Davao del Sur State College
Brgy. Matti, Digos City, Davao del Sur

Land and Water Conservation Engineering

Version 1

MARK JUDE F. TRONDILLO, PhD
RYAN ART M. TULING

www.dssc.edu.ph @DSSCOfficial president@dssc.edu.ph

LAND AND WATER CONSERVATION ENGINEERING

A Course Pack for
BSABE Students

MARK JUDE F. TROONDILLO, PhD
RYAN ART M. TULING
Davao del Sur State College
Matti, Digos City, Davao del Sur

Preface

Soil and water are the foundational resources upon which agricultural productivity, ecological resilience, and global food security depend. In the face of increasing climate unpredictability, land degradation, and shifting hydrological cycles, the imperative for sustainable resource stewardship has never been greater.

This coursepack for Land and Water Conservation Engineering is specifically developed and compiled for students pursuing the Bachelor of Science in Agricultural and Biosystems Engineering (BSABE). Designed as a comprehensive learning resource, this material focuses on the effective application of land and water conservation principles across the complete engineering lifecycle, from initial planning and design to construction, maintenance, and performance evaluation. The coursepack is organized into six core chapters, aligned to its six primary course outcomes and structured logically to guide students from theoretical foundations to practical engineering design and evaluation.

To the students of this course, as future Agricultural and Biosystems Engineers, your role extends beyond standard structural design. You are tasked with designing systems where human engineering works in harmony with natural biological processes. You are encouraged to engage with this coursepack actively: analyze the underlying physics of soil-water interactions, master empirical and hydraulic design formulations, and critically evaluate how biological interventions like vegetated waterways complement hard engineering structures. May this coursepack serve as a solid foundation for your professional competence and a lifelong commitment to sustainable land and water management.

- Dr. Trondillo & Engr. Tuling

Table of Contents