, IIT School of Applied Technology  
- Chair, Information Technology & Management (ITM) Dept.  
- Professor, Information Technology & Management  
- Graduate Advisor, IT Management & Entrepreneurship

**Education**  
Ph.D., Computer Science, University of Iowa  
M.S., Computer Science, University of Iowa  
B.S., Mathematics and Accounting, Augustana College

**Expertise**  
Information Architecture, Object-Oriented Modeling and Design, Software Maturity Models, Database Design, Software Engineering, IT Entrepreneurship

**Experience**  
Accomplished educator and researcher, multiple publications and books, two patent applications
PROJECT EXPECTATIONS

- Review the project plan (posted in Blackboard)
- Attend all weekly meetings and special outings
- Work on your project Monday through Friday (a minimum of 32 hours per week)
- Ask questions; actively seek information
- Utilize faculty and library resources
- Foster positive collaborations with teammates
Project deliverables

- **Formal research report** (due the week of July 25)
  - Title page
  - Table of contents
  - Introduction/statement of research purpose
  - Methodology and research process
  - Results with discussion of findings
  - Conclusions
  - References/citations and Bibliography

*Report length determined by project & faculty advisor*
Team Video (due July 26)

- Create a 3- to 4-minute video which includes:
  - Title of project
  - Research purpose and goal(s)
  - Research activities
  - Outcomes; interesting facts and discoveries

- Combination of video footage and Powerpoint slides

- Post to SAT Facebook page

Powerpoint presentation (varies by project; determined by advisor)
RESEARCH TIPS

- Be objective and unbiased in your research; avoid presupposing answers or outcomes
- Be careful, thorough and critical in your work
- Takes notes daily! Document your activities, findings and questions in a dedicated journal or PC file
- Take photographs and videos to demonstrate the focus of your research and document project progress (include photos in the research report and a variety of video clips will be needed for the team video)
RESEARCH TIPS CONTINUED

▶ Establish a project plan and timeline
  - Review progress weekly with teammates and faculty advisor; adjust efforts/activities to meet objectives

▶ Record bibliographic information for all reference materials and sources (including figures & graphs)
  - Title of journal/article/book, author, page number(s), publication date, URL, etc.

▶ Write each week; don’t wait until the last minute
  - Routinely allot time for documenting your findings; it makes it easier to assemble the final report
Avoid plagiarism! Use appropriate citations in the research report

- Plagiarism is the presentation of another person’s words, ideas or work without giving appropriate credit to the source.

- It is considered academic dishonesty and a very serious matter.

- Take care to use quotation marks and citations when using text from reference sources.
Access at your fingertips... the myIIT ‘Library’ tab
The online catalog
Interlibrary Loan System

Find databases by title, keyword search, subject, or use the most popular interdisciplinary DBs
 ADMINISTRATIVE ITEMS

► IIE Academic Training Verification Forms
  ▪ Provide ASAP to faculty advisor for signature

► View the project plan in BLACKBOARD
  ▪ In myIIT, click Blackboard icon to access course link
  ▪ Each student will be graded based “Satisfactory” or “Unsatisfactory” on their project work and participation/teamwork

► Attendance and midterm reviews
  ▪ IIT will comply with IIE’s rules on student accountability; faculty must perform a midterm review for each student
Explore the big city safely

- Travel in pairs and groups, especially in the evening
- Plan your trip in advance and use well-traveled routes
- Pay attention to your surroundings
- Keep your smart phone and other valuables out of sight when waiting on the train platform or walking around

- **Be smart -- don’t be a target:** review the Crime Prevention Tips on IIT’s Public Safety website (under Quicklinks menu)
- Contact IIT Public Safety at 312.808.6363 or blue light phone
- In an off-campus emergency, contact Chicago Police at 911
Questions?

During the week, visit IIT’s One Stop Office located near Commons Dining.
Thank you for coming today!
Feel free to contact us at intm@iit.edu

Dismissal by Project
ALL ITM 498 SECTIONS/Carlson & Hajek: SIT TIGHT
INTM 498-01, -02, -03/ Hamill-Governale
INTM 498-04/Shunia