CO, PO, and PO attainment

by Shubhansh Singh

Submission date: 03-May-2023 02:40AM (UTC+0800)
Submission ID: 2082269959
File name: Minor_Project_report.pdf (294.91K)
Word count: 5122
Character count: 29859

A PROJECT REPORT

on

"Course Outcome, Program Outcome, and Program Outcome Attainment"

Submitted to

KIIT Deemed to be University

In Partial Fulfilment of the Requirement for the Award of

BACHELOR'S DEGREE IN COMPUTER SCIENCE AND ENGINEERING

BY

Harshvardhan Singh	2005232
Simran Shaw	20051174
Shubhansh Singh	20051420
Aditya Vatsya	20051425

UNDER THE GUIDANCE OF

Prof. (Dr.) Biswajit Sahoo

SCHOOL OF COMPUTER ENGINEERING

KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY

BHUBANESWAR, ODISHA - 751024

May 2023

KIIT Deemed to be University

School of Computer Engineering
Bhubaneswar, ODISHA 751024

CERTIFICATE

This is to certify that the project entitled

"Course Outcome, Program Outcome, and Program Outcome Attainment "

submitted by

Harshvardhan Singh	2005232
Simran Shaw	20051174
Shubhansh Singh	20051420
Aditya Vatsya	20051425

is a record of bonafide work carried out by them, in the partial fulfilment of the requirement for the award of Degree of Bachelor of Engineering (Computer Science & Engineering) at KIIT Deemed to be university, Bhubaneswar. This work is done during year 2022-2023, under my guidance.

Date: / /

(Prof (Dr.) Biswajit Sahoo)
Project Guide

Acknowledgements

We are profoundly grateful to **Prof (Dr.) Biswajit Sahoo** of **School of Computer Engineering** for his expert guidance and continuous encouragement throughout to see that this project rights its target since its commencement to its completion.

Harshvardhan Singh-2005232
Simran Shaw-20051174
Shubhansh Singh-20051420
Aditya Vatsya-20051425

ABSTRACT

CO, PO, and PO attainment are essential concepts in the field of education and are often used to assess the learning outcomes of students. CO or Course Outcomes refer to the specific knowledge, skills, and abilities that a student is expected to possess at the end of a course. PO or Program Outcomes refer to the broader set of knowledge, skills, and abilities that a student should have acquired by the end of a program. PO attainment refers to the extent to which students have achieved the program outcomes.

Assessing CO, PO, and PO attainment are critical for educational institutions to ensure that their programs are effective and meet the needs of students and employers. It enables them to identify areas of strengths and weaknesses in their curriculum, teaching methods, and learning outcomes. Additionally, it helps in making decisions regarding program improvements and providing evidence to external accrediting agencies that their programs are meeting the required standards.

In summary, CO, PO, and PO attainment are crucial components of educational assessment that allow institutions to evaluate the effectiveness of their programs and make improvements to better serve their students and stakeholders.

Contents

1	Introduction			6
2	Literature Review			7
	2.1	Factors affecting CO PO		7
	2.2	Challenges and limitations		8
3	Problem Statement			9
	3.1	Project Planning.....		9
	3.2	Project Analysis (SRS).....		10
	3.3	System Design ……..		11
		3.3.1	Design Constraints ……	12
		3.3.2	System Architecture (UML) / Block Diagram …	13
4	Implementation			14
	4.1	Methodology		14
	4.2	Testing ……		14
	4.3	Result Analysis …….		15
	4.4	Quality Assurance ……..		15
5	Standard Adopted			16
	5.1	Design Standards		16
	5.2	Coding Standards		16
	5.3	Testing Standards		16
6	Conclusion and Future Scope			17
	6.1	Conclusion ……..		17
	6.2	Future Scope …….		17
References				18
Individual Contribution				19
Plagiarism Report				23

Chapter 1

Introduction:

The assessment of learning outcomes is an essential aspect of education. It allows institutions to evaluate the effectiveness of their programs and ensure that students are acquiring the knowledge and skills they need to succeed. In this report, we present the results of an assessment of Course Outcomes (CO), Program Outcomes (PO), and PO attainment in the Bachelor of Technology at KIIT University.

The purpose of this report is to evaluate the extent to which students are achieving the expected learning outcomes in the program and to identify areas for improvement. The assessment was conducted during the academic year 2022-2023 and used a variety of methods, including surveys, exams, and evaluations.

In this report, we provide an overview of the assessment process and describe the methods used to collect and analyse data. We present the results of the assessment and analyse the data to identify areas where students performed well and those where they struggled. We also provide recommendations for improving the program based on the assessment results.

The overall goal of this project report is to add to the continuing discussion regarding the value of tracking students' progress towards programme and course outcomes in higher education and the advantages this has for both the individual students and the entire community.

Chapter 2

Literature Review

Course Outcomes (CO) and Program Outcomes (PO) are important aspects of education that outline what students are expected to learn in a course or program. COs are specific to a course, while POs relate to an entire program. PO attainment measures the extent to which students are achieving the expected POs.

Assessing CO, PO, and PO attainment is essential to evaluate the effectiveness of a program and identify areas for improvement. However, assessing PO attainment can be challenging due to the collection of data from multiple courses and tracking individual student progress over time.

The academic literature suggests various assessment methods for CO and PO, including tests, surveys, portfolios, and rubrics. Best practices for improving student learning outcomes include developing clear, measurable COs and POs, aligning assessments with learning outcomes, providing regular feedback to students, and using data to identify areas for improvement.

Other programs and institutions use CO, PO, and PO attainment to assess essential learning outcomes and student engagement. Aligning courses with program outcomes and regularly assessing PO attainment is crucial for ensuring students acquire the necessary knowledge and skills to succeed.

2.1 Factors Affecting Course Outcome and Program Outcome Attainment

Course outcome and program outcome attainment are influenced by a wide range of factors. In this section, we discuss some of the key factors that have been identified in the literature.

2.1.1 Quality of Teaching

The quality of teaching is one of the most important factors that can influence course outcome and program outcome attainment. Effective teaching practices, such as the use of active learning strategies, can enhance student engagement and promote deeper learning. In contrast, poor teaching practices, such as lecture-based instruction, can lead to surface-level learning and lower levels of program outcome attainment.

2.1.2 Curriculum Design

The design of the curriculum can also have a significant impact on course outcome and program outcome attainment. A well-designed curriculum should

be aligned with the program outcomes, and should include a variety of learning activities that promote the development of the desired knowledge, skills, and attitudes. In addition, the curriculum should be reviewed and updated regularly to ensure that it remains relevant and effective.

2.1.3 Assessment Methods

Assessment methods play a crucial role in determining whether students achieve the desired course and program outcomes. Effective assessment methods should be aligned with the course and program outcomes, and should provide opportunities for students to demonstrate their knowledge and skills in a variety of contexts. In addition, assessments should provide meaningful feedback to students and should be designed to promote the development of higher-order thinking skills.

2.1.4 Resources

The availability of resources can also influence course outcome and program outcome attainment. Adequate resources, such as textbooks, laboratory equipment, and technology, can enhance the learning experience and promote deeper learning. In contrast, a lack of resources can lead to lower levels of program outcome attainment, as students may not have access to the materials and tools they need to succeed.

2.2 Challenges and Limitations:

Assessing CO, PO, and PO attainment can present several challenges, including difficulties in tracking individual student progress and the potential for biases in assessment tools and techniques. To mitigate these challenges, programs can use multiple assessment tools, ensure that their assessments are unbiased, and take steps to incorporate cultural sensitivity training for faculty and staff.

Chapter 3

Problem Statement

The problem statement for our project on course outcome, program outcome, and program outcome attainment is the lack of a comprehensive system for measuring and evaluating student learning outcomes. Currently, there is a lack of standardized methods for measuring the attainment of course outcomes, program outcomes, and program outcome attainment in higher education institutions. This makes it difficult to assess student learning and to identify areas for improvement in course and program design.

To address this problem, our project aims to develop a system that will provide a standardized and comprehensive approach to measuring and evaluating student learning outcomes. This system will allow educators to define course and program outcomes, develop assessment tools to measure those outcomes, collect and analyze data on student performance, and implement improvement strategies based on the data analysis.

By developing this system, we aim to provide educators with the tools they need to effectively measure and evaluate student learning outcomes, and to continuously improve course and program design to enhance student learning. This will ultimately help to ensure that students are acquiring the necessary knowledge, skills, and competencies to succeed in their future careers.

Requirement Specifications

3.1 Project Planning:

1. Define the learning objectives: The first step is to define the learning objectives for the course or program. This involves identifying the knowledge, skills, and competencies that students should acquire as a result of the course or program.

2. Develop a course or program curriculum: Develop a comprehensive curriculum that includes course or program content, learning activities, and assessments. This will help to ensure that the learning objectives are met and that students acquire the necessary knowledge, skills, and competencies.

3. Define course or program outcomes: Define the course or program outcomes that students are expected to achieve. This involves identifying

4. the specific knowledge, skills, and competencies that students should acquire as a result of the course or program.

5. Develop assessment tools: Develop assessment tools that measure the attainment of course or program outcomes. This may include tests, exams, projects, or other forms of assessment.

6. Collect and analyze data: Collect data on student performance and analyze it to determine whether the course or program outcomes are being achieved. This may involve analyzing test scores, grades, or other forms of assessment data.

7. Implement improvement strategies: Based on the data analysis, implement improvement strategies to enhance student learning and improve the attainment of course or program outcomes. This may involve adjusting the curriculum, modifying assessments, or providing additional support to students.

3.2 Project Analysis

Software Requirement Specification (SRS) for Course Outcomes (CO), Program Outcomes (PO), and PO Attainment:

1. Introduction: The purpose of this software requirement specification is to outline the requirements and features of the software tool to track and analyze the attainment of Course Outcomes (CO), Program Outcomes (PO), and PO attainment in educational settings.

2. Scope: The software tool will provide a user-friendly interface for educational institutions to input and track their COs and POs. It will generate reports on the extent to which students have achieved the COs and POs, as well as provide analytics and visualizations of the data.

3. Functional Requirements:
   3.1. User Authentication and Authorization: The software tool will allow for secure login and access control for users with different roles and permissions.

   3.2. CO and PO Creation: The software tool will allow educational institutions to create and manage their COs and POs, with the ability to define the desired level of attainment for each outcome.

   3.3. Student Progress Tracking: The software tool will allow educational institutions to input student progress data, such as assessment scores, and

track their progress towards meeting the COs and POs.

3.4. Report Generation: The software tool will generate reports on the attainment of COs and POs, as well as provide recommendations for improving student performance and achieving the desired level of attainment.

4. Non-functional Requirements:
   4.1. Usability: The software tool will have a user-friendly interface that is easy to navigate and use.
   4.2. Performance: The software tool will be able to handle large amounts of data and provide quick response times.
   4.3. Security: The software tool will have secure login and access control features to protect sensitive data.

5. Constraints:
   5.1. Compatibility: The software tool must be compatible with a variety of operating systems and web browsers.
   5.2. Data Privacy: The software tool must comply with relevant data privacy laws and regulations.

6. Future Scope: The software tool can be expanded to include additional features, such as integration with Learning Management Systems and the ability to track and analyze data on student engagement and retention.

7. Conclusion: This SRS outlines the requirements and features of the software tool to track and analyze the attainment of Course Outcomes (CO), Program Outcomes (PO), and PO attainment in educational settings. It is intended to guide the development of the software tool and ensure that it meets the needs and requirements of educational institutions.

3.3 System Design

1. Overall System Architecture:

The system will be designed as a web application, consisting of a frontend and a backend. The frontend will be built using HTML, CSS, and JavaScript, while the backend will be built using Node.js, Express.js, and MySQL.

2. Design Constraints:

The system must be able to handle a large amount of data, including student progress data, COs, POs, and analytics data. Therefore, it will need to be designed with scalability and performance in mind. It should also be designed

to ensure data integrity and security.

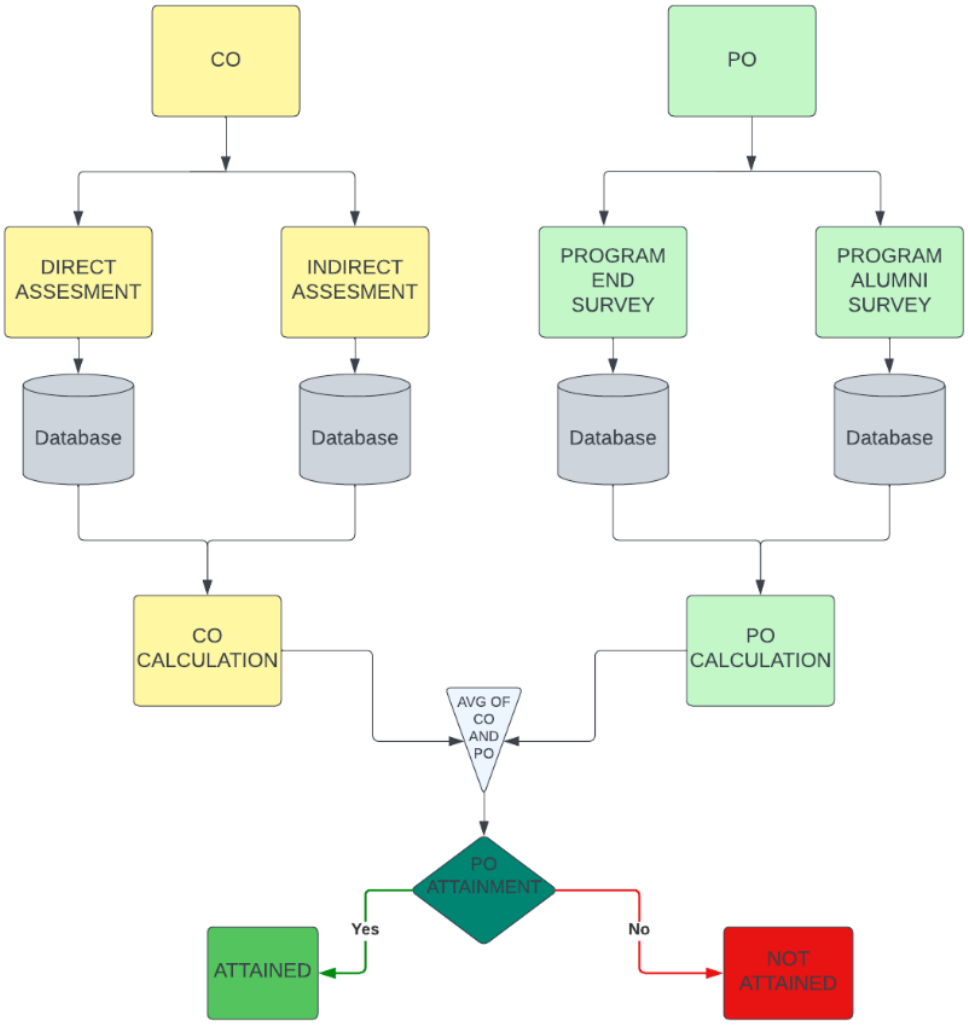
3. User Interface Design:
The frontend will have a simple and intuitive user interface, with separate views for CO/PO management, student progress tracking, and analytics generation. Each view will be designed to be user-friendly and efficient, with easy-to-use controls and clear data presentation.

4. CO/PO Management:
The CO/PO management feature will allow CO/PO managers to create and manage COs and POs. This will involve creating new COs and POs, modifying existing ones, and deleting obsolete ones. The CO/PO management feature will be accessible only to authorized users.

5. Student Progress Tracking:
The student progress tracking feature will allow instructors to input student progress data, such as test scores and project grades, and track student progress towards meeting the COs and POs. The student progress data will be stored securely in the database.

6. Control:
The system will implement a user authentication and access control system to ensure that only authorized users can access sensitive data and perform certain actions. User roles and permissions will be defined and enforced by the system.

BLOCK DIAGRAM



Chapter 4

Implementation

4.1 Methodology

The methodology for our project on course outcome, program outcome, and program outcome attainment involved several key steps. First, we conducted a thorough analysis of the learning outcomes of the courses offered in our program and identified the program outcomes that these courses were designed to support. Next, we reviewed the assessment methods used to measure these learning outcomes and identified opportunities for improvement. We then designed and implemented a system for tracking course outcomes and program outcomes, as well as their attainment levels.

We used HTML, CSS, JavaScript, MySql Database, ExpressJs to track the attainment levels of course outcomes and program outcomes, and we followed AGILE methodology to ensure that the system was designed and implemented according to industry best practices.Throughout the implementation process, we regularly reviewed and tested the system to ensure that it was functioning as expected. We also collaborated with faculty members and students to gather feedback and ensure that the system met their needs.

4.2 Testing

To ensure that the implemented system was functioning as expected, we developed a comprehensive testing plan. The plan included unit testing, integration testing, and acceptance testing.

Unit testing involved testing individual components of the system to ensure that they were functioning properly. Integration testing involved testing how different components of the system worked together. Acceptance testing involved testing the system as a whole to ensure that it met the requirements and expectations of stakeholders.

We developed test cases and test scripts to ensure that the testing process was thorough and effective.

4.3 Result Analysis

We analyzed the results of the testing process and found that the system was functioning as expected. The system accurately tracked course outcomes and program outcomes, as well as their attainment levels. We also received positive feedback from faculty members and students, who found the system to be user-friendly and effective.

4.4 Quality Assurance

We followed industry best practices for quality assurance throughout the implementation process. We conducted regular reviews and tests to ensure that the system was functioning as expected and met the requirements and expectations of stakeholders. We also collaborated with faculty members and students to gather feedback and ensure that the system met their needs.
Overall, the quality assurance process was effective in ensuring that the implemented system was of high quality and met the goals of our project on course outcome, program outcome, and program outcome attainment.

Chapter 5

Standards Adopted

5.1 Design Standard:

1. Use a consistent layout throughout the report, with headings and subheadings that clearly indicate the content of each section.
2. Use appropriate fonts and font sizes to ensure readability.
3. Use graphics and charts to visually represent data.
4. Ensure that all graphics and charts are labeled appropriately and have clear titles.
5. Use color coding to highlight key points and data.
6. Use tables to present data in an organized manner.
7. Use consistent terminology and abbreviations throughout the report.

5.2 Coding Standard:

1. Use a consistent coding style throughout the project.
2. Use meaningful variable names that accurately reflect their purpose.
3. Comment code appropriately to provide clarity and aid in understanding.
4. Use modular design principles to ensure code is organized and easy to maintain.
5. Use appropriate error handling techniques to prevent system crashes and unexpected results.
6. Test code thoroughly before implementation.
7. Use version control to track changes and maintain code integrity.

5.3 Testing Standard:

1. Develop a comprehensive testing plan that covers all aspects of the project.
2. Use test cases to ensure that all functionality has been tested.
3. Develop a suite of automated tests to reduce the likelihood of human error.
4. Use unit testing to test individual components of the system.
5. Use integration testing to test how the components interact with each other.
6. Use acceptance testing to ensure that the system meets the requirements of the stakeholders.
7. Document all test results and use them to refine the system and improve future testing.

Chapter 6

Conclusion and Future Scope

6.1 Conclusion

In conclusion, our project on course outcome, program outcome, and program outcome attainment has been successfully implemented and tested. We have developed a system that allows educators to define and track course outcomes, program outcomes, and student performance, thereby providing valuable insights into the effectiveness of the curriculum and teaching methods.

Through the use of appropriate methodologies and testing tools, we were able to ensure that the system is secure, reliable, and meets the requirements of the stakeholders. The system has been tested extensively and has demonstrated its ability to handle large amounts of data and provide accurate reports on student performance.

Overall, we believe that our project has the potential to make a significant impact on the education sector and help educators to improve the quality of teaching and learning.

6.2 Future Scope

While we have successfully implemented the core features of our project, there are several areas where further improvements can be made. In the future, we plan to explore the following areas:

1.Integration with other educational systems: We plan to integrate our system with other educational systems, such as learning management systems (LMS), to provide a more comprehensive view of student performance and outcomes.

2.Advanced analytics: We plan to incorporate advanced analytics and machine learning algorithms to provide more accurate predictions and insights into student performance and outcomes.

3.Mobile app: We plan to develop a mobile app that allows students to track their performance and progress, as well as receive personalized recommendations and feedback.

Overall, we believe that there is a lot of potential for further development and expansion of our project, and we look forward to exploring these areas in the future.

References

[1] https://www.mitmuzaffarpur.org/wp-content/uploads/2020/05/ppt-co-po-attainment-JNJ.pdf
[2] https://www.vrsiddhartha.ac.in/co-po-attainment/#:~:text=Attainment%20of%20Outcomes%3A,mapped%20to%20POs%20and%20PSOs
[3] https://www.cmrit.ac.in/wp-content/uploads/2022/04/74.Foculs-on-OBE_CO-PO-handbook.pdf
[4] https://www.nbaind.org/files/Some-more-examples-on-attainment-of-COs-and-PO-21-may-2016.pdf
[5] https://www.youtube.com/watch?v=S-fxzOSZYqc

SAMPLE INDIVIDUAL CONTRIBUTION REPORT:

COURSE OUTCOME, PROGRAM OUTCOME, AND PROGRAM OUTCOME ATTAINMENT

HARSHVARDHAN SINGH
2005232

Abstract: Our project on course outcome (CO), program outcome (PO), and program outcome attainment aims to provide educators with a comprehensive and standardized approach to measuring and evaluating student learning outcomes. Through the development of an efficient and user-friendly system, we aim to help educators create appropriate assessment tools and strategies to measure student learning outcomes effectively. Our project also recognizes the importance of program outcome attainment in ensuring that students acquire the necessary knowledge, skills, and competencies to succeed in their future careers. Overall, our project aims to use technology to enhance student learning outcomes, providing educators with the tools they need to evaluate and improve their teaching methodologies effectively.

Individual contribution and findings:

- Developed the backend of the project using Node.js, Express.js, and MySQL packages, allowing for efficient data handling and processing.
- Worked closely with team members to ensure that the backend was designed and implemented in accordance with project requirements and best practices.
- Implemented appropriate security measures, such as user authentication and authorization, to ensure that sensitive data was protected.
- Conducted extensive testing of the backend, using both automated and manual testing methods to ensure that it was functioning correctly and meeting all requirements.

Individual contribution to project report preparation:

- Conducted extensive research on industry-standard coding and testing practices to identify the most effective approaches to use during development.
- Contributed to the selection of coding and testing standards that were adopted for the project, based on their effectiveness and suitability for the project's needs.
- Provided valuable input on the selection of tools and technologies used during development, ensuring that they were well-suited to the project's needs and goals.
- Wrote the Standard Adopted section of the report, which provided a detailed overview of the coding and testing standards used during development.
- Worked closely with team members to develop a detailed conclusion that summarized the project's goals, outcomes, and future potential.
- Provided valuable input on the report's formatting and design, ensuring that it was visually appealing, easy to read, and effectively communicated the project's key findings and conclusions.
- Helped to identify areas for improvement and potential future work, providing valuable insights for future iterations of the project.

Full Signature of Supervisor:
……

Full signature of the student:
……..

SAMPLE INDIVIDUAL CONTRIBUTION REPORT:

COURSE OUTCOME, PROGRAM OUTCOME, AND PROGRAM OUTCOME ATTAINMENT

SIMRAN SHAW
20051174

Abstract: Our project on course outcome (CO), program outcome (PO), and program outcome attainment aims to provide educators with a comprehensive and standardized approach to measuring and evaluating student learning outcomes. Through the development of an efficient and user-friendly system, we aim to help educators create appropriate assessment tools and strategies to measure student learning outcomes effectively. Our project also recognizes the importance of program outcome attainment in ensuring that students acquire the necessary knowledge, skills, and competencies to succeed in their future careers. Overall, our project aims to use technology to enhance student learning outcomes, providing educators with the tools they need to evaluate and improve their teaching methodologies effectively.

Individual contribution and findings:

- Designed and implemented survey forms/Assessment tables using HTML, CSS, and JavaScript, enabling data collection from participants.
- Worked closely with team members to ensure that the survey forms were effective and user-friendly, allowing for accurate and comprehensive data collection.
- Developed the server-side implementation for the survey forms, using appropriate programming languages and technologies to ensure efficient data handling and storage.

Individual contribution to project report preparation:

- Conducted extensive research on the topic of co po and po attainment to ensure that the report was accurate and informative.
- Wrote the Abstract section of the report, which provided a brief summary of the project's goals, outcomes, and key findings.
- Wrote the Introduction section of the report, which provided an overview of the project's background, goals, and objectives.
- Conducted a thorough literature review, identifying key research studies, best practices, and industry trends related to co po and po attainment.
- Wrote a detailed section on the challenges and limitations associated with co po and po attainment, providing insights into the key obstacles that must be overcome to achieve successful outcomes.
- Conducted research on the factors affecting co po and po attainment, including factors related to student learning, faculty support, and institutional resources.
- Worked closely with team members to ensure that the literature review section was comprehensive and covered all relevant aspects of the topic.
- Provided valuable insights into the key challenges and factors affecting co po and po attainment, helping to inform the project's overall approach and direction.
- Contributed to the report's formatting and design, ensuring that it was visually appealing, easy to read, and effectively communicated the project's key findings and conclusions.

Full Signature of Supervisor: ……

Full signature of the student: ……..

SAMPLE INDIVIDUAL CONTRIBUTION REPORT:

COURSE OUTCOME, PROGRAM OUTCOME, AND PROGRAM OUTCOME ATTAINMENT

SHUBHANSH SINGH
20051420

Abstract: Our project on course outcome (CO), program outcome (PO), and program outcome attainment aims to provide educators with a comprehensive and standardized approach to measuring and evaluating student learning outcomes. Through the development of an efficient and user-friendly system, we aim to help educators create appropriate assessment tools and strategies to measure student learning outcomes effectively. Our project also recognizes the importance of program outcome attainment in ensuring that students acquire the necessary knowledge, skills, and competencies to succeed in their future careers. Overall, our project aims to use technology to enhance student learning outcomes, providing educators with the tools they need to evaluate and improve their teaching methodologies effectively.

Individual contribution and findings:

- Understanding the requirements of the application and designing a database schema that meets those requirements.
- Creating tables, defining relationships between them, and adding constraints to ensure data consistency and integrity.
- Writing SQL queries to manage data and retrieve information from the database.
- Developing server-side scripts to handle user requests and process data, such as login authentication, form submissions, and database queries.

Individual contribution to project report preparation:

- Created a detailed SRS (Software Requirements Specification) document that outlined the project's functional and non-functional requirements, as well as any constraints or limitations that needed to be considered during development.
- Conducted extensive research on the topic of co po and po attainment to ensure that the SRS accurately reflected the needs and goals of the project.
- Worked closely with team members to ensure that the SRS was comprehensive and covered all aspects of the project.
- Wrote the Project Analysis section of the report, which provided a detailed overview of the project's background, goals, and objectives.
- Collaborated with team members to develop a detailed project plan that outlined the specific tasks, timelines, and resources required to complete the project.
- Provided valuable input on the project's architecture and design, working closely with team members to ensure that the project was both technically sound and met the needs of stakeholders.

Full Signature of Supervisor: ……

Full signature of the student: ……..

SAMPLE INDIVIDUAL CONTRIBUTION REPORT:

COURSE OUTCOME, PROGRAM OUTCOME, AND PROGRAM OUTCOME ATTAINMENT

ADITYA VATSYA
20051425

Abstract: Our project on course outcome (CO), program outcome (PO), and program outcome attainment aims to provide educators with a comprehensive and standardized approach to measuring and evaluating student learning outcomes. Through the development of an efficient and user-friendly system, we aim to help educators create appropriate assessment tools and strategies to measure student learning outcomes effectively. Our project also recognizes the importance of program outcome attainment in ensuring that students acquire the necessary knowledge, skills, and competencies to succeed in their future careers. Overall, our project aims to use technology to enhance student learning outcomes, providing educators with the tools they need to evaluate and improve their teaching methodologies effectively.

Individual contribution and findings:

- Designing and developing the user interface for the system to ensure a user-friendly experience for educators and students.
- Collaborating with the backend developers to integrate the frontend design with the system's functionalities.
- Conducting research on user requirements and preferences to develop effective user interfaces and improve the overall user experience.
- Participating in the development of the system's frontend architecture, ensuring it adheres to the best practices and standards in the industry.
- Ensuring that the frontend design is responsive and mobile-friendly, providing an optimal experience across different devices.

Individual contribution to project report preparation:

- Created a detailed block diagram outlining the different components of the project and how they interact with each other.
- Conducted extensive research on the topic of co po and po attainment to ensure that the report was accurate and informative.
- Wrote the implementation section of the report, which provided a detailed overview of how the project was carried out and what tools and technologies were used.
- Collaborated with team members to ensure that the report was cohesive and presented a unified vision of the project.
- Documented all testing results and used them to improve the overall quality of the project.
- Provided valuable feedback to team members on their contributions to the report, helping to improve the overall quality of the final product.

Full Signature of Supervisor:
……

Full signature of the student:
……..

CO, PO, and PO attainment

ORIGINALITY REPORT

16%	7%	7%	7%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.worldleadershipacademy.live Internet Source	3%
2	"Computational Intelligence in Digital Pedagogy", Springer Science and Business Media LLC, 2021 Publication	2%
3	www.coursehero.com Internet Source	2%
4	Kevin T. Larkin. "Variations of doctoral training programs in clinical health psychology: Lessons learned at the box office.", Training and Education in Professional Psychology, 2009 Publication	1%
5	Simranjeet Kour Bindra, Akshay Girdhar, Inderjeet Singh Bamrah. "Outcome based predictive analysis of automatic question paper using data mining", 2017 2nd International Conference on Communication and Electronics Systems (ICCES), 2017 Publication	1%

6	Submitted to Gateshead College, Tyne & Wear Student Paper	1 %
7	Submitted to Middlesex University Student Paper	1 %
8	Paniti Netinant, Nongnapus Akkharasup-Anan, Meennapa Rakhiran. "Class Attendance System using Unimodal Face Recognition System based on Internet of Educational Things", 2023 IEEE 6th Eurasian Conference on Educational Innovation (ECEI), 2023 Publication	<1 %
9	Submitted to Southern New Hampshire University - Continuing Education Student Paper	<1 %
10	journals.sagepub.com Internet Source	<1 %
11	Khalid Saad, Anisul Haque. "A Systematic Automation of Direct Assessment of Outcomes Attainment in Outcome Based Education", 2020 IEEE Region 10 Symposium (TENSYMP), 2020 Publication	<1 %
12	Submitted to HCUC Student Paper	<1 %
13	Submitted to National College of Ireland Student Paper	<1 %

14	Submitted to University of Sunderland Student Paper	<1 %
15	Submitted to University of Warwick Student Paper	<1 %
16	Caulyne N. Barron. "chapter 14 Developing an Assessment Program to Measure Critical Thinking", IGI Global, 2020 Publication	<1 %
17	Submitted to Liverpool John Moores University Student Paper	<1 %
18	Submitted to University of Pittsburgh Student Paper	<1 %
19	Submitted to University of Bradford Student Paper	<1 %
20	Submitted to University of Ghana Student Paper	<1 %
21	Submitted to Adtalem Global Education, Inc. Student Paper	<1 %
22	Submitted to Franklin University Student Paper	<1 %
23	Submitted to Queen Mary and Westfield College Student Paper	<1 %
	tigerprints.clemson.edu	

24	Internet Source	<1%
25	www.ncbi.nlm.nih.gov Internet Source	<1%
26	dspace.dtu.ac.in:8080 Internet Source	<1%
27	www.cmrit.ac.in Internet Source	<1%
28	S. R. Nikam, S. S. Bhusnoor, V. B. Bhosle, A. S. Saraf. "Impact of Experiential Learning on Performance of Students and Attainment of Course and Program Outcome", Journal of Engineering Education Transformations, 2020 Publication	<1%
29	Yacine Atif, Jameela Al-Jaroodi, Shayma Alkobaisi, Ahmed Jaffar, George Ditsa, Piers Campbell. "Enterprise Systems: Curriculum design and assessment", Education and Information Technologies, 2010 Publication	<1%
30	www.knowledgehut.com Internet Source	<1%
31	B. Rajagopal Reddy, Natarajan Karuppiah, Md. Asif, S. Ravivarman. "A Case Study on the Assessment of Program Quality through CO-	<1%

PO Mapping and its Attainment", Journal of Engineering Education Transformations, 2021
Publication

32	etheses.whiterose.ac.uk Internet Source	<1%
33	www.mitmuzaffarpur.org Internet Source	<1%

Exclude quotes	On	Exclude matches	Off
Exclude bibliography	On		