| Course Name | *Advanced Web-based Systems* | | | |
|---|---|---|---|---|
| **Course Information** | **Course Code** | **Course No.** | **Credit Hour** | **Prerequisite(s)** |
| | 0912623 | IS 623 | 3(3-0-6) | 0912613 |

| Course Track | ☐Program Core  ☒Electives |
|---|---|

## Course Description

Although the World-Wide Web was initially considered as a means for transferring documents, it is now being used as a platform for sophisticated interactive applications, taking the place of traditional desktop applications. This course provides an overview of the theory and practice of the state-of the-art technologies for application development for the Web including service-oriented systems and mobile web systems. The course covers how information (or data) is communicated over the web both synchronously and asynchronously along with the different data standards and data management technologies including schema-less database management. Advanced topics such as web security, web optimization, and critical rendering path are also introduced in the course.

## Course Outcomes

After the completion of this course, the student will be able to:

1. Describe what is the web and how it is architected
2. Identify and describe the technologies surrounding the modern web
3. Discuss the web services architectures
4. Explain and implement the various data standards on the web
5. Use web scripting language to consume data from web services and APIs
6. Explain and implement web semantics
7. Analyze web performance and use techniques to optimize performance
8. Describe and implement techniques for web security.

| Assessment Policy | **Assignments** | 10% | **Quiz** | - | **Project** | 25% |
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| | **Midterm** | 25% | **Final** | 40% | **Others** | - |

| **Textbook** | Leon Shklar and Rich Rosen , "Web Application Architecture: Principles, Protocols and Practices" John Wiley, 2009 |
|---|---|
| **References** | 1. Sven Casteleyn, Florian Daniel, Peter Dolog, Maristella Matera "Engineering Web Applications", Springer, 2009.<br>2. Marijn Haverbeke, "Eloquent JavaScript - A Modern Introduction to Programming", 2014.<br>3. Tom Marrs, "JSON at Work", 1st Edition, O'Reilly Media, Inc., 2017. ISBN-13: 978-1449358327.<br>4. Joshua Eichorn, "Understanding AJAX: Consuming the Sent Data with XML and JSON", Prentice Hall, July 2006. ISBN-13: 9780132337939<br>5. Jon Duckett, "HTML and CSS: Design and Build Websites", John Wiley and Sons, ISBN: 1118008189 |

| | 6. Jon Duckett, "JavaScript & JQuery: Interactive Front-End Web Development", John Wiley and Sons, ISBN: 1118531647 |
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| | 7. Robin Nixon "Learning PHP, MySQL, JavaScript, and CSS", 2nd Edition, O'Reilly Media 2012, ISBN: 1449319262 |