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Module designation	IF351 Database Systems		
Semester(s) in which the module is taught	3		
Person responsible for the module	Dennis Gunawan		
Language	English & Indonesian		
Relation to curriculum	Compulsory		
Teaching methods	Lecture, Demonstration		
Workload (incl. contact hours, self-study hours)	Total workload: 136.08 hours Theory <ul style="list-style-type: none"> <li>- 23.34 hours of synchronous lecture.</li> <li>- 56.04 hours of Self-study and assignments</li> <li>- 11.34 hours related to exam and self study</li> </ul> Lab <ul style="list-style-type: none"> <li>- 23.35 hours of lab module (and in-class assistance)</li> <li>- 16.34 hours of self-lab and assignments</li> <li>- 5.67 hours related to exam and self study</li> </ul>		
Credit points	3 SKS (5.04 ECTS)		
Required and recommended prerequisites for joining the module	-		
Module objectives/intended learning outcomes	<b>Course Learning outcome</b>	<b>Related ELOs</b>	
		<b>ELO</b>	<b>Performance Indicator</b>
	Students are able to utilize Data Definition Language and Data Manipulation Language to create and manage databases based on the proper database principles.	I	Understand the concept of software and hardware integration, distributed system, and computer communication protocols.
Content	<p>This course covers the algorithms, elements, preparation methods, processing, and data manipulation in a large scale setup with modern structured programming languages. It also includes examples of choosing the proper data structures based on the given cases.</p> <p>This course covers the basics of database systems, relational model, Structured Query Language (SQL) as Data Definition Language (DDL) and Data Manipulation Language (DML), database design, data normalization, queries, and database administration using MySQL as the software.</p> <p>Specifically, this course contain these topics:</p> <ol style="list-style-type: none"> <li>1. Introduction to Database System</li> </ol>		

	<ol style="list-style-type: none"> <li>2. Data Modeling Using the Entity-Relationship Model</li> <li>3. Relational Data Model, Relational Database Constraints, and Relational Database Design</li> <li>4. DDL &amp; DML Statements</li> <li>5. SELECT Statement</li> <li>6. Transaction Processing, Concurrency, Recovery Techniques</li> <li>7. Database Security, Views</li> <li>8. Functional Dependencies, Normalization for Relational Databases</li> <li>9. Stored Routines, Trigger</li> </ol>
Examination forms	Written test, Project
Study and examination requirements	<p>Total score <math>\geq 55</math> must be satisfied.</p> <p>The total score is the weighted average of the assignments (30%), the midterm exam (30%), and the final exam (40%).</p>
Reading list	<ol style="list-style-type: none"> <li>1. Elmasri, Ramez and Shamkant B. Navathe (2011), Fundamentals of Database Systems, 6th edition, Addison Wesley.</li> <li>2. Thomas Connolly and Carolyn Begg (2015), Database Systems A Practical Approach to Design, Implementation, and Management, 6th edition, Pearson Education, ISBN 13: 978-1-292-06118-4, Essex, England</li> </ol>