UNIVERSITAS INDONESIA
Faculty of Mathematics and Natural Sciences
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MODULE HANDBOOK

Module designation	*Analysis 2*
Semester(s) in which the module is taught	*4*
Person responsible for the module	*Rahmi Rusin*
Language	*Indonesian*
Relation to curriculum	*Compulsory*
Teaching methods	*Lectures, group discussions*
Workload (incl. contact hours, self-study hours)	*(Estimated) Total workload: 11.3 hours x 14 weeks + 3 hours x 2 weeks* *Contact hours: 3 hours and 20 minutes lectures per week* *Private study including examination preparation, specified in hours[1]:* *4 hours structured activities, and 4 hours individual study per week*
Credit points	*4 SKS (6.36 ECTS)*
Required and recommended prerequisites for joining the module	*Analysis 1*
Module objectives/intended learning outcomes	*After completing the course, students have the ability to analyse and apply some basic concepts in real analysis to prove theorems and their applications related to uniform continuity, differentiation, Riemann integral, and sequence of functions mathematically.*

[1] When calculating contact time, each contact hour is counted as a full hour because the organisation of the schedule, moving from room to room, and individual questions to lecturers after the class, all mean that about 60 minutes should be counted.

Content	1. *Pointwise continuity and continuous functions on intervals* 2. *Uniform continuity, Continuous extension theorem, Lipschitz function* 3. *Monotone and inverse functions* 4. *Derivatives of function* 5. *Chain Rule, inverse functions* 6. *Mean Value Theorem, Rolle's Theorem, Intermediate Value Theorem, Darboux's Theorem* 7. *L'Hospital's Rules* 8. *Taylor's Theorem* 9. *Gauge* 10. *Definition and examples of Riemann Integral* 11. *Classes of Riemann integrable functions* 12. *Additivity Theorem and Fundamental Theorems* 13. *Lebesgue's integrability criterion,* 14. *Composition and product theorem for integral* 15. *Pointwise and uniform convergence of sequences of functions* 16. *Interchange of limit (and integral, derivatives, limit and continuity)*
Examination forms	1. *Class activities : Quiz, homework.* 2. *Group discussion sessions* 3. *Mid-term examination* 4. *Final examination*

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<td>Study and examination requirements</td>
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The final mark will be weighted as follows:

Homework (20%).
Written Quiz (20%)
Mid-term examination (30%)
Final examinations (30%)

To succesfully pass the module it requires minimum 55% of the total mark.
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<tr><th>Mark</th><th>Grade</th></tr>
<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>
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<td>Reading list</td>
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Robert G. Bartle & Donald R. Sherbert. Introduction to Real Analysis, Fourth Ed. 2010. John Wiley & Sons, Inc.
Lecturer's Handout.
Videos.

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