Instructional Practices and Effectiveness Correlates to Institutional Academic Performance in Selected State Universities and Colleges in Metro Manila: Basis for a Proposed Intervention Measure

Dr. Allan Q. Quismundo

Graduate School Eulogio "Amang" Rodriguez Institute of Science and Technology, Manila, Philippines

DOI: https://doi.org/10.51584/IJRIAS.2026.11030019

Received: 20 March 2026; Accepted: 26 March 2026; Published: 31 March 2026

ABSTRACT

This study investigates the instructional practices and their effectiveness correlates to institutional academic performance in selected Higher Education Institutions (HEIs) in Metro Manila, focusing on administrators, faculty, and students in mechanical engineering programs. The research aims to assess current faculty instructional practices, professional profiles, and participation in training and development programs, as well as to determine how these factors relate to institutional academic outcomes. Data were collected through structured survey questionnaires and institutional records from 415 respondents across four HEIs Eulogio Amang Rodriguez Institute of Science and Technology, Polytechnic University of the Philippines, Rizal Technological University, and Technological University of the Philippines using a descriptive normative research design to provide both breadth and depth of analysis.

The results indicate that faculty generally demonstrate adequate instructional practices and engagement in professional development, while administrators and students report varying perceptions regarding teaching effectiveness and institutional support. Descriptive analyses revealed that professional development participation, instructional strategies, and faculty qualifications are positively associated with student learning outcomes and program performance. Significant gaps were noted in the integration of innovative teaching technologies, interdisciplinary approaches, and curriculum enhancement initiatives. Correlation analyses further suggest a moderate to strong relationship between faculty instructional practices and institutional academic performance.

Based on these findings, the study concludes that mechanical engineering programs in the selected HEIs exhibit competent faculty and structured instructional delivery; however, targeted interventions are needed to enhance faculty development, integrate advanced teaching technologies, and strengthen curriculum innovation. Implementing these strategies will improve teaching effectiveness, student learning outcomes, and overall institutional academic performance.

Keywords: Instructional Practices, Faculty Development, Mechanical Engineering Education, Higher Education Institutions, Academic Performance.

INTRODUCTION

The higher education sector, particularly in engineering education, encompasses instruction, research, extension services, and administrative functions that collectively shape the development of future professionals. Within mechanical engineering programs, faculty members serve as key drivers of knowledge transfer, innovation, and skills development, while institutional administrators and support personnel ensure the effective delivery of academic programs. Together, they form the backbone of Higher Education Institutions (HEIs), emphasizing the need for responsive instructional practices that align with global trends and technological advancements. While much attention is given to graduate employability and licensure performance, the quality of instructional practices and faculty preparedness remains equally critical, as these directly influence student competence, professional readiness, and institutional relevance. Faculty members, therefore, must be equipped with updated pedagogical approaches, technological competencies,

interdisciplinary perspectives, and continuous professional development opportunities to meet the evolving demands of engineering education.

The primary reason for conducting this study is to address the emerging challenges faced by mechanical engineering educators in adapting instructional practices within the context of rapid technological advancement, globalization, and the demands of Industry 4.0. The engineering profession is increasingly characterized by interdisciplinary collaboration, integration of cutting-edge fields such as nanotechnology, renewable energy, and biomedical engineering, and the use of advanced tools like simulation and visual prototyping. In the Philippines, mechanical engineering graduates are required to pass the licensure examination administered by the Professional Regulation Commission, which sets the minimum standard for professional practice. However, despite this regulatory framework, some higher education institutions face limitations in curriculum innovation, technology integration, and research-based instructional enhancement. These challenges are further compounded by diverse student needs, limited institutional resources, increasing demands for accountability, and the pressure to meet national and global standards of quality education. By examining instructional practices in mechanical engineering programs, this study aims to generate evidence-based insights that will assist educators, academic leaders, and policymakers in enhancing curriculum delivery, strengthening instructional effectiveness, and ensuring that graduates remain globally competitive.

This study draws on the Lifelong Learning Theory of Fulton-Calkins (2007), which emphasizes that continuous learning is essential for professional success in an ever-changing world. The theory highlights the importance of innovation, creativity, adaptability, and critical thinking as core competencies required in modern professions. In the context of engineering education, this perspective underscores the responsibility of educators to engage in ongoing professional development, research, and industry engagement to remain current with emerging trends and technologies. By integrating this theoretical lens, the study seeks to explore how instructional practices in mechanical engineering programs support continuous learning among educators and students, ultimately contributing to the development of competent, innovative, and industry-ready engineering graduates.

METHODOLOGY

The study on the Instructional Practices and Effectiveness Correlates to Institutional Academic Performance in selected Higher Education Institutions (HEIs) in Metro Manila employed a descriptive–normative research design, focusing primarily on quantitative approaches to generate a comprehensive understanding of existing instructional conditions. The descriptive component was utilized to determine and describe “what exists” in terms of faculty instructional practices, professional profiles, and training and development programs, while the normative aspect evaluated these practices against established standards to identify areas for improvement. This design was appropriate as it aimed to assess the current state of mechanical engineering education and provide a basis for a proposed intervention program.

Purposive and random sampling techniques were used to select respondents from four state universities in Metro Manila offering the Bachelor of Science in Mechanical Engineering program, namely Eulogio Amang Rodriguez Institute of Science and Technology, Polytechnic University of the Philippines, Rizal Technological University, and Technological University of the Philippines. These institutions are members of the Philippine Association of State Universities and Colleges and were selected due to their alignment with national standards in engineering education. A total of 415 respondents participated in the study, consisting of 8 administrators, 42 faculty members, and 365 students. The inclusion of these groups ensured representation across key stakeholders, enabling a comprehensive assessment of instructional practices from administrative, instructional, and learner perspectives.

Data collection involved the use of structured survey questionnaires to ensure systematic and consistent gathering of information. The instrument included closed-ended questions and Likert-scale items designed to measure faculty instructional practices, professional qualifications, and engagement in training and development programs. This quantitative approach facilitated the identification of patterns, trends, and relationships among variables, providing a clear basis for analysis of instructional effectiveness in mechanical engineering programs.

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

To strengthen the validity of the findings, relevant institutional records and documents related to faculty qualifications and professional development activities were also reviewed. The integration of survey data and documentary analysis enhanced the reliability of the results and allowed for cross-validation of information. Descriptive statistical tools such as frequency counts, percentages, and ranking were employed to analyze the data, enabling clear interpretation of the distribution and significance of responses.

In analyzing the survey results, the study recognized the possibility of response bias, including tendencies toward favorable or socially desirable answers. This may result in limited variability in responses or potential ceiling effects. To improve future research accuracy and sensitivity, it is recommended that survey instruments be refined by expanding Likert-scale options, incorporating reverse-coded items, and developing more behaviorally specific indicators. These enhancements will allow for a more nuanced assessment of instructional practices and their impact on institutional academic performance.

RESULTS AND DISCUSSION

1. How do the Dean/Department Heads, Faculty and students assess the practices of Bachelor of Science in Mechanical (BSME) Faculty members in selected State Universities and Colleges in Metro Manila in terms of:

Classroom Management and Discipline

Table 1 Assessment as to Classroom Management and Discipline

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Faculty/Instructor comes to the classroom on time.	4.44	E	4.10	VG	4.27	E	4.27	E	2
2. Attendance records are available to the students.	4.38	E	4.05	VG	4.20	E	4.21	E	4
3. Faculty/Instructor conducts makeup classes.	4.29	E	3.70	VG	4.10	VG	4.03	VG	6
4. Making efficient use of classroom time, including transitions between various classroom activities.	3.93	VG	3.85	VG	4.17	VG	3.98	VG	8
5. Faculty/Instructor announces when he/she will be absent for a day.	4.10	VG	3.80	VG	4.13	VG	4.01	VG	7
6. Faculty/Instructor calls student names during attendance.	4.35	E	4.20	E	4.43	E	4.33	E	1
7. Faculty/Instructor clearly communicate appropriate behaviors for particular classroom activity.	3.76	VG	3.55	VG	3.80	VG	3.70	VG	11
8. Classroom rules and routines are properly established.	3.91	VG	3.65	VG	3.93	VG	3.83	VG	10
9. Creating a physical arrangement that eases traffic flow, which minimizes distractions and provide Faculty/Instructors with good access to students in order to respond to their questions.	4.09	VG	3.50	VG	3.97	VG	3.85	VG	9
10. Proper academic atmosphere and discipline are maintained in all classes.	4.38	E	4.00	VG	4.30	E	4.23	E	3
11. Faculty/Instructor provide frequent opportunities for widespread class participation.	4.35	E	3.95	VG	4.27	E	4.19	VG	5
Overall Weighted Mean	**4.18**	**VG**	**3.85**	**VG**	**4.14**	**VG**	**4.06**	**VG**	

As shown in Table 1, the respondents assessed the indicators as to classroom management and discipline and were ranked as follows: rank 1, Faculty/Instructor calls students names during attendance, with a weighted

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

mean of 4.33, interpreted as excellent; rank 2, Faculty/Instructors come to the classroom on time, with a weighted mean of 4.27, interpreted as excellent; rank 3, proper academic atmosphere and discipline are maintained in all classes, with a weighted mean of 4.23, interpreted as excellent; rank 4, Attendance records are available to the students, with a weighted mean of 4.21, interpreted as excellent.

For rank 5, Faculty/Instructor provides frequent opportunities for widespread class participation, with a weighted mean of 4.19, interpreted as very good; rank 6, Faculty/Instructor conducts makeup classes, with a weighted mean of 4.03, interpreted as very good; rank 7, Faculty/Instructor announces when he/she will be absent for a day, with a weighted mean of 4.01, interpreted as very good;

For rank 8, Making efficient use of classroom time including transitions between various classroom activities, with a weighted mean of 3.98, interpreted as very good; rank 9, Creating a physical arrangement that eases traffic flow which minimizes distractions and provide Faculty/Instructors with good access to students in order to respond to their questions, with a weighted mean of 3.85, interpreted as very good; rank 10, Classroom rules and routines are properly established, with a weighted mean of 3.83, interpreted as very good; and rank 11, Faculty/Instructor clearly communicates appropriate behaviors for a particular classroom activity, with a weighted mean of 3.70 interpreted as very good, with an overall weighted mean of 4.06, verbally interpreted as very good.

This implies that the Faculty/Instructors conduct excellent practice of the following: calling students' names during attendance, observance of punctuality when coming to classroom, maintaining academic atmosphere during classes, and transparency on student attendance.

Similarly, the Faculty/Instructors in their practice of the following were very good; providing opportunities for class participation, conduct of make-up classes, informing the class whenever they would be absent, ensure traffic flow in the classroom to efficiently respond to student questions, establishment of classroom rules and routines and finally clearly observe appropriate behavior for classroom activity.

Consistent with these findings, Tarman (2016) presented the same result in his study which revealed that understanding students' basic psychological needs, establishing positive teacher-student relationship, and enhancing student motivation and learning are important factors to create a successful classroom management.

Curriculum and Instruction

Table 2 Assessment as to Curriculum and Instruction

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Copies of updated curriculum must be furnished to the students.	4.34	E	3.90	VG	4.25	E	4.16	VG	7
2. Use of team teaching, group techniques, programmed instruction, guided practice, and modern information and communications technology in the classroom.	3.94	VG	4.00	VG	4.34	E	4.09	VG	9
3. The instructional processes used are adapted to subject matter, the student's capacity, situational needs, suited to college-level instruction, coordinated with laboratory work, conducive to independent study, and related to actual life situations and practices.	4.03	VG	4.10	VG	4.20	E	4.11	VG	8
4. Insure that the subjects correspond to the description as given in the bulletin of information of the institution.	4.32	E	3.90	VG	4.30	E	4.17	VG	6

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

5.Subject topic sequence are logical and realistic.	4.50	E	4.20	E	4.23	E	4.31	E	4
6. Includes planned learning activities that allow students to practice problem solving and inquiry in settings based on their personal experiences and real-world applications, either in a real or virtual setting.	4.59	E	4.20	E	4.43	E	4.41	E	1
7. Develop students' ability to apply and generalize meaningfully to new issues and contexts.	4.41	E	4.20	E	4.33	E	4.31	E	3
8. Incorporates inquiry and truth verification language, techniques, and models that are compatible with domain experts' established practice.	4.50	E	4.20	E	4.43	E	4.38	E	2
9. Emphasizes interdisciplinary connections and integration, as well as assisting students in connecting what they learn in school with the concerns, challenges, and experiences that they face outside of the classroom.	4.29	E	4.10	VG	4.43	E	4.27	E	5
Overall Weighted Mean	**4.14**	**VG**	**3.95**	**VG**	**4.37**	**E**	**4.13**	**VG**	

As presented in table 2, five indicators were interpreted as excellent: rank 1, Includes planned learning activities that allow students to practice problem solving and inquiry in settings based on their personal experiences and real-world applications, either in a real or virtual setting, with a composite mean of 4.41; rank 2, Incorporates inquiry and truth verification language, techniques, and models that are compatible with domain experts' established practice, with a composite mean of 4.38; rank 3, Develop students' ability to apply and generalize meaningfully to new issues and contexts, with a composite mean of 4.31.

For rank 4, Subject topic sequences are logical and realistic, with a composite mean of 4.27; and rank 5, Emphasizes interdisciplinary connections and integration as well as assisting students in connecting what they learn in school with the concerns, challenges, and experiences that they face outside of the classroom, with a composite mean of 4.27. Four of the indicators were interpreted as very good; rank 6, Insure that the subjects correspond to the description as given in the bulletin of information of the institution, with a composite mean of 4.17; rank 7, copies of updated curriculum must be furnished to the students, with a composite mean of 4.16; rank 8, The instructional processes used are adapted to subject matter, the student's capacity, situational needs, suited to college-level instruction, coordinated with laboratory work, conducive to independent study, and related to actual life situations and practices, with a composite mean of 4.11; and rank 9, use of team teaching, group techniques, programmed instruction, guided practice, and modern information and communications technology in the classroom, with a composite mean of 4.09. The overall weighted mean is 4.13, verbally interpreted as very good.

This shows that the Faculty members of BSME in terms of curriculum and instruction plan students' activity based on their personal experiences, incorporates truth verification with experts, with topics that are logical and realistic while integrating and connecting what they learn to actual life situation and practices.

As supported by Flake (2017) skillful educators make information understood in an entertaining way. An educator with excellent knowledge might not be able to captivate the interests of the class compared to an entertaining instructor with excellent presentation skills. Effective educators possess a personality which is naturally captivating and unique to the individual reinforcing the humanistic approach in teaching.

Methodology and Strategies in Teaching

Table 3 Assessment as to Methodology and Strategies in Teaching

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. A variety of quality evaluation techniques are	4.50	E	4.37	E	4.54	E	4.47	E	1

used, (recitation, written exam, practical exams)									
2. Instructors personally rate examinations and other requirements submitted by students.	4.24	E	4.05	VG	4.27	E	4.19	VG	3
3. The method of arriving at the final mark is well defined and known to students.	4.38	E	4.10	VG	4.40	E	4.29	E	2
4. Final marks are fair appraisal of the students' performance throughout the entire course.	4.18	VG	4.00	VG	4.1	VG	4.09	VG	5
5. Release of Final mark is on time.	4.29	E	3.75	VG	4.17	VG	4.07	VG	6
6. Students are informed at the beginning of the course the basis of rating their performance and grades are given periodically.	4.41	E	3.85	VG	4.23	E	4.16	VG	4
Overall Weighted Mean	**4.33**	**E**	**4.02**	**VG**	**4.29**	**E**	**4.21**	**E**	

As presented in table 3, two indicators were interpreted as excellent: rank 1, A variety of quality evaluation techniques are used (recitation, written exam, practical exams), with a composite mean of 4.47; rank 2, The method of arriving at the final mark is well defined and known to students, with a composite mean of 4.29. Four of the indicators were interpreted as very good; rank 3, Instructors personally rate examinations and other requirements submitted by students, with a composite mean of 4.19.

For rank 4, Students are informed at the beginning of the course the basis of rating their performance, and grades are given periodically, with a composite mean of 4.16; rank 5, Final marks are fair appraisal of the students' performance throughout the entire course, with a composite mean of 4.07; and rank 6, Release of final mark is on time, with a composite mean of 4.07.

The results imply that there is appropriate overview on the methodology and strategies in teaching as manifested on the assessment of respondents, with the overall composited weighted mean of 4.21 and is interpreted as excellent.

Supporting this, Walter (2014) affirmed that the success or failure of teaching depends on the methods of teaching. Every good teaching is able to establish his own model of teaching in the course of his life-span of teaching. Good teaching sometimes gives rise to a good model of teaching. Teaching with teaching aids and scientific appliances will make students more attentive in the classroom.

Evaluation

Table 4 Assessment as to Evaluation

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Students are made aware by the faculty/instructor that there is an evaluation system that screens out students whose performance do not meet the requirements.	4.35	E	4.05	VG	4.23	E	4.21	E	3
2. Recognition and encouragement are given to exceptional students by, awarding honors, freedom from certain requirements, inclusion in the dean's list, and assigning to honor sections.	4.25	E	4.13	VG	4.37	E	4.25	E	2
3. Encouragement is given to slow, but deserving students by reduction of academic load and extension of time limit for the fulfillment of degree requirements, recommending a change of course, and provision of academic counseling.	3.99	VG	3.78	VG	4.08	VG	3.95	VG	5

4. Students are made aware by the faculty/instructor regarding the performance of the school for the licensure examinations in the last five (5) years.	4.21	E	3.85	VG	4.13	VG	4.06	VG	4
5. The faculty/instructors, where required, possess the necessary license to practice their profession.	4.35	E	4.25	E	4.40	E	4.33	E	1
Overall Weighted Mean	**4.23**	**E**	**4.01**	**VG**	**4.24**	**E**	**4.16**	**VG**	

As presented in table 4, three indicators were interpreted as excellent: rank 1, The faculty members, where required to possess the necessary license to practice their profession, with a composite mean of 4.33; rank 2, Recognition and encouragement are given to exceptional students by awarding honors, freedom from certain requirements, inclusion in the dean's list, and assigning to honor sections, with a composite mean of 4.25; rank 3, Students are made aware by the faculty/instructor that there is an evaluation system that screens out students whose performance do not meet the requirements, with a composite mean of 4.21. Two of the indicators were interpreted as very good; rank 4, Students are made aware by the faculty/instructor regarding the performance of the school for the licensure examinations in the last five (5) years, with a composite mean of 4.06; and rank 5, Encouragement is given to slow, but deserving students by reduction of academic load and extension of time limit for the fulfillment of degree requirements, recommending a change of course, and provision of academic counseling, with a composite mean of 3.95.

The results imply that there is appropriate overview on the evaluation as manifested on the assessment of respondents, with the overall composited weighted mean of 4.16 and is interpreted as very good.

This means that faculty/instructors were required to have a license to practice the profession. They also give recognition to exceptional students through an evaluation system that screens out students whose performances do not meet requirements. Students also are made aware of the licensure performance of the institute for encouragement, while slow students were given support through reduction of academic load and/or academic counselling.

Consistent with these findings, Akarrem & Hossain (2017) stressed that students' perception of their education quality is influenced by the previous education success of the school (licensure examinations), recognition (deans listing), and support for slow students through a supportive learning environment (load reduction and/academic counselling).

School-Community Linkages

Table 5 Assessment as to School-Community and Linkages

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Faculty/Instructors informs parents about the student's experience/academic performance and resources available on campus.	4.03	VG	3.90	VG	4.20	E	4.04	VG	3
2. Faculty/Instructors when applicable involves international practice in teaching.	3.91	VG	3.80	VG	4.00	VG	3.90	VG	6
3. Faculty/Instructors observes diversity on religious activity in the classroom when applicable.	3.91	VG	3.75	VG	3.97	VG	3.88	VG	7
4. Faculty/Instructors involves local civic organization in educating students when applicable.	4.12	VG	3.70	VG	4.10	VG	3.97	VG	4.5
5. Faculty/Instructors when applicable invites local business communities to improve students learning in preparation in their future work lives.	4.12	VG	3.70	VG	4.10	VG	3.97	VG	4.5
6. Faculty/Instructors when applicable highlights the national government agencies that students may be	4.29	E	4.30	E	4.50	E	4.36	E	1

involved in the future.									
7. Faculty/Instructors when applicable, informs students about the local government agencies connected to their school.	4.12	VG	3.95	VG	4.27	E	4.11	VG	2
Overall Weighted Mean	**4.07**	**VG**	**3.87**	**VG**	**4.16**	**VG**	**4.04**	**VG**	

As presented in table 5, only one indicator was interpreted as excellent: rank 1, Faculty/Instructors, when applicable, highlight the national government agencies that students may be involved in in the future, with a composite mean of 4.36. Six of the indicators were interpreted as very good; rank 2, Faculty/Instructors, when applicable, inform students about the local government agencies connected to their school, with a composite mean of 4.11; rank 3, Faculty/Instructors inform parents about the students' experience/academic performance and resources available on campus, with a composite mean of 4.04.

Tied for rank 4.5, Faculty/Instructors involve local civic organization in educating students when applicable and Faculty/Instructors, when applicable, invite local business communities to improve students learning in preparation in their future work lives, both with a composite mean of 3.97; rank 6, Faculty/Instructors, when applicable, involve international practice in teaching, with a composite mean of 3.90; and rank 7, Faculty/Instructors observe diversity on religious activity in the classroom when applicable, with a composite mean of 3.88.

The results imply that there is appropriate overview on the school-community linkages as manifested on the assessment of respondents with the composite weighted mean of 4.20, and is interpreted as very good.

In support of these findings, Gross et. al. (2015) Good school leadership, an inviting school culture, teacher dedication to student success, and collaboration and communication among partners were all elements that contributed to strong community relationships. It's not surprising that great school leadership, with a clear vision and a real desire to establish and maintain collaborative, mutually beneficial partnerships, has such a profound impact.

Communication Skills

Table 6 Assessment as to Communication Skills

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Voice adopted to situation, pleasant and non-threatening	4.38	E	4.05	VG	4.23	E	4.22	E	10
2. Listens as much as he/she needs to talk	4.41	E	4.15	VG	4.40	E	4.32	E	8
3. Uses appropriate terms, words, and or language	4.44	E	4.05	VG	4.33	E	4.27	E	9
4. Gives and seeks feedbacks	4.35	E	4.20	E	4.43	E	4.33	E	7
5. Uses a variety of functional verbal and non-verbal communications skills	4.24	E	4.30	E	4.47	E	4.34	E	6
6. Gives clear direction and explanation	4.41	E	4.40	E	4.57	E	4.46	E	1
7. Motivates students to ask questions	4.38	E	4.40	E	4.47	E	4.42	E	3
8. Uses questions that lead students to analyze, synthesize and think critically	4.35	E	4.30	E	4.50	E	4.38	E	5
9. Accepts varied student's viewpoint and/or ask students to extend or elaborate answers and ideas	4.41	E	4.35	E	4.53	E	4.43	E	2
10. Expresses a positive personal attitude toward the teaching profession	4.35	E	4.40	E	4.47	E	4.41	E	4
Overall Weighted Mean	**4.37**	**E**	**4.26**	**E**	**4.44**	**E**	**4.36**	**E**	

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

As presented in table 6, all of the indicators are interpreted as excellent: rank 1, Gives clear direction and explanation, with a composite mean of 4.46; rank 2, Accepts varied student's viewpoint and/or ask students to extend or elaborate answers and ideas, with a composite mean of 4.43; rank 3, Motivates students to ask questions, with a composite mean of 4.42.

For rank 4, Expresses a positive personal attitude toward the teaching profession, with a composite mean of 4.41; rank 5, Uses questions that lead students to analyze, synthesize and think critically, with a composite mean of 4.38; rank 6, Uses a variety of functional verbal and non-verbal communications skills, with a composite mean of 4.34;

For rank 7, Gives and seeks feedbacks, with a composite mean of 4.33; rank 8, Listens as much as he/she needs to talk, with a composite mean of 4.32; rank 9, Uses appropriate terms, words, and or language, with a composite mean of 4.27; and rank 10, Voice adopted to situation, pleasant and non-threatening, with a composite mean of 4.22.

The results imply that there is appropriate overview on the communication skills as exhibited on the assessment of respondents with the composite overall weighted mean of 4.36, and is interpreted as excellent.

The results indicated that effective teaching not only depends upon the knowledge base of the teacher but is also related to the method and style of the teacher's communication abilities. This is also in line with Khan et. al. (2017) where they concluded that Teaching is generally considered as only fifty percent knowledge and fifty percent interpersonal or communication skills. Similarly, it is not necessary for a teacher to have good knowledge but it is also necessary for a teacher to have good communication skills.

Human Relations Skills

Table 7 Assessment as to Human Relations Skills

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. The faculty/instructors observes the Code of Ethics.	4.35	E	4.45	E	4.60	E	4.47	E	1
2. Faculty/Instructors is an active member of a faculty association.	4.19	VG	4.28	E	4.37	E	4.28	E	3
3. Faculty/Instructors encourage interdisciplinary/inter-college discussions.	4.41	E	4.00	VG	4.27	E	4.23	E	5.5
4. The faculty are involved in the formulation of the institution's purposed and objectives and policy making opportunities.	4.29	E	4.05	VG	4.27	E	4.20	E	10.5
5. Academic committees include the faculty members.	4.21	E	4.10	VG	4.33	E	4.21	E	8.5
6. Communication lines between faculty/instructor and students are open.	4.18	VG	4.15	VG	4.23	E	4.19	VG	12
7. Faculty/Instructor practices academic freedom.	4.24	E	4.05	VG	4.30	E	4.20	VG	10.5
8. There is a provision for a grievance committee.	4.00	VG	4.25	E	4.37	E	4.21	E	8.5
9. There are opportunities for faculty-student dialogues.	4.12	VG	4.00	VG	4.27	E	4.13	VG	13
10. Faculty members are responsive to students' needs.	4.47	E	4.20	E	4.43	E	4.37	E	2
11. Faculty members are available for academic advising and consultation.	4.06	VG	3.95	VG	4.20	E	4.07	VG	15

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

12. The faculty participates in co-curricular/extra-curricular activities.	4.24	E	3.80	VG	4.20	E	4.08	VG	14
13. The faculty responds positively to grievances expressed by students.	4.38	E	4.00	VG	4.33	E	4.24	E	4
14. There is an atmosphere of accessibility of faculty to students.	4.26	E	4.10	VG	4.30	E	4.22	E	7
15. Faculty members have healthy relationship with the non-academic personnel.	4.18	VG	4.15	VG	4.37	E	4.23	E	5.5
16. Faculty members actively participate in school projects and services.	4.00	VG	3.8	VG	4.03	VG	3.94	VG	16
Overall Weighted Mean	**4.22**	**E**	**4.08**	**VG**	**4.3**	**E**	**4.20**	**E**	

As presented in table 7, eleven of the indicators were interpreted as excellent: rank 1, The faculty observes the Code of Ethics, with a composite mean of 4.47; rank 2, Faculty members are responsive to students' needs, with a composite mean of 4.37; rank 3, There is a functional faculty association, with a composite mean of 4.28; rank 4, The faculty responds positively to grievances expressed by students, with a composite mean of 4.24.

For rank 7, There is an atmosphere of accessibility of faculty to students, with a composite mean of 4.22; rank 8.5, Academic committees include the faculty members, and there is a provision for a grievance committee, both with a composite mean of 4.4.21; rank 10.5, Academic committees include the faculty members, and Faculty/Instructor practices academic freedom, both with a composite mean of 4.20.

For rank 14, the faculty participates in co-curricular/extra-curricular activities, with a composite mean of 4.08; rank 15, Faculty members are available for academic advising and consultation, with a composite mean of 4.07; and rank 16, Faculty members actively participate in school projects and services, with a composite mean of 3.94.

The results imply that there is appropriate overview on the human relations skills as presented on the assessment of respondents, with the composite overall weighted mean of 4.20, and is interpreted as excellent.

According to the findings of da Luz (2015) when teachers hold a positive relationship with students, they certainly impact students' interests in school and therefore their level of achievement. Findings from their surveys showed that teachers feel that when they know their students, and they hold a good relationship with them, students are more focused and they work harder, thus, they can better achieve their goals. This means that teachers who are more available to connect with their students, be open to their students, and care about them, will have a better chance to cultivate a positive relationship with them and students will respond well to these situations showing commitment to the class and their motivation to do well in class will increase.

Mastery of Subject Matter

Table 8 Assessment as to Mastery of Subject Matter

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Faculty members are presenting the lessons and directing discussions with finesse	4.35	E	4.15	VG	4.33	E	4.28	E	2
2. Faculty members are giving detailed and redundant explanations for difficult points, while focusing at one thought at a time	4.29	E	4.00	VG	4.33	E	4.21	E	6.33
3. Faculty members are weaving opinions and facts into a meaningful relationship	4.29	E	4.20	E	4.33	E	4.27	E	3

4. Faculty members are providing new and more accurate information when necessary	4.15	VG	4.20	E	4.43	E	4.26	E	4
5. Faculty members are using questions at a variety of levels and those that encourage wide student participation	4.15	VG	4.15	VG	4.33	E	4.21	E	6.33
6. Faculty members are utilizing varied teaching techniques and strategies suitable for each type of lesson taught	4.18	VG	4.05	VG	4.33	E	4.19	VG	9
7. Faculty members are relating the subject matter with current trends, relevant issues and worthwhile practices	4.38	E	4.20	E	4.47	E	4.35	E	1
8. Faculty members are manifesting the ability to extend explanations of difficult subject areas beyond the content of the textbooks and in relation with other subject areas	4.26	E	4.05	VG	4.33	E	4.21	E	6.33
9. Faculty members are making concepts and principles understandable to the students	4.26	E	3.85	VG	4.23	E	4.11	VG	10
10. Faculty members are using the principles of learning as a means of developing the students' skills and competencies in the subject area	4.41	E	3.95	VG	4.3	E	4.22	E	5
Overall Weighted Mean	**4.27**	**E**	**4.08**	**VG**	**4.34**	**E**	**4.23**	**E**	

As presented in table 8, eight of the indicators were interpreted as excellent: rank 1, Faculty members are relating the subject matter with current trends, relevant issues and worthwhile practices, with a composite mean of 4.35; rank 2, Faculty members are presenting the lessons and directing discussions with finesse, with a composite mean of 4.28; rank 3, Faculty members are weaving opinions and facts into a meaningful relationship, with a composite mean of 4.27.

For rank 4, Faculty members are providing new and more accurate information when necessary, with a composite mean of 4.26; rank 5, Faculty members are using the principles of learning as a means of developing the students' skills and competencies in the subject area, with a composite mean of 4.22; Tied at rank 6.33, Faculty members are giving detailed and redundant explanations for difficult points, while focusing at one thought at a time, Faculty members are using questions at a variety of levels and those that encourage wide student participation, and Faculty members are manifesting the ability to extend explanations of difficult subject areas beyond the content of the textbooks and in relation with other subject, areas all three with a composite mean of 4.21.

Two of the indicators were rated very good: rank 9, Faculty members are utilizing varied teaching techniques and strategies suitable for each type of lesson taught, with a composite mean of 4.19; and rank 10, Faculty members are making concepts and principles understandable to the students, with a composite mean of 4.11.

The results imply that there is appropriate overview on the mastery of subject matter as displayed on the assessment of respondents, with the composite overall weighted mean of 4.23, and is interpreted as excellent.

Similarly, Kamamia et. al. (2014) stressed that teachers must master the subject matter before passing it on to students since this allows them to adequately prepare for content delivery. Teachers are obliged to simplify knowledge in specific subjects for learners' understanding as part of their preparations, and this is achievable if teachers receive training in colleges. Mastery of subject matter equips teachers with critical thinking abilities and the ability to assist their students in acquiring the necessary knowledge, skills, attitudes, and values. For them to be able to explain to the learners, the student-teachers' understanding of the subject matter should go beyond the bounds of the curriculum, because they can maneuver around it.

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

Research and Extension

Table 9 Assessment as to Research and Extension

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. The students are made aware of the relations/linkages with the various sectors of the community where they can make an impact.	4.41	E	4.35	E	4.43	E	4.4	E	1
2. The College's educational philosophy, policies, programs and services are evident in the classroom and during extension activities	4.15	VG	4.20	E	4.30	E	4.22	E	8.5
3. The college provides the entire college community with adequate opportunities and motivation to know the conditions and needs of the outside community through course practicum/apprenticeship requirements	4.29	E	4.15	VG	4.30	E	4.25	E	6
4. Whenever possible, faculty/Instructors inform students the importance of sharing resources with the community	4.26	E	3.95	VG	4.23	E	4.15	VG	11
5. The Faculty/Instructor explains the college/university outreach programs, projects and activities	4.38	E	4	VG	4.30	E	4.23	E	7
6. Faculty/Instructors of NSTP priorities Projects that benefits the immediate communities where it is located.	4.38	E	4.1	VG	4.33	E	4.27	E	5
7. When applicable Faculty/Instructors practices extension activities where students can participate.	4.15	VG	3.90	VG	4.20	E	4.08	VG	12
8. When applicable Faculty/Instructors informs students about Research Priorities and relevance	4.53	E	4.20	E	4.43	E	4.39	E	2
9. Faculty/Instructors informs students of research Funding, instructional support and other resources	4.35	E	4.15	VG	4.37	E	4.29	E	4
10. Faculty/Instructors are involved in research outputs	4.18	VG	4.20	E	4.27	E	4.22	E	8.5
11. Faculty/Instructors have research publications that students are aware of.	4.21	E	4.05	VG	4.30	E	4.19	VG	10
12. When applicable, Faculty/Instructors emphasizes the impact of research on community development	4.41	E	4.25	E	4.47	E	4.38	E	3
Overall Weighted Mean	**4.29**	**E**	**4.09**	**VG**	**4.30**	**E**	**4.23**	**E**	

As presented in table 9, nine of the indicators were interpreted as excellent: rank 1, the students are made aware of the relations/linkages with the various sectors of the community where they can make an impact, with a composite mean of 4.40; rank 2, When applicable, Faculty/Instructors inform students about Research Priorities and relevance, with a composite mean of 4.39; rank 3, When applicable, Faculty/Instructors emphasize the impact of research on community development, with a composite mean of 4.38;

For rank 4, Faculty/Instructors inform students of research Funding, instructional support and other resources, with a composite mean of 4.29; rank 5, Faculty/Instructors of NSTP prioritizes Projects that benefit the immediate communities where it is located, with a composite mean of 4.27; rank 6, The college provides the entire college community with adequate opportunities and motivation to know the conditions and needs of the

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

outside community through course practicum/apprenticeship requirements, with a composite mean of 4.25; rank 7, When applicable, Faculty/Instructors practice extension activities where students can participate, with a composite mean of 4.23;

Tied at rank 8.5, The College's educational philosophy, policies, programs and services are made known to the community and Faculty/Instructors are involved in research outputs, both with a composite mean of 4.22. Three of the indicators were assessed as very good: rank 10, Faculty/Instructors have research publications that students are aware of, with a composite mean of 4.19; rank 11, Whenever possible, faculty/Instructors inform students the importance of sharing resources with the community, with a composite mean of 4.15; and rank 12, When applicable, Faculty/Instructors practice extension activities where students can participate with a composite mean of 4.08.

The results infer that there is appropriate overview on the research and extension as exhibited on the assessment of respondents, with the composite overall weighted mean of 4.23, and is interpreted as excellent.

Similarly, Begunova & Qingyu (2019) stated that the fact that we emphasize research competency while discussing teaching competencies may appear unclear or misleading. Because the term "research" is commonly linked with scientists and academics, but not with other types of educators. However, their findings demonstrate that research competency is critical for a teacher, particularly at the university level. It enables instructors to advance professionally, improve their skills and abilities, and keep current in their field as educators.

Table 10 Summary of Assessment as to the Practices of the BSME Faculty Members

Indicators	Student		Faculty		Dean		Composite		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Classroom Management and Discipline	4.18	VG	3.85	VG	4.14	VG	4.06	VG	8
2. Curriculum and Instruction	4.14	VG	3.95	VG	4.37	E	4.13	VG	7
3. Methodology and Strategies in Teaching	4.33	E	4.02	VG	4.29	E	4.21	E	4
4. Evaluation	4.23	E	4.01	VG	4.24	E	4.16	VG	6
5. School-Community Linkages	4.07	VG	3.87	VG	4.16	VG	4.04	VG	9
6. Communication Skills	4.37	E	4.26	E	4.44	E	4.36	E	1
7. Human Relations Skills	4.22	E	4.08	VG	4.30	E	4.20	E	5
8. Mastery of Subject Matter	4.27	E	4.08	VG	4.34	E	4.23	E	2.5
9. Research and Extension	4.29	E	4.09	VG	4.30	E	4.23	E	2.5
Overall Weighted Mean	**4.23**	**E**	**4.02**	**VG**	**4.29**	**E**	**4.18**	**VG**	

Table 10 shows each indicator as assessed by the three groups of respondents and were ranked per weighted mean. Five of the indicators were interpreted as excellent: rank 1, Communication Skills ranked first with a composite weighted mean of 4.36; tied at rank 2.5, Mastery of Subject Matter, and Research and Extension, both with a composite weighted mean of 4.23; rank 4, Methodology and Strategies in Teaching, with a composite weighted mean of 4.21; and rank 5, Human relation skills with a composite weighted mean of 4.20. Additionally, four of the indicators were interpreted as very good: rank 6, Evaluation, with a composite weighted mean of 4.16; rank 7, Curriculum and Instruction, with a composite weighted mean of 4.13; rank 8, Classroom Management and Discipline, with a composite weighted mean of 4.06; and rank 9, School-Community Linkages, with a composite weighted mean of 4.18.

Based on the results shown in table 14, it denotes that the Level of Competencies of the Engineering Faculty Members was interpreted as very good, with an overall composite weighted mean of 4.18, interpreted as very good.

Sub-Problem No. 2 Is there a significant difference among the assessment of the three (3) groups of respondents on the aforementioned variables?

Table 11 Comparison of Assessments of the Groups of Respondents on the Practices of the BSME Faculty Members

Source of Variation	SS	df	MS	F	CV	Decision	VI
Classroom Management and Discipline							
Between Groups	0.72	2	0.0473	7.6471	3.3158	Reject	S
Within Groups	1.42	30					
Curriculum and Instruction							
Between Groups	0.34	2	0.0237	7.0941	3.4028	Reject	S
Within Groups	0.57	24					
Methodology and Strategies in Teaching							
Between Groups	0.34	2	0.0287	5.9438	3.6823	Reject	S
Within Groups	0.43	15					
Evaluation							
Between Groups	0.17	2	0.0266	3.1471	3.8853	Failed to Reject	NS
Within Groups	0.32	12					
School-Community Linkages							
Between Groups	0.31	2	0.0320	4.8586	3.5546	Reject	S
Within Groups	0.58	18					
Communication Skills							
Between Groups	0.17	2	0.0108	7.6609	3.3541	Reject	S
Within Groups	0.29	27					
Human Relations Skills							
Between Groups	0.40	2	0.0207	9.6682	3.2043	Reject	S
Within Groups	0.93	45					
Mastery of Subject Matter							
Between Groups	0.37	2	0.0091	20.0551	3.3541	Reject	S
Within Groups	0.25	27					
Research and Extension							
Between Groups	0.30	2	0.0128	11.6862	3.2849	Reject	S
Within Groups	0.42	33					

Level of significance = 0.05

As shown in Table 11, comparing the assessments of the three groups of respondents yielded computed F of 7.6471 for Classroom Management and Discipline; 7.0941 for Curriculum and Instruction; 5.9438 for Methodology and Strategies in Teaching; 3.1471 for Evaluation; 4.8586 for School-Community Linkages; 7.6609 for Communication Skills; 9.6682 for Human Relations Skills; 20.0551 for Mastery of Subject Matter; and 11.6862 for Research and Extension.

Additionally, Evaluation fell below its critical F value of 3.8853 at five percent level of significance and is verbally interpreted as not significant. These values lead in failing to reject the null hypothesis that there is no significant difference on the assessment of the three groups of respondents on the Level of Competencies of the Engineering Faculty Members.

However, the following sources of variation exceeded their critical F value at five percent level of significance: 3.3158 for Classroom Management and Discipline; 3.4028 for Curriculum and Instruction; 3.6823 for Methodology and Strategies in Teaching; 3.5546 for School-Community Linkages; 3.3541 for Communication Skills; 3.2043 for Human Relations Skills; 3.3541 for Mastery of Subject Matter; and 3.2849 for Research and Extension. These values lead to rejecting the null hypothesis that there is no significant difference on the assessment of the three groups of respondents on the Level of Competencies of the Engineering Faculty Members.

This means that the three groups of respondents have significant differences on the Level of Competencies of the Engineering Faculty Members as to its Evaluation, but have different valuation as to its "Classroom Management and Discipline", "Curriculum and Instruction", "Methodology and Strategies in Teaching", "School-Community Linkages", "Communication Skills", "Human Relations Skills", "Mastery of Subject Matter", and "Research and Extension".

Table 12 Post analysis of the assessment of the respondents on the Practices of the BSME Faculty Members

		Difference	df	q	MS	T	Means Difference
Classroom Management and Discipline							
Student	Faculty	0.33					FALSE
Faculty	Administrator	0.29	30	3.49	0.047	0.14	FALSE
Administrator	Student	0.04					TRUE
Curriculum and Instruction							
Student	Faculty	0.24					FALSE
Faculty	Administrator	0.24	24	3.53	0.024	0.11	FALSE
Administrator	Student	0.00					TRUE
Methodology and Strategies in Teaching							
Student	Faculty	0.31					FALSE
Faculty	Administrator	0.26	15	3.7	0.029	0.16	FALSE
Administrator	Student	0.05					TRUE
School-Community Linkages							
Student	Faculty	0.20					FALSE
Faculty	Administrator	0.29	18	3.61	0.032	0.15	FALSE
Administrator	Student	0.09					TRUE
Communication Skills							
Student	Faculty	0.11					FALSE
Faculty	Administrator	0.18	27	3.49	0.011	0.07	FALSE
Administrator	Student	0.07					TRUE
Human Relations Skills							
Student	Faculty	0.14					FALSE
Faculty	Administrator	0.22	45	3.44	0.021	0.07	FALSE
Administrator	Student	0.08					FALSE
Mastery of Subject Matter							
Student	Faculty	0.19					FALSE
Faculty	Administrator	0.26	27	3.49	0.009	0.06	FALSE
Administrator	Student	0.07					FALSE

Research and Extension							
Student	Faculty	0.18					FALSE
Faculty	Administrator	0.20	33	3.49	0.013	0.07	FALSE
Administrator	Student	0.02					TRUE

In the ANOVA test carried out for the assessment of the respondents on the Level of Competencies of the Engineering Faculty Members in terms of "Classroom Management and Discipline", "Curriculum and Instruction", "Methodology and Strategies in Teaching", "School-Community Linkages", "Communication Skills", and "Research and Extension", a statistically significant difference at the level of $p<0.05$ was found between the assessment of faculty.

However, in the assessment of the respondents in terms of "Human Relations Skills" and "Mastery of Subject Matter" a statistically significant difference at the level of $p<0.05$ was found between the assessment of the three groups of respondents.

This result implies that in terms of "Classroom Management and Discipline", "Curriculum and Instruction", "Methodology and Strategies in Teaching", "School-Community Linkages", "Communication Skills", and "Research and Extension" the group of Administrators and Students have the same valuation, but the three groups of respondents have different valuation with each other as to the "Human Relations Skills" and "Mastery of Subject Matter" on their assessment on the Level of Competencies of the Engineering Faculty Members.

Sub-Problem No. 3 What is the performance of the College of Engineering in the Licensure Examinations for the last three (3) years?

Table 13 Passing Percentage of Selected NCR SUCs on the Mechanical Engineering Licensure Examinations for the year 2017 - 2019

Batch	SUC 1	SUC 2	SUC 3	SUC 4	Average Rating	National Passing %
March, 2017	16.67	76.32	38.46	55.56	46.75	48.72
September, 2017	26.67	82.79	43.84	91.28	61.15	29.52
February, 2018	35.29	48.84	15.38	41.67	35.30	45.45
August, 2018	26.19	80.35	40.98	88.08	58.90	48.59
February, 2019	13.51	41.18	43.59	50.00	37.07	35.63
August, 2019	48.11	88.19	69.23	85.88	72.85	43.07
Average	**27.74**	**69.61**	**41.91**	**68.75**	**52.00**	**41.83**

Table 13 presents the passing percentage of the four selected state colleges and universities in NCR on the Mechanical Engineering Licensure Examinations from year 2017 to 2019. It can be gleaned in table 17 that SUC 2 from year 2017 to 2019 has been constantly going above the National Passing Percentage (NPP). In addition, SUC 4 only went below the national passing percentage on the February 2018 ME licensure examinations.

SUC 3 failed to reach the national passing percentage thrice during the span of 2017 – 2019, crediting to its result on March 2017 with a rating of 38.46% compared to the NPP of 48.72%, February and August 2018 with a rating of 15.38% and 40.98% compared to 45.45% and 48.59% respectively.

Furthermore, SUC 1, for the years 2017 – 2019, only exceeded the national passing percentage on the August 2019 ME licensure examinations compared to the NPP of 43.07.

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

Sub-Problem No. 4 Is there a significant relationship between the competence of faculty and the institutional performance?

Table 14 Relationship between the practices of BSME faculty and the institutional Mechanical Engineering licensure exam performance

	CLASSROOM MANAGEMENT & DISCIPLINE	CURRICULUM AND INSTRUCTION	METHODOLOGY AND STRATEGIES IN TEACHING	EVALUATION	SCHOOL-COMMUNITY LINKAGES	COMMUNICATION SKILLS	HUMAN RELATIONS SKILLS	MASTERY OF SUBJECT MATTER	RESEARCH AND EXTENSION	Avg. Performance for the Last three years
SUC 1	3.69	3.90	3.93	3.89	3.89	4.18	3.97	3.90	3.97	27.74
SUC 2	4.10	4.32	4.27	4.14	3.97	4.35	4.14	4.32	4.20	69.61
SUC 3	4.29	4.33	4.41	4.41	4.26	4.54	4.35	4.45	4.32	41.91
SUC 4	4.14	4.06	4.25	4.20	4.00	4.33	4.34	4.26	4.42	68.75
Spearman rho	0.20	0.40	0.40	0.20	0.20	0.40	0.20	0.40	0.40	

Shown on table 14 the average performance of SUC 1, SUC 2, SUC 3, and SUC 4, with ratings of 27.74, 69.61, 41.91 and 68.75 respectively for the year 2017 – 2019.

The practices of faculty in classroom management and discipline, evaluation, school-community linkages, and human relations skills, have a Spearman's correlation coefficient of 0.20, verbally interpreted having a weak correlation.

Similarly, in terms of curriculum and instruction, methodology and strategies in teaching, communication skills, research and extension, and mastery of subject matter have a correlation coefficient of 0.40 verbally interpreted having a moderate correlation.

Sub-Problem No. 5 What are the facilitating and hindering factors encountered by the respondents?

Table 15 Assessment as to Hindering Factors

Indicators	STUDENTS		FACULTY		Composite		Rank
	WM	VI	WM	VI	WM	VI	
1.Exceeding the maximum size of students in lecture classes	4.61	HE	4.02	E	4.32	HE	13.5
2.Exceeding the maximum size of students in professional courses	4.23	HE	4.18	E	4.21	HE	16

ISSN No. 2454-6194 | DOI: 10.51584/IJRIAS |Volume XI Issue III March 2026

3.limited application of techniques in instruction delivery (e.g. Team Teaching, group techniques, programmed instruction, on-the-job training / apprenticeship, and modern information and communications technology)	4.40	HE	4.27	HE	4.34	HE	11
4.Flexibility of instructional processes in delivering instruction	4.09	E	4.63	HE	4.36	HE	9.5
5.Regular information dissemination regarding the basis of rating student performance and grades	4.07	E	4.25	HE	4.16	E	18
6.Knowledge of students in the method for computing their final mark	4.33	HE	4.39	HE	4.36	HE	9.5
7.Lack of academic counseling for students with learning deficiency.	4.31	HE	4.54	HE	4.43	HE	8
8.No Bulletin board of the Course that shows performance of Mechanical Engineering Students on the licensure examination for the last 5 years	4.06	E	4.29	HE	4.18	E	17
9.There's a dedicated office that deals with linkages and networking with Local Government Agencies	4.22	HE	4.67	HE	4.45	HE	6.5
10.There's a dedicated office that deals with linkages and networking to church officials	4.60	HE	4.36	HE	4.48	HE	4
11.Unpleasant and threatening voice of Faculty Members	4.55	HE	4.70	HE	4.63	HE	1
12.Uses of inappropriate terms, words and languages of Faculty Members	4.25	HE	4.64	HE	4.45	HE	6.5
13.Inactive participation of faculty members in school projects and services	4.29	HE	4.33	HE	4.31	HE	15
14.Unavailability of faculty members for academic advising and consultation	4.67	HE	4.25	HE	4.46	HE	5
15.Unvaried teaching techniques and strategies that are unsuitable on the lesson being taught	4.18	E	4.45	HE	4.32	HE	13.5
16.Faculty members are not making sure that the concepts and principles of the lesson is understood by the students	4.56	HE	4.63	HE	4.60	HE	2
17.There are no evidences that the college / university shares its resources with the community	4.37	HE	4.62	HE	4.50	HE	3
18.College / University Research does not impact community development	4.38	HE	4.28	HE	4.33	HE	12
Overall Mean	**4.34**	**HE**	**4.42**	**HE**	**4.38**	**HE**	

Table 15 shows the assessments of the two groups of respondents, Faculty and Students, on the facilitating and hindering factors encountered by the respondents. It shows sixteen highly encountered facilitating and hindering factors by the groups of students and faculty members: At rank 1, "Unpleasant and threatening voice of Faculty Members"; rank 2, "Faculty members are not making sure that the concepts and principles of the lesson is understood by the students"; rank 3, "There are no evidences that the college / university shares its resources with the community."

Rank 4, "There's a dedicated office that deals with linkages and networking to church officials"; rank 5, "Unavailability of faculty members for academic advising and consultation"; tied on rank 6.5, "There's a dedicated office that deals with linkages and networking with Local Government Agencies" and "Uses of inappropriate terms, words and languages of Faculty Members"; rank 8, "Lack of academic counseling for students with learning deficiency."

Tied at rank 9.5, "Flexibility of instructional processes in delivering instruction" and "Knowledge of students in the method for computing their final mark"; rank 11, "limited application of techniques in instruction delivery (e.g. Team Teaching, group techniques, programmed instruction, on-the-job training / apprenticeship, and modern information and communications technology)"; rank 12, "College / University Research does not impact community development."

Tied at rank 13.5, "Exceeding the maximum size of students in lecture classes" and "Unvaried teaching techniques and strategies that are unsuitable on the lesson being taught"; rank 15, "Inactive participation of faculty members in school projects and services"; rank 16, "Exceeding the maximum size of students in professional courses" with a composite weighted mean of 4.63, 4.60, 4.50, 4.48, 4.46, 4.45, 4.43, 4.36, 4.34, 4.33, 4.32, 4.31, and 4.21 respectively.

Similarly, rank 17 and 18 of the facilitating and hindering factors encountered by the group of respondents with a verbal interpretation of "Encountered" are No "Bulletin board of the Course that shows performance of Mechanical Engineering Students on the licensure examination for the last 5 years" and "Regular information dissemination regarding the basis of rating student performance and grades" with a composite weighted mean of 4.18 and 4.16 respectively.

These results show that, in general, the exceeding of the maximum class size, flexibility of instruction delivery, transparency on details pertaining to students' grades, counseling, linkages and networking, verbal interaction with faculty members and their participation, their teaching techniques, and research impact to community are regarded as highly encountered facilitating and hindering factors by the groups of respondents.

Sub-Problem No. 6 Based on the findings of the study, what intervention program may be proposed?

Based on the findings of the study, an intervention program may be proposed to enhance the delivery system of the Bachelor of Science in Mechanical Engineering (BSME) program. The proposed intervention plan is designed to address identified gaps in faculty competencies and institutional performance, particularly in relation to licensure examination outcomes. It encompasses key components such as key result areas, specific objectives, strategic actions, program implementation, required resources including personnel and financial support and corresponding performance indicators to ensure effective monitoring and evaluation.

The rationale for this intervention stems from the evolving demands of the Philippine educational system, which necessitate continuous assessment and improvement of faculty competencies in relation to institutional licensure examination performance. With the implementation of CHED Memorandum Order No. 97, series of 2017, which emphasizes outcomes-based education and quality assurance in the BSME program, higher education institutions may align their instructional practices with global standards. However, existing gaps in instructional delivery and faculty competencies highlight the need for a targeted intervention plan that focuses on improving the overall effectiveness of the program.

In this context, the proposed intervention aims to enhance various dimensions of faculty competencies and instructional delivery. Specifically, it may focus on improving classroom management and discipline through the establishment of a class size reduction program, strengthening curriculum and instruction by enhancing the quality of teaching delivery, and supplementing institutional policies to support effective teaching methodologies and strategies. Furthermore, the plan may include initiatives to strengthen faculty capabilities in student evaluation, increase linkages and networking with relevant stakeholders, enhance communication and interpersonal skills, and promote continuous faculty development to improve mastery of subject matter. Additionally, it may aim to expand the impact of research and extension activities to better serve the community and contribute to institutional development. Collectively, these efforts may support the advancement of the BSME program toward improved academic performance and greater success in licensure examinations.

CONCLUSIONS

Based on the findings, the respondents generally perceive that the competencies of Bachelor of Science in Mechanical Engineering (BSME) faculty members are high or extensive across key domains, including

classroom management and discipline, curriculum and instruction, teaching methodologies and strategies, evaluation practices, school–community linkages, communication skills, human relations skills, mastery of subject matter, and research and extension. This indicates that engineering faculty members demonstrate strong professional capabilities in delivering instruction and fulfilling their academic roles, particularly in supporting student learning and institutional objectives.

The analysis further reveals that administrators and students share similar assessments in areas such as classroom management and discipline, curriculum and instruction, methodology and strategies in teaching, school–community linkages, communication skills, and research and extension. However, variations in perceptions were observed among the three groups of respondents administrators, faculty, and students particularly in human relations skills and mastery of subject matter. These differences suggest perceptual gaps that may be influenced by role expectations, interaction levels, and evaluative standards within the academic environment.

In terms of institutional performance, only one State University and College (SUC 1) exceeded the national passing percentage in the August 2019 Mechanical Engineering licensure examination within the 2017–2019 period. This highlights disparities in institutional outcomes and indicates that SUC 1 stands to benefit most from the proposed enhancement program. Moreover, the findings confirm that the instructional practices of BSME faculty members are significantly related to licensure examination performance, as evidenced by their correlation coefficients. This underscores the critical role of effective teaching practices in improving student success in professional examinations.

Additionally, respondents identified several factors as both facilitating and hindering influences on faculty competencies and student outcomes. These include class size exceeding the prescribed limits, flexibility in instructional delivery, transparency in grading, availability of counseling services, linkages and networking, faculty–student verbal interaction, teaching techniques, and the impact of research on the community. Despite being highly encountered, these factors present opportunities for improvement to further strengthen instructional effectiveness and student preparedness.

Building on these findings, BSME faculty members demonstrate strong readiness and commitment to their teaching and professional responsibilities. While challenges such as large class sizes, instructional constraints, and varying levels of engagement exist, these are manageable through targeted institutional support. The proposed intervention plan is therefore considered a highly promising initiative, designed to enhance faculty competencies and better prepare students for licensure examinations. Strategic efforts focusing on instructional improvement, faculty development, strengthened linkages, and enhanced research engagement are essential to sustain academic excellence and improve overall institutional performance.

RECOMMENDATIONS

Based on the findings and conclusions presented, the following recommendations are hereby suggested:

1. Faculty members may enhance instructional delivery by establishing and sustaining partnerships with both local and international industries. Such collaborations may facilitate the integration of current best practices, emerging technologies, and real-world applications into the teaching–learning process.
2. Faculty members may further develop their instructional competencies through active participation in professional development programs, seminars, and trainings. These initiatives may focus on Industry 4.0–aligned skills, including digital pedagogy, innovative teaching strategies, and adaptive learning approaches.
3. Faculty members may prioritize research initiatives that contribute to improving students' performance in licensure examinations. These efforts may include studies on curriculum enhancement, instructional effectiveness, and assessment practices that support board examination readiness.
4. Administrators may design and implement a comprehensive faculty development plan supported by adequate budget allocation. This approach may ensure equitable access to professional development opportunities and promote continuous professional growth among faculty members.

5. Engineering departments may ensure that review courses are facilitated by highly competent and qualified faculty members, particularly those with relevant expertise, professional licensure, and specialized training, to strengthen students' preparedness for licensure examinations.

REFERENCES

1. Akareem, H. S., & Hossain, S. S. (2016). Determinants of education quality: What makes students' perception different? Open Review of Educational Research, 3(1), 52–67. https://doi.org/10.1080/23265507.2016.1155167
2. Brown, F., & Cross, K. (2019). Engineering faculty's mindset: An analysis of instructional practice, learning environment, and teacher authenticity. In 2019 IEEE Frontiers in Education Conference (FIE) (pp. 1–4). https://doi.org/10.1109/FIE43999.2019.9028524
3. Brunhaver, S. R., Korte, R. F., Barley, S. R., & Sheppard, S. D. (2017). Bridging the gaps between engineering education and practice. In R. Freeman & H. Salzman (Eds.), US engineering in the global economy. National Bureau of Economic Research.
4. Clancy, R. F., III, Sessford, J. R., An, L., & Ge, Y. (2017). Which factors are correlated with engineering students' expectations of ethical issues? Paper presented at the ASEE Annual Conference and Exposition, Columbus, OH, United States.
5. Commission on Higher Education. (2017). CHED Memorandum Order No. 97, series of 2017: Policies, standards and guidelines for the Bachelor of Science in Mechanical Engineering (BSME) program effective academic year 2018–2019.
6. Conchada, M. I., & Tiongco, M. M. (2015). A review of the accreditation system for Philippine higher education institutions (Discussion Paper Series No. 2015-30). Philippine Institute for Development Studies.
7. Duncan, C., Duff Cloutier, J., & Bailey, P. H. (2007). Concept analysis: The importance of differentiating the ontological focus. Journal of Advanced Nursing, 58(3).
8. Ferrer, F. P. (2016). Performance in the engineer licensure examinations: Philippines, 2011–2015. International Journal of Advance Research in Science and Engineering, Special Issue (01).
9. Flake, L. H. (2017). A look at the relationship of curriculum and instruction and the art and science of teaching. Asian Journal of Education and Training, 3(2), 82–85. https://doi.org/10.20448/journal.522.2017.32.82.85
10. Gravani, M. (2007). Unveiling professional learning: Shifting from the delivery of courses to an understanding of the processes. Teaching and Teacher Education, 23.
11. Gross, J. M. S., et al. (2015). Strong school–community partnerships in inclusive schools are "part of the fabric of the school.…We count on them." School Community Journal, 25(2).
12. Hargreaves, A. (2003). Teaching in the knowledge society: Education in the age of insecurity. Teachers College Press.
13. Hicks, E., Bagg, R., Doyle, W., & Young, J. D. (2007). Canadian accountants: Examining workplace learning. Journal of Workplace Learning, 19(2).
14. Kamamia, L. N., Ngugi, N. T., & Thinguri, R. W. (2014). To establish the extent to which the subject mastery enhances quality teaching to student-teachers during teaching practice. International Journal of Education and Research, 2(7).
15. Lacson, M. (2018, December 13). Lacson: The teacher and the ASEAN standards. SunStar. https://www.sunstar.com.ph/article/1778570/Pampanga/Opinion/Lacson-The-teacher-and-the-Asean-Standards
16. Oakes, J., & Rogers, J. (2007). Radical change through radical means: Learning power. Journal of Educational Change, 8.
17. Tarman, B. (2016). Discipline or classroom management? Journal of Learning and Teaching in Digital Age, 1(2), 27–44.
18. Webster-Wright, A. (2009). Reframing professional development through understanding authentic professional learning. Review of Educational Research, 79(2).
19. Wood, D. (2007). Teachers' learning communities: Catalysts for change or a new infrastructure for the status quo? Teachers College Record, 109(3).