



**MODULE HANDBOOK DESCRIPTION**

Module designation	Digital Electronics	
Code	FBB3103	
Semester(s) in which the module is taught	5 / third year	
Person responsible for the module	I Made Budi Suksmadana, S.T., M.T	
Language	Indonesian	
Relation to curriculum	Compulsory for Electronics	
Teaching methods	Small group discussion, case base method.	
Workload (incl. contact hours, self-study hours)	<p>Contact minutes every week, each week of the 16 weeks/semester :</p> <ul style="list-style-type: none"> <li>• Lectures: 2 x 50 minutes</li> <li>• Exercises and Assignments: 2 x 60 minutes</li> <li>• Private study: 2 x 60 minutes.</li> </ul> <p>Total study hours = 5 hours 40 minutes/week</p>	
Credit points	2 (~ 3,2 ECTS)	
Required and recommended prerequisites for joining the module	- Logic Circuit (FBS1107)	
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> <li>1. Students are able to explain digital electronic systems.</li> <li>2. Students are able to explain various number systems and binary codes.</li> <li>3. Students are able to perform digital arithmetic operations.</li> <li>4. Students are able to explain logic gates and related devices.</li> <li>5. Students are able to explain logic families.</li> <li>6. Students are able to perform digital boolean algebra and simplification techniques.</li> <li>7. Students are able to explain data conversion circuits – D/A and A/D converters.</li> <li>8. Students are able to explain data conversion circuits – D/A and A/D converters.</li> </ol>	PLO3 and PLO4

	<p>9. Students are able to design and try out the design of arithmetic circuits, multiplexers and demultiplexers using simulation programs.</p> <p>10. Students are able to design and try out the design of flip-flops and related devices, counters and registers using simulation programs.</p> <p>11. Students are able to design and try out the design arithmetic circuits, multiplexers and demultiplexers using simulation programs.</p>	PLO4 and PLO5
Content	Introduction Digital Electronics System, Number System, Binary Codes, Digital Arithmetic, Logic Gates and Related Devices, Logic Families, Boolean Algebra and Simplification Techniques, Arithmetic Circuits, Multiplexers and Demultiplexers, Flip-Flops and Related Devices, Counters and Registers and Data Conversion Circuits – D/A and A/D Converters	
Examination forms	<ul style="list-style-type: none"> <li>- Multiple choice examination and Essay,</li> <li>- Presentation case study.</li> </ul>	
Study and examination requirements	<p>The final grade in the module is composed of:</p> <ul style="list-style-type: none"> <li>• Midterm exam = 25%</li> <li>• Final exams = 25%</li> <li>• Case Base I = 15%</li> <li>• Case Base II = 15%</li> <li>• Case Base III = 20%</li> </ul> <p>Students must have a final grade of 65% or higher to pass</p>	
Reading list	<ol style="list-style-type: none"> <li>1. Anil K. Maini, Digital Electronics: Principles, Devices and Applications, 2007.</li> <li>2. Virender Kumar, Douglas Bell , Digital Electronics : Theory and Experiments, 2002.</li> </ol>	