



**MODULE HANDBOOK DESCRIPTION**

Module designation	<i>Data Engineering</i>	
Code	<i>FBD0002</i>	
Semester(s) in which the module is taught	<i>6 / third year</i>	
Person responsible for the module	<i>A.S.Rachman, ST., MT.</i>	
Language	<i>Indonesian</i>	
Relation to curriculum	<i>Elective Course for Computer Engineering</i>	
Teaching methods	<i>lectures, small group discussion, project &amp; case base method.</i>	
Workload (incl. contact hours, self-study hours)	Contact minutes every week, each week of the 16 weeks/semester: <ul style="list-style-type: none"> <li>• Lectures: 3 x 50 minutes</li> <li>• Exercises and Assignments: 3 x 60 minutes</li> <li>• Self-study: 3 x 60 minutes.</li> </ul> Total study hours = 8 hours 30 minutes/week.	
Credit points	<i>2 SKS (~3.2 ECTS)</i>	
Required and recommended prerequisites for joining the module	-	
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> <li>1. <i>Students are able to understand and explain algorithm testing, data acquisition processes, data formatting, data visualization and data formatting in semantic web standards</i></li> <li>2. <i>Students are able to analyze and design appropriate data science applications to solve certain problems</i></li> </ol>	<i>PLO3 (H)</i>
	<ol style="list-style-type: none"> <li>3. <i>Students are able to build, test, optimize and report on the development of data science applications.</i></li> </ol>	<i>PLO4 (M)</i>
	<ol style="list-style-type: none"> <li>4. <i>Students are able to understand and explain the concepts of data science, statistics and machine learning algorithms.</i></li> </ol>	<i>PLO9 (L)</i>

Content	<ol style="list-style-type: none"> <li>1. <i>Konsep Data, Data Science, Statistik, Data Mining dan Machine Learning</i></li> <li>2. <i>Statistika, Algoritma Regresi, Algoritma Klasifikasi, Algoritma Clustering dan Algoritma Asosiasi</i></li> <li>3. <i>Pengujian Algoritma, Akuisisi Data, Visualisasi Data dan Semantic Web</i></li> <li>4. <i>Review Paper, Ide Aplikasi dan Perancangan</i></li> <li>5. <i>Implementasi, Pengujian, Optimasi dan Penyusunan Laporan</i></li> </ol>
Examination forms	<ul style="list-style-type: none"> <li>- <i>Case based</i></li> <li>- <i>Project based</i></li> </ul>
Study and examination requirements	<p><i>The final grade in the module is composed of:</i></p> <ul style="list-style-type: none"> <li>- <i>Case I assessment: 20%</i></li> <li>- <i>Case II assessment: 20%</i></li> <li>- <i>Project based: 60%</i></li> </ul> <p><i>Students must have a final grade of 65% or higher to pass</i></p>
Reading list	<ol style="list-style-type: none"> <li>1. <i>Data Science &amp; Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data; 2015; EMC Education Services; John Wiley &amp; Sons, Inc</i></li> <li>2. <i>Web Scraping with Python: Collecting More Data from the Modern Web; Ryan Mitchell; 2018; Ryan Mitchell</i></li> <li>3. <i>Python Data Analytics; 2015; Fabio Nelli; Apress</i></li> <li>4. <i>Semantic Web for the Working Ontologist, Effective Modeling in RDFS and OWL; Dean Allemang dan Jim Hendler; 2011; Elsevier Inc.</i></li> <li>5. <i>Systems Analysis and Design, Eleventh Edition; Scott Tilley and Harry Rosenblatt; 2017; Cengage Learning</i></li> <li>6. <i>Web Scraping with Python: Collecting More Data from the Modern Web; Ryan Mitchell; 2018; Ryan Mitchell</i></li> <li>7. <i>Flask Web Development: Developing Web Applications with Python; Miguel Grinberg; 2018; O'Reilly Media</i></li> <li>8. <i>Paper-paper dari jurnal.</i></li> </ol>