



Republic of the Philippines
BATANGAS STATE UNIVERSITY
BatStateU Alangilan
Alangilan, Batangas City



College of Engineering, Architecture and Fine Arts
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CURRICULUM

Doctor of Philosophy in Engineering Management (PhDEM)

Academic Year 2021-2022

Reference CMOs: 15 Series of 2019: Policies, Standards and Guidelines for Graduate Programs

Curriculum Description

The program is designed to develop students' skills in conducting high – impact research in the field of Engineering Management. The said philosophy is aimed at developing professionals who are ready to face the challenges of the fourth industrial revolution. In addition, the program also advocates in elevating them to managerial positions in manufacturing or service organizations. Equipped with technological leadership and innovations, the program will uplift students to their highest potentials. It is expected that students will acquire the ability to define, evaluate, design, improve, and manage complex human technological systems that will address most of the modern society's problems. The graduates of the program are expected to become engineering project managers, lead analysts, cost systems analysts, engineering plant managers, chiefs of research and development, engineering logistics managers, systems engineering team leaders or other high level engineering management positions. This research-oriented program is offered as an in-campus or residential.

Program Educational Objectives of Engineering Management (PEO)

The Ph.D Engineering Management alumni three to five years after graduation shall:

1. **Specialist.** Practiced as a high-level specialist in solving complex engineering management problems leading to improvements and innovations, while taking into consideration the environmental, social, and economical requirements.
2. **Professionalism and Leadership.** Assumed high level leadership position in industry, academe, government, or private sector with consideration to social and ethical responsibility.
3. **Lifelong Learning.** Engaged in lifelong learning through further studies, research, certifications, promotions, and other personal and professional development activities

Institutional Graduate Attributes (IGA)

The student should achieve at least 75% for each IGA upon graduation

1. **Knowledge Competence.** Demonstrate mastery of the fundamental knowledge and skills required for functioning effectively as a professional in the discipline, and an ability to integrate and apply them effectively to practice in the workplace.
2. **Creativity and Innovation.** Experiment with new approaches, challenge existing knowledge boundaries and design novel solutions to solve problems.

3. **Critical and Systems Thinking.** Identify, define, and deal with complex problems pertinent to the future professional practice or daily life through logical, analytical and critical thinking.
4. **Communication.** Communicate effectively (both orally and in writing) with a wide range of audiences, across a range of professional and personal contexts, in English and Pilipino.
5. **Lifelong Learning.** Identify own learning needs for professional or personal development; demonstrate an eagerness to take up opportunities for learning new things as well as the ability to learn effectively on their own.
6. **Leadership, teamwork, and Interpersonal Skills.** Function effectively both as a leader and as a member of a team; motivate and lead a team to work towards goal; work collaboratively with other team members; as well as connect and interact socially and effectively with diverse culture.
7. **Global Outlook.** Demonstrate an awareness and understanding of global issues and willingness to work, interact effectively and show sensitivity to cultural diversity.
8. **Social and National Responsibility.** Demonstrate an awareness of their social and national responsibility; engage in activities that contribute to the betterment of the society; and behave ethically and responsibly in social, professional and work environments.

Students Outcomes

The following skills, knowledge, and behaviors are expected to be attained by the students as they progress through the program:

1. **Knowledge Competence.** Systematically create and synthesize knowledge;
2. **Critical and System Thinking.** Demonstrate critical, creative, and reflective thinking;
3. **Communication.** Master effective oral and written skills;
4. **Innovation.** Implement innovative teaching and learning pedagogies appropriate for engineering students learning needs;
5. **Tools Usage.** Demonstrate skills in the use of technology in improving engineering education delivery;
6. **Commitment.** Apply principles of engineering management to solve instructional or curricular issues for a specific engineering program;
7. **Lifelong Learning.** Exemplify continuing professional education in a specific engineering discipline and actively participate in professional engineering activities;
8. **Policy Awareness.** Be updated on and critique engineering management policies and programs; and
9. **Research Savvy.** Perform independent scientific research that results in creation of new knowledge in engineering management.

CURRICULUM COMPONENTS

A. CORE COURSES (9 units)		
Course Code	Course Title	Credit Unit
GEM 501	Design of Experiments	3
GEM 502	Research Methods for Engineering Management	3
GEM 503	Advanced Project Management and Strategic Leadership	3
B. SPECIALIZATION COURSES (9 units)		
Course Code	Course Title	Credit Unit
GEM 504	Optimization I	3
GEM 505	Optimization II	3
GEM 506	Systems Analysis and Advanced Modeling	3
C. DISSERTATION COURSES (12 units)		
Course Code	Course Title	Credit Unit
GEM 512	Dissertation Writing I	6
GEM 513	Dissertation Writing II	6
D. ELECTIVE COURSES (6 units)		
Course Code	Course Title	Credit Unit
GEME 501	Engineering Risk Analysis	3
GEME 502	Engineering Supply Chain	3
GEME 503	Special Topics in Engineering Management	3
GEME 504	Advanced Engineering and Cost Estimation	3
GEME 505	Engineering and Technology Management	3