EMEA
COLLEGE OF ARTS AND SCIENCE, Kondotty
Aided by Govt. of Kerala, Affiliate to the University of Calicut
Re-accredited with "A" Grade by NAAC

P O Kumminiparamba – 673638
Malappuram Dist. Kerala-India
Ph: +91 483 2712030 l 2713530 l 2715020 l Fax: +91 483 2713530
Email: mail@emeacollege.ac.in l www.emeacollege.ac.n

ANNUAL QUALITY ASSURANCE REPORT 2023-24

EMEA COLLEGE OF ARTS AND SCIENCE, KONDOTTY

CRITERIA II

Students Performance & Learning Outcomes

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2.6.2 - Attainment of Programme outcomes and course outcomes are evaluated by the institution.

Supporting Documents - Specimen

- Course Attainment
- Benchmark
- Course Outcome
- CO-PO Mapping
- Direct Assessment
- Mark Entry
- Setting
- Indirect Mapping
- Attain Report
- OBE Report

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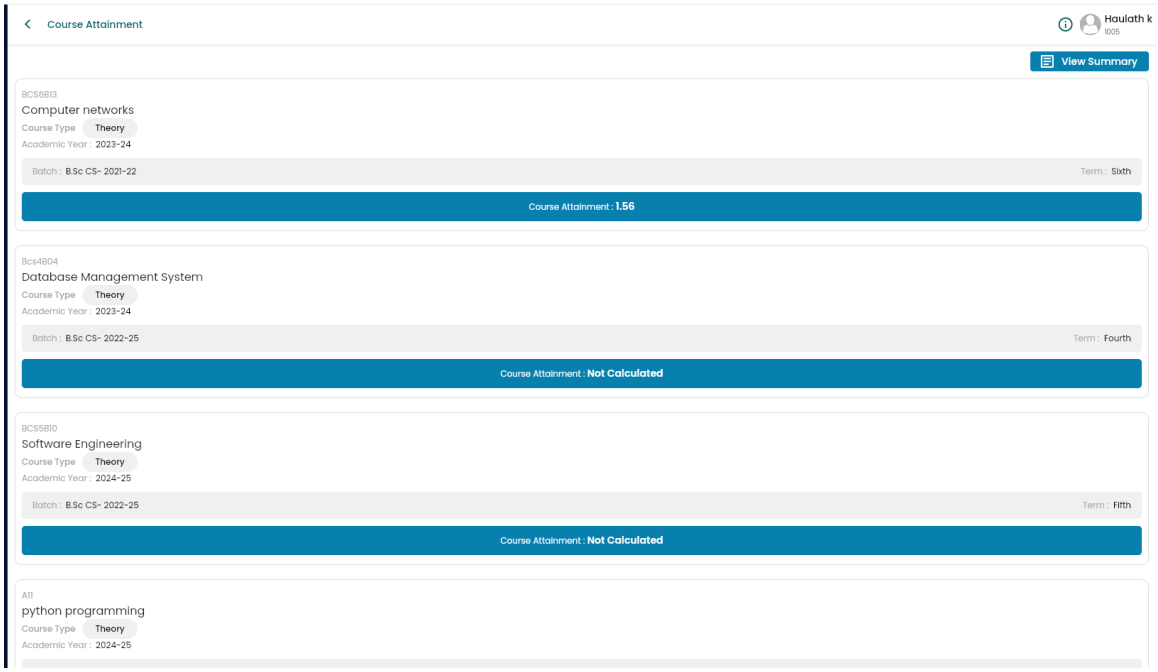
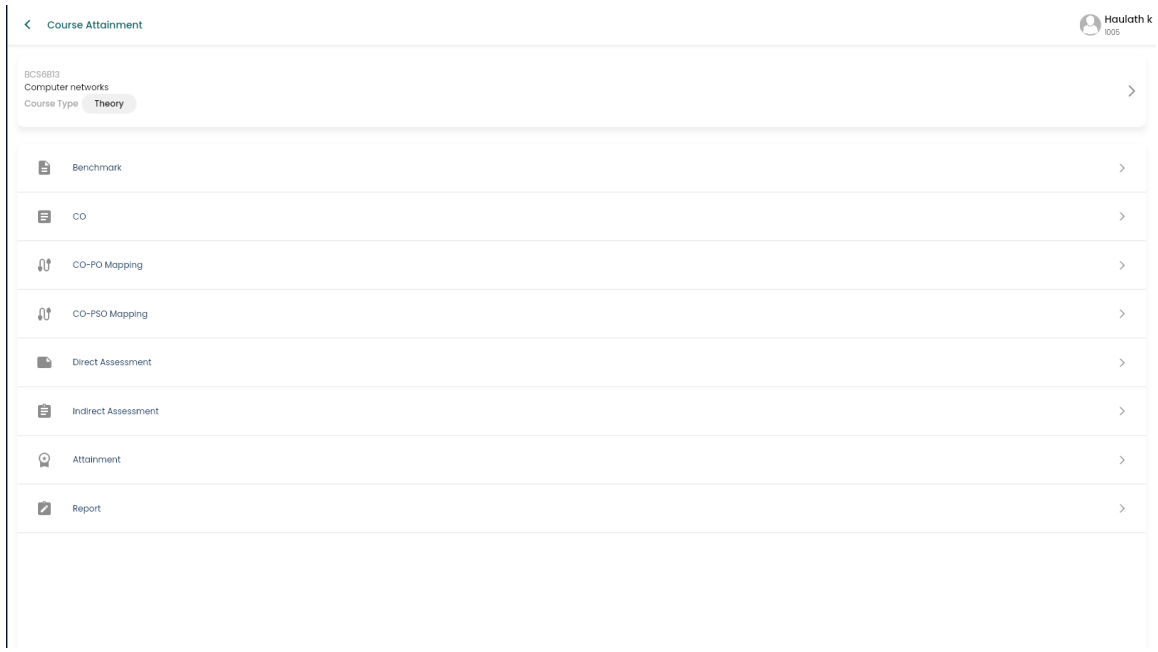
Course Attainment





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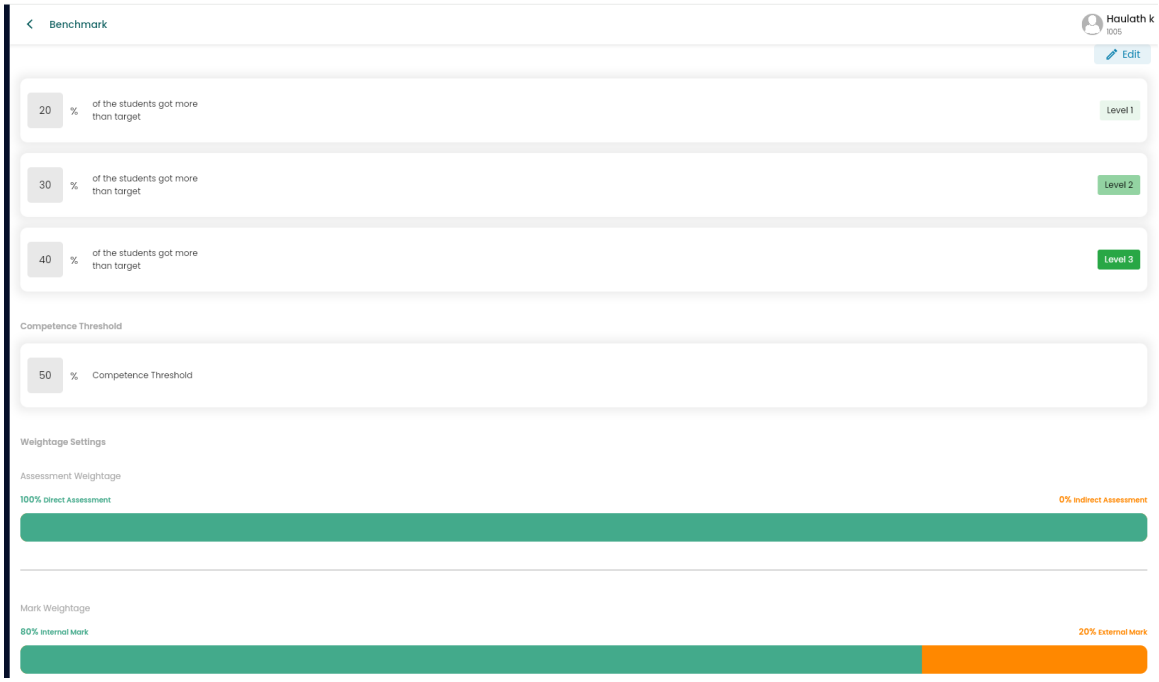
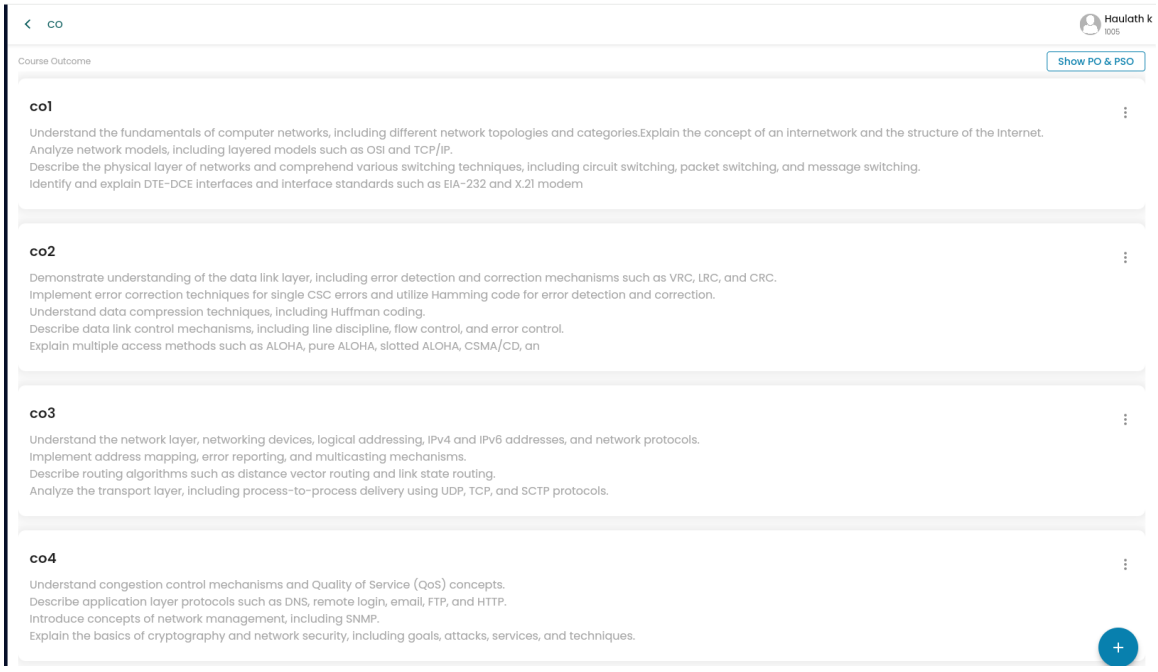
Benchmark



Course Outcome



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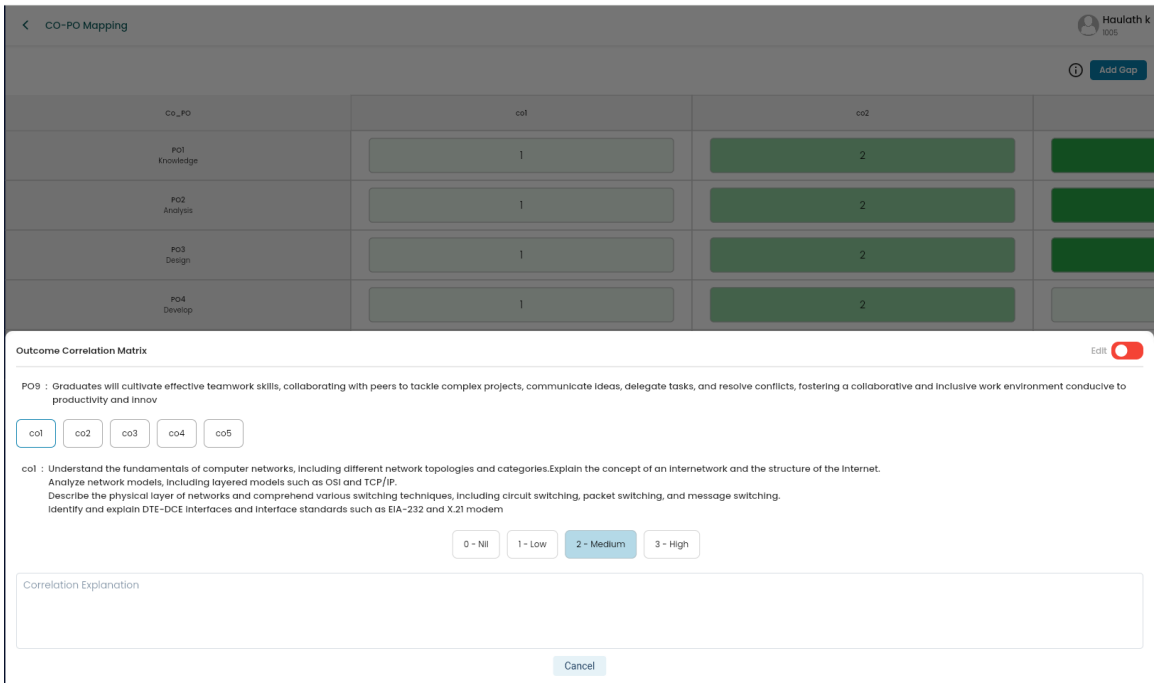
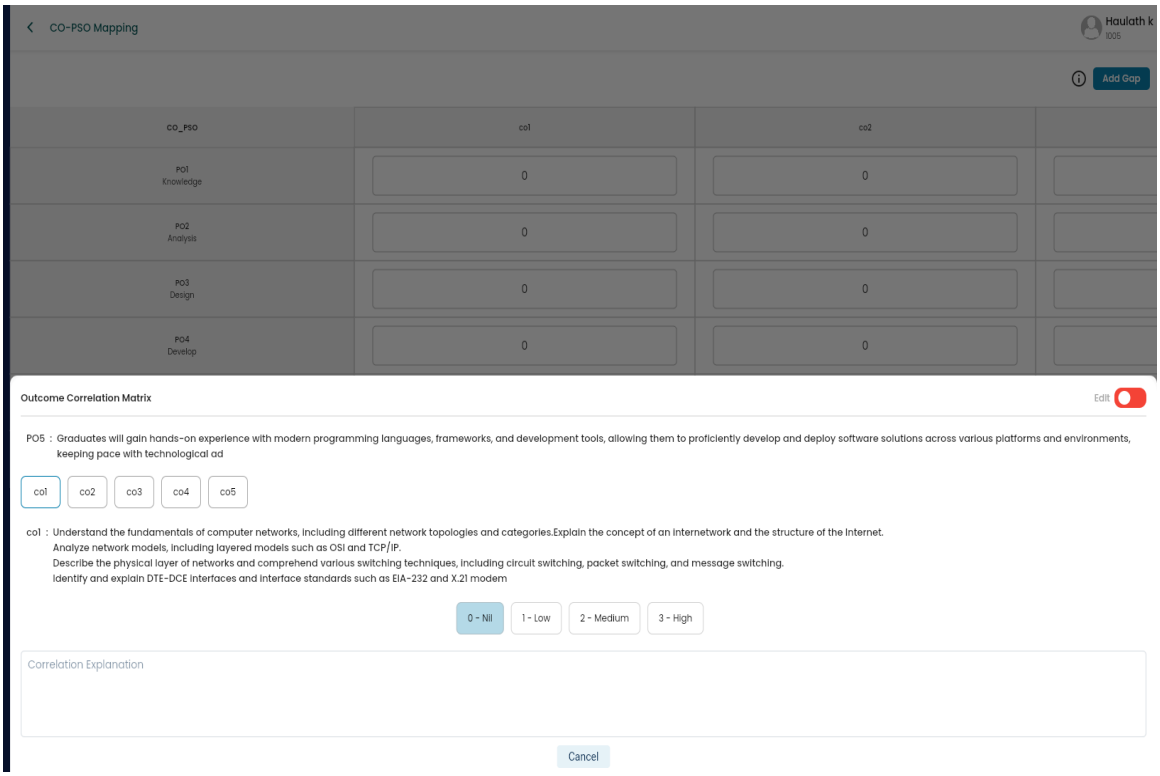
CO-PO Mapping





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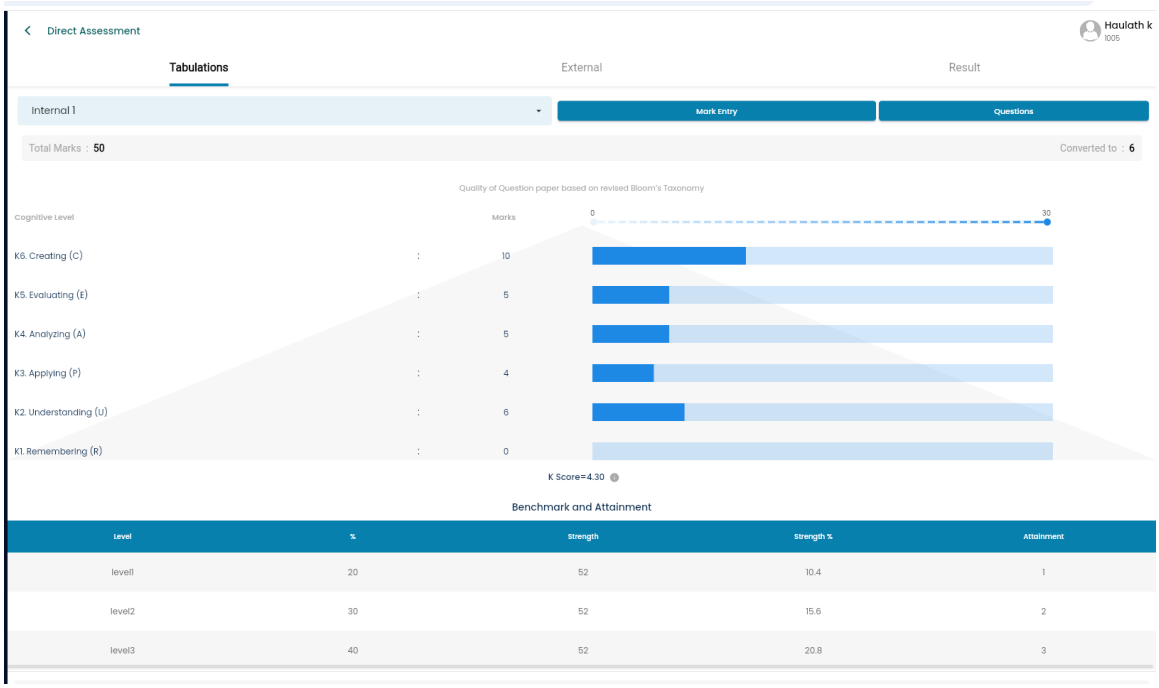
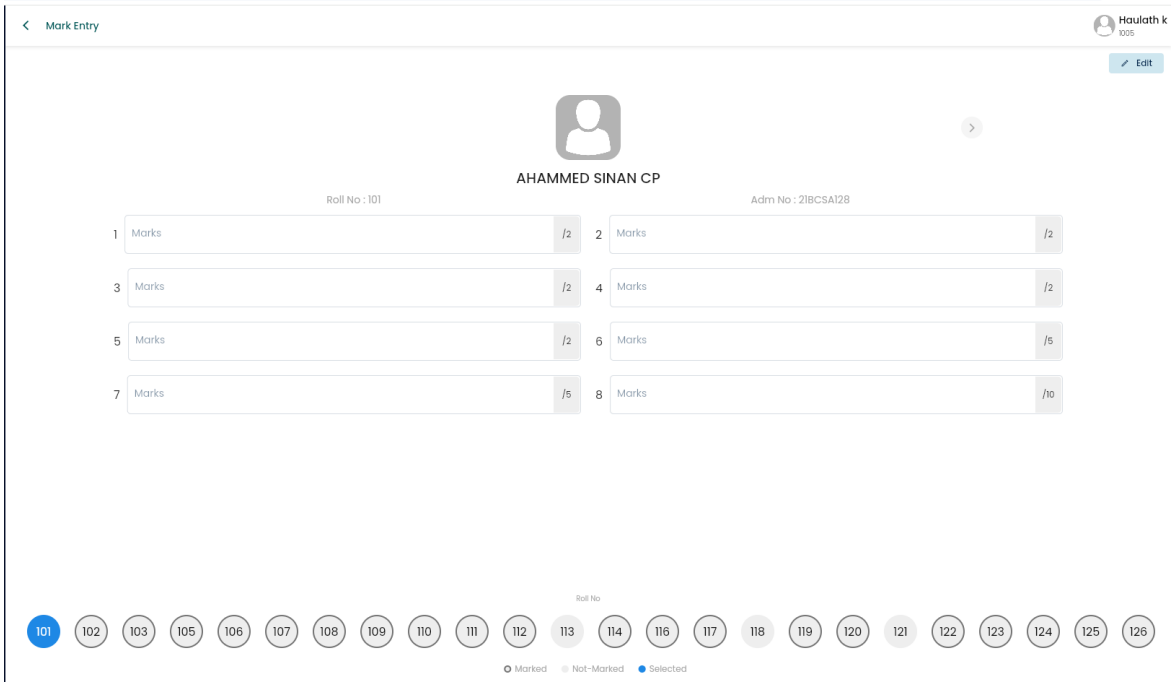
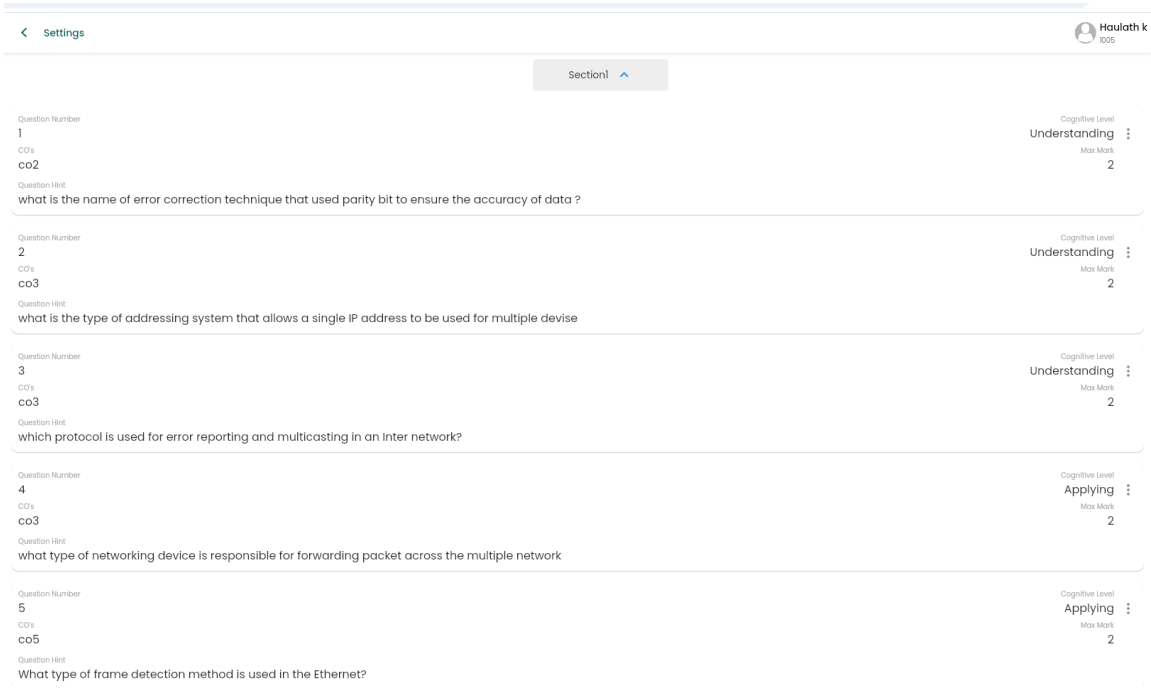
Direct Assessment

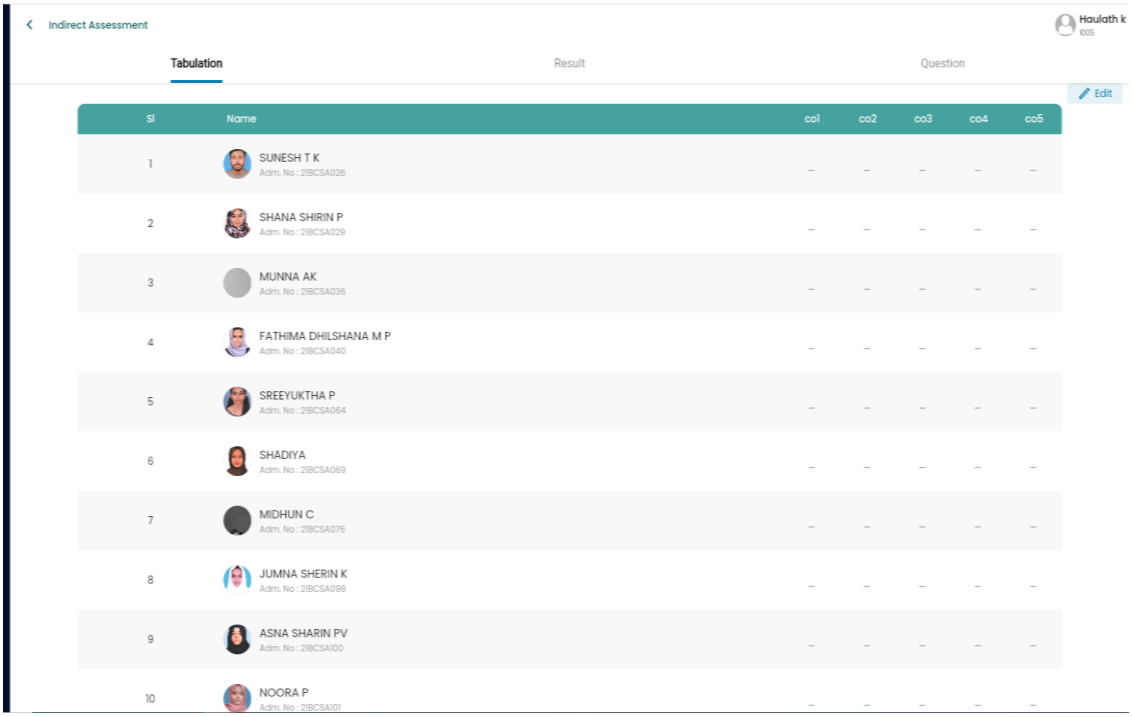


Mark Entry





Indirect Assessment



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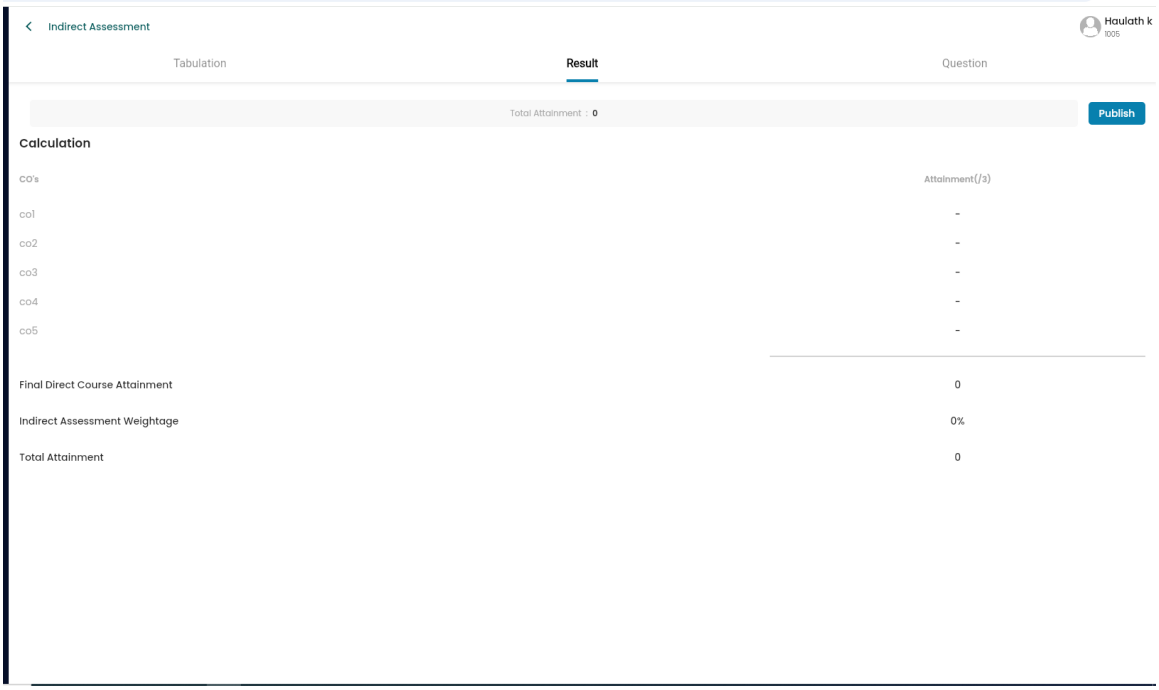
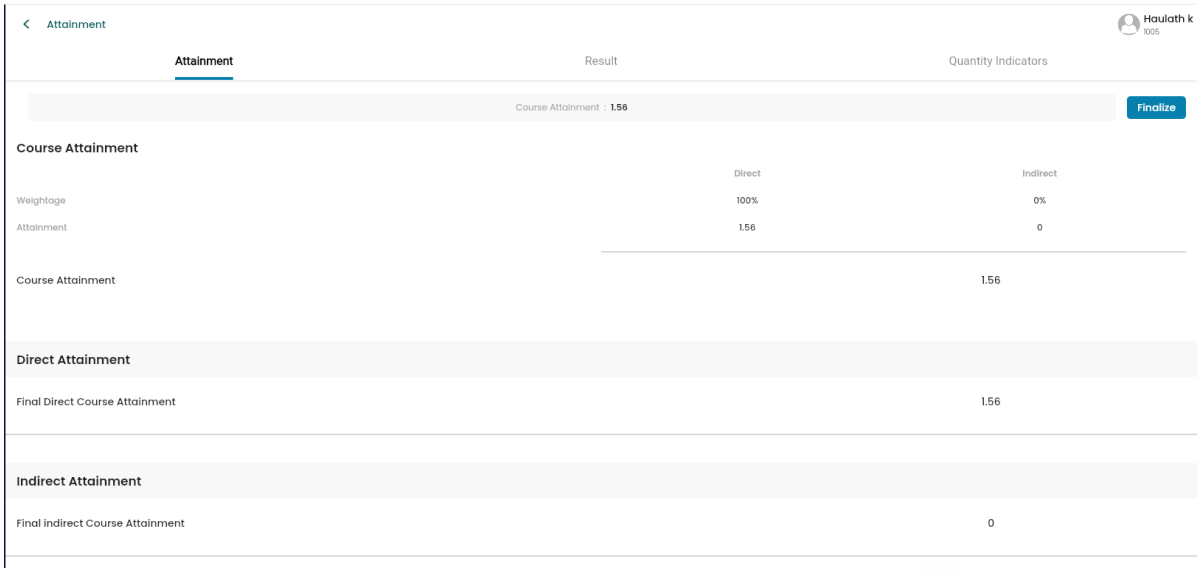


Attainment



E.M.E.A. COLLEGE OF ARTS & SCIENCE

KONDOTTY, KONDOTTY,
MALAPPURAM (DT), KERALA PIN 673638, MOB: 8547679457 | EMAIL:
mail@emeacollege.ac.in

CO-PO ATTAINMENT PROCEDURE FOR DIRECT AND INDIRECT ASSESSMENT

Course Details	
Course Code & Name	BCS6B13 - Computer networks
Teaching Staff	Haulath K
Semester	6
Number of Enrolled Students	4
Programme	B.Sc Computer Science
Syllabus	B.Sc CS - 2021-22

Programme Details	
Programme Name	B.Sc Computer Science
Head of the Department	Dr. Riyad AM

Step 1:

Program Outcome (PO)

PO1: Graduates will acquire a robust understanding of computer science theories, principles, and practices, encompassing areas such as software engineering, database management, networking, and artificial intelligence, enabling them to apply theoretical concep

PO2: Graduates will develop strong analytical skills to assess complex computational problems, identify requirements, and formulate appropriate solutions using systematic analysis techniques, ensuring the development of efficient and effective software systems

PO3: Graduates will demonstrate proficiency in designing software solutions by applying principles of software design and architecture, including modularization, abstraction, and design patterns, to create scalable, maintainable, and adaptable software systems

PO4: Graduates will gain hands-on experience with modern programming languages, frameworks, and development tools, allowing them to proficiently develop and deploy software solutions across various platforms and environments, keeping pace with technological ad

PO5: Graduates will gain hands-on experience with modern programming languages, frameworks, and development tools, allowing them to proficiently develop and deploy software solutions across various platforms and environments, keeping pace with technological ad

PO9: Graduates will cultivate effective teamwork skills, collaborating with peers to tackle complex projects, communicate ideas, delegate tasks, and resolve conflicts, fostering a collaborative and inclusive work environment conducive to productivity and innov

Program Specific Outcome (PSO)

Program Educational Objectives (PEO)

Step 2:

CO-PO Correlation

	Description	PO
co1	Understand the fundamentals of computer networks, including different network topologies and categories.Explain the concept of an internetwork and the structure of the Internet. Analyze network models, including layered models such as OSI and TCP/IP. Describe the physical layer of networks and comprehend various switching techniques, including circuit switching, packet switching, and message switching. Identify and explain DTE-DCE interfaces and interface standards such as EIA-232 and X.21 modem	PO5, PO1, PO2, PO9, PO3, PO4
co2	Demonstrate understanding of the data link layer, including error detection and correction mechanisms such as VRC, LRC, and CRC. Implement error correction techniques for single CSC errors and utilize Hamming code for error detection and correction. Understand data compression techniques, including Huffman coding. Describe data link control mechanisms, including line discipline, flow control, and error control. Explain multiple access methods such as ALOHA, pure ALOHA, slotted ALOHA, CSMA/CD, an	PO4, PO5, PO1, PO2, PO9, PO3
co3	Understand the network layer, networking devices, logical addressing, IPv4 and IPv6 addresses, and network protocols. Implement address mapping, error reporting, and multicasting mechanisms. Describe routing algorithms such as distance vector routing and link state routing. Analyze the transport layer, including process-to-process delivery using UDP, TCP, and SCTP protocols.	PO3, PO4, PO1, PO5, PO2, PO9

co4	Understand congestion control mechanisms and Quality of Service (QoS) concepts. Describe application layer protocols such as DNS, remote login, email, FTP, and HTTP. Introduce concepts of network management, including SNMP. Explain the basics of cryptography and network security, including goals, attacks, services, and techniques.	PO2, PO9, PO3, PO4, PO1, PO5
co5	By the end of this course, students will have a comprehensive understanding of computer networks, data communications, and network security principles, enabling them to analyze, Understand symmetric and asymmetric key ciphers, including traditional and modern techniques such as DES and RSA. Implement message integrity and authentication mechanisms using MAC and digital signatures. design, and troubleshoot network systems effectively.	PO1, PO5, PO2, PO9, PO3, PO4

CO-PO Mapping

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO9**
co1	1	1	1	1	1	2
co2	2	2	2	2	1	3
co3	3	3	3	1	2	2
co4	0	0	0	2	1	1
co5	0	1	1	1	2	2
AVERAGE	1.2	1.4	1.4	1.4	1.4	2

CO-PSO Mapping

Step 3:

Weightage, Benchmark and Attainment

Weightage		
Direct Assessment	Internal: 80 External: 20	100
Indirect Assessment	Course Evaluation Survey	0

Benchmark and Attainment			
Level	**Benchmark**	**Strength**	**Attainment**
Level 1	20% Students got more than target	(20% of Student strength): 0.40	1
Level 2	30% Students got more than target	(30% of Student strength): 0.60	2
Level 3	40% Students got more than target	(40% of Student strength): 0.80	3

Step 4

Course Attainment for each CO: Direct Assessment for Various Internal Examination

	CO	Total Mark	CTM* (50%)	No. of students above threshold	Attainment
Internal 1	**co1**	-	-	-	-
	co2	7	3.5	1	3
	co3	6	3	1	3
	co4	-	-	-	-
	co5	17	8.5	1	3

Course Attainment for CO: Direct Attainment External

	CO	Total Mark	CTM* (50%)	No of Students above threshold	Attainment
External Examination	**co1**	-	-	-	3.00
	co2				
	co3				
	co4				
	co5				

*Competency Threshold Mark

Step 5:

Course Attainment for each CO: Indirect Assessment (Course Exit Survey)

	CO	Average Attainment	Attainment
Indirect Assessment	**co1**	-	0.00
	co2	-	
	co3	-	
	co4	-	
	co5	-	

Step 6:

Direct Attainment

	co1	co2	co3	co4	co5	Average	Weightage	Attainment
Internal	-	3.00	3.00	-	3.00	3.00	80	2.40
External	3	3	3	3	3	3.00	20	0.60
Direct Attainment Total								3

Step 7:

Course Outcome Attainment

	Attainment	Weightage	Final Attainment
Direct Attainment	3.00	100%	3.00
Indirect Attainment	0.00	0%	0.00
Course Outcome Attainment			**3.00**
Course Outcome Attainment Percentage			**100.00%**

Signature of Teacher

COLLEGE OF ARTS & SCIENCE No..... Date..... KONDOTTI

Signature of HOD

PRINCIPAL EMEA COLLEGE OF ARTS & SCIENCE, KONDOTTY MALAPPURAM DT. 673 638