



## Yearly Status Report - 2019-2020

### Part A

#### Data of the Institution

<b>1. Name of the Institution</b>		MAR BASELIOS COLLEGE OF ENGINEERING AND TECHNOLOGY
Name of the head of the Institution		Dr T.M.George
Designation		Principal
Does the Institution function from own campus		Yes
Phone no/Alternate Phone no.		04712545866
Mobile no.		9447146117
Registered Email		mbcet@mbcet.org
Alternate Email		principal@mbcet.ac.in
Address		Mar Ivanios Vidyanagar, Nalanchira, Trivandrum
City/Town		Trivandrum
State/UT		Kerala
Pincode		695015

<b>2. Institutional Status</b>					
Affiliated / Constituent		Affiliated			
Type of Institution		Co-education			
Location		Urban			
Financial Status		private			
Name of the IQAC co-ordinator/Director		Dr.George Zachariah			
Phone no/Alternate Phone no.		04712545866			
Mobile no.		9446532004			
Registered Email		iqac@mbcet.ac.in			
Alternate Email		viceprincipal@mbcet.ac.in			
<b>3. Website Address</b>					
Web-link of the AQAR: (Previous Academic Year)		<a href="http://mbcet.ac.in/iqac">http://mbcet.ac.in/iqac</a>			
<b>4. Whether Academic Calendar prepared during the year</b>		Yes			
if yes,whether it is uploaded in the institutional website: Weblink :		<a href="http://mbcet.ac.in/academic-calendar/">http://mbcet.ac.in/academic-calendar/</a>			
<b>5. Accrediation Details</b>					
Cycle	Grade	CGPA	Year of Accrediation	Validity	
				Period From	Period To
1	A	3.13	2016	05-Nov-2016	05-Nov-2021
<b>6. Date of Establishment of IQAC</b>			07-Apr-2015		
<b>7. Internal Quality Assurance System</b>					
Quality initiatives by IQAC during the year for promoting quality culture					
Item /Title of the quality initiative by IQAC	Date & Duration		Number of participants/ beneficiaries		
Initiated NAAC reaccreditation process	03-Mar-2019 1		292		

Initiated collection of feedback from all stakeholders	01-Nov-2019 90	452
Preparation to attain Autonomous Status started	30-Jan-2020 2	2700
Internal Quality Assurance Cell	01-Jan-2020 4	40
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**8. Provide the list of funds by Central/ State Government- UGC/CSIR/DST/DBT/ICMR/TEQIP/World Bank/CPE of UGC etc.**

Institution/Department/Faculty	Scheme	Funding Agency	Year of award with duration	Amount
Dr Neethu Roy (PI)	Extra Mural Research (Now Core Research Grant)	Science and Engineering Research Board, Department of Science and Technology	2018 1095	2799500
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**9. Whether composition of IQAC as per latest NAAC guidelines:**

Yes

Upload latest notification of formation of IQAC

[View File](#)

**10. Number of IQAC meetings held during the year :**

2

The minutes of IQAC meeting and compliances to the decisions have been uploaded on the institutional website

Yes

Upload the minutes of meeting and action taken report

[View File](#)

**11. Whether IQAC received funding from any of the funding agency to support its activities during the year?**

No

**12. Significant contributions made by IQAC during the current year(maximum five bullets)**

Applied to UGC for grant of autonomous status. Based on the application submitted to the UGC by the institution, the UGC peer team visited on 30th and 31st January 2020 to evaluate the performance and academic attainment for autonomous status.

Reviewed the program of implementation of Strategic Plan.

Initiated a number of teaching learning approaches to cater to remote learning requirements.

Conducted a number of internal and external audits to assess and improve the quality of the academic system.

A number of initiatives taken to encourage an entrepreneurship culture in the campus.

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### 13. Plan of action chalked out by the IQAC in the beginning of the academic year towards Quality Enhancement and outcome achieved by the end of the academic year

Plan of Action	Achivements/Outcomes
1. Prepare the institution for obtaining autonomous status. Autonomous status gives the College the academic freedom to design own course and assessment procedure. The quality of education can be significantly enhanced through this process	1. Based on the application submitted to the UGC by the Institution, the UGC Peer Team visited the College on 30th and 31st January 2020 to evaluate the performance and academic attainment for autonomous status. Subsequently on 15th July 2020, UGC has communicated to the University, its decision to grant autonomous status to the institution with effect from the academic year 20202021. The Order related to the above is awaited from the University.
2. Initiate steps for student internship programme with reputed foreign Universities	2. i) Four students from the department of Computer Science and Engineering completed their Internship at Swinburne University, Melbourne, Australia from July 13th to July 26th. ii) One student from Technological University, Myanmar was hosted at MBCET for a period of 6 months from 16th Sept. 2019 to 16 Mar 2020, under India Research and Training Fellowship (IRTF)
3. Increase the number of research project proposals.	3. A number of proposals were submitted to various funding agencies. Some of the key proposals are listed below: i. DST -Development of handheld CNN based device for abdomen based tumor detection from images ii. APJ Abdul Kalam University - Reliability Investigation and modeling of SiGe heterojunction bipolar transistors iii. DST - NewGen IEDC - CleftSuite: Development of Visual Feedback system for Cleft Deformity Therapy iv. DST - NewGen IEDC - Disposfe: A safe and Hygenic way of disposing sanitary napkins at home v. MHRD Govt. of India,

	<p>under Unnat Bharat Abhiyan (UBA) - Proposals: Smart Farming using IOT and Digital Image Processing, Sewage Treatment Plant and Rainwater harvesting System. vi. AICTE - Prostate Segmentation from MRI images using CNN</p>
<p>4. Enhance the entrepreneurship and start-up activities. Streamline a process for selection of start-ups.</p>	<p>4. The Innovation and Entrepreneurship Development Centre (IEDC) operates with a vision of inspiring students to become proactive engineers by exposing them to the world of entrepreneurship through Innovation. The Centre aims in sharpening the skill-set, broadening the knowledge, imbibing the entrepreneurial mindset and equipping them with technical and non-technical traits needed for the future enterprising workforce. Major Actions Initiated last year i. Submitted 10 student projects towards the approval of the NewGen IEDC Scheme by the Department of Science and Technology. ii. Among the student startups who applied online, 5 got selected by the panel and they were incubated in our A P J Abdul Kalam Centre for Innovation, Incubation and Entrepreneurship. iii. Started The Institution's Innovation Council initiated by MHRD. iv. Conducted several Ideation workshops, Mentor Bootcamps, Skill Development programmes, Idea fest etc. to enrich experiential learning.</p>
<p>5. Introduce Induction Programme for first year students to make the students feel comfortable in their new environment.</p>	<p>5. An induction programme was conducted for first year students from 23rd July 2019 to ended 09th August 2019. The programme included a number of sessions intended to familiarize the campus, talks to create awareness about cyber laws, anti-narcotic aspects as well as social responsibility. In addition the students participated in skill development, physical education and yoga activities.</p>
<p>6. Increase the placement opportunities through continuous engagement with industries and organizations</p>	<p>6. The placements at MBCET increased during the academic year 2019-2020 due to the initiatives taken by the CDPU. 208 students got placed in reputed companies and 194 students in 2020 so far. Major recruiters include INFOSYS, IBM, QBURST, QUESTGLOBAL, UST GLOBAL, WIPRO, INAPP and IBS.</p>
<p>7. Establish more centres of excellences in departments. Establish at least one centre in each department.</p>	<p>7. Different departments have taken initiatives towards setting up of research centres by forming research interest groups. The department of</p>

Computer Science collaborated with Bennet University for research in the area of Artificial Intelligence. The collaboration has resulted in student internships, faculty visits, training and research publications in related areas

8. In order to motivate students Socially Relevant Projects have been designed and initiated.

8. Students were encouraged to propose their final year projects with social relevance. Many of the projects thus proposed addressed socially relevant problems related to environment, energy conservation, assistive technologies and healthcare. Project proposals have been submitted under the Unnat Bharat Abhiyan (UBA) that are related to water harvesting, smart farming and waste management.

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14. Whether AQAR was placed before statutory body ?

Yes

Name of Statutory Body	Meeting Date
1. College Council and Governing body	27-Aug-2020

15. Whether NAAC/or any other accredited body(s) visited IQAC or interacted with it to assess the functioning ?

No

16. Whether institutional data submitted to AISHE:

Yes

Year of Submission

2020

Date of Submission

28-Feb-2020

17. Does the Institution have Management Information System ?

Yes

If yes, give a brief description and a list of modules currently operational (maximum 500 words)

The following mechanisms are in place for effective and quick dissemination of information to all the stakeholders. 1. Ecoliaide information management system for automation of data capture and analysis of faculty leave and attendance, students attendance and continuous internal assessment. 2. The intercom 3. Intranet 4. Emails 5. WhatsApp Groups 6. SMS 7. Notice boards 8 Central Computer Facility 9. Information Technology

Management and Services (ITMS) division that provides quality IT Services for the Institution's Research, Academic and Administrative needs and effectively manages the IT infrastructure of the Institution. It has four sub units, namely Server Administration, Network Administration, Software Development and Systems Support. Core Services • Installation, operation and Management of the computer backbone network in the college buildings. • Connection of the College Network to Internet. • Provision of a central storage space and email services for all staff. • Installation, Operation and Management of Student Management System, Course Management System (Moodle), Asset Tracking and Management System, Biometric Attendance System and other Campus Management Software. • Coordinate of Campus wide software licenses. • Coordination of online publication on the College website.

## Part B

### CRITERION I – CURRICULAR ASPECTS

#### 1.1 – Curriculum Planning and Implementation

1.1.1 – Institution has the mechanism for well planned curriculum delivery and documentation. Explain in 500 words

Mar Baselios College of Engineering and Technology, affiliated to APJ Abdul Technological University (KTU) is bounded by regulation to follow the syllabus/curriculum prescribed by the university. The curriculum, list of courses, syllabi and course plans are approved by the Academic Committee of the University. Courses are categorized as Core Theory (CT), Core Practice (CP) and Electives (EL). The curriculum of the B.Tech program is designed to have a minimum of 180 academic credits and 2 additional pass/fail credits, for the award of Degree. All courses listed in the curriculum, other than the electives, are Core Courses. Earning credits in the Core Courses are mandatory for the students. The curriculum is formulated and reviewed periodically by the Curriculum Review Committee formulated by the University. The online platforms/tools/software used during Covid-19 pandemic for curriculum delivery are listed below: • Online platforms used for conducting online theory classes- YouTube Video Lectures, Google classroom, Live classes on Google meet, Cisco Webex . • Online platforms used for online tests- Google form • Online platforms used for conducting laboratory classes- Matlab software , Proteus software (circuit simulator), Codeblocks (C/CPP IDE), EdSim51 (8051 simulator), Circuitverse (online digital circuit simulator) The effectiveness of this approach is being evaluated based on the responses from the quizzes and assignments conducted for students.

1.1.2 – Certificate/ Diploma Courses introduced during the academic year

Certificate	Diploma Courses	Dates of Introduction	Duration	Focus on employ ability/entreprene	Skill Development
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					urship	
RC Aircraft Workshop	Nil	03/01/2020	2		Outreach activity	Yes
DIALux Lighting Design training	Nil	16/10/2019	3		Employabil ity Entrepre neurship	Yes

## 1.2 – Academic Flexibility

### 1.2.1 – New programmes/courses introduced during the academic year

Programme/Course	Programme Specialization	Dates of Introduction
BTech	B.Tech in Civil Engineering	01/01/2020
BTech	B.Tech in Electronics & Communication Engineering	01/01/2020
BTech	B.Tech in Mechanical Engineering	01/01/2020
BTech	B.Tech in Electrical & Electronics Engineering	01/01/2020
BTech	B.Tech in Computer Science & Engineering	01/01/2020
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### 1.2.2 – Programmes in which Choice Based Credit System (CBCS)/Elective course system implemented at the affiliated Colleges (if applicable) during the academic year.

Name of programmes adopting CBCS	Programme Specialization	Date of implementation of CBCS/Elective Course System
BTech	Civil Engineering	01/08/2019
BTech	Mechanical Engineering	01/08/2019
BTech	Electrical & Electronics Engineering	01/08/2019
BTech	Electronics & Communication Engineering	01/08/2019
BTech	Computer Science & Engineering	01/08/2019
Mtech	Structural Engineering	01/08/2019
Mtech	Computer Science & Engineering	01/08/2019
Mtech	Telecommunication Engineering	01/08/2019
Mtech	Power Control & Drives	01/08/2019
Mtech	Machine Design	01/08/2019

### 1.2.3 – Students enrolled in Certificate/ Diploma Courses introduced during the year

	Certificate	Diploma Course
Number of Students	17	14

## 1.3 – Curriculum Enrichment



### 1.3.1 – Value-added courses imparting transferable and life skills offered during the year

Value Added Courses	Date of Introduction	Number of Students Enrolled
Life skills	01/08/2019	507
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### 1.3.2 – Field Projects / Internships under taken during the year

Project/Programme Title	Programme Specialization	No. of students enrolled for Field Projects / Internships
BTech	B.Techin Civil Engineering	120
BTech	B.Techin Mechanical Engineering	42
BTech	B.Techin Mechanical Engineering	94
BTech	B.Techin Electronics & Communication Engineering	123
BTech	B.Techin Computer Science & Engineering	18
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## 1.4 – Feedback System

### 1.4.1 – Whether structured feedback received from all the stakeholders.

Students	Yes
Teachers	Yes
Employers	Yes
Alumni	Yes
Parents	Yes

### 1.4.2 – How the feedback obtained is being analyzed and utilized for overall development of the institution? (maximum 500 words)

Feedback Obtained
<p>The institution collects feedback on curriculum aspects and courses from different stakeholders such as the students, alumni, Faculty and Employers. Periodical analysis is made by Programme Assessment Committee to attain the expectation from the various stakeholders. Feedbacks are collected for all courses during the mid and end of the semester. During the mid-semester feedback, the Staff Advisors/ HOD ask the students to write the feedback for theory class, labs etc. and evaluate the teaching methods for each course. HOD analyses the report and discussed with faculty who needs improvement in the method of teaching. By considering the revised curriculum and by taking the suggestions from the stakeholders such as parents, students, industrial experts, alumni, faculty etc. The suggestions were used in the revision of PEOs. PEO's were modified specific to the program and mapped with mission of the Department.</p>

## CRITERION II – TEACHING- LEARNING AND EVALUATION

### 2.1 – Student Enrolment and Profile

#### 2.1.1 – Demand Ratio during the year

Name of the	Programme	Number of seats	Number of	Students Enrolled
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Programme	Specialization	available	Application received	
BTech	Electronics and Communication Engineering, Civil Engineering, Computer Science Engineering, Mechanical Engineering, Electrical and Electronics Engineering	630	2227	557
Mtech	Telecommunication Engineering, Signal Processing, Structural Engineering, Computer Science Engineering, Machine Design, Power Control and drives, Control System	138	70	27

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## 2.2 – Catering to Student Diversity

### 2.2.1 – Student - Full time teacher ratio (current year data)

Year	Number of students enrolled in the institution (UG)	Number of students enrolled in the institution (PG)	Number of fulltime teachers available in the institution teaching only UG courses	Number of fulltime teachers available in the institution teaching only PG courses	Number of teachers teaching both UG and PG courses
2019	2138	75	109	4	40

## 2.3 – Teaching - Learning Process

### 2.3.1 – Percentage of teachers using ICT for effective teaching with Learning Management Systems (LMS), E-learning resources etc. (current year data)

Number of Teachers on Roll	Number of teachers using ICT (LMS, e-Resources)	ICT Tools and resources available	Number of ICT enabled Classrooms	Number of smart classrooms	E-resources and techniques used
158	143	10	38	Nil	6

[View File of ICT Tools and resources](#)

[View File of E-resources and techniques used](#)

### 2.3.2 – Students mentoring system available in the institution? Give details. (maximum 500 words)

The institution has a well-structured student mentoring system. Mentoring is addressed at two levels. At the department level, three faculty members are assigned the role of staff advisor for each class. Each advisor has a group of maximum 21 students under him/her for close monitoring. The advisors are further monitored by a Senior Staff Advisor who is one among the three within the Department. The staff advisors meet the students regularly depending upon the requirements of students and look to the welfare of students and report the matter to the Senior Staff Advisor. Students with academic issues are reported to HoD and Parents after the Internal

Tests/ University Examinations and Remedial classes will be recommended for the needy students. In order to ensure proper communication between Parents and College, Social Media Platforms overseen by the senior staff advisor are utilized. Important announcements are posted there so that the Parents are kept in loop regarding the decisions taken by the college/department with respect to their ward's education. In addition, two Student Counselors are available in the campus during all working days. Based on the individual cases, the Counselor meets the students alone or along with their parents. The Counselor works in close coordination with the Departments and Parents, thus ensuring smooth functioning of the counseling activities. The advisors and counselors maintain registers to log the performance of the students and the details of meeting with the student/parent. In order to improve the overall development of student performance several activities are coordinated by Departments.

Number of students enrolled in the institution	Number of fulltime teachers	Mentor : Mentee Ratio
2213	158	1:14

## 2.4 – Teacher Profile and Quality

### 2.4.1 – Number of full time teachers appointed during the year

No. of sanctioned positions	No. of filled positions	Vacant positions	Positions filled during the current year	No. of faculty with Ph.D
180	158	22	8	28

### 2.4.2 – Honours and recognition received by teachers (received awards, recognition, fellowships at State, National, International level from Government, recognised bodies during the year )

Year of Award	Name of full time teachers receiving awards from state level, national level, international level	Designation	Name of the award, fellowship, received from Government or recognized bodies
2020	Dr. M. J. Jayashree	Professor	Got selected as Student Activity Chair of IEEE EMBS Kerala chapter
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## 2.5 – Evaluation Process and Reforms

### 2.5.1 – Number of days from the date of semester-end/ year- end examination till the declaration of results during the year

Programme Name	Programme Code	Semester/ year	Last date of the last semester-end/ year-end examination	Date of declaration of results of semester-end/ year- end examination
BTech	ME,CSE,CE,EEE ,ECE	S8	28/05/2019	16/07/2019
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### 2.5.2 – Reforms initiated on Continuous Internal Evaluation(CIE) system at the institutional level (250 words)

Besides the KTU norms the College has constituted DQAC (Department Quality Assurance Cell) which appoints a Subject Expert for scrutinizing the quality of the question paper and CO's compliance of each Course. The question paper is further scrutinized by the Module Co-ordinator. The internal examination question papers are framed according to the Bloom's Taxonomy for facilitating higher levels of thinking in students. The mark distribution of each question is checked by the Subject Expert and Module Co-ordinator and the required changes are noted down in the question paper and reverted to the Course Instructor. Then, the Course Instructor will make the required corrections and submit the final version of the question paper to the Department Exam Cell

Representative. The Module Co-ordinator will submit a report of the scrutiny of the question paper of that module to the HoD. The course coordinator evaluates the answer sheets adhering to the scheme of valuation. The answer sheets are also scrutinized by the subject expert. For assignment and internal examination question papers, the mapping of questions to Course Outcomes is shown at the end of the question paper. Student's attendance is strictly monitored. To make the students more committed Parent-Teacher meeting is arranged. To boost up the academic performance several awards are given at the Institution Level.

2.5.3 – Academic calendar prepared and adhered for conduct of Examination and other related matters (250 words)

The APJ Abdul Kalam University has their own academic calendar which includes:

- Orientation Programme
- Internal Examinations
- University Examinations
- Publishing of Internal marks
- Uploading of Internal marks
- Institute festivals etc.

In addition to this, we have an Institute Academic Calendar that is prepared well in advance before the commencement of an Academic Year. It consists of all the activities planned for the academic year comprising of:

- Internal Examination dates
- Retests
- Publishing of Internal marks
- Laboratory Examinations
- Conduction of events like technical fest, cultural fest
- Public holidays etc.

It is prepared in such a way that the Institute academic calendar is aligned with the University academic calendar. It is meticulously done so as to obtain the stipulated number of working days. The subjects for the next Semester are allotted immediately after the end of the current Semester so that the Faculty members can prepare the lecture plans and lecture notes in advance. This will make the teaching process more effective as the faculty is well prepared to take classes. The lecture plan is prepared for each course which gives a predictive plan on how to cover the Curriculum in a timely manner.

## 2.6 – Student Performance and Learning Outcomes

2.6.1 – Program outcomes, program specific outcomes and course outcomes for all programs offered by the institution are stated and displayed in website of the institution (to provide the weblink)

<https://mbcet.ac.in/wp-content/uploads/2020/10/PO-PEO-PSO.pdf>

2.6.2 – Pass percentage of students

Programme Code	Programme Name	Programme Specialization	Number of students appeared in the final year examination	Number of students passed in final year examination	Pass Percentage
CSE	Mtech	Computer Science Engineering	4	4	100
CSE	BTech	Computer Science and Engineering	88	75	85.22

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## 2.7 – Student Satisfaction Survey

2.7.1 – Student Satisfaction Survey (SSS) on overall institutional performance (Institution may design the questionnaire) (results and details be provided as weblink)

<https://mbcet.ac.in/wp-content/uploads/2020/10/STUDENTS-FEEDBACK.pdf>

## CRITERION III – RESEARCH, INNOVATIONS AND EXTENSION

3.1 – Resource Mobilization for Research

### 3.1.1 – Research funds sanctioned and received from various agencies, industry and other organisations

Nature of the Project	Duration	Name of the funding agency	Total grant sanctioned	Amount received during the year
Major Projects	1095	Centre for Engineering Research and Development (CERD) - APJ KTU	2	1.63
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### 3.2 – Innovation Ecosystem

#### 3.2.1 – Workshops/Seminars Conducted on Intellectual Property Rights (IPR) and Industry-Academia Innovative practices during the year

Title of workshop/seminar	Name of the Dept.	Date
Advances in Wireless Communication	ECE	08/07/2019
Nexus'19: 2 Day International Summit on Application of Engineering in Sports, Organised By IET MBCET On Campus	EEE	10/11/2019
DIALux Lighting Design Training	EEE	25/10/2019
Session on Abaqus Research and Teaching Suite - Dassault Products by CADmarC Software Private Limited	CE	10/02/2020
Introduction to intellectual property rights and patent protection	MBCET	25/06/2020
An International Conference on Applied Mechanics and Optimisation (ICAMeO-	ME	13/06/2019
Five Days ATAL sponsored FDP on Robotics	ME	08/07/2019
Facade Glazing- Products and Opportunities	CE	14/02/2020
Wrapped Retaining Walls	CE	20/02/2020
Plate and Shells	CE	29/02/2020
International Conference on Networks and Advances in Computational Technologies - NetAct 2019	CSE	23/07/2019
International Conference	ECE	12/12/2019

3.2.2 – Awards for Innovation won by Institution/Teachers/Research scholars/Students during the year

Title of the innovation	Name of Awardee	Awarding Agency	Date of award	Category
A Fuzzy And PI Controller Based Energy Management Strategy of Battery/Ultra Capacitor for Electric Vehicle	Mr Vaishak M Nayanar/Keerti S Nair	2nd IEEE International conference on Intelligent computing, instrumentation and control technologies held at Vimal Jyothy College of Engineering and Technology	05/07/2019	Best paper award
Robust Fractional Order Controller for an Expendable Launch Vehicle	Ms. Elizabeth Varghese	Vellore Institute of Technology.	08/01/2020	Best paper Award
Software to enable emergency services to locate victims accurately	Mr Jerin Sam James	2nd International Conference on Networks and Advances in Computational Technologies (NetACT19) organized by CSE Department, MBCET and ISTE students chapter in association with Bowie State University USA, Gannon University USA and Malardalen Universit	24/07/2019	Best Idea Presentation

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3.2.3 – No. of Incubation centre created, start-ups incubated on campus during the year

Incubation Center	Name	Sponsered By	Name of the Start-up	Nature of Start-up	Date of Commencement
Dr.APJ Abdul Kalam Centre for Innovation, Incubation and Entrepre	NIL	NIL	Hack.io	Software startup   AI powered Drone	10/10/2019

neurship (ACIIE), MBCET					
Dr.APJ Abdul Kalam Centre for Innovation, Incubation and Entrepre neurship (ACIIE), MBCET	NIL	NIL	Luggo	Software startup   Uberization of luggage	10/10/2019
Dr.APJ Abdul Kalam Centre for Innovation, Incubation and Entrepre neurship (ACIIE), MBCET	NIL	NIL	Vittore Coresetti Global Pvt Ltd	Software startup  App development	09/08/2019

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### 3.3 – Research Publications and Awards

#### 3.3.1 – Incentive to the teachers who receive recognition/awards

State	National	International
0	0	0

#### 3.3.2 – Ph. Ds awarded during the year (applicable for PG College, Research Center)

Name of the Department	Number of PhD's Awarded
0	Nil

#### 3.3.3 – Research Publications in the Journals notified on UGC website during the year

Type	Department	Number of Publication	Average Impact Factor (if any)
National	EEE	3	6
International	ME	7	.4
International	ECE	2	3
International	EEE	12	6
International	CSE	7	1
International	SH	2	3

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#### 3.3.4 – Books and Chapters in edited Volumes / Books published, and papers in National/International Conference Proceedings per Teacher during the year

Department	Number of Publication
CSE	8
CE	3
EEE	11

ECE	18
ME	29
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3.3.5 – Bibliometrics of the publications during the last Academic year based on average citation index in Scopus/ Web of Science or PubMed/ Indian Citation Index

Title of the Paper	Name of Author	Title of journal	Year of publication	Citation Index	Institutional affiliation as mentioned in the publication	Number of citations excluding self citation
Finite-volume-based conservative numerical scheme in cylindrical coordinate system to predict material removal during micro-EDM on Inconel 718	Deepak G Dilip	Journal of the Brazilian Society of Mechanical Sciences and Engineering	2020	0	MBCET	Nil
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3.3.6 – h-Index of the Institutional Publications during the year. (based on Scopus/ Web of science)

Title of the Paper	Name of Author	Title of journal	Year of publication	h-index	Number of citations excluding self citation	Institutional affiliation as mentioned in the publication
Finite-volume-based conservative numerical scheme in cylindrical coordinate system to predict material removal during micro-EDM on Inconel 718	Deepak G Dilip	Journal of the Brazilian Society of Mechanical Sciences and Engineering	2020	Nil	Nil	MBCET
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3.3.7 – Faculty participation in Seminars/Conferences and Symposia during the year :

Number of Faculty	International	National	State	Local
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Attended/Seminars/Workshops	63	147	55	33
Presented papers	32	3	Nil	Nil
Resource persons	1	12	28	11

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### 3.4 – Extension Activities

3.4.1 – Number of extension and outreach programmes conducted in collaboration with industry, community and Non- Government Organisations through NSS/NCC/Red cross/Youth Red Cross (YRC) etc., during the year

Title of the activities	Organising unit/agency/collaborating agency	Number of teachers participated in such activities	Number of students participated in such activities
Surveys on education, health, sanitation, electricity, etc, and awareness on plastic eradication	Spandanam the social service wing of Dept. of ECE in association with UBA	4	38

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3.4.2 – Awards and recognition received for extension activities from Government and other recognized bodies during the year

Name of the activity	Award/Recognition	Awarding Bodies	Number of students Benefited
Chapter with maximum number of activities	MBCET students chapter with maximum number of activities - Dec 2019	ISTE kerala section	250
Chapter with maximum number of activities	MBCET faculty chapter with maximum number of activities - Jan 2020	ISTE kerala section	70

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3.4.3 – Students participating in extension activities with Government Organisations, Non-Government Organisations and programmes such as Swachh Bharat, Aids Awareness, Gender Issue, etc. during the year

Name of the scheme	Organising unit/Agency/collaborating agency	Name of the activity	Number of teachers participated in such activities	Number of students participated in such activities
Charity	Spandanam, eNIX (Dept. Association)	Visit to Shalom Special School	4	38
Gender equity	Women's Studies Unit (WSU) in association with creative writing club "Aksharakootam"	A talk titled "Women in Writing on 18th November 2019"	6	54

	of MBCET			
Gender equity	Women's Studies Unit (WSU) in association with ISTE MBCET	"an awareness programme titled Discovering the Feminine Psyche on 13th November 2019	2	111
Childrens science congress	DST, KSCSTE	National Childrens science congress	34	100
UBA	UBA-MBCET, NSS	Village adoption	6	50

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### 3.5 – Collaborations

3.5.1 – Number of Collaborative activities for research, faculty exchange, student exchange during the year

Nature of activity	Participant	Source of financial support	Duration
Project: Development of Sustainable Concrete using Black Liquor Sludge as Admixture	"Dr. S. Jayasree and Akhil Raj S. R."	Kerala State Council for Science Technology Environment (KSCSTE)	365

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3.5.2 – Linkages with institutions/industries for internship, on-the-job training, project work, sharing of research facilities etc. during the year

Nature of linkage	Title of the linkage	Name of the partnering institution/ industry /research lab with contact details	Duration From	Duration To	Participant
Faculty exchange	Faculty exchange program on International Research funding with faculty	University of MARA	13/06/2019	15/06/2019	55

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3.5.3 – MoUs signed with institutions of national, international importance, other universities, industries, corporate houses etc. during the year

Organisation	Date of MoU signed	Purpose/Activities	Number of students/teachers participated under MoUs
Universiti Teknologi MARA (UiTM), Selangor,	18/02/2019	International Conference on Applied Mechanics	55

Malaysia		and Optimization (ICAMeO), 13-15 June 2019 (Mechanical Engg)	
SODFOS-DIALux	18/09/2019	A lighting design training for 50 hours using DIALux software	7
Indian Plumbing Association, Trivandrum, Kerala	29/02/2020	Internships for students	45
Curvelogics Advanced Technology Solutions Pvt. Ltd., Thiruvananthapuram	28/06/2019	Training in Artificial Intelligence for students and faculty • Technical support in AI related projects	19
Gannon University, USA	16/01/2019	International Conference on Networks and Advances in Computational Technologies - NetACT '17 and NetACT '19	29
Benett University, Noida	21/04/2019	ZZonal partner on "AI and Deep Learning Skilling and Research" • FFDPs on deep learning • Ssummer internship for students and faculty • 44 Student research projects ongoing	65
Bowie State University, USA	01/01/2019	International Conference on Networks and Advances in Computational Technologies - NetACT '17 and NetACT '19	29
Malardalen University, Sweden	15/01/2019	International Conference on Networks and Advances in Computational Technologies - NetACT '17 and NetACT '19	29

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## CRITERION IV – INFRASTRUCTURE AND LEARNING RESOURCES

### 4.1 – Physical Facilities

4.1.1 – Budget allocation, excluding salary for infrastructure augmentation during the year

Budget allocated for infrastructure augmentation	Budget utilized for infrastructure development
200	167

4.1.2 – Details of augmentation in infrastructure facilities during the year

Facilities	Existing or Newly Added
Number of important equipments purchased (Greater than 1-0 lakh) during the current year	Newly Added
Value of the equipment purchased during the year (rs. in lakhs)	Newly Added
Campus Area	Existing
Class rooms	Existing
Laboratories	Existing
Seminar Halls	Existing
Classrooms with LCD facilities	Existing
Classrooms with Wi-Fi OR LAN	Existing
Seminar halls with ICT facilities	Existing
Others	Newly Added

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### 4.2 – Library as a Learning Resource

4.2.1 – Library is automated {Integrated Library Management System (ILMS)}

Name of the ILMS software	Nature of automation (fully or partially)	Version	Year of automation
KOHA	Partially	3.12.06	2014
SOUL	Partially	1.0	2006

4.2.2 – Library Services

Library Service Type	Existing		Newly Added		Total	
Text Books	1500	530000	292	100501	1792	630501
Reference Books	32	35000	10	10030	42	45030
e-Books	5800	19470	6405	73238	12205	92708
Journals	96	444041	94	250400	190	694441
e-Journals	954	2451314	259	1039063	1213	3490377
Digital Database	610	1214892	1	13570	611	1228462

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4.2.3 – E-content developed by teachers such as: e-PG- Pathshala, CEC (under e-PG- Pathshala CEC (Under Graduate) SWAYAM other MOOCs platform NPTEL/NMEICT/any other Government initiatives & institutional (Learning Management System (LMS) etc

Name of the Teacher	Name of the Module	Platform on which module is developed	Date of launching e-content
Nil	Nil	Nil	04/09/2020
No file uploaded.			

#### 4.3 – IT Infrastructure

##### 4.3.1 – Technology Upgradation (overall)

Type	Total Computers	Computer Lab	Internet	Browsing centers	Computer Centers	Office	Departments	Available Bandwidth (MBPS/GBPS)	Others
Existing	710	447	70	13	68	27	149	0	6
Added	6	3	10	0	0	1	2	0	0
<b>Total</b>	<b>716</b>	<b>450</b>	<b>80</b>	<b>13</b>	<b>68</b>	<b>28</b>	<b>151</b>	<b>0</b>	<b>6</b>

##### 4.3.2 – Bandwidth available of internet connection in the Institution (Leased line)

80 MBPS/ GBPS
---------------

##### 4.3.3 – Facility for e-content

Name of the e-content development facility	Provide the link of the videos and media centre and recording facility
MBCET Teaching and Learning Centre	<a href="https://mbcet.ac.in/teaching-learning/teacher-learning-centre/">https://mbcet.ac.in/teaching-learning/teacher-learning-centre/</a>

#### 4.4 – Maintenance of Campus Infrastructure

4.4.1 – Expenditure incurred on maintenance of physical facilities and academic support facilities, excluding salary component, during the year

Assigned Budget on academic facilities	Expenditure incurred on maintenance of academic facilities	Assigned budget on physical facilities	Expenditure incurred on maintenance of physical facilities
25	15	100	97

4.4.2 – Procedures and policies for maintaining and utilizing physical, academic and support facilities - laboratory, library, sports complex, computers, classrooms etc. (maximum 500 words) (information to be available in institutional Website, provide link)

Maintenance and upkeep being the key factors of quality management, frugality, and economical restraint, due importance is given to these factors. The college has clear procedures and policies regarding the maintenance and utilisation of physical, academic, and support facilities. The Bursar, Asst. Bursar, and the Principal take care of the execution of the procedures and policies. The maintenance engineer takes care of the maintenance unit under which the following sections namely electrical, plumbing, general maintenance, civil works, carpentry, gardening, furnishing and store accessories. Under the store keeper plumbing, electrical, paints and hard wares sections function. The store keeper takes care of the general store which deals with the equipments, stationary and furniture. The structure of the procedures and policies of maintenance cell is represented in the flow chart given in the website.

<https://mbcet.ac.in/resources/maintenance-cell/> The details of physical, academic and support facilities can be seen in <https://mbcet.ac.in/>

<https://mbcet.ac.in/resources/maintenance-cell/>

## CRITERION V – STUDENT SUPPORT AND PROGRESSION

### 5.1 – Student Support

#### 5.1.1 – Scholarships and Financial Support

	Name/Title of the scheme	Number of students	Amount in Rupees
Financial Support from institution	1. Management scholarship 2. Merit scholarship	276	11746350
Financial Support from Other Sources			
a) National	1. Merit-cum-means scholarship (Central Govt) 2. Post matric scholarship (Central Govt). 3. Central sector scholarship (Central Govt) 4. Prime minister scholarship (Central Govt) 5. Fisherman scholarship (State Govt) 6. Tuition fee waiver scheme (State Govt)	197	10863250
b) International	Nil	Nil	0

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5.1.2 – Number of capability enhancement and development schemes such as Soft skill development, Remedial coaching, Language lab, Bridge courses, Yoga, Meditation, Personal Counselling and Mentoring etc.,

Name of the capability enhancement scheme	Date of implementation	Number of students enrolled	Agencies involved
Soft skill Training	10/08/2019	555	College

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5.1.3 – Students benefited by guidance for competitive examinations and career counselling offered by the institution during the year

Year	Name of the scheme	Number of benefited students for competitive examination	Number of benefited students by career counseling activities	Number of students who have passed in the comp. exam	Number of students placed
2020	placement training	Nil	330	Nil	191

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5.1.4 – Institutional mechanism for transparency, timely redressal of student grievances, Prevention of sexual harassment and ragging cases during the year

Total grievances received	Number of grievances redressed	Avg. number of days for grievance redressal
14	14	3

## 5.2 – Student Progression

5.2.1 – Details of campus placement during the year

On campus			Off campus		
Name of organizations visited	Number of students participated	Number of students placed	Name of organizations visited	Number of students participated	Number of students placed
INFOSYS	290	126	HR Block (India) Private Limited	54	4

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5.2.2 – Student progression to higher education in percentage during the year

Year	Number of students enrolling into higher education	Programme graduated from	Department graduated from	Name of institution joined	Name of programme admitted to
2019	1	BTech	Mechanical Engineering	Bangor University, UK	MBA
2019	1	BTech	Dept of Civil Engineering	National Institute of Construction Management and Research Hyderabad	PGP ACM Advanced construction management

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5.2.3 – Students qualifying in state/ national/ international level examinations during the year (eg:NET/SET/SLET/GATE/GMAT/CAT/GRE/TOFEL/Civil Services/State Government Services)

Items	Number of students selected/ qualifying
GATE	3

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5.2.4 – Sports and cultural activities / competitions organised at the institution level during the year

Activity	Level	Number of Participants
Nexus Cup (Football Tournament)	All Kerala (Inter Collegiate and Inter School)	1120
Nexus Chess Championship	All Kerala Open Championship	150
Baselios Volley Cup (Volleyball Tournament)	All Kerala (Inter Collegiate)	120
Netball (Men)	KTU All Kerala (Inter)	90

	Collegiate)	
Netball (Women)	KTU All Kerala (Inter Collegiate)	65
Baselios Premier League (Cricket Tournament)	Inter House Competition	120
Baselios Football Tournament	Inter House Competition	150
Trivandrum District Netball Championship	District	84
Baselian Fest	Inter Dept Competition	560
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### 5.3 – Student Participation and Activities

5.3.1 – Number of awards/medals for outstanding performance in sports/cultural activities at national/international level (award for a team event should be counted as one)

Year	Name of the award/medal	National/ Internaional	Number of awards for Sports	Number of awards for Cultural	Student ID number	Name of the student
2019	Third position in the JJ National Squash Championship	National	1	Nil	7383	Pran P
2019	Second runner up in Inter University Youth Festival	National	Nil	1	7441	Sravan K rishnakumar
2019	Second place, 35th Inter University South zone Youth Festival	National	Nil	Nil	5671	Sreerag S.

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5.3.2 – Activity of Student Council & representation of students on academic & administrative bodies/committees of the institution (maximum 500 words)

MBCET College Senate is the official Students' Council. It consists of an Executive Committee, Chairperson, Vice Chairperson, General Secretary, Joint Secretary, Arts Secretary, Sports Secretary, Treasurer, Media Secretary, Social Service Secretary, two Staff Advisors and two class representatives from each class. The Senate acts as a representative body of all students. It takes initiatives and coordinates efforts towards development of cultural, social and recreation programmes of interest to the students. The Senate also coordinates cultural, sports and technical events of the Institution such as the Baselian Fest which involves cultural and literary competitions for the students, Crossroads which is a Techno Cultural Fest, Sports Meets etc. Administrative bodies/committees of the Institution with student representation include Course Committees and Class Committees as directed by the Kerala Technological



University. Course Committee is for common courses offered to students admitted for the B.Tech Programme irrespective of their branch of study. The Committee includes four Student Representatives as members. Beginning from the third semester, all branches of study will have class committees for every Semester constituted by the respective Heads of Departments. This committee has two Student Representatives nominated by the Head of the Department. The College also has an IEDC Executive Committee with student representation. The Innovative and Entrepreneurship Development Centre (IEDC) has an executive committee working as a team to identify the opportunities and challenges around social as well as engineering scenarios. The core working committee of IEDC has 14 student members and one faculty member designated as the Nodal Officer. The student members of executive committee are Chief Executive Officer, Chief Operations officer, Chief Technical Officer, Chief Creative Officer, Chief Marketing Officer, Chief Social Officer, Chief Finance Officer and 7 student members as Executive Creative Curators. In addition to the above, Professional bodies namely IEEE, IET, ISTE, CSI, ACM, ASCE and ASME with student representation are actively functioning in the College.

#### 5.4 – Alumni Engagement

5.4.1 – Whether the institution has registered Alumni Association?

No

5.4.2 – No. of enrolled Alumni:

3500

5.4.3 – Alumni contribution during the year (in Rupees) :

145000

5.4.4 – Meetings/activities organized by Alumni Association :

a. Rendezvous-Alumni Meet (held every year in December) b. MBCETAA Outstanding Performer Award-MBCETAA Outstanding Performer Award is given to one student of the previous year pass out batch for outstanding all round performance in academics and extracurricular activities. Selection will be based on performance in Academics (50 points), Extracurricular Co curricular activities (50 points). One student from each Department, who secures maximum points out of 100, will be nominated to the award. The points for Academic performance, Extra Co curricular activities will be awarded by a committee consisting of the respective Staff Advisors, AHOD, HOD and senior professors. The student who secures maximum points out of 100 from the nominations will secure the award. Improvement exams and Re-valuation can be considered. Entries with condonation or supplementary papers will be disqualified.

### CRITERION VI – GOVERNANCE, LEADERSHIP AND MANAGEMENT

#### 6.1 – Institutional Vision and Leadership

6.1.1 – Mention two practices of decentralization and participative management during the last year (maximum 500 words)

• College has constraints it being an affiliated college. Besides this is a self-financing college. However, in the existing context the institution is doing whatever is possible to make its functioning effective through decentralization. In this respect the authority centered around certain areas is distributed so as to make administration and organisation easier. Accordingly, the Training and Placement Unit was given a separate identity. And a Placement Officer (full time) was appointed to organize and execute its activities effectively without administrative delay so that more attention

could be given to students to their maximum benefit. • The IT Management and Services hither to a part of the Training and Placement Unit also was given a separate status. A Senior Professor was given the charge to organize, streamline and execute effectively the activities of the IT Management and Services. This would definitely minimise the administrative delay. When autonomy is executed further steps in this regard can be executed.

6.1.2 – Does the institution have a Management Information System (MIS)?

Yes

## 6.2 – Strategy Development and Deployment

6.2.1 – Quality improvement strategies adopted by the institution for each of the following (with in 100 words each):

Strategy Type	Details
Library, ICT and Physical Infrastructure / Instrumentation	<p>Features: 1. Increase of the internet bandwidth from 70 mbps to 80 mbps through broadband with leased line. 2. Provision for access of e-book facility 3. Enroll as DELNET member for DELNET Engineering Technology Collection. 4. Implemented video sessions named Beyond Marks and Degrees-Knowledge, Skills and Wisdom'. 5. Joined in ESS, E-Shodhsindhu - Consortium for Higher Education Electronic Resources. 6. Institutional Membership with NDL - National Digital Library of India. 7. Reference Book Issue on overnight basis. 8. Book Bank scheme. 9. Student feedback evaluation scheme for better service. 10. WiFi Enabled Library. The following additions have been made in the lab attached to EE: Machines Lab 1. Three phase Autotransformer 15A 2. Voltmeter (150/300/600 V) 3. Systems Digital Tachometer Systems and Control Lab 1. Pump Electrical Engineering Workshop 1. 3.7 V Battery 2. Battery R/C AA 3. AA Rechargeable The following additions have been made in the lab attached to CE: • AIM-372 Longitudinal Compressometer for 150 mm x 300mm • AIM-372 Lateral Extensometer for 150 mm x 300mm • Electronic balance • Core cutter • Total station Battery The following additions have been made in the lab attached to CSE: 1)1 Processor Intel Core i9 System 2)1 APC BX600C-IN UPS 1 HDMI to HDMI cable 3)1 Processor Intel Core i9 System</p>
Research and Development	<p>There are three ongoing major research projects in the CE department funded by Science and Engineering Research Board, DST and Kerala State Council for Science Technology Environment (KSCSTE). The total research fund graded for major research</p>

project is Rs. 34,99,500. There is another minor research project funded by APJ Abdul Kalam Technological University for an amount of Rs. 63,000, In addition to that there are two in-house projects in the department. In the CSE department, The Network Security and Data Analytics research groups has organized an open talk series on upcoming areas in research topics like Block chain, Deep Learning etc. These sessions provided a platform for faculties from various departments to have active discussions on various emerging topics. During the period of lockdown the Data Analytics group has initiated knowledge sharing sessions where the group members would have discussions on new topics of research using the online platform.MBCET is one of the research centers for KTU. In Dept. of ECE one of the faculty (Dr. Jayakumari J) is an approved guide and three research scholars are pursuing PhD under her guidance.Faculty's are encouraged to present papers in conferences and incentives are given to faculty from college.Study leave is given for those faculty who are doing PhD.Funding is given for internal projects.The faculty members of the department is divided into 4 research groups (Communication, Biomedical, Embedded systems and Signal processing) according to their area of interest. Each group is headed by a coordinator and each group is supposed to bring forward research proposals for internal and external funding. These proposals are evaluated by the Dept. Research Committee. All papers (both M.Tech and B.Tech ) are scrutinized by concerned research groups before sending for publication

**Examination and Evaluation**

As part of the Quality improvement strategy, the exam cell has six department representatives from six streams (CE, CS, EE, EC, ME, and SH). They are responsible for collecting question papers from the department concerned after scrutiny. They handover the same to the chief superintendent, after which photocopies of the same will be taken. In order to ensure that no tampering of question paper is done, exam cell is equipped with camera facility. The count of faculty put for invigilation, for each classroom with

strength of 42, one faculty is assigned for duty, and with a count of 60, 2 faculty members are assigned and with a count of 150, 5 to 6 faculties are put for invigilation duty. For every Internal exam, squads are assigned to ensure that students do not engage themselves in unfair means while writing the exam. They visit the exam halls during the time of exam and check whether there is any malpractice. If found, they will be caught with proofs and will be reported to exam cell. Such student's answer paper will be kept at exam cell. From the exam cell such answer scripts will be handed over to the disciplinary action committee (DAC) for further actions.

Teaching and Learning

During lock down online classes were introduced through platforms like Zoom, Google meet etc. Google classroom has been found to be an effective medium for teaching - learning by sharing the lecture notes, video lectures, conducting assignments and quizzes, online tests etc. Also, some of the faculty members had enrolled in Kerala Government's Additional Skill Acquisition Programme (ASAP) , a joint initiative of General and Higher Education Departments, and had taken classes for the KTU Engineering students across the state. Apart from these, the students were encouraged to attend the online courses in NPTEL, Coursera etc. The college has a tie up with Coursera and presently offers discounts to students for attending courses in it. A one hour Webinar on "Writing Research papers at Undergraduate level" was organized by the Department of EEE on 21 April 2020 for final year EEE students during lock down period. Two Webinars were organized by IET MBCET during the Lockdown. First one was on "An Overview on Thermal Power Plants" handled by Mr. Ansha Naji, Manager (Operation), NTPC, Chennai. Second Webinar on "World of Lighting Design" was handed by Mr. Adhitya S, Assistant Manager, SODFOS Engineering Consultancy. Both are Alumni of EEE Dept., MBCET. Workshops for faculty development and peer learning are conducted. Orientation programs are held for the benefit of faculty members. The Civil Department allows innovative teaching learning

methodologies. One such method is the promotion of Active/Cooperative Learning. A frequent assessment of effectiveness of implementation of ACL is conducted through discussions/meetings of faculty. In-house training is conducted by faculty with experience in ACL for the remaining faculty. Faculty are encouraged to join various Online open courses (NPTEL, MOOC courses etc.). Faculty development programmes are conducted. Metamorphosis (Orientation for transition from class to field), an orientation programme for B.Tech graduates is conducted by invited talks from experts in various fields of engineering/entrepreneurship/public sector/public sector/higher education/industry/soft skill development etc to discuss opportunities or career after B.Tech.

Inorder to attract high quality students: open house activities, quiz programs project expos were organized .The faculty conducted online classes from different platforms (ZOOM. WEBex, Google meet etc., Easi board was used for live interactive classes. Online evaluation methods were used for conducting quiz and assignments . The CS department conducted Workshop on Integral Education for Teachers on 21st and 22nd June 2019, Resource Person-Mr. Arul Dev (Founder CEO of People first consultants) and also on July 18th and 19th, ,2019- Coordinator- Mr. Pradeep M. Innovative Teaching Learning Strategies: YouTube Video Lectures, Google classroom, Live classes on Google meet, Cisco Webex . Google Forms for MCQ, Edsim51 (8051 simulator) The EC department used the following tools : The online platforms/tools/software used during Covid-19 pandemic for curriculum delivery (ECE dept.):

- Online platforms used for conducting online theory classes- Google classroom, Google meet: Google Classroom was created for all courses and was employed to upload Presentations with and without narrations, videos, lecture notes and other study material for the benefit of the students. Google meet was used to conduct live classroom sessions and also for remedial puposes. A timetable was published for the conduct of the

live classroom sessions. • Online platforms used for online tests- Google form, Google Classroom, Google Meet: Google forms were used for conduct of the online test. Both descriptive and multiple choice questions were given to students. Google classroom was used to upload simulation results and to provide questions student wise for individual assessments. Project evaluations were conducted through Google Meet. Online platforms used for conducting laboratory classes - Matlab software , Proteus software(circuit simulator), Codeblocks (C/CPP IDE), EdSim51(8051 simulator), Circuitverse(online digital circuit simulator) .

Curriculum Development

The B.Tech programme under the EEE Department has been divided into nine groups of specialization such as Electrical Machines, Power Systems, Power Electronics, Control Systems and so on. Faculty members who handled the courses in the last 3 years and a Stream coordinator have been assigned for each group. The Stream coordinator together with the faculty members in a group will prepare the syllabus of the subjects that come under that specialization. Additional courses are designed and planned for the benefit of the students ensuring practical application and the update of the knowledge in the upcoming technologies and are included as Add On courses, MOOC courses and Skill Development Programmes. MBCET Employment Enhancement Programme (MEEP) is also in the framework as a Finishing school Programme for passing out graduates. The mechanical engineering faculty were divided into core streams- Production, Industrial Engineering, Design engineering and Thermal Engineering. Based on the feedback from stakeholders, experts, academicians and the latest expectations of the employer/industry the faculty identified the gaps in existing curriculum and modifications were made after referring the existing KTU, NIT and IIT syllabus. The Department of EC provided an Introduction to innovation and entrepreneurship class for first years. Dr. Jisha John, Associate Professor, Department of CSE was selected as a member of the B.Tech

curriculum committee, APJ Abdul Kalam Technological University, Trivandrum for framing the curriculum and syllabus from s1 to s8 in the branch of Computer Science Engineering, according to the order dated 07.05.2019 (Order No. KTU/DIRECTOR(ACADEMIC)/1702/2019) [https://ktu.edu.in/data/curriculum\\_committee\\_20\\_order\\_dt\\_07.05.pdf](https://ktu.edu.in/data/curriculum_committee_20_order_dt_07.05.pdf) Curriculum Enrichment (Value added Courses) 1. Virtual Reality in Web Design 2. Unity and ARVR 3. Arduino Programming 4. Workshop on Machine Learning and Deep Learning

#### 6.2.2 – Implementation of e-governance in areas of operations:

E-governance area	Details
Planning and Development	The Annual review of the Strategic plan of the College is done through the institutional intranet platform for the speedy and effective communication among the Departments and Administration.
Administration	- leave applications online submission( Ecoleaide) , Staff Appraisals/CAS - automated using software
Finance and Accounts	Computerised salary disbursement and Accounts keeping
Student Admission and Support	Ecoleaide, online applications and payment of fees, student attendance record through software system, semester registration
Examination	University exam online registration facility, Internal assessment marks submission to university, Online question papers

### 6.3 – Faculty Empowerment Strategies

6.3.1 – Teachers provided with financial support to attend conferences / workshops and towards membership fee of professional bodies during the year

Year	Name of Teacher	Name of conference/ workshop attended for which financial support provided	Name of the professional body for which membership fee is provided	Amount of support
2019	Dr. Shalu George K.	6 Day FDP on Process Control, Instrumentation and Automation PCIA 19 at NIT Calicut.	NA	4105
<a href="#">View File</a>				

6.3.2 – Number of professional development / administrative training programmes organized by the College for teaching and non teaching staff during the year

Year	Title of the professional development programme organised for teaching staff	Title of the administrative training programme organised for non-teaching staff	From date	To Date	Number of participants (Teaching staff)	Number of participants (non-teaching staff)
2019	Springer International Conference on Communication Systems and Networks ( ComNet2019 )	NA	12/12/2019	13/12/2019	10	Nil

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6.3.3 – No. of teachers attending professional development programmes, viz., Orientation Programme, Refresher Course, Short Term Course, Faculty Development Programmes during the year

Title of the professional development programme	Number of teachers who attended	From Date	To date	Duration
AICTE sponsored 5 Day FDP on ROBOTICS , ME Dept., Mar Baselios College of Engineering and Technology, Trivandrum	4	08/07/2019	12/07/2019	5

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6.3.4 – Faculty and Staff recruitment (no. for permanent recruitment):

Teaching		Non-teaching	
Permanent	Full Time	Permanent	Full Time
8	11	1	3

6.3.5 – Welfare schemes for

Teaching	Non-teaching	Students
NPS, Group insurance, Accidental insurance	NPS, Group insurance , wards given education fee upto Xth standard	Scholarship, Accidental insurance

**6.4 – Financial Management and Resource Mobilization**

6.4.1 – Institution conducts internal and external financial audits regularly (with in 100 words each)

Internal audit is done by the management through its representatives namely,



the Bursar and the Assistant Bursar. They are supported by the administrative section of the institution especially the Superintendent and the Head Accountant. All the bills and vouchers are audited by them and the entire accounts are preserved digitally as part of e-governance to ensure transparency and accountability. Annual financial audit is statutory as per the regulations of the university and AICTE. Accordingly this year the same has been conducted by a competent reliable and established external agency. The audit has been conducted in accordance with the Government norms.

6.4.2 – Funds / Grants received from management, non-government bodies, individuals, philanthropies during the year(not covered in Criterion III)

Name of the non government funding agencies /individuals	Funds/ Grnats received in Rs.	Purpose
Alumni Association	20000	Springer International Conference Communication Systems and Networks(ComN et2019)12th-13th December 2019
<a href="#">View File</a>		

6.4.3 – Total corpus fund generated

3977000
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## 6.5 – Internal Quality Assurance System

6.5.1 – Whether Academic and Administrative Audit (AAA) has been done?

Audit Type	External		Internal	
	Yes/No	Agency	Yes/No	Authority
Academic	Yes	KTU	Yes	IAC
Administrative	No	NA	Yes	IAC

6.5.2 – Activities and support from the Parent – Teacher Association (at least three)

The Department Advisory Board (DAB) of each department has the representatives of the Parents as its members. Continuous feedback on Teaching Learning process is given by the Parents. Parents involve in the conduct of conferences/seminars/workshops by their contributions at various phases in identifying experts and other resources. The PTA also helps to identify Industries and Organisations for the internship of students. The EC department Conducted PTA meeting on 14th December 2019. In addition, all the departments have been in contact with the parents and representatives on a regular basis for inputs in connection with revision of curriculum development as part of continuous development and growth of the institution. Some of the inputs that were feasible have been considered for implementation. The CE department decided to impart greater attention for Soft skill training which is to be monitored on a regular basis. The practice of giving handouts was suggested since the students do not make use of the library even after a period for the same was allotted. Fr Bitty Mathew has been appointed as an additional counselor, in addition to the present counselor Dr Shobha Theresa George.

6.5.3 – Development programmes for support staff (at least three)

1. Training on Geotechnical Laboratory Testing 2. The EC department conducted "VR4U- Spread Ur Wings and FLY" organized by IEEE WIE on 9th November 2019 for the support staff . 3. A computer literacy program was conducted for the support staff by the CE department.

6.5.4 – Post Accreditation initiative(s) (mention at least three)

1. Initiative from the Institution towards achieving Autonomous Status 2. Initiative to construct a new independent building for the conduct of examination and evaluation. 3. Annual Mandatory International/National Conference 4. Establishment of Research Centre and New Research Projects 5. Collaboration with National and Foreign Universities 6. Industry-Institution tie ups for training, projects and internships

6.5.5 – Internal Quality Assurance System Details

a) Submission of Data for AISHE portal	Yes
b) Participation in NIRF	Yes
c) ISO certification	No
d) NBA or any other quality audit	Yes

6.5.6 – Number of Quality Initiatives undertaken during the year

Year	Name of quality initiative by IQAC	Date of conducting IQAC	Duration From	Duration To	Number of participants
2020	UGC Expert team visit as a follow up to the initiative for autonomous status to the Institution	30/01/2020	30/01/2020	31/01/2020	22
2019	Internal Audit	14/10/2019	14/10/2019	16/10/2019	6
2019	Internal Audit	17/12/2019	17/12/2019	17/12/2019	6
2020	Internal Audit	26/02/2020	26/02/2020	26/02/2020	6
2019	External Audit	08/11/2019	08/11/2019	11/11/2019	7
2020	Internal Audit	30/06/2020	15/06/2020	30/06/2020	7

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**CRITERION VII – INSTITUTIONAL VALUES AND BEST PRACTICES**

**7.1 – Institutional Values and Social Responsibilities**

7.1.1 – Gender Equity (Number of gender equity promotion programmes organized by the institution during the year)

Title of the programme	Period from	Period To	Number of Participants	
			Female	Male
World Cancer Day: A Talk by Prof: Kusumakumari,	04/02/2020	04/02/2020	37	23

Former Head of Pedeatric Oncology, RCC, Trivandrum was organised in the department on World Cancer day . It was an informative talk about the symptoms of cancer especially in women, causes, treatments a				
Women's Studies Unit(WSU) in association with creative writing club "Aksharakootam" of MBCET organized a talk titled "Women in Writing" by Ms. Anne Koruth (Writer)	18/11/2019	18/11/2019	60	Nil
Women's Studies Unit in association with ISTE MBCET organized an awareness programme titled " Discovering the Feminine Psyche" by Ms. Veena Rachel Johnson at Mary Matha Hostel.	13/11/2019	13/11/2019	111	Nil
Zumba Workout classes for the faculty members were organized on a weekly basis to improve fitness.	20/11/2019	21/11/2019	10	Nil

7.1.2 – Environmental Consciousness and Sustainability/Alternate Energy initiatives such as:

Percentage of power requirement of the University met by the renewable energy sources

? The additional batch of Solar panels of 100 KWp was installed alongwith the existing Grid interactive Solar plant of 100 KWp. The Reliability of Power

Supply to the campus is being activated with PLC Control and AMF Facility, with an addition of 2 more numbers of Generators with total capacity of 187.5 kVA to the existing 100 kW Grid Connected SPV System. The renewable energy source now caters to about 50-60 of the Institution's Power Consumption. ? Energy Efficient Lighting Initiative (Phase I): Lighting Loads of A Block which consists of the 1st year classes, 4 Labs, Administrative Office, Principal, Vice Principal Bursar's Office, Staffrooms, and Exam Cell was measured for calculating energy consumption for the lighting system and propose a lighting design in compliance with the existing rules and regulations as strategic plan to achieve the optimum use of energy. The Return On Investment (ROI) according to the choice of lamp type was also analyzed to determine how much energy is being saved. It was found to be around 1.188 years. The light energy consumption recording was conducted by a group of EEE final year students under the guidance of the Dept. Faculty and Lighting Design professionals from the SODFOS Engineering Consultancy. ? E-Waste Management Currently our e-waste management are meant for only recovering and recycling components like glass, plastic, printed circuit board, hard drives, batteries and valuable metals. But we are on the research to use LEDLCD glass component of e-waste for electricity production. ? Green Audit Green audit is done regularly every year between March and May since 2015. Green audit enables and empowers an Organization to address all the Global Warming-related challenges and help to contribute to Environmental responsibility. A clean and healthy environment aids effective learning and provides a conducive learning environment. In line with the Green/Sustainable Agenda approved by the IIT Council on 2 March 2013 at the IISC Bangalore, steps have been initiated to implement it. The Green / Sustainable Agenda for Educational Institutions: Accordingly a very simple indigenized system has been devised to monitor the environmental performance of MBCET through a Green Audit in the form of an Online Questionnaire. Environmental conditions may be monitored from angles that are relevant to Indian requirements, without any legal implications. This innovative scheme is user-friendly and totally voluntary. The Environmental monitoring system helps the Institution to set Environmental examples for the community and to educate Young Learners. It can be adapted or extended to urban and/or rural situations or Sister Institutions too.

#### 7.1.3 – Differently abled (Divyangjan) friendliness

Item facilities	Yes/No	Number of beneficiaries
Provision for lift	Yes	Nil
Rest Rooms	Yes	5
Scribes for examination	Yes	4
Any other similar facility	Yes	25

#### 7.1.4 – Inclusion and Situatedness

Year	Number of initiatives to address locational advantages and disadvantages	Number of initiatives taken to engage with and contribute to local community	Date	Duration	Name of initiative	Issues addressed	Number of participating students and staff
2019	2	2	02/10/2019	2	Plastic Eradication Awareness	why plastic eradication is the	70

					Campaign	need of the hour	
2019	2	2	10/12/2019	3	Illumina - Outreach Activity	The Gesture of humanity was extended to help a housekeeping staff of the college who was in need.	5
2019	2	2	27/12/2019	6	27th National Children's Science Congress	Presentations, Workshops, exhibitions were held at MBCET including Technical sessions which were held at 12 parallel halls in B-block, Teacher's Workshop in 2 parallel halls in G-block, Scientific Activity Corner in F-block, Scientific Exhibition whi	1315
<a href="#">View File</a>							

7.1.5 – Human Values and Professional Ethics Code of conduct (handbooks) for various stakeholders

Title	Date of publication	Follow up(max 100 words)
College Handbook	01/08/2019	Every year a hand book highlighting code of conduct is published at the beginning of the academic year. This code of conduct is applicable to all the stakeholders,

namely, students, teachers, administrative staff and technical staff of the institution.

7.1.6 – Activities conducted for promotion of universal Values and Ethics

Activity	Duration From	Duration To	Number of participants
Staff members of ECE department contributed an amount of 8000/- towards the purchase of essential commodity kits, for 10 needy families in and around Mannanthala, Trivandrum	10/06/2020	10/06/2020	5
Interactive cum motivational talk for NSS volunteers and ECE students "Stay Positive" by Ms. Sherin Rajan, Alumnus of MBCET (2012-2016 batch). This was an online webinar conducted during COVID-19 pandemic. The focus was on staying positive and motiva	03/05/2020	03/05/2020	77
As part of Spandanam Activity, a talk by Aswathy Nair, founder of Jwala Foundation, an NGO that provides food and shelter for the needy had been organised for ECE students .	06/03/2020	06/03/2020	77
The Spandanam team in association with eNIX visited Shalom Special School, Kaniyapuram and spent half the day with the inmates of the school, engaging them with interactive games and entertaining them with several	23/11/2019	23/11/2019	42

programs.			
VR4U- SPREAD YOUR WINGS AND FLY: WIE society conducted a session for house-keeping staff to step into the world of technology.	09/11/2019	09/11/2019	9
PATW Grooming session: 5 Days of intense training session on speech and presentation skills was conducted as a part of preparing the IET-KKLN PATW19.	13/04/2019	01/07/2019	12
<a href="#">View File</a>			

#### 7.1.7 – Initiatives taken by the institution to make the campus eco-friendly (at least five)

1. As part of Nature Club activities awareness programmes for students for a Green Campus were conducted. 2. ISTE promotes Environment day celebration. 3. Vegetable saplings to students through the office bearers of the ISTE, to inculcate among the students awareness about the protection of Environment and Vegetation. 4. Steps of preservation of Rain water harvesting. 5. Fruit bearing trees are maintained on the campus so as to pass on the same message among the students.

### 7.2 – Best Practices

#### 7.2.1 – Describe at least two institutional best practices

1) Academics ? Outreach Activities: A 2-day RC Aircraft Workshop was conducted by the EEE Department in association with Skyfi Labs on 3 and 4 January 2020 for school students studying in Std VII onwards. 17 students from different schools participated. The outreach activity was introduced to instill in school students the interest towards engineering and introduce them to the basics of engineering through a Hands-On session. ? NetACT 2019 Department of Computer Science Engineering of MBCET organized a 3 day International Conference on Networks Advances in Computational Technologies, NetACT19, during July 23-25, in association with Bowie State University, USA, Gannon University, USA and Malardalen University, Sweden. ? Value Added Courses DIALux Lighting Design training commenced from 16 October, 2019. The 50 hour training course was imparted by Mr. Adhitya S. (IET KKLN YP Secretary, 2018-19 and Asst. Manager, SODFOS- an Educational Consulting Company initiated by MBCET Alumni. 26 students and 2 technical staff enrolled for the training course.16 students have successfully completed the Final Project and Test and received their certificates. The IET MBCET Student Chapter of the College is continually collaborating with the Lighting Design Company - SODFOS, to introduce and train more interested students into the field of Lighting Design. During the lockdown period the next batch of students were given Online Training of 20 hours from the company. Webinars were also conducted to introduce the field to many more faculty and students from all streams of Engineering. ? Additional Skill Acquisition Programme (ASAP) Additional Skill Acquisition Programme (ASAP) , a joint initiative of General and Higher Education Departments, was launched with an objective to impart quality skill education to the higher secondary / undergraduate students alongside their regular curriculum. ? Cyber Security Lab With the growing shift in security threats and exploits from software to

hardware and with the pervasiveness of Cyber Physical Systems, any threat in the cyber world could have serious impact on the physical world. In this scenario MBCET has initiated the process to setup a research lab in association with Strava Technologies that focuses on identifying threats in ubiquitous devices, wearable sensors and other critical infrastructure. As a first step towards that, a visit to the cyber lab of Strava Technologies has been arranged to get an overview of the ongoing project activities there and also the Technical Objectives of the visit was to identify the collaboration opportunity with Strava cyber defense center and the processing is going on of signing Mou with Strava technologies.

• Alumni and Professional Bodies Interaction with students outside community during the Pandemic: During the Lockdown period, the student Chapters of the Professional Bodies and Alumni of the College reached out to the students helping them to cope up with the difficult times they were facing during the Pandemic, to face the various pressures and challenges that came along with their studies and other issues at home. The alumni even reached out to the needy school children in the community, to help them cope up with the difficult times.

• Various Professional Bodies such as IEDC, IET, IEEE, ISTE, ASME, ASCE, the Hobby Clubs like Nature Club, Photography Club, Music Club, came out with various online competitions and Webinars to engage and educate the students while they were quarantined at home during the Lockdown of Covid 19 pandemic. Webinar by Alumni were also conducted through the Professional societies.

• IET MBCET On Campus arranged 2 webinars. Webinar 1: An Overview on Thermal Power Plants, Mr. Ansha Naji, EEE 2005-09 Batch, Manager (Operation), NTPC, Chennai on 21st April 2020. 20 participants were there. Webinar 2: The World of Lighting Design, Mr. Adhitya S, EEE 2014-18 Batch, Assistant Manager (Operations), SODFOS Engineering Consultancy on 23rd April 2020. Around 98 participants attended.

• An event called Memoirs were introduced during the lockdown by the ISTE Student Chapter, which invited the Alumni of the college to narrate their memories of college. The event helped to strengthen and establish the connection between the Alumni and students presently studying in the college, as a part of strengthening Institution-Society relationship.

• The Alumni Association of MBCET - MBCETAA-Middle East started a MBCETAA - Webinar Series for the Faculty and students of the college and other institutions during the lockdown, with relevant topics. Episode 1: How to act in these Pandemic Days? Handled by Dr, Anthony Thomas, Specialist Pathologist conducted on 25th April 2020. 25 participants were there to attend the session. Episode 2: How to ROCK your LinkedIn profile? Handled by Ms. Sajna Samad, 2002-2006 ECE Batch, Supply Chain Consultant, Oracle, conducted on 29th April 2020. 46 participants attended the webinar.

• Coordinated an interactive session on Career Guidance by Group on employee Mr. Ajay Govind (2005-2009 EC batch), an Alumnus of MBCET, on 15 th April,2020. 10 students from 6th semester Electronics and Communication Engineering , MBCET attended the session.

• An interactive session on Wireless LAN by Mr.Vishak Ashok (2003-2007), an Alumnus of MBCET, on 24 April 2020. Number of participants were 12.

• An Interactive cum motivational talk for NSS volunteers and ECE students "Stay Positive" by Ms. Sherin Rajan (2012-2016 batch), an Alumnus of MBCET. (II) Social Service ?

• Thanal - Charity activities by Civil Engineering Department Snehasparsham was jointly organized by Pallium India and Thanal on 14th September 2019. The program included interaction with patients, children, their mentors, counselors etc. Interactive games for children and their parents were conducted by student volunteers of Thanal under the guidance of Pallium India.

• ASCE Student Chapter • A Charity event MAZHAVILLU (Adding colour to their life) was organized on 27th November 2019 at shalom special school, Vattappara, in the outskirts of Trivandrum. The purpose of the visit was to spend time with them and bring a smile to their face. Fun activity session was also arranged for the children to showcase their abilities. Snacks, sweets and drinks were provided for the inmates along with some necessary stationery.

• A Charity event was organized by the student chapter on 21st September 2019 at Shanthibhavan,



Vattappara. An activity session was held to show the talents of the inmates, served them food and had lunch with them. • MBCET 2009 Batch alumni and ASCE Student Chapter of MBCET visited BalikaBhavan at Kattela, in the outskirts of Trivandrum as part of Annu Memorial Charity Activities (Conducted in fond memory of Late Ms. Anu, 2009 Civil batch, MBCET) on 20th October, 2019. • Alumni (2007-2011, ECE department) of MBCET sponsored seven TVs and one dish TV to help the students in Wayanad to learn through online education during the COVID pandemic on 6/6/2020. ? Alumni (2012-2016, ECE department) of MBCET sponsored 4 TVs and cable connection to help the students in tribal areas of Palakkad to learn through online education during the COVID pandemic.

Upload details of two best practices successfully implemented by the institution as per NAAC format in your institution website, provide the link

<https://mbcet.ac.in/wp-content/uploads/2020/10/Nexuz2019.pdf>

### 7.3 – Institutional Distinctiveness

7.3.1 – Provide the details of the performance of the institution in one area distinctive to its vision, priority and thrust in not more than 500 words

(I) Mar Baselios Youth Excellence Award The Mar Baselios Youth Excellence Award instituted in the revered memory of the late His Beatitude Moran Mor Cyril Baselios Catholicos, the Founder of the college, is presented to the best outgoing Engineering Graduate in the state of Kerala every year. The winner is selected on the basis of his/her all round excellence in academics, leadership, arts and sports, personal conduct, ethics and social service activities. A judging panel comprising eminent professionals and educationalists will short list the entries for the award. The winner will be selected from the short listed candidates after a personal interview. The award comprises a prize money of Rs.100000/-, certificate and citation. This year the award was presented to Smt.Irene Tenison ,TKM College of Engineering , Kollam on 14 November 2019 by Shri Arif Mohammad Khan ,Hon'ble Governer of Kerala. The Mar Baselios Youth Excellence Award continues to be the unique feature of MBCET ,since it is the only institution which gives such an offer to motivate students genuinely interested in Engineering studies. The award gives due weightage to Academics ,Research Aptitude ,Innovation and Noble values. Thus it is a practice to justify the Vision and Mission of the college. Website Link -<https://mbcet.ac.in/alumni/youth-excellence-award/> (II) NEXUZ'19- 2nd Phase (IET-MBCET): NEXUZ was a platform that connected talent with the profession and skills of students. NEXUZ'19 Inaugural Function on 11th October 2019 was inaugurated by Shri. Teeka Ram Meena, IAS, Additional Chief Secretary Chief Electoral Officer and NEXUZ Ambassador of Sports - Mr. Joby Mathew in the presence of His Eminence Baselios Cardinal Clemis ,the Patron of the College. Though the MoU was signed in March 2019 and Logo released in April 2019, due to the reasons cited below the 2nd phase of the event was shifted to the next academic year. NEXUZ'19, The 2 day International Summit on Applications of Engineering in Sports was conducted on the postponed dates 11th 12th October, 2019, owing to the flood condition of the State in August, (The initial dates was August 16-17). It was jointly organized by MBCET and LNCPE (Lakshmi Bai National College of Physical Education, Kariavattom). The promotional event of Nexuz - NEXUZ Sports week was conducted from August 5-10, 2019, which showcased Chess and Football tournaments for schools, colleges and public. The Nexuz team made it a mandatory inclusion of involvement of differently abled community in every aspect of the NEXUZ'19 event. Hence the event was also inaugurated by a specially talented Champion. ? The sub- events of NEXUZ were categorized into 4 frames: Xpert Talks, XPRESS, XCEL, XPO. ? Xpert Talks continued with eminent personalities who shared their thoughts and experiences related to both Sports Technology. ? XPRESS - 2 panel discussions comprising of a vibrant array of panelists where discussions on 2 main topics were carried out. ? XCEL - An

International Seminar on advances of science, technology and Engineering in the field of Sports was held parallel to these sessions on both days.

Provide the weblink of the institution

<https://mbcet.ac.in/alumni/youth-excellence-award/>

### **8.Future Plans of Actions for Next Academic Year**

1. Upgrading of infrastructure to cater to the requirements of autonomy towards significantly enhancing the quality of education. This includes facilities for a fully functional examination system and modernisation of labs to create a better learning environment. 2. Re-organising of the Carrer Guidance and Placement Unit (CGPU) in order to create more opportunities for Placements, internships, Entrepreneurship and to establish more linkages with Industry. 3. Setting up of facilities for video recording and providing a better out of classroom teaching-learning experience that includes online teaching and flipped classrooms. 4. Inculcating a culture among students and faculty to work on projects that have more social relevance and creating a commitment towards Society and Environment. 5. Upgrading of faculty skill-set and technical knowledge through Faculty Development Programmes, Conferences and Industry Training with specific focus.