



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal - 500 043, Hyderabad, Telangana

DEPARTMENT OF INFORMATION TECHNOLOGY

Attainment of Program Outcomes (POs & PSOs) of 2022– 2025 batch (IARE – UG20)

Program Outcome (PO) attainment is evaluated through a systematic assessment process involving both direct and indirect assessment methods. Direct assessments include Continuous Internal Assessment (CIA), end-semester examinations, laboratory work, and projects, while indirect assessments are obtained through graduate exit surveys, alumni feedback, and employer feedback.

Attainment of Program Outcomes (POs & PSOs) of 2022– 2026 batch (IARE – UG-20)

Course Code	Course	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
AHSC02	Linear Algebra and Calculus	1.80	1.60													
AHSC06	Chemistry	2.20	2.50					2.20								
AEEC01	Basic Electrical Engineering	1.60	1.50											1.70		
ACSC01	Python Programming	2.00	1.50	1.90		2.00					1.00		1.10	2.00		1.90
ACSC06	Experiential Engineering Education (ExEEd)- Academic Success	3.00		3.00	3.00		3.00	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00
AEEC04	Basic Electrical Engineering Laboratory	3.00							3.00	3.00	3.00		3.00	3.00		
ACSC02	Python Programming Laboratory	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
AMEC04	Engineering Workshop Practice	3.00		3.00			3.00	3.00		3.00		3.00				3.00
AHSC01	English										2.80					
AHSC08	Probability and Statistics	1.80	1.60		1.70	1.70										
AHSC09	Applied Physics	2.40	2.30		1.70											2.30
ACSC04	Programming for Problem Solving using C	2.60	2.60	2.60		2.60					2.60		2.60	2.60		2.60
AHSC04	English Language and Communication Skills Laboratory									3.00	3.00					
AHSC05	Physics Laboratory	3.00	3.00		3.00											3.00
ACSC05	Programming for Problem Solving using C Laboratory	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

AITC01	Discrete Mathematical Structures	2.60	2.70	2.80									2.80		
ACSC07	Computer Organization and Architecture	2.20	2.20	2.40	2.00					2.00		2.00	2.10		2.40
ACSC08	Data Structures	2.80	2.80	2.80	2.80	2.80				2.80		2.80	2.80	2.80	2.80
AITC02	Programming with Objects	2.60	2.60		2.60	2.60				2.60		2.60	2.60		2.50
AECC08	Analog and Digital Electronics	1.90	1.90	2.10						1.90			2.00		
ACSC09	Experiential Engineering Education (ExEEd) - Prototype / Design Building	3.00	3.00	3.00	3.00	3.00	3.00			3.00	3.00		3.00	3.00	3.00
ACSC10	Data Structures Laboratory	3.00	3.00	3.00	3.00	3.00	3.00		3.00	3.00	3.00		3.00	3.00	3.00
AITC03	Programming with Objects Laboratory	3.00		3.00		3.00				3.00		3.00		3.00	3.00
ACSC11	Advanced Python Programming Laboratory	3.00	3.00	3.00		3.00				3.00		3.00		3.00	3.00
AITC04	Theory of Computation	2.70	2.70	2.80	2.80					2.60			2.70		2.80
ACSC12	Operating Systems	2.70	2.60	2.70	2.50					2.70		2.80	2.60	2.70	2.70
AITC05	Database Management Systems	2.50	2.60	2.70	2.70	2.80				2.70		2.80	2.50	2.60	2.70
ACSC13	Design and Analysis of Algorithms	2.70	2.60	2.30	2.80								2.80		
AITC06	Computer Networks	2.10	2.00	2.20	1.60					1.70		2.30	2.10	1.60	2.90
ACSC14	Experiential Engineering Education (ExEEd) - Fabrication / Model Development	3.00	3.00	3.00	3.00	3.00	3.00			3.00	3.00		3.00	3.00	3.00
AITC07	Database Management Systems Laboratory		3.00	3.00		3.00				3.00		3.00		3.00	
ACSC15	Design and Analysis of Algorithms Laboratory		3.00	3.00	3.00	3.00	3.00	3.00	3.00		3.00		3.00	3.00	3.00
AITC08	Linux Internals Laboratory	3.00	3.00	3.00									3.00	3.00	
ACSC40	Compiler Design	2.60	2.60	2.80		2.80				2.80			2.60		2.80
AITC09	Web Application Development	2.10	1.20	2.10	2.30	2.10				2.10		2.10	2.10	2.00	
AITC11	Cryptography and Network Security	2.80	2.80	2.80	2.80					2.80		2.80	2.80	2.80	2.80
ACSC19	Object Oriented Software Engineering	2.40	2.30	2.30		2.30				2.20		2.30	2.30		2.30

[illegible]

ACDC12	Human Computer Interaction (UI & UX)	2.90	2.90	2.90	2.90	2.90								2.90		2.90
ACIC16	E-Commerce	1.40	1.20	1.20	1.20						1.20			1.20	1.20	
ACEC31	Disaster Management	2.90					2.90	2.90		2.90						
AITC32	Project Work (Phase - II)	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
Direct Attainment		2.6	2.5	2.6	2.5	2.6	2.9	2.7	2.8	2.9	2.6	2.8	2.7	2.6	2.6	2.7

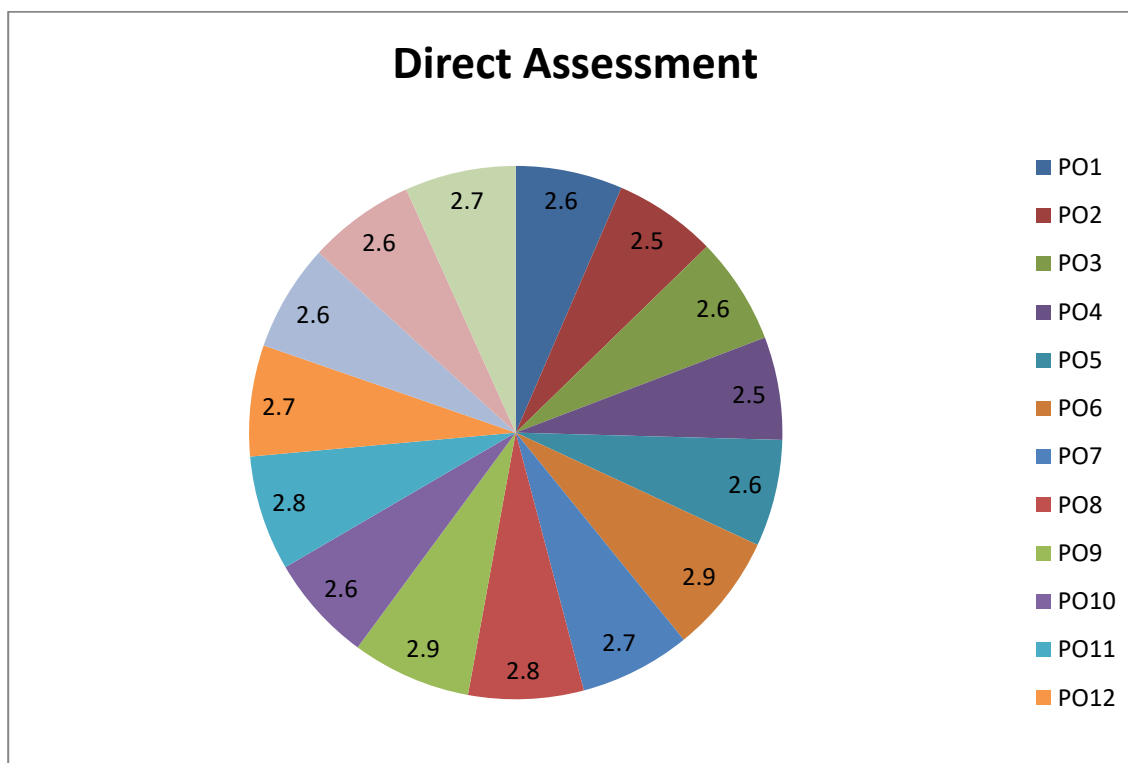


Figure 1: Program Outcomes (PO) Direct Attainment for IT 2022 – 2026 batch

PO Attainment Overall of 2022– 2026 batch (IARE – UG-20)

Regulation		R20														
Branch		Information Technology														
Batch		2022-2026														
S.No	Assessment Components (Direct + Indirect)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	Direct Assessment (CIA + SEE + Course End Survey) (a)	2.6	2.5	2.6	2.5	2.6	2.9	2.7	2.8	2.9	2.6	2.8	2.7	2.6	2.6	2.7
2	Program Exit Survey (b)	2.4	2.5	2.6	2.5	2.4	2.3	2.3	2.4	2.5	2.5	2.4	2.4	2.5	2.5	2.6
3	Alumni Survey (c)	2.4	2.5	2.6	2.5	2.4	2.5	2.6	2.7	2.4	2.4	2.4	2.4	2.4	2.6	2.5

4	Employer Survey (d)	2.7	2.3	2.5	2.6	2.4	2.4	2.6	2.3	2.5	2.6	2.3	2.5	2.5	2.4	2.5
Final attainment = $a*0.8 + b*0.1 + c*0.05 + d*0.05$		2.6	2.5	2.6	2.5	2.6	2.8	2.7	2.7	2.8	2.6	2.7	2.6	2.6	2.6	2.7

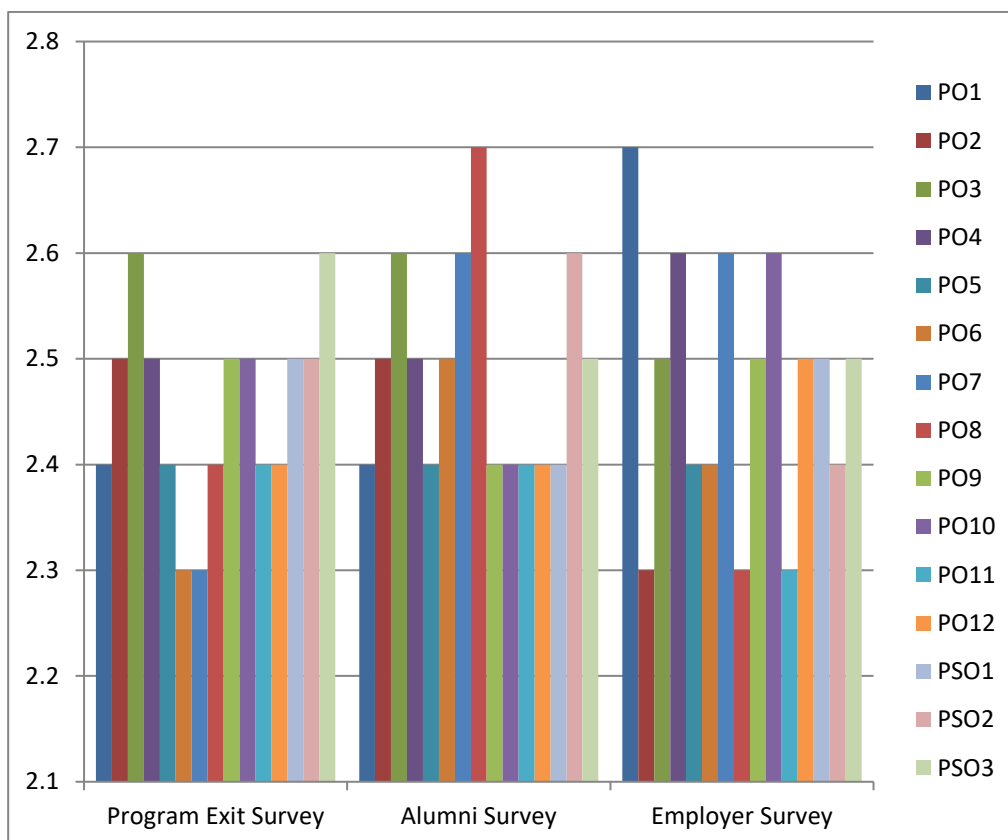


Figure 2: Program Outcomes (PO & PSO) Indirect Attainment for IT 2020 – 2024 batch

Actions Taken Based on the Results of Evaluation of the POs/PSOs Attainment

To ensure continuous improvement in the program outcomes, the Information Technology department identifies gaps at the micro level. Analysis of the POs and PSOs helps draw conclusions about weak areas in the program. Effective measures and implementations based on those gaps enhance both teaching quality and the learning experience.

POs Attainment Levels and Actions for improvement (2022-2026)

POs	Target Level	Attainment Level	Observation
PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.10	2.6	• Target achieved. • Practical approach to teaching programming helped students understand programming basics.
Action 1: Viva questions on basic concepts in lab sessions. Action 2: Additional classes for courses with lower attainment. Action 3: Co-curricular activities in information security, Cloud, Cyber security, and AGILE.			
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	2.10	2.5	• Target achieved. • Additional classes for numerical courses helped students perform better.
Action 1: Additional classes for low-attainment courses. Action 2: Expert lectures, seminars, and guest lectures for identifying/analyzing real-time problems.			
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	2.10	2.6	• Target achieved. • Design-related subjects, guest lectures, and hands-on training helped achieve the target.
Action 1: Expert lectures, workshops, and hands-on sessions on designing/analyzing real-life software problems. Action 2: Encouraged participation in external inter-college technical competitions, coding contests, hackathons.			
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	2.10	2.5	• Target is achieved. • Students referred IEEE/Elsevier journal papers/Scopus to enhance research knowledge, analysis, and interpretation of data.
Action 1: National/international conferences are scheduled to promote research culture among students.			
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	2.10	2.6	• Target is achieved. • Students were exposed to various modern tools like androidkits, Jupyter, Eclipse, Netbean, Pycharm, NS3, which helped to attain the target.
Action 1: Motivated students to register for webinars/seminars by third-party agencies on modern tool usage.			

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	2.10	2.8	- Target is achieved. - Practice will be continued for the next year.
Action 1: Exposure to professional engineering practices via industrial visits. Action 2: Continued association with CSI, IEEE student chapters for expert talks. Action 3: Industry visits to understand safety concerns and social aspects. Action 4: Encouraged inter-domain projects (society, safety, health, legalities).			
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	2.10	2.7	- Target is achieved. - Best practices like Telegram used for intra-department communication to eliminate paper use.
Action 1: Mini-projects/projects addressing societal and environmental issues. Action 2: Instructed to switch off electrical equipment/resources when not in use in labs. Action 3: Best practices — rainwater harvesting, sewage treatment plants, waste management.			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	2.10	2.7	- Target is achieved. - It is mandatory that students should submit plagiarism certificate for mini projects / project work.
Action 1: Projects/ mini projects will be scrutinized, code reviews will be conducted, plagiarism check will be done to determine the originality of the project to ensure professional ethics.			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	2.10	2.8	- Target is achieved. - Strong individual and team performance in labs/mini-projects/peer reviews. - Students were encouraged to work as a team in all co-curricular and extracurricular
Action 1: Encouraged co-curricular/extra-curricular activities in other colleges/sports/cultural events. Action 2: Participation in Inter-College Cultural Fest. Action 3: Participation in external technical competitions, coding contests, hackathons. Action 4: Department encourages student clubs, technical events, business ideas/app development.			
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	2.10	2.6	- Target is achieved. - Soft skills training was imparted to the students to enhance communication through group discussions and presentations. Project and seminar presentations assisted the students to communicate effectively and efficiently.
Action 1: To enhance the employability skills of the students, training programmes will be conducted on the topics: how to face the interview, career development, higher studies, and entrepreneurship development.			

P11: 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	2.10	2.7	Target is achieved.
Action 1: Guided project proposal preparation for government funding agencies.			
Action 2: Special classes on principles of financial analysis of projects.			
P12: 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	2.10	2.6	- Target is achieved. - Mini-projects/projects helped students perform better in placement interviews and higher studies.
Action 1: Motivated students to register for GRE/TOEFL/GATE and other competitive exams.			

PSOs Attainment Levels and Actions for improvement

PSOs	Target Level	Attainment Level	Observation
PSO1: Design next-generation computer systems, networking devices, search engines, soft computing and intelligent systems, web browsers, and knowledge discovery tool.			
PSO1	2.10	2.6	- Target achieved - Indicating strong student capability in designing next-generation computer systems and networking solutions.
Action 1: Encouraged students to undertake advanced mini-projects and case studies related to intelligent systems, networking, and knowledge discovery tools.			
Action 2: Introduced industry-oriented assignments and project-based learning activities to further strengthen design and implementation skills in emerging computing technologies.			
PSO2: Focus on mobile and web applications development and learn the emerging technologies and frameworks in demand with employers and contemporary challenges.			
PSO2	2.10	2.6	- Target achieved - Strong competence in mobile/web app development with industry-relevant frameworks.
Action 1: Encouraged students to develop real-time mobile and web applications using modern frameworks and tools aligned with current industry and employer requirements.			
PSO3: Practical experience in shipping real world software, using industry standard tools and collaboration techniques will equip to secure and succeed in first job upon graduation in IT industry.			
PSO3	2.10	2.7	- Target achieved - Strong practical exposure to real-world software development using industry-standard tools and collaborative practices.
Action 1: Promoted project-based learning, internships, and capstone projects emphasizing the use of industry-standard tools, version control systems, and collaborative development practices.			
Action 2: Organized workshops and hands-on sessions on software development life cycle (SDLC), DevOps tools, and team-based project execution to further enhance employability skills.			

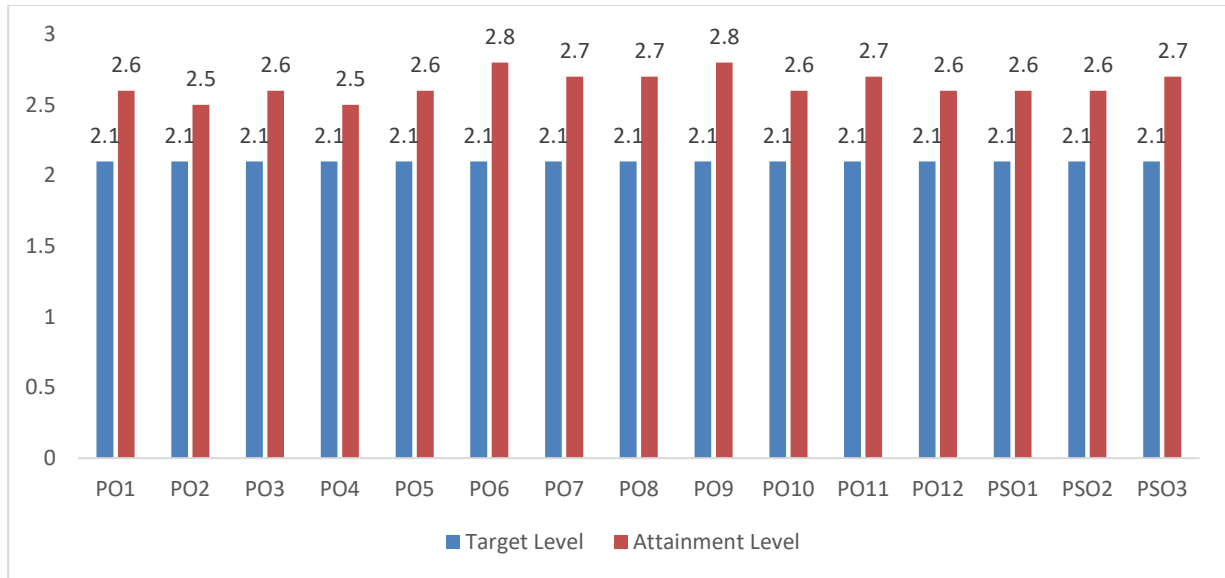


Figure 3: Program Outcomes (PO & PSO) Overall Attainment for IT 2022 – 2026 batch

HOD-IT