8.5. Attainment of Program Outcomes from first year courses (20)

8.5.1. Indicate results of evaluation of each relevant PO and/or PSO if applicable (10)

PO/PSO Attainment: Mention first year courses

COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	P012	PSO1	PSO2	PSO3	PSO4
DPH101	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	0.00	0.00	3.00	3.00
MEM101	0.80	0.80	0.80	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.80	0.80	0.80	0.00
MEM102	3.00	3.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00
MEM103	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
MEM104	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
BOH181	1.00	1.00	1.00	1.00	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	0.00
CHM181	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
ENH181	0.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
MAM181	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
PHM181	0.64	0.60	0.71	0.71	1.00	1.00	0.00	0.00	0.00	0.67	1.00	0.60	0.60	0.60	0.60	0.00
RDC181	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
CHM182	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
PHM182	2.33	2.33	2.33	2.33	1.33	1.00	1.00	1.00	2.33	1.33	2.00	1.33	3.00	3.00	3.00	3.00
RDC182	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
ESC281	3.00	3.00	3.00	3.00	3.00	3.00	3.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EEM201	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
MEM201	0.67	0.62	0.80	0.55	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.67	0.67	0.67	0.67	0.00
EEM202	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MEM202	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00
MEM203	3.00	3.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00
MEM204	3.00	3.00	3.00	3.00	3.00	3.00	3.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
CAC281	3.00	3.00	3.00	3.00	3.00	3.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
EGC281	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
MAM281	1.40	1.40	1.40	1.45	1.40	1.33	0.00	0.00	0.00	1.25	2.00	1.17	1.40	1.40	1.40	0.00
PHM281	0.58	0.64	0.63	0.67	0.67	0.50	0.00	0.00	0.00	0.67	1.00	0.50	0.60	0.60	0.60	0.00
RDC281	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
PHM282	0.80	0.80	0.82	0.82	0.83	0.75	0.75	0.75	0.67	0.83	0.75	0.83	0.75	0.75	0.75	0.00
RDC282	0.00	0.00	0.00	0.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Attainment	1.62	1.69	1.70	1.76	2.17	1.94	1.66	1.45	1.85	1.91	1.98	2.17	2.13	2.13	2.23	1.71

Table B.8.5.1.

8.5.2. Actions taken based on the results of evaluation of relevant POs and PSOs (10)

PO Attainment Levels and Actions for improvement – CAY only

POs	Target Level	Attainment Level	Observations

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO1	1.5	1.62	Target achieved

Action :

(i) Physics course has been strengthened and modernized to include Quantum Physics.

(ii) Syllabus of Mathematics courses has been revamped to strengthen the Math base and Applications.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO2	1.5	1.69	Target achieved

Action: Several Community related real-life projects are being taken up in the Department with the full participation of the students. These provide practical real-life situations for improving problem analysis skills. Some of these are as follows.

a. Truck tracking during wheat harvesting for transporting harvest from fields to threshers located near granary.
b. RFID based identification of cattle in Dairy with full database maintenance of feed data, yield data etc enabling precise interventions as necessary.
c. Automatic tracking of Solar Panels
d. Implementation of Smart Solar Grid in the University
e. Energy Audit of the Dayalbagh colony

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO3	1.5	1.70	Target achieved

Action : Students are given ample exposure to community needs through NSS, Social Service, Agriculture Operations etc. This exposure helps fresh entrant to realize specific needs of the society. The introductory courses on Workshop and manufacturing process provide technical inputs to realize the solutions

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

PO4	1.5	1.76	Target achieved
Action : Students are encouraged to participate in technical competitions right from the beginning of the course			
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations			
PO5	1.5	2.17	Target achieved
Action 1: Laboratories are being modernized through TEQIP Grant, DST FIST and UGC SAP grants			
PO6 :The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice			
PO6	1.5	1.94	Target achieved
Action : Participation in NSS camp, Agricultural Operations, Social Service enables them to appreciate societal problems and possibility of engineering solutions.			
PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development			
PO7	1.5	1.66	Target achieved
Action : (i) Introduced course on Environmental Sciences (ESC281) (ii) Tree planting in the campus and in the adopted villages is done regularly as part of the activities of NSS volunteers. (iii) Energy conservation is practised by the installation of LED Lamps and LED tube light and energy efficient fans. (iv) Water conservation is adopted through rain water harvesting mechanisms			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice			
PO8	1.5	1.45	Deficiency addresses by induction training programme
Action: Component on professional ethics and human values included in the induction training programme			

PO9 :Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings			
PO9	1.5	1.85	Target achieved
Action : Compulsory participation in group activities like Agricultural Operations, Social Sercive, Games, Co-curricular Activities and Marchpast helps the student to understand importance of team work			
PO10 : Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions			
PO10	1.5	1.96	Target achieved
Action : Compulsory courses on English Language, seminars and group discussion as part of course curriculum help student in this dimension			
PO11 :Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments			
PO11	1.5	1.98	Target achieved
Action 1: Students are encouraged to participate in technical competitions right from the beginning of the course to acquire project management skills			
PO12 :Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change			
PO12	1.5	2.17	Target achieved
Action 1: Practical Training at the end of I and II year and co-op Internship at the end of Third year enable students to pursue independent projects in an industrial setting with limited mentorship and prepare for lifelong learning.			