1. **Course Title:** EMoS 6308 - System Development Methodology
2. **Course Aim:**

At the end of the course, graduates should be able to:

* Apply team building skills for collaborative systems development
* Apply creativity and critical thinking towards industrial problem identification and solution development
* Develop and manage user stories/scenarios with effective client participation during systems design and development
* Understand and apply modern Information systems development methodologies including Agile and Test Driven Development.
* Learn modern project profiles, and next generation of software economics.

1. **Expected Learning Outcomes:**

At the end of this course, students will acquire knowledge, skills and competencies that will enable them to:

* Collaboratively identify industrial challenges from user stories and develop appropriate solution design
* Apply Agile methodologies in Systems development with adequate documentation
* Describe, understand and implement software development process.
* Apply Test Driven Development and modern software testing tools
* Use modern collaborative tools during software system development process.

1. **Course status:** Elective
2. **Credit rating:** 8
3. **Total hours spent:** 80
4. **Course Content:**

* Software Engineering
* Brief concept of Software Life Cycle Models
* Agile Techniques for software development
* Software Development Tools & Techniques
* Software Quality Assurance
* Introduction to Coding Standards
* Software Testing
* Different Testing Tools
* Test Driven Development (TDD)
* Project Management
* Risk Analysis and Management
* Case studies

1. **Teaching and learning activities:**

Lectures, Seminar, Tutorials, Assignments, Independent studies and case studies.

1. **Assessment Methods:**

Class work based on case studies assessment, written assignments; read and review current research findings in the area, develop and/or assess prototypes; report writings on different assignments/practical, presentations, test and final university examination.

1. **Reading List:**
2. Sommerville, I. (2016). *Software engineering* (10th ed.). Addison-Wesley.
3. Arlow, J., &Neustadt, I. (2013). *UML 2 and the unified process: practical object-oriented analysis and design*. Upper Saddle River, NJ: Addison-Wesley.
4. Kendall, K. E., & Kendall, J. E. (2019). *Systems analysis and design* (10th ed.). Boston: Pearson.
5. Despa M. L. (2014). *Comparative study on software development methodologies.* Database Systems Journal, V (3/2014)
6. Desikan, S., & Ramesh, G. (2006). *Software Testing: Principles and Practices*. Pearson Education India.
7. Perry, W. E. (2006). *Effective methods for software testing*. Wiley.
8. Kan, S. H. (2014). *Metrics and models in software quality engineering*. Addison-Wesley.
9. Cohn, M. (2012). *Agile estimating and planning*. Prentice Hall PTR.
10. Cohn, M. (2013). *Succeeding with agile: software development using Scrum*. Addison-Wesley.