PROGRESS REPORT FOR THE ACADEMIC YEAR 2023-2024

(01 July 2023 to 30 June 2024)

Submitted to

UNIVERSITY GRANTS COMMISSION
Government of India

By

MAR BASELIOS COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous College affiliated to APJ Abdul Kalam Technological University) Mar Ivanios Vidyanagar, Nalanchira, Thiruvananthapuram-695 015, Kerala

October 2024

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TABLE OF CONTENTS

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1. About the College, Vision, Mission

Mar Baselios College of Engineering and Technology (MBCET), Thiruvananthapuram, Kerala was founded in 2002 by His Beatitude Moran Mor Cyril Baselios Catholicos. College is administered by the Malankara Catholic Educational Society of the Archdiocese of Trivandrum of the Syro Malankara Catholic Church, which is under the Holy See. The college has been established with the noble objective of providing quality technical education that would epitomize the noble values as well. The College is autonomous and is affiliated to the APJ Abdul Kalam Technological University. UGC has conferred the college with the Autonomous status in July 2020 by Order No. F.22-1/2017(AC) dated 15.07.2020. APJ Abdul Kalam Technological University has notified the same in September 2020, vide Notification No.KTU/SO(ADMIN)/2904/2019 dated 18.09.2020. The College has been accredited by NAAC with 'A' Grade (CGPA: 3.13) since 2016 and is valid till 31 December 2025. Five B. Tech Programmes (CE, CS, EC, EE and ME) are accredited by NBA since 2016 and will be valid till June 2025.

During the year under report (2023-2024), the College has offered seven B. Tech Programmes under the five major disciplines of CE, CS, EC, EE and ME. Seven M. Tech Programmes are also offered in the currently relevant specializations. The College is an approved Research Centre under the affiliating University. There were around 2000 students enrolled for the various Programmes spread across the Departments during the year under report.

Vision:

To be an Institution moulding globally competent Professionals as epitomes of Noble Values.

Mission:

To transform the Youth as technically competent, ethically sound and socially committed Professionals, by providing a vibrant learning ambience, for the welfare of humanity.

2. About Autonomous Status

UGC has conferred the Autonomous Status in July 2020. APJ Abdul Kalam Technological University has notified the conferment of Autonomous Status in September 2020. The Autonomy was granted by the UGC for a period of 10 years (2020-21 to 2029-30). The

College is looking at Autonomy as an opportunity to offer the Programmes with greater flexibility and relevance, with a view to further improve the quality of education and for achieving academic excellence. The College continues to be affiliated to the APJ Abdul Kalam Technological University. So, the degrees will be awarded to the students by the University based on the recommendation of the College. The name of the College will be mentioned in the Degree Certificates. The College Management has constituted the statutory bodies like Governing Body, Academic Council, and the Boards of Studies as per the extant rules and regulations, in October 2020. The meetings of these bodies have been conducted regularly as per the UGC Regulations. In 2023-2024, the college has admitted the fourth batch of students under autonomy to the B. Tech and M. Tech programmes through the approved admission process and the classes were started in October 2023. 584 students were admitted for B Tech and 28 were admitted in the MTech. The second autonomy batch was admitted in October-November 2021. The first autonomy batch of M. Tech students under autonomy has graduated in 2021-2022 and the third batch of M.Tech students has graduated in 2023-2024.

3. Academic Activities Undertaken

3.1 Results 2019-2023 B. Tech Batch

The BTech students have performed well in academics. The 2019-2023 batch(non-autonomous) has graduated during the year under report. The following Table A shows the overall pass in the five BTech Programmes.

Table A: Pass Percentage of the 2019-2023 BTech Batch

Branch	Total Number of Students appeared	Number of Students Passed in First attempt	Pass
CED	125	87	69.60%
CSE	125	95	76.00%
ECE	111	88	79.27%
EEE	84	42	50.00%
MED	97	50	51.54%
Overall Pass	**542**	**362**	**66.78%**

3.2 Curriculum Design and Development

In 2020-2021, after becoming autonomous, College has adopted the first BTech curriculum from the running 2019 curriculum and scheme of the affiliating University with minor revisions in the syllabus of some of the courses. The MTech curriculum and scheme were also adopted from the University. A fully re-designed new curriculum for the M. Tech

Programme was implemented in 2022-2023. In the year 2023-2024, a substantial revision of the B. Tech Curriculum and Scheme with innovations is envisaged so as to bring in the upcoming topics and make the students more employable. Also, there is plan to align with NEP 2020. We would like to evaluate our plans by seeking opinion from our stakeholders, academicians and industrial experts.

In the framework of the upcoming B. Tech Curriculum 2023, one student may have to earn 170 credits in the 8 (eight) semesters so as to become eligible for the Degree. This shall be aligned with that of the affiliating University to avoid any legal entanglements. 167 credits will be from the academic learning through the classroom activity, as existing, while the three value added credits have to be earned from the co-academic and extra academic activities outside the classroom, and through the learning/certification outside the Curriculum. This will also lead to the recognition of the efforts undertaken by the student through such extra activities to complement/supplement their learning, without losing the rigor of the core engineering education, envisaged in the curriculum. We are also pursuing the means for incorporating best practices by keeping the policy directions given in the National Education Policy 2020 in perspective. This will enable and facilitate multi-disciplinary learning, as expected in NEP, so that the engineering students will become more innovative and better employable in their future life. In addition to the basic mandatory 163 credits, there will be options for Minor Degree and Honours similar to what is available in the running Curriculum. The credits to be earned are proposed to be kept in the range 15 to 20 and will be finally aligned with the requirements, if any, to be specified by the affiliating University.

To make it clearer, the option for Minor has been introduced for enabling cross-disciplinary specialization and that way making the students fit for the 21st century jobs. Under these provisions, a student studying in Civil Engineering, Mechanical Engineering or Electrical Engineering Degree Programmes will be able to get a Minor degree in topics like Artificial Intelligence, Machine Learning, Electronics Engineering, etc. All the branches have this provision for interdisciplinary studies for cross fertilizing the knowledge and skills. This is in addition to the electives offered in the basic credit requirements. The Minor specialization as shown in Table B, however, requires additional credits to be earned by the student over and above the basic mandatory credits within the four years and maintain good academic progress.

On the other hand, Honours is a provision for deeper specialization in one's own discipline. For example, a student in Computer Science and Engineering can specialize in Image

Processing, which can be extended to any engineering domains in their career or higher studies or specialty studies. This specialization also requires additional credits to be earned by the student over and above the basic mandatory requirements. Also, the student will have to progress without failure in any course. There is a tremendous benefit for those who secure the B. Tech with Honours in terms of higher and better placement and the opportunities for higher studies because of the extra credits earned.

We trust that the revision, which is on the anvil, will be a value-added structure to include the options for learning one's discipline in a more engaged and integrated manner and also get enriched by the multi-disciplinary knowledge as well, on the go. The "skill" component which spans across the multiple dimensions like social skills, technical skills, IT skills, interpersonal skills and so on are expected to be developed through self-driven and supervised/proctored activities within and outside the classroom.

We intend to bring in more active teaching-learning mechanisms like lab integrated courses, project-based learning and the work integrated learning like internships, etc. in the new curriculum. The design will be finalized through extensive consultations and discussions with the experts and our stakeholders. We are also open to suggestions and feedback from all the other stakeholders and well-wishers, who are otherwise not directly involved in the curriculum related discussions on campus.

Table B: Minor Courses

Sl. No.	Department	Semester	Name of Minor Courses
1	CED	S3	1. Structural Dynamics
2	CSE	S3	1. Object Oriented Programming 2. Mathematics for Machine Learning 3. Statistics for Data science & Time Forecasting 4. Basics of Computer Systems
3	ECE	S3	1. Fundamentals of Robotics 2. Introduction to Multi-dimensional Data 3. Fundamental of Robotics
4	MED	S3	1. Introduction to Unmanned Aerial Vehicles (UAV) 2. Computer Aided Design
5	S & H	S3	1. Financial Management

		S5	1. Random Process and Queuing Theory

3.3 Students' Achievements

Under the guidance of the faculty, our students have performed well in academics, co-curricular and extracurricular activities. Following Table C shows the enumerated achievements.

Table C: Achievements of the Students

Sl. No.	Department	Academic	Co-curricular/Extra Curricular	Number of Student Achievements
1	CED	3	11	14
2	CSE	31	33	64
3	ECE	0	50	50
4	EEE	5	21	26
5	MED	0	8	8

4. Research Activities Undertaken

4.1 Funded Projects

Academic research is promoted in multiple ways so as to synergize the research interests of both faculty and the students. The Management has instituted an intramural funding scheme for seeding the research and it is still continuing. The scheme is intended to promote a culture of research among faculty. The scheme is known as In-house R&D projects, which have the potential to be developed for further research and development activities so that the faculty can go for extramural funding from the funding agencies. Funds for two projects from various departments with a total budget of Rs. 1,55,950/- have been sanctioned during the year 2023-2024 and are tabulated in Table D below.

Table D: In-house R&D Projects sanctioned during 2023-2024

Sl. No.	Name of the Principal Investigator/ Co-Investigator (If applicable)	Title of the Project	Dept. of PI and Co-PI	Year of Award	Funds provided (Rs)	Duration of the project

1	**PI:** Mr. Sreeju Nair S B, Asst. Professor, Dept. of CE **Co-PI:** Dr. Anupama Krishna D, Asst. Professor, Dept. of CE	Behaviour of reinforced concrete beam to column joint with eccentric beams under different reinforcement ratios	PI: Dept. of CE Co-PI : Dept. of CE	2023	75,950	1 year
2	Dr. Alice Thomas, Asst. Prof., Department of CE	A study on potential impact of rainfall characteristics on groundwater	Dept. of CE	2023	80,000	1 year

Table E: List of In-House Student Projects during 2023-2024

Sl. No.	Name of the Principal Investigator/ Co-Investigator (If applicable)	Title of the Project	Dept. of PI and Co-PI	Year of Award	Funds provided (Rs)	Duration of the project
1	Dr. S Viswanatha Rao, Professor, Department of EC	LORAWAN for smart campus	Dept. of EC	2023	68,824	1 year
2	Dr. Jayakumari J Professor, Department of EC	NAVIGA	Dept. of EC	2023	35,454	1 year
3	Mr. Mobin M Mathew Asst. Professor, Department of ME	ENVIRON	Dept. of ME	2023	7,00,000	1 year

Table F: List of In-House Internships Completed during 2023-2024

Sl. No.	Name of the PI/Co-PI	Title of the Project	Name of interns	Year of Award	Duration of the Project
1	Dr. Krishnamohan G. P. Department of S&H	High performance Computing in Google Cloud Platform and its Applications in calculating Bandgap of Semiconductor Materials	Mr. Kiran Biju Ms. Sanjana D S Ms. Nandana Anand P	2023	1 year

| 2 | Dr. Krishnamohan G. P. Department of S&H | PySCF-Tensor: A TPU based Open Source Program for Accelarated modeling in Materials Science and Chemistry with Cloud Infrastructure | S2CS2 - Mr. Jishnu E V, Mr. Henok Anil, Mr. Amaldev S S and Mr. Hari Govind S B | 2024 | 15 hrs completed - on going |

The details of the funds received for the project works are tabulated below.

Table G: List of Externally funded Projects in progress during 2023-2024

Sl. No.	Name of the Principal Investigator/ Co Investigator (if applicable)	Name of the project/ Endowment/ Chair	Name of the Funding agency	Type (Government/ Non-Government)	Dept. of Principal Investigator/ Co Investigator	Month & Year of Award	Funds provided (Rs in lakhs)	Duration of the project
1	Ms. Poorna B R	Health care recommender system using hybrid filtering technique	CERD	Government	Dept. of CSED	02.09.21	1 Lakh	3 years
2	Dr. Jayakumari J	IRS Assisted mmwave Technology for 6G	Universiti Teknologi Malaysia (UTM)&MBCET	Non-Government	Dept. of ECE	Mar-23	2.06478	2 years +1 year extended
3	Dr. Jisha S. V	Seismic Performance of Post - Fire Retrofitted Reinforced Concrete Beam - Column Joints	DST	Government	Dept. of CE	25.10.22	6,10,000	3 years

A number of proposals have been submitted for funding from external Funding agencies and organizations. 3 research projects worth a total amount of Rs 9,16,478 Lakhs have been sanctioned. The majority of the funding is provided by the organizations such as DST, Malaysia and CERD. In addition, a number of projects are funded by the affiliating University (APJKTU) also. The grants from the funding agencies are limited to the funds for the research projects of the students and faculty.

4.2 Publications

College has been promoting publication of the research results by granting incentives like, reimbursement of registration fee, travel support, cash awards for publications in peer reviewed journals with good citation indices, etc., With such an increasing focus on research, the faculty from the departments have published 65 research papers during the academic year under report that include both reputed Journals and International Conferences. The numbers of publications by departments are as follows. See Table H:

Table H: Department wise Research Publications

Sl. No	Department	Journals	Conference	Number of Publications
1	CED	3 [Q2-1, Q3-1]	8	11
2	CSE	1 [Q1-1]	10	11
3	ECE	5 [Q3 -4, Q1 –1]	3	8
4	EEE	4 [Q2-2, Q3-2]	6	10
5	MED	---	13	13
6	S&H	9 [Q1-2, Q2-1, Q3-2, Q4-2]	3	12

4.3 Institute-Industry Relations

The College is situated in the capital city of the State and is well accessible due to the excellent connectivity by road, rail and air. Also, the campus has a history in education of about seven to eight decades. The high reputation leads to the linkages with Industries quite easily. The College maintains the associations with the industries through multiple ways and modalities, namely

a) Industry personnel in the Governing Body, Academic Council and BoS as stipulated under the UGC Guidelines.
b) Presence of Industry experts in the Department Advisory Boards.
c) Industry sponsored projects and internships for students.
d) Invited lectures by Industry personnel.
e) Campus Placements.
f) Focused R&D and internship activities through MoU.
g) Faculty Training and Research funding.

Table I below shows the list of industries with whom the MoUs have been established afresh and the existing MoUs have been renewed during 2023-2026.

Table I: List of active MoUs with Industries

Sl. No	Name of the industry/Agency with whom the MoU is signed with	Date / Month /Year	Duration	Initiated by	Outcomes
1	Vydyuti Energy Services (VES)	3/12/2020	Until termination	EEE	EV Research Lab and Charging
2	Accubits	Jun-21	3 years	CSE	Internship
3	Vinvish	Sept 2021	Until termination	ECE	Internship
4	ACSIA	Dec-21	2 years	ECE	
5	Tata Elxsi	9/2/2022	3 years	EEE, CSE	Placement, internship
6	NISH	March 2022	3 years	ECE	Research
7	Maven silicon	Apr-22	3 years	ECE	Internship
8	NISH I-YwD	July 2022	2 years	ECE, EEE	Research
9	THE SPACELAB	5/7/2022	2 years	EEE	Consultancy project
10	University of Mara	14/7/2022	3 years	MED	
11	Ajman University, UAE	18th July 2022	3 years	CSE	
12	L&T Edu Tech for facilitating industry interaction	27th July, 2022	3 years	CED	
13	INTEL and AUK Computing	November 1st, 2022	Until termination	ECE	Workshops/ Internship
14	Energy Management Centre (EMC)	6/1/2023	5 years	EEE	EV Research Project, FDP resource persons from EMC
15	SCTIMST- TIMed	9th Jan 2023	2 years	ECE	Research
16	UST	1st April,2023	1 year	CSE	Placement, Workshop
17	Metro Scan	6th April 2023	Until termination	ECE	Research
18	Naaden Agro Pvt Ltd	18/4/2023	2 Years	Corporate Relations	
19	BIMLABS	23/5/2023	1 Year	Corporate Relations	Placement/ Internship
20	SCTIMST	19-Jun-23	5 Years	CSE	Paper publication
21	CDAC	21-Jun-23	2 Years	EEE, CSE	Cyber Forensic Industry Training (Students)
22	ICCONS	26th June 2023	3 years	CSE	Student project
23	BSNL(Autonomous)	7-Nov-23	3 Years	ECE	Internship

24	Bowie State University	1-Jan-24	10 years	CSE	Conference Collaboration
25	NISSAN digital	19-Feb-24	2 Years	CSE	Elective Course-Applied Data Science with Python - Course (Students)
26	MERPS	12 June 2024`	2 Years	CSE	Student internship

4.4 Research Facilities

With the aim of providing quality education and research facilities, (During the year July 2023 to June 2024)

- The Department of Civil Engineering has added Softwares and Instruments to the CADD, Transportation Engineering, Geotechnical Engineering laboratories and Structural Engineering Laboratories.

- The Department of CSE has set up an AI lab in collaboration with UST.

- The Department of ECE has initiated and started an Advanced Data Centric Lab on AI and IoT, in collaboration with Intel.

- The Department of ECE has set up a Modelling and Simulation Lab for enhancing research and learning opportunities.

- The Department of EEE has initiated the EV lab in collaboration with VES.

- The Department of MED has added systems to the CAD Lab

4.5 Collaborative/Interdisciplinary Research Works and other Projects

The College has, all along, been promoting interdisciplinary research. These are given a new focus under the realm of autonomy, so that more innovative solutions could be developed and would entail higher academic quality. The activities undertaken during the reporting year.

i) Collaborative Research Activities: CS Dept.

ICOONS: Dept of CSE has initiated a Collaborative research work with the Institute for Communicative and Cognitive Neurosciences for developing and 'Assistive Aid for Autism' under the guidance of Dr. Tessy Mathew, Ms. Deepa P.L, Dr. Jesna Mohan and Dr. Jisha John. The Dhwani App is an innovative AI-powered app designed to assist people with Autism, Intellectual disability, and adult language disorders in their communication.

The app utilizes Augmentative and Alternative Communication (AAC) software to provide a user-friendly interface for individuals who display difficulties understanding and using language, following directions, and following along in conversations.

SMART CITY: Following are the projects done in collaboration with Smart City:

1. Anomalous crowd behaviour detection and criminal identification- This project mainly aims at identifying anomalous crowd behaviour and patterns through deep learning techniques and thus give an alert in case of any violent behaviour detected. It also helps in identifying the criminal faces by checking with an already known criminal dataset.

2. Waste segregation and management with IoT and Deep Learning- This project aims in classifying different categories of waste products and segregating them into separate bins using image processing and deep learning techniques.

MERPS:MBCET signed MoU with MERPS on 12th June 2024. As a part of the MoU, MERP Systems have selected 5 students of MBCET as interns for which the selection was jointly done by MERP Systems and MBCET. They will be working on real time projects.

CDAC: NeuralGaurd5G - Network slicing, a fundamental aspect of fifth-generation (5G) cellular networks, presents unparalleled flexibility and customization but grapples with significant security challenges, notably susceptibility to DDoS attacks. This work introduces NeuralGuard5G, an innovative system leveraging LSTM deep learning techniques. NeuralGuard5G autonomously distinguishes User Equipment (UE) network traffic as normal or indicative of a DDoS attack, enhancing detection accuracy and dynamically assigning an appropriate network slice to legitimate UE requests.

ii) Collaborative Research Activities: EC Dept.

The project titled IRS Assisted mmwave Communication for 6G is done under the collaboration of UTM, Malaysia and MBCET.

IRS assisted mm Wave Communication for 6G: This project proposes to look into the joint problem of IRS phase tracking and mm Wave beam tracking to support user mobility. In the first phase, the project will develop a reactive IRS phase control algorithm which can adapt to the changes in the mm Wave beam direction. In the second phase, a machine learning algorithm will be developed to jointly perform IRS phase tracking and mm Wavebeam tracking to support user mobility in a non-LOS environment. The performance of the proposed scheme is evaluated using numerical simulation in MATLAB and validated

with experimental measurement using the mm Wave signal generator and analyser facility at UTM. It is expected that the proposed scheme can dramatically increase the mm Wave coverage probability and data rate performance in mobility scenario even under the environmental blockage.

iii) Collaborative Research Activities: CE Dept.

NATPAC: KSCSTE - National Transportation Planning and Research Centre (NATPAC), an institution under Kerala State Council for Science, Technology and Environment (KSCSTE) is a premier R & D institution in the country which works on multi – modal system of transportation covering road, rail, water, air etc. The final year BTech students have done the following research project at NATPAC.

1. Permeability of HMA for different compaction and moisture conditions.
2. Forceful Gap Behaviour at various Three- legged Intersections.
3. Level of Service and safety of pedestrian facilities at signalized intersections.
4. Evaluation of moisture susceptibility of Warm Mix Asphalt using MIST.

The following two MTech projects are also done under the guidance of Scientists at NATPAC. The research projects are:

1. Analysis of Forced Gap Characteristics at an Unsignalized T Intersection and
2. Assessing the Performance and Rheological Characteristics of Porous Asphalt Mix with Ethylene Vinyl Acetate (EVA).

SMART CITY: Smart City Thiruvananthapuram Limited is a Special Purpose Vehicle (SPV) set up for implementation of Smart City Mission of Government of India with a project overlay of Rs. 1538 Cr. Thiruvananthapuram was selected in the third round of Smart City Selection and secured first rank in the Smart City Challenge in 2017. A few final year BTech students of Department of Civil Engineering, MBCET are associated with Smart City in the following projects.

1. Planning and Designing of Walkway at Azhankal.
2. Retrofitting of Government Deaf and Dumb School Vazhuthacaud.
3. Planning and designing of Multilevel Car Parking at Medical College, Thiruvananthapuram.

Interdisciplinary Research Activities

Faculty from S&H, EC and EE involved in the design project given below:

- Title: Device For Detecting Sodium Benzoate (5 internal & 1 external member from Texas A&M university, Qatar).

    1. Mr. Aaron K. B. (Student, S6 MED)
    2. Dr. Dishore S. V. (Faculty, EED)
    3. Ms. Amritha B. J. (Faculty, ECD)
    4. Mr. Chandramohan B (IEDC)
    5. Mr. Santhosh P
    6. Dr. Krishnamohan G. P. (Faculty, S&H)
- File no:417155-001,

- 1. Date Application 17.05.2024
  2. Date of issue 04.07.2024
  3. The patent office journal No. 27/2024, dated 05.07.2024.

(Pg. 60197)

- Type of Patent: Design patent granted

4.6 Industry-Institute Collaboration

4.6.1 Collaborations

Table J List of Collaborative Activity

Sl. No.	Title of the collaborative activity	Name of the collaborating agency	Faculty-in charge with Dept.	Date
1	Elective Introduction-Applied Data Science with Python	NISSAN	Dr Tessy Mathew, CSE	19/2/2024
2	Internship and workshop	UST	Dr Tessy Mathew, CSE	1/4/2023
3	Internship	MERPS	Dr Tessy Mathew, CSE	12/6/2024
4	Students Project	ICOONS	Dr Jisha John, CSE	26/6/2023
5	Students Project	Tata Elxsi		7/2/2022
6	Faculty Project and Workshop	CDAC	Dr Anne Dickson, CSE	27/5/2022
7	Students Project	NATPAC, Trivandrum	Mr. Sreeju Nair S B,CE	12/6/2024
8	Students Project	NATPAC, Trivandrum	Ms. Anupama Krishnan, CE	12/6/2024
9	Students Project	NATPAC, Trivandrum	Ms. Akhila A M,CE	12/6/2024
10	Students Project	NATPAC, Trivandrum	Mr. Sijo M Saji, CE	12/6/2024
11	Students Project	SMART CITY, Trivandrum	Dr. Archana J Satheesh, CE	12/6/2024
12	Students Project	SMART CITY, Trivandrum	Ms. Ansu Mathew, CE	12/6/2024

| 13 | Students Project | SMART CITY, Trivandrum | Ms. Smrithi Cheriyath, CE | 12/6/2024 |

4.6.2 Consultancy Work (Testing)

1.   CE

Table K List of Consultancy Work

Sl. No	Project Title	Name of Faculty	Funding Agency	Amount (Rs.)	Duration
1	Private Consultancy works by different construction companies and government agencies	Dr. Anupama Krishna D	Different construction companies and government agencies	9000/-	1/7/23 - 15/4/24
2	Government Consultancy works by PWD, KWA, KIIFB	Dr. Jayasree S	PWD, KWA, KIIFB	28,22,339/-	11/07/23 - 02/02/24

2.   SATEL (In collaboration with ECE and EEE). Total amount sanctioned=114400/- [June 2023-May 2024]

4.7 Patent Details

Table L List of Patent Details

Sl. No	Patent Title	Type of Patent	Name of Faculty involved	Application Number	Date of Grant
1	Device For Detecting Sodium Benzoate	Design Patent	1. Mr. Aaron K. B. (Student, S6 MED) 2. Dr. Dishore S. V. (Faculty, EED) 3. Ms. Amritha B. J. (Faculty, ECD) 4. Mr. Chandramohan B (IEDC) 5. Dr. Krishnamohan G. P. (Faculty, S&H)	Design No.: 417155-001	1. Date Application 17.05.2024 2.Date of issue 04.07.2024 3.The patent office journal No. 27/2024, dated 05.07.2024. (Pg. 60197)
2	Method And User Terminal for Determining Authenticity of Image Data	Utility patent	Dr. Neena Raj (Faculty, CSE)	1. Patent No.: 533557 2. Application No.: 202341024598	1. Date of Filing: 31/03/2023 2. Date Of Certificate Issue: 18/4/2024 3. Post Grant Journal Date : 26/04/2024

3	Banana Bunch Extraction Tool	Design Patent	Dr. Dishore S. V. (Faculty, EED)	Design No.: 409048-001	Date of Grant- 28/2/2024
4	Assistive Device for the Visually Impaired	Design Patent	Ms. Sreeja S. R. (Faculty, CSE)	Design No.: 418700-001	Date of Grant- 02/08/2024

5. Administrative Activities Including Meetings of Statutory Bodies

The Governing Body, Academic Council and the Boards of Studies, and other statutory bodies of the College have been meeting on a regular basis. The College Council meets more frequently to address day-to-day matters.

The various committees and the advisory boards at the Department level meet regularly to address various matters related to curriculum, examinations, research, networking and so on. A quick overview for the reporting year is given below.

5.1 Governing Body: Meetings and Members & Co-opted members

URL: https://mbcet.ac.in/governing-body/

Dates of Meetings:

Governing Body Meetings- Dates with Time	
1	15-09-2023 @ 10.00 AM
2	11/3/2024 @ 10:00 AM

5.2 Academic Council: Meetings and Members & Co-opted members

URL: https://mbcet.ac.in/academic-council/

Dates of Meetings:

Academic Council Meetings- Dates with Time	
1	09.08.2023 @ 10 AM
2	22-02-2024 @ 3 PM
3	19-06-2024, @ 3 PM

5.3 Board of Studies: Meetings and Members & Co-opted members

URL: https://mbcet.ac.in/minutes-of-meeting/

(i) *Department of Civil Engineering:*

URL: https://mbcet.ac.in/departments/civil-engineering/bos/

Dates of Meetings

1.14.07.2023 @ 3 PM

2.21.03.2024 @ 3.30 PM

(ii) Department of Computer Science and Engineering

15

URL: https://mbcet.ac.in/departments/computer-science-engineering/bos/

Dates of Meetings

1. 10.07.23 @ 2:30 PM

2. 26.03.2024 @ 2:30 PM

(iii) Department of Electrical and Electronics Engineering

URL: https://mbcet.ac.in/departments/electrical-electronics-engineering/bos/

Dates of Meetings

1. 12.07.2023 @ 10:15 AM

2. 01.04.2024 @ 02:00 PM

(iv) Department of Electronics and Communication Engineering

URL:https://mbcet.ac.in/departments/electronics-communicationengineering/bos/

Dates of Meetings

1. 11:07:2023 @ 11 AM

2. 04.04.2024 @ 11 AM

(v) Department of Mechanical Engineering

URL: https://mbcet.ac.in/departments/mechanical-engineering/bos/

Dates of Meetings

1. 12.07.2023 @ 3 PM

2. 08.04.2024 @ 3 PM

(vi) Department of Science and Humanities

URL: https://mbcet.ac.in/departments/science-humanities/bos/

Dates of Meetings

1. 10.07.2023 @ 3 PM

2. 15.03.2024 @ 3 PM

5.4 Finance Committee - Meetings and Members

URL: https://mbcet.ac.in/finance-committee/

Dates of Meetings

Finance Committee Meetings- Dates with Time	
1	06.03.2024 @ 3.00 PM
2	14.06.2024 @ 9.00 AM

5.5 Details of the Meetings of the Other Committees

5.5.1 Internal Quality Assurance Cell

IQAC Meetings- Dates with Time	
1	04.08.2023 @ 4.00 PM
2	18 .12. 2023 @ 3.00 PM

Meetings and Members of IQAC : Yes

URL: https://mbcet.ac.in/orders/

URL: https://mbcet.ac.in/reports/

URL: https://mbcet.ac.in/feedback/

5.5.2 College Council - Meetings

College Council meets very frequently, even with urgent notice, to consider the matters and take decisions through extensive discussions.

URL: https://mbcet.ac.in/college-council-2/

5.5.3 Research Promotion Committee - Meetings and Members

Institute level Research Promotion Committee Constitution (RPC) is chaired by Principal and the constitution is as follows:

1. Principal
2. Vice Principal
3. Dean (Research and Consultancy)
4. Dean (PG Studies and Research)
5. Heads of Departments

Department Research Promotion Committees (DRPC):

1. Head of the Department
2. Assistant HoD
3. Professor in the Department
4. Subject experts from the Department (based on the research agenda of the meeting)

The mandate of the RPCs is to enable research and also to monitor the progress of the research activities:

Dates of Meetings:

RPC Meetings- Dates with Time	
1	04.08.2023 @ 4.00 PM
2	18 .12. 2023 @ 3.00 PM

6. Extension and Outreach Activities Undertaken

Table M List of Extension and Outreach Activities

Sl. No.	Department/Unit	Number of Activities
1	CED	3
2	CSE	3
3	ECE	3
4	EEE	7
5	MED	0
6	S&H	1

7	NSS	21

6.1 Scholarships

Table N List of Scholarship Details

Sl. No.	Name of Scholarships	CED	CSE	ECE	EEE	MED	CT	EL
1	Tuition Fee Waiver Scheme	1500000	1725000	1725000	1125000	1275000	225000	225000
2	Management Scholarship	1168360	410000	525000	860000	622500	530000	300000
3	Merit Scholarship	2062500	7094500	1084500	692500	600000	1636000	400000
4	BPL Scholarship	168300	228800	265960	50000	168460	44580	—

7. Financial Report

The College is solely funded by its own resources on a self-financing mode.

Table O Financial Report for the FY 2023-2024

Item	Unutilized Grant available from Previous year	Resources generated through fees and other sources	Grant received from UGC other funding agencies during the year	Expenditure during the year (Rs.)	Unspent balance	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Building				1497046		
Guest Faculty						
Orientation of Teachers				90,647.00		
Redesigning of courses				2,30,500.00		
Workshop/ Seminars	---	21,43,46,842.00	---	6,47,916.00	---	---
Others				4,66,42,123.32		
Office/ Teaching				13,24,15,677.00		
Laboratory Equipment				1,71,35,195.00		
Furniture				1,62,500.00		
Library				28,95,019.00		

Meeting etc.				30,170.00		
Total		21,43,46,842.00		**20,17,46,793.32**	2,12,72,521.00	

8. Others

8.1 Campus Placements

For the 2020-2024 B. Tech Batch:

1	Total Offers	357		
2	Total Placed	234		
	CE	25	30.2%	Placement percentage based on eligible students criteria
	CS	89	89.4%	
	EC	66	81.1%	
	EE	29	58.32%	
	ME	25	39.8%	
3	Total Company visited	63		
4	Core Company	15		

8.2 Student Internships as a Quality Assurance Measure

Internships for the UG Programmes are integrated in the Curriculum by way of the Activity points. Students will be awarded Activity points when they complete the internships and submit the evidence for the same. Following tabulations show the accomplishments of the graduating batches in terms of their participation in the internship/industrial training during the tenure of study in the College.

Table P: Internship attended by 2020-2024 Batch

SI No	Department	Total Number of students	Number of students attended	Percentage of students attended
1	CED	106	76	71.7%
2	CSE	120	120	100%
3	ECE	101	100	100%
4	EEE	70	70	100%
5	MED	80	80	100%

8.3 Activities under Corporate Relations

Table Q: Activities under Corporate Relations

SI. No.	Activities
1	MoU with ICAR CTCRI
2	R&D Centre by Hykon at MBCET

3	Nissan Digital Exclusive Tie-Ups-Internship
4	Acsia Internship for S3 CSE
5	BIMLABS Faculty Development Programme
6	Upskilling Internship for Students
7	Naaden Agro
8	Activities with Confederation of Indian Industry
9	Meeting with iCORE Pioneer
10	Visits
11	Cell Professional Development Programme for Stackmod
12	Research Park Visit by MBCET Team
13	Hex -20, Technopark Visit
14	GERMAN DELEGATION Visit -Industrial Collaboration

8.3.1 MoU with ICAR CTCRI

The ICAR - Central Tuber Crops Research Institute, often abbreviated to ICAR - CTCRI, is an institute under the Indian Council of Agricultural Research (ICAR) and is the only research organization in the world dedicated solely to the research on tropical tuber crops. The Institute was established in 1963 with its headquarters at Thiruvananthapuram, Kerala. Research on tropical tuber crops is the primary mandate of CTCRI. With the collaboration of Naaden Agro Pvt Ltd, MBCET has embarked on Agri Tech innovations and explored the available expert networks in the domain to accelerate its pursuit of innovative applications of technology in the agricultural sector. An MoU between MBCET and CTCRI has been agreed in principle and is being followed up by the Corporate Relations Division. The visit and discussions between the two organizations intend to open up a new path to IoT-based smart farming systems. Dr. Santhosh Mithra and Dr. C.A. Jaya Prakash Principal Scientists, CTCRI interacted with the MBCET CR Team.

The MoU with CTCRI was exchanged during the CTCRI foundation day on 22nd July 2023 at CTCRI in the presence of the Director General of ICAR and the Principal, Vice Principal, and Dean of Corporate Relations of MBCET.

8.3.2 R&D Centre by Hykon at MBCET

Hykon India Ltd, an ISO 9001 company, is a pioneering presence in the field of power electronics with varied interests in Medical transcription, Information Technology, Solar Energy and so forth. Hykon's domestic products include UPS and inverters, E-power tools including brush cutters, stabilizer and power guards, solar water heater and stainless water tank.

A team consisting of Mr. Harikumar R Chief Operating Officer and Mr. Ajish T.G Deputy General Manager – R&D of Hykon India Ltd visited MBCET campus on 27th July 2023 and had discussions with MBCET Bursar, Principal, Dean Corporate Relations, HoD Electrical Department and other team members. The team expressed their willingness and decided in principle to set up their R&D division in MBCET Campus. Consequent to the follow-up meetings and visits, a space in the college campus was allocated to Hykon to prepare and operate their R&D centre. Mr. Christo George, formally declared the collaboration with MBCET and the MoU was exchanged on 9th September 2023. The collaboration was facilitated by the Corporate Relations Division of MBCET.

i) Launch of Hykon Development Centre:

The Centre was inaugurated on 11th March 2024 at MBCET by His Excellency Most Rev. (Dr.) Mathews Mar Polycarpos, Auxiliary Bishop of the Major Archdiocese of Trivandrum in the august presence of Mr. Christo George, Founder Chairman & Managing Director, Hykon India Ltd. Rev.Fr. John Varghese, Bursar, Dr. Abraham T Mathew, Principal, Dr. Elizabeth Varghese, HoD, Electrical and Electronics Engineering, from MBCET and spoke on the occasion.

The synergy created between the two organizations, intended to lead to indigenous technology development in the country through the studies in the cutting-edge areas. The newly started Product Development Centre is expected to identify innovative technologies, which could be transformed into viable products of diverse nature and utility. Centre will explore procuring of the marketable proven technologies from R&D institutions like Centre for Development Advanced Computing, (CDAC), This will realize the true R&D that can come from the Academia- Industry Interface for accelerating the mission of Atmanirbhar Bharat under the Make in India initiative.

The Centre will effectively share the facilities and expertise for improving the capabilities for advanced education and research of the College by securing sponsored projects from various funding agencies. The students will get an opportunity to practical application of what they learn in the classroom, get motivated to expose their technical skills to come out with new ideas for a better future which can be accelerated by the Centre through hackathons, projects and internships.

ii) Exclusive Placement Initiatives for Hykon:

Subsequent to the introduction of Hykon Development Centre at MBCET Campus, an exclusive placement drive initiated for MBCET students in core branches (EEE,ECE, ME) of

batch 2024. 38 students meeting the credentials from EEE, ECE and ME were selected for final placement process out of which 24 students were shortlisted for final selection process and 7 students were offered final placement with Hykon. The process has set a remarkable example for the immense potential for industry-institute proximate collaboration.

8.3.3 Nissan Digital Exclusive Tie-Ups-Internship:

i) Nissan Digital Elective Paper: Applied Data Science with Python: Out of the exclusive tie-up with Nissan Digital initiated by the Corporate Relations Division, an industry-specific elective paper in Applied Data Science with Python for the 6th Semester students of the Computer Science Department course was initiated. The course was designed comprehensively to equip the students with the knowledge, skills, and tools necessary to thrive in the present data-driven world. This course is expected to serve as a bridge between theoretical foundations and real-world applications, offering the hands-on experience required to tackle actual data challenges.

ii) Introductory Session for Students: A session with S5 CSE students by the Nissan Digital Data Science Team, organized on 12th December 2023 at Senatus Hall of MBCET. The session aimed to give an orientation about the proposed industry elective on Advanced Data Science with Python. Mr. Anant Agarwal – Manager, Data Science Manager, Mr. Rajesh Vaddi – Manager, Data Science Manager and Mr. Sebastian Ukken – DGM Business Excellence at Nissan Digital led the deliberations and interactions.

iii) Faculty Enablement Session by Nissan Digital: The faculty enablement session was organized in collaboration with the Computer Science Department on 14th December 2023. Mr. Selva Prabhakaran – Principal Data Scientist, Rajesh Vaddi – Data Science Managers at Nissan Digital handled the session for faculty members of the Department.

iv) Nissan Centre Head Visit to MBCET: Mr. Ramesh Miraje, Head Nissan Digital India visited the college on 9th September 2023 and delivered key-note addressed during Parados, the launch of the new batch's induction program. Mr. Miraje, expressed his plans to further strengthen the industry -academia collaboration with MBCET.

v) Nissan Digital MoU Signing: Nissan Digital India LLP has formally signed an MoU with Mar Baselios College of Engineering & Technology (MBCET) on 8th February 2024. This is a major step forward in the Campus Connect Program, aimed at building strong ties with industries and providing students with valuable real-world experiences. As part of this

initiative, Nissan Digital is introducing an industry elective on Applied Data Science for the engineering students at MBCET. Collaborating closely with the Nissan team, MBCET meticulously crafted the curriculum and committed to providing hands-on project mentorship.The exchange ceremony witnessed the presence of Mr. Ramesh Miraje, Head & Divisional General Manager, Nissan Digital along with Mr. Jaljith Narayan Head Human Resources, Mr. Sebastain Ukken-DGM Business excellence, Mr. Selva Prabhakaran , Principal Data Scientist , Fr. John Varghese Palanikkunnathil, Dr. Abraham T Mathew and Dr. Viswanatha Rao. The function formalized the partnership by signing the MoU between MBCET and Nissan Digital. This collaboration opens the door to more dynamic industry-academia connections and collaborations, reinforcing the commitment to develop talent that is industry ready.

8.3.4 Acsia Internship for S3 CSE: Object Oriented Programming Concepts

The CR division has taken up the initiative of upskilling students in partnerships with industries. The initiative aims to bridge the gap between academia and industry. The OOPS Training Session is scheduled to commence from 16th to 20th October 2023 in collaboration with Acsia Academy. This program also aligned with Acsia Academy's mission to establish stronger connections between students, educational institutions, and the industry. The five-day programme concluded on 25th October and the assessment test was conducted on the same day which was postponed from 20th October 2023.

Ms. Lekshmi M Nair, Sr. Functional Leader with great project experience at Acsia Technologies was the pilot resource person for the training program. The programme covered -about Procedural programming model, some major differences b/w POP and OOP, need of OOP, OOPs, building blocks of OOPs, Function overloading, Encapsulation, Abstraction, samples, Static functions, Inheritance, Types of inheritance, Polymorphism , samples and concluded with assessment Test, discussion on questions. 16 selected students from S3, Computer Science Department undertook the programme. The mode of training cum internship was online vis Microsoft Teams Meeting and assignments were made part of the program as an essential step towards preparing the students to successfully completing the program.

8.3.5 BIMLABS Faculty Development Programme: Fusion 360
FDP was organized in collaboration with BIMLABS in Fusion 360, the commercial computer-aided design, computer-aided manufacturing, computer-aided engineering and printed circuit board design software application, developed by Autodesk.

The following Faculty members participated in the FDP :

1. Ms. Anupama Krishnan   Civil Engineering
2. Ms. Rintu Johnson   Civil Engineering
3. Dr. Minu Ann Peter Civil Engineering
4. Mr. Jomy James   Civil Engineering
5. Dr. Alice Thomas   Civil Engineering
6. Mr. Aswin R. B,   Electrical and Electronics Engineering
7. Ms. Parvathy C.J.   Electrical and Electronics Engineering
8. Mr. Midhun Gopal V   Electrical and Electronics Engineering
9. Ms. Vandana P   Electrical and Electronics Engineering
10. Mr. Arun N   Electrical and Electronics Engineering
11. Mr. Ayush Vijayan   Electrical and Electronics Engineering
12. Dr. Nidhi M B   Mechanical Engineering
13. Ms. Ruby Maria Syriac   Mechanical Engineering

Upskilling Internship for Students: BIMLABS

As part of the tie up with BIMLABS, an exclusive industry specific internship arranged for S5 students from branches Civil, Electrical and Mechanical. The training in AUTOCAD & Fusion 360 were provided to the 16 students who opted for the Internship with BIMLABS scheduled from16th -20th October 2023. The training was provided at the lab facility of BIMLABS Engineering Services Pvt. Ltd, Thiruvananthapuram. The initiative was part of CR Division's broader mission of upskilling students in partnerships with industries aiming to bridge the gap between academia and industry.

8.3.6 Upskilling Internship for Students : Orysis Academy

Exclusive and value-added technical skill development internships were arranged for 2024 batch to provide hands-on industry-oriented skill development adding to the employability skills of the students and enhancing placements. The Orysis Academy which is a part of Orisys India Consultancy Services, providing main services in mobile app development, web design & app development, integrated application development, online marketing and outsourcing was selected to provide the program for the students.

Basic Batch Topics included : Introduction to Python Programming • Variables, Data Types, and Operators • Control Structures: Conditional Statements and Loops • Functions and Modules • Data Structures: Lists, Tuples, Dictionaries, Sets

Advanced Batch Topics included : File Handling and Input/Output • Exception Handling • Object-Oriented Programming (OOP) in Python • Regular Expressions • Working with Libraries: NumPy, pandas • Introduction to GUI Programming with tkinter • Basic Web Scraping with Beautiful Soup

The conclusion of the programme was conducted at Technopark Trivandrum on 30th September which was attended by Mr. Abel George (TPO), Mr. Arun CEO -Orisys, Mr. Praveen, Advisor- Orisys Academy.

8.3.7 Naaden Agro – CSE Students Projects

Another initiative of the CR division for bringing closer industrial partnerships and staying relevant with socially committed projects is the smart farming Project. 3 student project teams from S8 CSE -2024 batch in collaboration with Naaden Agro Pvt Ltd intended to explore the potential of Precision Agriculture Using IOT and ML, extending possible automation to enhance smart Irrigation and Crop Prediction.

The scope of the project 'Precision Agriculture Using IOT and ML' is to implement a comprehensive system with IoT sensors measuring soil parameters, including NPK values, which are fed into a machine learning model for precise fertilizer predictions. The model aims to provide recommendations for necessary fertilizer types and quantities, seamlessly integrated with an IoT-enabled distribution system. Automatic Irrigation System and Crop Prediction

The project 'Automatic Irrigation System and Crop Prediction' works to Create a system that irrigates crops automatically based on water needs after considering soil moisture, Temperature, Humidity. Also has a system that predicts crops best suitable for the soil patch. The third team engages in the area of 'Automated Disease Detection in Plants' with the objective of Creating an AI-driven crop disease monitoring and detection system using computer vision and CNNs to automatically detect and classify plant diseases from real-time images.

The MBCET management has devoted a demo plot within the campus to innovate, apply and observe the learning initiatives for industrial application. Dr. Jisha John, Dr. Tessy Mathew and Ms. Jisha Jose are the coordinating faculty members from the department.

8.3.8 Activities with Confederation of Indian Industry

i) CII- Global Education Conclave Mumbai: Confederation of Indian Industry (CII) organized its flagship program the 4th Edition of the Global Education Conclave with the theme Adopting Technology for Holistic Education on 28 – 29 November 2023 in Mumbai. The conclave witnessed participation and deliberations by eminent speakers from the Regulatory Bodies, Government Authorities, Foreign Universities as well as leading Industry and Academic Experts who have contributed significantly to education and economic growth.

ii) CII - Kerala Economic Conclave Thiruvananthapuram: Confederation of Indian Industry (CII) Thiruvananthapuram Zone organized the Kerala Economic Conclave on 7th December 2023 at Thiruvananthapuram. Upon the exclusive invitation from CII as an active member of the zone, the following staff members represented MBCET and actively interacted with the panel members and industrialists:

1. Dr. Veena Nair- Faculty, Science and Humanities
2. Dr. Premchand V. P.- Faculty, Mechanical Engineering
3. Ms. Jean Molly Simon- Faculty, Civil Engineering
4. Ms. Merlin George- Faculty, Computer Science Engineering
5. Ms. Parvathy C. J.- Faculty, Electrical and Electronics Engineering
6. Mr. Vipinkumar K. C.- COO-Corporate Relations
7. Mr. Abel George- Training and Placement Officer.

The conclave focused on themes: Kerala Economic Growth Model- the path ahead, Emerging trends in GST, Customs, Direct Tax, and MSME-driven Economic Growth for Kerala. Major Speakers were: Shri. Sanjay M Kaul IAS, Secretary Finance Department, Govt of Kerala, Prof. V. K. Ramachandran Vice Chairperson Kerala Planning Board, Ms. A Bhuvaneshwari, Chief General Manager,SBI, Mr. Satyaki Rastogi, Chief General Manager, SIDBI, Mr. P Ganesh- Executive Director- Glass Glazing Systems, Pvt Ltd, Mr Prasad Unnikrishnan, Mr. P. S. Krishnan Partners, Grant Thornton LLP Shri. T. G. Venkatesh Central GST Commissioner, Kerala and Mr. Jijimon Chandran, Founder & CEO of ACSIA Technologies.

iii) CII Annual Meeting: Thiruvananthapuram Zone: The Annual Meeting and Kerala MSME Conclave of Confederation of Indian Industry CII Thiruvananthapuram was conducted on 22nd February,2024 with the main theme "Future-ready MSMEs for India@100".

Session on SME - Initial Public Offerings (SME IPOs): Mr. P Ganesh Session Chairman Past Chairman, CII Kerala & Executive Director Glass & Glazing Systems P Ltd, C. A. Ranjit Karthikeyan Founding Partner , Ranjit Karthikeyan Associates LLP ,Address Mr. S Ramakrishna Iyengar Wholetime Director Finshore Management Services Ltd ,Mr Himanshu Srivastava Senior Manager – Southern Region National Stock Exchange Ltd were delivered sessions on the subject.

Session: Learn from the Best: Thinking Smart, Sharing the Success Stories

*iv) CII Zonal Council Meeting:*The Second Meeting of the CII Thiruvananthapuram Zonal Council for the year 2024-25 conducted at 5 pm on 13 June 2023 at Hotel Hilton Garden Inn, Trivandrum. Coinciding with the council meeting there was a session on "Academia

Meets Industry". This initiative aimed to facilitate collaboration and knowledge exchange between academic institutions and industries to foster innovation, accelerate technology transfer, and address real-world challenges.

v) CII Kerala Brand Summit 2024:

The CII Kerala Brand Summit served as a catalyst for discussions, insights, and collaborations that drive growth, innovation, and excellence in brand building and marketing strategies within the Indian context. The conclave brought together thought leaders and practitioners who share their experiences, strategies, and success stories, providing valuable learning opportunities for attendees.

The conclave focused on the emerging trends, digital advancements, consumer insights, and creative strategies. The main themes for the conclave were Navigating the Digital Frontier: Strategies for Brand Building and Marketing Excellence and Global Branding: Adapting Your Brand for International Markets. Mr. Vinod Manjila, Chairman, Manjilas Food Tech, Mr. Sreenath Vishnu MD, Brahmins Food India Ltd, Mr. Arjun Ranga, CEO Ranga Rao and Sons, Shri. Mohs. Hanish IAS, Principal Secretary, Industries, Mr. Nikhil Pradeep, Director, Vasudeva Vilasom Herbal Remedies, Mr. Baby Mathew, Chairman Somatheeram Group, Mr. Jose Kunnappally, Head of Marketing, Acsia Technologies, Mr. Sohanjeet Randhawa, Director, Branding, Volvo Group India, Mr. P Ganesh, MD, Glass and Glazing, Mr. BC Dutta VP Corporate Affairs OLA Electric Mobility, Mr. Laeeq Ali, Co-Founder and Director, Bloombox Brand Engineers were the key speakers for the summit.

8.3.9 Meeting with iCORE Pioneer

iCore Pioneer HQ in Technopark Trivandrum started in the year 2013 and focuses on tech innovation with the custom IT solutions and services. Their flagship product, Zeetius, intends to revolutionize the global sports-tech industry. With a team of seasoned experts, iCore Pioneer ensures rapid ROI and unparalleled success for our clients worldwide. Mr. Krishnakumar CEO and Co-founder of iCore Pioneer visited MBCET on 28th Jun2 2024 and interacted with the CR team consisting of Dr. Ushakumari S, Ms. Merlin George and Mr. Abel George.

Areas of Collaboration suggested:

To address the industry academia gap by focusing on the issues concerned with the Rise in the number of Training Institutes. Issues we are facing with the Interns hired, Failure of Intern to Hire model, Lack of real-world projects for students and Requirement of a young team focused on strategic thinking.

The Current trends emphasize integrating industry mentorship into academia to ensure students graduate with practical skills and insights aligned with real-world demands. Thus the suggested follow ups included hackathons to idea boxes to internships, the process nurtures innovative ideas, refines students through collaborative brainstorming, and hones them into practical skills for real-world application.

8.3.10 Visits:

i) Technopark Visit:

As part of enhancing industrial outreach and collaborative networking, Mr. Vipinkumar K.C and Abel George, TPO visited the following companies on 10th November 2023.

- Digitaware Techno Ventures Pvt. Ltd.
- Kameda Infologics
- Innoval Digital Solutions Pvt. Ltd
- Mozanta Technologies
- Speridian Technologies
- Pits Solutions

The discussions centered around the future action plans regarding meeting students, providing upskilling sessions, mutually beneficial collaborations like projects and internships, and introducing industry-specific elective papers; all ultimately leading to suitable placements for the students.

ii) Core Company Visits:

The collaboration with the MSME sector received momentum with the membership of CII Thiruvananthapuram Zone. To explore the scope further CR Division initiated discussions and outreach with different companies. As a follow-up, Mr. Vipinkumar K.C, COO-CR, and Mr. Abel George, TPO visited the following core companies in Trivandrum on 14th December 2023.

1. Bond Interiors: Ms. Janet, Estimation Head

2. Glass and Glazing : Mr. Ashik Ganesh ,Director

3. SFS Homes : Mr. Elango P, GM HR

Different possible collaborations regarding upskilling, projects, and internships which would make the students industry-ready and enable them to fetch suitable placements were the points of discussion.

8.3.11 UHV Cell Professional Development Programme for Stackmod

Stackmod is a global product development and consulting company offering innovative solutions and custom software development services for organisations ranging from startups to large enterprises. The CCCIET B Hub based firm is an end-to-end digital solution provider who provides robust technology solutions with enhanced user experience while making the entire process seamless for clients and employees. The Universal Human Values (UHV) cell of MBCET has extended executive development cum corporate training for the employees of Stackmod from 2nd t- 3rd February 2024 at MBCET by delivering the prescribed UHV modules. The program was one of its kind in a way stretching the value based behavioural sessions outside the academic fraternity.

8.3.12 Research Park Visit by MBCET Team

The main objective of Trivandrum Engineering Science and Technology (TrEST) Research Park is to promote partnership and interaction between academic community and industry. The synergy is expected to benefit both and bring about qualitative and quantitative improvements. The model is seen as the vehicle for growth in the knowledge economy and the vision of the Park is to eventually bring in all engineering and technology academic and research institutions in Kerala into its fold. From the State's perspective, TrEST Park will help in generating high quality employment and help in economic development of the State.

With the long-term view of expanding industrial collaborations and fostering the culture of more industries functioning from the academic campus, the Corporate Relations team of MBCET initiated discussions with the TrEST Park leadership.

8.3.13 *Hex -20, Technopark Visit:*

HEX20 is a Technopark based company founded and run by a group of people passionate about outer space and its ever-expanding horizons. They focus on building satellite platforms, mission services, and their subsystems and closely work with government-funded defense systems, commercial projects, and academic space missions. Lunar and Mars missions stand testimony to our technical expertise in defense and space exploration systems.

The collaboration aims to foster research and development in nano and micro satellite subsystems, platforms, and space situational awareness and share the required research infrastructure. Internships of selected students, technical sessions by industrial experts, hands–on training for the students and faculty members, collaborative It is also proposed to explore Research and Development works of mutual interest and other mutually

agreeable programs. Exploring potential creation of the Centre of Excellence in specialized fields of mutual interest in science, Engineering and technologies related to small spacecraft platforms and payloads are considered as part of the collaboration. Organizing short-term continuing education programmes, seminars, conferences, or workshops on topics of mutual interest, and inviting faculty members and experts are also suggested as part of the tie up.

8.3.14 GERMAN DELEGATION Visit -Industrial Collaboration:

A high-level meeting of members from leading German Infrastructure organizations facilitated by the German Consulate was conducted at Mar Baselios College of Engineering and Technology (MBCET) on 26 June 2024. The prominent delegation included Mr. Uwe Neumann and Mr. Matthias Rolf Bühler from Deutsche Bahn AG (DB AG), Dr. Wilfried Krüger and Mr. Bernhard Krieger from hands on solution GmbH, H.E. Achim Burkart, Consul General of Germany in Bangalore, Dr. Syed Ibrahim, Honorary Consul of Germany to Kerala, and Mr. Sumit Sharma, Regional Director of the Indo-German Chamber of Commerce, Bangalore.

The focus of the meeting was to create smooth employment pathways for graduates from MBCET and to outline and enhance the required employability skill sets imperative for Deutsche Bahn and similar other organizations in Germany. The German delegation visited the campus and checked out the infrastructure facilities in Civil and Mechanical Engineering departments and interacted with professors and students there to understand the college's academic and research strengths in respective areas. The German team applauded MBCET for its wide range of infrastructural and technological advancements over the years. Both sides explored the potential avenues like joint research and development projects by seeking the mutual benefits of the academic-industry partnerships.

8.4 Skill development Programmes:
i) CED – 3:

- BIM Skill Development Programme
  Number of hours:30 hrs
  Number of students: 37 (S8)
- Building Information Modelling-
  Number of hours: 30 hrs
  Number of students: 19 (S4 and S6 students)
- Revit architecture
  Number of hours: 30 hrs

Number of students: 17 (S2 students)
ii) ECE – 2:
- S4-SDP On Prototype Development using Raspberry Pi /STMS
    Number of hours:30
    Number of students:53
- S6-SDP on Data Acquisition for Iot Applications
    Number of hours:30
    Number of students:58

iii) EEE-1:
- S4- EE & EL:Name of the Course: Circuit Simulation and Analysis Using Pspice
    Number of hours:30
    Number of students:91

8.5 Entrepreneurship Development activities by IEDC and Departments

The Innovation and Entrepreneurship Development Centre (IEDC) at Mar Baselios College of Engineering and Technology, known as Catalyst, was established in 2013 to inspire students to become independent engineers through exposure to entrepreneurship and innovation. The Centre focuses on honing students' skills, expanding their knowledge, and equipping them with essential technical and non-technical qualities. Rather than merely encouraging startups, Catalyst aims to instill an entrepreneurial spirit in students. Members passionately engage in self-learning and transforming their ideas into solutions for real-world problems. Recognizing the importance of inspiring their peers, they dedicate their efforts to spreading this entrepreneurial mindset while working on individual projects. Catalyst Mar Baselios IEDC helps students pursue their dreams and passions, ensuring they leave MBCET not just as engineering graduates, but as problem-solving engineers.

The Catalyst Mar Baselios IEDC's annual activities from 2023-2024 provided extensive opportunities for student growth and development. Workshops like INCEPTRA on idea generation, market fit, and startup launches, along with talks on progress mindset and perseverance, equipped students with critical entrepreneurial skills. Specialized sessions such as the women-exclusive "We Have a Dream" workshop and the Karma Hunt for first-year students fostered inclusivity and skill enhancement. Events like the Smart India Hackathon Prelims and RELEVENT 23 emphasized problem-solving and leadership selection. The Catalyst Evening Cafe and advanced Figma design sessions enriched students' practical knowledge and creativity. Significant achievements, including top awards in MuAwards 2023 and reaching 1 million karma points on Mulearn, showcased MBCET's excellence in education and research. Overall, these activities cultivated innovation, practical skills, and leadership qualities, preparing students for successful entrepreneurial ventures.

Key Workshops and Events:

1. Inceptra 2023 Workshop: Idea Generation to Product Market Fit (14th Jan 2023) Resource person: Mr Ajay Basil Varghese, serial entrepreneur and startup coach, Adi Sankara College of Engineering.

2. Inceptra 2023 Workshop: How to launch a startup by Prof. Sarju S, Cofounder slate n pencil, nodal officer SJCET Palai (15th Jan 2023).

3. Inceptra 2023 iTalk-2 by Mr. Gopikrishnan, CEO and founder Buildnext Pvt Ltd (15th Jan 2023).

4. Inceptra 2023 iTa lk on Incubation Opportunities by Mr Vishal B Kadam, Technical officer, Kerala Startup Mission (15th Jan 2023).

5. Dream Women Entrepreneurship workshop by Ms Akshaya Sita Rajesh, Project Manager, Gtech Mulearn (10th Feb 2023).

6. Catalyst Evening Café by Rahul George Paul, Catalyst Executive committee member (27th Mar 2024).

7. Challenge X - Online competition (3rd-11th July 2023).

8. Smart India Hackathon Prelims by Vishnu P Kumar, Embedded Engineer, Genrobotics and Vaibhav k software engineer EY. (27th Sep 2023.)

9. Relevant 23 Bootcamp, by Arun J S, Nodal officer Catalyst IEDC (25th Nov 2023).

10. Annual General Body Meeting (5th Jan 2024)

11. Session on YIP 6.0 Registration by Abhilash George, YIP Winner (20th Jan 2024)

12. Karma Hunt: Technical problem solving (16th Feb 2024).

13. Let's Talk Design-Talk Session: Figma workshop, by Mr Joshin Samuel Content Editor Bricks Kuwait (22nd-23rd Feb 2024).

14. Inceptra 24: Talk Sessions and Workshops by Joy Sebastian CEO, Techgentia and Ms Archana Gopinath founder, The reading room (8th-9th Mar 2024).

15. Boot Camp 10.0 on Allied Technologies for UAS/Drone by resource persons from NIELIT Calicut (5th-9th Mar 2024).

16. Catalyst Evening Cafe 2.0: 80/20 Principle (10 May 2024).

IEDC Achievements:

MuAwards 2023: Mulearn, the academic platform of GTech - Group of Technology Companies, awards Karma Points to learners based on their contributions to the Mulearn Discord platform. Learners earn these points by actively participating in tasks related to various interest groups such as AI, Web Development, UI/ UX design, Cyber Security, IoT, Blockchain, Entrepreneurship, Product Development, and more.

Coordinator: Mr. Arun J. S., Assistant Professor, EC
Student Coordinator: Mr. Aditya S, S6 EC2

1. ***Top Campus Award 2023:*** Mar Baselios College of Engineering and Technology proudly clinched the title of Top Campus 2023 in the Mulearn Annual Awards. This prestigious accolade is a testimony to the exceptional performance, securing an impressive 8 lakh Karma Points throughout the year by our students. This recognition is

a statewide achievement, positioning the College at the forefront of academic and skilling excellence.

2. **Team Codeify: Top Learning Circle in the State:**In another remarkable achievement, Team Codeify has emerged as the Top Learning Circle in the State. Mr.Arun J. S., Assistant Professor, EC and Lead Enabler Mulearn MBCET, along with Student Team Members Aditya S, Amrithesh S, Ameer Ansary of S6 EC2, and Prajwal P P of S6 CS2, collectively amassed an impressive 25800 Karma points.

3. **MBCET Reaches 1 Million on Mulearn Leaderboard:**Mar Baselios College of Engineering and Technology (MBCET) achieved a milestone on the Mulearn Campus Leaderboard, reaching 1 million karma points which was the second college in Kerala to do so after SJCET, Kottayam. This signifies excellence in education and research, due to active participation of MBCET Students in Mulearn's programs.

9   Faculty Training and Development

9.1 Teaching and Learning Centre (TLC)

The Teaching Learning Centre (TLC) has been established by the College for focusing on the training and development of the teachers for delivering the instructional contents effectively and for their continuous professional development. It also set the ecosystem for making the learning more experiential and immersive for the students by the suitable adoption of the teaching media. Training of the teachers is regularly conducted. The induction of newly appointed teachers, their training, etc. are also pursued by the TLC. Following paragraphs give a gist of the activities during 2023-2024.

Table R: TLC Activities

SI/No	Topics	Date	Resource Person
1.	Microteaching Sessions	18/10/2023	Faculty -ECE, EEE
2.	CO PO Assessment Workshop	17/10/2023	Dr. Neethu Roy
3.	Recharge Your Bounce Back Persona	20/10/2023	Dinu Kuruvila, Tata Elxsi
4.	Microteaching Evaluation	3/11/2023	Dr. K Y Benedict, Dr. Reghu
5.	UHV and TLC	4/11/2023	Dr. Manoj
6.	Pedagogy In Engineering Education	14/11/2023	Dr. R Shivashankar, Rtd Professor, NIT
7.	CO PO Assessment Workshop S&H	10/01/2024	Dr. Neethu Roy
8.	Teacher To Teacher Plus (Workshop)	29/01/2024	Dr. C Thomas Abraham

9.2 Faculty Development Programmes Conducted during the academic Year 2023-2024

Table S: List of FDP Conducted

Dept	Odd/Even semester - Name of FDP	No: of Days	Duration	Resource Person-External
CED	1. LIDAR applications in Advanced Surveying 2. Five Day Laboratory Training	5	08.01.2024 to 12.01.2024	1. Dr. Suja R. Nair Associate Professor, GEC, Barton Hill, TVM. 2.Ms. Rajalakshmi C.R. Assistant Professor, TRPLC, GEC, Barton Hill, Trivandrum. 3.Sri. B. Thulasidharan Nair Professor (Rtd.), College of Engineering, Trivandrum. 4.Ms. Anoja Anoop GIS Analyst, KIIFB, Trivandrum. 5.Dr. S. Kaliraj Scientist D, Biogeochemistry Group (BgG), National Centre for Earth Science Studies (NCESS), TVM. 6.Mr. B.K. Jayaprasad Rtd. Scientist E, NCESS, TVM, Former Cartographer, Sultanate of Oman. 7.Dr. Ramiya Associate Professor, Department of Earth and Space Sciences, Indian Institute of Space Science (IIST), Valiamala. 8.Dr. Rama Rao Nidamanuri Professor & Head, Department of Earth and Space Sciences, Indian Institute of Space Science (IIST), Valiamala.
CSE	1. Generative AI with Hands-on 2. Digital Forensics	6	29.01.2024 to 3.2.2024	1.Dr. Manu Madhavan, Assistant Professor, IITK 2.Dr. Premjith B, Assistant Professor, Amrita Vishwa Vidyapeetham 3.Dr. Sowmya V, Assistant Professor, Amrita Vishwa Vidyapeetham 4.Dr. Chandra Sekhar Vorugunti, Computer Vision Engineer, Samsung R&D
		5	19.2.2024	1.Ms. Achu Marium John,

			to 23.2.2024	Analyst, Information Security, UST
				2.Mr. Hiran Bose, Scientist E, CDAC, Mr. Jayaram P, Cyber Security Specialist, C-DAC
				3.Dr. Sibi Chakkaravarthy S, Associate Professor, VIT, AP
				4.Ms. Dija S, Scientist F, CDAC
				Dr. Dittin Andrews, Scientist F, CDAC
				5.Mr. Midhun Mohan M.G, Supervising Associate, Digital Forensics & Information Security, EY
				6.Mr. Shijin C, Project Engineer, CDAC
				7.Mr. Binny Jacob Kuriakose, Asst. Director, EY
				8.Mr. Adonis Thokalath Sunny, Senior Associate, EY
				9.Dr. Ranju S Kartha, Associate Professor, Dept of IT, RSET.
ECE	1. Digital Nexus Unveiling IoT Foundations 2. Recent trends in Healthcare and Assistive Technologies	3	1. February 21 - 24, 2024	1.Mr Jithin Krishnan, Scientist, SCTIMST 2.Ms Nincy Mariam Mondly, Psychologist, Palium India 3.Dr Biju N B, Scientist, Health & Software Technology Group
		5	2. January 29 - February 2, 2024	1.Mr Sudalaimani C, Joint Director, CDAC 2.Dr Manoj B S, Professor, IIST 3.Mr Sarath S Nair, Engineer SCTIMST 4.Mr P Balaraman, Access Technology Trainer, Jyothirmaya Foundation 5.Dr Akhila Surendran, Consultant, Assistive Technology 6.Mr Subhash N N, Engineer, SCTIMST 7. Mr Vinod Kumar, SCTIMST
EEE	Industrial Automation	6	5-09-2023 to 10-09-2023	1.Mr. Himanshu Kumar, Director, Indwell Automation

MED	Frontiers of Mechanical Engineering: Harnessing the power of AI/ML, IoT	6		1.Dr. Venkitaraman Balaji Vice President, TVS 2.Dr. Zulkifli Mohamed Associate Prof, ME Universiti Teknologi MARA 3.Dr Vasu, NIT Warangal 4. Dr. Bindu Krishnan Senior Statistician, IBM Reasearch Software Labs, Kochi.
S&H	Engineering Next-gen Materials	5	18-06-2024 to 22-06-2024	1. Dr. Rajan T P D. Senior Principal Scientist, Material Science & Technology Division, CSIR-NIIST, Thiruvananthapuram, 2. Dr. Swapna S Nair, Professor, Department of Physics, Laboratory of Advanced Materials & Devices, Central University, Kasargod. 3. Dr. Rimal Issac R S, Assistant Professor, Department of Nanotechnology, Noorul Islam Centre for Higher Education, Kumaracoil, Kanyakumari, Tamilnadu. 4. Dr. Sibi K S, Assistant Professor, Department of Physics, University of Kerala,Thiruvananthapura m. 5. Dr. Vinoy Thomas, Professor and Head Department of Physics, Christian College, Chengannur, Alappuzha. 6. Dr. Nissamudeen K M, Assistant Professor, Department of Physics, Kannur University, Kannur. 7. Dr. Ravindra Jankir, Raja Ramanna Centre for Advanced Technology, Indore, India 8. Dr. Indran Suyambulingam, Research Scientist, Specialist-2, King Mongkut's University of Technology North Bangkok. 9. Dr. Santhosh Kumar P,

				Associate Research Scientist, Division of Arts & Science, Texas A&M University, Qatar

9.3 FDPs attended by the faculty members during the academic Year 2023-2024

Table T: List of FDP Attended

Sl. No.	Department	Number of Faculty members attended FDPs during Academic Year 2023-2024	Premier institute NIT/IIT
1	CED	30	3
2	CSE	26	2
3	ECE	16	0
4	EEE	18	4
5	MED	19	0
6	S&H	8	0

9.4 Faculty Achievements

Table U: List of Faculty Achievements

Sl. No.	Department	Types of Achievements	No: of Achievements in 2023-2024	No of PhDs in 2023-2024
1	CED	1. Dr. Jisha S. V. - Funded project of Science and Engineering Research Board under Teachers Associateship for Research Excellence of Rs.18,30,000/- sanctioned on November 2022 with a duration of 3years. 2. Ms. Ansu Mathew-Registered for Ph.D. in NIT Calicut in December 2023.	2	--
2	CSE	1. Ms. Asha S., (Associate Professor, Dept. of Computer Science and Engineering) is awarded the ISTE Kerala section Special Appreciation Award for her valuable contributions. 2. Ms. Sreeja S. R. (Asst. Professor, Dept. of CSE), Mr. Allen Manu Philip, Mr. Dilshan Dileep Shyni, Mr. Manikandan B. Nair and Ms. Medlyn Sairah Jacob have acquired a design registration in respect to the application of the design to	3	--

		"Assistive Device for the Visually Impaired", on August 2024.(The Patent Office India) 3. Ms Neena Raj N R ,Method and User Terminal for Determining Authenticity of Image Data, The Patent Office India		
3	ECE	1. Dr M J Jayashree, Special Mention Award, IEEE EMBS 2. Dr Lani Rachel Mathew, Best Faculty Advisor Award, IEEE EMBS	2	--
4	EEE	1. Dr Elizabeth Varghese was awarded the Doctor of Philosophy by the University of Kerala for her thesis entitled "Design of Fractional Order Controllers for Launch Vehicles" 28 November 2023. 2. Dr Soumya A V was awarded PhD for her thesis entitled "Artificial Intelligence based Signal Processing Approach for Islanding Detection in Microgrid" at Vellore Institute of Technology, Vellore, on 27 November 2023	2	2
5	MED	1. Arvind P. Assistant Professor Was awarded the Doctor of Philosophy for his thesis titled "Experimental Investigation on Tribological Characteristics of a Biodiesel Fuelled Compression Ignition Engine" on January 27, 2024 2.Dr Nidhi MB, Professor MED, ■ Along with 3 students (Salman Mohammad, Vimal George, Viswanath S) was granted a Patent by Govt. of India for an invention entitled AUTOMATED BRAKING SYSTEM AND METHOD for the term of 20 years from the 5th day of March 2020 in accordance with the	3	1

		provisions of the Patents Act,1970. ■ Won the MIET Mehaboobi Mohamed Yunus Memorial National award for the Best Women Engineering College Teacher for the year 2022, at the 52th ISTE National Annual Convention at Kalaburagi (Karnataka state) on Febrruary 12, 2024. ■ Won the Shri P K Das Memorial Best faculty award in Sr. category in Mechanical Engg from Nehru group of institutions on 15th Dec, 2023. ■ Was felicitated by Indian Institution of Industrial Engineering (IIIE) Trivandrum chapter for her achievements and contributions during 2023 on the Foundation Day celebration at IIIE TVM chapter on January 27,2024. ■ received the recognition as Women leader from Metro Media on the occasion of International women's day celebration 8 March 2024. has been inducted as CII mentor for women leadership program from the month of October 2023 onwards. ■ Served as panelist at the CII (Confederation on Indian Industry) IWN conclave on women leadership at Kochi on February 23, 2024. 3.Mr. Bobin Saji George, Assistant Professor MED, ■ Served as Program Committee member and Reviewer for 4th Congress on Intelligent Systems (CIS 2023) organised by Department of Computer Science and Engineering, CHRIST (Deemed to be university), Bangalore,		

		sponsored by AICTE and Soft Computing Research Society during September 04-05, 2023. ■ Served as Program Committee member and Reviewer for 2nd International Conference on Advances in Data-driven Computing and Intelligent Systems (ADCIS 2023) organised by BITS Pilani, K K Birla Goa Campus and National Forensic Sciences University, Goa during September 21-23, 2023. ■ Served as Program Committee member and Reviewer for 5th International Conference on Communication and Intelligent Systems (ICCIS 2023) organised by Malaviya National Institute of Technology, Jaipur (NIT Jaipur - An Institute of National Importance) and Soft Computing Research Society during December 16-17, 2023.		
6	S&H	3. Ms. Preethi P. C., Assistant Professor, Chemistry, Department of Science and Humanities successfully defended her Ph.D. thesis entitled "Synthesis, Characterization, Structural Studies and Applications of Metal Carboxylates and Composite Materials", at the Department of Chemistry, University of Kerala, Kariavattom Campus, Thiruvananthapuram on January 11, 2024. 4. Ms Sruthi Janardhanan, Assistant Professor in Mathematics, Dept. of Science and Humanities qualified GATE 2024. 5. Ms. Shijin Shaji, qualified the State Eligibility Test- English, conducted by LBS Centre for	5	1

		Science and Technology. (January 2024)		
		6. 4.Ms. Ammu Maria Ashok received prize in International Poetry Competition conducted for 12th Rabindranath Tagore Award 2023, and honoured with title 'Distinguished Poet Award 2023" (May 2023).		
		7. Dr. Archana P. Das presented a paper entitled "Aminoantipyrine derivative of Embelin – Synthesis, characterization and Cytotoxicity studies" and received the best paper award in the Two Day National Seminar on NMR Spectroscopy, jointly organized by MRSK and Mar Athanasius College (Autonomous), Kothamangalam (October 20-21, 2023)		

9.5 No: of PhD hands, Guides, Research Scholars and faculty registered for PhD

Table V: List of Guides and Research Scholars

Sl. No.	Department	Total No of PhD hands in the Department	Total No of PhD Guides in the Departments	Total Number of Research scholars	Total No of Faculty pursuing PhD
1	CED	10	5	6	8
2	CSE	7	4	2	12
3	ECE	10	3	5	10
4	EEE	6	2	2	12
5	MED	9	4	1	6
6	S&H	6	1	Nil	7

Some more faculty members from the various Departments have received approval as PhD Supervisors under the affiliating University. Currently there are 16 Research Supervisors from different departments, guiding 16 PhD scholars.

10 Students' Professional Development and the Professional Bodies

College is very prompt in making its contributions for instilling proper values and morals in the students. Practice of professional ethics is also promoted through various activities of the Department level Associations, the Clubs for the Cocurricular activities, Chapters of

the professional bodies, etc. Highlights of the various initiatives taken during the reporting year are given below.

10.1 Elected Student Body at the College Level

The Senate, being the elected Student body, its constitution was preceded by the democratic election process, broadly following the University guidelines and the Lyngdoh Committee Report. The Senate 2023-2024 was constituted on 07.11.2023 and the participation of UG and PG students in the Senate was ensured through the elected representatives. Office bearers have taken oath and assumed their office duly on completion of the election process. The Senate oversees the conduct of student activities.14 students and 2 faculty advisors are there in the Senate.

10.2 Professional Activities

In spite of the prevailing pandemic conditions, all the Professional bodies (Local Chapters, Student Branches) were very active throughout the year. Thanks to the online technologies, a number of events were organized by the student branches in the virtual mode. A summary of the number of activities conducted under various banners is given below.

(A) **IEEE-Institute of Electrical and Electronics Engineers SB** and the different IEEE societies PES, EMBS, SPS, CS, RAS and WIE organised a total number of 27 events that included technical as well as activities of social relevance. The number of activities by the societies and affinity groups are WIE-1; RAS-3; EMBS-3; SP-1; CS- 5; PES-11; Common-3.

Number of student members-118   Number of faculty members (Office Bearers) -8

Number of Faculty members with IEEE membership– 14

(B) IET-Institution of Engineering and Technology MBCET On Campus

The IET MBCET On Campus Chapter has conducted 15 Activities

The Chapter has received Best Faculty Advisor and KKLN Premium on campus award

Number of student members-20   Number of Faculty members – 1

(C) **ISTE-Indian Society for Technical Education MBCET Student and Faculty Chapters**

The ISTE MBCET Student Chapter has organized 33 Activities

The ISTE MBCET Faculty Chapter has organized 4 Activities

Number of student members-104

Number of faculty members (Office Bearers) -13

Number of Faculty members with ISTE membership - 68 (CS-14, EC-18, CE-6, EE-16, ME-14)

(D) ASME-American Society of Mechanical Engineers MBCET Chapter

Conducted 2 Activity

Number of student members- 15   Number of Faculty member – 1

(E) ISHRAE-Indian Society of Heating, Refrigerating and Air ConditioningEngineers MBCET Chapter

Conducted 13 Activities

Number of student members-24   Number of Faculty member – 1

(F) SAE-Society of Automotive Engineers

Conducted 3 activities

Number of student members- 69 (2023-24) Number of Faculty member - 2

(G)CSI-Computer Society of India MBCET Chapter

Conducted 18 activities

Number of student members- 62 (2023-24) Number of Faculty member - 1

(H) ASCE – American Society of Civil Engineers MBCET Chapter

Conducted 19 activities

Number of student members- 297 Number of Faculty members – 3

(I) IGS Indian Geotechnical Society

Conducted 5 activities

Number of student members- 97

Number of Faculty members – 1

(J) IPA- Indian Plumbing Association

Conducted 2 activities

Number of student members- 34   Number of Faculty members – 1

10.3 Institute Innovation Council (IIC)

IIC MBET has secured 3.5 Star rating for the year 2022-2023.

The activities conducted by the IIC MBCET till June 2023 for the Quarter 4 ,Quarters 1 & 2 are listed as follows:

> **Quarter 1 [2023-24]**
>   IIC Calendar Activity: 3
>   MIC Driven Activity :0
>   Self Driven Activity: 3
>   Celebration Day Activity: 0

Quarter 2[2023-24]

    IIC Calendar Activity: 3

    MIC Driven Activity :0

    Self Driven Activity: 3

    Celebration Day Activity: 2

Quarter 3 [2023-24]

    IIC Calendar Activity: 4

    MIC Driven Activity :3

    Self Driven Activity: 3

    Celebration Day Activity: 1

Quarter 4 [2023-24]

    IIC Calendar Activity: 3

    MIC Driven Activity :4

    Self Driven Activity: 3

    Celebration Day Activity: 1

Number of Student members: 4

Number of Faculty Members: 13

Number of External Members: 6

10.4 Invited Lectures

Table W: List of Invited Lectures

Sl. No.	Department	Number of Invited Lectures	Number of External Lectures by MBCET Faculty
1	CED	11	3
2	CSE	5	23
3	ECE	6	4
4	EEE	12	7
5	MED	1	3
6	S & H	1	3

10.5 Dept Association Activities, Tech fest and Newsletter

Table X: List of Dept Association Activities

Sl. No.	Department	Name of the Association	Number of events conducted	Number of Newsletters released
1	CED	Civil Engineering Students Association (CESA)	7	-
2	CSE	Association for Computer Engineers	8	-
3	ECE	e-NIX	6	e-WAVE,30 May 2024,
4	EEE	Illumina	10	-
5	MED	AUTOMATA	1	1

11 Activities conducted by MBCET Staff Club

1. Onam Celebrations 2023
2. Kerala Day Celebrations 2023
3. Christmas / NewYear Celebrations and Staff Family Get together 2024
4. Medical Health Checkup camp by DDRC Agilus Limited for Staff and Family 2024
5. Annual Staff Sports 2024
6. Medical Health Insurance Schemes to Staff and Family by Star Health Insurance Limited.

12 Students' Sports and Games

'HEALTH IS WEALTH'. To hold this tagline our College has always encouraged and supported our students and staff to engage in Physical activities like sports and games. College provides scholarships to the meritorious students in sports as well. Now, Mar Baselios is not just a name, it's a brand among the people. To spread the name and to reach towards this mission, the Department of Physical Education has played a major role. Every year a lot of activities have been planned and executed. The Intra mural competitions like Baselian Premier League for football, Big Bash League for cricket, Baselian Volley League for volleyball are few among them. The department also holds All Kerala Inter Collegiate Tournaments like Mar Baselios Trophy in Basketball, Baselios Volley Cup for Volleyball and newly introduced Legends Cup for Cricket. College teams from All Kerala are invited to compete with each other.

In the University competitions like last year, this year too, we hold a strong position among the 143 Engineering Colleges. In the KTU Annual Athletics Meet we secured third position in the Men category and Secured Fifth position in the overall championship. Shone C Achankunju of S4 EC 2 became the fastest man in the University by clocking 11.53 sec in 100 metres. In the University games section, we got a good number of achievements. In the A Zone competition for Women, we are the winners of Kabaddi, Basketball, Table Tennis competitions and in the Men section we are the winners in Table Tennis, Basketball. Runners in Chess and Second Runner Up in Shuttle Badminton and Volleyball.

- In the Inter Zone Men Competitions we were the winners in the Lawn Tennis Championship, Runners in Basketball and Yogasana competition and in women competition we got Second position in Basketball and third position in Netball.
- The College Basketball Men team lifted quite a number of Inter Collegiate Basketball Championships which includes Amrita Trophy, Runners of Viswadeepthi Trophy, Providence Cup.

- This year total 15 students altogether from the Men and Women section got selection to the University teams. Five in Basketball, One in Volleyball, Two in Lawn Tennis, One in Table Tennis, One in Yogasana and Two in Athletics.
- Ashish E of S1CT represented Kerala Junior Basketball team for the Nationals which was held at Bhuvaneswar.
- Keerthana D S of S1CE1 got selected to the Kerala Junior Women Hockey team.
- Ashik S C of S6 EE secured Gold medal and Silver medal in the District Youth and Senior Arm Wrestling competition and got selected to the State competition.
- The Physical Education Department has also organized University competitions like A Zone Men Basketball tournament, Men and Women Chess Championship, Inter Zone Men Basketball Competition, Inter Zone Men Volleyball competition, Inter Zone Men and Women Netball Competitions.

13 Alumni Affairs

Mar Baselios College of Engineering and Technology Alumni Association, or MBCETAA is the alumni association of MBCET. The Alumni association was conceived with the help and co-operation of the Principal, and management of the college. The association was formally inaugurated on 25th of January, 2009. The alumni association is registered as a society in accordance with the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act, 1955, Registration number: TVM/TC/684/2020 on 21/12/2020. MBCETAA supports the institution in fields of curriculum development, placement and training, social obligations, among others.

MBCETAA provides financial support to programmes intended for alumni/student development.

Table Y: List of Events with Sponsorship Details

Sl. No.	Event	Contribution (Rs)
1	Memento – Alumni meet 2023	25,480.00
2	Alumni meet and General body meeting expenses (Ambulance, Thomson, Treasurer: Sherry)	5800
3	Best Project Awards	50,000.00
4	EEE Conference ICEMPS 2024	25,000.00
5	Mechanical Conference ICAMEO 2024	25,000.00
6	Token of appreciation to participants of Smart India Hackathon 2023	21,116.00
7	CS Tech Fest – Hash & Define Hackathon	20,000.00
8	Mechanical OFFROADS 2024	20,000.00
9	CSE Conference NETACT'24	25,000.00
	Total Amount	**Rs. 217,396.00**

1. RENDEZVOUS 2023 – MBCET Alumni Meet was held at Poojapura Ground, Thiruvananthapuram on 14th May 2023 at 5 pm. Around 100 members attended the Alumni Meet. The alumni meet was for all batches passed out from MBCET. It was a get together for them where they could meet their seniors and juniors. The event will also witness the honoring of 2008-2012 & 2009-2013 batches of MBCET. The Chief Guest was Ms. Simla Balasubramaniyan, 2009-13 EE.

2. MBCETAA instituted the Best Project Awards for two projects from each department. Each of the Best Projects were awarded a certificate and a cash prize of Rs.5000/-. The awards were distributed by Dr. S. Unnikrishnan Nair Director VSSC at Exodos 2023 - Graduation Ceremony.

3. International Conference on E-Mobility, Power Control and Smart Systems (ICEMPS 2024), co-sponsored by IEEE Kerala Section and APJ Abdul Kalam Technological University, is organized by Electrical and Electronics department of Mar Baselios College of Engineering and Technology, Thiruvananthapuram, Kerala, India, during 18-20 April 2024 was sponsored by MBCETAA.

4. The second International Conference on Applied Mechanics and Optimisation (ICAMeO'24) will be held on 25-27 July 2024 by the Mechanical department at Mar Baselios college of Engineering and Technology, Thiruvananthapuram, sponsored by MBCETAA.

5. On September 27, 2023, Mar Baselios College of Engineering and Technology held the SIH Prelims Internal Hackathon. One team was selected to advance to the next stage. As a token of appreciation, MBCETAA was sponsored the travel and accommodation expenses for participants progressing to the second level of the Smart India Hackathon 2023.

6. MBCETAA sponsored for Define'24 is the second edition of the flagship 24-hour hackathon hosted by the Department of Computer Science and Engineering of Mar Baselios College of Engineering and Technology, Trivandrum as a part of its annual inter-collegiate technical fest, Hash.

7. MBCETAA sponsored for OFFROADS'24, the prestigious Auto-show organized by Automata in association with the Department of Mechanical Engineering, MBCET was held on April 20, 2024 (Saturday) at the college premises. The event was formally inaugurated by H. H. Prince Avittom Thirunnal Aditya Varma.

8. The International Conference on Networks and Advances in Computational Technologies (NETACT'24) will be held in December 2024 by the Mechanical

department at Mar Baselios college of Engineering and Technology, Thiruvananthapuram, sponsored by MBCETAA.

14 Conclusions

The College has passed through the fourth year of its journey in the Autonomy regime very smoothly. Earnest efforts were made to adhere to the Academic Calendar with a plan that each batch graduate within the stipulated duration of their study programme (4 years for BTech and 2 years for MTech). The accomplishments in terms of the progress and quality in the academic and research domain have been possible only because of the guidance and support from the stakeholders, Management and the well-wishers, including the Affiliating University and the Government.

We hereby submit the Annual Report for the year 2023-2024 to UGC as part of the compliance to the guidelines. But that also helps us to review our activities and the outcomes and also apply the checks and measures for setting the processes right.

We are grateful to the UGC for giving us the chance to improve the calibre of our processes and fine tune the academic programmes.

By signing this document, we certify that the data in this report is accurate to the best of our knowledge and belief.

Signature:

Dr. Nisha G K
IQAC Coordinator
Place: Trivandrum

Signature:

Dr. S. Viswanatha Rao
Principal
Mar Baselios College
of Engineering & Technology
Mar Ivanios Vidyanagar, Nalanchira
Thiruvananthapuram-695015