



Davao del Sur State College
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LABORATORY MANUAL FOR AB MACHINERY AND MECHANIZATION

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PREFACE

Welcome to the exciting world of Agricultural and Biosystems Machinery and Mechanization! This lab manual is your guide to understanding the tools and technologies that are revolutionizing modern agriculture. Over the course of this subject, you'll get hands-on experience with the machinery that drives food production, from tillage equipment to precision planters and harvesters. You'll not only learn how these machines work but also how to operate, maintain, and troubleshoot them safely and efficiently.

This course is about more than just machinery; it's about sustainability and innovation. By understanding the principles of mechanization, you'll be able to develop solutions that make farming more productive, less labor-intensive, and more environmentally friendly. We're training you to be the next generation of agricultural professionals who will feed the world's growing population. Let's get our hands dirty and cultivate a better future together!

Our work in this lab is directly connected to a global effort to create a more sustainable and equitable future. Through your experiments, you will be contributing to the following Sustainable Development Goals (SDGs):

- 1. SDG 2: Zero Hunger – promoting sustainable food production systems,*
- 2. SDG 7: Affordable and Clean Energy – encouraging energy-efficient farm power systems,*
- 3. SDG 9: Industry, Innovation, and Infrastructure – fostering technological innovation in agriculture, and*
- 4. SDG 12: Responsible Consumption and Production – advancing sustainable practices in the use of resources.*

As you embark on this journey, remember that safety is paramount. Always follow the established safety protocols, wear the appropriate personal protective equipment (PPE), and never operate machinery without proper instruction and supervision.

We're excited for you to dive into these experiments and discover the power that drives modern agriculture. Let's get started!

ENGR.AMANTE & AQUINO.



LABORATORY SAFETY RULES

Welcome to the lab! Your safety is our top priority. Adherence to these rules is mandatory for everyone working in the laboratory. Failure to comply will result in immediate removal from the lab.

General Rules

1. **No unauthorized experiments.** Only perform the experiments and procedures assigned by your instructor.
2. **No food, drink, or chewing gum** in the laboratory at any time. Do not use laboratory glassware as food or drink containers.
3. **Familiarize yourself** with the location of all safety equipment, including the fire extinguisher, first-aid kit, and emergency eyewash and shower stations.
4. **Report all injuries, spills, or broken equipment** to your instructor immediately, no matter how minor.
5. **Keep your workspace clean** and organized. Do not block aisles or emergency exits with equipment or personal belongings.

Personal Protective Equipment (PPE)

1. **Wear appropriate PPE at all times.** This includes safety glasses or goggles, closed-toe shoes, and a lab coat or apron.
2. **Tie back long hair** to prevent it from getting caught in machinery.
3. **Avoid loose clothing or jewelry** that could get snagged by equipment.

Machinery and Equipment

1. **Never operate machinery without permission** and proper training from your instructor.
2. **Turn off all machinery** when not in use. Ensure all moving parts have come to a complete stop before attempting any adjustments or maintenance.
3. **Secure all loose parts** on machinery before operation. Check for any signs of damage or wear before starting a machine.
4. **Do not bypass safety guards or interlocks** on any equipment. They are there to protect you.

Chemical and Waste Handling

1. **Handle all fuels, oils, and other chemicals with caution.** Read the labels and safety data sheets (SDS) for any chemical you use.
2. **Dispose of all waste properly.** Your instructor will provide specific instructions for the disposal of used oils, filters, and other materials. Do not pour chemicals or oils down the drain.

Your commitment to safety is a commitment to the success of this course and the well-being of everyone in this laboratory. By following these rules, you are creating a professional and secure environment for learning and discovery.

Be aware, be safe, and let's get to learn!

