



NEWS FROM DEPARTMENT OF BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING, SBCE, PATTOOR

The Department of Biotechnology & Biochemical Engineering is a diverse and powerful faculty encompassing unique expertise in biochemical and molecular life sciences. The Department is recognized nationally as well as internationally for its research quality and output and for training students to be industry-ready professionals. The course broadly encompasses the study of the molecular processes of living systems and organisms. Started in 2002, the Department of Biotechnology & Biochemical Engineering, has in a short span of time, established a unparalleled reputation in teaching and research. Having collaborations with DBT, AYUSH, Oushadhi, Universiti Sains Malaysia and various other reputed institutions, the department actively nurtures manpower development by offering 4-year B.Tech (Biotechnology & Biochemical Engineering) and 2-year M.Tech (Biotechnology & Biochemical Engineering) courses. The highly competent and experienced faculties, with 4 PhDs and 7 M.Techs/MSc-M.Phil, have inspired excellence, innovation and strong entrepreneurial skills. The Department of Food Technology started in 2020 as a sister department of BT&BC.

Vision

To nurture research oriented Biotechnology and Biochemical Engineers to address social needs

Mission

- Provide quality education in Biotechnology and Biochemical Engineering
- Inculcate research culture with social commitment
- Instil passion for lifelong learning and sustainable development

Program Educational Objectives (PEOs)

(UG in Biotechnology and Biochemical Engineering)

The graduates will:

- Be able to design, develop and provide solutions for products and processes in Biotechnology and Biochemical Engineering and allied fields through quality education
- Be able to address challenges in industrial and research areas with socio-ethical responsibilities
- Have strong foundation in Biotechnology and Biochemical Engineering to pursue higher education and research

JEEVAKSHARA NEWSLETTER

NEWS LETTER-DEPARTMENT OF BIOTECHNOLOGY & BIOCHEMICAL ENGINEERING



6 CLEAN WATER AND SANITATION



WATER WATER EVERYWHERE NOR ANY DROP TO DRINK



IT TAKES A LOT OF BLUE TO STAY GREEN

Save water and it will save you

SUSTAINABLE DEVELOPMENT GOALS



Concept & Design
SHAMNAMOL G K
SREE BUDDHA COLLEGE OF ENGINEERING, ALAPPUZHA



Integrating research to engineering education- the need of the hour

Dr. Jaya Jacob, Associate Professor, Department of Biotechnology & Biochemical Engineering

Science, in the broadest sense, refers to a system of acquiring knowledge based on a scientific method. Alternatively, engineering is the creative application of scientific principles for the design, analysis and construction of equipment/ works for practical purposes. Though, theoretical definitions indicate an inevitable relation between the terms, it's been only very few years that the practitioners in engineering have realized the need to integrate the essential components of scientific research into engineering. In the Indian scenario, higher education institutions like engineering colleges providing undergraduate courses in various streams of engineering form the basis to inculcate research practices and aptitude in budding engineers. Recent times has highly supported this culture, with the academia largely focussing on evidence based education and engaged learning experiences. From an educational culture that merely focussed on transferring knowledge through various courses, a productive transition has been observed to improve the overall learning experience. In summary, it has been observed that recent years have measured efficiency in engineering in terms of useful knowledge that can very well be reciprocated to industrial practices.

To quote a personal experience, during my tenure as an intern at The University of Applied Sciences and Environment at Bogota, our team was tasked with designing a new method for the contamination free propagation of endangered

Colombian orchids. The team had no prior experience designing such a method and no one else had developed one either. Our team comprised of 4 biotechnology engineers and the big question was how would we go about this task? The team had 03 options in front of them; firstly the monkey method wherein we would make assumptions, design a method and try it out. Secondly; carry out multiple iterations, spend consumables for each of these in order to reach a method. Now, the third option was to follow a systematic curiosity based formalized research approach, wherein we would go through literature available in related topics, brainstorm the available ideas, and carry out minimal sensible iterations that may help us in developing a method. Thanks to our supervisor, we resorted to the last option and could successfully develop a gene bank for the endangered orchids on the South American moors.

Now, the last option could rather be called a systematic research approach that was applied to a problem. The team focussed on knowing the facts, researching the facts and applying the findings to develop a final product. This is the implication of integrating research into engineering; the overall approach is made systematic, students learn by doing and the final output is logically backed and useful information is generated for the betterment of society.

The question that now ponders in front of us is as to how to integrate a research culture in engineering education; especially in our context. A report from a



recent study on undergraduate research succinctly summarizes that undergraduate research should be: faculty-driven, student-centred, and institutionally supported and provide the combination of factors necessary for: pedagogical effectiveness, enhanced learning outcomes, research productivity, and research program sustainability. In this regard, the research ideas should be new and in par with the requirements of the world, research questions should be relevant and must be instrumental in generating a major interface with the academic and business world. As for a faculty, research should empower the faculty for an in-depth approach in teaching. Moreover, it should have the potential to enhance the consultancy capabilities of the researcher.

In case of academic research, projects can be internally driven or projects can be commissioned by national and international organizations, Central & State ministries and industrial agencies. Procuring a research fund needs a good amount of homework from the side of the researchers, focussed at preparing the research proposal. Further, the proposal should be backed by the potential capabilities reflected in the form of recent publications by the researcher in the area and a solid work plan and achievable research goals. Further, as previously mentioned, the research proposal should aim to address problems of social relevance.

Now that the essential capabilities of a faculty engaged in research is discussed, we need to thrust on the necessity of mentoring students for research. It is to be noted that students need to be mentored in the entire research process. The best way for this to happen is to put students in a position to become a research assistant and be truly useful to the research program. Undergraduate research allows students to develop professionally and personally in ways not possible through traditional lecture and laboratory courses. Research is an important theme that threads its way through the undergraduate experience from the first year through to graduation. Research allows students to develop professionally and personally. Research experiences give students an opportunity to gain a deeper knowledge of research techniques and processes, apply classroom learning in real-world contexts, explore academic literature, and form meaningful relationships with faculty members and professional researchers. In India the technical education institutes realize the immediate need to bridge the gap between the institute and industry needs and the students must be aware of the latest technology. Therefore, it is essential to establish labs of current technologies in the Engineering departments of colleges and advance in research.

“Science is a way of Thinking”

Let's integrate this thinking practice in engineering to create a safer and better world to live in.

One day seminar on “BIO-ENTREPRENEURSHIP- OPPORTUNITIES AND CHALLENGES”

An Invited talk on ‘Bio-entrepreneurship- Opportunities and Challenges was organized by the Department of Biotechnology and Biochemical Engineering on 6th February 2020. The core team from AEKA Biochemicals Pvt. Ltd- the first fully women owned Biotechnology Company in Kerala, addressed the undergraduate students in

Biotechnology and Biochemical Engineering regarding the various aspects of Biotechnology based entrepreneurship. Ms. SinuSunny, unveiled the incessant career prospects in the field of biotechnology research and development and indicated that Kerala is already a hub to biotechnology start-ups. The students also had an interactive session with Ms. Sinu and Ms. Parvathy,

who briefed them about the various aspects in the research and production units of a biotechnology firm. An active participation was noted from the students throughout the session and the students had raised several queries to the resource personnel regarding the upcoming opportunities in the field and the stages in the growth of a start up.



SCIENCE DAY CELEBRATION

Sree Buddha College of Engineering, Pattoor celebrated Science day on February 28, 2020. The Institution of Engineers (India) students Chapter of Department of Biotechnology and Biochemical Engineering, Sree Buddha College of Engineering and The Institution of Engineers (India) Kollam Local Centre jointly celebrated Science day. Dr. Anoop Raj J R, HoD, Department of BT & BCE welcomed the gathering. The function was presided over by Dr. S Suresh Babu, Principal SBCE. Shri. K. K. Sivadasan, Treasurer Sree Buddha Educational society inaugurated the function Mr. Gilby Varghese Jaison, Marketing Manager, Sangrose Laboratories Pvt Ltd., Alappuzha delivered key note address. He has emphasized our role in widely spreading the significance of scientific applications and to implement new technologies for the development of science. The function was followed by idea pitching

contest for the students on the theme “Time Travel 2020- A journey to 2050”. The program is focused on visualizing young mind’s ideas/ dreams/ predictions about our world in 2050 in technological perspective. Eight groups have presented their idea. A panel comprising of Dr. Manoj Narayanan (Biotechnology and Biochemical Engineering department), Mr. Sabi S (Electronics and Communication Engineering) and Mr. GopuDarsan (Computer science and Engineering department) evaluated the young mind’s ideas. Mr. Ashwin and Kevin Jacob of Computer Science and Engineering have bagged first position. Mr. Arjun A and Aswanth S of Mechanical Department got the second prize. The evaluation team handed over prize and certificate to the winners. The entire event provided a platform to the students to prove their talents, bring out their creativity.



Gopakumar, Organizing Secretary, E2F2 20 welcomed the gathering. Dr. S Suresh Babu, Principal, SBCE Pattoor presided over the event. The chief guest for the event was Dr. Karthika Prasad from Queensland University, Brisbane, Australia. Dr. Prasad, in her key note address highlighted the role of engineers as socially responsible scientists to build a sustainable tomorrow. The inaugural function was followed by 61



candidates registered for technical presentation and participation. Dr. Jaya Jacob, Convener, BRIO 2020 delivered the vote of tanks. The event was followed by technical presentation sessions. Around 70

participants comprising of UG, PG and PhD scholars from across the country participated in the 2 day

technical event. The shortlisted scientific abstracts were categorized into 05 subthemes, namely- Food Biotechnology, Biotechnology, Nanotechnology, Environmental Biotechnology and Biotechnology-Opportunities. The event comprised of parallel online sessions moderated and chaired by faculty members of the department. The panel adjudged best paper awards to selected participants in each stream. A completely online n



ational Event, BRIO 2020 served as an ideal virtual platform for scientific knowledge exchange and discussions.

WORLD ENVIRONMENT DAY

6th June 2020

The Institution of Engineers (India) students Chapter of Department of Biotechnology and Biochemical Engineering, Sree Buddha College of Engineering and The Institution of Engineers (India) Kollam Local Centre jointly organized one day Webinar on Biodiversity in connection with World Environment Day celebrations on 5th June 2020. Mr. Madhav K welcomed the audience and Dr. S Suresh Babu, Principal, SBCE delivered the presidential address. Er. Rajan K, Honorary Secretary, IE(I) gave the inaugural address. DrManoj Narayanan and Dr Jaya Jacob were the key speakers of the day. DrManoj Narayanan presented the topic 'Gaia: A diverse Biography'. He conveyed the message that it's high



time to live in harmony with the nature, controlled utilization of renewable resources which helps to maintain biodiversity. Dr Jaya Jacob talked about the vital information of infectious diseases and other unhuman activities happening in current scenario.

She also emphasized the importance of preserving biodiversity in the topic 'Biodiversity and Emerging Infectious Diseases'. Both lectures were fruitful and

thought provoking. DrMalu Ravi proposed the vote of thanks by highlighting "time to rethink, respect and co-exist with the environment"

Webinar on

"Career prospects in Biotechnology and Biochemical Engineering"

Department of Biotechnology and Biochemical Engineering organized webinar on "Career Prospects in Biotechnology and Biochemical Engineering" on 17.06.2020 in zoom meet. The enlightening session was handled by our proud alumni Dr Rajeev Ravindran, (Project manager - Bioeconomy, IT Tralee, Ireland), Mr Arjun Prasad (Scientist B, Kerala State Council for Science Technology and Environment, Kerala) and Mr Faisal Mullalayam (Director, Elixir Enviro Systems Pvt Ltd, Kerala).



Department of BIOTECHNOLOGY AND BIOCHEMICAL ENGINEERING
SREE BUDDHA COLLEGE OF ENGINEERING
Pattur, Alappuzha, Kerala

WEBINAR
Career Prospects in BIOTECHNOLOGY & BIOCHEMICAL ENGG
An Experience Sharing
17th June 2020
10:00 am - 11:00 am IST

Meeting Information:
Link: <https://argo.page.link/rpXgM>
Platform: Zoom
Meeting ID: 470 014 0706
Password: 9apGbV

PROMINENT ALUMNI OF BT&BCE, SBCE

Mr Faisal Mullalayam
Director, Elixir Enviro Systems Pvt Ltd, Kerala

Dr Rajeev Ravindran
Project manager, Bioeconomy, IT Tralee, Ireland

Mr Arjun Prasad
Scientist B, Kerala State Council for Science Technology and Environment, Kerala

NSA NAAC

WORLD STUDENTS' DAY CELEBRATION

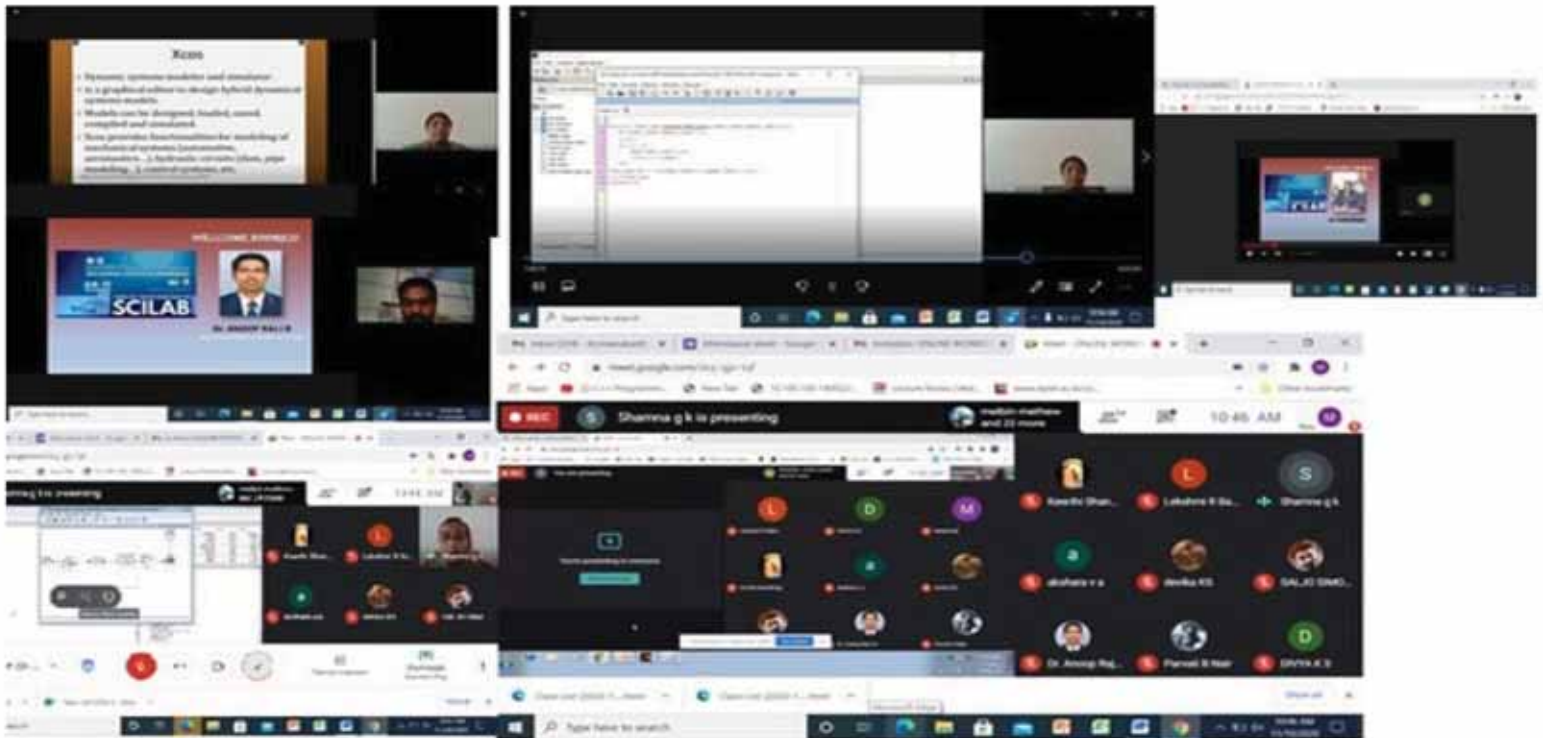
Department of Biotechnology and Biochemical Engineering celebrated World Student's day on October 15, 2020 in association with The Institution of Engineers (India) Students Chapter of the department of Biotechnology and Biochemical Engineering, Sree Buddha College of Engineering and The Institution of Engineers (India) Kollam local centre jointly celebrated World Student's day. As part of World Student's day celebrations, Department of Biotechnology and Biochemical Engineering

organized a competition for students on the theme "Students' life, Yesterday | Today | Tomorrow".



THE THREE DAY WORKSHOP ON SCILAB

The workshop started on 09/11/20 at 10 AM . Dr S Suresh Babu ,Principal, SBCE, inaugurated the function. Dr Anoop Raj J R, head of the department of Biotechnology and Biochemical Engineering welcomed all the gatherings. Fifty two participants from all over India attended the workshop. Right after the inauguration the first session started. Prof. Meera Bai gave an introduction about the SCILAB, mathematical calculations and functions. On the second day (11/11/20), Prof Shammamol give a brief introduction on simulation and process control aspects of SCILAB. On the third day (12/11/20), Prof Jayaraj, the department of ECE, introduced the concepts of different plotting and digital signal processing. The program come to an end by the concluding remarks of Dr Anoop Raj followed by the vote of thanks by Prof Meera Bai S.



Online program on “Professional Ethics”

On 9th December 2020, International Anti Corruption Day was recognized by conducting an online training programme on “Professional Ethics”. The programme was inaugurated by Sri Jacob Punnoose, Former DGP & Kerala Police Chief and session was handled by Sri Benny

Kurian, international corporate trainer & consultant.

JOINT ACTION COUNCIL KSPCB
PROFESSIONAL ETHICS ONLINE PROGRAMME
 INTERNATIONAL ANTI-CORRUPTION DAY
09 DECEMBER 7 PM-8:30 PM
 THEME TALK & INAUGURATION
Sri. JACOB PUNNOOSE
 Former DGP & State Police Chief, Kerala

RESOURCE PERSON
Sri. BENNY KURIAN
 JCI Certified International Trainer
 Corporate trainer and consultant

PROFESSIONAL ETHICS ONLINE PROGRAMME

WELCOME
Dr. K. B. RADHAKRISHNAN
 Professor & Head
 Dept of BT & BCE
 SCT College of Engineering

FELICITATION
Er. KRISHNAKUMAR V. S.
 Working President
 EPICWA

VOTE OF THANKS
Er. THRIDEEP KUMAR M.P.
 President, JAC KSPCB

MODERATOR
Er. BIJU B.
 Convener, JAC KSPCB

ETHICS IS KNOWING THE DIFFERENCE BETWEEN WHAT YOU HAVE A RIGHT TO DO AND WHAT IS RIGHT TO DO.
 POTTER STEWART

Webinar on “Nature and Biotechnology”



WEBINAR ON NATURE & BIOTECHNOLOGY
 IAC | KERALA STATE POLLUTION CONTROL BOARD
 BIRDS CLUB INTERNATIONAL (BCI)
 DEPT. OF BT&CE, SREE BUDDHA COLLEGE OF ENGG, ALAPPUZHA

7:00 - 8:30 PM
 18 NOVEMBER 2020
 Google Meet

INAUGURATION
 SRI JAYARAJ
 FILM DIRECTOR & FOUNDER, BCI

WELCOME
 Dr. J R ANOOP RAJ
 HO, BT&CE, SBCE

FALCITATION
 Dr. ABHIRASH R.
 STATE COORDINATOR, BCI

KEYNOTE ADDRESS
 Dr. MANOJ HARAYAMAN
 ASST. PROFESSOR, SBCE

MODERATOR
 SRI. Biju S.
 COORDINATOR, JAC SBCE

JOINING LINK
<https://meet.google.com/kras-ozmh-ent>

JOINT ACTION COUNCIL KERALA STATE POLLUTION CONTROL BOARD
 BIRDS CLUB INTERNATIONAL
 DEPT. OF BT&CE SREE BUDDHA COLLEGE OF ENGG, ALAPPUZHA

The program was organized by the department of BT&BCE in association with Joint Action Council of KSPCB on 18th November 2020. Film director Sri Jayaraj inaugurated the function and Dr J R Anoop Raj, HoD, welcomed the gathering

PUBLICATIONS

1. Jaya Mary Jacob, RejuRajan, Gayathri G Kurup, Biologically synthesized ZnS quantum dots as fluorescent probes, Luminescence. 2020; 1– 10. <https://doi.org/10.1002/bio.3895>, Impact Factor: 1.7.
2. ShamnamolGK ,Jaya Mary Jacob, Rugma P, Anoop Raj JR, Synergistic effect of salts on the corrosion inhibitive action of plant extract: a review , Journal of Adhesion Science and Technology. 2020; DOI: 10.1080/01694243.2020.1797336, Impact Factor: 1.4.
3. GK Shamnamol, KP Sreelakshmi, G Ajith, Jaya Mary Jacob, Effective utilization of drugs as green corrosion inhibitor–A review, AIP Conference Proceedings. 2020; 2225 (1), 070006.
4. Jaya Mary Jacob, R Ravindran, M Narayanan, SM Samuel, A Pugazhendhi, Microalgae: A prospective low cost green alternative for nanoparticle synthesis, Current Opinion in Environmental Science& Health, 2020; doi: 10.1016/j.coesh.2019.12.005.

Bacteriological Approach for the Production of Bioplastics in a Bio-Engineered Medium” in the International Virtual Conference on Natural Products and Synthetic Biology (ICNSB 20) jointly organized by School of Bio sciences and Technology, Vellore Institute of Technology and Society of Chemical and Synthetic Biology, TamilNadu, India from 4th to 5 th July 2020.

2. Sujana S Nair, MeeraBai S and Malu Ravi presented a paper entitled “Utilization of Low-Cost Materials in the Sustainable Production of Bioplastics: Scrap to Scope” at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
3. Devika K S and Malu Ravi presented a paper entitled “Covid era; a new hope for humanity-review” at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College

CONFERENCE / SEMINAR / WEBINAR

1. Sujana S Nair, Meera Bai S and Malu Ravi presented an e-poster entitled “Sustainable



- of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
4. Arun M P and Malu Ravi presented a paper entitled "Cost-Effective Treatment Of Waste-Water Using Natural Zeolites" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
 5. Alisha Khan, Clinet Serah Jiju, Sreelakshmi R Nair and Malu Ravi presented a paper entitled "Tracing The Infection Process Of Pathogenic Microorganisms in Plants Using Green Fluorescent Protein: A Review" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
 6. Akshaya A, Gopika Ajith and Shamnamol G K presented a paper titled "Effective utilization of green corrosion inhibitor against corrosion – A review"; National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Sree Buddha College of Engineering, Pattoor during 18-19 June 2020.
 7. Parvathy Nair and Shamnamol G K presented a paper titled "Recent Trends in Microbial fuel cell"; National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Sree Buddha College of Engineering, Pattoor during 18-19 June 2020.
 8. Dr. Manoj Narayanan, Athila S Kumar, Nandakumar K R and Reshma S presented a paper entitled "Characterization of microbial flora from Karingalichalpuncha- a metagenomic approach" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
 9. Dr. Manoj Narayanan and Aswini J S presented a paper entitled "Production of natural fabric conditioners using *Menthapiperita* and *Plectranthus amboinicus* extracts" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
 10. Ms Lekshmi R Babu , Athulya Rajeev presented a paper entitled "Ecosynthesis of Zinc Oxide Nanoparticles using Leaf Extract of *Biophytum sensitivum* and its characterization" at International Virtual Conference on Nanomedicines and Biological Sciences (IVCNBS-2020), organized by Noorul Islam Centre for Higher Education , Kumaracoil, TamilNadu on 29th May 2020
 11. Ms Lekshmi R Babu, Athulya Rajeev, presented a paper entitled "Ecosynthesis of Zinc Oxide Nanoparticles using Leaf Extract of *Biophytumsensitivum* and its characterization" at National E-Conference on Interdisciplinary Research in Science and Technology (NCIRST-20) organized by AmiruddaulaIslamia Degree College Lucknow, May 31 st 2020
 12. Ms Lekshmi R Babu ,Anjali V, Anna Cherian, Drishya R Binu presented a paper entitled "Biosynthesis of Zinc Oxide Nanoparticles from *Biophytum sensitivum* and its applications" at 5th International Conference on Advances in Material Science (ICAMS-2020) , organized by RajeRamraoMahavidyalaJath , Maharashtra from 6-7th June 2020
 13. Ms Lekshmi R Babu ,Anjali V, Anna Cherian, Drishya R Binupresented a paper entitled "Biosynthesis of ZincOxide Nanoparticles using Leaf Extract of *Biophytum sensitivum* , Antimicrobial activity and its application" at National E-Conference on Interdisciplinary Research in Science and Technology (NCIRST-20)organized by AmiruddaulaIslamia Degree College Lucknow May 30th2020 (Poster Presentation)



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14. Ms Lekshmi R Babu, Athulya Rajeev presented a paper entitled "synthesis and characterization of Biogenic Zinc Oxide Nanoparticles using Leaf Extract of *Biophytum sensitivum*" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
15. Ms Lekshmi R Babu, Anjali V, Anna Cherian, Drishya R Binu presented a paper entitled "Biosynthesis of ZincOxide Nanoparticles using Leaf Extract of *Biophytum sensitivum*, Antimicrobial activity and its application" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
16. AdarshAji and ParthanaPrabudhan presented a paper titled "Biogenic Synthesis of Tio₂ Nanoparticle from MoringaOleifera Leaves and Its Potential Application"- International virtual conference on Nanomedicine& biological science (IVCNBS-2020) organized by Xcellogen Lab and Department of Nanotechnology, Noorul Islam Centre For Higher Education during 29th and 30th May 2020.
17. Aiswarya Babu, Nandu Prasad, Pramith Pradeep, Anju Raj presented a paper entitled "Biosorption of multiple pollutants from waste water using cellulose nanofibers -a review at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
18. Nimi Mariya Jose, Meera Bai S presented a paper entitled "Production of Bioplastic from Renewable sources-a Review at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
19. Aswathi Vijayan, Irene Susan Tobby, Rakesh T. R and J R Anoop Raj a paper entitled "Green Synthesis and Characterization of Nano-Selenium Using *Plectrathus barbatus* at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
20. Anu Jayanthi, R S Chinmayi Krishna, Reju Rajan and Jaya Jacob presented a paper entitled "Biosynthesis of CdS QDs and their photoctatalytic dye degradation" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
21. Sneha Saji, Sini Susan Saji, Reju Rajan and Jaya Jacob presented a paper entitled "Biosensor of coconut oil adultration detection using PbS QDs" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
22. Sneha NS, Treasa Anna, Reju Rajan and Jaya Jacob presented a paper entitled "Biogenesis and invitro toxicity of PbSe QDs" at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.
23. Anu Jayanthi, R.S Chinmayi Krishna, Sneha NS, Treasa Anna and Jaya Jacob presented paper titled " Solar Light photocatalytic dye degradation using biogenic quantum dots" and " *Aspergillus*



terreus mediated biosynthesis of PbSe quantum dots” at the 11th National Level Technical Symposium EVOGEN’19 on advancements & explorations in augmented biology” organized by the Dept. of Biotechnology, School of Agriculture and Biosciences, Karunya Institute of Technology and Sciences, Coimbatore from 10-11 October 2019.

24. Malavika Aji, Reju Rajan and Jaya Jacob presented a paper entitled “Microbial Biomimetics of Metal Sulphide QD biosynthesis” at National Conference on Biotechnology Research Innovations and Opportunities (BRIO-2020) organized by Department of Biotechnology & Biochemical Engineering, Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala, India from 18th to 19th June, 2020.

FACULTY DEVELOPMENT PROGRAMME/WORKSHOP/COURSES

1. Malu Ravi attended 7 day online FDP on NBA Accreditation Process organized by Department of Civil Engineering, MEA engineering college from 20th May to 28th May, 2020.
2. Malu Ravi participated in the Science Academies’ Science Leadership Workshop organized by the Central University of Punjab, Bathinda, India from June 22 to June 28, 2020.
3. Malu Ravi attended live webinars on “World food safety week-2020” organized by AFST(I) Kakinada chapter, JNTUK Kakinada, Perkin Elmer &SR consultancy from 1.06.2020 to 7.06.2020.
4. Shamnamol G K successfully completed TEQIP-III Sponsored online Short Term Course on “Trends and Prospects in Bio refinery” organised by Dr. B. R. Ambedkar National Institute of Technology Jalandhar during 10-14 June 2020.
5. Shamnamol G K participated in One-week Online FDP on Research Methodology using SPSS and the Art of Writing a Research Proposal” organised by St. Claret College, Tamil Nadu held from 15-20 June 2020.
6. Shamnamol G K, Anju Raj, MeeraBai S, Malu Ravi, Manoj Narayanan, Anoop Raj J R and PrarthanaPrabudhanattended three day FDP on “Research Methodology and Scientific writing” organised by Sree Buddha College of Engineering, Alappuzha from 29th June – 1st July 2020.
7. DrManoj Narayanan participated in 5 day online workshop on Universal Human Valueson the theme “Inculcating Universal Human Values in Technical Education” during 20-24, June 2020 organized by All India Council for Technical Education (AICTE).
8. DrManoj Narayanan and Dr J R Anoop Raj participated in 3 day online workshop on ‘Digital Classroom – TheAgile way for Educators’, organized by ICT Academy Kerala on 20th, 24th and 27th of June2020.
9. Lekshmi R Babu attended 5 days Online FDP on Nanomaterials and Devices organized by National Institute of Technical Teachers Training and Research Chandigarh from 27th April to 1st May 2020
10. Lekshmi R Babu attended 7 days Online International FDP on Biological Sciences organized by NallamuthuGounderMahalingam College TamilNadu from 25th to 31st May 2020
11. Lekshmi R Babuand Anju Raj completed E learning courses on Measuring Instrument, Industrial Water System, Basic TQM, Instrument and Control System and Advanced Microsoft Excel conducted by Tata Steel
12. Lekshmi R Babu completed E learning courses on Renewable Energy and Sustainable Development conducted by Udemy
13. PrarthanaPrabudhanand MeeraBai Sattended three day FDP on “Communicative English Skills for Engineering Students and Faculty”, organised by Mar Baselios Institute Of Technology And Science [MBITS] in association with ASAP and TCS from 28th-30th June,2020.
14. Prarthana Prabudhan and Malu Ravi successfully completed the Four week International Faculty Development Online Certificate Course on “Medical Bacteriology” organized by the Department of Microbiology,



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Sacred Heart College(Autonomous), Tirupattur, Tamil Nadu, India in association with Microbiologists Society, India and Laboratory of Chemical and Biological Analysis (LAQB), Western Rio Janeiro State University(UEZO), Rio de Janeiro, Brazil from 1st - 30th June 2020 with Distinction.

15. Dr J R Anoop Raj actively participated in webinars on “Everyone can do quality research: A

general perspective on CFD research” organized by Knowledge Institute of Technology, Salem on 09.07.2020.

INVITED LECTURES

1. Dr Manoj Narayanan delivered an invited Lecture on ‘Gaia and Me: A Metagenomic conversation’ in AGORA Seminar series organized by Sree Narayana College, Kollam on February 20th 2020.

EDITORIAL BOARD

Dr. Suresh Babu S (Principal)

Dr. Jaya Mary Jacob

Ms. Shamnamol G K