

Title (Units): **COMP2009 Applied Information Systems Laboratory II (1,0,3)**

Course Aims: To gain hands-on experience on state-of-the-art software including hybrid mobile application development and web programming languages. Emphasis is on the learning of different approaches to learn software.

Prerequisite: COMP 2008 Applied Information Systems Laboratory I

Course Intended Learning Outcomes (CILOs):

Upon successful completion of this course, students should be able to:

No.	Course Intended Learning Outcomes (CILOs)
	Knowledge
1	Describe the advanced features in web programming
2	Describe the features in hybrid mobile application development.
	Professional Skill
3	Perform advanced techniques in software management and deployment.
4	Perform advanced mobile app and web programming
5	Present numerical data in various multimedia formats
	Attitude
6	Conduct relevant knowledge search for self-learning

Calendar Description: This laboratory provides practical hands-on experience on state-of-the-art software including various system and testing tools, mobile and web programming languages.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1, 2	Students will be given the related knowledge of the skills before they practice them.
3, 4, 5	Students will gain the hands-on experience by using software tools and applications. Lab. sheets will be provided.
6	Students will complete some assignments which require self-learning of skills.

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Continuous Assessment	100%	1-6	This course is emphasized on the hands-on experience on using software tools and applications in software administration, advanced web programming and mobile development. Assignments, projects and/or practical tests are designed in each area to evaluate the students' skills.

Assessment Rubrics:

	Excellent (A)	Good (B)	Satisfactory (C)	Marginal Pass (D)	Fail (F)
Advanced Web Programming	<ul style="list-style-type: none">Excellent mastery of the MEAN stack.Excellent mastery of	<ul style="list-style-type: none">Good mastery of the MEAN stack.Good mastery of cookie handling	<ul style="list-style-type: none">Acceptable mastery of the MEAN stackAcceptable mastery of	<ul style="list-style-type: none">Some mastery of the MEAN stackSome mastery of cookie handling	<ul style="list-style-type: none">No mastery of the MEAN stackNo mastery of cookie handling

	Excellent (A)	Good (B)	Satisfactory (C)	Marginal Pass (D)	Fail (F)
	<ul style="list-style-type: none"> cookie handling Excellent mastery of user authentication and session security 	<ul style="list-style-type: none"> Good mastery of user authentication and session security 	<ul style="list-style-type: none"> cookie handling Acceptable mastery of user authentication and session security 	<ul style="list-style-type: none"> Some mastery of user authentication and session security 	<ul style="list-style-type: none"> No mastery of user authentication and session security
Hybrid Mobile Application Development	<ul style="list-style-type: none"> Excellent mastery of hybrid mobile application development 	<ul style="list-style-type: none"> Good mastery of hybrid mobile application development 	<ul style="list-style-type: none"> Acceptable mastery of hybrid mobile application development 	<ul style="list-style-type: none"> Some mastery of hybrid mobile application development 	<ul style="list-style-type: none"> No mastery of hybrid mobile application development
Software Development Tools	<ul style="list-style-type: none"> Excellent mastery of software development and deployment solutions 	<ul style="list-style-type: none"> Good mastery of software development and deployment solutions 	<ul style="list-style-type: none"> Acceptable mastery of software development and deployment solutions 	<ul style="list-style-type: none"> Some mastery of software development and deployment solutions 	<ul style="list-style-type: none"> No mastery of software development and deployment solutions

Course Content and CILOs Mapping:

Content		CILO No.
I	Advanced Web Development Techniques	1, 4 - 6
II	Hybrid Mobile Application Development	2,4
III	Software Development Tools	3,6

References:

- Hahn, Evan. Express in action: writing, building, and testing Node.js applications. Manning Publications, 2016.
- Jason. Appcelerator Titanium Smartphone App Development Cookbook - Second Edition. Packt Publishing, 2015.
- Radford, Stephen. Learning web development with Bootstrap and AngularJS: build your own web app with Bootstrap and AngularJS, utilizing the latest web technologies. Packt Publishing, 2015.
- Shahid, Shaikh. Sails.js essentials: get up to speed with Sails.js development with this fast-paced tutorial. Packt Publishing, 2016.
- Wilken, Jeremy, and Adam Bradley. Ionic in action: hybrid mobile apps with Ionic and AngularJS. Manning Publications, 2016.

Course Content:

Topic

- I. Advanced Web Development Techniques
 - A. Server side programming
 - Model-View-Controller (MVC) framework.
 - Cookies and Session Management
 - User authentication and session security
 - B. Client side programming
 - HTML template engines.
 - Responsive web design.
 - C. Database techniques
 - Object Relational Mapping (ORM).
 - NoSQL Database

- D. Web-based Animations and Graphics
 - Data-driven Visualizations
 - Interactive HTML5 animations
- E. Software Testing
 - JavaScript Testing Frameworks
- II. Hybrid Mobile Application Development
 - A. Hybrid native mobile application development
 - B. Hybrid web mobile application development
 - C. Data-interchange formats
- III. Software Development Tools
 - A. Version control system
 - B. Cloud-based hosting solutions