

1. Course Number and Course Title:

COE 457 – Internet and Internet of Things (IoT) Programming

2. Credits Hours:

3-1-3

3. Prerequisites and/or Co-Requisites:

Prerequisites: COE 312 (Software Design for Engineers) or CMP 256 (GUI Design and Programming) and COE370 (Communications Networks) or COE371 (Computer Networks I) and (CMP 310 Operating Systems)

Co-requisites: None

Competencies : Basic knowledge of Java, networking and multi-threading.

4. Name and Contact Information of Instructor:

Dr. Imran Zualkernan

5. Course Description (Catalog Description):

Focuses on internet and internet of things (IoT) programming. Topics include programming using Internet and IoT protocols, advanced JavaScript programming, NSQL databases, cross-platform web-application development, and architectures for Internet of Things.

6. Textbook and other Supplemental Material:

Primary: Ethan Brown, *Web Development with Node and Express: Leveraging the JavaScript Stack*, O'Reilly Media; 1 edition (July 25, 2014). ISBN-13: 978-1491949306

7. Learning Outcomes:

Upon completion of the course, students will be able to:

1. Develop programs using sockets for various traditional Internet protocols
2. Develop end-to-end Internet applications using the JavaScript stack
3. Develop programs for non-traditional Internet-oriented document-based database systems
4. Develop cross-platform Internet applications
5. Develop programs using protocols for Internet of Things
6. Build Internet of Things applications

8. Teaching and Learning Methodologies:

Methods include lectures; problem and project-based learning methods (homework, simulation-based projects) and class discussions.

9. Course Topics and Schedule:

Topic/Activity	Weeks
HTTP and client-server using Sockets	Week 1
HTML and CSS	Week 2

JavaScript programming	Week 3
JavaScript programming	Week 4
JavaScript programming	Week 5
Programming with node.js and Express	Week 6
Programming with node.js and Express	Week 7
Programming CouchDB/MongoDB	Week 8
Programming CouchDB/MongoDB	Week 9
Using HTML5/JavaScript to build cross-platform application	Week 10
Using HTML5/JavaScript to build cross-platform application	Week 11
Protocols for Internet of Things	Week 12
Protocols for Internet of Things	Week 13
Programming Internet of Things	Week 14
Revision	Week 15
Final Exam	Week 16