Student Competencies (SC)

The program courses fulfill the **NARS 2018**
In addition to the competencies for all Engineering Programs (**A-Level**), the Construction Engineering and Management Program graduate must be able to (**B-Level**)and (**D-Level**):

Level A: The engineering graduate must be able to:

A1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.

A2. Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.

A3. Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.

A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.

A5. Practice research techniques and methods of investigation as an inherent part of learning.

A6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.

A7. Function efficiently as an individual and as a member of multi-disciplinary and multi-cultural teams.

A8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.

A9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.

A10. Acquire and apply new knowledge, and practice self, lifelong and other learning strategies.

Level B: The engineering graduate must be able to:

B1: Select appropriate and sustainable technologies for the construction of buildings, infrastructures, and water structures; using either numerical techniques or physical measurements and/or testing by applying a full range of civil engineering concepts and techniques of: Structural Analysis and Mechanics, Properties and Strength of Materials, Surveying, Soil Mechanics, Hydrology and Fluid Mechanics.

B2: Achieve an optimum design of Reinforced Concrete and Steel Structures, Foundations and Earth Retaining Structures; and at least three of the following civil engineering topics: Transportation and Traffic, Roadways and Airports, Railways, Sanitary Works, Irrigation, Water Resources and Harbors; or any other emerging field relevant to the discipline.

B3: Plan and manage construction processes; address construction defects, instability and quality issues; maintain safety measures in construction and materials; and assess environmental impacts of projects.

B4: Deal with biddings, contracts and financial issues including project insurance and guarantees.

Level D: The engineering graduate must be able to:

D1: Create architectural, urban, and planning designs that satisfy both aesthetic and technical requirements, using adequate knowledge of history and theory, related fine arts, local culture and heritage, technologies, and human sciences

D2: Generate ecologically responsible, environmental conservation and rehabilitation designs; through an understanding of structural design, construction, technology, and engineering problems

Program Academic Standards

-Academic reference Standards of Construction Engineering and Management program approved by faculty council in **12/11/2019 No. 385**

Reference standards

- National Academic Reference Standards of (NARS) 2018 which were issued by the National Authority for Quality Assurance & Accreditation of Education NAQAAE.