VISION

Colegio de Muntinlupa shall be the premier local government institution for engineering in the country.

MISSION

1. The college shall provide high quality professional and technological education that meets international standard of excellence.
2. The college shall provide accessible and equitable opportunities for deserving and qualified Filipinos wanting to pursue higher education.
3. The college shall produce efficient and competent engineers who will be the drivers of the sustainable development in the country.
4. The college shall produce solutions to the needs of the industries and the communities.

PROGRAM EDUCATIONAL OUTCOMES (PEOs)	**MISSION**			
Within 3 to 5 years after graduation, the program expects that the Computer Engineering graduates will:	**1**	**2**	**3**	**4**
1. Successfully apply their chosen profession and demonstrate competence technically in terms of utilizing computer engineering doctrines, skills and principles in the solution of problems related to advancement of the industry and society.	✓	✓	✓	✓
2. Engage in life-long learning and professional development and other professionally related fields to adapt to rapidly changing work environment and;	✓	✓	✓	✓
3. Demonstrate effective communication skills in a diverse and multidisciplinary team	✓	✓	✓	✓
4. Shows high standard in terms of leadership, ethical conduct and social responsibility in practicing engineering field.	✓	✓	✓	✓

PROGRAM OUTCOMES (POs)	PROGRAM EDUCATIONAL OUTCOMES			
By the time of graduation, the students of the BSCpE program shall have the ability to:	**1**	**2**	**3**	**4**
a. apply knowledge of mathematics and science to solve complex computer engineering problems;	✓	✓	✓	✓
b. design and conduct experiments, as well as to analyze and interpret data;	✓	✓	✓	✓
c. design a system, component, or process to meet desired needs within realistic constraints, in accordance with standards;	✓	✓	✓	✓
d. function in multidisciplinary and multi-cultural teams;	✓	✓	✓	✓
e. identify, formulate, and solve complex computer engineering problems;	✓	✓	✓	✓
f. understand professional and ethical responsibility;	✓	✓	✓	✓
g. communicate effectively computer engineering activities with the engineering community and with society at large;	✓	✓	✓	✓
h. understand the impact of computer engineering solutions in a global, economic, environmental, and societal context;	✓	✓	✓	✓
i. recognize the need for, and engage in life-long learning;	✓	✓	✓	✓
j. know contemporary issues;	✓	✓	✓	✓
k. use techniques, skills, and modern engineering tools necessary for computer engineering practice;	✓	✓	✓	✓
l. know and understand engineering and management principles as a member and leader of a team in a multidisciplinary environment.	✓	✓	✓	✓

COURSE SYLLABUS

I. **Course Code** : **COEN 3213**
II. **Course Title** : **Microprocessors**
III. **Pre-requisite** : **Logic Circuits and Design**
IV. **Co-requisite** : **COEN 3211 - Microprocessors Lab**
V. **Credit** : **3 units Lecture / 1 unit Lab**

VI. Course Description : **This course provides understanding of architecture of microprocessor-based systems; registers, study of microprocessor operation, assembly language, arithmetic operations, and interfacing.**

VII. Course Outcomes

COURSE LEARNING OUTCOMES (CLOs)	**PROGRAM OUTCOMES**											
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**	**j**	**k**	**l**
After completing the course, the students must be able to:												
1. Determine the significance of the microprocessors or microcontroller's underlying concepts, principles, and architectures including its instruction sets, addressing modes and design tradeoffs, in today's modern microprocessor/microcontroller application areas.	**I**	**I**	**I**		**I**					**I**	**I**	
2. Apply techniques/methods for interfacing memory or I/O devices to the microcontroller or microprocessor, including several specific standard I/O or memory devices.	**I**	**D**	**E**		**E**					**I**	**I**	
3. Write structured, well-documented, understandable programs in assembly language and higher-level language for microprocessor or microcontroller application/exercises individually or collaboratively	**I**	**D**	**E**		**E**					**E**	**E**	
4. Design and simulate microprocessor or microcontroller applications using Integrated Development Environment (IDE) or any advanced CAD software as a modern tool for development, testing, and debugging	**I**	**D**	**E**		**E**					**E**	**D**	

** Level: **I** – Introductory, **E** – Enabling, **D** – Demonstrating*

VIII. Course Coverage

WEEK	CLOs				TOPIC	TEACHING ACTIVITIES	LEARNING ACTIVITIES	ASSESSMENT TASKS / METHODS / TOOLS	TARGET
	1	2	3	4					
1	✓				**0. Class Orientation** a. Mission and Vision b. Syllabus discussion c. Class policy / Netiquette d. Grading System **1. Introduction to Microprocessors** a. What is Microprocessor? b. How a CPU is Made? c. History Intel Microprocessors d. Important Focuses of Intel i-Series Processors e. Other Key Performance Improvements of i-Series Processors f. How CPU Cache Works? g. About Intel Processor Numbers h. Intel's i-Series Core Performance **Lab Lecture 1** - Introduction to 8086 Register Architecture and Assembly Language	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations/ Video Presentation Module Presentations Lab Lecture	Group Discussion Recitation Online Discussions / Chat		
2	✓				**2. IBM PC (AT) Memory Map and Intel Microprocessor Architecture in Real-mode CPU Operation**	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via	Group Discussion Recitation Online Discussions/Chat	Online Quiz 1	50% of the students shall have a rating of at least 60%

					a. Overview of IBM Personal Computer (PC) and its support chips b. What is a Chipset? c. MS DOS Memory MAP d. Internal Microprocessor Architecture **Lab Lecture 2** - Useful 8086 Instruction Set and DOS Interrupt Services Subroutines	*Blackboard LMS / Google Drive* PowerPoint Presentations/ Video Presentation Module Presentations Lab Experiment Guidelines Lab Lecture	Computer-based simulated Lab Seatwork	Online Lab Quiz 1	
3	✓				**3. Intel 80286/80386 Microprocessor (Protected Mode)** a. Introduction to the 80386 Microprocessor b. Real vs. Protected Modes c. Protected-Mode Memory Addressing d. Improve the Performance with Program-Invisible Registers e. Memory Paging f. Paging Issue and Solution g. Flat Mode Memory **Lab Lecture 3** - Screen and Keyboard Processing with BIOS Interrupts	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lecture	Group Discussion Assignments Recitation Online Discussions/Chat Computer-based simulated Lab Experiment	Online Quiz 2 Softcopy of Assignment 1 Softcopy of Lab Experiment 1 / Rubrics	50% of the students shall have a rating of at least 60%
4	✓				**4. Intel Microprocessor's Addressing Modes** a. Overview of Microprocessor Addressing Modes b. 8088/8086 Instruction Syntax c. Types of Addressing Modes	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via	Group Discussion Assignments Recitation	Online Quiz 3	50% of the students shall have a rating of at least 60%

					d. Calling Subroutines **Lab Lecture 4** - Advanced Screen Processing with BIOS Interrupts	*Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lecture	Online Discussions/Chat Computer-based simulated Lab Experiment	Softcopy of Lab Experiment 2 / Rubrics	
5 - 6	✓	✓			**5. Microprocessor's Instruction Encoding and Decoding** a. Terms to Remember b. 8086 – 80486 Instruction Format c. 64-bit Mode (Pentium 4 - Core2) Instruction Format d. Microprocessor Instruction Encoding (Assembly Instruction to Machine Language Translation) e. Microprocessor Instruction Decoding (Machine Language to Assembly Instruction Translation) **Lab Lecture 4** - Design of Parallel Output Circuit **Lab Lecture 5** - Design of Parallel Input Circuit	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lectures	Group Discussion Assignments Recitation Online Discussions/Chat Computer-based simulated Lab Experiment	Quiz 4 Softcopy of Assignment 2 Softcopy of Lab Experiment 3 / Rubrics Softcopy of Lab Experiment 4 / Rubrics	50% of the students shall have a rating of at least 60%
7	✓	✓			**6. Intel 8088 - 8086 Microprocessor's Hardware Specifications** a. The 8088/8086 μP Min/Max Mode	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet*	Group Discussion Assignments Recitation		

					b. DC Pin Characteristics: Voltages & Currents c. 8088-8086 Buses: Address, Data, and Control Buses d. Clock Generator (8284A) e. Bus Demultiplexing and Buffering f. Bus Timing g. 8288 Bus Controller **Lab Lecture 6** – Basic IO Interfacing with 8255	Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lecture	Online Discussions/Chat Computer-based simulated Lab Experiment	Softcopy of Lab Experiment 5 / Rubrics	
7		✓	✓	✓	**7. Microprocessor's IO Interfacing with 8255 (PPI)** a. Overview with the 8255 (PPI) b. PPI's I/O Ports c. Select input pins of 8255 d. Port Assignments of 8255 e. Parts of Command Byte A of PPI f. Modes Operation of PPI g. Configuring PPI's Control Register h. Interfacing IO device with 8255 using Assembly Program **Lab Lecture 7** – Advanced IO Interfacing with 8255	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lecture	Group Discussion Assignments Recitation Online Discussions/Chat Computer-based simulated Lab Experiment	Online Quiz 5 Softcopy of Assignment 3 Softcopy of Lab Experiment 6 / Rubrics	50% of the students shall have a rating of at least 60%
8	✓	✓			**8. Microcontroller Fundamentals and Arduino Modules** a. Automation/Mechatronics Concept Map b. Overview in Microcontroller c. Brief History of Microcontroller	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via	Group Discussion Assignments Recitation		50% of the students shall have a rating of at least 60%

					d. Popular Microcontrollers e. Fundamental Building Blocks of Microcontroller f. Why do we use Microcontroller? g. Application areas of Microcontrollers h. Microcontroller vs. Microprocessor Unit i. Other MCU Modules j. Factors to be consider in selecting the right processing device k. Components of Microcontroller l. Arduino Microcontroller Module **Midterm Lab Exam** – IO Interfacing with 8255	*Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Midterm Lab Exam Guidelines	Online Discussions/Chat Computer-based simulated Lab Experiment	Softcopy of Midterm Lab Exam / Rubrics	
9	**Midterm Exam Period**								
10	✓	✓	✓	✓	**9. Programming IO Device in Arduino** a. Arduino Sketch Program Structure b. Configuring Arduino pins c. Writing and Reading Digital Data into IO Pins d. Writing and Reading Analog Data into IO Pins e. Programming IO Device with Arduino Sketch **Lab Lecture 8** – Arduino Programming with Basic IO Devices	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lecture	Group Discussion Assignments Recitation Online Discussions/Chat Computer-based simulated Lab Experiment	Softcopy of Assignment 4 Softcopy of Lab Experiment 7 / Rubrics	

11		✓	✓	✓	**10. Arduino Control Structures and Built-in Functions** a. Math Functions b. Random Number Functions c. Time Functions d. Input and Output Functions e. Pulse Width Modulation Functions f. Serial Communication Functions g. Internal and External Interrupts h. Control Structures 1. Conditional Statements 2. Iterative or Looping Statements 3. Unconditional Jump Statements **Lab Lecture 9** – Arduino Programming with Advanced IO Devices	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lecture	Group Discussion Recitation Online Discussions/Chat Computer-based simulated Lab Experiment	Online Quiz 6 Softcopy of Lab Experiment 8 / Rubrics	50% of the students shall have a rating of at least 60%
12	✓	✓	✓	✓	**11. Arduino Programming with LCD, Keypad, and RTC Libraries** a. Principles of Liquid Crystal Display (LCD) b. Arduino Programming with LCD library c. Principles of Keypad d. Arduino Programming with Keypad library e. Principles of Real-time Clock (RTC) f. Arduino Programming with RTC library	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations	Group Discussion Assignments Recitation Online Discussions/Chat	Softcopy of Assignment 5	

					Lab Lecture 10 – Arduino Programming with LCD, Keypad, and RTC	Lab Experiment Guidelines Lab Lecture	Computer-based simulated Lab Experiment	Softcopy of Lab Experiment 9 / Rubrics	
13	✓	✓	✓	✓	**12. Arduino Programming with Servo, Stepper, and SoftPWM Libraries** a. Principles of Servo motor b. Arduino Programming with Servo motor library c. Principles of Stepper motor d. Arduino Programming with Stepper motor library e. Principles of SoftPWM f. Arduino Programming with SoftPWM library **Lab Lecture 11** – Arduino Programming with Servo and Stepper	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lecture	Group Discussion Recitation Online Discussions/Chat Computer-based simulated Lab Experiment	Online Quiz 7 Softcopy of Lab Experiment 10 / Rubrics	50% of the students shall have a rating of at least 60%
14	✓	✓	✓	✓	**13. Arduino Programming with PIR, Ultrasonic, Pulse/Heartbeat, and Gas/Flame Sensors** a. Principles of PIR sensor b. Arduino Programming with PIR sensor library c. Principles of Ultrasonic sensor d. Arduino Programming with Ultrasonic sensor library e. Principles of Pulse/Heartbeat f. Arduino Programming with Pulse/Heartbeat library g. Principles of Gas/Flame h. Arduino Programming with Gas/Flame library	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations	Group Discussion Assignments Recitation Online Discussions/Chat	Softcopy of Assignment 6	

					Lab Lecture 12 – Arduino Programming with PIR, Ultrasonic, Gas, and Heartbeat Sensor	Lab Experiment Guidelines Lab Lecture	Computer-based simulated Lab Experiment	Softcopy of Lab Experiment 11 / Rubrics	
15 - 16	✓	✓	✓	✓	**14. Arduino Programming with Serial Communication Devices** a. Principles of Bluetooth b. Arduino Programming with Bluetooth device c. Principles of RFID d. Arduino Programming with RFID device e. Principles of WiFi f. Arduino Programming with WiFi device **Lab Lecture 13** – Arduino Programming with Bluetooth, Zigbee, or Wifi **Lab Lecture 14** – Arduino Programming with RFID and GSM	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Experiment Guidelines Lab Lectures	Group Discussion Assignments Recitation Online Discussions/Chat Computer-based simulated Lab Experiment	Online Quiz 8 Softcopy of Lab Experiment 12 / Rubrics	50% of the students shall have a rating of at least 60%
17	✓	✓	✓	✓	**15. Programming with GSM and GPS** a. Principles of GPS b. Arduino Programming with GPS library c. Principles of GSM d. Arduino Programming with GSM library **Final Lab Exam** – Arduino Programming with RFID and GSM	Virtual Synchronous Lecture – *Blackboard Collaboration / Google Meet* Virtual Asynchronous Lecture/Assessment Tasks via *Blackboard LMS / Google Drive* PowerPoint Presentations Module Presentations Lab Exam Guidelines	Group Discussion Assignments Recitation Online Discussions/Chat Computer-based simulated Lab Experiment / Exam	Softcopy of Assignment 7 Softcopy of Lab Experiment 11 / Rubrics	50% of the students shall have a rating of at least 60%
18	**Final Exam Period**								

IX. Scoring Rubrics for Lab Experiment Reports

CRITERIA	POINTS	EXEMPLARY	SATISFACTORY	DEVELOPING	BEGINNING
Format & Style	**10**	**(9 – 10)** • Follows all the requirements related to format, layout, and style of writing • Lab report is well organized, clear and presents ideas in a coherent way of writing.	**(6 – 8)** • Closely follows all the requirements related to format, layout, and style of writing • Lab report is organized in most part, clear and presents ideas in a coherent way of writing.	**(3 – 5)** • Some requirements are not followed related to format, layout, and style of writing • Lab report is somewhat organized, and fewer present ideas in a coherent way of writing.	**(0 -2)** • Follows poorly the requirements related to format layout, and style of writing • Lab report is badly organized, lacks clarity and/or does not present ideas in a coherent way of writing.
Data Results/Functionality of Program Code	**35**	**(29 – 35)** • All experimental details/procedures are covered/executes well • Excellent displays of data used of computer or other tools to generate accurate displays. • With complete program implementation, no error and with correct output • All figures, tables or source code are correctly presented, are numbered, referred to and contain titles/captions.	**(19 – 28)** • Important experimental details/procedure are covered/executes, but some minor details are missing • Places data gathered in format required by instructor. • With complete program implementation and no error but incorrect output • All timing diagram, tables, source code, etc. are correctly drawn/presented, but some have minor problems or could still be improved.	**(9 – 18)** • Missing some important experimental details/procedures • Displays of data need to contain more complete information, but some components of data display are not correct; Needs an instructor assistance in generating correct data displays. • With complete program implementation and no error but without output • Most figure, tables or source code are correct, but some are still missing important or required features.	**(0 - 8)** • Missing several important experimental details/procedures • Data gathered displays skills are extremely limited or incomplete. Always needs an instructor assistance in generating correct data displays. • With complete program implementation and with error • Figures, tables or source code contain errors or are poorly constructed, have missing titles, captions or numbers, units are missing or incorrect, etc.
Data Analysis	**15**	**(12 -15)** • All important trends and data comparisons have been interpreted correctly and discussed; good understanding of results is conveyed. • Data analysis is well written from start to finish, without spelling, grammar or use of English errors. • Complete evidence of supporting references	**(8 – 11)** • Almost all of the results have been correctly interpreted and discussed, only minor improvements are needed • Data analysis is well written for the most part (at least 85%), without spelling, grammar or use of English errors. • Most evidence of supporting references	**(4 – 7)** • Conclusions about major points are drawn, but many are misstated, indicating a lack of understanding. • Some part of lab report is not well written (at least 65%), and contains some spelling errors, and/or grammar errors and/or use of English errors. • Some evidence of supporting references	**(0 -3)** • Conclusions missing or missing the important points • Lab report is not well written and contains spelling errors, and/or grammar errors and/or use of English errors. • No evidence of supporting references
Answers to Questions	**20**	**(16 – 20)** • Student demonstrates full knowledge (more than required) • Student answers all questions with complete explanations and elaboration well. • Answers are well written, without spelling, grammar or use of English errors.	**(11 – 15)** • Student is at ease with information • Student explains expected answers to all questions, but fails to elaborate • Answers are well written for the most part (at least 85%), without spelling, grammar or use of English errors. • No sign of answer/s copied to other students	**(5 – 10)** • Student is uncomfortable with information • Student is able to answer only basic questions. • Some part of the answers are not well written (at least 65%), and contains some spelling errors, and/or grammar errors and/or use of English errors.	**(0 -4)** • Student does not have knowledge of information. • Student cannot answer questions about subject. • Answers not well written and contains spelling errors, and/or grammar errors and/or use of English errors • Answer/s copied to other students

		• No sign of answer/s copied to other students.		• No sign of answer/s copied to other students	
Conclusion	**15**	**(12 – 15)** • All important conclusions have been clearly made • Student shows good understanding of experiment and results. • Discussions are aligned with lab objectives • Complete evidence of supporting references	**(8 - 11)** • Most of important conclusions have been drawn. • Student shows most parts of understanding of experiment and results. • Discussions are aligned with lab objectives • Most evidence of supporting references	**(4 – 7)** • Conclusions regarding major points are drawn, but many are misstated, indicating a lack of understanding. • Student shows some parts of understanding of experiment and results. • Discussions are aligned with lab objectives • Some evidence of supporting references	**(0 - 3)** • Conclusions missing or missing the important points. • Group does not show understanding of experiment and results. • Discussions are not aligned with lab objectives • No evidence of supporting references
References	**5**	**(5)** • Complete list of references that are all properly formatted and referenced/cited in the text	**(4)** • Complete list of references included, with minor issues in formatting and/or citations	**(2 - 3)** • Included many important references, but not a complete list, and multiple errors in format and citations.	**(0 – 1)** • References missing, not formatted, and/or not credible sources

GRADING SYSTEM

LECTURE (60%)

- Major Examinations (Midterms and Finals) – 40.00 %
- Quizzes – 35.00 %
- Other Learning Activities (OLA) – 25.00 %
  (Homework, Recitation/s, Attendance, Online Attitude)

TOTAL – 100.00 %

LABORATORY (40%)

- Practical Lab Examinations / Final Project (Midterms and Finals) – 40.00 %
- Quizzes / Lab Experiment Reports – 40.00 %
- Other Learning Activities (OLA) – 20.00 %
  (Homework, Recitation/s, Attendance, Online Attitude)

TOTAL – 100.00 %

MIDTERM / FINAL GRADE = LECTURE GRADE x 60% + LAB GRADE x 40%

SEMESTRAL GRADE (SG) = 50% (MIDTERM GRADE) + 50% (FINAL GRADE)

Passing grade is 60% using Base 0.

AVERAGE	GRADE	AVERAGE	GRADE
95 - 100	1.00	72 - 75	2.25
91 – 94	1.25	68 – 71	2.50
86 – 90	1.50	64 – 67	2.75
81 – 85	1.75	60 – 63	3.00
76 – 80	2.00	<60	5.00

X. Textbook

XI. Reference/s

Hwang, E. (2018). Digital Logic Microprocessor Design (2nd ed). Australia: Cengage Learning
Hennesy, J. (2017). Computer Architecture: A Quantitative Approach (6th ed). USA: Elsevier
3G ELearning. (2017). Computer organization and assembly language programming. New York, NY: 3G E-Learning.
Langbridge, J. A. (2015). Arduino sketches: tools and techniques for programming Wizardry. Indianapolis, IN: John Wiley & Sons.

XII. Course Materials Made Available

Course Syllabus

XIII. Other Course Policies

a. **Attendance**. According to CHED policy, the total number of absences incurred by the students should not be more than 20% of the total number of meetings or 9 hours for this three-unit lecture course. Students incurring more than 9 hours of unexcused absences automatically gets a failing grade regardless of his/her class standing. Students who is absent on the day of the quiz shall be automatically given a grade of zero (0).

b. **Cheating**. Student who is caught cheating in any form during quiz, major written and practical examinations shall be automatically given a grade of zero (o).

c. **Submission of Assessment Tasks**. All assessment tasks must be submitted as scheduled. No late assessment tasks shall be accepted.

d. **Practical/Major Examination**. Practical Examinations are given as scheduled, covering the topics discussed within the period. Special exams for missed ones may be given upon the discretion of the professor.

e. **Course Portfolio**. All exams and learning tasks shall be collected by the professor by the end of the quarter.

f. **Language of Instruction**. Lectures, discussion, and documentation will be in English. Written and spoken work may receive a lower mark if it is, in the opinion of the instructor, deficient in English.

g. **Honor, Dress and Grooming Codes**. The Dress and Grooming Codes of the Institution will be in force. Plagiarism and cheating will be dealt with in accordance with the Student Manual provided by the Office of Student of Affairs.

h. **Consultation Schedule**. The consultation schedule of the professor will be posted outside the faculty room. It is recommended that the student first set an appointment to confirm the instructor's availability.

XIV. Committee Member/s

Engr. RIcrey E. Marquez, PCpE

Prepared by:	Evaluated by:	Approved by:	Noted by:
Engr. Ricrey E. Marquez, PCpE	**Freddie M. Tamayao, MENG-CPE**	**Engr. Lovelyn C. Garcia, MSECE**	**Dr. Teresita C. Fortuna, CESO III**