Title (Units): **COMP7270 Web and Mobile Programming (3,2,1)**

Course Aims: To provide students with the opportunities to improve their understanding of the web and mobile information system developments. On completion of this course, students will be able to: (1) install, manage and maintain the information systems, (2) master the skills of web programming and database implementation, as well as hands-on experience, for developing web information systems, (3) extend the information systems to mobile platforms.

Prerequisite: Postgraduate Student Standing

Course Intended Learning Outcomes (CILOs):
Upon successful completion of this course, students should be able to:

No.	Course Intended Learning Outcomes (CILOs)
	Knowledge
1	Explain the fundamental concepts of web information systems
2	Apply the web programming and database techniques for developing information systems
3	Apply methods and patterns such as web components, MVC, ORM, and HTML template engines for enhancing website design
4	Describe the fundamental elements in mobile information system development
	Professional Skill
5	Develop web information systems and mobile applications that communicate

Calendar Description: This course aims at providing students with the opportunities to improve their understanding of the web and mobile information system developments. Through this course, students will learn: (1) how to install, manage and maintain the information systems, and (2) the web programming and the database techniques, as well as hands-on experience, for developing web information systems, (3) how to extend the information systems to mobile platforms.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1-4	Students will learn concepts, programming and database techniques for web and mobile information systems in lectures, tutorials and laboratory sessions
1-5	Students will work on programming assignments and/or mini-project to practice the skills of web programming, mobile information system development and database implementations and enhance their understanding of developing information systems

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Individual Mini-Project	50%	2-5	A mini project is designed to measure how well the students have learned the concepts, programming and database techniques for developing web and mobile information systems.
2	Examination	50%	1-4	Final examination is designed to assess how far students have achieved their intended learning outcomes. Questions will primarily be analysis and skills based to assess student's ability to apply what they have learned to web and mobile information system development.

Assessment Rubrics:

Excellent (A)	• Achieve all CILOs, demonstrating a good mastery of both the theoretical and practical aspects of the knowledge and skills in information systems associated with web programming, mobile information system development and database techniques • Able to develop correct solutions to problems • Demonstrate a thorough understanding and solid knowledge of information systems development, web programming, mobile information system development and database techniques • Able to apply a variety of techniques and relevant knowledge for solving problems in information systems
Good (B)	• Achieve most of the three CILOs, demonstrating a good understanding of the knowledge and skills in information systems associated with web programming, mobile information system development and database techniques • Able to develop correct solutions to problems • Demonstrate a competent level of knowledge of information systems development, web programming, mobile information system development and database techniques • Ability to make use of appropriate techniques and knowledge and apply them to familiar problems in information systems
Satisfactory (C)	• Achieve some of the three CILOs, demonstrating a basic level of understanding of the knowledge and skills in information systems associated with web programming, mobile information system development and database techniques • Able to provide acceptable solutions to problems • Demonstrate an adequate level of knowledge of information systems development, web programming, mobile information system development and database techniques • Ability to make use of some techniques and knowledge and apply them to familiar situations in information systems
Fail (F)	• Achieve none of the three CILOs, with little understanding of the associated concepts and underlying techniques • Unable to provide solutions to simple problems • Knowledge of information systems development, web programming, mobile information system development and database techniques falling below the basic minimum level • Unable to apply techniques and knowledge to situations or problems in information systems

Course Content and CILOs Mapping:

Content		**CILO No.**
I	Basic Concepts of Web Information Systems	1
II	Development of Web Information Systems	1, 2, 3, 5
III	Mobile Information System Development	1, 4, 5

References:

- Jason. Appcelerator Titanium Smartphone App Development Cookbook - Second Edition. City: Packt Publishing, 2015. Print.
- Radford, Stephen. Learning web development with Bootstrap and AngularJS : build your own web app with Bootstrap and AngularJS, utilizing the latest web technologies. Birmingham, UK: Packt Publishing, 2015. Print.
- Shahid, Shaikh. Sails.js essentials : get up to speed with Sails.js development with this fast-paced tutorial. Birmingham, UK: Packt Publishing, 2016. Print.
- Wilken, Jeremy, and Adam Bradley. Ionic in action : hybrid mobile apps with Ionic and AngularJS. Shelter Island, NY: Manning Publications, 2016. Print.

Course Content:

Topic

I. Basic Concepts of Web Information Systems

A. Web technologies: IP address, ports, domain name server, etc.
B. Web information systems: components, architectures, and applications

II. Development of Web Information Systems
A. Server side programming
- Model-View-Controller (MVC) framework.

B. Client side programming
- HTML template engines.
- Responsive web design.

C. Database techniques
- Object Relational Mapping (ORM).

D. Web components and services

III. Mobile Information System Development
A. Software development for mobile information system.
B. Structured Data - JSON and XML.