

Computational Mathematic

Course Title: Student Development					
Course Code: COM60 015	Student Workload: 8.50 Hours / Weeks	Credits: 3 Credits (4.50 ECTS)	Semester: 1 st Semester	Frequency: Odd Semester	Duration: 16 Weeks/ Semester (<i>Lecture:</i> 14 weeks; <i>Midterm assessment</i> : 1 week; <i>Final assessment</i> : 1 week)
1	Types of Courses: Knowledge Course	Contact Hours: <i>Lecturing:</i> 2.50 Hours/ Week; <i>Practical Work:</i> 0.00 Hours/ Week	Independent Study: <i>Self-study:</i> 3.00 Hours/ Week; <i>Strcutured Assignment:</i> 3.00 Hours/ Week	Class Size: 40 Students	
2	Prerequisites for Participation (If Applicable): -				
3	Learning Outcomes: 1. M1: Able to explain discrete concepts in the field of computer science 2. M2: Able to apply logical inference 3. M3: Able to apply the concept of sets, relations and functions 4. M4: Able to apply the concepts of series, sequence and induction 5. M5: Able to apply the concept of counting, discrete probability, and number theory 6. M6: Able to apply the concept of recurrence 7. M7: Able to understand matrices and vectors				
4	Subject aims/Content: At the end of the course, students are expected: 8. L1: Able to explain the concepts and elements of discrete number systems in the field of computer science 9. L2: Able to apply propositional logic operations calculations 10. L3: Able to apply the use of logic and quantified statements 11. L4: Able to apply logical inference 12. L5: Able to apply terminology and set operations 13. L6: Able to apply the concepts and operations of relations on sets 14. L7: Able to apply the concept of functions to sets, types of function mapping, function operations and some special functions that are often used (ceil, floor) 15. L8: Able to apply the concept of arithmetic, geometric and other series numbers 16. L9: Able to apply the concept of mathematical induction 17. L10: Able to apply counting calculations with several operations, namely basic counting, permutations, combinations, and others 18. L11: Able to apply basic discrete probability calculations 19. L12: Able to calculate problems with integer data types and mathematical calculations with integer division, Euclidian theorem, and the principle of division modulo 20. L13: Able to calculate integer number problems with the concept of greatest common divisor, least common multiple, congruence, prime numbers, number conversion, and cryptographic concepts 21. L14: Able to calculate problems related to recurrence 22. L15: Able to understand the basic concepts of matrices 23. L16: Able to understand the basic concepts of vector				
5	Teaching Methods: Lecturing, Group Discussion, Case-Based Learning				
6	Assessment Methods: Essay, multiple-choice, performance test, peer assessment				

7	This Course is Used in The Following Study Programme/s as Well: -
8	Responsibility for Course: <ol style="list-style-type: none"> 1. Wibisono Sukmo Wardhono, S.T., M.T. 2. Muhammad Aminul Akbar, S.Kom., M.T.
9	Other Information: Bibliography: <ol style="list-style-type: none"> 1. Ema Utami, Sukrisno, 10 Langkah Belajar Logika dan Algoritma Menggunakan Bahasa C dan C++ di GNU/Linux, Penerbit Andi Yogyakarta, 2005 2. Jong Jek Siang. Matematika Diskrit dan Aplikasinya Pada Ilmu Komputer. Edisi Kedua, Penerbit Andi Yogyakarta, 2010 3. Munir, Rinaldi, Matematika Diskrit edisi ke-4 revisi ke-5, Penerbit Informatika Bandung, 2011 4. Rossen, Kenneth H., Discrete Mathematics and Its Application 7th Edition, McGrawHill, 2012