LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)
Accredited by NAAC with 'A' Grade & NBA (Under Tier - I)
An ISO 21001:2018,14001:2015,50001:2018 Certified Institution
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
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DEPARTMENT OF INFORMATION TECHNOLOGY

POs Attainment Levels and Actions for improvement: Admitted Batch 2019-23
A.Y:2022-23

POs	Target Level (%)	Attainment Level (%)	Observations
PO-1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO 1	**70**	**70**	Attainment Status: **Attained** The number of courses mapped to this PO1 is **64.** **47** Courses have attained the targets, **17** Courses have not c reached the target level. Courses with less than 60 are **(17EC02)-Electronic Devices and Circuits (58.4)** **(17FE15)-Engineering Chemistry (58.4),** **(17CI09)-Data Base Management Systems (59.99),** **(17EC22)-Microprocessors and Microcontrollers (50.35),** **(17CI18)-Big Data Analytics (57.95),** **(17CI29)-Cloud Computing (57.95)** Based on our analysis of the results and our conversations with students, we have concluded that they need more practice solving problems using mathematical logic and knowledge, especially in lab courses. We believe that providing more vivid demonstrations of practical examples in courses with lower attainment levels would be beneficial to students.
Action Taken: **Action 1**: Conducted Two-day workshop on "Amazon Web services from 23/09/2019 to 24/09/2019" **Action 2:** Conducted One week training on problem solving using python" from 6th -11th January 2020. **Action 3:** National Level Technical Online Quiz Competition conducted on 03-06-2020. **Action 4:** For the theory courses the faculty are instructed to give more assignments for the students. **Action 5:** The faculties of the laboratory courses were advised to conduct more demonstration classes.			

POs	Target Level (%)	Attainment Level (%)	Observations
PO-2. 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.			
PO 2	**70**	**70**	Attainment Status: **Attained** **64** courses were mapped to this PO2. **44** courses including laboratory and theory target levels were comfortably reached.. The list of courses out of **20** , missing the targets with far-reach were

			(17FE15)-Engineering Chemistry(58.4) **(17EC22)-Microprocessors and Microcontrollers(46)** **(17CI18)-Big Data Analytics(58.74)** **(17CI29)-Cloud Computing(58.74)** After analysis of results, it is observed that students are required to concentrate more on core subjects i.e. In GATE point of view. To strengthen PO2, need to add problem based learning courses in next curriculum.
Action Taken: **Action 1:** Conducted One week training on problem solving using python" from 6th -11th January 2020. **Action 2:** For the theory courses the faculty are instructed to give more assignments for the students. **Action 3:** The faculty of the laboratory courses was advised to conduct more demonstration classes.			

POs	Target Level (%)	Attainment Level (%)	Observations
PO-3. 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.			
PO 3	**70**	**70**	Attainment Status: **Attained** **60** courses are mapped to this PO3. Total **39** courses reached the target level including theory and laboratory. The attainment levels of the courses which are considerably low out of 21 courses which have missed the target are …. **17EC02-Electronic Devices and Circuits(52.75),** **17FE15-Engineering Chemistry (58.71),** **17EC22-Microprocessors and Microcontrollers(45.95)** **17CI10-Software Engineering(58.95),** **17CI18-Big Data Analytics(56.97),** **17CI29-Cloud Computing(56.97)** After analysis of results, it is observed that students are still doing laboratory experiments without enough preparation i.e., in terms of designing experiment, analyzing and interpretation of results. To improve the performance of students under innovative teaching and learning new course need to add in next curriculum.
Action Taken: **Action** 1: More number of classes/tutorials were conducted for the courses which are contributing design &development of solutions. **Action** 2: Conducted a seminar on "**SDLC and latest emerging trends in software industry**" on 30th July2020 **Action** 3: Conducted a three-day Workshop on "**Industry Expectations on Data Engineers**" on 4th,5th, 6th of June 2021 to improve the research methods including design of experiments.			

POs	Target Level (%)	Attainment Level (%)	Observations
PO-4. 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.			
PO 4	**70**	**70**	Attainment Status: **Attained** **45** courses are mapped to this PO4. Out of **45** courses **32** have not attained the target levels.. On analysing 10 courses out of 13 courses had performed just below the par and the other 3 courses whose targets were far below the target **17EC02-Electronic Devices and Circuits(56.47),** **17FE15-Engineering Chemistry(58),** **17CI10-Software Engineering(51.75),** After analysis of results, it is observed that students are feeling difficult to analyse the problem statements i.e., in terms of project planning , experimental design . To strengthen PO4, more emphasis has to be given in teaching methodologies related to design and implementation of problem solving through programming
Action Taken: **Action 1:** To improve practicality, Hands-on Sessions/Demonstration classes were conducted before executing the experiment. **Action 2:** Conducted Two days' workshop on "Chat bots Using Python" on 7th and 8th of August 2020. **Action 3:** Conducted webinar titled "Roles involved in transformation of project idea to Project" on 25-02-2023			

POs	Target Level (%)	Attainment Level (%)	Observations
PO-5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO 5	**68**	**70**	Attainment Status: **Attained** Out of **70 courses, 37 courses** are mapped to this PO5.Out of which **28 courses** reached the target level. 4 courses were in and around the target levels where as 5 courses which were missing the target attainments are **17FE15-Engineering Chemistry(58),** **17CI09-Data Base Management Systems(58.7),** **17EC22-Microprocessors and Microcontrollers(46),** **17CI18-Big Data Analytics(56.11)** **17CI29-Cloud Computing(56.11)** After analysis of results, it is observed that students are to be guided about the various tools implemented in industries in terms of designing experiment, analyzing and interpretation of results. To Strengthen PO5, introduce more these courses have to include the tools of modern era which simplifies the project implementation.
Action Taken: **Action 1:** Tutorials were conducted for the courses which contributed less. In addition to that tutorial hours are handled by two faculty members. **Action 2:** Conducted Three Day Workshop on "IOT and 5G Technology" from 27-05-2021 to 29-05-2021			

Action 3: Conducted One Day Workshop titled IMAGE PROCESSING USING OPEN CV on 30-10-2021
Action 4: Conducted "Ten Days Workshop On Machine Learning Handson" 03-03-2023 TO 12-03-2023

POs	Target Level (%)	Attainment Level (%)	Observations
PO-6. 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.			
PO 6	**69**	**72**	Attainment Status: **Attained** Number of courses mapped to PO6 **are 23.** The courses that reached the target level are **20** and **3** courses attainment level were missing the target levels is given below. **17EC02-Electronic Devices and Circuits(57.3)** **17FE15-Engineering Chemistry(59.5)** **17PD04-Mini Project(65.83)** It is suggested to continue the necessary steps taken for the uplift of PO6 attainment levels.
Action Taken: **Action 1:** Motivated the students by explaining the importance of doing internship and project work. **Action 2:** The faculty are instructed to give practical examples relevant to engineering practices to enhance skills to handle problems in the societal context. **Action 3:** The faculty are advised to allot a few topics for seminar related to society & the course content to present in the classes. **Action 4 :** One-Week Workshop was conducted on "Tech for Society – BOOTCAMP (Django)" from 21-03-2022 to 26-03-2022			

POs	Target Level (%)	Attainment Level (%)	Observations
PO-7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal environmental contexts, and demonstrate the knowledge of & need for sustainable development.			
PO 7	**70**	**63**	Attainment Status: **Not Attained** **12** courses mapped to this PO7. **7** reached the target. Most of the courses reached the target by all the mapped courses except the following **5 courses** **17FE15-Engineering Chemistry(59.5) , 17FE03-Environmental Science(63.6) ,17CI10-Software Engineering(45.7) , 17PD04-Mini Project(65.5)** **17CI69-Internet of Things Lab(64)** As almost all the courses have reached the target comfortably, more courses which maps to this PO are to added in the next curriculum.
Action Taken: **Action 1:** The faculty are instructed to teach and give practical approach of the topics in view of long-term goals like environment and sustainability. **Action 2:** It is advised to involve a greater number of students in the Environmental club activities**.** **Action 3:** Inculcate the students to solve the problems on environmental oriented projects.			

POs	Target Level (%)	Attainment Level (%)	Observations
PO-8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO 8	**70**	**68**	Attainment Status: **Not Attained** **22** courses are mapped to this PO8. **15** courses have comfortably reached and **7** courses missed the target levels with very marginal levels. **17CI64-Database Management Systems Lab(66)** **17PD01-Problem Assisted Learning(65.7)** **17PD02-Problem Based Learning(65.7)** **17HS01-Engineering Economics and Accountancy(65.1)** **17PD04-Mini Project(68.35)** **17MB80-Industrial Engineering And Management(69.8)** **17PD09-Internship(62.5)** After analysis of results and interacting with students, additional efforts required to improve knowledge on professional ethics and moral values. For the benefit of students, need to add new course related to ethical values in next curriculum.
Action Taken: **Action 1**: Faculty are advised to instruct the students about the importance of ethics in the engineering profession. **Action 2**: Motivate the students on real life case study problems to debate on ethical decision and judgments. **Action 3:** Faculty is advised to instruct students to follow ethical values while doing the programs, writing records and paper publications. **Action 4**: Conducted Alumni guest lecture on "Discipline and Career" 14th May 2020 to learn Ethical values.			

POs	Target Level (%)	Attainment Level (%)	Observations
PO-9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO 9	**70**	**70**	Attainment Status: **Attained** **28** courses are contributing to PO9.**23 courses** have achieved target levels. **5** courses which have missed the target marginally is given below. **17FE02-Professional Communication-II(66.6)** **17CI64-Database Management Systems Lab(66)** **17PD04-Mini Project(68.35)** **17MB80-Industrial Engineering And Management(66.5)** **17IT82-Bio-informatics(69.2)** After interacting with students, it was identified there should be more emphasis on project management and have to give clear picture regarding the software development process. Still there should be additional sessions required on development of team work skills. For the benefit of students introduce new course problem based learning, in addition to that more association activity clubs are introduced in future.
Action Taken: **Action 1:** Awareness on leadership qualities was created by project assessment and evaluation committee.			

Action 2: Create awareness on teamwork by preparing the posters.
Action 3: Focus is given to motivate the students by conducting ICCIDE conference with in the Institution. So most of the students actively involved individually as well as team to make the event success.
Action 4: Conducted association activities to improve the teamwork/leadership qualities and communication skills.
Action 5: Organized National Level Technical Symposiums "Lakshya-19" , "Lakshya-21" "Lakshya-22" to improve the leadership qualities as well as teamwork of the students.

POs	Target Level (%)	Attainment Level (%)	Observations
PO-10. 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.			
PO 10	**70**	**72**	Attainment Status: **Attained** 31 courses were mapped to this PO10. Total 25 courses reached the target levels and for laboratory courses the attainment levels were just up to the mark. The Courses which are slightly less than the target level were **17FE02-Professional Communication-II(66.6)** **17CI64-Database Management Systems Lab(66)** **17CI10-Software Engineering(57.03)** **17PD04-Mini Project(68.74)** **17MB80-Industrial Engineering And Management(69.8)** **17PD09-Internship(64.35)** After interacting with students, it was identified that additional focus required on development of communication skills. To strengthen PO10 and to improve communication skills among students introduce new soft skills course in next curriculum.
Action Taken: **Action 1:** Group discussion / Role play/ Debate/ Quiz/Essay Writing competitions are encouraged at regular intervals. **Action 2:** Classes on communication and soft skills, analytical aptitude, and technical skills are arranged by the college every year apart from regular classes as per schedule. **Action3:** Conducted association activities to improve the teamwork/leadership qualities and communication skills. **Action4:** Conducted National Level Online Technical Online Quiz Competition 3rd June 2020. **Action5:** Conducted Awareness Program on "Cyber Crime" on 26-05-2021			

POs	Target Level (%)	Attainment Level (%)	Observations
PO-11. 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.			
PO 11	**68**	**71**	Attainment Status: **Attained**

			PO11 is mapped with only 12 courses. Out of which 8courses reached the target and 4 courses missed the target levels. Those courses are **17EC02-Electronic Devices and Circuits(58.4)** **17CI10-Software Engineering(67.53)** **17PD04-Mini Project(65.5) , 17PD07-seminar(63.65).** To strengthen PO11, need to introduce problem-based learning and problem assisted learning courses in next curriculum.

Action Taken:

Action 1: Focus is given to motivate the students by explaining the importance of doing internship and project work.

Action 2: Create awareness on project management by project assessment and evaluation committee.

Action 3: Conducted association activities to improve the teamwork/leadership qualities & communication skills.

Action 4: Conducted one day workshop titled Cloud Computing and Code Security in Agile Methodology on 12-06-2022

Action 5: Introduced plagiarism checking (40%) for Main Project to maintain the quality of project.

POs	Target Level (%)	Attainment Level (%)	Observations
PO-12. 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.			
PO 12	**70**	**71**	Attainment Status: **Attained** 61 courses are contributing to PO12.Totally 48 courses including theory and laboratory attained the target. Out of **18** Courses whose target levels have not attained. The following list comprises of 4 courses whose target level is less than 60 **17EC02-Electronic Devices and Circuits(58.4)** **17FE15-Engineering Chemistry(58.4)** **17CI18-Big Data Analytics(58.66)** **17CI29-Cloud Computing(58.66)** After interacting with students, it was identified that additional focus required on development of programming skills. To strengthen PO12, need to introduce skill oriented and skill advanced courses in next curriculum.

Action Taken:

Action 1: Conducted one day workshop on SDLC and latest emerging trends in software industry on 30-06- 2020

Action 2: Conducted Ten days Workshop on Web Development (Backend Technologies) from 06-02-2023 to 17-02-2023

Date
10-05-2024

Dr. B.Srinivasa Rao
HOD

Dr.K.Appa Rao
Principal

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DEPARTMENT OF INFORMATION TECHNOLOGY

PSOs Attainment Levels and Actions for improvement: Admitted Batch 2019-23
A.Y:2022-23

PSOs	Target Level (%)	Attainment Level (%)	Observations
PSO1: Organize, Analyze and interpret the data to extract meaningful conclusions.			
PSO 1	**70**	**71**	Attainment Status: **Attained** **49** courses are contributing to PSO1.Total **35** courses including theory and laboratory have attained the target. Out of **14 courses** whose target levels have attained the important subjects to considered are as follows. **17CI09-Data Base Management Systems(63.73)** **17CI06-Computer Architecture(61.43)** **17CI10-Software Engineering(62.47)** **17CI18-Big Data Analytics(60.48)** **17CI29-Cloud Computing(60.48)** **17CI69-Internet of Things Lab(63.67)** For the benefit of students, new courses related to the industry needs if any are to be added in next curriculum.
Action Taken: **Action 1: T**utorial hours were made to handle by two faculty members. **Action 2:** The faculty of the laboratory courses who are just at the verge of attainment levels are advised to conduct more demonstration classes before attending laboratory. **Action 3:** Three-day Workshop on "Industry Expectations on Data Engineers" from 04th to 06th June 2021.			

PSOs	Target Level (%)	Attainment Level (%)	Observations
PSO2: Design, Implement and Evaluate a computer-based system to meet desired needs.			
PSO 2	**69**	**71**	Attainment Status: **Attained** **49courses** are contributing to PSO2.Totally **34 courses** including theory and laboratory attained the target. **15 Courses** have failed to attain the target levels. The following list comprises of courses whose target levels are less than 65. **17FE65-Computer Programming(64.54)** **17CI09-Data Base Management Systems(60.82)** **17CI06-Computer Architecture(63.14)** **17CI10-Software Engineering(62.22)** **17CI18-Big Data Analytics(56.88),17CI29-Cloud Computing(56.88),17CI69-Internet of Things Lab(63.75)**

			17CI27-SRE(64.3) After analysing the results and interacting with students, it was identified that additional focus required on development of problem analysis and solving skills. To strengthen PSO2 courses, which emphasise skill development through programming are to be taught with simulation tools .
Action Taken: **Action 1:** More examples on R Programming are practiced by students in R- Laboratory courses. **Action 2:** The faculty of the laboratory courses who failed to attain the target are instructed to demonstrate experiments using video lectures in order to motivate students. **Action 3 :** A work shop is organized as Value Added Course on Web Technologies from 26-09-2022 to 01-10-2022			

PSOs	Target Level (%)	Attainment Level (%)	Observations
PSO3: Develop IT application services with the help of different current engineering tools.			
PSO 3	**70**	**71**	Attainment Status: **Attained** **48** courses are contributing to PSO3.Totally **33 courses** including theory and laboratory attained the target. **18 Courses** failed to attain the target level. The following list of courses has attained the attainment level less than 65 **17FE65-Computer Programming(63.89)** **17CI09-Data Base Management Systems(62.48)** **17CI10-Software Engineering(58.05)** **17CI18-Big Data Analytics(58.66)** **17CI29-Cloud Computing(58.66)** **17CI69-Internet of Things Lab(63.75)** To strengthen PSO3 new practical oriented courses, with the usage of advanced tools are to be added in next curriculum.
Action Taken: **Action 1:** The faculty of courses whose target were low are instructed to conduct more tutorials to improve the performance. **Action 2** : A week day is conducted workshop on Blockchain Technology from 17th to 19th June, 2021			

Table B.7.1POs & PSOs Attainment Levels and Actions for improvement

Date
10-05-2024

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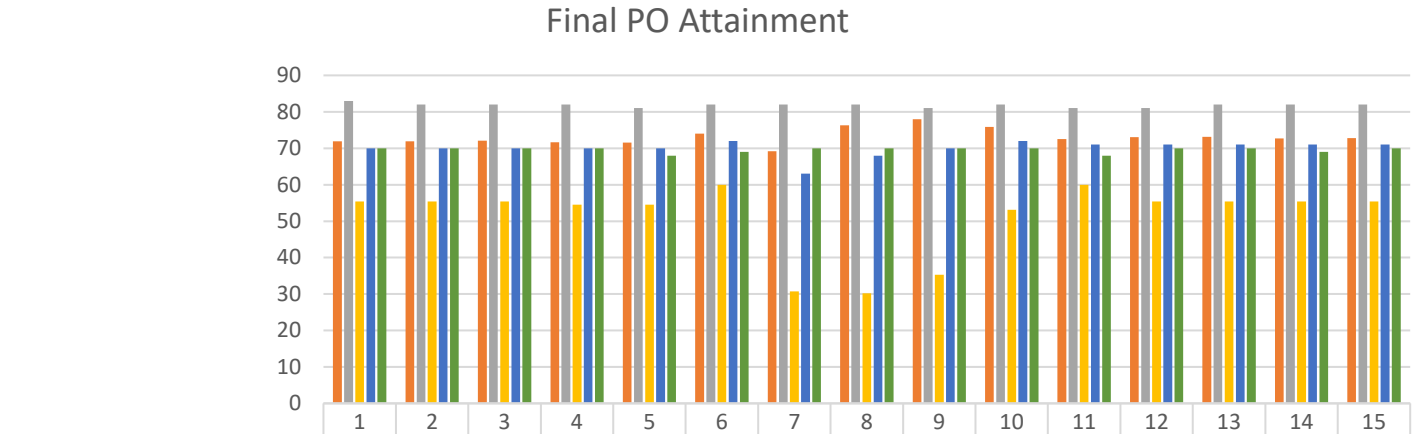
DEPARTMENT OF INFORMATION TECHNOLOGY

Final Combined PO-PSO Attainment



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Direct Attainment	72	72	72	72	72	74	69	76	78	76	72	73	73	73	73
Program Exit Survey	83	82	82	82	81	82	82	82	81	82	81	81	82	82	82
Student Portfolio Component	55	55	55	54	54	60	31	30	35	53	60	55	55	55	55
% Attainment	70	70	70	70	70	72	63	68	70	72	71	71	71	71	71
% Target	70	70	70	70	68	69	70	70	70	70	68	70	70	69	70

Date
10-05-2024

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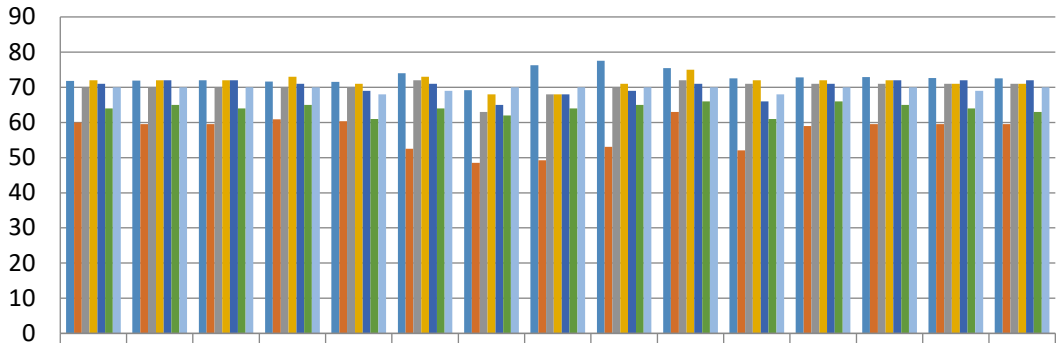
Final Po Attainment of 16, 17,18 and 19 Batch



	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Direct Attainment(%)	72	72	72	72	72	74	69	76	78	75	72	73	73	73	73
Indirect Attainment(%)	60	59	59	61	60	53	48	49	53	63	52	59	59	59	59
Final Attainment(%) Batch 19	70	70	70	70	70	72	63	68	70	72	71	71	71	71	71
Final Attainment(%) Batch 18	72	72	72	73	71	73	68	68	71	75	72	72	72	71	71
Final Attainment(%) Batch 17	71	72	72	71	69	71	65	68	69	71	66	71	72	72	72
Final Attainment(%) Batch 16	64	65	64	65	61	64	62	64	65	66	61	66	65	64	63
Target(%)	70	70	70	70	68	69	70	70	70	70	68	70	70	69	70

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