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|  | | **UNIVERSITAS NEGERI PADANG**  **FACULTY OF ENGINEERING**  **ELECTRONICS DEPARTMENT**  **INFORMATICS EDUCATION STUDY PROGRAM** | | | | | | | | | | | **Document Code** | | |
| **SEMESTER LEARNING PLAN (SLP)** | | | | | | | | | | | | | | | |
| **COURSES** | | | | | | **CODE** | | **Course Group** | | **Credit Points** | | **SEMESTER** | | **Date Of Creation** | |
| **Algorithms and Programming** | | | | | | TIK 1.61.1201 | | Study Program Compulsory Courses | | 2 credits (theory) | | 1 | | July 2017 | |
| **AUTHORIZATION** | | | | | | **Lecturer** | | | | **Course Coordinator** | | **Coordinator of Study Program** | | | |
| **Drs. Denny Kurniadi, M.Kom**  **NIP. 196306061989031001** | | | | **Drs. Denny Kurniadi, M.Kom.**  **NIP. 196306061989031001** | | **Ahmaddul Hadi, S.Pd., M.Kom.**  **NIP. 197612092005011003** | | | |
| **Learning Outcomes (CP)** | | | **PLO** | | |  | | | | | | | | | |
| PLO-S1 | Believe in God Almighty and be able to show a religious attitude | | | | | | | | | | | |
| PLO-S9 | Demonstrate an attitude of responsibility for work in their field of expertise independently | | | | | | | | | | | |
| PLO-PP5 | Mastering basic science concepts in the field of Informatics Engineering | | | | | | | | | | | |
| PLO-KU5 | Able to make decisions appropriately in the context of problem solving in their area of ​​expertise, based on the results of information and data analysis. | | | | | | | | | | | |
| PLO-KK5 | Ability to apply basic science knowledge in the field of Informatics Engineering | | | | | | | | | | | |
| **CO** | | | |  | | | | | | | | |
| CO-1 | Mastering the abstraction of executing a program on a computer system | | | | | | | | | | | |
| CO-2 | Mastering programming language concepts, identifying programming language models, and comparing various solutions | | | | | | | | | | | |
| **Course Description** | | | The Programming Algorithm course is intended to give students the ability to understand the basic concepts of programming. Students are required to be able to solve problems by creating and writing problem-solving algorithms and translating these algorithms into a particular programming language | | | | | | | | | | | | |
| **Course Matter** | | | 1. Pascal programming algorithm 2. Input / Output variables, assignments, data types, expressions and operators 3. The if- else loop 4. Functions and procedures 5. The while-do loop 6. Repeat until 7. The scheme uses mark and no mark 8. The use of the Array data type 9. Searching and sorting data 10. Case studies and sequential files | | | | | | | | | | | | |
| **References** | | | **Main:** | | |  | | | | | | | | | |
| 1. Kernighan, Brian W, & Ritchie, Dennis M. 1988. The ANSI C Programming Language, Second Edition, Prentice-Hall. | | | | | | | | | | | | |
| **Supporters:** | | |  | | | | | | | | | |
| 1. Books, journals and internet references | | | | | | | | | | | | |
| **Media** | | | **Software:** | | | | | | | **Hardware:** | | | | | |
| DevC ++ | | | | | | | LCD & Projector | | | | | |
| **lecturer** | | | **Drs. Denny Kurniadi, M.Kom** | | | | | | | | | | | | |
| **Requirements course** | | | - | | | | | | | | | | | | |
| **Week** | **Sub-CO**  **(Expected Final Ability in each learning stage)** | | | | **Assessment Indicators** | | | **Assessment Criteria** | **Learning Method, Students’ Learning Experience**  **[Time Allocation]** | | **Learning Material [Topic from Reference]** | | | | **Score (%)** |
| **(1)** | **(2)** | | | | **(3)** | | | **(4)** | **(5)** | | **(6)** | | | | **(7)** |
| 1-2 | The concept of the Pascal programming language | | | | 1. Accuracy explained correctly  About algorithms and ways  it works  2. Accuracy in correctly explaining the Post language  3. The accuracy of doing the practicum correctly regarding the use of free Pascal, how to compile and run | | | 1. Work attitude 2. Systematics 3. Process 4. Progress | **Lecture**  Presentation  **[TM: 2x (2x50 ")]**  **Independent**  **[BM: 2x (2x60 ")]**  **Task 1**:  Programming Algorithms  **[BT: 2x (2x60 ")]** | | Understanding Algorithms, Introduction to IDE Free Pascal [1] | | | | **5%** |
| 3-4 | Various kinds of variables. Record, I / O, assignment and operator | | | | 1. Accuracy Correctly run primitive type practicum or form in Pascal 2. Accuracy run with   Correct practicum according to instructions and outputs   1. Accuracy correctly describes the expressions and operators 2. The accuracy of making programs correctly and executable | | | 1. Work attitude 2. Systematics 3. Process 4. Progress | **Lecture**  Presentation  **[TM: 2x (2x50 ")]**  **Independent**  **[BM: 2x (2x60 ")]**  **Task-2**  Explains the various  Record variable  **[BT: 2x (1x60 ")]** | | Variables, Input / Output, Assignments, Data Types, Expressions and Operators [1,2,3,4,5,6,7] | | | | **5%** |
| 5-6 | Branching on writing  algorithm | | | | 1. Accuracy correctly describes the essence of using fork in Pascal 2. Accuracy describes the general form of the branching. 3. Accuracy solves simple problems with Pascal branching | | | 1. Assignments / Exercises 2. Midterm exam 3. Final exams | **Lecture**  Presentation  **[TM: 2x (2x50 ")]**  **Independent**  **[BM: 2x (2x60 ")]**  **Task-3**  The completion of the calculation of the value of replacement prisoners  **[BT: 2x (2x60 ")]** | | Describe if - then, case of [1,2,3,4,5,6,7] | | | | **15%** |
| 7-8 | Functions and procedures for writing the Pascal algorithm | | | | 1. The accuracy of running practicum correctly related to the use of functions and procedures in Pascal 2. Accuracy Correctly describes the general form of functions and procedures 3. Accuracy solves the simple problem of Pascal branching | | | 1. Assignments / Exercises 2. Midterm exam 3. Final exams | **Lecture**  Presentation  **[TM: 2x (2x50 ")]**  **Independent**  **[BM: 2x (2x60 ")]**  **Task-4**:  Solve the calculation of ohms law  **[BT: 2x (1x60 ")]** | | Explain the understanding of functions, programming procedures  [1,2,3,4,5,6,7] | | | | **15%** |
| 9-10 | Understand  iteration in the writing of the Pascal algorithm | | | | 1. The accuracy of carrying out practicum related to looping 2. Determined to choose the correct looping method 3. Correctly practicing accuracy is a simple problem with the Pascal loop | | | 1. Assignments / Exercises 2. Midterm exam 3. Final exams | **Lecture**  Presentation  **[TM: 2x (2x50 ")]**  **Independent**  **[BM: 2x (2x60 ")]**  **Task-5**:  Completion of calculations concerning Kircoff’s law I  **[BT: 2x (1x60 ")]** | | Explain the definition of loop for loop while - do loop repeat - until [1,2,3,4,5,6,7] | | | | **15%** |
| 11-12 | Understand the schematic  sequential processing | | | | 1. Explain correctly the meaning of sequential, sequential items, empty case, mark 2. Properly describes how empty cases are handled 3. Explain properly 4. Recurring relationships and studies 5. The case is simple with the pascal loop | | | 1. Assignments / Exercises 2. Midterm exam 3. Final exams | **Lecture**  Presentation  **[TM: 2x (2x50 ")]**  **Independent**  **[BM: 2x (2x60 ")]**  **Task-6**  Completion of calculations concerning Kirchoff II's law  **[BT: 2x (1x60 ")]** | | Explain the meaning of schemes with marks Schemes without marks [1,2,3,4,5,6,7] | | | | **20%** |
| 10 | **MIDTERM EXAM** | | | | | | | | | | | | | |  |
| 13-14 | Understand table (array) creation | | | | 1. Punctuality Correctly describes the definition, declaration of table / array type and know the usage of that type / array 2. Accuracy Perform proper practice regarding tables with functions and procedures 3. Accuracy of Practicing and 4. Correctly implements any searching scheme 5. Accuracy Correctly writes program code for all sorting schemes with various types of data (integer and string) | | | 1. Assignments / Exercises 2. Midterm exam 3. Final exams | **Lecture**  Presentation  **[TM: 2x (2x50 ")]**  **Independent**  **[BM: 2x (2x60 ")]**  **Task-7**  The completion of the calculation of the magnetic field  **[BT: 2x (1x60 ")]** | | Describe the form and properties of Arrays []  [1,2,3,4,5,6,7] | | | | **10** |
| 15 | Understand making searching and sorting | | | | Accuracy to properly practice searching and sorting | | | 1. Assignments / Exercises 2. Midterm exam 3. Final exams | **Lecture**  Presentation  **[TM: 1x (2x50 ")]**  **Independent**  **[BM: 1x (2x60 ”)]**  **Task-7**  The completion of the calculation of the magnetic field  **[BT: 1x (1x60 ")]** | | Explain Searching, Sorting [1,2,3,4,5,6,7] | | | | **10%** |
| 16 | Understand is programmed with functions | | | | 1. Accuracy correctly describes Abstract Engine 2. The accuracy of correctly describing Abstract Machine items 3. The accuracy of correctly explaining the Abstract Machine in certain case studies | | | 1. Assignments / Exercises 2. Midterm exam 3. Final exams | **Lecture**  Presentation  **[TM: 1x (2x50 ")]**  **Independent**  **[BM: 1x (2x60 ”)]**  **Task-8**  Understand is programmed with functions  **[BT: 1x (1x60 ")]** | | Describe the solution of a given case study and the sequential file  [1,2,3,4,5,6,7] | | | | **5%** |
| 16 | **SEMSTER END EXAM (UAS)** | | | | | | | | | | | | | |  |