



UNIVERSITAS INDONESIA
Faculty of Mathematics and Natural Sciences
Department of Mathematics
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MODULE HANDBOOK

Module designation	<i>Theory of Computation</i>
Semester(s) in which the module is taught	5
Person responsible for the module	<i>Dr. Yudi Satria</i>
Language	<i>Indonesian</i>
Relation to curriculum	<i>Elective</i>
Teaching methods	<i>Flipped learning.</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: 9 hours/week x 14 weeks + 5.5 hours/week x 2 weeks = 137 hours. Contact hours: 150 minutes lectures. Individual study including examination preparation, specified in hours: 3 hours structured learning and 3 hours individual study per week.</i>
Credit points	3 SKS (4.77 ECTS)
Required and recommended prerequisites for joining the module	<i>Algorithm and Programming Discrete Mathematics</i>
Module objectives/intended learning outcomes	<i>After completing the course, students have the ability</i> <ol style="list-style-type: none">1. <i>To explain mathematically an abstract machine.</i>2. <i>To explain computability theory.</i>3. <i>To diagnose language and language expressions that can be accepted by an abstract machine.</i>

Content	<ol style="list-style-type: none"> 1. <i>Formal language and its grammar</i> 2. <i>Chomsky classification</i> 3. <i>Finite state machine</i> 4. <i>Finite automata</i> 5. <i>Deterministic finite automata</i> 6. <i>Regular grammar</i> 7. <i>Regular expression</i> 8. <i>Nondeterministic finite automata</i> 9. <i>Context-free grammar</i> 10. <i>Formal Context-free grammar</i> 11. <i>Push down automata</i> 12. <i>Deterministic push down automata</i> 13. <i>Context-free grammar receivable push down automata</i> 14. <i>Turing machine</i> 																				
Examination forms	<i>Essay.</i>																				
Study and examination requirements	<p><i>The final mark will be weighted as follows:</i></p> <ol style="list-style-type: none"> 1. <i>Assignments (30%)</i> 2. <i>Mid-term examination (35%)</i> 3. <i>Final-term examination (35%)</i> <p><i>To successfully pass the module it requires a minimum 55% of the total mark.</i></p> <table data-bbox="635 1167 903 1648" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;"><i>Mark</i></th> <th style="text-align: left;"><i>Grade</i></th> </tr> </thead> <tbody> <tr><td>85—100</td><td>A</td></tr> <tr><td>80—<85</td><td>A-</td></tr> <tr><td>75—<80</td><td>B+</td></tr> <tr><td>70—<75</td><td>B</td></tr> <tr><td>65—<70</td><td>B-</td></tr> <tr><td>60—<65</td><td>C+</td></tr> <tr><td>55—<60</td><td>C</td></tr> <tr><td>40—<55</td><td>D</td></tr> <tr><td><40</td><td>E</td></tr> </tbody> </table>	<i>Mark</i>	<i>Grade</i>	85—100	A	80—<85	A-	75—<80	B+	70—<75	B	65—<70	B-	60—<65	C+	55—<60	C	40—<55	D	<40	E
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Reading list	<ol style="list-style-type: none"> 1. <i>Sipser. M., Introduction to The Theory of Computation, 3rd Ed, Cengage Learning, 2012.</i> 2. <i>John C. Martin, Introduction to Languages and the Theory of Computation, 4th Ed, Mc Graw Hill, 2011.</i> 3. <i>Djati Kerami, Diktat Pengantar Teori Komputasi, Jurusan Matematika FMIPA UI, 2001.</i> 																				