Title (Units): **COMP7320 Professional Methodologies for Information Systems (3,2,1)**

Course Aims: To give students an integrative perspective of information systems development by explaining the fundamental concepts of information systems, introducing different kinds of information systems, and describing the underlying methodologies for such development. Through this course, students will be able to develop new models and solutions for developing an information system and to appreciate methodological pluralism.

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 information systems
2	Describe the system development life cycle model
3	Compare different information system development methodologies and discuss their differences
	Professional Skill
4	Perform system development based on some methodologies using related CASE tools
	Attitude
5	Apply appropriate method for information system development based on the problem being studied

Calendar Description: This course provides students with an integrative perspective of information systems and development by introducing different kinds of information systems and describing the underlying methodologies for such development. Topics include, but not limited to: model of information system, integrated view of different methodologies, methodology framework, soft systems methodology, and object-oriented methodologies. Through this course, students will be able to develop new models and solutions for an information system.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1-3,5	Students will learn the concepts and methodologies via lectures and assignments.
4	Students will acquire hands-on experience on using case tools via laboratory session.

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Continuous assessment	50%	1-5	Continuous assessments (such as system development documentation and quizzes) are designed to measure how well the students understand the current system development methodologies, as well as theories related to information systems.
2	Examination	50%	1-5	Final examination questions are designed to see how far students have achieved their intended learning outcomes. Questions are designed to measure students' ability to work with each development methodology under different problem domains.

Assessment Rubrics:

	Excellent (A)	Good (B)	Satisfactory (C)	Fail (F)
Theoretical Concepts	Able to give a thorough explanation of various system development concepts such as system concepts, development methodology and prototyping	Able to give a good explanation of various system development concepts such as system concepts, development methodology and prototyping	Able to give a limited explanation of various system development concepts such as system concepts, development methodology and prototyping	Unable to give a explanation of various system development concepts such as system concepts, development methodology and prototyping
System Development Life Cycle	Evidence of thorough understanding of various development life cycle models and process improvement methods	Evidence of good understanding of various development life cycle models and process improvement methods	Limited understanding of various development life cycle models and process improvement methods	Little or no understanding of various development life cycle models and process improvement methods
System Development Methods and Techniques	Demonstrate a thorough understanding of various development methods and techniques	Demonstrate a good understanding of various development methods and techniques	Demonstrate limited understanding of various development methods and techniques	Little or no understanding of various development methods and techniques
CASE Tools	Excellent mastery of CASE tools to support development	Good mastery of CASE tools to support development	Some mastery of CASE tools to support development	No mastery of CASE tools to support development

Course Content and CILOs Mapping:

Content		CILO No.
I	Introduction to Information Systems	1,5
II	System Development Life Cycle	2
III	Professional Development Methods and Techniques	3,4,5

References:

- Alan Dennis, Barbara Haley Wixom and David Tegarden. Systems Analysis and Design with UML, John Wiley & Sons, 2015.
- Jeffrey Hoffer, Joey George and Joe Valacich, Modern Systems Analysis and Design, Pearson, 2016.
- Chris Sims and Hillary Johnson, Scrum, a Breathtakingly Brief and Agile Introduction, Dymaxicon, 2012.
- Craig Larman. Applying UML and Patterns: An Introduction to Object-oriented Analysis and Design and Iterative Development, Pearson India, 2015.
- David Avision and Guy Fitzgerald. Information Systems Development: Methodologies, Techniques and Tools (4th Edition), McGraw Hill, 2006.
- Peter Checkland and John Poulter. Learning for Action: A Short Definitive Account of Soft Systems Methodology, and Its Use Practitioners, Teachers and Students, John Wiley& Sons, 2007.
- Jonathan Arnowitz, Michael Arent and Nevin Berger. Effective Prototyping for Software Makers, Morgan Kaufmann, San Francisco. 2007.
- Lonnie Bentley and Jeffrey L. Whitten. Systems Analysis and Design for the Global Enterprise (7th Edition), McGraw Hill, 2007.
- Mary Chrissis, Mike Konrad and Sandra Shrum. CMMI for Development: Guidelines for Process Integration and Product Improvement (3rd Edition), Addison-Wesley, 2011.

Course Content:

Topic

I. Introduction to Information Systems
   A. Historical perspectives and theoretical concepts
   B. Components and installation of information systems
   C. Integrated view of different methodologies
   D. Applications
   E. Other current issues

II. System Development Life Cycle
   A. Life cycle theory
   B. Life cycle models (such as waterfall, V-model, spiral model, incremental development)
   C. Development process improvement (such as CMM, CMM-I, ISO and IEEE software engineering standards)

III. Professional Development Methods and Techniques
   A. Soft method (such as SSM and Multiview)
   B. Object oriented method
   C. Unified Process
   D. Rapid applications development (RAD) method
   E. Agile development method
   F. Prototyping method
   G. Use of CASE tools