

LEARNING TOOL

(RPS, Evaluation Plan, Assignment Plan, and Rubric)

Course: Workshop Programming 1 D4

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I. Learning Analysis

CPMK of Workshop Programming 1:

1. Students learn fundamental of programming
2. Students demonstrate able to analyze, be innovative, and solving problems in a programming language, both individual and in a team

EVALUATION/FINAL EXAM SEMESTER (week-14)

Sub-CPMK-7: Student can solve problems with C programming, programming tips, and tricks (week 12-13);

Sub-CPMK-6: Student can understand and apply C standard library: `stdio.h`, `ctype.h`, `stdlib.h`, `assert.h`, `stdarg.h`, `time.h` (week 11);

Sub-CPMK-5: Student can understand and apply void and function pointers. Hash tables (week 10);

Sub-CPMK-4: Student can understand and apply pointers and memory addressing. arrays and pointer arithmetic. strings. (week 8-9);



EVALUATION/MID EXAM SEMESTER (week-7)

Sub-CPMK-3: Student can apply blocks and compound statement, control flow, functions and modular programming, variable scope (week 4-6);

Sub-CPMK-2: Student can apply variables and datatypes, operators (week 2-3);

Sub-CPMK-1: Student can describe the overview and historical C programming, Input and output, development environment (writing, compiling, and debugging C programs) (week 1);

I. Semester Learning Plan (RPS)

		POLITEKNIK ELEKTRONIKA NEGERI SURABAYA DEPARTMENT OF MECHANICAL AND ENERGY ENGINEERING MECHATRONICS ENGINEERING DIVISION					
SEMESTER LEARNING PLAN							
Course (MK)		CODE	MK Family	SCALE (sks)		SEMESTER	Date
Workshop Programming 1		VME214239	General Course	T=1	P=1	2	04 - 11 - 2021
AUTHORIZATION		RPS author		Coordinator RMK		Head of PRODI	
		 ANHAR RISNUMAWAN		(If Available) Sign		Sign	
Learning Outcomes		CPL-PRODI that is assigned to this course/MK					
		P23	Mastering the principles of designing algorithms and programming languages supported by structured algorithms and logic based on applicable standards and their application to the latest computer-based technology media, mobile and network devices, and embedded systems				
		KK25	Able to design programming algorithms and apply them in the form of code/programming language into technology equipment based on microcontrollers, computers, embedded systems and programmable logic controllers (PLC) as part of electronic control to build mechatronics, robotics, and industrial automation systems				
		KK26	Able to design, develop and implement software frameworks that are made by considering sustainable and accountable maintenance and development in accordance with applicable technical standards				
		S9	Demonstrate a responsible attitude towards work in their field of expertise independently and in a team				

	U1	Able to apply logical, critical, innovative, quality, and measurable thinking in carrying out specific work in their field of expertise and in accordance with work competency standards in the relevant field
	Learning Outcomes of the course (CPMK)	
	CPMK-1	Students learn the fundamental of programming including the required background knowledge
	CPMK-2	Students demonstrate able to analyze, be innovative, and solving problems in a programming language, both individual and in a team
	CPL ⇒ Sub-CPMK	
	P23,S9	Sub-CPMK-1: Student can describe the overview and historical C programming, Input and output, development environment (writing, compiling, and debugging C programs)
	P23,S9	Sub-CPMK-2: Student can apply variables and datatypes, operators
	P23,S9	Sub-CPMK-3: Student can apply blocks and compound statement, control flow, functions and modular programming, variable scope
	P23,S9	Sub-CPMK-4: Student can understand and apply pointers and memory addressing. arrays and pointer arithmetic. strings.
	P23,S9	Sub-CPMK-5: Student can understand and apply void and function pointers. Hash tables
	P23,S9	Sub-CPMK-6: Student can understand and apply C standard library: stdio.h, ctype.h, stdlib.h, assert.h, stdarg.h, time.h
	KK25, KK26, S9	Sub-CPMK-7: Student can solve problems with C programming, programming tips, and tricks
Short Description	This course provides an introduction to the C programming languages. Students will learn the required background knowledge, including variables, loopings, pointers, preprocessor macros, function, and how to find bugs when students inevitably use any of those incorrectly. There will be assignments, group discussion, and a small-scale individual project.	
Study Material:	<ol style="list-style-type: none"> 1. Variables and datatypes, operators. 2. Blocks and Compound Statement, Control flow, Functions and modular programming, Variable scope 3. Overview and historical C programming, Input and output, Development Environment (Writing, compiling, and debugging C programs) 4. Pointers and memory addressing. Arrays and pointer arithmetic. Strings. 5. Void and function pointers. Hash tables. 6. C standard library: stdio.h, ctype.h, stdlib.h, assert.h, stdarg.h, time.h 7. Solving problems with C programming, Programming tips and tricks 	
References	Primary:	

		1. Brian W. Kernighan, Dennis M. Ritchie, C Programming Language, 2nd Edition, Prentice Hall; 2 edition (April 1, 1988). 2. Steve Oualline, Practical C Programming: Why Does 2+2 = 5986? (Nutshell Handbooks), O'Reilly Media, Inc., 1997.					
		<div>Additional:</div> 1. https://www.tutorialspoint.com/cprogramming/index.htm					
Lecturer		Anhar Risnumawan, S.ST, M.Cs					
Required Courses		-					
Week	Sub-CPMK (expected skills)	Scoring		Bantuk Pembelajaran; Learning Methods; Student Assignments; [Time Estimation]		Materi Pembelajaran [References]	Scoring Scale (%)
		Indicator	Criteria & Assesment				
(1)	(2)	(3)	(4)	Tatap Muka (5)	Daring (6)	(7)	(8)
1	Sub-CPMK-1: Student can describe the overview and historical C programming, Input and output, development environtment (writing, compiling, and debugging C programs)	<ul style="list-style-type: none"> Explaining the use of programming in the real world correctly. Explaining the important of programming correctly. 	Criteria: Rubrict Analytics test: poster	<ul style="list-style-type: none"> Lecture & Discussion: [TM: 1x(2x50'')] Task-1: Compile a summary in the form of a paper about the understanding of C programming knowledge and examples. [PT+BM:(1+1)x(2x60'')] 	eLearning: http://elearning.pens.ac.id	<ul style="list-style-type: none"> Overview of C programming Historical of programming language Programming is used in many fields, such as industries, researches, etc. 	10

				<ul style="list-style-type: none"> • Lecture & Discussion: [TM: 1x(2x50'')] • Task-2: Paper: real-world programming application. [PT+BM:(1+1)x(2x60'')] 	eLearning: http://elearning.pens.ac.id	<ul style="list-style-type: none"> • Why C programming? • C programming as a basis for other programming languages • The benefit of C programming compared to others • Installing the required tools [1] page.: 10-40 	
2,3	Sub-CPMK-2: Student can apply variables and datatypes, operators	<ul style="list-style-type: none"> • Explaining program flow and the functions correctly; • Applying program flow in programming correctly. 	Criteria: Rubric practice & rubric essay Bentuk non-test: <ul style="list-style-type: none"> • practice 	<ul style="list-style-type: none"> • Lecture & Discussion: [TM: 2x(2x50'')] • Assignment-6A & 6B: Analyze and make relevance answer from the conducted experiments in the corresponding module. [PT+BM:(1+1)x(2x60'')] • Lecture & Discussion: [TM: 2x(2x50'')] • Tugas-4: Presentation. [PT+BM:(1+1)x(2x60'')] 	eLearning: http://elearning.pens.ac.id	<ul style="list-style-type: none"> • Compiling first C code • Compiling process • Linking process • Why there must be two processes of compiling and linking? • Simple code line by line explanation • Flow of code • Troubleshooting simple errors • Practice from the given simple problems • Data type and I/O console 	15

						<ul style="list-style-type: none"> • List of basic data type • Data types bytes, ranges • Case: overflow • Why there exist many data types? • Variables and constant • printf, scanf functions • Simple conversion trick • Practice from the given simple problems <p>[2] hal. 3-49</p>	
4,5,6	Sub-CPMK-3: Student can apply blocks and compound statement, control flow, functions and modular programming, variable scope	<ul style="list-style-type: none"> • Explaining functions and condition syntax In programming correctly; • Applying conditions for solving the given problems correctly. 	Criteria: Rubrik practice & rubrik essay Bentuk non-test: Practice	• Lecture & Case study: [TM: 1x(2x50'')] Assignment-6A & 6B: Analyze and make relevance answer from the conducted experiments in the corresponding module. [PT+BM:(2+2)x(2x60'')]	eLearning: http://elearning.pens.ac.id	<ul style="list-style-type: none"> • IF-ELSE statement • IF-ELSE syntax • Conditional flowchart • Reminding about the bracket {} • Remind to arrange the codes "nicely" for readability and maintenance • Relation operators • Logic operators 	5

						<ul style="list-style-type: none"> • Practice from the given problems • SWITCH-CASE statement • SWITCH-CASE syntax • Switch-case flowchart • Reminding about the bracket {} and no semicolon ; • Explain the main difference between IF-ELSE and SWITCH-CASE conditional • Explain when to use if-else and switch-case in a given problem • Practice from the given problems <p>[1] hal. 140-173 [2] hal. 119-134</p>	
		<ul style="list-style-type: none"> • Explaining functions and the use of looping syntax correctly; • Applying looping syntax for solving the given problem correctly. 	Criteria: Rubrik practice & rubrik essay Bentuk non-test: <ul style="list-style-type: none"> • Practice 	<ul style="list-style-type: none"> • Lecture & Group discussion: [TM: 1x(2x50'')] • Assignment-6A & 6B: Analyze and make relevance answer from the conducted 	<ul style="list-style-type: none"> • eLearning: http://elearning.pens.ac.id 	<ul style="list-style-type: none"> • FOR looping statement • FOR syntax • Looping flowchart • FOR variation for the given problems 	15

				<p>experiments in the corresponding module.</p> <p>[PT+BM:(1+1)x(2x60")]</p>		<ul style="list-style-type: none"> • WHILE looping statement • WHILE syntax • WHILE looping flowchart • WHILE variation for the given problems • DO-WHILE looping statement • DO-WHILE syntax • DO-WHILE looping flowchart • DO-WHILE variation for the given problems • Reminding to arrange the codes "nicely" for readability and maintenance • Practice writing codes from the given mathematical formulas • Practice from the given problems <p>[1] hal. 135-172</p> <p>[2] hal 348-367</p>	
7	UTS / Evaluasi Tengah Semester: Scoring, validation, evaluation, and improving learning process						

8,9	Sub-CPMK-4: Student can understand and apply pointers and memory addressing. arrays and pointer arithmetic. strings	<ul style="list-style-type: none"> Identifying the given problem correctly: input, process, and output; Applying solving the given problems correctly. 	Criteria: Rubrik practice & rubrik essay Non-test form: Practice	<ul style="list-style-type: none"> Lecture & Group discussion: [TM: 1x(2x50")] Assignment-6A & 6B: Analyze and make relevance answer from the conducted experiments in the corresponding module. [PT+BM:(1+1)x(2x60")] 	<ul style="list-style-type: none"> eLearning: http://elearning.pens.ac.id 	<ul style="list-style-type: none"> Why Pointers? Pointers syntax Pointers in memory Memory addressing Array pointers Practice from the given problems 	
10	Sub-CPMK-5: Student can understand and apply void and function pointers. Hash tables	<ul style="list-style-type: none"> Identifying the given problem correctly: input, process, and output; Applying programming for solving the given problems correctly. 	Criteria: Rubrik practice & rubrik essay Bentuk non-test: Practice	<ul style="list-style-type: none"> Lecture & Group discussion: [TM: 1x(2x50")] Assignment-6A & 6B: Analyze and make relevance answer from the conducted experiments in the corresponding module. [PT+BM:(1+1)x(2x60")] 	<ul style="list-style-type: none"> eLearning: http://elearning.pens.ac.id 	<ul style="list-style-type: none"> Pointers in a function Addressing arguments by reference, pointer, and by value Construct hash tables Practice from the given problems 	
11	Sub-CPMK-6: Student can understand and apply C standard library: stdio.h, ctype.h, stdlib.h, assert.h, stdarg.h, time.h	<ul style="list-style-type: none"> Identifying the given problem correctly: input, process, and output; Applying programming for solving the given problems correctly. 	Criteria: Rubrik practice & rubrik essay Non-test form: Practice	<ul style="list-style-type: none"> Lecture & Group discussion: [TM: 1x(2x50")] Assignment-6A & 6B: Analyze and make relevance answer from the conducted 	<ul style="list-style-type: none"> eLearning: http://elearning.pens.ac.id 	<ul style="list-style-type: none"> Why C standard library? Header files C standard library Practice from the given problems 	

				experiments in the corresponding module. • [PT+BM:(1+1)x(2x60”)]			
12,13	Sub-CPMK-7: Student can solve problems with C programming, programming tips, and tricks	<ul style="list-style-type: none"> Identifying the given problem correctly: input, process, and output; Applying programming for solving the given problems correctly. Solving problems correctly Work systematically Documenting the code systematically & clearly Presentation effectively Subject competency Critical thinking <p>Student must avoid:</p> <ul style="list-style-type: none"> Data fabrication; Data falsification; Plagiarism; Accountable <p>References</p>	<p>Criteria: Rubrik praktikum, rubrik essay, Rubrik group discussion, & project-lab</p> <p>Bentuk non-test:</p> <ul style="list-style-type: none"> Practice Review report document Team presentation 	<ul style="list-style-type: none"> Lecture & tutorial, Team work collaborative and discussion [TM: 1x(2x50”)] Assignment-6A & 6B: Analyze and make relevance answer from the conducted experiments in the corresponding module. [PT+BM:(1+1)x(2x60”)] 	<ul style="list-style-type: none"> eLearning: http://elearning.pens.ac.id 	<ul style="list-style-type: none"> Mathematical formula such as quadratic equation in a robot Integral and differential in a robot <p>[1] hal. 175-264 [2] hal. 119-266</p>	5
14	Final Exam / Posttest						
15,16	Improvement & Remidy						

II. Scoring & Evaluation Plan

A. Learning Stage-1

Sub-CPMK-1	Sub-CPMK-1: students describe and summarize the importance of C programming. [C2,A3]		
Week	1-2	Bobot penilaian (%)	10%
Task-1	Compile a summary in the form of a paper about the understanding of C programming knowledge and examples.		

1. Plan Assignment-1: Poster

POLITEKNIK ELEKTRONIKA NEGERI SURABAYA DEPARTMENT OF MECHANICAL AND ENERGY ENGINEERING MECHATRONICS ENGINEERING DIVISION					
STUDENT ASSIGNMENT PLAN					
COURSE	Workshop Programming 1				
CODE	VME214239	sks	2	SEMESTER	2
LECTURER	Anhar Risnumawan, S.ST, M.Cs				
ASSIGNMENT NO	1				
SUB LEARNING COURSE ACHIEVEMENTS					
Sub-CPMK-1: students describe and summarize the importance of C programming. [C2,A3]					
ASSIGNMENT			TIME		
Make a poster			1 week		
TITLE					
Make a poster with a topic of the important of programming in robotics field.					

DESCRIPTION	
Make a poster with a topic of the important of programming in robotics field.	
METODE Pengerjaan Tugas	
1. Conduct a brief overview of the importance of programming in the world of robotics; 2. Give simple examples in the world of work;	
BENTUK DAN FORMAT LUARAN	
a. Object: Writing a paper b. Output: <ol style="list-style-type: none"> 1. Simple writing in A4 format, on one page; 2. Anatomy of the poster: page, table of contents, introduction, description, conclusion, references; 3. The report is written in docx format, with the file name: Task1-NRP-NameMHS, and uploaded on the MK-Workshop Programming 1 e-learning page, according to the time specified. 	
INDICATOR, CRITERIA, AND WEIGHT SCORING	
Poster anatomy, writing, layout and presentation of images, graphics, and tables, and free from plagiarism elements, and inspires readers.	
WEIGHT SCORING	3,5%
SCHEDULE	
Week-1	
OTHER	
REFERENCES	
1.	

a) Rubrict Poster

Rubrik untuk Poster

Presenter's Name: _____

Poster #: _____

Poster Research Category: _____

Score Key:

0 = No Attempt

1 = Developing

2 = Competent

3 = Exemplary

Please rate the poster/presenter from 0 to 3 on each of the following (circle one):

1. Statement of Research Problem/Rationale:

- | | | | | |
|---|---|---|---|---|
| a) Clearly stated questions or hypotheses being addressed | 0 | 1 | 2 | 3 |
| b) Well-explained rationale/justification for the study | 0 | 1 | 2 | 3 |
| c) Project objectives are clearly outlined | 0 | 1 | 2 | 3 |

2. Literature Review/Background Theory:

- | | | | | |
|---|---|---|---|---|
| a) Relevant previous work thoroughly reviewed | 0 | 1 | 2 | 3 |
| b) Gap in knowledge/exploration identified | 0 | 1 | 2 | 3 |
| c) Succinct | 0 | 1 | 2 | 3 |
| d) References are cited appropriately | 0 | 1 | 2 | 3 |

3. Methods (Explanation/Appropriateness):

- | | | | | |
|--|---|---|---|---|
| a) Clear description of methods used | 0 | 1 | 2 | 3 |
| b) Methods are appropriate to address aim/question | 0 | 1 | 2 | 3 |

4. Analysis/Results:

- | | | | | |
|--|---|---|---|---|
| a) Figures/tables used appropriately and clearly to present the data | 0 | 1 | 2 | 3 |
| b) Findings are presented clearly and accurately | 0 | 1 | 2 | 3 |
| c) Analysis is well explained and appropriately applied | 0 | 1 | 2 | 3 |

5. Conclusion/Discussion:

- | | | | | |
|--|---|---|---|---|
| a) Addressed study's problem/question | 0 | 1 | 2 | 3 |
| b) Conclusions are sufficiently supported by results | 0 | 1 | 2 | 3 |
| c) Results are placed into broader framework | 0 | 1 | 2 | 3 |
| d) Importance of findings is addressed | 0 | 1 | 2 | 3 |

6. Presentation Overall:

- | | | | | |
|---|---|---|---|---|
| a) Effective overall aesthetic/organization of poster | 0 | 1 | 2 | 3 |
| b) Flow of information is logical and facilitates understanding | 0 | 1 | 2 | 3 |
| c) Presenter summarized study clearly | 0 | 1 | 2 | 3 |
| d) Presenter answered questions well | 0 | 1 | 2 | 3 |
| e) Length of poster summary (by presenter) was appropriate | 0 | 1 | 2 | 3 |
| f) Study is innovative and has potential to contribute to the field | 0 | 1 | 2 | 3 |

Total _____ / 66

Comments:

B. Learning Stage-2

Sub-CPMK-2	student able to apply the programming flow for a simple code with variables. [C2,A3]		
Week	3 - 4	Weight Score (%)	15%
Assignment-2	practice		

C. Learning Stage-3

Sub-CPMK-3	student able to apply the basic I/O functions and practice it. [C3,A3]		
Week	5 - 6	Weight Score (%)	15%
Assignment-3	practice		

D. Learning Stage-4

Sub-CPMK-4	students learn the condition syntax of C programming and practice it from the given problems. [C3,A3]		
Week	7	Weight Score (%)	5%
Assignment-4	practice		

E. Learning Stage-5

Sub-CPMK-5	students learn the looping syntax of C programming and practice it from the given problems. [C3,A3]		
Week	9	Weight Score (%)	5%
Assignment-5	practice		

F. Learning Stage-6

Sub-CPMK-6	student able to analyze and solve the given problems by creating C code. [C6,A3,P2]		
Week	10 - 11	Weight Score (%)	15%
Assignment-6	practice		

1. Assignment Plan-2,3,4,5,6: Practice

	POLITEKNIK ELEKTRONIKA NEGERI SURABAYA DEPARTMENT OF MECHANICAL AND ENERGY ENGINEERING MECHATRONICS ENGINEERING DIVISION				
STUDENT ASSIGNMENT PLAN					
COURSE	Workshop Programming 1				
CODE	VME214239	sks	2	SEMESTER	2
LECTURER	Anhar Risnumawan, S.ST, M.Cs				
ASSIGNMENT NO	2				
SUB LEARNING COURSE ACHIEVEMENTS					
Sub-CPMK-2: student able to apply the programming flow for a simple code with variables. [C2,A3]					
ASSIGNMENT			TIME		
Practice			2 weeks		

TITLE	
Assignment practice 2	
DESCRIPTION	
Carry out practicum in accordance with procedures, collect data, and analyze appropriately	
METODE Pengerjaan Tugas	
1. Reading the practicum module; Destination 2. Read the procedure carefully; 3. Collecting data; 4. Analyze data; 5. Make a brief report on the results of the analysis	
OUTPUT	
a. Object: Report b. Output: <ol style="list-style-type: none"> Simple writing in A4 format, maximum 10 pages; Anatomy of the report: page sheet, table of contents, Introduction, Description, Conclusion, Reference; The report is written in docx format, with the file name: TaskPracticum-NRP-NamaMHS, and uploaded on the MK-Workshop Programming 1 e-learning page, according to the time specified. 	
INDICATOR, CRITERIA, AND WEIGHT SCORING	
Prepare flow chart correctly, the accuracy of the use of the flow chart device, the accuracy of the explanation of each stage of the research flow chart.	
WEIGHT SCORING	10 %
SCHEDULE	
Week	3-4
LAIN-LAIN	
REFERENCES	
1.	

a) Rubric practice

Code

	Very Poor (0-3)	Poor (4-6)	Good (7-8)	Excellent (9-10)
Solution	An incomplete solution is implemented on the required platform. It does not compile and/or run.	Runs, but has logical errors, has multiple incorrect results.	A complete solution is tested and runs but does not meet all the specifications and/or work for all test data. Apply good if program misses one data entry line.	A complete solution runs without errors. It meets all the specifications works for all test data.
Program Design	Few of the selected structure are appropriate. Program elements are not well designed. Only 1-2 functions defined.	Not all of the selected structures are appropriate. Some of the program elements are appropriately designed.	The program design generally uses appropriate structures. Program elements exhibit good design. Only 1-2 functions missing.	The program design uses appropriate structures. The overall program design is appropriate functions have efficient algorithms, pass parameters correctly.
Readability	Inefficient program documentation. Incorrect indentation, and or poor identifier selection.	Program is minimally documented; some identifiers are inappropriate or inconsistent indentation.	Some required documentation is missing, or identifiers are inappropriate, or statements are not indented correctly.	All required documentation are present, the program is correctly indented, and appropriate identifiers are selected.
User Interface	User interaction is incomplete and does not meet specifications. No user interaction possible.	User interaction minimally meets the specifications, but does not increase the usability of the program. Prompts confusing and output difficult to read, no data validated.	User interaction generally meets specifications and is acceptable to the user. Something about interface could be approved.	Good prompts, headings data validated, labels, formatting and white space good.

Writing / Documentation

	Excellent	Good	Need Improvement
Materials	All materials needed are present and entered on the lab report. The materials are appropriate for the procedure. The student is not wasteful of the materials.	All materials needed are present, but not all are entered on the lab report, or some materials are absent and must be obtained during the procedure. The materials are appropriate for the procedure.	All materials needed are not present and are not entered on the lab report. The materials are not all appropriate for the procedure or there are some major omissions.
Procedure	The procedure is well designed and allows control of all variables selected. All stages of the procedure are entered on the lab report.	The procedure could be more efficiently designed, but it allows control of all variables selected. Most stages of the procedure are entered on the lab report.	The procedure does not allow control of all variables selected. Many stages of the procedure are not entered on the lab report.
Courtesy and Safety	While conducting the procedure, the student is tidy, respectful of others, mindful of safety, and leaves the area clean.	While conducting the procedure, the student is mostly tidy, sometimes respectful of others, sometimes mindful of safety, and leaves the area clean only after being reminded.	While conducting the procedure, the student is untidy, not respectful of others, not mindful of safety, and leaves the area messy even after being reminded.
Purpose	Research question and hypothesis are stated clearly, and the relationship between the two is clear. The variables are selected.	Research question and hypothesis are stated, but one or both are not as clear as they might be, or the relationship between the two is unclear. The variables are selected.	Research question and hypothesis are not stated clearly, and the relationship between the two is unclear or absent. The variables are not selected.
Data Collection	Raw data, including units, are recorded in a way that is appropriate and clear. The title	Raw data, including units, are recorded although not as clearly or appropriately as	Raw data, including units, are not recorded in a way that is appropriate and

Sub-CPMK-8: students able to analyze and solve the given problems by creating C code. [C6,A3,P2]	
ASSIGNMENT	TIME
Report	1 week
TITLE	
Analyze and perform experiments from the given questions.	
DESCRIPTION	
Students are given questions in the corresponding module, perform experiments, and answer scientifically by giving relevance, thoroughness, and logical answer from the conducted experiments.	
METHOD	
<ol style="list-style-type: none"> 1. Read the corresponding module 2. Read and understand the given questions 3. Perform experiments 4. Analyze the experiments 5. Write relevance answer to the given questions. 	
OUTPUT	
a. Object: Make a report b. Output: <ol style="list-style-type: none"> 1. Brief report (.docx) 	
INDICATOR, CRITERIA, AND WEIGHT SCORING	
a. Criteria and points assigned (bobot 20%) b. Relevance of answer to the question (20%) c. Thoroughness of answer (bobot 20%) d. Organization and logic of answer (bobot 20%) e. Writing (spelling, punctuation, grammar, clarity of prose) (bobot 20%)	
SCHEDULE	
1. 1 week	
LAIN-LAIN	

REFERENCES
1.

a) Rubric essay

Criteria & Points Assigned	Missing or Serious Problems	Below Expectations	Meets Expectations	Excellent Work	Total Points
	0	1	2	3	
Relevance of answer to the question	The essay did not answer the question.	Answer is incomplete. Excessive discussion of unrelated issues and/or significant errors in content.	Answer is brief with insufficient detail. Unrelated issues were introduced and/or minor errors in content.	Answer is complete; sufficient detail provided to support assertions; answer focuses only on issues related to the question; factually correct.	
Thoroughness of answer	None of the relevant details were included.	Serious gaps in the basic details needed.	Most of the basic details are included but some are missing.	Deals fully with the entire question.	
Organization and logic of answer	Weak organization; sentences rambling; ideas are repeated.	Minor problems of organization or logic; Needs work on creating transitions between ideas.	Clear and logical presentation; good development of an argument; Transitions are made clearly and smoothly.		

Mechanics of writing (spelling, punctuation, grammar, clarity of prose)	Major problems with mechanics of language; Awkward sentence construction; Poor or absent transitions; Frequently difficult to understand.	Frequent problems with mechanics of language; Occasional awkward sentences and poor transitions; reduce readability.	Clear, readable, prose. Good use of transitions; no problems with spelling, punctuation, or grammar.		
--	---	--	--	--	--

G. Learning Stage-7

Sub-CPMK-7	Students able to analyze and solve a problem in programming language while working in a team. [C6,A3,P3]		
Minggu ke	13, 14, 15	Bobot penilaian (%)	40%
Tugas-7	Analyze and solve a problem in programming language, in a team, by presenting in front of a class		

1. Assignment Plan-7: Group Discussion

	POLITEKNIK ELEKTRONIKA NEGERI SURABAYA DEPARTMENT OF MECHANICAL AND ENERGY ENGINEERING MECHATRONICS ENGINEERING DIVISION				
STUDENT ASSIGNMENT PLAN					
COURSE	Workshop Programming 1				
CODE	VME214239	sks	2	SEMESTER	2
LECTURER	Anhar Risnumawan, S.ST, M.Cs				

ASSIGNMENT NO	11
SUB LEARNING COURSE ACHIEVEMENTS	
Sub-CPMK-8: Students able to analyze and solve a problem in programming language while working in a team. [C6,A3,P3]; 3 mg	
BENTUK TUGAS	WAKTU Pengerjaan Tugas
Presentation dan report	3 minggu
TITLE	
Analyze and solve a problem in programming language, in a team, by presenting in front of a class	
DESCRIPTION	
Design and solve a problem as a small-project according to the chosen area of interest. The project starts with conducting a literature study, designing hypotesis, solving the problem, and write a report. Then compile ppt presentations and make presentations.	
METHOD	
1. Select an interesting problem to be solved; 2. Review minimum 10 related papers from the problem; 3. Devise a plan to solve the problem; 4. Solving the problem in programming language; 5. Write a report; 6. Make presentation.	
OUTPUT	
a. Object: Presentation and report for a small-scale project b. Output: <ol style="list-style-type: none"> 1. Make a report for small-scale project (Grup-X.docx) 2. Make a slide presentation (Grup-X.ppt) 	
INDICATOR, CRITERIA, AND WEIGHT SCORING	
a. sesuai rubrik	
SCHEDULE	

2. 3 weeks	
LAIN-LAIN	
Bobot penilaian tugas ini adalah 40% dari dari 100% penilaian this course.	
REFERENCES	
2.	

a) Rubrict Group Discussion

Category	Scoring Criteria	Total Points	Score
Organization (15 points)	The type of presentation is appropriate for the topic and audience.	5	
	Information is presented in a logical sequence.	5	
	Presentation appropriately cites requisite number of references.	5	
Content (45 points)	Introduction is attention-getting, lays out the problem well, and establishes a framework for the rest of the presentation.	5	
	Technical terms are well-defined in language appropriate for the target audience.	5	
	Presentation contains accurate information.	10	
	Material included is relevant to the overall message/purpose.	10	
	Appropriate amount of material is prepared, and points made reflect well their relative importance.	10	
	There is an obvious conclusion summarizing the presentation.	5	
Presentation (40 points)	Speaker maintains good eye contact with the audience and is appropriately animated (e.g., gestures, moving around, etc.).	5	
	Speaker uses a clear, audible voice.	5	
	Delivery is poised, controlled, and smooth.	5	
	Good language skills and pronunciation are used.	5	

	Visual aids are well prepared, informative, effective, and not distracting.	5	
	Length of presentation is within the assigned time limits.	5	
	Information was well communicated.	10	
Score	Total Points	100	

2. Assignment Plan-7: Project-lab

POLITEKNIK ELEKTRONIKA NEGERI SURABAYA DEPARTMENT OF MECHANICAL AND ENERGY ENGINEERING MECHATRONICS ENGINEERING DIVISION					
STUDENT ASSIGNMENT PLAN					
COURSE	Workshop Programming 1				
CODE	VME214239	sks	2	SEMESTER	2
LECTURER	Anhar Risnumawan, S.ST, M.Cs				
ASSIGNMENT NO	7				
SUB LEARNING COURSE ACHIEVEMENTS					
Sub-CPMK-8: Students able to analyze and solve a problem in programming language while working in a team. [C6,A3,P3]; 3 mg					
ASSIGNMENT		TIME			
Project lab		3 Weeks			
TITLE					
Analyze and solve a problem in programming language, in a team					
DESCRIPTION					

Design and solve a problem as a small-project according to the chosen area of interest. The project starts with conducting a literature study, designing hypothesis, solving the problem, and write a report. Then compile ppt presentations and make presentations.	
METHOD	
<ol style="list-style-type: none"> 1. Select an interesting problem to be solved; 2. Review minimum 10 related papers from the problem; 3. Devise a plan to solve the problem; 4. Solving the problem in programming language; 5. Write a report; 6. Make presentation. 	
OUTPUT	
a. Object: Penyusunan pengerjaan small-scale project b. Output: <ol style="list-style-type: none"> 1. Source code penyelesaian problem yang diangkat 2. Output sesuai dengan yang diharapkan 	
INDICATOR, CRITERIA, AND WEIGHT SCORING	
a. Problem Importance (weight 20%) b. Design design to be worked on (weight 20%) c. Completeness of workmanship (weight 40%) d. Conclusion (weight 20%)	
SCHEDULE	
3. 3 weeks	
OTHER	
REFERENCES	
3.	

a) Rubric project-lab

	Excellent	Good	Need Improvement
Statement of the Problem/Hypothesis	The student has independently identified and developed a research question/hypothesis that provides a contribution to the scientific literature in the research area.	The student has made independent contributions and development to a general idea or project suggested by faculty advisor.	The question under study is poorly specified and/or is completely specified by the faculty advisor with no development or contribution by the student.
Role of Theory	The experiment is a novel test of one or more current theories, or the experiment tests an important set of novel phenomena. Relevant theory is clearly and correctly described so that the contribution of the experiment is clear.	The experiment tests one or more current theories, or seeks to document expand understanding of phenomena described in the empirical literature.	The experiment is unrelated or misconstrues current theory and is a poor extension of the empirical literature.
Development of Idea	Logical, testable prediction(s) are identified and tested in the first experiment. One or more follow on experiments are conducted to expand theoretical conclusions or rule out alternative explanations.	Logical, testable prediction(s) are identified and tested in a single experiment.	The logic underlying the experiment is incorrect, badly explained, or missing entirely.
Experimental Design	The design of the experiment is novel. Independent and dependent variable(s) have been identified and possible confounding factors are controlled.	Appropriate independent and dependent variable(s) are used. Adequate care has been taken to control possible confounding factors.	Inappropriate independent and/or dependent variable(s) are used. Limited effort has been taken to control possible confounding factors.
Analysis and Presentation of Data	The data analysis technique is sophisticated and appropriate for data collected, informative with respect to the question being studied. Data is appropriately reported and displayed so that relevant findings are apparent.	The data analysis technique is appropriate for the data collected and correctly computed. Data is appropriately reported and displayed so that relevant findings are obvious.	The data analysis technique is inappropriate and/or incorrectly computed. Data displays are incorrect, sloppy, or difficult to interpret.

Interpretation of Results	The conclusions drawn are appropriate given the data and analyses conducted. Alternative interpretations are developed into follow-on experiments to further limit conclusions.	The conclusions drawn are appropriate given the data and analyses conducted. Alternative interpretations are considered and either convincingly rejected or used as the basis for further research suggestions.	Conclusions are inappropriate given the data. Obvious alternative interpretations are omitted.
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