UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

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Doctoral Programme of Computer Science

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Module name	: **I**INFORMATION AND **K**NOWLEDGE **M**ANAGEMENT
Module level, if applicable	: **D**OCTORAL
Code, if applicable	: MII7550
Semester(s) in which the module is taught	: I (Odd)
Person responsible for the module	: Moh Edi Wibowo, Ph.D.
Lecturer(s)	: Moh Edi Wibowo, Ph.D., Anny Kartika Sari, Ph.D.
Language	: Indonesia
Relation to curriculum	: Doctorate; Elective; 1st or 3rd semester.
Credit points	: 3 credits
Type of teaching, contact hours	: Doctorate: lectures for < 5 students. Contact hours are lecture hours.
Workload	: (1) Lectures and discussion: 3 x 50 = 150 minutes (2.5 hours) per week. (2) Exercises and assignments: 3 x 60 = 180 minutes (3 hours) per week. (3) Independent study: 3 x 60 = 180 minutes (3 hours) per week.
Requirements according to the examination regulations	: A student must have attended at least 75% of the lectures to sit in the exams.
Recommended prerequisite	: -
Module objectives/ intended learning outcomes	: This course is a postgraduate level course of information and knowledge management. In this course, students will learn about the recent development of tools, techniques, and strategies to retain, analyse, organize, enhance, and share insights and experiences particularly between people in modern organizations. In theoretical aspects, this course focuses its discussion on how information and knowledge can be effectively structured and represented. In practical aspects, this course focuses its discussion on how information and knowledge can be effectively searched (retrieved), explored (browsed), and used to answer needs of information as naturally

	as possible. After completing this course, students are expected to: CO1: Analyse and evaluate various approaches, methods, and techniques for managing information and knowledge, including those related to information retrieval, knowledge representation, semantic search, and knowledge-based reasoning; CO2: Technically analyse the latest research developments in the field of information and knowledge management and are able to identify gaps in existing research and technology; CO3: Substantiate the analysis by using the existing scientific knowledge in the field of information and knowledge management and are able to present the analysis in a structured manner in the form of scientific writing; CO4: Formulate and create new research plans in the field of information and knowledge management with an adequate novelty.
Content	: This course focuses on theoretical advancement and recent technologies that enable organization of information/knowledge in structured and natural ways. In particular, this course will concentrate on fundamental methods of information and knowledge representations as well as effective retrieval and semantic search. Furthermore, the course will also discuss the human-side of the management system by addressing issues such as natural interaction, imprecise specifications, and reasoning over knowledge.
Study and examination requirements and forms of examination	: Evaluation is done in 3 forms, namely: 1. Two examinations, mid-term and final, 2. A modelling assignment, and 3. A short review paper on state-of-the-art methods in formal methods. Assessment is done using benchmark assessment, with the aim of measuring the level of students' understanding related to the target and class rank.
Media employed	: LCD, blackboard, and websites.
Reading List	: Kryvinska, N., Poniszewska-Maranda, A., Developments in Information & Knowledge Management for Business Applications, vol. 2, Springer, 2021.

The Mapping of COs to PLOs

COs	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1								
CO2								
CO3								
CO4								

The PLO of DP-CS

PLO	Knowledge Area	PLO Description
PLO1	[Values and principles]	A graduate should be devoted to God Almighty, uphold the humanity values, internalize academic values and ethics, responsible in working around expertise independently.
Managerial Capability		
PLO2	[Professional attitudes]	A graduate should have good interpersonal skills; able to work together within the organization, both as a leader and a member; able to be the initiator; able to manage and delegate tasks; and have a sense of responsibility for their own work as well as take responsibility for the achievement of the organization's work.
PLO3	[Communication skills]	A graduate should be able to communicate effectively and efficiently with stakeholders from various backgrounds; use English well; and able to write and present scientific papers correctly and well.
PLO4	[Life-long learning]	A graduate should be up to date with the state-of-the-art especially in computer science field, able to take parts in the development of computer science field that is engaged in and relate it to other fields throughout life.
Working Capability		
PLO5	[Problem-solving and Scientific skills]	A graduate should be able to analyse science and technology problems in the computer science field, develop alternative solutions through intra disciplinary, interdisciplinary, and trans disciplinary approaches to produce innovative, original, and tested works.
PLO6	[Ability to formulate and do research]	A graduate should be able to formulate research problems through critical, exploratory, and innovative studies both independently and in groups of computer science field that is engaged in and present research results in a scientific paper at regional or international level.
Mastering Knowledge		
PLO7	[Fundamental knowledge]	A graduate should be able to develop knowledge in the field of computer science that is engaged, which includes abstraction, complexity, evolution and philosophy of changes or developments in the field of science.

PLO8	[Applied knowledge]	A graduate should be able to develop theoretical, philosophical, and applied concepts in the field of computer science that is engaged in, and to represent them in a structured and systematic manner.