

Program Assessment and Evaluation Matrix and Plan

PO Code	PO Statement	Performance Indicators (PI)	Codes of Key Course(s) for the PI(s)	Assessment Methods			Evaluation Method(s)	Standards
				A1	A2	A3		
a	Proficiency in Mathematics, Physics, General Chemistry, Social Science, Microbiology and Toxicology and Fluid Mechanics;	1. Perform engineering calculations manually and by use of applicable software.	M-01 to 09, S-01 to 03, E-01 to E-10, L-01 to 20, A-01 to 16, P-01 to 21, P-22, P-25	Locally Developed Examination	Rubric for Engineering Knowledge	In-House Review and Pre-Board Exam	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam
		2. Analyze flows in sanitary engineering solution.						
		3. Apply academic theory into engineering applications to develop proposals to solve engineering problems						
b	Introductory level knowledge of Sanitary Engineering issues and cocerns associated with air, land and water systems and associated environmental health impacts;	1. Understands sanitary engineering and environment principles	M-01 to 09, S-01 to 03, L-01 to 20, A-01 to 16, P-01 to 21, P-23, P-27 to 29	Locally Developed Examination	Rubric for Engineering Knowledge	In-House Review and Pre-Board Exam	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam
		2. Applies sanitary engineering and environmental principles to an assigned task and in multidisciplinary environments						
		3. Manages assigned projects in multidisciplinary environments						
c	An ability to conduct laboratory experiments and critically analyze and interpret data in any one or more than one Sanitary Engineering focus areas eg. Air, water, land environmental health;	1. Conduct experiments in accordance with good and safe laboratory practice.	S-01 to 03, E-01 to E-10, L-01 to 20, A-01 to 02, P-01 to 14, P-16 to 20, P-23, P-28 to 29	Laboratory Exercises	Rubric for Conduct of Experiments PO	Group Work	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 70% for plate
		2. Operate equipment and instruments with ease						
		3. Analyze data, validate experimental values against theoretical values to determine possible experimental errors, and provide valid conclusions.						
d	An ability to perform engineering designs by means of design experiences integrated throughout the professional component of the curriculum	1. Consideration of economic constraints	M-01 to 09, S-01 to 03, E-01 to E-10, L-01 to 20, A-01 to 16, P-02 to 08, P-10 to 21, P-24 to 29	Design Project	Rubric for Effective Reporting Via Multi-Disciplinary Areas PO (d)	Group Project	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam
		2. Constructability and sustainability in accordance with standards						
		3. Consideration of environmental contraits and health and safety issues						
	Proficiency in using principles and practice relevant to the Sanitary Engineering programs objectives;	1. Ability to identify an engineering problem (Statement of the Problem)	M-01 to 09, S-01 to 03, E-01 to E-10, L-01 to 20, A-01 to 16, P-01 to 29	Engineering Research Project	Rubric for Theory and Applications PO (e)	Group Project	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and

e		2. Ability to formulate engineering solutions to a given problem(Design/Research Methodology)						70% for plates and at least 50% of the students will get a score of 60% for final exam
f	Understanding of the concepts of professional practice and the roles and responsibilities of the various stakeholders pertaining to Sanitary Engineering	1. Apply appropriate techniques, skills, and modern tools to perform a discipline-specific engineering task. 2. Demonstrate skills in applying different techniques and modern tools to solve engineering problems. 3. Recognize the benefits and constraints of modern engineering tools.	E-07 to E-10, L-01 to 20, A-01 to 16, P-02 to 08, P-11 to 21, P-26 to 29	Locally Developed Examination, Usage of Engineering Software	Rubric for Modern Tool usage	In-House Review and Pre-Board Exam	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam
g	An ability to function within a multi-disciplinary team	1. Take responsibility as an individual or as a team member fulfilling appropriate roles to assure team success. 2. Contribute useful inputs in relation to the team's objective. 3. Communicate freely to teammates, give and provide feedback and suggestion to improve team outputs.	E-01 to E-10, L-01 to 20, A-01 to 16, P-01 to 08, P-11 to 20, P-20 & 24	Design Project	Rubric for Effective Reporting Via Multi-Disciplinary Areas	Group Project	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam
h	An ability to communicate effectively	1. Express ideas clearly in English language 2. Effectively communicate with diverse audiences 3. Effectively communicate in a variety of ways	E-07 to E-10, L-09 & 12, A-08 & 14-15, P-02 to 08, P-11 to 20, P-23 to 24	Engineering Research Project	Rubric for Effective communication	Oral and Written Report	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam
i	A knowledge of contemporary issues	1. Ability to identify an engineering problem that will deal with pressing local and national issue. 2. Ability to formulate engineering solutions that will deal with pressing local and national issue. 3. Ability to apply the best solution that will deal with pressing national and local issue.	E-02, E-07 to E-10, L-08 & 09, A-05, A-07 to 08, A- 11 to 16, P-01 to 20, P-26 to 29	Case Study	Rubric for Contemporary Issues	Oral and Written Report	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam
j	Recognition of the need for, and an ability to engage in lifelong learning and	1. Learn independently 2. Acquire relevant knowledge from outside sources to solve problems 3. Recognize one's weaknesses or mistakes as learning opportunities	M-01 to 09, E-01 to E-10, L-08 to 20, A-05, A-07 to 16, P-01 to 08, P-11 to P-20, P-23 to 24	On the Job Training	Rubric for Life Long Learning		Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam

k	Understanding of the impact of engineering solutions in global, economic, environmental and societal context.	1. Recognize the current effects of engineering solutions in a comprehensive context (e.g., new technologies, new regulations, environmental and energy issues, etc.)	M-01 to 09, S-01 to 03, E-07 to E-10, L-04, L-07 to 11, A-01, A-05 to 16, P-02 to 20, P-23 to 29	<i>Impact Study and Design Project</i>	<i>Rubric for solutions with multiple constraints and standards</i>	<i>Oral and Written Report</i>	Meeting and Consultation with the committee and Stakeholders	At least 30% of the students will get a score of 50% for problem set and 70% for plates and at least 50% of the students will get a score of 60% for final exam
		2. Apply appropriate engineering solutions to address the effect of current critical issues.						