



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Mathematics Department

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Undergraduate Program in Statistics

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MODULE HANDBOOK

Module name	Pengantar Teori Antrian & Simulasi (Introduction to Queueing and Simulation Theory)
Module level, if applicable	Bachelor
Code, if applicable	MMS-3439
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	5/third year
Person responsible for the module	Prof. Dr.rer.nat. Dedi Rosadi, S.Si., M.Sc.
Lecture(s)	Prof. Dr.rer.nat. Dedi Rosadi, S.Si., M.Sc. Widya Irmaningtyas, S.Si., M.Sc.
Language	Bahasa Indonesia
Classification within the Curriculum	Compulsory course / Elective Studies
Teaching format /class hours per week during the semester:	2 hours lecture, 2 hours laboratory session
Workload	<ul style="list-style-type: none"> • 2 hours lecture+ 4 hours individual study, 14 weeks lecture persemester, • 2 hours laboratory session + 2 hours individual study, 10 weeks laboratory session per semester, • total 124 hours a semester
Credit points	3
Requirements	MMS-2410 Pengantar Model Probabilitas
Module objectives/intended learning outcomes	By the end of this course, you should see improvement in your ability to: CO1. explain the basic concept of queueing system analysis. CO2. select and use appropriate queueing model for queueing system analysis. CO3. apply the method in queueing theory for real problems. CO4. use statistical software to conduct an empirical queueing system analysis.
Content	Basic concept of probability theory, Basic concept of stochastic process and Markov chain, Birth-death process, Poisson process, Queueing system: M/M/1, G/M/1, M/G/1, G/G/1, Priority queues, Queueing network Simulasi sistem antrian
Study and examination requirements and forms of examination	The weight of assignments will be as follows: <ol style="list-style-type: none"> i. Quiz, homework 10% ii. Group discussion 15% iii. Mid semester exam 35% iv. Final exam 40% Grade scale: A : $85 \leq \text{score}$ A/B : $75 \leq \text{score} < 85$ B : $60 \leq \text{score} < 75$ B/C : $50 \leq \text{score} < 60$ C : $40 \leq \text{score} < 50$ D : $20 \leq \text{score} < 40$ E : $\text{score} < 20$
Media employed	Slides and LCD projectors, whiteboards

Reading List	<ol style="list-style-type: none"> 1. Bolch, G., Greiner, S., de Meer, H. and Trivedi, K.S., 1998, Queueing Networks and Markov Chains, John Wiley & Sons, Inc. 2. Brian D. Bunday, An Introduction to Queueing Theory, 1996, Arnold. 3. Cooper, R.B., 1981, Introduction to Queueing Theory, 2nd edition, North Holland 4. Daigle, J.N., 2005, Queueing Theory With Applications To Packet Telecommunication, Springer 5. Law, A.M. and Kelton, D.W., 1991, Simulation Modelling and analysis, 1991, McGraw-Hill, Inc.
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CO and PLO mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7
CO 1		x					
CO 2						x	
CO 3				x			
CO 4			x				