

ITMD 447 SYLLABUS

ITMD 447 Web Systems Integration
(This course was previously ITMD 467)

Hours: 3 credit hours / 45 contact hours

Instructor: Karl Stolley

Textbook, title, author, and year:

Design It! From Programmer to Software Architect, Michael Keeling, 2017

Release It! Design and Deploy Production-Ready Software, Michael Keeling, 2015

Specific course information

- a. **Catalog description:** In this project-based course, student teams will build an enterprise-grade website and web infrastructure integrating server-side applications, databases, and client-side rich internet applications as a solution to a defined business problem.
- b. **Prerequisites:** ITMD 465 and ITMD 462

Specific goals for the course

- a. **Course Outcomes:**
 - Problem-solve and create innovative answers to provide technology solutions for the problems of business, industry, government, non-profit organizations, and individuals.
 - Perform requirements analyses, design, and administration of computer and network-based systems conforming to policy and best practices, and monitor and support continuing development of relevant policy and best practices as appropriate.
 - Apply current technical and mathematical concepts and practices in the core information technologies and recognize the need to engage in continuing professional development.
- b. **Course student outcomes:**
 - Analyze complex computing problems and apply principles of computing and other relevant disciplines to identify solutions
 - Assist in the creation, execution, and ongoing revision of an effective project plan
 - Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements
 - Communicate effectively in a variety of professional contexts
 - Function effectively as a member or leader of a team engaged in activities appropriate to web-systems integration tasks
 - Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems

- Apply security principles and practices to maintain operations in the presence of risks and threats

Topics to be covered

- a. Starting Lines; Shaping and Sketching
- b. System-Design Fundamentals and Strategies
- c. One-on-One Conferences; Project Two
- d. System Architecture and Patterns; Dev Teams as Design Studios
- e. Describing and Illustrating System Architectures
- f. Dependence on Libraries and Frameworks
- g. Isolating Code and Working with Asynchronous Data
- h. Working with Data Structures & Data Stores
- i. Q&A; Document-style Databases, Configuration
- j. Shifting from Alphas to Betas, Designing for Production
- k. Interconnection, Configuration, Security
- l. Advanced Front-End Techniques
- m. Code Quality
- n. Deployment and Monitoring; CI/CD