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### Module Handbook

Module Name :	<i>Pengantar Teori Automata</i> Introduction of Automata Theory
Module level :	Bachelor degree/Undergraduate Program
Course Code :	4420102093
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	7 <sup>th</sup> / fourth year
Module coordinator(s)	Prof. Drs. I Ketut Budayasa, Ph.D
Lecturer(s):	Prof. Drs. I Ketut Budayasa, Ph.D Dr. Atik Wintarti, M.Kom Dr. Elly Matul Imah, M.Kom
Language:	Bahasa Indonesia (Indonesian Language)
Classification within the curriculum:	<del>Compulsory</del> / Elective
Teaching format/class hours per week during the semester:	2 contact hours of lectures ( <i>sks</i> or credit unit*)
Workload :	2 x 50 minutes lectures, 2 x 60 minutes structured activity, and 2 x 60 minutes individual activity per week, 14 weeks per semester 79.33 total hours per semester ~ 3.18 ECTS**
Credit Unit:	2 credit unit (3.18 ECTS)
Requirements:	Discrete mathematics, Data Structure and Algorithm



<p>Learning goals/competencies:</p>	<p><b>KNOWLEDGE (KNO-1):</b> Demonstrating mathematical knowledge and mathematical insight.</p> <p>CLO-1: Able to explain automata theory and basic concepts of automata theory</p> <p>CLO-2: Able to explain Context Free Grammar (CFG)</p> <p>CLO-3: Able to demonstrate the algorithm of pushdown automata</p> <p>CLO-4: Able to explain turing machine</p> <p><b>SKILL (SKI-2):</b> Formulating and solving fundamental mathematical problems.</p> <p>CLO-5: Able to formulate properties of regular sets and their algorithms</p> <p>CLO-6: Able to formulate the operations and algorithm of Context Free Language (CFL)</p> <p>CLO-7: Able to formulate algorithm of turing machine and simulation</p> <p><b>COMPETENCE (COM-1):</b> Proving mathematical statements by various methods.</p> <p>CLO-8: Able to Prove properties of Deterministic Finite Automata (DFA) and Nondeterministic Finite Automata (NFA) by various method</p>
<p>Content</p>	<p>This course discusses Introduction of Automata Theory is about automata concepts which include grammar, language and Turing machines. Lecture activities are carried out in a student center with discussions, observations, project assignments, and presentations.</p>

<p>Attribute Soft skill:</p>	<p>Active communication; Discipline; Collaboration; Responsibility; and Argumentation in class.</p>			
<p>Study/exam achievements:</p>	<p>The final grade (NA) is calculated based on the following ratio:</p> <table border="1" data-bbox="539 1944 1347 2011"> <tr> <td data-bbox="539 1944 943 2011"> <p>Assessment Components</p> </td> <td data-bbox="943 1944 1347 2011"> <p>Percentage of contribution</p> </td> </tr> </table>		<p>Assessment Components</p>	<p>Percentage of contribution</p>
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	Participation	20%																														
	Assignment	30%																														
	Mid-semester test	20%																														
	Final semester test	30%																														
	Grade conversion of 0-100 scale into 0-4 scale is set as below:																															
	<table border="1"> <thead> <tr> <th>Letter</th> <th>Number</th> <th>Grade Interval</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>4,00</td> <td><math>85 \leq A \leq 100</math></td> </tr> <tr> <td>A-</td> <td>3,75</td> <td><math>80 \leq A- &lt; 85</math></td> </tr> <tr> <td>B+</td> <td>3,50</td> <td><math>75 \leq B+ &lt; 80</math></td> </tr> <tr> <td>B</td> <td>3,00</td> <td><math>70 \leq B &lt; 75</math></td> </tr> <tr> <td>B-</td> <td>2,75</td> <td><math>65 \leq B- &lt; 70</math></td> </tr> <tr> <td>C+</td> <td>2,50</td> <td><math>60 \leq C+ &lt; 65</math></td> </tr> <tr> <td>C</td> <td>2,00</td> <td><math>55 \leq C &lt; 60</math></td> </tr> <tr> <td>D</td> <td>1,00</td> <td><math>40 \leq D &lt; 55</math></td> </tr> <tr> <td>E</td> <td>0,00</td> <td><math>0 \leq E &lt; 40</math></td> </tr> </tbody> </table>	Letter	Number	Grade Interval	A	4,00	$85 \leq A \leq 100$	A-	3,75	$80 \leq A- < 85$	B+	3,50	$75 \leq B+ < 80$	B	3,00	$70 \leq B < 75$	B-	2,75	$65 \leq B- < 70$	C+	2,50	$60 \leq C+ < 65$	C	2,00	$55 \leq C < 60$	D	1,00	$40 \leq D < 55$	E	0,00	$0 \leq E < 40$	
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Learning Methods :	Student-centered approach; project-based learning; lecturer and discussion; and presentations (structured activities)																															
Form of Media:	Power point slides; video; worksheets, and textbooks																															
Literature (primary references):	<p>[1] Hopcroft, John E., et.al., 2001, Introduction to Automata Theory, Language and Computation 2nd Ed, Addison Wesley.</p> <p>[2] Widjaja, Belawati. 1990. Pengantar Teori Automata dan Bahasa. Pusat Antar Universitas UI.</p>																															



Notes:	*1 credit unit or <i>sks</i> in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.
	**1 credit unit or <i>sks</i> = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2019