



## UNIVERSITY VISION

A trailblazer in arts, science and technology in the region.

## UNIVERSITY MISSION

The University shall primarily provide advanced instruction and professional training in science and technology, agriculture, fisheries, education and other relevant fields of study.

It shall also undertake research and extension services, and provide progressive leadership in its areas of specialization.

## UNIVERSITY GOAL

To produce graduates with excellence and dignity in arts, science and technology.

## UNIVERSITY OBJECTIVES

- a. Enhance competency development, commitment, professionalism, unity and true spirit of service for public accountability, transparency and delivery of quality services;
- b. Provide relevant programs and professional trainings that will respond to the development needs of the region;
- c. Strengthen local and international collaborations and partnerships for borderless programs;
- d. Develop a research culture among faculty and students;
- e. Develop and promote environmentally-sound and market-driven knowledge and technologies at par with international standards;
- f. Promote research-based information and technologies for sustainable development;
- g. Enhance resource generation and mobilization to sustain financial viability of the university.

### Program objectives and its relationship to University Objectives:

PROGRAM OBJECTIVES (PO)	a	b	c	d	e	f	g
A graduate of Bachelor of Science in Information Technology can:							
a) Design and implement effectively the innovative computing researches;	✓	✓	✓	✓	✓	✓	✓
b) Apply proficiently the algorithmic theories and related computational system in conducting researches;	✓	✓	✓	✓	✓	✓	✓
c) Address societal problems through producing sustainable research outputs;	✓	✓	✓	✓	✓	✓	✓
d) Demonstrate the code of conduct as well as the social and legal aspects of Computer Science.	✓	✓	✓	✓	✓	✓	✓

**1. Course Code** : GE701  
**2. Course Title** : Discrete Mathematics  
**3. Pre-requisite** : None  
**4. Credit** : 3 units

**5. Course Description:**  
This course deals with the fundamental and basic core of programming which includes elementary logic, set theory and probability.

## **6. Course Learning Outcomes and Relationships to program Educational Objectives**

<b>Course Learning Outcome</b>	<b>Program Objectives</b>			
	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>
At the end of the semester, the students can:				
a) Discuss and argue about the use and application of Sets	✓	✓	✓	✓
b) Discuss and argue about the use and application of Elementary Logic	✓	✓	✓	✓
c) Apply permutation, combination and counting numbers to random application of combination	✓	✓	✓	✓
d) Apply probability in solving decision making problems	✓	✓	✓	✓
e) Affirm honesty and integrity in the application of Discrete Mathematics to various human endeavor.	✓	✓	✓	✓

## 7. Course Content

Course Objectives, Topics, Time Allotment	Desired Student Learning Objectives	Outcome-Based Assessment (OBA) Activities	Evidence of Outcomes	Course Outcomes	Program Objectives	Values Integration
<b>Topic: VMGO, Classroom Policies, Course Overview, Course Requirements, Grading System (Week 1)</b>						
Discuss the VMGO of the university, classroom policies, scope of the course, course requirements and grading system	<ul style="list-style-type: none"> <li>a. Student can be aware of and appreciate of the university's VMGO, classroom policies, course overview, requirements and grading system.</li> <li>b. Get acquainted with the new blended learning</li> </ul>		<p>*Students are expected to accomplish the activities via –</p> <ul style="list-style-type: none"> <li>a. LMS – submission of their requirements are checked thru the system. This is for those who have access to internet.</li> <li>b. Messenger – students will send their output thru the messenger. This is for those who have limited internet access.</li> </ul>			Value of Responsibility
<b>Module 1.1 (Week 2)</b>						
Discuss the – a. concept of sets	At the end of this lesson students will be able to – <ul style="list-style-type: none"><li>a. Define sets</li></ul>	Creative videos where students will discuss what they learn	Tiktok video with students discussing the concept of sets	a, f	a, b, c, d	Critical Mindedness Efficiency
<b>Module 1.2 (Week 3 – 5)</b>						
Discuss the – <ul style="list-style-type: none"><li>a. different properties of Sets</li><li>b. Venn Diagram</li><li>c. How to solve problems involving sets</li></ul>	<ul style="list-style-type: none"><li>a. Distinguish different properties of sets</li><li>b. Find solutions to problems sets</li></ul>	<ul style="list-style-type: none"> <li>▪ Creative videos where students will discuss what they learn</li> <li>▪ Problem sets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tiktok video with students discussing the concept of sets</li> <li>▪ Answered problem sets</li> </ul>	b, f	a, b, c, d	Value of Respect Acceptance and Competence

<b>Module 2 (Week 6 – 8)</b>						
Discuss the –  a. Logic, concept of b. Practical problems involving logic	c. Apply the concept of logic to practical problems, i.e. programming	Problem sets	Written answers	c, f	a, b, c, d	Curiosity
<b>Midterm</b>						
<b>Module 3.1 (Week 9 – 12)</b>						
Discuss the -  a. Permutation b. Combination c. Counting numbers	Compose and find solutions to problems involving  a. Permutation b. Combination c. Counting numbers	<ul style="list-style-type: none"> <li>▪ Creative videos where students will discuss what they learn</li> <li>▪ Problem sets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tiktok video with students discussing the concept of sets</li> </ul> <p>Answered problem sets</p>	c, f	a, b, c, d	Openness
<b>Module 3.2 (Week 13 – 15)</b>						
Discuss the  a. Probability, concept of	Compose and find solutions to problems involving  a. Probability	Problem sets	Written answers	c, f	a, b, c, d	Accuracy Focus
<b>Finals (Week 16)</b>						

## 8. Course Evaluation

### Course Requirements:

Module Activities

Midterm / Final Exams

### Grading System:

Midterm/Final Exams – 50%

Module Activities – 50%

## 9. References:

Walpole, R. E., Myers, R. H., Myers,S.L., & Ye, K. (2012).Probability & Statistics for Engineers & Scientists Ninth Edit. Prentice Hall.  
Online Resources

Ikenaga, B. (2020). Logical Connectives.

<http://sites.millersville.edu/bikenaga/mathNproof/logicalNconnectives/>

<https://plus.maths.org/content/life-and-numbers-fibonacci>

[https://www.probabilitycourse.com/chapter1/1\\_2\\_2\\_set\\_operations.php](https://www.probabilitycourse.com/chapter1/1_2_2_set_operations.php)

<https://www.fool.com/knowledge-center/compound-interest.aspx>

## 10. Rubrics for Problem Sets

Indicators / Ratings*	5	4	3	2	1
<b>Correct execution</b>	All problems are solved correctly	85 – 90% of the items are not solved	75 – 84% items are not solved	50 – 74% Half of the problems are solved	At least one of the items are solved
<b>Innovativeness</b>	Problems are solved more than what was required	Problems are solved exactly as required	Problems are solved at an average effort	Problems are solved less than what was required	Problems are solved at a minimum effort
<b>Overall Impact</b>	Execution / output is beyond expectation	Execution / output is within expectation	Execution / output is at an average effort	Execution / output is less than what was required	Execution / output is at a minimum effort
<b>Total</b>	<b>15 points</b>				

\*Zero points is given to wrong answers, no effort exerted.

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