Republic of the Philippines
**BATANGAS STATE UNIVERSITY**
**BatStateU Alangilan**
Alangilan, Batangas City
**College of Engineering, Architecture and Fine Arts**
https://batstate-u.edu.ph, Tel. No. (043) 425-0139 loc. 0118/2121

**CURRICULUM**
**Master of Science in Engineering Management (MSEM)**
Academic Year 2021-2022
Reference CMOs: 15 Series of 2019: Policies, Standards and Guidelines for Graduate Programs

## Curriculum Description

The Master of Science in Engineering Management is a graduate program that provides opportunities for engineers to build both technical and leadership skills and pursue management roles in both local and international industries. It is a program that trains engineering managers to acquire skills and knowledge necessary to function across manufacturing, service and high technology organizations competing for the global market. The students of Master of Science in Engineering Management can gain an advanced understanding of the specific engineering and management skills needed to grow in their current position, build new opportunities and be competent engineering leaders. 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. The Master of Science in Engineering Management curriculum comprises Foundation Courses, Major Courses, Elective Courses, and Thesis Requirement. This research-oriented program is offered as an in-campus or residential.

## Program Educational Objectives of Engineering Management (PEO)

The MS Engineering Management alumni three to five years after graduation shall:

1. **Specialist.** Practiced as a high-level 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 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 a 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.** Demonstrate a comprehensive and broad understanding of engineering management principles and apply advanced knowledge in the specific engineering discipline;

2.    **Critical and System Thinking.** Analyze, synthesize, create and evaluate the challenges in engineering management practice;

3.    **Design and Analysis.** Design components, devices, and systems to meet specified engineering needs under real–world constraints;

4.    **Communication.** Communicate effectively the technical knowledge, both orally and in writing, on complex engineering management activities;

5.    **Leadership and Teamwork.** Function effectively as an individual, a team member, or as a leader in diverse work environments;

6.    **Creativity and Innovation.** Contribute to the generation, dissemination and preservation of knowledge, methodologies, techniques, and processes;

7.    **Lifelong Learning.** Engage in continuous professional development and lifelong learning endeavors;

8.    **Ethics and Professionalism.** Conduct oneself within professional and ethical standards; and

9.    **Research.** Perform independent scientific research that results in innovation with application.

**CURRICULUM COMPONENTS**

| A. CORE COURSES (9 units) | | |
|---|---|---|
| **Course Code** | **Course Title** | **Credit Unit** |
| MSEM 501 | Foundations of Engineering Management | 3 |
| MSEM 502 | Statistics for Engineering Management | 3 |
| MSRM 501 | Research Methodology | 3 |
| **B. SPECIALIZATION COURSES (12 units)** | | |
| **Course Code** | **Course Title** | **Credit Unit** |
| MSEM 504 | Integrating Ethics, Contracts and Legal Issues | 3 |
| MSEM 505 | Project Management Fundamentals | 3 |
| MSEM 506 | Applied Accounting and Finance for Engineering Management | 3 |
| MSEM 507 | Quality Engineering and Management | 3 |
| **C. THESIS COURSES (6 units)** | | |
| **Course Code** | **Course Title** | **Credit Unit** |
| MSEM 517 | Thesis Writing 1 | 3 |
| MSEM 518 | Thesis Writing 2 | 3 |
| **D. ELECTIVE COURSES (9 units)** | | |
| **Course Code** | **Course Title** | **Credit Unit** |
| MSEME 501 | Elements of Operations Research | 3 |
| MSEME 502 | Information Systems Engineering | 3 |
| MSEME 503 | Strategic Planning and Management | 3 |
| MSEME 504 | Supply Chain Management | 3 |
| MSEME 505 | Marketing Management | 3 |
| MSEME 506 | Organizational Behavior | 3 |
| MSEME 507 | Human Resource Management | 3 |
| MSEME 508 | Sustainable Business Practices for Engineers | 3 |
| MSEME 509 | Decision and Risk Analysis | 3 |