Indian Institute of Management Indore

Executive Post Graduate Program in E-GOVERNANCE

2013-14

Title of the Course: SOFTWARE ENGINEERING	Credits: 2
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COURSE DESCRIPTION

This course is an introduction to the analysis, design and implementation of information systems. Various phases of systems development will be discussed in detail exploring the complexities involved in development cycle. Both traditional as well contemporary methodologies/recent trends that are used in system development would be covered in the context of e-governance. The linkage of all dimensions of systems description and modeling such as process, decision, and data modeling in a set of systems analysis and design approaches, will be explored. Participants will be exposed to various tools, techniques and methodologies for the analysis and design of information systems in the context of e-governance.

COURSE OBJECTIVES

This course has following objectives:

- To make participants understand software engineering concepts and the system development life cycle.
- To make participants understand and appreciate various System Development Process Approaches
- To assist participants in understanding how software cost is estimated.

PEDAGOGY

Lectures, Classroom Exercises, and Case Analysis

EVALUATION

Group Assignment	:	15%
Class Participation and Presentation	:	10%
Quiz (1Q)	:	25%
End-term	:	50%

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SCHEDULE OF SESSIONS:

Module 1: System Development Life Cycle

Module Objective(s): To introduce software development life cycle and its phases; determining and modeling information requirements

Session 1 Software Engineering: An Overview
Objective(s) To introduce concept of software engineering
Readings: Introduction to Software Engineering, New Age Publishers, pp.1-19, downloaded from www.newagepublishers.com/samplechapter/001036.pdf *dated* April 15, 2013.

R1
1~20

Session 2-3 Introduction to Software Development Life Cycle (SDLC) Process
Objective(s) To introduce phases of software development life cycle
Readings: The Systems Development Environment, Ch-1, pp.3-24, Modern Systems Analysis and Design, 4/e, Jeffrey Y. Hoffer, George, and Valacich, ISBN: 81-7758-297-6, Pearson Education Publication, 2008

R2
21~42

Case Mark McMurtrey (2013), Application of the Systems Development Life Cycle (SDLC) in 21st Century Health Care: Something Old, Something New?, Journal of the Southern Association for Information Systems, pp.14-25.

C3
43~54

Session 4-5 Determining and Modeling Information Requirements: Process, Data and Logic
Objective(s) To introduce concepts and tools of determining and structuring process, data and logic modeling
Exercise: Classroom Exercise on Process, Data and Logic Modeling

Module 2: System Development Process Approaches

Module Objective(s): To introduce various system development process approaches

Session 6-7 System Development Process Models and Approaches: An Overview
Objective(s) To introduce various process models, Spiral and Iterative, JAD, RAD, Prototyping and Agile
Readings: Walt Scacchi. (2001). Process Models in Software Engineering, Institute for Software Research, pp.1-18.

R4
55~74

W.J.Hansen (2001), The Spiral Model as a Tool for Evolutionary Acquisition, CrossTalk, The Journal of Denfence Software Engineering, pp.4-11.

R5
75~82

Case: Robert D. Austin (2008), CMM versus Agile: Methodology Wars in Software Development, HBS, 9-607-084, pp.1-17

C6
83~100

Session 8-9 Alternate to Systems Development
Objective(s) To introduce various alternates to system development such as outsourcing, and cloud computing

Readings: Damian, D., & Moitra, D. (2006). Guest Editors' Introduction: Global Software Development: How Far Have We Come?. *Software, IEEE*, 23(5), 17-19.

Case: Indranil Bose, Ming-Hui Huang, Minyi Huang (2006), Jharna Software: The Move to Agile, University of Hong Kong, HKU613-PDF-ENG pp.1-22,

R8
101 ∽ 104

C9
105∽ 126

Session 10 Introduction to Software Cost Estimation

Objective(s) To introduce concept and methods of software cost estimation

Readings: Sharma, N., Bajpai, A., & Litoriya, M. R. (2012). A comparison of software cost estimation methods: A Survey. International Journal of Computer Science & Applications (TIJCSA), 1(3).

R10
127∽ 133

Reference Books

R1: Modern Systems Analysis and Design by J.A. Hoffer, J.F. George, J.S Valacich, and Prabin K Panigrahi, 4th Edition, 2006 (ISBN: 81-7758-297-6) 004.21019 H6m6

R2: Systems Analysis and Design, *Kendall and Kendall*, Pearson Education

R3: Systems Analysis and Design Methods, *Whitten, Bentley and Dittman*, Tata Mcgrawhill

R4: Software Engineering: A Practitioner's Approach by Roger S. Pressman