1. *Course number and name*
   CSC 648: Software Engineering

2. *Credits and contact hours*
   3 credits
   Contact hours: 150 minutes of lecture sessions /week

3. *Instructor's or course coordinator's name*
   Course coordinator: Dragutin Petkovic, Professor of Computer Science

4. *Text book, title, author, and year*
   Software *Engineering*, Ian Somerville, Addison Wesley, current edition
   a. *other supplemental materials*
      Lecture slides

5. *Specific course information*
   a. *brief description of the content of the course (catalog description)*
      Practical methods and tools for SW Engineering, including organizational teamwork. Course is paired with CSC 848. Students who have completed CSC 848 may not take CSC 648 for credit.

   b. *prerequisites or co-requisites*
      a grade of C or better in CSC 413; or consent of the instructor

   c. *indicate whether a required, elective, or selected elective course in the program*
      Elective for Computer Engineering.

6. *Specific goals for the course*
   a. *specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*
      Students completing the course successfully will be able to demonstrate

   - Knowledge of basic SE engineering methods and practices, and their appropriate application

   - Knowledge of basic components and tools for full SW development lifecycle

   - Knowledge of design and build practices for easy to use, maintainable SW developed using modern multi-tier architectures

   - Knowledge of basic SW dependability metrics, quality metrics, and basic architectural models

   - Ability to constantly iterate and re-prioritize goals based on user needs, budget, schedule and resources

   - Development of significant teamwork and project based experience, as close as possible to real life

   - Knowledge of basics of copyright, IP, digital rights management as it relates to SW development

- Exposure to global and open-source SE methods and practices.

b. *explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.*
Course addresses ABET Student Outcome(s): a, b, c, e, j, k.

7. *Brief list of topics to be covered*
- Introduction and motivation for Software Engineering
- Overview of several basic SE methodologies with emphasis on Iterative and Incremental Development and User Centered Design
- Usability and UI design principles and practice
- Basic components of SW Engineering process: Planning; Requirements and Specifications; Iterative Design, Rapid Prototyping, Mockups; Software Design; Coding and documentation techniques (high level only)
- SW Engineering related to Web application development
- Open source SW development and management (NEW)
- Software Configuration Management, Delivery, Installation, and Documentation
- Software Metrics, Performance and Usability Measurements
- Software QA and Testing
- Software Maintenance
- Project Management issues
- Teamwork and Communication as integral part of SW Engineering
- Issues related to global SW engineering
- Basics of IP, licensing, digital rights management and copyright
- SW Engineering ethics
- Real life examples and cases from instructor and students
- Guest and student presentations
- Final Group Project including several milestones, interaction with instructor, and final demo and delivery.