MODULE HANDBOOK

<table>
<tr><td colspan="2">Module name</td><td colspan="5">Simulation Techniques</td></tr>
<tr><td colspan="2">Module level, if applicable</td><td colspan="5">2nd year</td></tr>
<tr><td colspan="2">Code, if applicable</td><td colspan="5">SST-309</td></tr>
<tr><td colspan="2">Semester(s) in which the module is taught</td><td colspan="5">3rd (third)</td></tr>
<tr><td colspan="2">Person responsible for the module</td><td colspan="5">Achmad Fauzan, S.Pd., M.Si</td></tr>
<tr><td colspan="2">Lecturer</td><td colspan="5">Muhammad Hasan Sidiq Kurniawan, S.Si., M.Sc.</td></tr>
<tr><td colspan="2">Language</td><td colspan="5">Bahasa Indonesia</td></tr>
<tr><td colspan="2">Relation to curriculum</td><td colspan="5">Elective course in the second year (3rd semester) Bachelor Degree</td></tr>
<tr><td>Types of teaching and learning</td><td>Class size</td><td>Attendance time (hours per week per semester)</td><td>Form of active participation</td><td colspan="2">Workload (hours per semester)</td><td></td></tr>
<tr><td rowspan="4">Lecture</td><td rowspan="4">50-60</td><td rowspan="4">2.5</td><td rowspan="4">Discussion</td><td>Face to face teaching</td><td>35</td></tr>
<tr><td>Structured activities</td><td>48</td></tr>
<tr><td>Independent study</td><td>48</td></tr>
<tr><td>Exam</td><td>5</td></tr>
<tr><td colspan="2">Total Workload</td><td colspan="5">136 hours</td></tr>
<tr><td colspan="2">Credit points</td><td colspan="5">3 CUs / 5.1 ECTS</td></tr>
<tr><td colspan="2">Requirements according to the examination regulations</td><td colspan="5">Minimum attendance at lectures is 75%. Final score is evaluated based on quiz, assignment, mid-term exam, and final exam.</td></tr>
<tr><td colspan="2">Recommended prerequisites</td><td colspan="5">Programming Algorithm (SST-105).</td></tr>
<tr><td colspan="2">Related course</td><td colspan="5">Statistical Consulting (SST-603)</td></tr>
<tr><td colspan="2">Module objectives/intended learning outcomes</td><td colspan="5">After completing this course, the students have ability to:
CO 1. collect data about queuing problems
CO 2. apply the statistical simulation technique to solve queuing and business problems
CO 3. apply the simulation technique using statistical software
CO 4. Interpret the simulation and queuing models, also give suggestions based on the analysis</td></tr>
<tr><td colspan="2">Content</td><td colspan="5">Queuing simulation: arrival rate, service rate, queuing models
Monte-Carlo simulation: introduction, application on queuing problems, and application on business problems
Bootstrap simulation: introduction, point estimation, standard error estimation, hypothesis testing, statistical method application</td></tr>
<tr><td colspan="2">Study and examination requirements and forms of examination</td><td colspan="5">The final mark will be weighted as follows:
No | Assessment components | Assessment types | Weight (percentage)
1 | CO 1 | Assignment | 10%
2 | CO 2 | Midterm Exam | 35%
3 | CO 3 | Assignment | 35%
4 | CO 4 | Assignment, Final Exam | 20%</td></tr>
<tr><td colspan="2">Media employed</td><td colspan="5">White-board, Laptop, LCD Projector</td></tr>
<tr><td colspan="2">Reading list</td><td colspan="5">1. Kallenberg, L.C.M., and Spieksma, F.M. Stochastic Modelling: Performance and Control. Universiteit Leiden.
2. Efron, B. and Tibshirani, R. J. An Introduction to the Bootstrap. Chapman & Hall/</td></tr>
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Mapping CO, PLO, and ASIIN's SSC

ASIIN		PLO											
		E	N	T	H	U	S	I	A	S	T	I	C
Knowledge	a												
	b										CO3		
	c										CO1		
	d												
Ability	e												
	f												
Competency	g												
	h										CO2 CO4		
	i												
	j										CO3		
	k												
	l												