Title (Units):	**COMP2019 Computer Systems and Software Workshop II (1,0,3)**

Course Aims:	To gain hands-on experience on state-of-the-art software including various system development tools. Emphasis is on the learning of different approaches to design software, and gaining exposure to some state-of-the-art software development environments and tools.

Prerequisite:	COMP 2018 Computer Systems and Software Workshop 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 popular cross-platform application development platforms
2	Describe the popular software tools for software design and administration
3	Describe the popular software tools for software and web system development
	Professional Skill
4	Perform cross-platform application programming
5	Use current software administration tools
6	Use current software and web system development tools

Calendar Description:	This laboratory provides practical hands-on experience on code administration, software design and programming tools.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1-3	Students will acquire knowledge and skills on computer systems and software tools via lectures, software demonstrations and briefings on worksheets
4-6	Students will practice their skills with guided lab assignments, projects and practical tests

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 tools and applications in the three areas. Assignments, projects and/or practical tests are designed in each area to evaluate students' proficiency.

Assessment Rubrics:

	Excellent (A)	Good (B)	Satisfactory (C)	Marginal Pass (D)	Fail (F)
Advanced Web Development Techniques	• Excellent mastery of the MVC design patterns • Excellent mastery of Node.js web	• Good mastery of the MVC design patterns • Good mastery Node.js web development	• Acceptable mastery of the MVC design patterns • Acceptable mastery of Node.js web	• Some mastery of the MVC design patterns • Some mastery of Node.js web	• No mastery of the MVC design patterns • No mastery of Node.js web development

	Excellent (A)	Good (B)	Satisfactory (C)	Marginal Pass (D)	Fail (F)
	development		development	development	
Cross-platform Application Development	Excellent mastery of developing cross-platform application	Good mastery of developing cross-platform application	Acceptable mastery of developing cross-platform application	Some mastery of developing cross-platform application	No mastery of developing cross-platform application
Software Development and Administration Tools	Excellent mastery of a software tool to develop and administrate applications	Good mastery of a software tool to develop and administrate applications	Acceptable mastery of a software tool to develop and administrate applications	Some mastery of a software tool to develop and administrate applications	No mastery of a software tool to develop and administrate applications

Course Content and CILOs Mapping:

	Content	CILO No.
I	Advanced Web Development Techniques	1,4
II	Cross-platform Application Development	2,5
III	Software Development Tools	3,6

References:
- 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.
- Fernandez, Michelle M. Corona SDK mobile game development : beginner's guide : learn, explore, and create commercially successful mobile games for iOS and Android. 2nd edition, Packt Publishing, 2015.
- Jensen, Paul B. Cross-platform Desktop Applications With Node, Electron, and Nw.js. Manning Pubns Co, 2016.

Course Content:

Topic

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

II. Cross-platform Application Development
- A. Hybrid mobile application development
- B. Mobile 2D game development
- C. Cross-platform desktop application development

III.   Software Development Tools
      A. Version control system
      B. Cloud-based hosting solutions