KLE Technological University
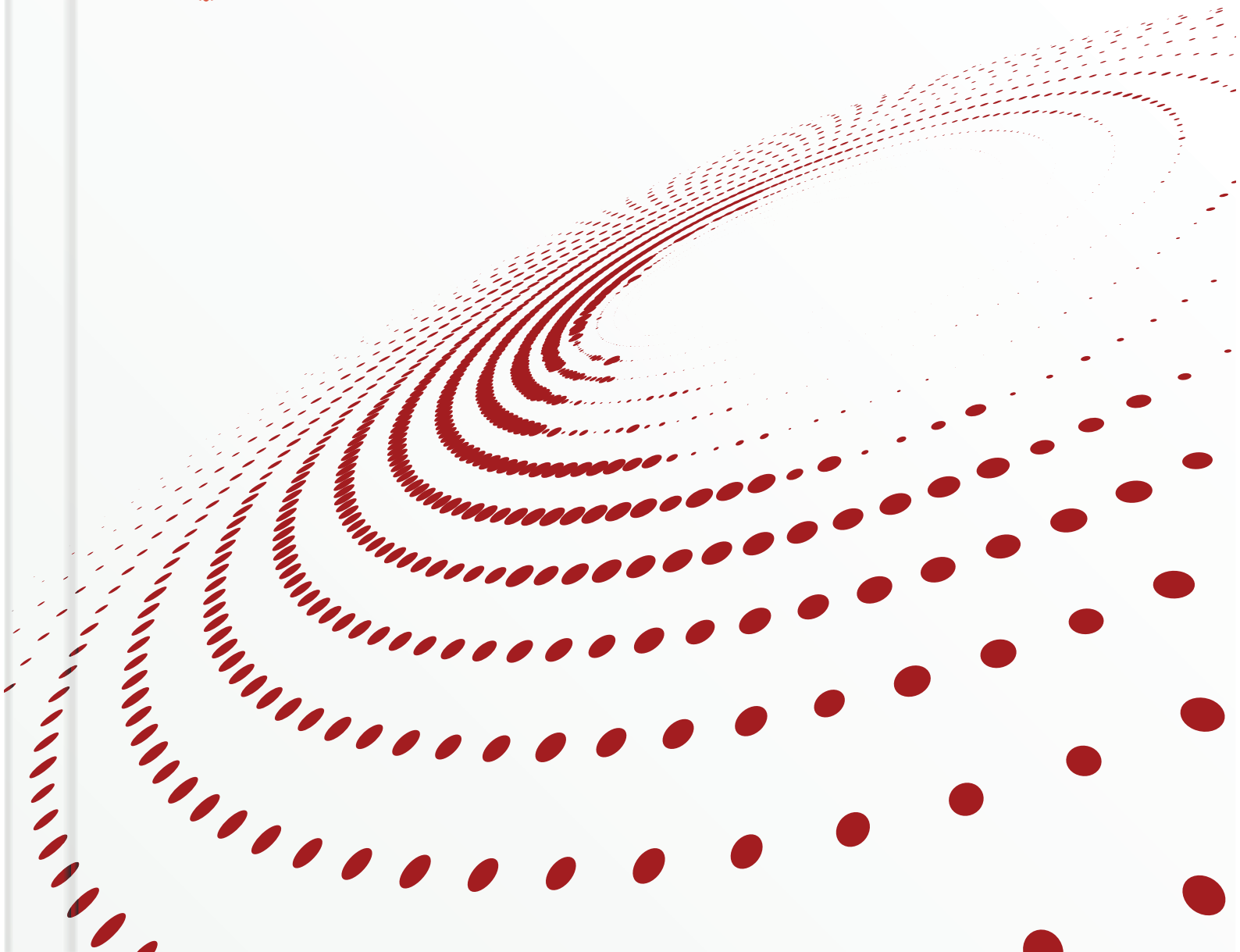KLE TECH

Creating Value
Leveraging Knowledge

Annual Report | 2020-21

Vidyanagar, Hubballi (India)

🌐 www.kletech.ac.in

Our Parent Organization:

Karnataka Lingayat Education Society (KLE Society)

Initiatives by private organizations and dedicated individuals have played a critical role in the growth of higher education in India. In 1916, a dedicated group of individuals enabled a dream. Their vision was to create a strong education base in the neglected areas of North Karnataka and Maharashtra. This resulted in establishment of KLE Society on 13th November 1916 at Belgaum. This Society was started by seven dedicated teachers and three generous patrons. Their mission was to provide education, basically to the children of the farming community who constitute a significant majority in Karnataka. With the strong support by philanthropists and intellectuals of the area, the KLE Society started to grow, and today, it has become an important entity in the educational scenario of the country.

Apart from establishing educational institutions, the KLE Society has earned the distinction in the field of health care and other community services. It has entered into collaboration with universities abroad in USA, UK & Malaysia. Through its 264 institutions, KLE Society is rendering services in the areas of:

- Health Care and Medicine
- Engineering and Technology
- Management Studies
- Agriculture
- Arts, Science and Commerce
- Teachers training
- Primary and secondary education
- Law

With a visionary leadership of Chairman Dr. Prabhakar Kore, and members of Board of Management, the society's institutions serve more than 1,25,000 students. Over 16,000 dedicated faculty and staff work together to meet the high standards set by the management.

Chancellor's Message

It is a great time to be writing about KLE Technological University, which has scaled wonderful heights in terms of academic excellence and establishing new standards in higher education.

I take this opportunity to congratulate our Vice Chancellor Dr. Ashok Shettar for being conferred with Karnataka Rajyotsava Award 2020 in the field of education for his dedicated efforts in improving quality of engineering education.

I also wish to recognize the faculty and non teaching staff in nurturing the phenomenal growth in terms of student intake, international academic recognition, industry recognition and improved ranking by NIRF.

Higher education in India is on the cusp of a revolution and I am glad to note that KLE Technological University is at the forefront of these sweeping reforms. Under the able leadership of our Vice Chancellor Dr. Ashok Shettar, the institution has pioneered many initiatives in teaching pedagogy and student evaluation techniques. This has been noticed by the academic world and many have approached for new ideas.

We were among the first institutions to develop a deep relationship with the industry. I am glad to note that we are running a number of industry academic programs. Many leading companies are showing interest in sponsoring research and development activities at our institution. This makes for a perfect backdrop to our academic programs and our ability to help students to adapt to the needs of the real world.

There is more good news on the entrepreneurship development side. Our incubation centre is taking shape and we are home to more than a dozen enterprises with products under test in the market.

This brings me to the question of why are we doing all of this. When I started this journey, the goal was to give the region of northern Karnataka an advanced institution for higher studies in science and engineering. However, today we have grown beyond that initial vision. We are now an institution to be reckoned with globally. And I believe that this could not have been possible without our brilliant students who have proven their potential time and again. I now strongly believe that given the right environment, students will discover their true potential.

KLE Technological University is turning a crucial milestone. In the coming years, we will be entering a new era in learning experiences. We have lined up with ambitious plans to take the student experience to the next level.

I wish everyone the best.

Dr. Prabhakar Kore
Chancellor
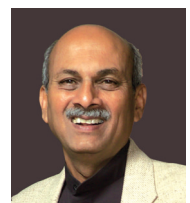
Dr. Prabhakar Kore
Chancellor

Foreword

We are proud to present the sixth annual report of KLE Technological University, Hubballi, for the year 2020-21. This report summarizes the achievements and progress we have made over the last year to improve our academic offerings and student services.

Our faculty is making progress towards providing a truly world-class learning environment by adopting holistic curricular reforms and innovative pedagogical practices. We are working hard to create a dynamic research environment to promote research excellence.

This year, we set-up 12 in-house studios with light board technology for implementing Learning Management System (LMS) for lecture capturing and use them for effective learning and teaching process, which ensured required learning experience for students during the pandemic (COVID) period.

We would like to extend our sincere thanks to our faculty, staff, students, alumni and industry partners for their continued support and remarkable contributions. Looking ahead, we will continue to work towards realizing our vision to be a leader in engineering education, and advancing research and innovation to support socio-economic development of the region.

Dr. Ashok S. Shettar

Vice Chancellor

Dr. Ashok S. Shettar
Vice Chancellor

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Introduction

KLE Technological University (KLE Tech) has its roots in one of the premier engineering institution of Karnataka, B. V. Bhoomaraddi College of Engineering and Technology, Hubli (BVB). The founding organization KLE Society, Belgaum, established BVB College in 1947 with an aspiration of creating an institution that would lay the foundation of modern engineering education in northern region of Karnataka. Over the years, it evolved to reach and hold a unique position of pride in the technical education system of India. As we entered into the 21st century, the college undertook comprehensive reform process to adapt to the challenging global engineering education scenario. In pursuit of academic excellence, the College attained academic autonomy from University Grant Commission (UGC) in the year 2007. As an autonomous College, BVB established its distinctive character in the academic space through its curriculum and outstanding student experience. Over the time it gained tremendous credibility with the industries and employers and emerged as a brand to reckon with. The Alumni of the Institute have done exceedingly well in all spheres of life at both national and international levels and brought name and fame for themselves as well as to their Alma Mater.

The times have changed, and the higher educational institutions need to continually innovate to maintain and enhance their relevance to meet the ever changing demands of global economies. Apart from delivering good quality education, the institutions are expected to develop their capacity in research and innovation. They also need to undergo a fundamental transformation in terms of their role in the society, mode of operation, and economic structure and the scale at which they operate.
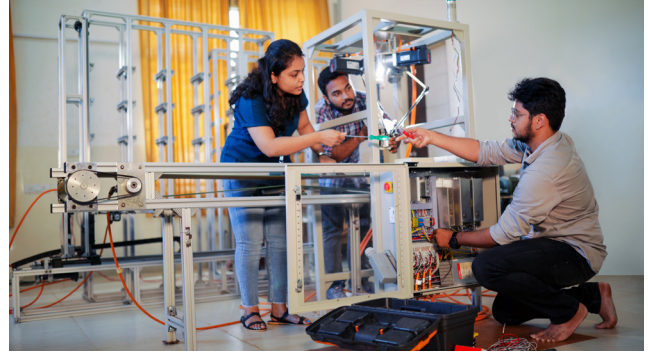
Keeping the above challenges in mind BVB College of Engineering and Technology, undertook strategic initiative of transforming itself into a University of national distinction. In 2014 the College was recognized as a state private University by Government of Karnataka. The rich heritage of BVB College as one of the best engineering college combined with brand equity of KLE Society are the starting points for KLE Technological University to emerge as a University with a national distinction.

KLE Technological University has received 2f status from the UGC.

Student Enrollment

Admission Process

The University does not conduct a separate test for the admissions. The admission to the programs of University is based on the Government of Karnataka rules for professional education institutions. The following is the mode of selection of students for admissions (as per rules of Government of Karnataka).

1. Common Entrance Test (CET) by Karnataka examination Authority (KEA): Admission to 45 % of seats are done by government of Karnataka based on CET ranking and reservation policies of the state. The seats are distributed through central counseling done by KEA. For the aided intake the 95% of the seats are allotted by the KEA. Equal weightage is given to score in CET entrance test and qualifying examination score, while allotting the ranks.

2. All India Examination conducted by the Consortium of Medical, Engineering & Dental Colleges of Karnataka (COMED-K): Admissions to 30 % of seats in unaided courses are done on the basis of COMED-K-rankings. The seats are allotted by COMED-K through central counseling. Equal weightage is given to score in COMED-K entrance test and qualifying examination score, while allotting the ranks

3. The remaining 5% seats in aided courses and 25% seats in unaided courses are filled as management seats on the basis of academic records of qualifying examinations.

For post graduate programs, Post Graduate Common Entrance Test (PGCET) conducted by Karnataka examination authority, is used for the selection of students.

Undergraduate Programs

Sl.No.	Programme	Sanctioned Intake
1	Civil Engineering	120
2	Mechanical Engineering	240
3	Electrical & Electronics	120
4	Electronics & Communication	300
5	Electronics & Communication (Industrial Track)	60
6	Computer Science & Engineering	300
7	Automation & Robotics	60
8	Bio Technology	60
9	Architecture	80
	Total	1340

Postgraduate Programs

Sl.No.	Programme	Sanctioned Intake
1	Structural Engg.	18
2	Advance Manufacturing Systems	18
3	Energy Systems Engg.	18
4	Computer Science & Engg.	24
5	Digital Electronics	24
6	VLSI Design & Testing	24
7	Machine Design	24
8	Master of Computer Application	60
9	Master of Business Administration	60
	Total	270

Research Programs

Sl.No.	Programme
1	School of Civil and Environmental Engineering
2	School of Computer Science & Engineering
3	School of Electronics and Communication Engineering
4	School of Mechanical Engineering
5	School of Management Studies and Research
6	Department of Electrical and Electronics Engineering
7	Department of Humanities & Social Science
8	Department of Biotechnology
9	Department of Physics
10	Department of Chemistry
11	Department of Mathematics
12	Center for Engineering Education Research

Student admissions for the year 2020-21 - UG

First Year UG Admissions 2020-21

Program	Admissions
Architecture	70
Mechanical Engineering	161
E&C Industry Integrated	57
Electronics & Communication	299
Electrical & Electronics	103
Computer Science	304
Civil Engineering	116
Bio Technology	51
Automation & Robotics	43

First Year UG Total Admissions

Year	Admissions
2017-18	1106
2018-19	1256
2019-20	1213
2020-21	1204

Student admissions for the year 2020-21 - PG

M.Tech Admissions 2020-21

Program	Admissions
Design Engineering	16
VLSI Design & Embedded Systems	18
Computer Science	16
Digital Electronics	13
Advanced Manufacturing System	7
Structural Engg	19

M.Tech Total Admissions 2020-21

Year	Admissions
2017-18	98
2018-19	99
2019-20	91
2020-21	89

MBA, MCA Admissions 2020-21

Program	Admissions
MCA	60
MBA	58

MBA, MCA Total Admissions

Year	Admissions
2017-18	117
2018-19	106
2019-20	107
2020-21	118

■ MBA, MCA Total Admissions

Students Enrolled

- PG 9%
- UG 91%

Gender Strength 2020-21

- Female 34%
- Male 66%

Academic Quality

Engineering education is going through a profound transformation driven by the new realities and opportunities created by the global knowledge society. To ensure the fitness of higher education system to negotiate new challenges, adaptation of proper academic frameworks and strategic interventions are necessary. Outcome Based Education (OBE) framework has emerged as a major reform model in the global engineering education scenario and has been mandated for accreditation of engineering programs for the Washington accord signatories. The OBE approach is based on a student centered learning philosophy and focuses on the output (outcomes) instead of the input (content).

KLE Tech reform process by adopting OBE framework. The framework gives us an opportunity to build a culture of continuous improvement that strengthens our academic quality and inspires student achievement.

The initiatives undertaken to enhance the quality of education and student performance are presented under following three tenets of academic quality
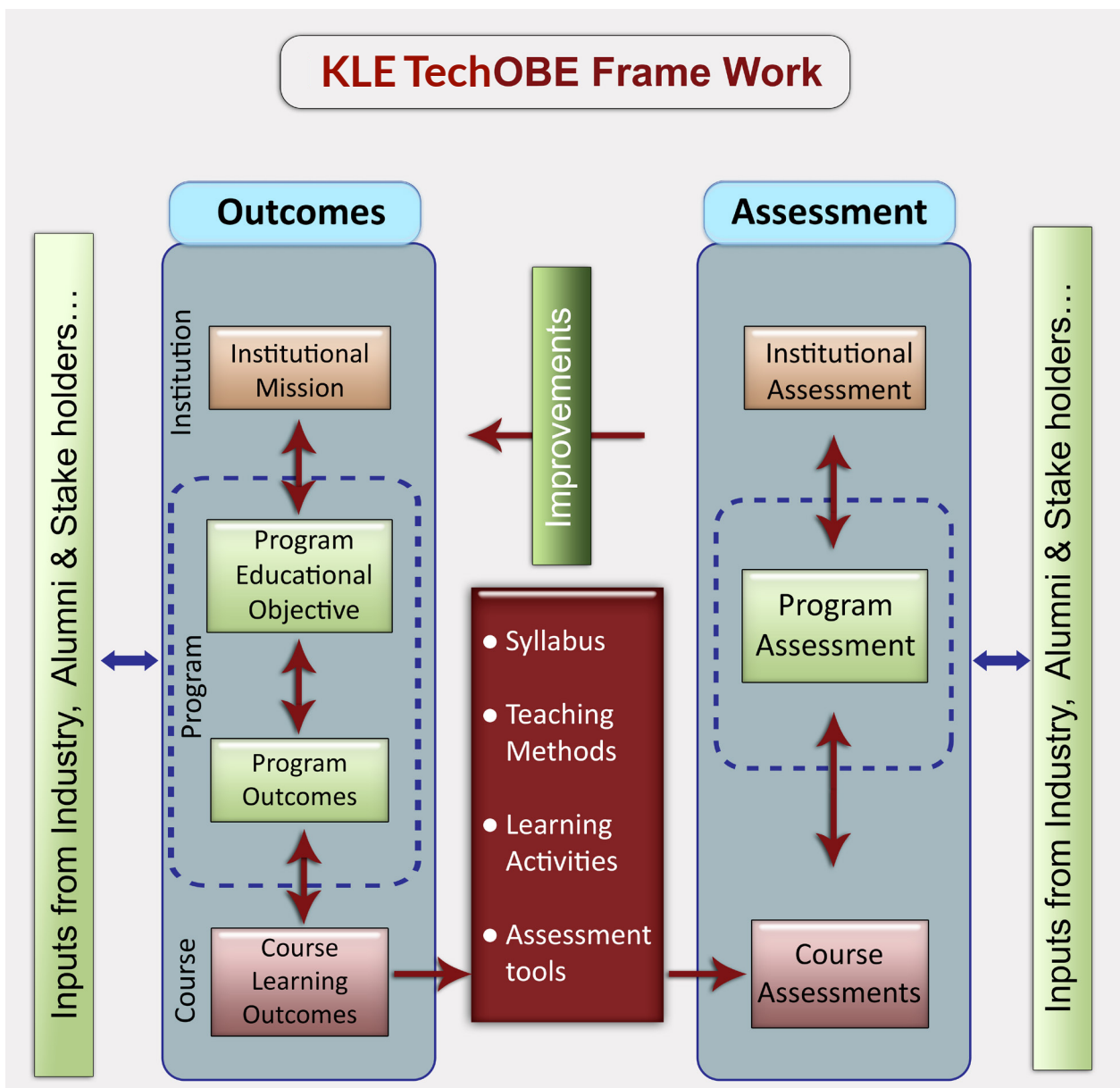
Advances in Curriculum

Faculty Development

Student achievements

Advances in Curriculum

The curriculum of all the programs offered by KLE Tech are designed understanding the expectations of the stakeholders. Outcome Based Education (OBE) framework is used to design the curriculum. Each program has formulated Program Outcomes (POs) in line with Graduate attributes of NBA. These POs describe what students are expected to know and be able to do by the time of their graduation. These POs relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. The courses designed for the programs are aligned to the expectations of POs.

Learning experiences in each of the programs are created focusing the millennial learner. Problem solving skills, research and entrepreneurship are embedded in the curriculum through a host of program core, program elective and open elective courses. Active, blended, collaborative, experiential and project based learning (PBL) practices are used bringing student to the centre of teaching – learning process. Assessment and evaluations are done aligning to learning outcomes to inform both the learner and the system. The frame work adopted by the University is depicted in the Figure below.
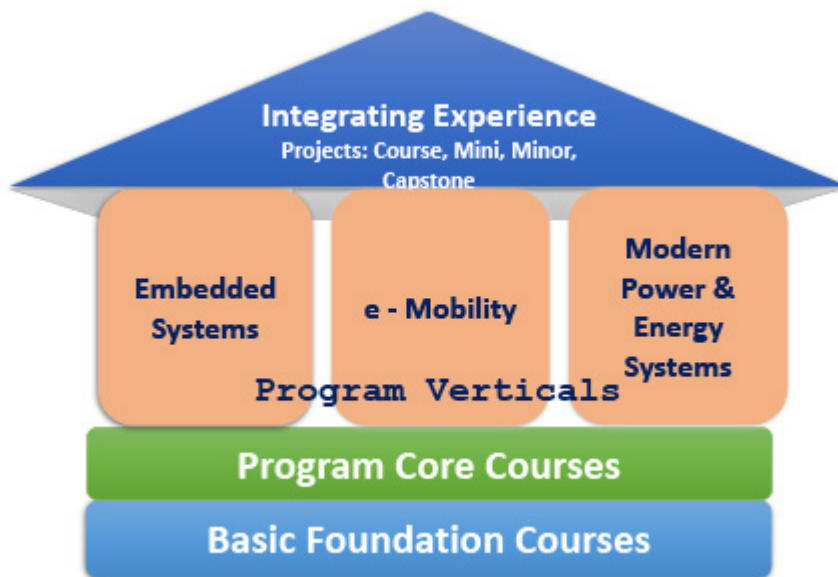
Developing and Institutionalizing Curriculum Framework

Major Academic initiatives Undertaken:

During the academic year 2012-21 following are the major academic initiatives undertaken to improve the teaching and learning process.

School of Electrical & Electronics Engineering

School of Electrical & Electronics Engineering Curriculum Structure has Basic Foundation Courses, Program Courses, Three Verticals and enough opportunities provided for the integration of concepts learnt at various courses through carrying out Course, Mini, Minor, Senior Design Project and Capstone Project. The School has identified three verticals namely 1. Embedded Systems, 2. e -Mobility, and 3. Modern Power and Energy Systems, which are relevant to current industry requirements and to maximize student placement opportunities.

Embedded Systems Vertical (Electives)

The Embedded System vertical comprises of concepts related to Operating Systems, CMOS VLSI and Automotive Electronics. The Operating Systems is an elementary course which includes topics related to general purpose operating system and real-time operating system. The subject introduces concepts such as memory management and scheduling processes in an operating system. Secondly, a course on CMOS VLSI ' is delivered. This course addresses the fundamental requirements that are to be fulfilled by an electrical engineering graduate to pursue a career in VLSI industry. The course addresses the COMS IC fabrication technology and extends the study to complex VLSI circuits, their design and evaluation. The last course offered in this vertical is Automotive Electronics. This course is designed in collaboration with automotive companies like KPIT and Bosch. This course emphasizes the importance and advancement of engine management and electronic assistance systems in modern automobiles.
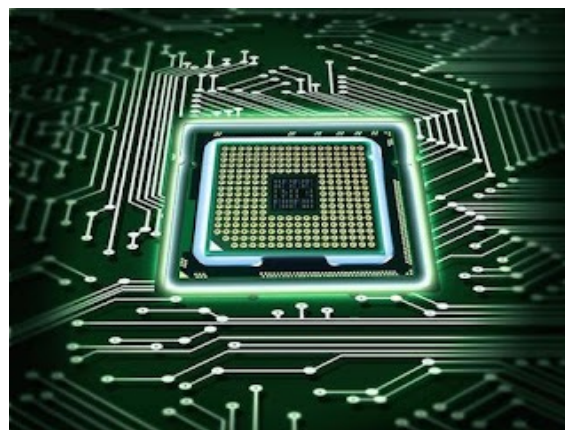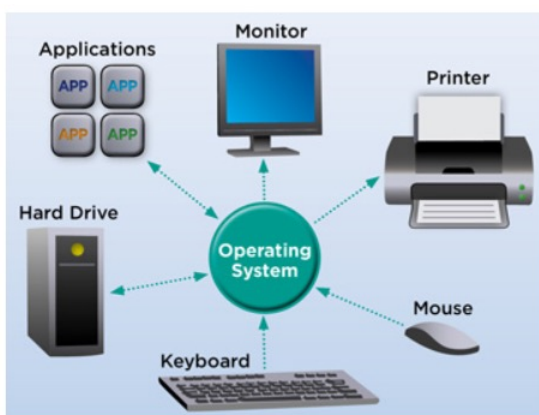
E-Mobility Vertical (Electives)

The e-mobility vertical encompasses concepts of battery management systems and electric drives for electric vehicles. The 'battery management systems (BMS)' is an elementary course in this vertical, which introduces major functions of a battery management system, modeling of battery, estimation of state-of-charge, state-of-health and cell balancing in a battery pack. Secondly, a course on 'Traction systems for Electric Vehicles' is delivered. This course deals with the formulation of motion and dynamic equations of Hybrid and Electric Vehicles considering the effect of all the forces acting on them. Additionally, it emphasizes various types of EV configurations based on drivetrains and power source configurations. Lastly, the course deliberates the mathematical models of the power converters and the propulsion motors for investigations of involved control strategies. The last course offered in this vertical integrates the learnings of the courses and is delivered as a 'Powertrain Control laboratory' using MATLAB/Simulink. This laboratory course involves extensive mathematical modeling of batteries, power converters, electrical machines and classical electric machines theory to test the operation and control of battery-operated electric vehicles. Additionally, this course facilitates experimental verification of the control algorithms using the state-of-the-art Sciamble Electric Drives Lab Kits (https://sciamble.com/Products/Buy/CUSP_ED_Fullkit). All the courses in the vertical are reviewed by industry experts from reputed organizations like Robert Bosch and KPIT for continuous improvement of the e-mobility vertical.


Modern Power and Energy Systems Vertical (Electives)

With rapid energy sector transformation from the integration of wind and solar energy, as well as electric vehicles bringing new opportunities for power and energy systems engineers, the Department of Electrical and Electronics Engineering is expanding its professional course offerings to include a new vertical as part of an undergraduate course titled: Modern Power and Energy Systems.

Modern Power systems are complex structures composed of many different installations, economic actors, and system operators. In this vertical, three courses have been introduced 1. Modelling and Analysis of Hybrid Electrical Energy Systems, 2. Smart Grid Technologies and 3. Flexible AC Transmission Systems, each course with three credits. Recent advances in computing technologies and the availability of large amounts of heterogeneous data in power grids are opening the way for the application of state-of-art machine learning techniques. Compared to traditional computational approaches, machine learning algorithms could benefit from their intrinsic generalization capability by providing short-term power flow forecasts from distributed measurement units with greater computational efficiency and scalability.

Given this, Machine learning, being one of the areas of Artificial Intelligence, is introduced as a part of the curriculum for the 3rd year students. Learning from textbooks, lectures, and other study material does not suffice for holistic learning. Practical, hands-on learning is essential for better understanding work processes and business functions. Industrial visits give greater clarity about fundamental engineering concepts, as students practically experience how these concepts are put into action. Given this background, the department organizes various industry visits for students of all semesters like Nuclear Power Plant Kaiga, Hydro Power Plant Dandeli, 220 kV Sharavati Receiving Station, Hubballi, Loco Shed Hubballi, Kirloskar Electric Company, Hubballi, and Solar Photovoltaic Power Plant at Chikkodi, Belgaum District.
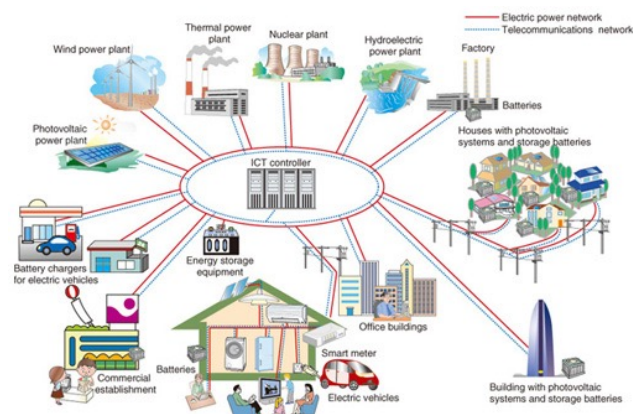
Special Practices:

Flipped classroom describes a reversal of traditional teaching where students gain first exposure to concepts outside the classroom through lecture videos. Conventional lecture hours are used for discussion & problem solving of concepts learnt through videos. It promotes student centred learning and collaboration. This concept is being used to teach two courses in the department. Two courses, 1. Circuit Analysis (3rd semester) and 2. Linear Integrated circuits (5th semester) will be delivered through this mode.

A good algorithm usually comes together with a set of good structure that allow the algorithm to manipulate the data efficiently. Data Structure using 'C' is introduced to freshman students. This course will help students to understand what is going on inside a particular built-in implementation of a data structure. Students learn these data structures with hands on experience implementing them and applying for real world problems.

SCHOOL OF MANAGEMENT STUDIES & RESEARCH (SMSR)

Albert Einstein said, in the midst of every crisis, lies a great opportunity. New challenges, throw up new heroes. Covid19 a global crisis threw open one more such crisis, where heroes emerged in the form of doctors, health care workers, the policing authorities, etc. SMSR salutes all those heroes, who stood the test of time and are battling it out at the forefront. Here was another opportunity for SMSR to explore the path unchartered. In a matter of no time, the campuses of educational hubs had fallen silent, canteens look deserted, and no more sounds of laughter emanated from the grounds. The Covid-19 pandemic has left the colleges bereft of the presence of the students. Even as the country battles the pandemic with a lockdown, SMSR has not forsaken their primary responsibility to the students which is continuity in their education with the same exacting standards.

'Overnight, educators have had to change track and adopt steps to keep the ball rolling. SMSR was no different. Both the student fraternity and the teaching fraternity were caught off guard. But the crisis did not deter the spirit of SMSR as it waded through this and emerged as a gainer in the form of more options in the armory. SMSR had its share of hiccups in this journey of transition from physical education to virtual education. But the panache of the SMSR students and the commitment of SMSR faculties led to a seamless transition in the digital form of teaching and learning. The transition was not a simple one as we are aware that there is a huge digital divide in the country. All of us are not blessed with the same infrastructure. But despite all the challenges, SMSR was not only able to streamline teaching-learning system but was also able to put a robust e-learning management system in place.

Advances in Curriculum

Blended Learning – A New Norm SMSR under the aegis of CEER (Center for Engineering Educational Research) has always strived to stay ahead of its contemporaries by envisioning the future of education and prepare for the same. Accordingly, SMSR adopted a dual format for its e-learning approach to overcome the limitations by incorporating both synchronous and asynchronous mode of learning. Synchronous learning constituted the virtual classes with real time delivery where both the learner and the instructor were able to interact seamlessly with a set schedule and login requirements. With the synchronous approach, the students were also able to explore collaborative learning methods.

To supplement the synchronous session's asynchronous mode of learning was also incorporated. Asynchronous approach facilitated the student to control the learning pace and place, which essentially included the pre recorded video chunks covering the essence of the regular synchronous sessions

Five-Phase Internship Program

The internship between the first and second years of an MBA program is a key part of the entire program. Recognizing the importance of internships, SMSR designed an MBA programme that included five internships for the batch of 2020-2022. As part of its Student, Institute, Industry, Track (SIIT), 5 internships have been designed to maximize learning in all the functional, research and skill domains. The goal of having five internships was to increase exposure to the business world and ensure a smooth transition from academia to the corporate world.

Moreover, the students are required to work in 5 different organizations cutting across different industries. The design of Exposure to diverse industries coupled with enhanced exposure to the corporate world has resulted in increased self confidence among the students. Employers and corporate have also evinced a positive outlook towards the students of SMSR from the job-placement perspective.

Rural Entrepreneurship- a new component   to the MBA Program

School of Management Studies & Research has been a pioneer in providing rural immersion track for its Management students in this part of the region. Based on the insights gained as a result of its experience, SMSR conceived a novel track for its Management students in the form of Rural Entrepreneurship (RE). Rural Entrepreneurship Track is an ongoing track spread across the program into 4 phases.

Selected students who are highly passionate and ambitious to make their mark in rural entrepreneurship are handpicked by the faculty members for a careful nurturing in their respective areas. The students are given an opportunity to convert their ideas into ventures by providing both technical and financial support. Efforts are made to connect the aspiring entrepreneurs to all the relevant stakeholders which can be a further impetus to new opportunities.

Three Projects have been successfully initiated as part of the Rural Entrepreneurship Track.

1) One of the projects pertains to manufacturing of bio fertilizers essentially translates to providing vermicompost to farmers and gardeners.

2) The second project is in the area of mushroom farming. The student has underwent all the preliminary work of accumulating all the knowledge required to start the business and has already put the knowledge into practice.

3) The third entrepreneurial venture is in the area of Dairy Farming adopting innovative practices .

Faculty Development Programmes (Institute Level)

Teachers provided with financial support to attend conferences / workshops and towards membership fee of professional bodies during the year 2020-21. Total financial assistance provided for the year 2020-21 are as follows:

Particulars	Numbers
Conference, Seminars and workshops	74
FDP, Orientation, Induction programme	135
In-house professional development public administrative training programmes	13

Placement

Students of 2020-21 pass out batch have got ample of placement opportunities. Both Core & Service companies recruited in good numbers.

Important highlights are as follows:

- Google has selected 1 CSE student offering a salary package of 30+ Lakhs.
- Amazon AWS has selected 10 CSE/ECE students offering a salary package of 19 Lakhs
- Mercedes Benz R&D India has selected 17 CSE/ECE students
- Deloitte consulting India has selected 60 students offering a salary package of 7.6 LPA
- Robert Bosch has recruited 51 students
- Amagi has selected 3 CSE/ECE students offering a salary package of 15 LPA
- PWC AC has selected 19 students
- LTTS recruited 56 students, Accenture recruited 195 students, DXC Tech recruited 160 students, Cognizant recruited 139 students and TCS recruited 94 students.
- The Total no. of offers are more than 1200.

Robert Bosch	Deloitte	Promantia
Amazon	DXC Technology	PWC AC
Mercedes Benz R&D	EASi Engg	Qualitest Group
SONY	Faurecia	Sanklap Semi(HCL Tech)
Toshiba	Google India	SAP Labs(Scholar Program)
Informatica	Infineon(Cypress Semi conductors),	Shilpa Biologicals
Texas instruments	Infosys,	SLK software
Akamai	ITC Infotech	Sprinklr
Applied Materials	JSW	Starmark Software
Infineon(Cypress Semiconductors)	Kirloskar Brothers Ltd	Subex
Juniper Networks	L&T Technology Services	TaeguTec
Bosch Ltd.	Lam Research	TCS
Accenture	Lumen Technologies	TISMO Tech Solutions
ACL digital	Mercedes Benz R&D India	Uflex Limited
Amagi	Mphasis Limited	Vitesco Technologies,
BridgeSGI	Omnitracs (SmartDrive Systems)	Vyuhgenics
Capgemini	Pelatro	Wipro and many more
Cognizant	OneTrust,	
CoreEL Technologies		
Deevia S/w,		

Research and Innovation

To meet its growth aspirations, one of the challenges faced by the University is to transform itself from a good teaching institute to an excellent teaching and research institute. It is important that we need to further the research and developmental activities for the following:

• To sustain academic and professional reputation in knowledge-based economy

• To attract and retain high quality faculty and students

• To maintain cutting-edge curriculum and create stimulating learning environment

• To improve undergraduate teaching, because a researcher;

  (i) Is a better thinker and problem solver

  (ii) Can promote active teaching &

  (iii) Can create enthusiasm

• To align academic activities with economic development of the region.

KLE TECH has 14 research centers with 98 doctoral faculty guiding 94 registered doctoral students at KLE Tech and 22 students registered in other universities. The following table presents details about the research centers.

Table 1: Details of Eligible supervisors and PhD registered candidates

| Sl. No.	Name of School/Department/ Center	No. of Eligible Supervisors	No. of PhD registered at KLE Tech	No. of PhD registered at other universities
1.	Civil Engineering	10	6	3
2.	Computer Science & Engineering	16	24	5
3.	Electronics & Communication Engg	10	12	3
4.	Mechanical Engineering	16	14	1
5.	Biotechnology	6	10	0
6.	Electrical & Electronics Engg.	2	4	2
7.	Management Studies and Research	4	2	4
8.	Humanities and Social Sciences	1	3	--
9.	Engineering Education and Research	4	2	--
10.	Chemistry	7	9	2
11.	Mathematics	11	4	1
12.	Physics	7	4	1
13.	Automation & Robotics Engineering	3	0	0
14.	Architecture	1	0	0
	Total	**98**	**94**	**22**

Summary of publications

The following table summarizes the number of publications of research work in refereed conferences and journals at national and international level.

Table 2: Paper publications in the last 6 academic year's indexed by Scopus & Web of Science

| Year	Scopus			Total Scopus	Web of Science		Total WoS
	Int. Journals	Conference	Books / Book Chapters		Int. Journals	Conference	
2018-19	94	59	24	**177**	53	5	**58**
2019-20	177	37	29	**243**	125	14	**139**
2020-21	283	47	79	**409**	131	22	**153**

There is substantial improvement in quality research publications in the academic year 2021. As compared to previous academic year (2019-20) there are 166 more number of Scopus indexed publications in the academic year 2020-21.
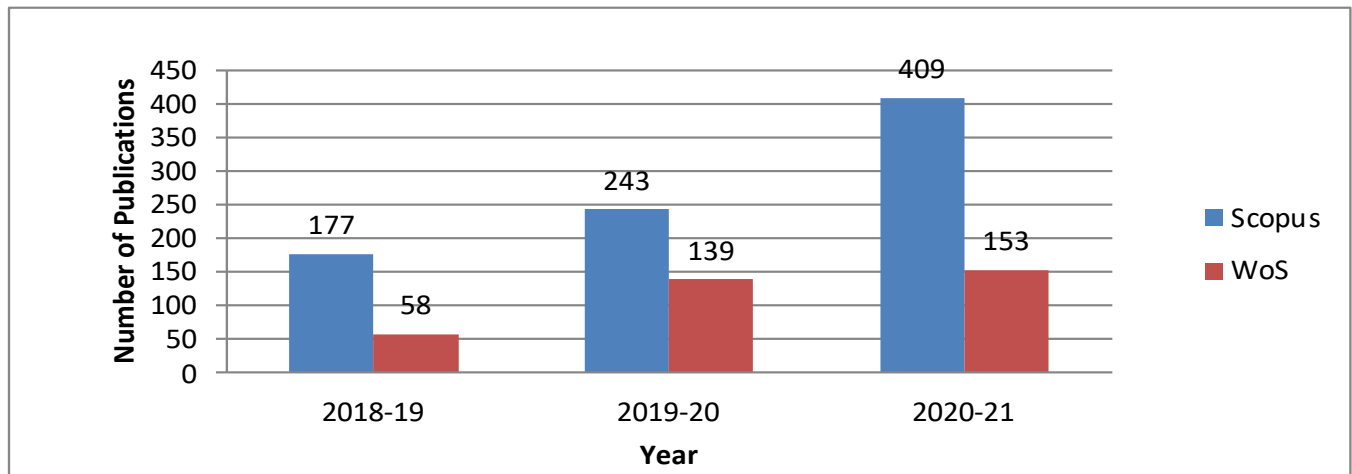
There is good improvement in citations also. In year 2020-21, additionally there are 124 citations in Scopus and 111 citations in Web of Science.
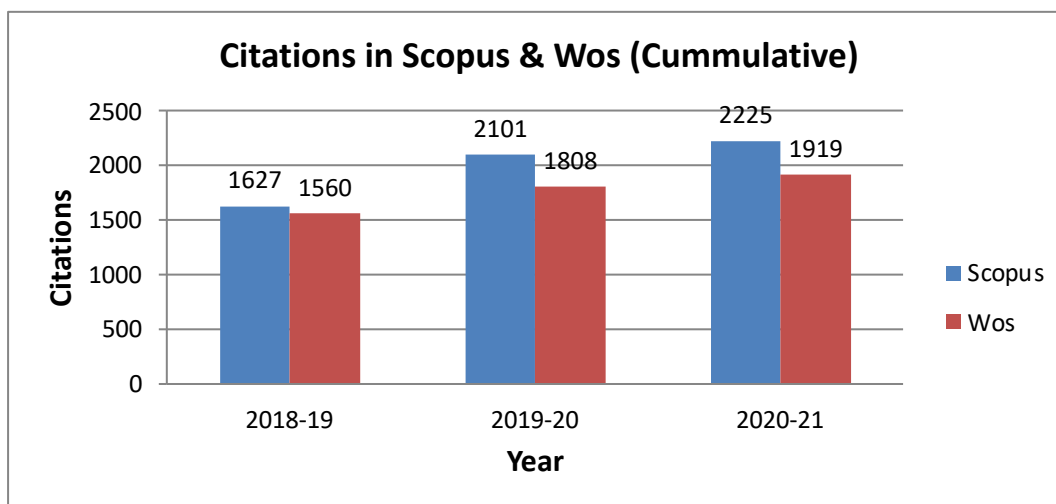
There is quite significant improvement in H – Index of university in the year 2021. The Scopus H – Index of university is 49 and has increased by 23 as compared to the year 2020. There is increment in H – Index of university by 26 in case of WoS. Current WoS is 47. Following two figures presents average H – Index of Schools, Departments for both WoS and Scopus in the last 3 years.

Average h-Index (Scopus)

Average h-Index (WoS)
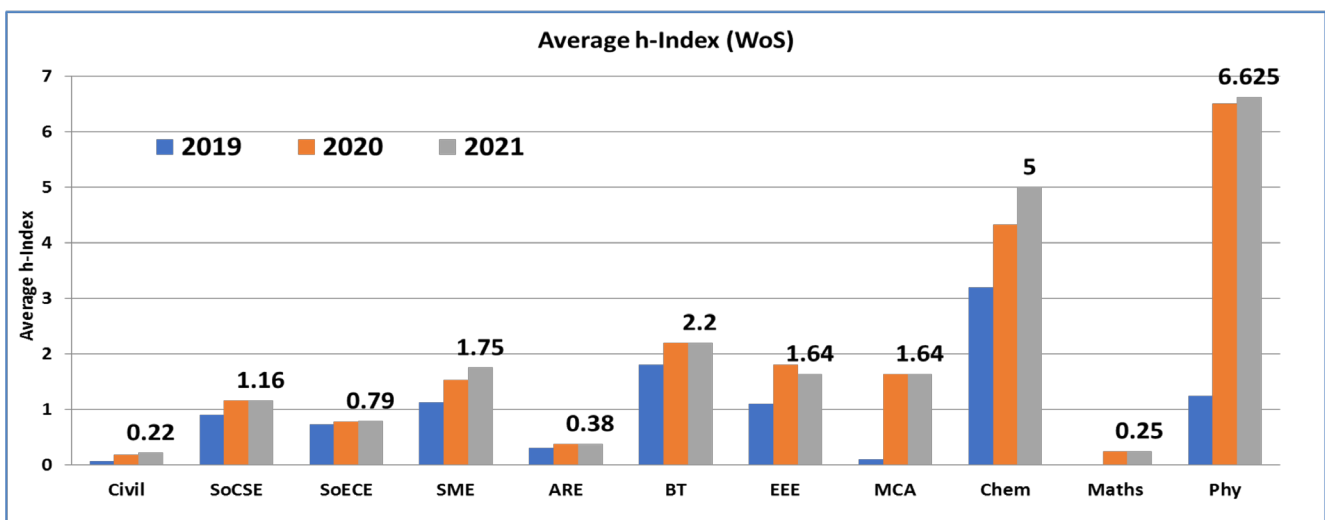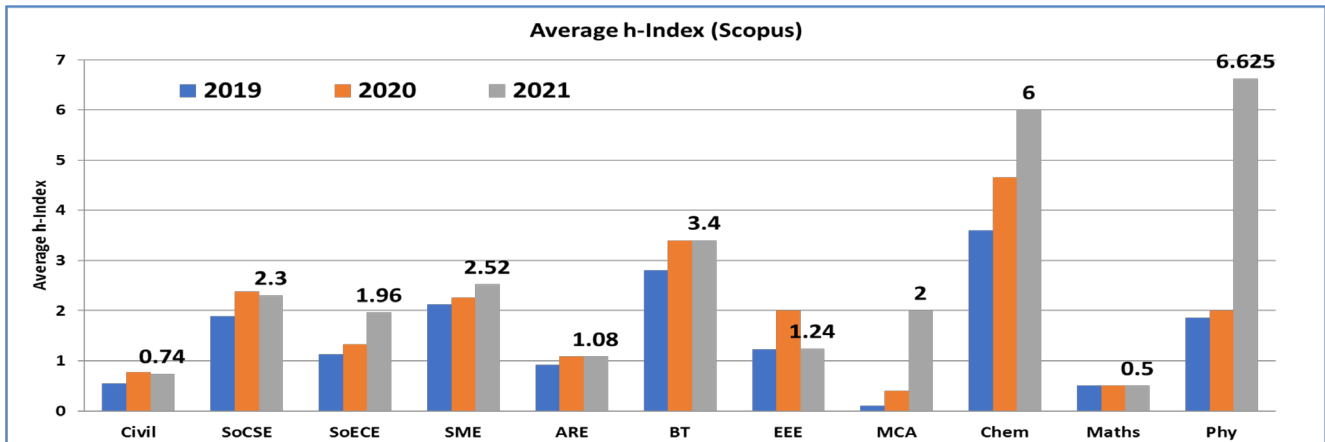
Summary of Patents

Patents: 2018-19

- Total Number of Patents applied: 7
- Total number of patents published: 6

Patents: 2019-20

- Total Number of Patents Applied: 9
- Total number of patents published: 4

Patents: 2020-21

- Total Number of Patents Applied: 4
- Total Number of Patents Applied: 7

Research Experience for Undergraduate (REU)

Undergraduate research opportunities help the student to experience and learn how to identify and define the problems and solve them, how to find and evaluate evidence, how to consider and assess competing interpretations, how to form and test their own analysis and interpretations and how to communicate their ideas and findings. These learning's enable them to take part in the research missions in their future career inside or outside academia.

Probably our college is the first institution in India to introduce 'Research Experience for Undergraduate (REU)s' in the curriculum as an optional course in 2011. The response from the students and faculty mentors has been overwhelmingly positive. The students and faculty mentors have devoted considerable time and effort to make the experience worthwhile and fruitful.

Summary of outcome of the REU course is reflected in the following table.

Year	# REU students	# REU Supervisors	# of Publications from REU	# REU students pursuing PG
2018-19 (Completed)	73	60	67	2
2019-20 (Completed)	67	63	50	2
2020-21 (Completed)	32	34	21	2

Research Promotion Schemes

To promote research in emerging and high impact areas, the University has initiated various funding schemes. The institute also supports Institutional Research Projects (IRP), Sponsored Research Projects (SRP) approved by the university R&D center.

I. University Research Funding Schemes:

- Capacity building Seed fund
- Grants to Enable and Advance Research (GEAR)
- Grants to conduct and attend conferences, Faculty development propgrams (FDPs) and staff development programs (SDPs)
- Incentives for quality research
- Grants for Patenting

II. External Research Funding

University Research Funding Schemes:

KLE Tech is committed to investing in providing a favorable research environment to promote world-class research with the potential to result in fundamental new knowledge or technologies and exciting discoveries. The internal funding also aims at developing young researchers to reach their career development goals.

Internal funding programs to support development research and creative activities are as follows:

- **Capacity building Seed fund**

Research seed grants are aimed to support individual faculty or groups to undertake capacity building and early-stage research and development activities in promising new areas of research with high impact and future funding potential.

The following are the objectives of the seed fund:

- To support and enable early career researchers to explore new research areas and develop capability and experience to carry out larger collaborative research projects.
- To stimulate inter-and multidisciplinary work in new areas of research with high impact and future funding potential

Institute funded capacity building projects for individual faculty

Year	Total projects	Total amount in Lakhs
2018-19	19	36.53
2019-20	12	29.26
2020-21	24	62.45

Outcomes of Capacity building projects

Year	Sanctioned Projects	Sanctioned amount	Utilized amount	Outcomes of Capacity building Projects				
				Student benefited	PhD + M.Tech Student benefitted	Papers published	Applied for external projects	External sanctioned projects
2018-19	19	36.53	28.65	7	5+7	11	7 VGST, AICTE, ePROMIS, MHRD	--
2019-20	12	29.26	13.47	6	5+4	14	4	--
2020-21	24	62.45	18.8	8	12+5	20	11	--

Grants to Enable and Advance Research (GEAR):

The 'Grants to Enable and Advance Research (GEAR)' scheme is envisioned to support and promote university-wide research initiatives that generate high-quality scholarship and creative works leading to external recognition and long-term success.

The objectives of the fund are as follows:

- To support research initiatives/projects that are strategically aligned with the University's research priorities.
- To assist research groups in gaining a competitive edge and developing a positive track record for securing external grants.
- To help develop research collaborations with industry partners as well as other external researchers from national as well as International Research Institutions and Universities;
- To spur multidisciplinary and interdisciplinary collaborations and strengthen the University's research portfolio in emerging fields.
- To undertake creative developmental activities to support entrepreneurs and industry in the region

Typically scheme supports a large team of researchers who bring together complementary skills, knowledge, and resources to explore new research areas with high impact. The funded initiatives are expected to engage young faculty and students in their scholarly activities.

Following are the category of funded research initiatives funded under the GEAR scheme:

- **Research Groups (Thematic)**
- **Research Clusters**
- **Center-of-Excellences**
- **Institutional Research Projects(IRP)**
- **Product Design and Development Groups**
- **Faculty Student Startup groups (Check the list)**

Institute Funded Projects under RC/RG/PDDG/FSSG

Sl. No	Name	Title of the research group/cluster/PDDG faculty group	Sanctioned 2018-19	Utilised 2018-19	Sanctioned 2019-20	Utilised 2019-20	Sanctioned 2020-21	Utilised 2020-21
1.	Nalini C	RG: Center for Automotive research: **ADAS/ Autonomous functions**	8.00	2.10	10.4	3.69	10.00	0.75
2.	Uday Muddapur	RG: Bio resource Development for industrial enzymes and metabolites.	7.50	2.90	--	--	--	--
3.	Ravi Guttal	PDDG faculty group: Product Innovation, Design and Development **Smart Systems for Resource Management**	6.00	2.03	21.75	20.42	42.00	37.33
4.	Meena S M	RG: Intelligent Systems - **AI for CV and analytics**	3.75	Nil	9.4	5.96	3.00	2.01
5.	Saroja V. S	PDDG: ESDM	26.00	22.78	14.4	8.37	12.50	4.92
6.	N.R. Banapurmath	RC: Material Science Cluster **Applied Nano-structured Materials**	21.32	34.53	34.63	34.89	38.37	43.28
7.	S S Quadri	RG: Transportation Lab **with Advanced Testing**	5.00	Nil	--	--	--	--
8.	Satyadhyan C	RG: High Performance Computing- **Convergence of HPC and AI**	120.00	121.00	50.15	--	21.00	--
9.	Prakash B Hegade	FSSG: Semantics & mathematical modelling: **Knit Engine for Item Correlation**	0.50	Nil	0.50	--	0.50	--
10.	P R Patil	RG: Smart system for early detection of plant diseases.	2.35	Nil	--	--	--	--

11.	Aditya Deshpande	FSSG: Product design and development for agriculture: **Interrow cultivator**	2.10	1.43	--	--	--	--
12.	S V Desai	RG: Bioresource Development	7.50	4.6	4.4	2.23	7.00	0.96
13.	B S Hungund	RG: Sustainable Bio solutions: **Development of biocontrol & biofertilizers**	3.4	--	3.4	1.95	2.50	1.85
14.	Zabin Bagewadi	RG: Development of Process and Product for Healthcare and Environmental Applications	5.0	--	5.0	4.61	2.75	0.34
15.	S T Nandibewoor	Kinetic and electrochemical studies of some medicinal molecules	--	--	--	--	12.40	11.69
16.	Uma Mudenagudi	CoE- CEVI	--	--	--	--	80.00	60.00
		Total	**218.42**	**191.37**	**154.03**	**82.12**	**232.02**	**163.13**

Incentives given to faculty for good publication, funded research and guiding doctoral students

Sl.No	Year	# of incentives	Total amount in Rs.
1.	2018-19	13	1,94,000/-
2.	2019-20	36	7,65,000/-
3.	2020-21	11	95,000/-
		Total	**1054000/-**

Identified Institute Research Projects (IRP) 2020-21
- Autonomous Electric Vehicle (AEV): ADAS/Autonomous functions, Coordinator: Prof Nalini C. I.
- Smart System for Resource Management, Coordinator: Prof Saroja S.
- India Chip, Coordinator: Prof Saroja S.
- Humanoid, Coordinator: Prof Arun G.
- Bionic Design & Additive manufacturing Coordinator: Prof Ravi Guttal

Identified Institute Sponsored Projects (ISP) 2020-21
- KLE Tech Cloud,Coordinator Prof Narayan D. G

Identified Sponsored Research Projects (SRP) 2020-21
- India Heritage in Digital Space-Crowd Sourcing Platform, Coordinator: Prof Uma M
- Digital Poompuhar - Underwater IP and 3D reconstruction, Coordinator: Prof Uma M

Outcomes of IRPs:

Year	# Papers Communicated /Published	# Proof of Concepts	# Prototypes	# of Products	# Patents applied
2018-19	9 Communicated 15 Published	7	5	3	1
2019-20	35 Communicated 39 Published	27	8	3	1
2020-21	16 Communicated 6 Published	1	--	2	1

Details of Sanctioned IRP ISP SRP Projects

Year	Number of Projects	Amount Sanctioned	Amount Utilized	Number of Students working	Number of faculty working
2018-19	6	10.00 L	9.55 L	64	31
2019-20	7+2	20.00 L	6.42 L	44	30
2020-21	6+2	10.5 L	1.27 L	73	50
2021-22	9+3	16.5 L	Ongoing	204	79

II. External Research Funding

Funding Agencies:

S.N	Year	Number of projects	Amount sanctioned in Lakhs	Funding Agency
1.	2018-2019	04	165.00	DST, VGST, UAS
2.	2019-2020	10	149.15	MSME, DASSAULT SYSTEMS, AICTE
3.	2020-2021	08	160.94	IISC Bangalore, SAMSUMG, VGST K-FIST L2, AICTE
	TOTAL	**22**	**475.09**	

Summary of External Funding

Consolidated List of Projects during last 3 Years						
	2018-19		**2019-20**		**2020-21**	
Name of School/Dept	# of projects	# of projects	# of projects	Amount in Lakhs	# of projects	Amount in Lakhs
Civil	--	--	1	7.80	--	--
CSE	--	--			2	103.84
ECE	3	159.00	2	8.76	5	54.1
MECH	--	--	3	98.1	--	--
BT	--	--	1	15.0	1	3.0
Chemistry	1	6.00	1	2.50	--	--
ARE	--	--	2	17.00	--	--
Total	**4**	**165.00**	**10**	**149.16**	**8**	**160.94**

Budget Utilized for Research & Innovation:

	Budget Heads		2018-19		2019-20		2020-21		2020-21
			SA	UA	SA	UA	SA	UA	SA
1	University Sponsored Research								
	1	Capacity Building Projects	36.53	15.62	29.26	16.52	62.45	19.93	44.7
	2	Research Clusters + CoE	47.32	38.91	49.03	43.26	118.4	103.28	126.0
	3	Institutional Research Projects	10	10	20	27.96	10.5	1.27	17.38
	4	Research Group Projects	144.25	129.83	102.75	18.42	58.65	19.33	57.65
	5	Product design & dvp group	6	4.29	21.75	21.54	54.5	42.25	46.05
2	Conference to conduct		10		10	10	10		10
3	Conference to Attend/present		5	8.55	10	1.45	10	5.25	10
4	FDP		5	1.63	5		5	0.65	5
5	Patenting		3	0.91	5		3	0.74	3
6	Incentives		3	1.94	2.5	3.5	3	2.45	3
7	PhD Fees Reimbursement		-	3.08	5	3.34	3	3.33	5
8	Dept R &D, Consumables Miscl., others		12.75	54.42	103.5	41.4	47.47	49.22	127.64
	TOTAL		**282.85**	**269.18**	**363.79**	**187.39**	**385.97**	**248.43**	**455.42**
	TEQIP		**10**	**7.10**	**10**	**33.03**	**10**	**--**	**--**

Commencement of Center of Excellence in 2020-21 :

Center of Excellence Visual Intelligence (CEVI)

One new research facility is created in collaboration with SRIB Bangalore, where students works on Real-world AI & data Engineering Projects. Engineers at Samsung R&D Institute, Bangalore will provide mentorship to students to make them industry-ready.

Samsung, India's largest and most trusted consumer electronics and smartphone brand, has set up a data science lab at KLE Technological University in Karnataka's Hubballi city to strengthen India's innovation ecosystem, build capabilities among students that meet industry needs and promote industry-academia collaboration, furthering Samsung's commitment to its vision of #PoweringDigitalIndia.

The lab, called Samsung Student Ecosystem for Engineered Data (SEED) lab, will see students and faculty at KLE Tech work on joint research projects with engineers at Samsung R&D Institute, Bangalore (SRI-B), which is Samsung's largest R&D facility outside Korea, helping find solutions to real world India-specific problems.

At the SEED lab, students and faculty at KLE will work on advanced technology training as well as joint research collaborations on domains such as data engineering and research in Artificial Intelligence across domains such as camera tech, speech and text recognition, and Machine Learning, making students industry-ready.

Collaborative research projects will be open to senior B.Tech, M.Tech students and Ph.D. scholars at KLE Tech. These collaborations will enable students in executing data-centric projects, build an End-to-End pipeline for data and carry out data research projects.

Students will also be encouraged to publish papers and file patents jointly with SRI-B engineers.

All students will receive certificates for their contribution at the end of each project from SRI-B.

The lab set up at KLE Tech is spread across over 3,000 sq ft and is equipped with facilities such as a special dark room with lighting equipment to conduct experiments on multimedia in varied lighting conditions, devices and accessories, image quality analysis tools, among others. It also has back-end infrastructure to store, process and archive large volumes of data.

Samsung already works with students across top engineering colleges in Karnataka on research and development projects on areas such as AI, ML, Internet of Things & Connected Devices and 5G networks, as part of the Samsung PRISM program. This program has seen success over the last two years, with students successfully executing several real-world projects and also filing joint patents with SRI-B engineers.

Entrepreneurship

Centre for Technology Innovation and Entrepreneurship (CTIE):

With focus on experiential learning and project-based learning in today's era, the entrepreneurial wing of KLE Technological University, contributes by giving essential skills required for an engineer to excel well in his life. With its various programs and events run across the year, it adds significant value in uplifting the creativity quotient of budding engineers and inclines them to being entrepreneurial. Each of the activity conducted under CTIE springs a concept of innovation. This further lays a foundation of entrepreneurial mindset in students, encouraging them to take up journey of entrepreneurship. This contributes to local ecosystem by retaining the talent and improving the knowledge skills of semi – urban cities.

CTIE attracts a lot of local entrepreneurs, alumni entrepreneurs, student entrepreneurs and industry experienced veterans who wish to start something of their own. This is due to gamut of service that it offers to budding start-ups.

- Electronics Enabling Lab (EEL) – housing RF Testing Equipment and Anechoic Chamber for rapid prototyping and testing
- Idea to Prototype ESDM Lab to support ESDM Startups and contribute to build region as ESDM Cluster
- Maker's Space, Tinkering Lab and lab facilities at various departments.
- Access to skilled student pool who come on board to deliver real time projects by way of internship and minor projects.
- Experienced mentors, who handhold the start-ups in various technical and non – technical areas and upskill them.
- Access to funding opportunities by connecting to right investors

CTIE has following to claim.
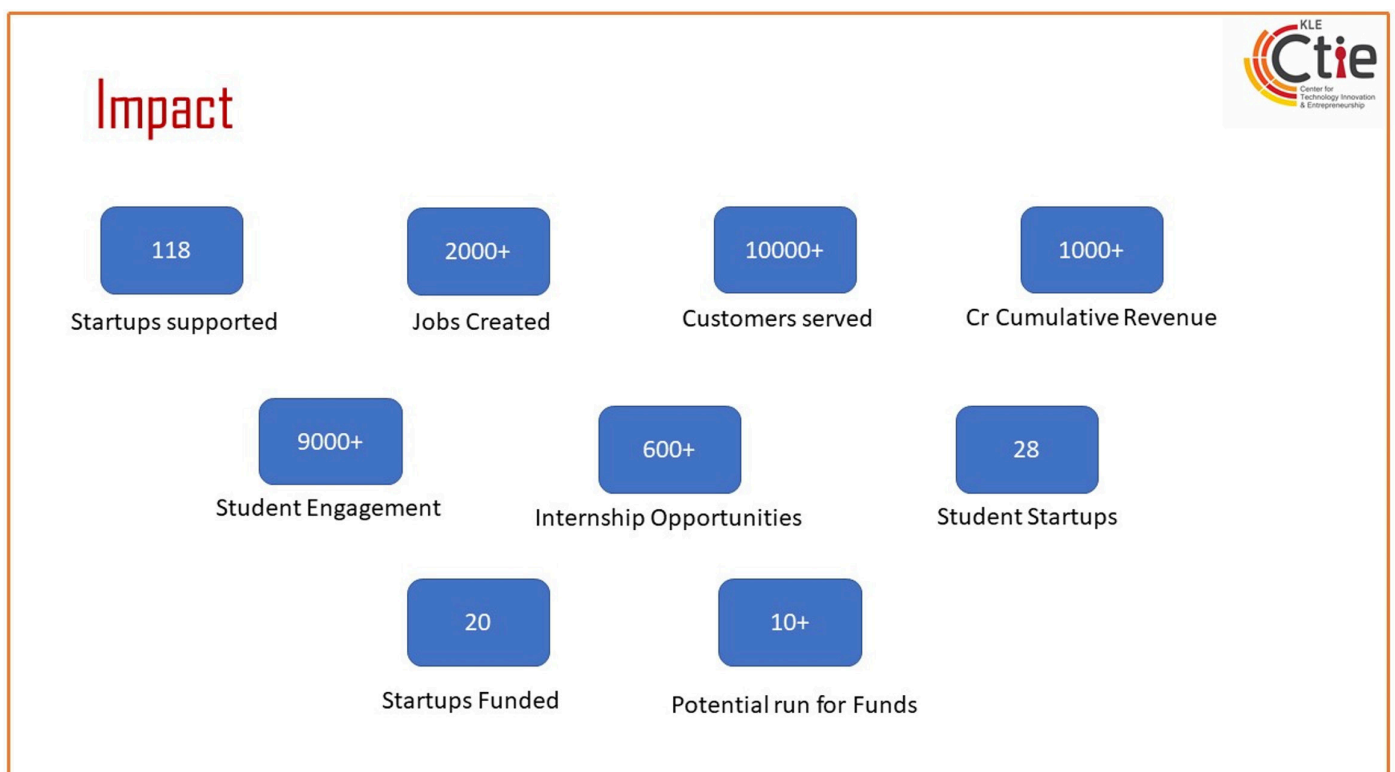
Online ARIIA Result Announcement – 18th August 2020

Atal Ranking of Institutions on Innovation Achievements (ARIIA) results for data submitted in March 2020, was announced. KLE Technological University was recognized as a Band A Institute (rank between 6 - 25) in category of 'University and Deemed to be University (Private Self-Financed)'.

MEITY TIDE 2.0 1 Grant & 4 EiR Application Review – 27th August 2020

A total of five emerging entrepreneurs had applied for funding under TIDE 2.0. They werereviewed by the TIDE review committee comprising of invited members Mr. Vijay Mane,

Serial Entrepreneur and Mr. Jagadish Hiremath from Able Design Engineering. Four of the EiR contestants were student teams willing to pursue their idea for suitable entrepreneurial venture. The panellist encouraged student teams to hit it big as they had very promising ideas.

Institute Innovation Council (IIC) result announcement for academic year 2019 – 2020

The IIC result for last academic year was announced online by IIC Council, MoE. KLE Technological University was awarded as a 5 – Star Institute under the program. Also, KLE Technological University stood first in the SWRO region (South – Western Region) of segregation of institutes. It was a great recognition for the institution.

HEX Launch – 2nd December 2020

The Hubli ESDM eXchange (HEX) was officially launched on 2nd December 2020 by an eminent panel, consisting of MD, KITS, Ms. Meena Nagaraj, IESA EC Chairman – Dr. Satya Gupta, VC, KLE Technological University – Dr. Ashok Shettar and other ecosystem partners. The launch was followed by a Panel Discussion moderated by Dr. Satya Gupta, having Hubli based ESDM & VLSI Startups. The launch event saw participation from industry, academia, startups from the region and outside. Post the launch, announcement of New Cohort to join the HEX Program was made.
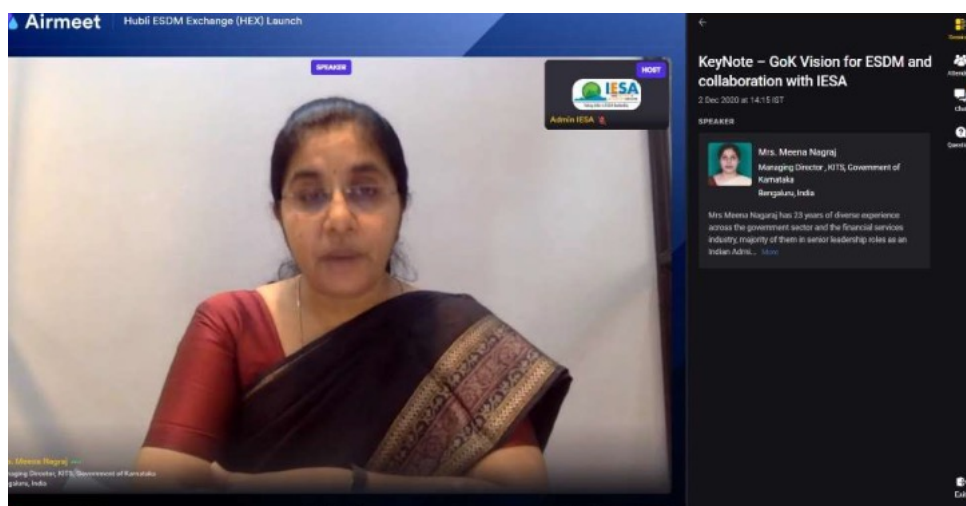
KLE – CTIE awarded with NIDHI – Seed Support Scheme by NSTEDB, DST

KLE – CTIE was recognized as one of the centers to disburse NIDHI Seed Support Scheme to startups. A total of Rs. 5.25Cr was sanctioned of which Rs. 2.1Cr was received. The center started promoting the same and invited startups to apply for the program.


Review of Idea – Buildathon – 8th January 2021

MiB – Make in BVB, the student front of KLE – CTIE, conducted Idea Buildathon, an event focusing on students to showcase the product they wish to build and the impact it could have on end customer. The event was reviewed and evaluated by Dr. Nitin Kulkarni, Director, KLE – CTIE. A total of 20 student teams participated in the event. The students were further asked to build prototypes for the product they pitched and present in the next review. The event took place online using Google Meets platform.

National Innovation and Startup Policy (NISP) Workshop – 16th January 2021

The webinar was hosted by NISP committee and KLE – CTIE of the university. Dr Ravi Guttal, Director, CIPD, KLE Tech University and Dr. Nitin Kulkarni, Director, KLE – CTIE, KLE Tech University were the invited speakers at the webinar. The workshop was focused to communicate the NISP policy and how it can be used to the advantage of faculty and students

at the university.
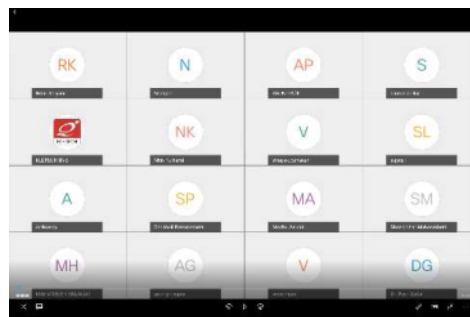
MeitY TIDE 2.0 Application Review – 27th January 2021
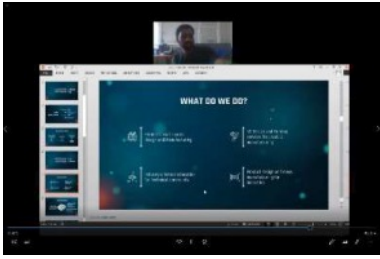
Seven startups were reviewed for funding under TIDE 2.0 funding by MeitY. The startups were reviewed by review committee consisting of Dr. Anant Koppar, Mr. Vinay Koneja and Mr. Anand Kadakol. The startups were questioned appropriately and decision on funding was made. The funding would help startups to build products and take it to market.

HEX Cohort Application Review- 5th March 2021

Six startups had applied for first cohort at HEX. The startups were reviewed by Project Evaluation and Operation Committee (PEOC) cum Startup Selection Committee (SSC) of HEX comprising of representatives from industry and academia. Each of the startup were reviewed on their Business Model and how best they can be supported under this program. Each reviewer questioned startup aggressively and gave their decision on incubating the startup.

A webinar on Opportunities for ESDM Startups – 23rd March 2021

A webinar on Opportunities for ESDM Startups was held with speakers, Ms. Uma Rani, Assistant General Manager, KITS, GoK, Mr. Sandeep Aurora, VP, Business Development and Government Affairs, IESA and Mr. ShriKrishna Joshi, Director, ESDM Product Development Centre (EPIC), KLE Technological University. The panel discussed how startups in ESDM domain can build successful businesses and the support system that is available for them both at Central level and at State level. Ms. Uma Rani, emphasized all the initiatives of KITS, GoK and how these initiatives can help startups registered in Karnataka. The session was very informative and startups appreciated the way information was shared.
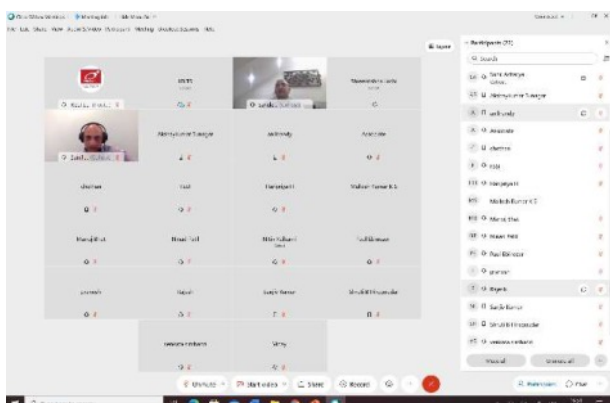
Review of funding proposals under NIDHI – SSS – 21st May 2021

Eight startups had applied for review under NIDHI – SSS for funding. The funding under NIDHI – SSS is provided for productization and scale up. The SSMC established under NIDHI, reviewed each startup application and provided evaluation on scope and quantum of funding. Three startups were choosen to fund by the committee. The startups are Physics Motors Technology Private Limited, Astr Defence Private Limited and EiNet Crop Private Limited.

Idea to Prototype ESDM Lab Installation and commissioning – 6th & 7th July 2021

The Idea to Prototype Lab equipments had arrived and vendor was available to commission the lab and train the startups and lab staff to use and maintain the lab. Over 20 representatives from different startups attended the training session and went through in detail the operation of various material purchased.

Innovation & Entrepreneurship Week Celebration – 21st July to 30th July 2021

The Innovation & Entrepreneurship Week was planned as part of organizing the IIC activities planned for the semester. Eight Events across eight days with eight plus speakers were planned and executed successfully. The events were organized on online mode due to COVID. The participation from students was encouraging and the speakers addressed a lot of one on one query of the students.

CIPD - Centre for Innovation & Product Development

Over Arching Philosophy of CIPD

KLE Tech Centre for Innovation & Product Development
[KLE Tech - CIPD]
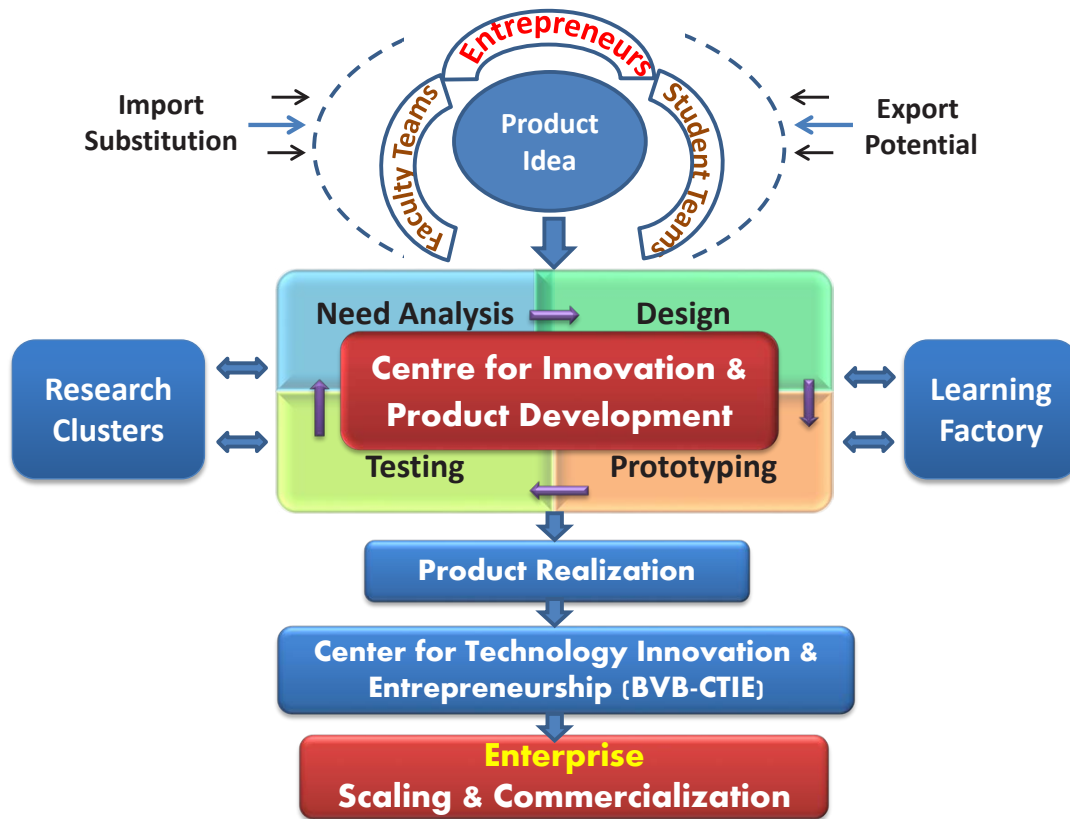
Our motto is to develop socially relevant innovations into world class products; We partner with entrepreneurs to take these products to the market. We focus on indigenous / traditional knowledge technologies, green technologies and technologies that help physically challenged members of the society. Our endeavor shall support "Make in India" and "Atmanirbhar Bharat" vision for India as a country in a small way. We hope to create an ecosystem for innovation to product journey for all inventors.

KLE Tech. Univ. has established Innovation & Entrepreneurship Ecosystem which has two centers

CTIE – Centre for Technology Innovation and Entrepreneurship

CIPD – Centre for Innovation and Product Development

CTIE is a benchmark in incubation ecosystem for Tier II cities in India and has become a harbinger for startup culture in North Karnataka

CIPD supports startups, entrepreneurs, innovators and MSMEs to realize their "Idea to Product" goals

a)   MoU or MoA with industry/clusters/associations

- MoU with industry – 45+
- MoU with clusters – 1 (Hubballi Valve Manufacturing cluster)
- MoU with associations – IESA – Indian Electronic Systems Association

b)   Patent awareness (Centre/Cell)

- IP Facilitation Cell funded by Department of MSME – Govt. of India
- Has been functioning since 2020 and has filed 30+ trademarks,
- Facilitated filing of 15+ patents for MSMEs and KLE Tech. Univ.

c)   Availability of proof of concepts

- **Details about PoCs –**

  i.   Device and Chair for elderly/physically challenged to treat piles with warm medicated water – In process of applying for design registration

  ii.   Traffic Suraksha - Smart system to manage traffic and deterrent for traffic rule violations - design registration granted

  iii. Biodegradable Plastic substitute with organic fillers – Patent filed

  iv.   Frugal solar Incinerator for incinerating sanitary pads – Had come as a request from municipal waste management organization

  v.   Household oil adulteration detector a device to identify adulterated edible home at home using AI-ML technologies – Patent application in process

  vi.   Bio-composite – a biodegradable (green) substitute for high strength plastics used in automotive and durable goods industry – patent application in process

  vii. Vision – Aid for visually impaired - patent published

  viii. Smart Katti Basti – Technology Intervention for Katti Basti Ayurveda treatment – patent application in process

d)   Ready prototypes

  i.   Low density biomass shredding machine – Design registration granted – Technology transferred to Beam Laser Engineering Pvt. Ltd. In 2020

  ii.   Medhya – Domestic Oil extraction machine completed indigenized a truly Make in India product – Technology transfer activities in process

  iii. Indian Automated Beehive – Patent Published – Technology developed for Farmers First LLP, technology transfer process initiated

  iv.   Smart Campus eco-system – Systems installed in 6 buildings within the campus. Commercial deployment by a consortium of startups in progress.

  v.   Saathi – Foldable walker cum chair – Patent published, product developed by student entrepreneurs during their course work. Technology ready for transfer

  Details of products/prototypes/PoCs in Annexure – I

e) IP holding -

- Utility patents – 18
- Design registrations – 4

f) Incubator activity

- Pioneer in incubation for startups in Tier II cities of India
- 10+ years of incubation experience
- 80+ startups incubated, 4 graduated with 500+ crore valuation
- Currently 38 startups on-board; Three companies with 50+ crore evaluation
- Funded by DST - NIDDHI, MEITY - TIDE, KITS, MSME – BI
- KLE Tech. Innovation and Entrepreneurship Ecosystem attracts a lot of local entrepreneurs, alumni entrepreneurs, student entrepreneurs and industry experienced veterans who wish to start something of their own. This is due to gamut of service that it offers to budding start-ups.

    i. Electronics Enabling Lab (EEL) – housing RF Testing Equipment and Anechoic Chamber for rapid prototyping and testing

    ii. Idea to Prototype ESDM Lab to support ESDM Startups and contribute to build region as ESDM Cluster

    iii. Maker's Space, Tinkering Lab and lab facilities at various departments.

    iv. Access to skilled student pool who come on board to deliver real time projects by way of internship and minor projects.

    v. Experienced mentors, who handhold the start-ups in various technical and non – technical areas and upskill them.

    vi. Access to funding opportunities by connecting to right investors

    g. KLE Tech. CTIE has student exchange program with University of Massachusetts, Lowell for past 5 years

BAHUBALI MP2S
SHREDDING MACHINE

CIPD

Special Features

- Locally available parts.
- Low maintenance.
- Easy replacement of parts.
- High efficiency and consistent results.
- Versatile with applications.
- 144 Cutting operation per revolution.

Model: MP2S- Electric Motor Driven

Technical Specifications

Model: MP2S- Electric Motor Driven	
Overall Dimensions	6'X5'X7'
Number of blades	126 (R) + 68 (S)
Weight (without motor)	620kg
Motor type	3 Phase, 6 Pole
Motor Power (HP)	5/10/15/20/25

Model: MP2T- Tractor Driven	
Overall Dimensions	6'X5'X7'
Number of blades	126 (R) + 68 (S)
Weight	620kg
Tractor Power (HP)	Above 15

Description:

- Shredding machine is used to shred agricultural, domestic and industrial waste.
- Machine delivers shredded material of uniform size with consistency.
- Uniqueness of machine is that large number of shear blades, which ensure increased efficiency.

Designed by:
Centre of Innovation and Product Development
KLE Technological University
Vidyanagar, Hubballi 580031
Phone: 9901637033
9591880967

Manufactured by:
Beam Laser Engg India Pvt. Ltd
Bellur Industrial area,
Dharwad 580011
Phone:9343407184
9343669750

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Technology Intervention to Traditional Methods

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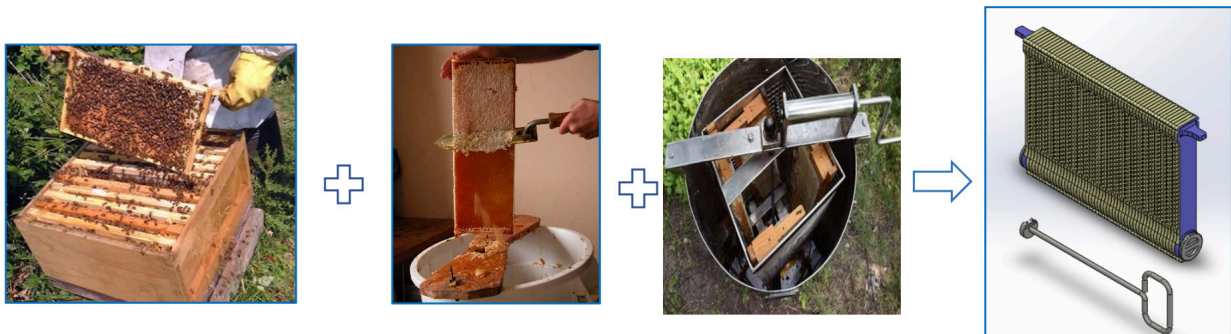
Indian Artificial Beehive (IAB)

- Honeybees convert nectar collected from flowers into Honey and are harvested using Bee boxes.

- Honey collection from bee boxes is labor intensive and hurts honey bees and their nest.

- To reduce labor intensity and to collect honey without hurting honey bees or beehive, we have designed Indian Artificial Beehive: IAB

- Unique Selling Point of our product: First of its kind for Indian Bees: A. Cerena Indica

- Current Status of Project: Prototype Development is in Progress.
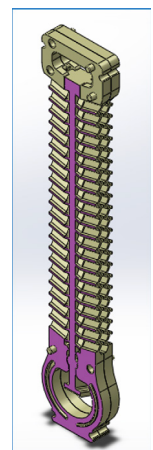
Unique Features and Specifications

- Non-Violence (Ahimsa) method of honey collection.
- Rear side interaction with bee box and hence no hurt to honeybees.
- Only central portion moves up/down and hence no hurt to beehive.
- Lesser time for honey collection (Approx. 30 min per box).
- Does not require additional instruments like centrifuge, etc.
- Designed as per IS 1515 (2013): Type A, 8 Frames & 7mm Bee Space.
- Enhanced Protection against Ants & Monkeys.
- Box Dimension (LWH) : 216 X 30 X 165 (single frame)
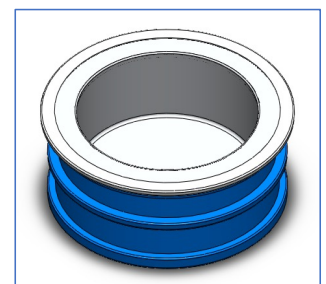- Capacity (Approx.)   : 0.3 kg per frame.

Milestones Achieved

Patent Published
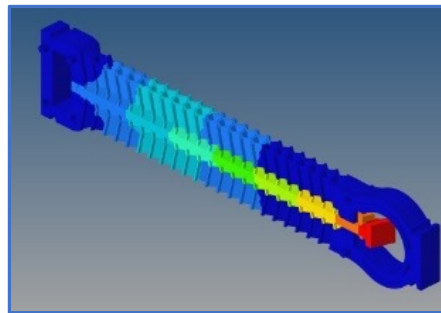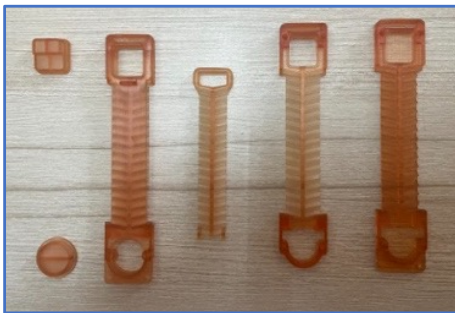
Innovative Kati Basti (IKB)

Is an Ayurvedic Panchakarma therapy used for the treatment of lower and upper back pain.
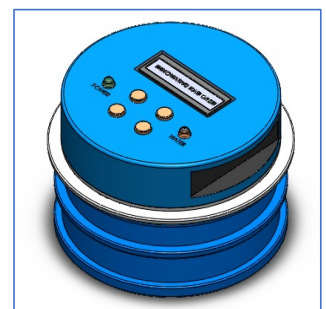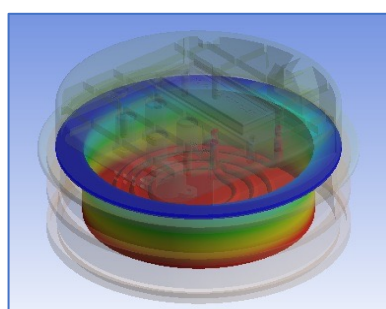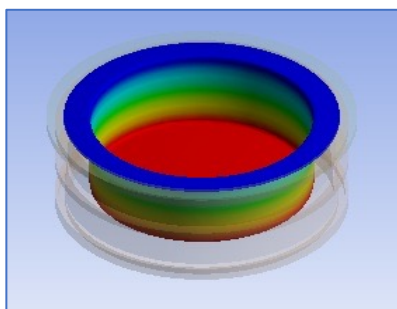
- **Kati Basti Benefits -**
  - o   Relieves the pain and inflammation.
  - o   Promotes better blood circulation.
  - o   Improves muscle flexibility and joint mobility.

- **Preparation of Kati Basti setup requires -**
  - o   Around 30 minutes setup time.
  - o   Efforts to maintain temperature of oil.

- **Innovative Kati Basti**
  - o   Reduces setup time.
  - o   Maintains constant oil temperature.
  - o   First of its kind.
  - o   Design is ready for Prototyping.

Unique Features and Specifications

- Monitors the optimum temperature of oil as defined through UI.
- Provides Safety against overheating.
- Box Dimension (LWH)   : 180 X 180 X 106 (in mm)
- Kati Basti therapy duration   : 45 minutes to 1 hour.
- Operating Temperature   : 42 To 45^{0}C

Milestones Achieved

- Completion of IKB V1 design and thermal analysis.
- Completion of IKB V2 design and thermal analysis.
- Patent Application is filed.

Medhya: An Oil Extraction Machine

- Edible oil adulteration leads to health issues like liver damage, allergy, paralysis, cancer, etc.

- Identifying adulteration does not solve the problem.

- A domestic Oil Extraction Machine is the solution.

- Oil Extraction machines are imported from China.

- To Provide Import Substitution, we have indigenously designed and developed the Oil Extraction Machine: Medhya.

- Unique Selling Point of our product: Smart Machine.

- Current Status of Project: Functional Prototype is ready.
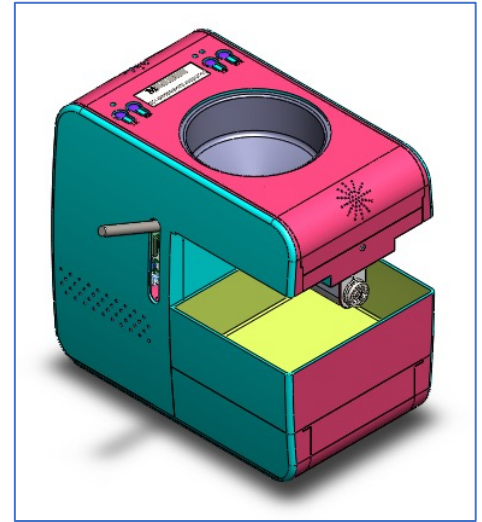
Unique Features and Specifications

- It senses input seeds, output oil quantity and presence of oil container.

- Alerts user for any operational mistakes and takes preventive action to safeguard the machine and material.

- Box Dimension (LWH) : 235 X 185 X 280 (in mm)

- Crushing Capacity   : 1 kg of oil Seeds in 30 minutes.

- Output (Groundnut)   : 400ml of Oil + 500 gm of Seed Cake + 50gm of Pulp Per 1 kg of Raw material.

Milestones Achieved (In images)
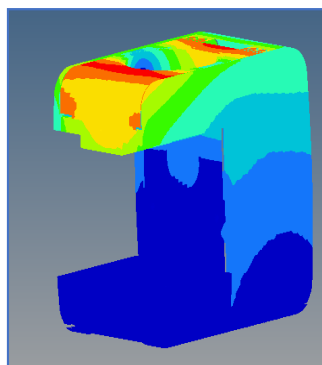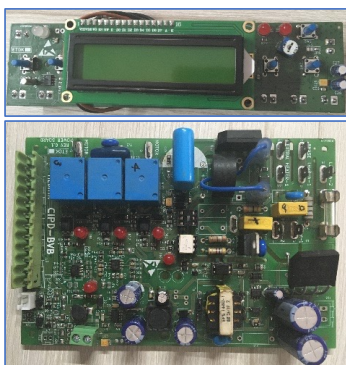
MakerSpace

The 'MakerSpace' is a central facility created to promote product development and realization eco-system on the campus. It intends to provide students with unique learning experiences on real industry problems and products in a work-emulating environment. It helps them understand industry needs, professional requirements and the product realization process. The MakerSpace provides modern design, prototyping, and manufacturing facilities required for realization of any electro-mechanical product. It also provides expert supervision and training to use the facilities.

The MakerSpace is administered by the University as a resource for all engineering departments. Facilities, with an investment of about 3.0 crores of rupees, occupying 10,000 square feet, include a machine shop (4000sq. ft), model shop (2000sq.ft) and project work area (4000sq.ft). Engineering student can use the MakerSpace for concept design & realization, course-related activity and/or competition projects such as SAE Formula, SAE- BAJA, SAE- ecokart, SAE-Efficycle, ROBOCON, etc. The shop is open 8 am-8 pm weekdays and on weekends as needed.
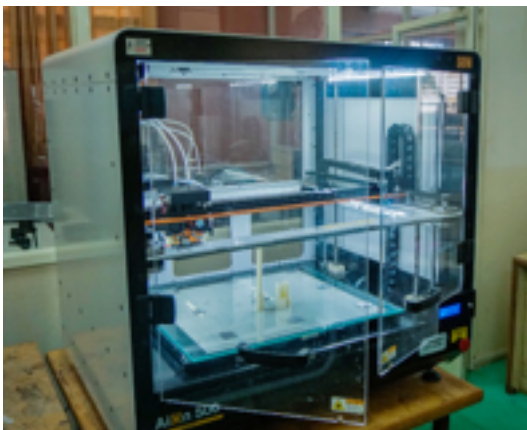

Students

Faculty

Industry
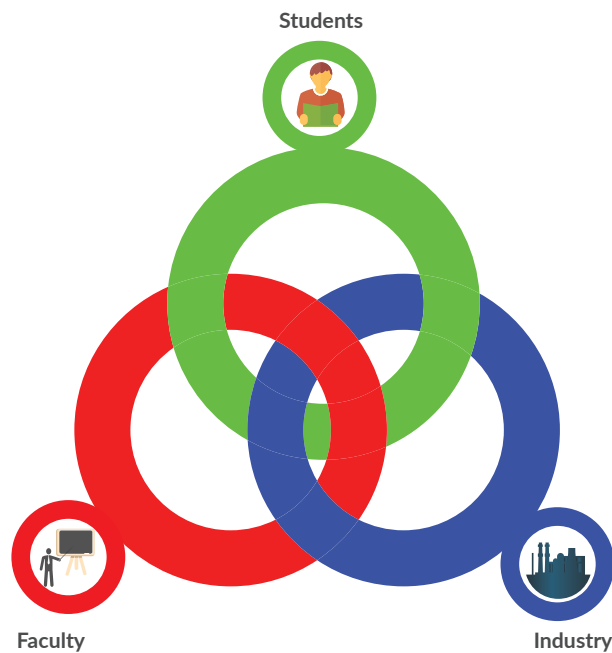
MakerSpace

MakerSpace – Added with more facilities

DMG-MORI 600V Vertical Milling Machine

It is a state-of-the-art machine extensively used by aerospace parts manufacturers. Students will gain exposure on machining aerospace parts on this same machine.

AION-500 3D Printing Machine

Another addition to existing 3D Printers' family with a capability to print bigger parts i.e. 500mmx500mmx500mm

12 Station Assembly Arena with Power Tools

Student teams can assemble a product/prototype without having to roam around for tools.

Industry Partnership

It is essential that the institute continues to strengthen its association with the industries to enhance its student learning experience and relevance of its research activities.

Curriculum intervention:

Board of studies of every program is having at least two senior members from Industries like Microsoft, GE, Tata motors, TCS, Samsung, Sankalp etc.

Industry Oriented Courses:

Fundamentals of Gas Turbines:

Has been offered for the Mechanical stream departments in collaboration with Quest Global (now Aequs).

Active Directory Services: Has been offered in Collaboration with Microsoft IGTSC for the students of CSE, ISE and EC branches.

Fundamentals of IT: Has been offered by the Mechanical stream departments in collaboration with Infosys.

Automotive Electronics: Has been offered in Collaboration with Robert Bosch and KPIT. This has led to increased placements for the companies in the field of automotive electronics in Bosch, KPIT and Continental.

Manufacturing technology: Has been offered for the Mechanical stream departments in collaboration with Aequs.

Data Integration and Cloud Services: Has been offered for the Computing sciences stream departments in collaboration with Informatica

Industry based projects:

Around 160 capstone projects/senior design projects have been carried out in collaboration with Industries like Microsoft, Juniper Networks, Sankalp, Ion Idea, Hi- WI etc. along with startup companies

MOU's:

Mou's have been signed with:
1. Informatica
2. KLEs Dr. Prabhakar Hospital & MRC
3. Pequreel Microelectronics Ltd.
4. University of Agricultural Sciences
5. Karnataka Cancer Therapy & Research Institute

Toycathon 2021

K L E Technological University hosted Toycathon 2021 grand finale, which has been identified as Nodal center by the Ministry of Education's innovation cell (MIC)/AICTE, to promote indigenous toy industry, stressing upon prime minister Narendra Modi's 'Vocal for Local', in toy industry. Around 9 teams from different parts of India participated in the event.

Samsung Codethon:

A Codethon was conducted in association with Samsung R&D, Bengaluru and code chef.

Internships:

454 students were offered full time Internship by various Industries like Microsoft, Bosch, Infosys, Amazon, Samsung, Cypress Semiconductors, Informatica, Juniper Networks, Mercedes Benz R& D, Siemens Healthcare, Volvo, SAP Labs, Sankalp, INS-Zoom, Salarpuria, Sattava Group Bangalore, HAL, JSW steels etc. with stipend ranging from Rs 5000 to Rs 30000 per month.

Education Research

Centre for Engineering Education Research (CEER)

About CEER:

KLE Tech is playing the vital role of creating engineering education system offering opportunities for students to realise their potential and prepare themselves for a professional career. This includes designing industry-relevant curriculum, practising active, collaborative and experiential learning pedagogies and assessment and evaluation. Today KLE Tech is recognised for innovations in this space. Need to learn from these innovations and sustain them resulted in establishing Centre for Engineering Education Research (CEER). CEER was established in 2010 to promote innovations in engineering education, learn from these innovations, collect best practices and institutionalise them.

> Vision: To promote innovation and research in Engineering Education to bring about a qualitative change in students' learning experience.

CEER works with the following objectives:

1. Empower faculty members with the best practices in curriculum design, teaching-learning and assessment through training, workshop and allied activities

2. Encouraging innovation in curriculum design, teaching-learning and assessment

3. Influence faculty mindsets to recognise the importance of research-driven instructional practices

4. Design and offer innovative courses and programs

5. Identify and build strategic global partnerships and collaborations to elevate our research capabilities and those of the wider engineering education community

6. Conduct outreach activities like workshops, trainings and conferences.

The processes and practices towards accomplishing these objectives have made significant contributions to enriching the engineering education ecosystems of the University. The number of engineering education research publications is growing steadily since the last five years. CEER has earned a respectable position among the practitioners of engineering education. A good number of Engineering Colleges in India have taken inspiration and have set up such centres in their respective Institutions taking best practices and courses from CEER

FACULTY DEVELOPMENT PROGRAM ON "KLE TECH MODEL FOR BLENDED LEARNING"

The Centre for Engineering Education Research conducted a three-day online program for the faculty of KLE Tech to disseminate the principles and practise of creating a blended learning environment. The training focused on What is blended learning? About KLE Tech's Blended learning model, how to create content for online learning and operational aspects of creating a blended learning environment. The resources persons were Dr Gopalkrishna Joshi, Ms Preethi Baligar, Mr Sanjeev Kavale and Mr Kaushik M. The session was conducted through M.S. Teams. The first workshop was conducted on July 9-11, 2020, second workshop was conducted on 13-15 July 2020 and the third workshop on July 16-18, 2020. All the faculty of KLE Tech members participated in the training programme.
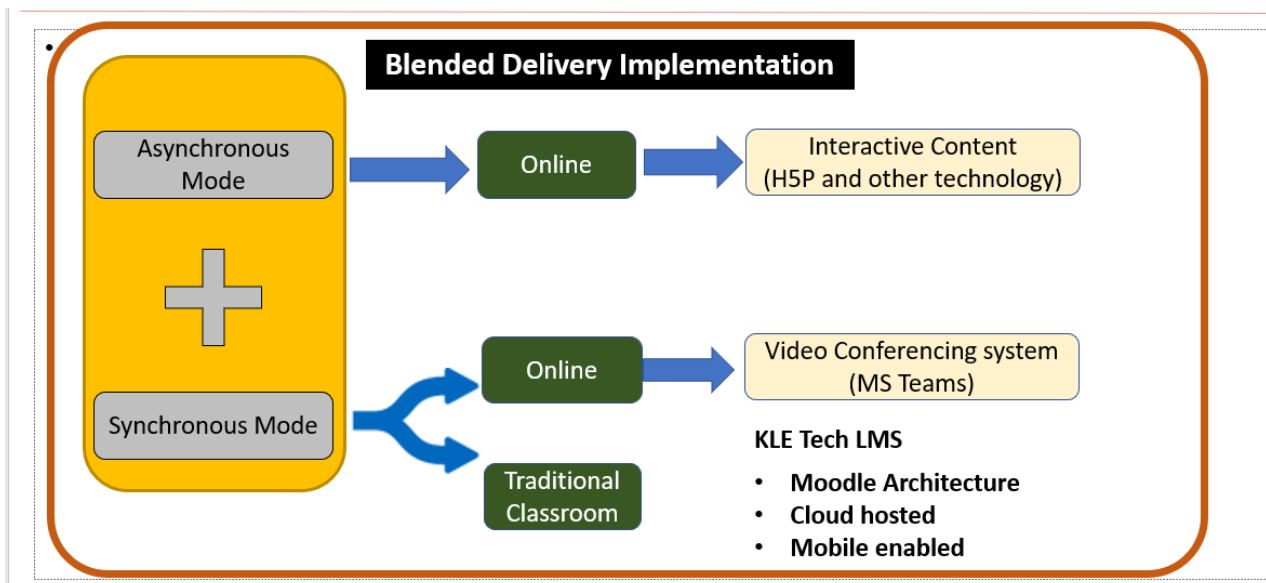
PRAYOG VASANT- JULY 2020

Prayog Vasant is an exhibition conducted in the last week of the spring semester, and it serves as a platform for peer learning and celebration of students' success. Prayog Vasant was conducted during July 09-10, 2020. This exhibition showcased 171-course projects done by 700+ first-year undergraduate engineering students during the lockdown period. The exhibition allowed the visitors to virtually see the projects and interact with the students' teams and their mentors in a virtual mode. A total of 1550 visitors from different locations visited the exhibition
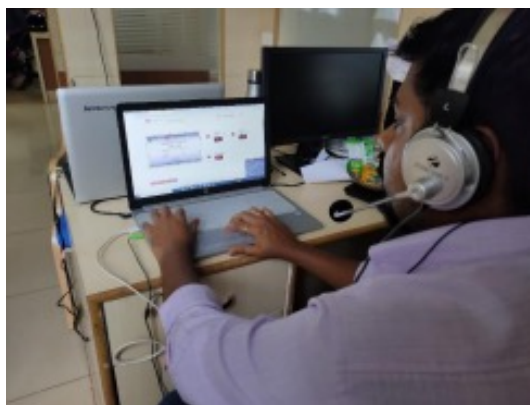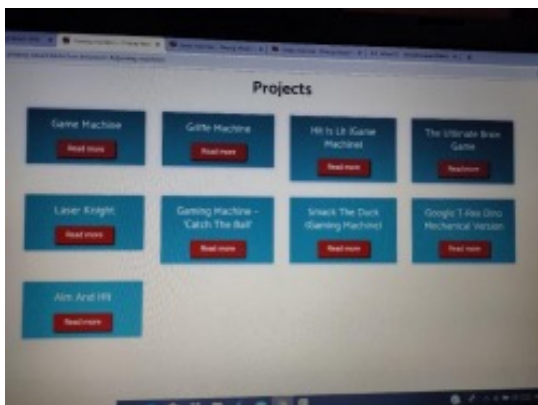
LMS ORIENTATION TO THE FACULTY OF KLETECH

On Nov 23, 2020, CEER conducted orientation session for orienting a group of faculty members on LMS. Ms. Radhika Amashi conducted the training program. During this training, program faculty were trained on how to upload the course content on LMS. Faculty members from Chemistry, Physics, Architecture and Civil Department attended this training.

LMS ORIENTATION TO FIRST-YEAR STUDENTS

On December 17, 2020 and December 19, 2020, the LMS Orientation program was scheduled during the Induction program for first-year students (2020 Batch). Centre for Engineering Education Research (CEER) conducted the first "Introduction to Blended Learning" session. Dr Vijayalakshmi M and Ms Unnati Koppikar led the session. There were around 260 students who attended this session virtually through Cisco WebX. The second session was led by Ms. Jyoti Gadad and Mr.Vinay Talgeri from CEER. The session was based on "Engineering Ethics".

ENGINEERING EXPLORATION AND BLENDED LEARNING WORKSHOP FOR DR. M. S. SHESHGIRI COLLEGE OF ENGINEERING AND TECHNOLOGY

The Centre for Engineering Education Research conducted a one-day in-person program for the faculty of KLE Society's Dr M. S. Sheshgiri College of Engineering and Technology on January 29, 2021. The aim was to disseminate the principles and practise of creating a Blended Learning environment. The resource persons for the training are Dr Vijaylakshmi M, Ms Preethi Baligar, Mr Sanjeev Kavale, Ms Radhika Amashi, Ms Unnati Koppikar and Prof. Shashidhar Kubsad.

SUSTAINABLE DEVELOPMENT WORKSHOP

The Centre for Engineering Education Research conducted a two-day online program for the students of KG Reddy College of Engineering on February 12, 2021 and February 19, 2021. The aim was to bring in sustainable development awareness at the first year of engineering. The training focuses on the following:

1. What is sustainable development?

2. Role of Engineers in Sustainable Development.

3. Different techniques to access the sustainability of the engineered product.

The resource person for the training was Mrs. Radhika Amashi

PRAYOG VASANT- 2021 – APRIL 2021

Center for Engineering Education Research (CEER), KLE Technological University, Hubballi organized Prayog Vasant 2021 on 26th April 2021, an exhibition of Engineering Exploration course projects done by first-year B.E students. Showcasing the efforts put in by 400+ students in designing 91 projects and their corresponding learning during these challenging times of the COVID pandemic. We are happy to share that the event was inaugurated by Dr Vasudev Kalkunte Aatre, former head of DRDO and a recipient of the Padma Vibhushan award, the event was presided by honourable vice chancellor Dr. Ashok Shettar , KLE Technological University.

WEBINAR ON IMPLEMENTATION OF NATIONAL EDUCATION POLICY (NEP) 2020

Webinar on "Implementation of National Education Policy (NEP) 2020" was conducted on April 10, 2021, from 10:30 AM to 1:30 PM. The event was organized by the Centre for Engineering Education Research (CEER), KLE Technological University. The resource persons for the session were Dr. Ashok Shettar, vice-chancellor, KLE Technological University Hubballi, and Dr. Prakash G Tewari, Dean Academics, KLE Technological University Hubballi. More than 350 participants from four different colleges had registered and attended the webinar.
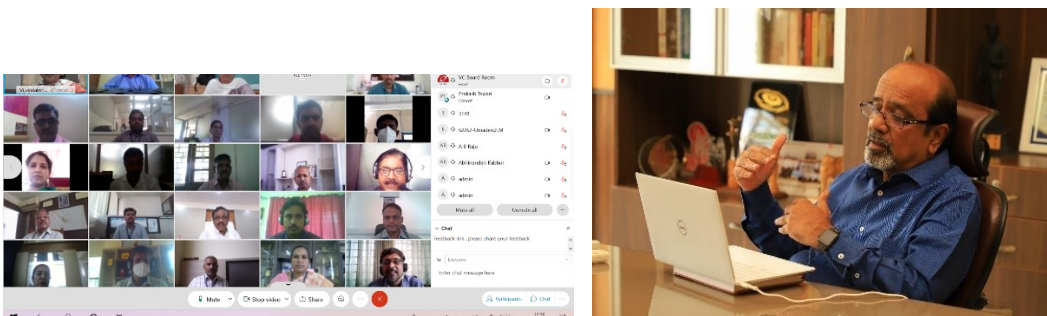
RRSPBL 2021- JUNE 2021

The RRSPBL 2021 event had been organized by Karnataka State Higher Education Council, Bengaluru (India), in Collaboration with Aalborg Centre for Problem Based Learning in Engineering Science and Sustainability under the auspices of UNESCO, Aalborg University, DENMARK. The event was held on June 18-19, 2021. The objective of RRSPBL 2021 is to bring together academicians, researchers, and practitioners in India and connect them to global experts in PBL to deliberate on the current state of PBL practices in India. KLE Technological University was one of the sponsors. The event included keynote sessions and workshops. In RRSPBL-2021 we had 623 participants from 14 states across India, more than 100 institutes had participated in workshops and key-notes. There were 8 workshops in RRSPBL-2021.

LMS TRAINING FOR FACULTY OF KLE TECH- JULY-AUG 2021

The Centre for Engineering Education Research conducted a two days' workshop for all faculty of KLE Technological University on July 31, 2021 and August 2, 2021. The aim was to make all faculty aware of new features developed on KLE Tech LMS and prepare the LMS for the odd semester of 2021-2020. The training focused on the course creation and some features to handle and organize course content. The resource persons for the training are Dr. Vijayalakshmi M, Mr. Sanjeev Kavale, Mrs. Unnati Koppikar and Mrs. Radhika Amashi.

PRAYOG VARSH 2021

Center for Engineering Education Research (CEER), KLE Technological University, Hubballi organized Prayog Varsh 2021 on August 7th 2021, an exhibition of Engineering Exploration course projects done by first-year B.E students. Showcasing the efforts put in by 750+ students in designing 185 projects and their corresponding learning during these challenging times of the COVID pandemic. We are happy to share that the event was inaugurated by Dr. Ashok Shettar – Vice Chancellor, KLETech. Dr. Gopalkrishna Joshi, Executive Director, KSHEC and Mr. Mahadesha V, Program Director, CeG graced the event.

BEST PAPER AWARD- ICTIEE 2021

Ms. Madhu Asundi won the best paper award in the category of First year Engineering. She presented the paper on "Impact of Modeling and Simulation in Solving Complex Problems at First Year Engineering" at 8th International Conference on Transformations in Engineering Education 2021 hosted by IUCEE.

IT Platforms and Services

The present IT Infrastructure of KLE Tech caters to modern engineering days needs and challenges. The network infrastructure is upgraded from copper to OFC which is a backbone for the entire University campus

Major highlights of our IT Infrastructure are

- Campus back bone is of OFC (Ring structure) with 10Gbps capacity

- Department Internal LAN is 1Gbps.

- Number of nodes in Campus are 2600 plus (Desktops).

- With 8 VLANs / sub nets and internal LAN with different topologies.

- Internet bandwidth is 860 Mbps leased line (The service provider is BSNL, TATA and AIRTEL).

- 95 wireless access points across campus and 125 across hostels. (with SSID KLE _Tech)

- More than 48 servers and 23 Workstation are being catered to academic and research needs of faculties and students.

- DGX-1 super computer is provided for research activities.

- Firewall, AAA Server, Access point controller unit which can withstand 30 lakh concurrent sessions with highly secured network. (Viz. SophosXG-450, Aruba Controller etc...)

- Every single machine in the campus is connected with internet facility.

- Every single classroom and laboratories in campus are well equipped with audio visual facilities.

- Video conferencing and teleconferencing tools are provided at seminar halls. (Cisco WebEx with 70s smart board and Polycom)

- 12 Well-equipped studio rooms for lecture capturing systems

- Well defined IT policy for smooth procurement, and managing IT infra across campus.

- Telephone & EPABX: Matrix – ETERNITY MENX16SDC Hybrid PBX with Analog Extension – 248, Trunks -8, DKP-1, PRI- 1

- Mat Lab campus wide License for students and staff for academic use.

- Antivirus – Sophos End Point Advance. Intercept X with 2000 Licenses.

- Microsoft Academic Alliance License for Operating systems and Development tools.

Board of Governors

Name	Designation
Dr. Prabhakar B. Kore Chairman, Board of Management KLE Society, Belagavi and Chancellor, KLE Technological University, Hubballi	Chairperson
Prof. Ashok S. Shettar Vice Chancellor, KLE Technological University, Hubballi	Member
The Principal Secretary/Secretary Higher Education,Government of Karnataka.	Member
The Principal Secretary/Secretary Medical Education, Government of Karnataka.	Member
Prof. M. I. Savadatti State Government Nominee	Member
Prof. R. Natarajan Nominee of sponsoring body, KLE Society, Belagavi.	Member
Dr. Sudha N. Murty Nominee of sponsoring body, KLE Society, Belagavi.	Member
Prof. P. G. Tewari Dean Academic Affairs, KLE Technological University, Hubballi	Member
Prof. B. L . Desai Executive Dean, KLE Technological University, Hubballi	Member
Dr. N. H. Ayachit Registrar, KLE Technological University, Hubballi	Member Secretary

Award & Recognitions

Rajyotsava Award: We are pleased to communicate that our honourable Vice Chancellor Dr.Ashok S. Shettar has been felicitated with Karnataka Rajyotsava Award in the field of education, for his unlimited dedicated efforts along with his BVB team, in raising the BVB College of Engineering & Technology to the present level of KLE Technological University which has been Internationally recognised for its quality Engineering education.

ARIIA 2020 Award: Atal Ranking of Institutions on Innovation Achievements (ARIIA) is an initiative of Ministry of Education (MoE), Govt. of India to systematically rank all major higher educational institutions and universities in India on indicators related to "Innovation and Entrepreneurship Development" amongst students and faculties.

During the year 2021 KLE Technological University is in 'Band A' (06-25 ranking) in ARIIA 2020 (Atal Ranking of Institutions Innovation Achievement) ranking from MHRD.

NIRF ranking: The NIRF ranking is improved from 159 in 2019 to 136 in 2020.

PRISM: Samsung PRISM stands for Preparing and Inspiring Student Minds. It is a student program offering students a chance to work on real-world projects, interact with Samsung's top technical experts and provide hands-on experience in core technology domains. 7 teams from KLE Tech University has won excellence award during 2018-19, while 2 teams for the year 2019-20. Currently 29 projects are ongoing in this category.

Financials

Income and Expenditure Statement for the Financial year 2020-21
(Includes Capital Expenditures)

Income	Amount (Rs)	Revenue Expenditures	Amount (Rs)	Capital Expenditures	Amount (Rs)
Academic Receipts	740,381,600	Staff Payments & Benefits	436,468,903	Buildings	67,092,020
Grants and Donations	94,958,184	Academic Expenses	32,845,709	Equipments	7,069,590
Income from Investments	6,883,923	Administrative & General Expenses	35,906,385	Computers	3,125,807
Other Incomes	9,355,604	Transportation Expenses	942,634	Furnitures & Fixtures	11,340,759
Grant Received (R & D) - To the extent utilised -Revenue	1,483,390	Repairs & Maintenance	37,907,356	Software	3,804,176
Grant Received (General)- To the extent utilised -Revenue	1,420,998	Finance Costs	19,158,775	Books	1,908,852
Grant Received (R & D) - To the extent utilised -Capital	2,681,783	Research and Development	10,798,452	Equipments R & D	17,559,975
Grant Received (General) - To the extent utilised -Capital	993,800	Revenue Expenses out of Grants	1,428,250	Computers R & D	337,108
		Revenue Expenses out of Grants (R & D)	1,483,390	Software R & D	2,858,082
		Depreciation	112,585,480	Books - R & D	211,344
Total	**858,159,282**	**Total**	**689,525,335**	**Total**	**115,307,713**
		Capital Expenditure Total	115,307,713		
		To Surplus (Excess of Income over Expenditure)	53,326,234		
Grand Total	**858,159,282**	**Grand Total**	**858,159,282**		

Expenses in 2020-21

Expenses in 2019-20

Legend:
- Capital Expenditure
- Laboratory Development
- Salary
- Establishment
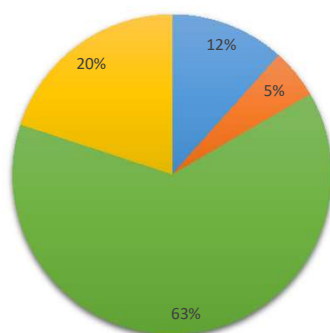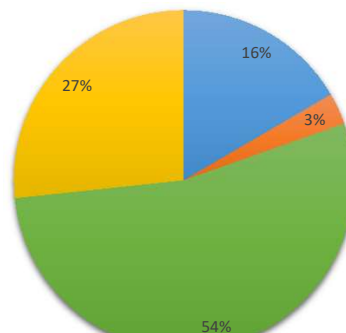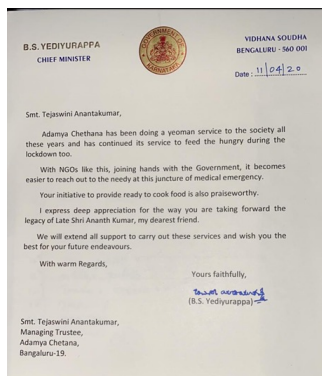
Alumni Association

CAREER IN DEFENCE - TALK BY OUR ALUMNUS MAJOR SHIRISH PATIL

Career I Defence, a Talk was delivered by our alumnus Major Shirish Patil about the career opportunities in Defence. The talk has been delivered on the 28th February, 2020 in Bio Tech auditorium and many students have participated in the event.

KARNATAKA CHIEF MINISTER APPRECIATES SMT.TEJASWINI ANANTAKUMAR, OUR ALUMNUS

We are very proud to communicate that Smt.Tejaswini Anantakumar, alumnus from 1988 batch has been appreciated by the Chief Minister of Karnataka, Shri. B. S. Yediyurappa for doing yeoman service to the society all these years through "Adamya Chetana" and has continued its service to feed the hungry during the lockdown too.

MR. ANILKUMAR M - OUR EC ALUMNUS - CHIEF GUEST @ VIRTUAL CONFERENCE IN VIT, VELLORE

We are happy and proud to inform that our alumnus Mr. Anilkumar M. (EC) has been the Chief Guest for the International Virtual Conference on Wearable Technologies and Applications, Emerging Trends and Innovations, (WeTA2020) organised by Centre of Wearable Technology and Applications, Department of Electronics and Communications in Vellore Institute of Technology. Conference is on 26th and 27th June, 2020.

OUR ALUMNUS MR. DILEEP MISKIN (E&C ALUMNUS) INTERVIEW WITH HIS GERMAN BUSINESS PARTNER FOR AN INDUSTRIAL MAGAZINE

Mr. Dileep Miskin, Director, UL Group of Companies, Pune, with an industrial experience in the field of Process Engineering solutions for Process Industry starting from PFD/P&ID to all engineering deliverables to the Industry complying with Industry 4.0 from AUCOTEC AG Germany.

He is the Champion of our Alumni Chapter in Pune and has been instrumental and also motivated BVBians in Pune and Mumbai to organise two International Alumni Meets in Pune. He has been one of the Distinguished alumni in EC department.

We are pleased to present his brief explanation about his interview with his German Business partner for an Industrial magazine.

Today each and every industry is going for digitization. In our company, Mott, wherever possible all departments are transforming into digitization. Not only engineering, our global HR too recently launched its activities digitally enabling HR processes at the click of the button, remotely or wherever individual is located.

WEBINAR ON INVESTMENT OPPORTUNITY FOR NRIS IN AUSTRALIA - BY OUR ALUMNUS MR. RAJENDRA DESHPANDE

We are pleased and proud to communicate that our alumnus Mr. Rajendra Deshpande has been on webinar as Investment advisor.

Rajendra Deshpande our alumnus (BE CV 1983) presently Managing Director at Abhrant Property Counselling Services Pvt. Ltd has participated as one of the panellist to advise on investment options for NRI's residing in Australia in a function organised by Kannada Abhivridhdhi Pradhikara (KAP) (Kannada development Authority) Govt. of Karnataka.

KAP. Govt. of Karnataka has selected Mr. Rajendra Deshpande as Investment Advisor.

OUR ALUMNUS MR. PRAFUL DESAI CLEARS UPSC 2019 WITH AIR-532

We are proud to communicate that Mr. Praful Desai, Mechanical Engineering alumnus, 2015 batch has successfully cleared UPSC exams 2019 with All India Rank - 532.

Mr. Praful is from Yaranal in Hukkeri Taluk, Belgavi District, Karnataka. We are proud to state that Mr. Praful Desai has been our Nurture Scholarship Student.

OUR RESPECTFUL ALUMNUS, DR. ANIL SAHASRABUDHE, CHAIRMAN AICTE NOMINATED FOR PRESTIGIOUS POSITION.

Hon'ble Chairman #AICTE Anil Sahasrabudhe, our proud alumnus has been nominated as Member, Board of Patrons, #Aviation Games, #India #Asia at Board of International Aviation Games (http://biag.us).

MR. RAM KERUR OUR ALUMNUS ACHIEVES A MILE STONE

We are very proud to communicate that our alumnus Mr Ram Kerur alumnus of E&E (1975) is the Director of Sunlux Technologies Pvt. Limited and his Company has been recognised as In-house R&D Unit by the Department of Scientific and Industrial Research, Ministry of Science and Technology, Govt. of India.

Mr. Ram Kerur also establishes, JODOVA TECHNOLOGIES PRIVATE LIMITED, as the only Indian Company certifying Railway Products in India.
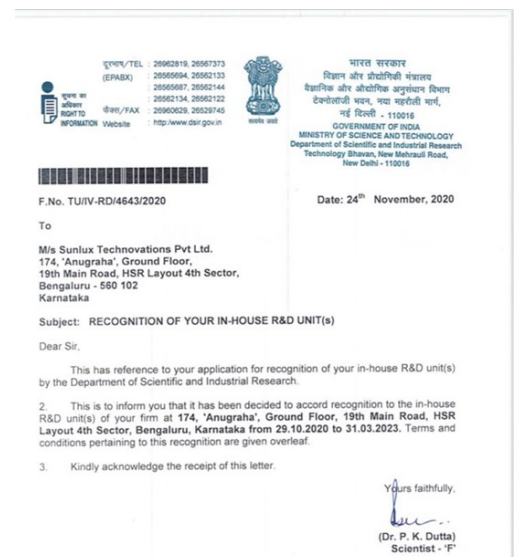
Our Distinguished alumni Mr.D.R.Subramanyam and Mr.AnilKumar of EC, who are the owners of M/s SLN Technologies Pvt. Ltd. Achieve Recognition as "MILITARY RADARS SBU" Partnership Award for 2019-20.

SLN Technologies, founded in the year 1995 (by our Distinguished alumni D.R.Subramanyam and AnilKumar of EC) is an AS 9100 and ISO 9001-2000 company based in Bangalore, with branches all over India

1996 MECHANICAL ALUMNI GET TOGETHER ON 30TH JULY, 2020.

Twentyone Mechanical alumni of 1996 batch came together on 30th July, 2020. They interacted with our Vice Chancellor, Dr.Ashok Shettar and all the Faculty in the School of Mechanical Engineering. They expressed their happiness about the Infrastructure deveopment in the department. Three alumni from US and Two alumni from UK were among this batch who visited our Alma Mater.

NURTURE MERIT @ BVB KLE TECH ALUMNI ASSOCIATION

During the year 2020-21 thirty students have been given Rs.2000 as Scholarship towards their hostel expenditure from BVB KLE Tech Alumni association under Nurture Merit @ BVB KLETU Scholarship scheme for the academically good and economically weak students.

KLE Tech Executive Leadership Team

Dr. Ashok Shettar
Vice Chancellor

Prof. B. L. Desai
Executive Dean

Dr. N. H. Ayachit
Registrar

Dr. P. G. Tewari
Dean - Academics

Dr. B. B. Kotturshettar
Dean - Planning & Development

Dr. Uma Mudenagudi
Dean - Research & Development

Prof. S. B. Kurubar
Dean - Examinations

Dr. Anil Nandi
Controller of Examinations

Dr. Sanjay Kotabagi
Dean - Student Welfare

Heads of Schools / Departments

Dr. B. B. Kotturshettar
Mechanical

Dr. Nalini Iyer
Electronics &
Communication

Dr. Meena M
Computer Science

Dr. M. V. Chitawadagi
Civil

Dr. A. B. Raju
Electrical & Electronics

Prof. A. C. Giriyapur
Automation & Robotics

Dr. Basavaraj Hungund
Biotechnology

Dr. Vinaya Hiremath
Architecture

Prof P R Patil
Master of Computer
Applications

Prof Jagdish Bapat
Master of Business
Administration

Prof Sanjay Kotabagi
Humanities

Prof T V Swamy
First Year

Center Heads

Prof. Nitin Kulkarni
Director, KLE CTIE

Dr. Vijayalakshmi M
Director, CEER

Dr. Satyadhyan Chickerur
Coordinator, CIAP

Prof. N R Banapurmath
Head, CMS

Prof. C. D. Kerure
Placement Officer

Prof. Parikshit Hegde
Coordinator, Infocell

Dr. M. R. Patil
Head, C & M Cell

Prof. Ravi Guttal
Director, CIPD

Annual Report 2020-21

KLE Technological University

Vidyanagar, Hubballi - 580 031, Karnataka - India

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www.kletech.ac.in

KLE Technological University
Creating Value
Leveraging Knowledge
KLE TECH

ANNUAL
REPORT
2021-22

Vidyanagar, Hubballi (India)

🌐 www.kletech.ac.in

Our Parent Organization:

Karnataka Lingayat Education Society (KLE Society)

> A byword in India's Educational spectrum, KLE's success story of nearly ten decades speaks volumes of the dedication and commitment of thousands of people.

With 270 institutions spread across Karnataka, Maharashtra and Goa, each narrating their own amazing stories of enriching people's lives, a harmony exists that is very palpable. Our alumni, settled in different parts of the world are a testimony to our achievements and endeavors and are ambassadors promoting the 'Brand KLE' throughout the world. Unmindful of the constraints, KLE ensures that every individual with a desire to learn, irrespective of which strata he/she belongs to in the society has access to infrastructure of international standards. Our well equipped hostels with modern facilities enable every student to enrich himself physically and mentally as well. To ensure that every student is keeping up with the latest developments in technology and the world, all the campuses house internet and IT facilities.

Our qualified teachers who are committed and dedicated to their professions strive to make learning a fascinating journey and experience for all. The collaborations with universities in the US, UK and Malaysia have added a whole new dimension to the K.L.E Society making it on par with reputed educational institutions worldwide. The legacy of selfless-service and sacrifice left behind by the founding fathers is pursued sincerely by the Management to this day. Under the unparalleled leadership of Dr. Prabhakar Kore, the KLE Institution has reached enviable heights. His spectacular chairmanship beyond 30 years, with the active support of his team of elected members, embodies the collective efforts of everyone in KLE, including 13,000 members of the trust, 1,10,262 students, and 16,000 strong faculty, in making KLE an international Education-destination.

Chancellor's Message
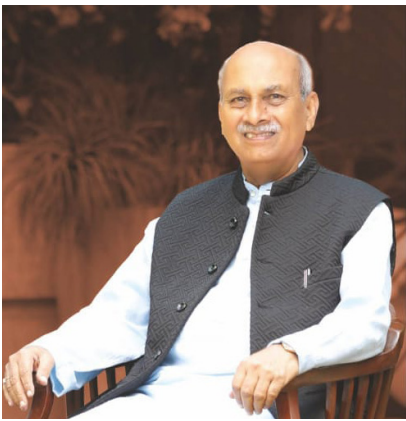
Dr. Prabhakar Kore
Chancellor

I am extremely happy to present the seventh Annual Report of KLE Society's KLE Technological University, Hubballi which has etched a place of eminence in the field of education in India and is recognized globally

The values we are nurturing in KLETech is to ensure that our students and faculty are an integral part of the global society. We believe in the age old ethos of "Vasudaiva Kutumbakam" (the whole world is one family), and I would like to emphasize that for the last few decades KLE Society has worked hard to bring together great minds and allowing a free flow of knowledge to build a better world.

My dream is to see that our young students excel in their chosen fields and contribute significantly to the world building. I am immensely proud to share with you the fact that our illustrious alumni is already doing yeomen service in their respective areas of specialization.

When we took over B.V. Bhoomaraddi College, it was with a vision to make the college a center of excellence and a major center of learning in the field of architecture, engineering and technology, in Northern Karnataka.

This year we are accredited with 'A' ranking by NAAC. Considering the need for the upgradation of the education system, we are also commencing new courses at KLE Tech.

Under the able leadership of Dr. Ashok Shettar, the KLE Tech is taking greater heights in the field of education and research.

I extend my thanks to all the faculty and administrative staff who are striving hard to make this institution among the best.

I wish everyone all the best.

Foreword

We are proud to present the seventh annual report of KLE Technological University, Hubballi, for the year 2021-2022. This report summarizes the achievements and progress we have made over the last year to improve our academic offerings and student services.

Our faculty is making progress towards providing a truly world-class learning environment by adopting holistic curricular reforms and innovative pedagogical practices. To compliment this we have created 2 new labs Electric Vehicle Innovation Centre (EVIC) and Centre for Intelligent Mobility (CIM) for hands on experience to students belonging to circuit branches.

We are proud to share that more than 1200 Senior Faculty of all engineering institutes and university across India were trained on "AICTE Examination Reform Policy" during the year, which is one of our best practices implemented across India by AICTE.

Padma Bhushan Dr. Babasaheb Kalyani, Chairman & MD, Kalyani Group was conferred with the Honorary Doctorate Degree during the convocation held on 1st May 2022 at KLE Technological University.

Bachelor of Business Administration (BBA), a new course has been added in the School of Management studies and Research.

During this year, KLE Technological University is accredited by NAAC with "A" grade ranking first cycle.

We would like to extend our sincere thanks to our faculty, staff, students, alumni and industry partners for their continued support and remarkable contributions. Looking ahead, we will continue to work towards realizing our vision to be a leader in engineering education, and advancing research and innovation to support socio-economic development of the region.

Dr. Ashok S. Shettar
Vice Chancellor

CONTENTS

Introduction

KLE Technological University (KLE Tech) has its roots in one of the premier engineering institution of Karnataka, B. V. Bhoomaraddi College of Engineering and Technology, Hubli (BVB). The founding organization KLE Society, Belgaum, established BVB College in 1947 with an aspiration of creating an institution that would lay the foundation of modern engineering education in northern region of Karnataka. Over the years, it evolved to reach and hold a unique position of pride in the technical education system of India. As we entered into the 21st century, the college undertook comprehensive reform process to adapt to the challenging global engineering education scenario. In pursuit of academic excellence, the College attained academic autonomy from University Grant Commission (UGC) in the year 2007. As an autonomous College, BVB established its distinctive character in the academic space through its curriculum and outstanding student experience. Over the time it gained tremendous credibility with the industries and employers and emerged as a brand to reckon with. The Alumni of the Institute have done exceedingly well in all spheres of life at both national and international levels and brought name and fame for themselves as well as to their Alma Mater.

The times have changed, and the higher educational institutions need to continually innovate to maintain and enhance their relevance to meet the ever changing demands of global economies. Apart from delivering good quality education, the institutions are expected to develop their capacity in research and innovation. They also need to undergo a fundamental transformation in terms of their role in the society, mode of operation, and economic structure and the scale at which they operate.

Keeping the above challenges in mind BVB College of Engineering and Technology, undertook strategic initiative of transforming itself into a University of national distinction. In 2014 the College was recognized as a state private University by Government of Karnataka. The rich heritage of BVB College as one of the best engineering college combined with brand equity of KLE Society are the starting points for KLE Technological University to emerge as a University with a national distinction.

Bachelor of Business Administration (BBA), a new course has been added in the School of Management studies and Research.

During this year, KLE Technological University is accredited by NAAC with "A" grade ranking, in its first cycle.

Student Enrollment

Admission Process

The University does not conduct a separate test for the admissions. The admission to the programs of University is based on the Government of Karnataka rules for professional education institutions. The following is the mode of selection of students for admissions (as per rules of Government of Karnataka).

1. Common Entrance Test (CET) by Karnataka examination Authority (KEA): Admission to 45 % of seats are done by government of Karnataka based on CET ranking and reservation policies of the state. The seats are distributed through central counseling done by KEA. For the aided intake the 95% of the seats are allotted by the KEA. Equal weightage is given to score in CET entrance test and qualifying examination score, while allotting the ranks.

2. All India Examination conducted by the Consortium of Medical, Engineering & Dental Colleges of Karnataka (COMED-K): Admissions to 30 % of seats in unaided courses are done on the basis of COMED-K-rankings. The seats are allotted by COMED-K through central counseling. Equal weightage is given to score in COMED-K entrance test and qualifying examination score, while allotting the ranks

3. The remaining 5% seats in aided courses and 25% seats in unaided courses are filled as management seats on the basis of academic records of qualifying examinations.

For post graduate programs, Post Graduate Common Entrance Test (PGCET) conducted by Karnataka examination authority, is used for the selection of students.

Undergraduate Programs

Sl.No.	Programme	Sanctioned Intake
1	Civil Engineering	120
2	Mechanical Engineering	180
3	Electrical & Electronics	120
4	Electronics & Communication	300
5	Electronics & Communication (Industrial Track)	60
6	Computer Science & Engineering	300
7	Computer Science (Artificial Intelligence)	60
8	Automation & Robotics	60
9	Bio Technology	60
10	Architecture	80
11	Bachelor of Business Administration	60
	Total	**1400**

Postgraduate Programs

Sl.No.	Programme	Sanctioned Intake
1	Structural Engineering	18
2	Advance Manufacturing Systems	18
3	Computer Science & Engineering	24
4	Digital Electronics	24
5	VLSI Design & Embedded Systems	24
6	Design Engineering	24
7	Master of Computer Applications	60
8	Master of Business Administration	60
	Total	252

Research Programs

Sl.No.	Programme
1	Automation and Robotics Engineering
2	School of Civil and Environmental Engineering
3	School of Computer Science & Engineering
4	School of Electronics and Communication Engineering
5	Department of Electrical and Electronics Engineering
6	School of Mechanical Engineering
7	School of Management Studies and Research
8	Department of Humanities & Social Science
9	Department of Biotechnology
10	School of Architecture
11	Department of Physics
12	Department of Chemistry
13	Department of Mathematics
14	Center for Engineering Education Research

Student admissions for the year 2021-22 - UG

First Year UG Admissions 2021-22

Series1

Program	Value
Architecture	50
Computer Science (AI)	61
Mechanical Engineering	127
E&C Industry Integrated	58
Electronics & Communication	301
Electrical & Electronics	114
Computer Science	305
Civil Engineering	103
Bio Technology	52
Automation & Robotics	52

First Year UG Total Admissions

Year	Value
2018-19	1256
2019-20	1213
2020-21	1204
2021-22	1255

Student admissions for the year 2020-21 - PG

First Year PG Admissions 2021-22

Series1

Program	Value
Master of Business Administration	60
Master of Computer Application	60
Machine Design	24
VLSI Design & Testing	24
Digital Electronics	24
Computer Science & Engineering.	24
Advance Manufacturing Systems	18
Structural Engineering	18

M.Tech Total Admissions 2021-22

Year	Value
2018-19	99
2019-20	91
2020-21	89
2021-22	47

MBA, MCA Admissions 2021-22

Program	Value
MBA	60
MCA	60

MBA, MCA Total Admisssions 2021-22

Year	Value
2018-19	106
2019-20	107
2020-21	118
2021-22	120

Students Enrolled 2021-22

- PG Students 17%
- UG Students 83%

Gender Strength 2021-22

- Female 38%
- Male 62%

Academic Quality

Engineering education is going through a profound transformation driven by the new realities and opportunities created by the global knowledge society. To ensure the fitness of higher education system to negotiate new challenges, adaptation of proper academic frameworks and strategic interventions are necessary. Outcome Based Education (OBE) framework has emerged as a major reform model in the global engineering education scenario and has been mandated for accreditation of engineering programs for the Washington accord signatories. The OBE approach is based on a student centered learning philosophy and focuses on the output (outcomes) instead of the input (content).

KLE Tech reform process by adopting OBE framework. The framework gives us an opportunity to build a culture of continuous improvement that strengthens our academic quality and inspires student achievement.

The initiatives undertaken to enhance the quality of education and student performance are presented under following three tenets of academic quality

Advances in Curriculum
Faculty Development
Student achievements

Advances in Curriculum

The curriculum of all the programs offered by KLE Tech are designed understanding the expectations of the stakeholders. Outcome Based Education (OBE) framework is used to design the curriculum. Each program has formulated Program Outcomes (POs) in line with Graduate attributes of NBA. These POs describe what students are expected to know and be able to do by the time of their graduation. These POs relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. The courses designed for the programs are aligned to the expectations of POs.

Learning experiences in each of the programs are created focusing the millennial learner. Problem solving skills, research and entrepreneurship are embedded in the curriculum through a host of program core, program elective and open elective courses. Active, blended, collaborative, experiential and project based learning (PBL) practices are used bringing student to the centre of teaching – learning process. Assessment and evaluations are done aligning to learning outcomes to inform both the learner and the system. The frame work adopted by the University is depicted in the Figure below.

Developing and Institutionalizing Curriculum Framework

KLE TechOBE Frame Work

Major Academic initiatives Undertaken:

During the academic year 2021-22 following are the major academic initiatives undertaken to improve the teaching and learning process.

School of Electronics and Communication

Center for Intelligent Mobility (CIM)

KLE Technological University always strives hard to adapt state of technology, both in research and teaching learning process. In continuation of KLE Technological University's mission of being a leader in science and technology, a new Center for Intelligent Mobility (CIM) is established with the goal of leveraging technologies such as AI, data analytics, automation, and connectivity to develop solutions for smart, efficient, and green mobility.

We envision CIM becoming a world-leading center for research on a variety of domains such as driving automation systems, intelligent transport systems, smart mobility services, and safety and security. The objectives of CIM are to develop driving assistive systems that can enable safe, secure, and comfortable driving experiences with vehicles that can reliably communicate with other vehicles and the infrastructure to enable low-carbon and green mobility.

The center provides research infrastructure, cutting edge equipment and tools to support research and academic needs. Center is equipped with industry leading modular real-time system for RCP and HIL applications, dSPACE's Scalexio, and Vector's CANoe/ CANalyzer.

The multi modal data collection and processing towards achieving higher level of autonomy is validated on the test vehicle. We have collaborated with leading industries like, NVIDIA, BOSCH, LTTS, SAMSUNG and working towards elevating our research to the industry standards.

MOU with L&T Technology Services Limited (LTTS) is a global leader in Engineering and R&D (ER&D) services. With 976 patents filed for 57 of the Global Top 100 ER&D spenders, LTTS lives and breathes engineering. Our innovations speak for themselves – World's 1st Autonomous Welding Robot, Solar 'Connectivity' Drone, and the Smartest Campus in the World, to name a few.

LTTS' expertise in engineering design, product development, smart manufacturing.

LTTS is a publicly listed subsidiary of Larsen & Toubro Limited, the $21 billion Indian conglomerate operating in over 30 countries.

Proud moment for KLE Technological University to collaborate with L&T Technology Services (LTTS) on setting up some extremely niche facilities.

School of Electrical and Electronics Engineering

Electric Vehicle Innovation Centre (EVIC)

The structure of the EVIC lab envisaged is as shown below. As shown in figure, it consists of 1. On board Charger, 2. Battery Management Systems, 3. Drive train and 4. DC-DC converter which takes care of all the dc loads of the Electric Vehicle (EV). We would like to have this lab as (1) The state-of-the-art platform for communicating knowledge to engineering students about Electric Vehicles (EV), (2) To facilitate infrastructure to conduct research in emerging areas/technologies of EVs and finally (3) To identify collaborators in the region and foster product development concerning EV.

EVIC : Structure of Electric Vehicle
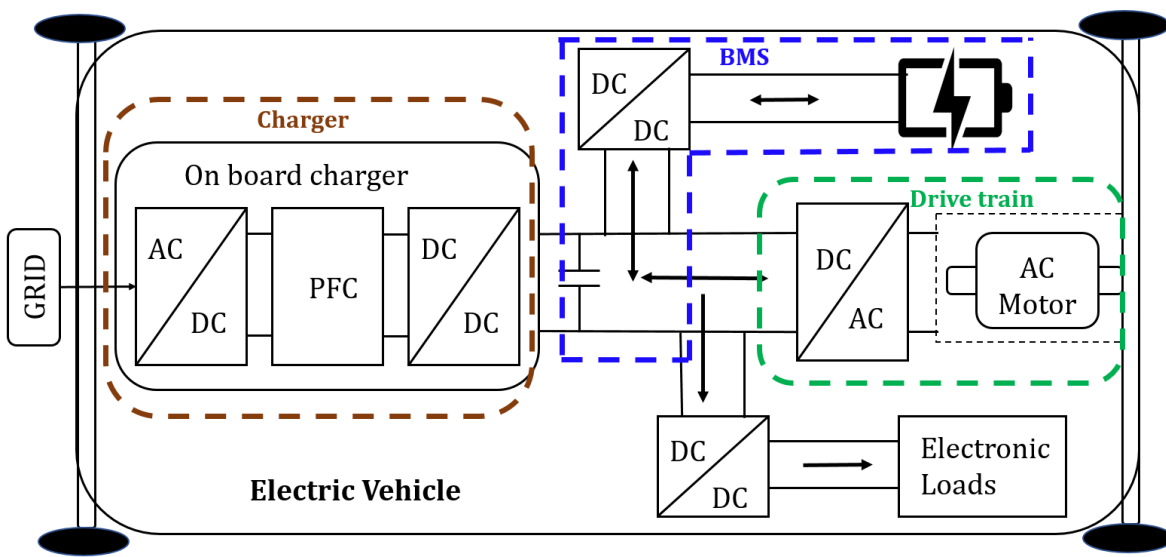
Drive train: Overview
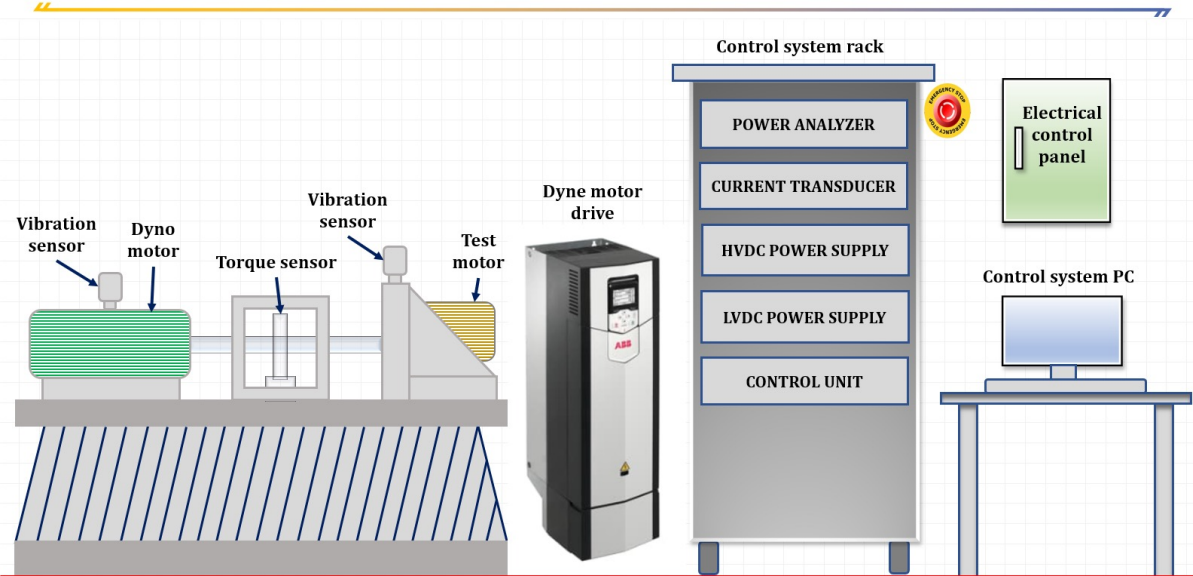
School of Architecture

Implementation of Higher Cognitive Level Learning Experience for theory subjects
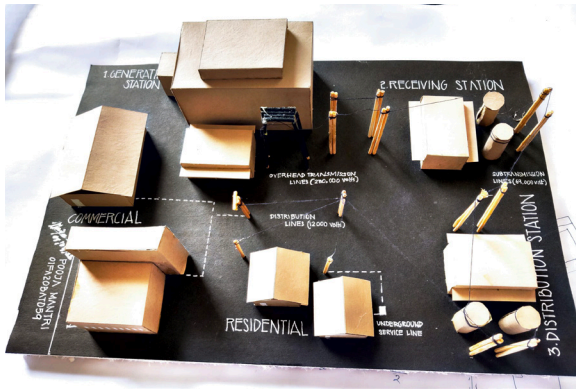
The higher educational sector around the word is ever evolving and embracing newer and more efficient methods of dispersing knowledge. To enable better learning, the educational institutes of today have a serious need of implementing the best practices around the world into their teaching/learning models. At KLE Technological University, we constantly strive to up our ante and stay ahead of the competition by including the most sophisticated methods of course delivery as a unique offering to our students. This philosophy coupled with the extraordinary vision of our Honorable Vice Chancellor sir, motivates us to eagerly experiment and come up with better methods of preparing our students to tackle the real world problems.

The need to prepare the next generation of students to be ready to face the dynamic challenges of the professional world outside, it is of great significance that they are well equipped by the higher educational institute to tackle the real life situations outside. This in this direction, the idea of "Higher Cognitive level Learning /Assessment" finds traction in our University. For the first time ever, a trail version of this method was introduced to check the impact it can have on the overall learning experience a t the University across various schools and departments.

We, a t School of Architecture, embraced this initiative and delivered a few of our theory courses through this model for the academic year 202 0 202 1 . The outcome we witnessed was one of extreme satisfaction , as we could see a major shift in the way learning happened inside the theory classes which otherwise saw a very lazy participation from the students as had observed in the previous academic years. For us this method yielded results beyond the expectations and in our opinion can be deemed a great success for SOA in its journey to create world class teaching apparatus We noticed a deeper level participation from the students in the activities and assessment exercises. We saw better submissions and better results in the ISA/ ESA assessments. All the key indicators used to measure the success of the new method showcased the outstanding level of performance by the students. Hence we have continued implementing this model to the existing theory courses along with a few identified new courses for the academic year 2021 2022 as well.

Having student group s happy and enjoying the learning experience and growing is the best fruit any institute can taste as a measure of its impact in transforming the lives of budding professionals. This new initiative "Higher Cognitive level Learning /Assessment" gave us another opportunity to see our students "Happy to participate, enjoy and learn

Examination Reforms

Objectives of the Practice

To bring about comprehensive reforms in examinations (assessment of student learning) in the context of emerging landscape of Engineering education

>   a) Develop and adapt Assessment Strategy for Outcome Based Education

>   b) Improve the Structure & Quality of Assessment

>   c) Evolve strategies to assess higher order Abilities & Professional Skills

Adaptation OBE framework requires a different strategy for assessment that ensures realistic measurement of attainment of program outcomes. Further, looking at the needs of the employers, it is important that the examinations also give appropriate consideration to the assessment of higher-order abilities and professional competencies.

The Context

a) Outcome based education (OBE)- a performance-based approach has emerged as major reform model in Indian higher education scenario. In adapting OBE framework connecting examination questions / assessment tools to the program outcomes remains a challenge. Absence of proper mapping between program outcomes and assessment tools lead to inaccurate and unreliable measurement of attainment of outcomes by the students. This missing connect creates a big gap in the effective adaptation of OBE framework, making whole exercise futile.

b) In the present examination system, memorization occupies a dominant place. Assessment process must also test higher level skills viz. ability to apply knowledge, solve complex problems, analyse, synthesise and design. Further, professional skills like ability to communicate, work in teams, lifelong learning have become important elements for employability of the graduates. It is important that the examinations also give appropriate weightage to the assessment of these higher-level skills and professional competencies.

The Practice

Develop and adapt Assessment Strategy for Outcome Based Education:

POs represent fairly high level generic goals that are not directly measurable. A real observability and measurability of the PO's at course level is very difficult. To connect high level learning outcomes (POs) with course content, course outcomes and assessment, there is a necessity to bring further clarity and specificity to the program outcomes. This can be achieved through the following two-step process of identifying Competencies and Performance Indicators (PI).

i. **Identify Competencies to be attained:** For each PO define competencies –different abilities implied by program outcome statement that would generally require different assessment measures. This helps us to create shared understanding of the competencies we want our students to achieve.

ii. Define Performance Indicators: For each of the comptencies identified, define performance Indicators (PIs) that are explicit statements of expectations of the student learning. They can act as measuring tools in assessment to understand the extent of attainment of outcomes.

iii. Once the above process is completed for the program, the assessment of CO's for all the courses is designed by connecting assessment questions (used in various assessment tools) to the Performance Indicators. By following this process, where examination questions map with PIs, we get clarity and better resolution for the assessment of COs and POs.

Improve the Structure & Quality of Assessment: Adopting Bloom's taxonomy framework

Questions raised in the examination / test papers play an important role in defining the level of learning the student is expected to achieve in the courses and hence in the program. Bloom's taxonomy framework was adopted to make conscious efforts to map the curriculum and assessment to bloom's levels to help the programs to aim for higher-level abilities which go beyond remembering or understanding, and require application, analysis, evaluation or creation.

Normally the first three learning levels; remembering, understanding and applying and to some extent fourth level analysing are assessed in the Continuous Internal Evaluation (CIE) and semester End Examinations (SEE), where students are given limited amount of time. And abilities; analysis, evaluation and creation can be assessed in extended course works or in variety of student works like course projects, mini / minor projects, internship experience and final year projects.

Evolve strategies to assess higher order Abilities & Professional Skills

The main challenge in assessing these abilities and skills is that they are difficult to learn & assess through our conventional courses and examination system. To address these challenges, comprehensive reforms were undertaken in the way we design our curriculum, student learning experiences and assessment of the outcomes. Examples:

- Course projects
- Open-ended experiments in laboratories
- Project-based learning modules
- Blended learning
- Co-Curricular experiences
- Mini / Minor projects
- Final year projects
- Internship experiences

Evidence of Success

Provide evidence of success such as performance against targets and benchmarks, review/results. What do these results indicate? Describe in about 200 words.

i.   Introduction of new structure of question papers for all program courses with the following

a.   Mapping of each question with competency, performance indicator and bloom's level

b.   Limiting weightage of remembering and understanding level questions to 40% and weightage for higher level questions weightage 60% in all the question papers.

ii. Introduction of structured enquiry and open ended problems in the laboratories.

iii. Enhancing experiential learning courses that create opportunity for students to learn higher order abilities and professional skills; the student will be doing atleast seven projects during their graduation.

iv. Overall increase in assessment weightage for higher order abilities and professional skills in the program

v.   Increase in high value placements

vi. Adaptation of these reforms and practices by AICTE, resulting into 'AICTE examination reform policy -2018'

Problems Encountered and Resources Required

i.   Developing clarity about the expectations of POs in the context of program and courses and connecting them to assessment questions

ii. Bringing clarity and specificity to the PO's so that all the faculty have a common understanding.

iii. Designing of new educational experiences that lead to learning of higher order abilities and professional skills and also give opportunity for assessing them.

iv. Developing rubrics for assessing professional skills

Notes

Since 2018, on behalf of AICTE and National Project Implementation Unit (NPIU), a team from University is conducting training workshops on 'Examination reforms' for faculty from engineering institutions across India. based upon the KLE Technological University best practice.

Faculty Development Programmes (Institute Level)

Teachers provided with financial support to attend conferences / workshops and towards membership fee of professional bodies during the year 2021-22.

Particulars	Numbers
Conference, Seminars and workshops	130
FDP, Orientation, Induction programme	80
In-house professional development public administrative training programmes	10
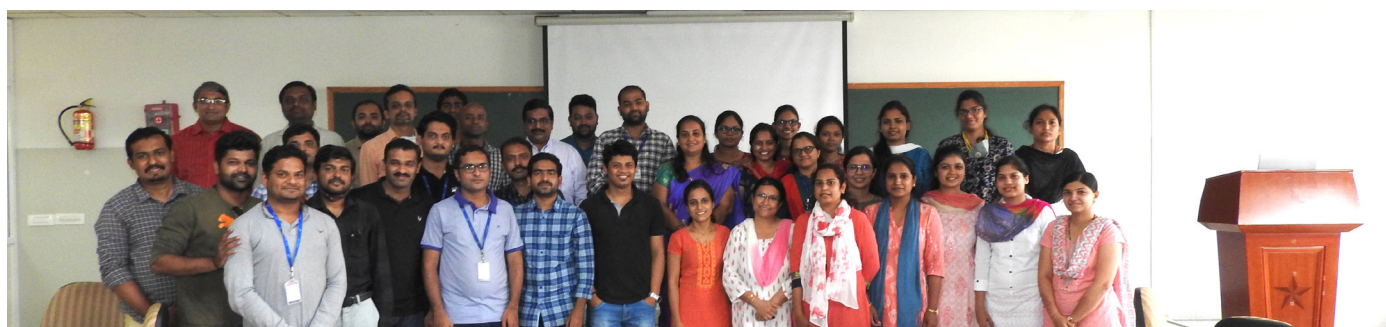
Placement

The Students of 2021-22 pass out batch have got ample of placement opportunities. Both Core & Service companies recruited in good numbers.

Important highlights are as follows:

- Twilio has selected 2 students offering a salary package of 43 LPA
- Amazon Web Services has selected 40 students with salary package of 21.5 LPA, Amazon (Devops and Support Engineer Role) has selected 5 students with salary package of 20 LPA and Amazon (Data Engineer) has selected 1 student offering a salary package of 29 LPA
- Samsung R&D has selected 2 students with salary package of 20 LPA
- Mercedes Benz R&D, India has selected 40 students with salary package of 10 LPA
- Deloitte has recruited 66 students with salary package of 7.6 LPA
- Cognizant recruited 272 students, Accenture recruited 116 students, LTTS recruited 173 students and Wipro recruited 113 students
- The Total no. of offers are more than 1500

No. of Job Offers (Last 3 year Years)

Bar chart — No. of Job Offers: 2019-20: 1045, 2020-21: 1238, 2021-22: 1591
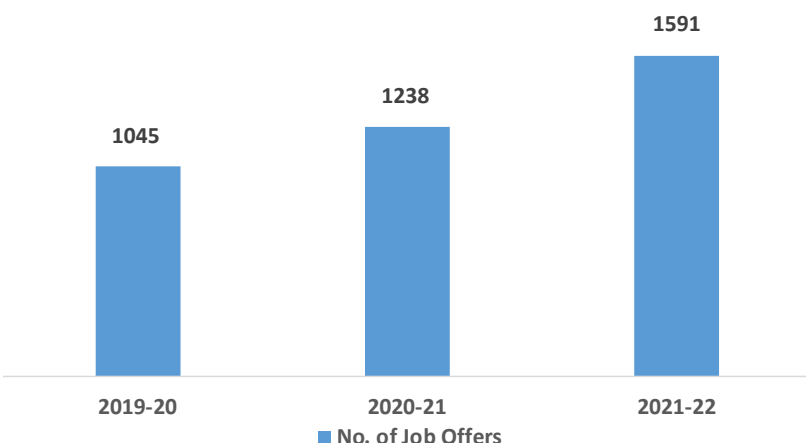
Highest Salary in LPA (Lakhs per annum)

Bar chart — Highest Salary Package (LPA): 2019-20: 30, 2020-21: 31.5, 2021-22: 43
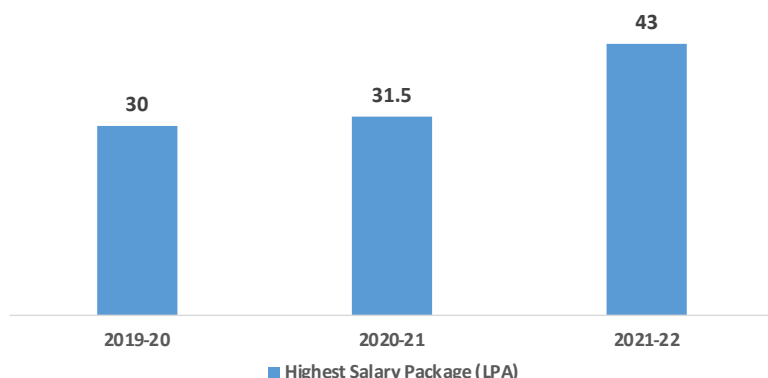
Average Salary Package in LPA (Lakhs per annum)

Average Salary Package (LPA)

	2019-20	2020-21	2021-22
Average Salary Package (LPA)	5.4	6	8
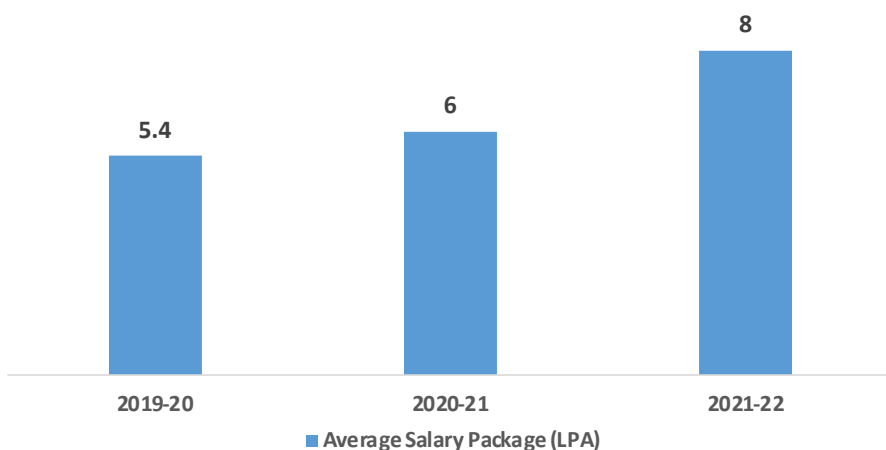
Our Recruiters 2021-22 batch are as follows:

Twilio	Amazon	Samsung R&D
Mercedes Benz R&D	Amagi	Sony
Texas Instruments	Toshiba	Akamai
ABB	MathWorks	Bosch Global Software Technologies Pvt Ltd
Siemens Healthineers	Lam Research	Juniper Networks
PharmEasy	Nokia	Applied Materials
Target	Eurofins	AlphaICs
Amadeus	Applied Materials	Zensar Technologies
Infosys	JSW	Dassault Systèms
Netcracker Technology Solutions	Open Silicon (Sifive Company)	LTTS
Accolite Digital	Capgemini	Deloitte
Informatica	Tooliqa Innovations LLP	Cognizant
LatentView Analytics	Pelatro	Accenture
Clarivate Analytics	Exiger Technologies	Publicis Sapient
Tata Hitachi	Adani Group	Infineon
BridgeSGI (Pivotree)	Continental AG	Hitachi Energy
Mitratech	OneTrust	PWC AC
CitiusTech	VuNet Systems	Societe Generale GSC
Vitesco Technologies	ADM Agro	Deevia Software
Dematic	Bosch Ltd	Sankalp Semiconductors
Emertxe	Intech Additive Solutions	Digit General Insurance
IBM	TCS	Suprajit Technology Centre
ITC Infotech	Kirloskar Ferrous Industries Ltd	FANUC
Infra Market	SEG Automotive	Microland
Qualitest Group	NTT Data	Total Environment
Zycus Infotech	Aequs	Skandysys
Wipro	TechTree IT Systems	Actalent

Research and Innovation

KLE TECH has 14 research centers with 116 doctoral faculty guiding 94 registered doctoral students at KLE Tech and 22 students registered in other universities. The following table presents details about the research centers.

Details of Eligible supervisors and PhD registered candidates

Sl. No.	Name of School/Department/ Center	No. of Eligible Supervisors	No. of PhD registered at KLE Tech	No. of PhD registered at other universities
1.	Civil Engineering	10	6	3
2.	Computer Science & Engineering	16	24	5
3.	Electronics & Communication Engg	18	12	3
4.	Mechanical Engineering	20	14	1
5.	Biotechnology	6	10	0
6.	Electrical & Electronics Engg.	4	4	2
7.	Management Studies and Research	4	2	4
8.	Humanities and Social Sciences	1	3	--
9.	Engineering Education and Research	4	2	--
10	Chemistry	8	9	2
11	Mathematics	14	4	1
12	Physics	7	4	1
13	Automation & Robotics Engineering	3	0	0
14	Architecture	1	0	0
	Total	**116**	**94**	**22**

Summary of publications

The following table summarizes the number of publications of research work in refereed conferences and journals at national and international level.

Paper publications in the last 6 academic year's indexed by Scopus & Web of Science

Year	Scopus			Total	Web of Science		Total
	Int. Journals	Conference	Books / Book Chapters	Scopus	Int. Journals	Conference	WoS
2015	24	31	2	57	23	50	73
2016	27	82	0	109	22	67	89
2017	33	68	2	103	27	54	81
2018	64	131	4	199	43	70	113
2019	59	84	22	165	41	45	86
2020	113	160	14	287	81	48	129
2021	**188**	**106**	**15**	**384**	**131**	**21**	**159**
2022* Ongoing	120	88	20	228	121	19	140

There is substantial improvement in quality research publications in the academic year 2021. As compared to previous academic year (2020) there are 97 more number of Scopus indexed publications in the academic year 2021. There is good improvement in citations also. In year 2022, additionally there are 409 citations in Scopus and 103 citations in Web of Science.
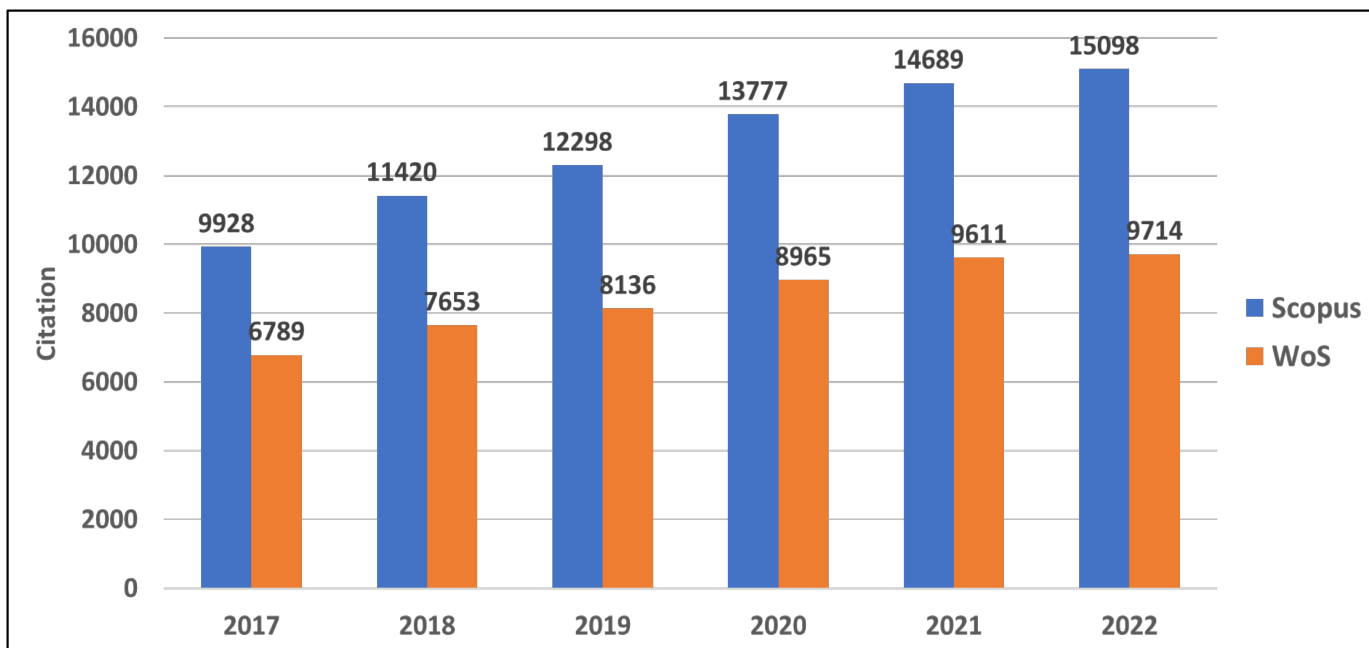
There is quite significant improvement in H – Index of university in the year 2022. The Scopus H – Index of university is 53 and has increased by 6 as compared to the year 2021. There is increment in H – Index of university by 7 in case of WoS. Current WoS is 44. Following two figures presents trend of h-index and average H – Index of Schools, Departments for Scopus in the last 4 years.
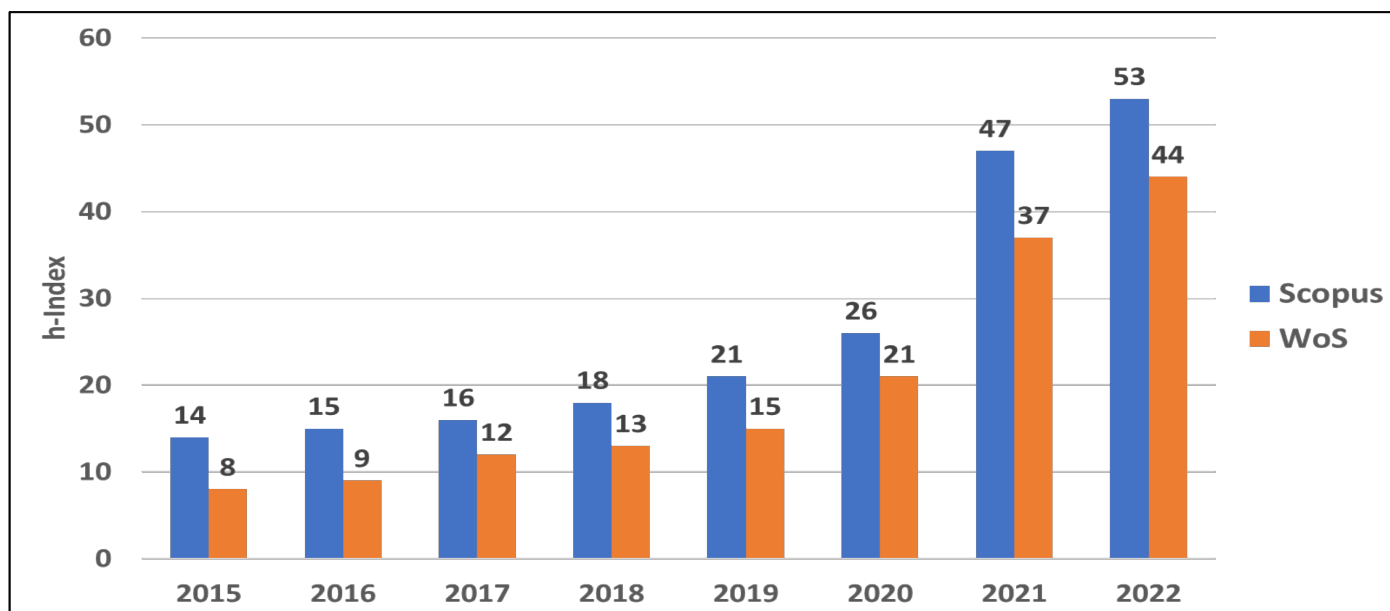
There is quite significant improvement in H – Index of university in the year 2021. The Scopus H – Index of university is 49 and has increased by 23 as compared to the year 2020. There is increment in H – Index of university by 26 in case of WoS. Current WoS is 47. Following two figures presents average H – Index of Schools, Departments for both WoS and Scopus in the last 3 years.
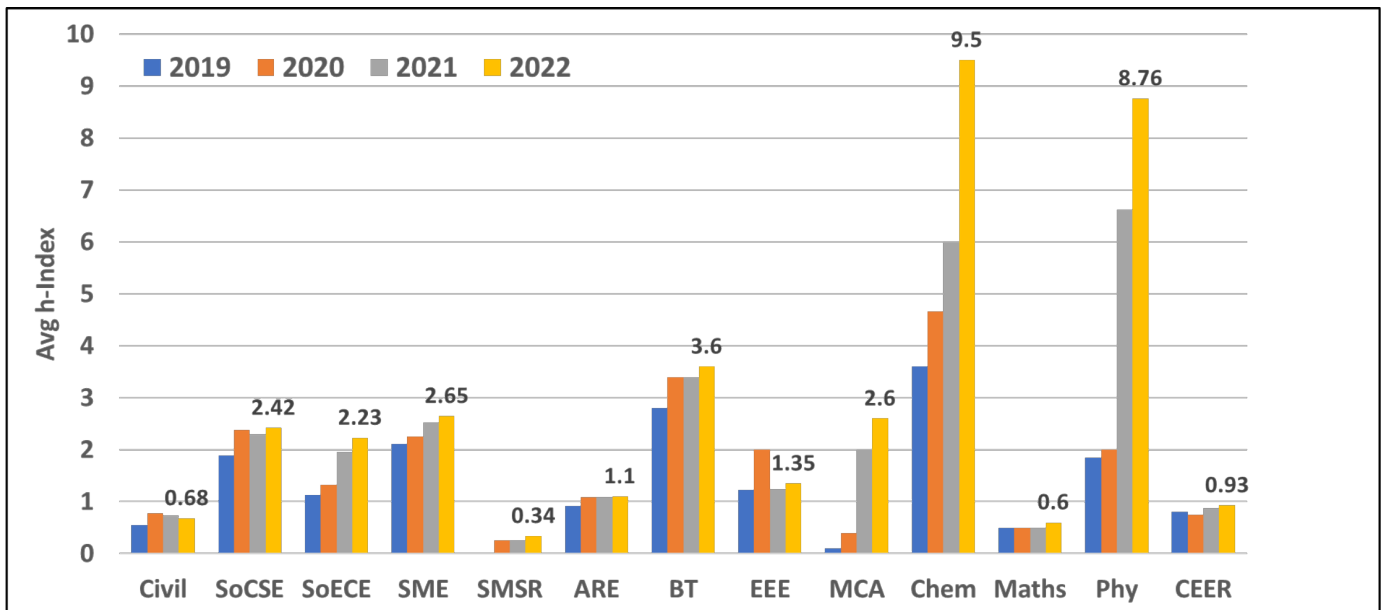
It is worth noting improvement in quality of publication, there is substantial improvement in Q1 and Q2 journal papers in the last two years.
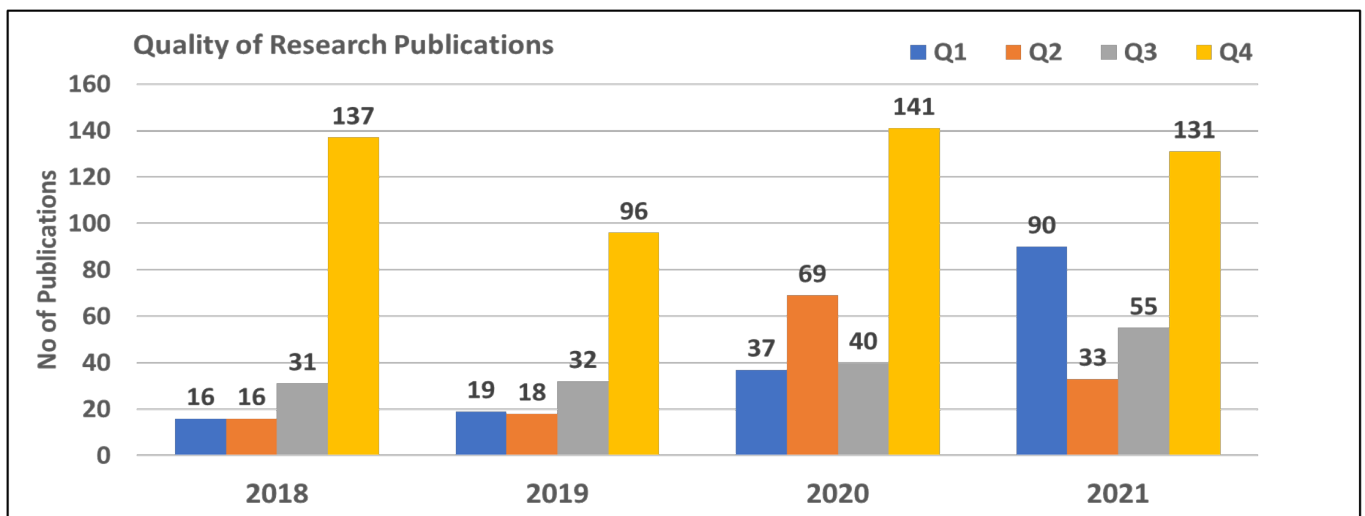
Number of publications per faculty is 1.0 for Scopus and 0.4 for WoS in 2021, University research is growing by 38.2%. Field weighted citation impact 1.21 (World Avg: 1.00). 51.6% growth is seen in contributing Authors/ researchers, Overall research quality is 21% highly cited than the world average, Citation per publication: 4.1 (India Avg: 5.00), 6.4% of publications are contributing in top 10% journal (World Avg: 14.2%) and 64% of publications are in Q3 & Q4 Quartile

There is very good indication of Collaborations in Research Publication. The following figure presents collaboration at global and national level.
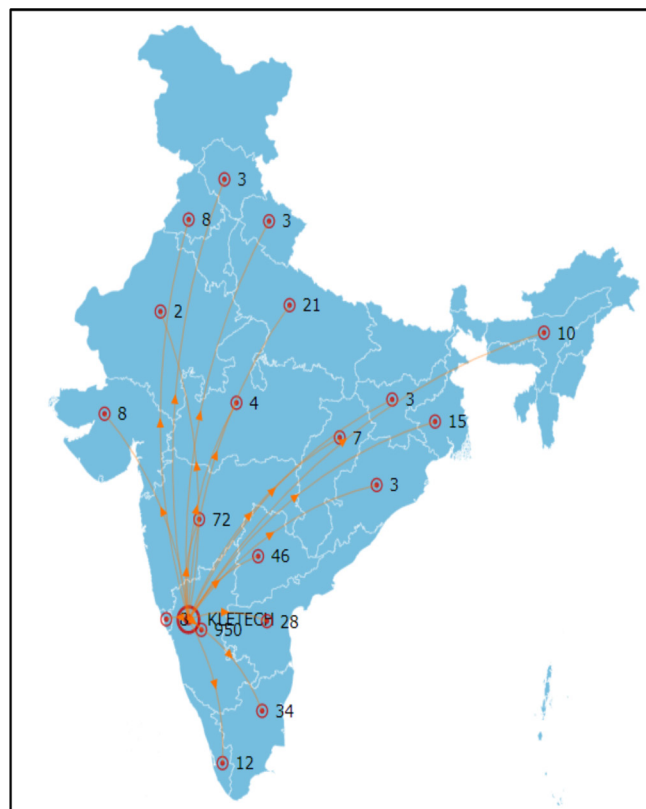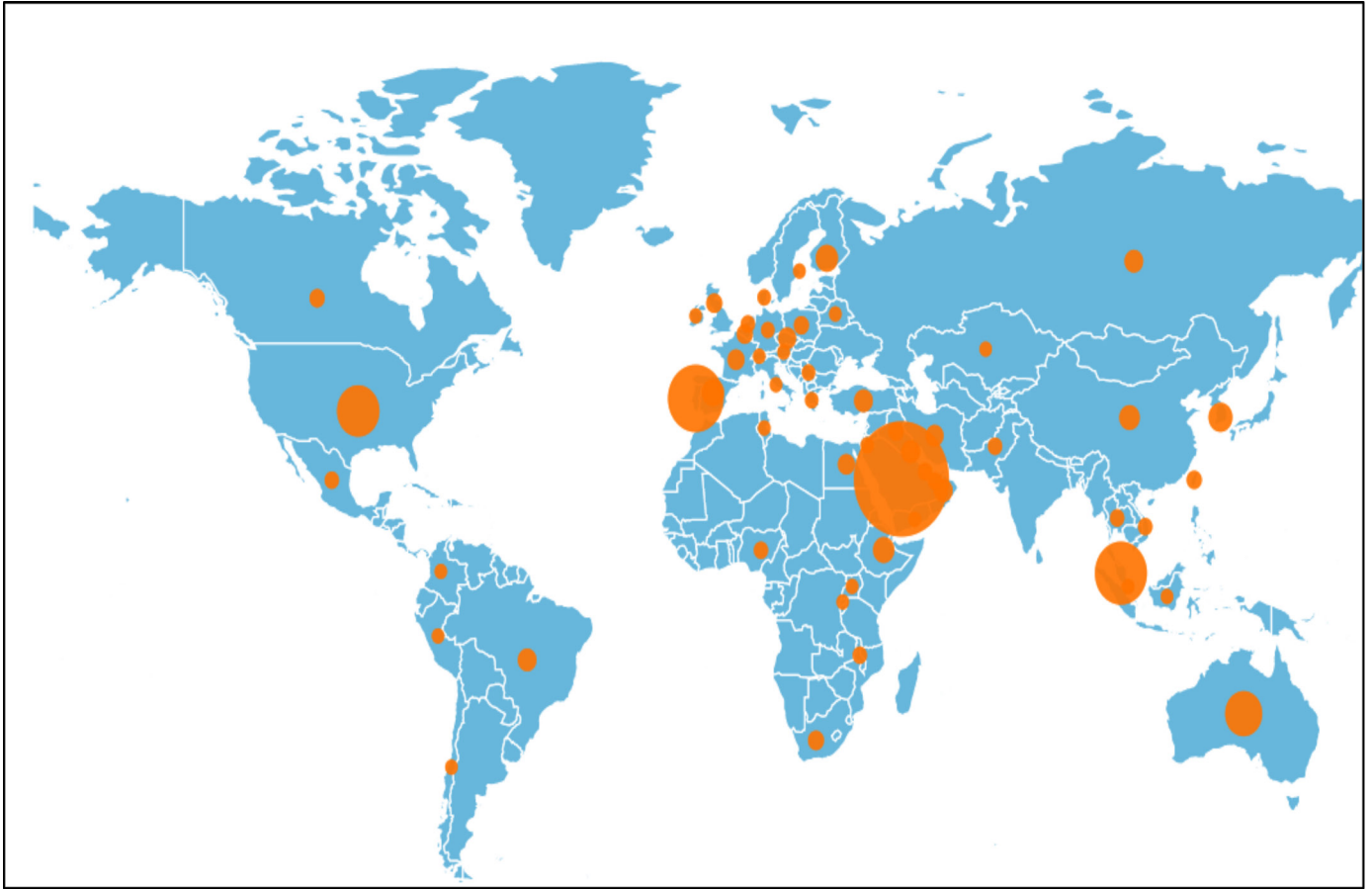
Summary of Patents

Patents: 2019-20

- Total Number of Patents Applied   : 9
- Total number of patents published   : 4

- **Patents: 2021-22**

- Total Number of Patents Applied   :5
- Total number of patents published   :3

Patents: 2020-21

- Total Number of Patents Applied   : 4
- Total Number of Patents Applied   : 7

Research Experience for Undergraduate (REU)

Undergraduate research opportunities help the student to experience and learn how to identify and define the problems and solve them, how to find and evaluate evidence, how to consider and assess competing interpretations, how to form and test their own analysis and interpretations and how to communicate their ideas and findings. These learning's enable them to take part in the research missions in their future career inside or outside academia.

Probably our university is the first in India to introduce 'Research Experience for Undergraduate (REU) s' in the curriculum as an optional course in 2011. The response from the students and faculty mentors has been overwhelmingly positive. The students and faculty mentors have devoted considerable time and effort to make the experience worthwhile and fruitful.

Summary of outcome of the REU course is reflected in the following table.

Year	# REU students	# REU Supervisors	# of Publications from REU	# REU students pursuing PG
2019-20	67	63	50	2
2020-21	32	34	21	2
2021-22	69	52	25	2

Research Promotion Schemes

University -Research promotion Schemes

To promote research in emerging and high impact areas, the University has initiated various funding schemes. The institute also supports Institutional Research Projects (IRP), Sponsored Research Projects (SRP) approved by the university R&D center.

I. University Research Funding Schemes:

KLE Tech is committed to investing in providing a favorable research environment to promote world-class research with the potential to result in fundamental new knowledge or technologies and exciting discoveries. The internal funding also aims at developing young researchers to reach their career development goals. Internal funding programs to support development research and creative activities are as follows:

- Capacity building Seed fund
- Grants to Enable and Advance Research (GEAR)
- Grants to conduct and attend conferences, Faculty development programs (FDPs) and staff development programs (SDPs)
- Incentives for quality research
- Grants for Patenting

Capacity building Seed fund

Research seed grants are aimed to support individual faculty or groups to undertake capacity building and early-stage research and development activities in promising new areas of research with high impact and future funding potential.

The following are the objectives of the seed fund:

- To support and enable early career researchers to explore new research areas and develop capability and experience to carry out larger collaborative research projects.
- To stimulate inter-and multidisciplinary work in new areas of research with high impact and future funding potential

Institute funded capacity building projects for individual faculty

Year	Total projects	Total amount in Lakhs
2019-20	12	29.26
2020-21	24	62.45
2021-22	24	53.70

Outcomes of Capacity building projects

Year	Sanctioned Projects	Sanctioned amount	Utilized amount	Outcomes of Capacity building Projects				
				Student benefited	PhD + M.Tech Student benefitted	Papers published	Applied for external projects	External sanctioned projects
2019-20	12	29.26	13.47	6	5+4	14	4	--
2020-21	24	62.45	18.8	8	12+5	20	11	--
2021-22	24	53.7	16.8	3	4+5	8	4	2

Grants to Enable and Advance Research (GEAR):

The 'Grants to Enable and Advance Research (GEAR)' scheme is envisioned to support and promote university-wide research initiatives that generate high-quality scholarship and creative works leading to external recognition and long-term success.

The objectives of the fund are as follows:

- To support research initiatives/projects that are strategically aligned with the University's research priorities.
- To assist research groups in gaining a competitive edge and developing a positive track record for securing external grants.
- To help develop research collaborations with industry partners as well as other external
- researchers from national as well as International Research Institutions and Universities;
- To spur multidisciplinary and interdisciplinary collaborations and strengthen the University's research portfolio in emerging fields.
- To undertake creative developmental activities to support entrepreneurs and industry in the region

Typically scheme supports a large team of researchers who bring together complementary skills, knowledge, and resources to explore new research areas with high impact. The funded initiatives are expected to engage young faculty and students in their scholarly activities.

Following are the category of funded research initiatives funded under the GEAR scheme:

- Research Groups (Thematic)
- Research Clusters
- Center-of-Excellences
- Institutional Research Projects(IRP)
- Product Design and Development Groups
- Faculty Student Startup groups

Institute Research Projects (IRP) 2021-22

AEV: ADAS/Autonomous functions, Coordinator: Nalini C. I.

India Chip, Coordinator: Saroja S.

Humanoid, Coordinator: Arun G.

Bionic Design & Additive manufacturing Coordinator: Ravi Guttal

Material Modelling & experimental studies of sheep horn as high impact strength panels for automotive front & rare component applications, Coordinator: Arun Y Patil

Propulsion System for battery Powered Electric Vehicle Coordinator: A B Raju

Outcomes of IRPs:

Year	# Papers Communicated /Published	# Proof of Concepts	# Prototypes	# of Products	# Patents applied
2019-20	35 Communicated 39 Published	27	8	3	1
2020-21	16 Communicated 6 Published	1	--	2	1
2021-22	11 Communicated 5 Published	8	--	1	--

Details of Sanctioned IRP, ISP, SRP Projects

Year	Number of Projects	Amount Sanctioned	Amount Utilized	Number of Students working	Number of faculty working
2019-20	7+2	20.00 L	6.42 L	44	30
2020-21	6+2	10.5 L	1.27 L	73	50
2021-22	9+3	16.5 L	14.5	85	35

II. External Research Funding

Funding Agencies:

S.N	Year	Number of projects	Amount sanctioned in Lakhs	Funding Agency
1.	2019-2020	10	149.15	MSME, DASSAULT SYSTEMS, AICTE
2.	2020-2021	08	160.94	IISC Bangalore, SAMSUMG, VGST K-FIST L2, AICTE
3.	2021-2022	09	101.68	MEITY, (TiH) Technology Innovation Hub, AICTE RPS, Dassault Systems Foundation, Karnataka Start up cell (Elevate), AICTE, Dassault Systems Foundation, Multi-Disciplinary Research Unit (KIMS Hubli).
	TOTAL	35	673.27	

Summary of External Funding

S.N	Year	Number of projects	Amount sanctioned in Lakhs	Funding Agency
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	TOTAL	35	673.27	

Students to Work on Real-World AI & Data Engineering Projects

- Engineers at Samsung R&D Institute, Bangalore will provide mentorship to students to make them industry-ready

- Students will also be encouraged to publish papers and file patents jointly with SRI-B engineers

Incentives given to faculty for good publication, funded research and guiding doctoral students

Sl. No	Year	# of incentives	Total amount in Rs.
1.	2019-20	36	7,65,000/-
2.	2020-21	11	95,000/-
3.	2021-22	14	1,28,000/-
		Total	**18,64,320/-**

Budget Summary

	Budget Heads		2019-20		2020-21		2021-22	
1	**University Sponsored Research**		**SA**	**UA**	**SA**	**UA**	**SA**	**UA**
	1	Capacity Building Projects	29.26	16.52	62.45	19.93	53.7	16.80
	2	Research Clusters + CoE	49.03	43.26	118.4	103.28	231.65	210.68
	3	Institutional Research Projects	20	27.96	10.5	1.27	16.5	14.5
	4	Research Group Projects	102.75	18.42	58.65	19.33	57.65	30.8
	5	Product design & dvp group	21.75	21.54	54.5	42.25	46.5	18.70
2	Conference to conduct		10	10	10		10	--
3	Conference to Attend/present		10	1.45	10	5.25	10	16.69
4	FDP		5		5	0.65	5	--
5	Patenting		5		3	0.74	3	3.48
6	Incentives		2.5	3.5	3	2.45	3	1.28
7	PhD Fees Reimbursement		5	3.34	3	3.33	3	2.97
8	Dept R &D, Consumables Miscl., others		103.5	41.4	47.47	49.22	50	61.15
	TOTAL		**363.79**	**187.39**	**385.97**	**248.43**	**490.00**	**377.05**
	TEQIP		**10**	**33.03**	**10**	**--**	**--**	**--**

Centre of Excellence in Material Science (CoE-MS)

Centre for Material Science mainly caters to research and development activities in the area of Nano-mat rials, Nano-composites for various engineering applications like structural, energy, biotechnology and agricultural sectors. The centre has several funded projects and state-of-the-art facilities to carry out innovative research in material science. Establishment of clean room facility of class 10000 for dedicated nano-fabrication facilities exist


Material Science: Applied Nano-structuredMaterials					
Faculty engaged	Student engaged	Papers till 2020-21	Papers in 2021	Patents	Products/POCs
10	Ph.D – 4 REU – 2 M.Tech – 3	Journal – 117 Conference – 64	53	Till- 2021: 10 In 2021-22: 2	09 Pocs

Publications

Quartile	2018	2019	2020	2021	2022 ongoing
Q1	6	19	12	16	15
Q2	3	3	11	20	17
Q3	1	3	2	4	5
Q4	0	1	1	4	2
-	12	6	22	9	9
Scopus	22	32	48	53	48
WoS	09	18	24	27	22
Citations (Scopus)	256	456	856	1070	1278

Patents filed

- Polymer nanocomposites coating for tribological application (2182/CHE/2015)
- Synthesis of nanocoolant containing Molybdenum di sulphide (MOS2) nanoparticles (201641034226)
- Potash alum Reinforced polymer nanocomposites for structural application (201614002919)
- Ceramic membranes for exhaust gas treatment (201641034227)
- Nanoceramic coating for cement composite (201641034228)
- Effect of Granite dust on mechanical properties of Cement and sand mortar (201641035851)
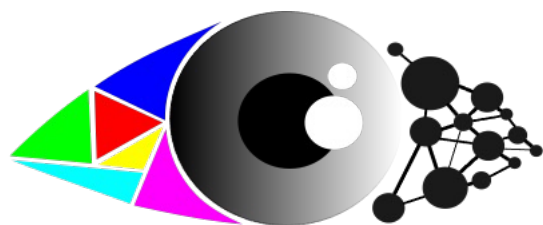
Research facility is created in collaboration with SRIB Bangalore, where students works on Real-world AI & data Engineering Projects. Engineers at Samsung R&D Institute, Bangalore will provide mentorship to students to make them industry-ready.

Samsung already works with students across top engineering colleges in Karnataka on Research and Development projects on areas such as AI, ML, Internet of Things & Connected Devices and 5G networks, as part of the Samsung PRISM program. This program has seen success over the last two years, with students successfully executing several real-world projects and also filing joint patents with SRI-B engineers.

Patents in 2021-22

- ABDNet: Attention-Based Decomposition Network for 3D Point Cloud (Published - Indian Patent)

- DeepDNet: Depth Dense Network for Depth Completion Task (Published - US Patent with Samsung)

- Automatic 3D Scene Composition (Filed - US Patent with Samsung)

Publications

Quartile	2019	2020	2021	2022 (Ongoing)	Total
Q1	2	3	11	7	23
Q2	10	8	5	2	25
Q3	3	6	17	4	30
Q4	2	5	9	6	22
TOTAL	17	22	42	19	100

Entrepreneurship

Centre for Technology Innovation and Entrepreneurship (CTIE)

KLE Tech has proven to be one of the top universities for startup creation over the past few years. A new entrepreneurial and innovation culture is hallmark of KLE Tech campus.. This cultural movement was catalyzed by 'Centre for Technology Innovation and Entrepreneurship' (CTIE) through formal and informal activities across the campus.

ABOUT KLE-CTIE

KLE-CTIE, started at the KLE Technological University in the year 2012 with the vision to be a **pioneer-to foster , enable and grow the innovation and entrepreneurial ecosystem in tier-II Cities in India** . In the last 10 years the KLE-CTIE has incubated **125+ companies** which includes **student & faculty** startups. Focused Domains are **VLS , IoT, Artificial Intelligence, ML,ITES, FoodTech, MedTech, AgriTech, EduTech** etc

Our Principles : Collaboration | Co-creation | Co-existence

PARTNERS

MILESTONE

- Established in 2012
- Recognized as Technology Business Incubator (TBI) by DST , GoI in 2015
- Established Tech Park with 30000 sq ft of incubation area in 2016
- Established Electronics Enabling Lab (EEL) with RF Testing Capabilities in 2019
- Recognized by Meity , GoI as TIDE 2.0 G2 Centre in 2019
- Collaborated with GoK & IESA to roll out Hubli ESDM eXchange (HEX) a ESDM Specific Incubation Centre in 2020
- Recognized by NSTEDB , DST as NIDHI Seed Support Scheme Centre in 2020-21

HIGHLIGHTS

Total Startups Supported	- 128
Employment generated	- 350
Internship opportunities	- 300
Faculty supported startups	- 02

Funding – Govt Of Karnataka, Govt Of India

TBI

Scheme : Academic/ Technical/R&D with proven track record in PROMOTION OF TECHNOLOGY BASED ENTREPRENEURSHIP

Support : New venture creation,Technology commercialization ,

Fund : Rs 1 cr

Ministry of Electronics and Information Technology
Government of India

TIDE 2.0

Scheme : Technology Start-ups (tech entrepreneurship) : (Healthcare , Education , Agriculture , Financial inclusion including digital payments, Infrastruture & transportation , Environment & clean tech , Clean energy etc)

Support : To Create ICTE (Information & Communication Technology & Electronics),Entrepreneuership Models,IPR ,IOT startups.

Fund : EIR – 4 lack (Development of an idea)/Grant -7 Lakh (Idea to prototype)

Ministry of Electronics and Information Technology
Government of India

NIDHI SSS

Scheme : Innovation, Technology Development And Deployment

Support : To nurture start-ups through scouting supporting and scaling of innovations

Fund : above 25 lakh / soft loan upto 1 cr

Activities for Entrepreneurial Journey

- PUPA- 1500+ student with over 400 products each year
- Butterfly – A pitch to kick start your enterprise
- Intel Ideation - A 2day ideation camp to equip with entrepreneurship skills
- Buildathon - A 9day marathon to build a product that customer needs
- Student Exchange – Program on Global Entrepreneurship & Innovation
- Internship with Startups & Minor Projects
- Minor program in Entrepreneurship

PHYSICS MOTORS

https://www.physicsmotors.com/

Physics Motors is into Research, Design and Manufacturing of Electric Vehicle Drive Train Technology which includes BLDC Motors, PMS Motors, Axial Flux Motors, SRM Motors and Motor Controllers.

Astr

https://astrdefence.com

Astr, desire to peristently design , develop and deliver the most reliable , secure , and efficient defence platforms to the Nation's Armed Forces giving them a decisive edge in their mission to maintain peace and secure the Nation .

Biosyl TECHNOLOGIES

https://biosyltech.com

Focusing primarily on FoodAdulteration Testing, Quality Analysis & Quality Control. An emerging biotechnological enterprise, driven by the vision to provide innovative products in food quality analysis, serving customers across India

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ARMTRONIX

http://armtronix.in

Armtronix was founded with an idea to make home automation products affordable, innovative, easy to modify and install for customized requirements. The Word ARMtronix stands for Automation, Robotics and Mechatronics.

SEMI-KSHA

http://www.semiksha.com/

End-to-End Service and Solution in Design Verification in Various domains like Signal Processing, Wireless,TeleCommunication, networking domain, and Hardware-software verification.

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http://3axis.co.in/

Portfolio of services & solutions an entire span of the product dev... engineering process such as product design, product development, prototyping, product re-engineering and consulting services.

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https://jeevini.com

Nutrition therapy made Simple, Specific, & Accurate by integrating Revolutionary systems, Smart Algorithms, and Formula Feeds

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https://indroneaerosys.com/

Leverage operational capabilities with Aerial insights

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https://www.saureno.com/

Saureno is a company developed from years of research in renewable energy sector under the roof of Energy Cluster, Center of research in Renewable Energy

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https://origamiautomation.wordpress.com/

Neuorigami Automation Private Limited is mainly focused on giving value to industries in terms of design, development and automation

TOP FACILITIES AT CTIE

- EEL Lab - RF Testing Equipment with Anechoic Chamber for rapid testing and prototyping of products.
- AI,ML Lab
- Makerspace - 3D Printing and CNC Turning, CNC Vertical Machining, CNC Router, CNC Wire EDM, CNC Laser Cutting, CNC Plasma Cutting Machine, Surface & Cylindrical Grinder.
- Centre for Innovation & Product Development (CIPD) – MSME Business Incubator – IP Support, support to build hardcore product startups, funding opportunities.
- ESDM Product Innovation Centre (EPIC)- Facilitate startup to go to market quick. Support for quick product development with established stakeholders.
- Mentor & Investor connect - Mentors who work with you weekly to elevate your startup to next level. Investors who precisely handhold for right dilution and business projections.
- Fully furnished office space

MEITY TIDE 2.0

Grant Application Review

A total of 3 emerging entrepreneurs had applied for funding under Tide 2.0 . They were viewed by the TIDE review committee & Grant was sanctioned. Domains are Med-Tech & IoT and the product was in prototype testing stage.

Scale-up Investment Grant - Rs 35 lac

Scale-up Investment Startup proposal under investment component for the implementation of " Technology Incubation and Development of Entrepreneurs (TIDE) 2.0 " Scheme . A total of Rs 35 lac was sanctioned & released to startup.

PRSG Meeting

The 6th Project Review and Steering Group meeting to review the technical and financial progress of TIDE 2.0 Centres implementing under the "Technology Incubation and Development of Entrepreneurs (TIDE 2.0)" Scheme under under the chairmanship of Shri Bhuvnesh Kumar, Joint Secretary, Meity. KLE-CTIE was presented the PPT & got approval for upcoming funding.

NIDHI – Seed Support Scheme by NSTEDB, DST

Expert Advisory Committee (EAC) E-Meeting

The progress report of the Scheme was presented at the EAC meeting .

Application Review

There were 4 applications received for funding under NIDHI SSS . They were viewed by the NIDHI SSS review committee & Investment was sanctioned.

HEX

Few startup had applied for funding under HEX . The startups were reviewed by Project Evaluation and Operation Committee (PEOC) cum Startup Selection Committee (SSC) of HEX and sanctioned the fund.

One day Workshop on Enabling Institutions to develop on – campus ESDM Product Development Ecosystem

- To support NAIN College to build capability to start on – campus ESDM Product Development.
- Define student projects appropriately to match industry expectation.
- Motivate students and staff to think more entrepreneurial in the end use of the product being developed.
- New Startup formation or Technology Transfer of Product to Industry must be the goal.

One day Workshop on: Basics of Embedded Systems – Hands-on Design, Assembly & Testing of Power Supply

- The workshop was organized for the 3rd& 5thsemester Electronics & Communication Engineering Diploma students of KLE Society's Smt. ChanabasammaIshwarappaMunavalli Polytechnic, Hubli by Hubli ESDM eXchange (HEX).
- Product Development steps for developing a product

TiECON 2022, Hubli

- TiE (The Indus Entrepreneurs)-Hubli organized an entrepreneurship summit titled "Women's conclave and Tiecon-2022"
- KLE-CTIE was honored with Social Initiative of the Year award under TiECON 2022.
- Physics Motors Technology Private Limited was recognized as the Promising Startup of the year at TiECON 2022
- Astr Defense & its CEO Mr. Ankush Koravi were identified as the Innovation of the Year award under TiECON 2022 & the award was given to him by CM of Karnataka, Mr. Kapil Dev and other dignitaries
- Neuorigami Automation India Private Limited & Abhiyantrik Private Limited made its way for Final Pitching at the final day of the event

Collaboration/Partnership

KLE –CTIE is in discussion with following Institutions /Organizations/Incubation Centre to sign an MoU

1. Society for Innovation and Entrepreneurship (SINE) IIT Bombay
2. GINSERV , Global Incubation Services , Bengaluru
3. Deshpande Foundation , Hubli
4. D Y Patil College of Engineering, Kolhapur
5. K L E Society Polytechnic ,Bailhongal
6. K L E Society's College of Pharmacy
7. KLEs College Of Pharmacy Nipani
8. KLE Institute of Technology, Hubli
9. KLESs B.B.A. College , Hubli
10. KLESs P.C.Jabin Science College , Hubli
11. Sharad Institute of Technology College of Engineering , Maharashtra
12. ST Joseph Engineering College
13. B.V.V.Sangha's Basaveshwar Commerce

Tech Park Tour

Tech Park is the Bustling Tech Startup Hub of CTIE , KLE Technological University . It attracts a lot institutions , organizations , industry leaders & experts from different parts of the country .

1. T-Systems
2. D Y Patil College of Engineering, Kolhapur,Maharshtra
3. Applied Materials
4. Marval
5. Aequs Pvt Ltd
6. GINSERV , Global Incubation Services , Bengaluru
7. KLS Gogte Institute of Technology, Belagavi
8. Capgemini
9. National Small Industries Corporation , Belgaum

Ignite the Entrepreneur in You

Ignite the Entrepreneur in You event was organized for Start-ups, Student , Faculty – to connect startups with relevant Industry Experts ,Corporates , Mentors , Students to showcase their innovation & find market opportunities

1. 9 students applied for internship
2. Instant discount app sold & made revenue by one of the startups
3. Few startups received Mentorship from the industry experts
4. Received 110+ Students & Faculty enquiries to start their Entrepreneurship Journey

ELVIC – A Hackathon to find Technologically Advanced Solutions in Civil Engineering Field

ELVIC – an amalgamation of Civil and Electronics, is an event organized by Centre for Technology Innovation and Entrepreneurship (CTIE) and Hubli ESDM eXchange (HEX) through the student body Make in BVB (MiB) in collaboration with Jalavahini Management Services Private Limited.

The hackathon invites application from students and startups to innovate products for on – field application in the civil engineering domain using technology like AI-ML, ESDM, Additive Manufacturing, Robotics and other.

A total of 200 participants. The panelist consisted of representation from Civil engineering, Electronics domain and Business domain. The Final Pitch was held on 3rd December 2021. There was an inaugural session to the final day of the event with two keynote addresses.

Two panels of Judges were formed separately to evaluate Startups and Students Teams. Respective Panels heard the day long presentation and concluded the evaluation with winners selected separately for Startup and Student category.

Multiverse of Madness

It was a contest for upcoming Entrepreneurs , where the contestants were given a unique product & concept with props . They should come with the interesting ideas & strategies to advertise the product ingeniously .

Webinar Series On – BIG AWARENESS

The Department of Biotechnology and Biochemical Engineering & Bangalore Bioinnovation Centre jointly organized a Webinar on "BIG Awareness" .

- Dr. Mary Mangaiyarkarasi – IP Officer , Bangalore Bioinnovation Centre
- Dr. Bratati Mukhergee, Associate program officer, SINE-IITB

Institution's Innovation Council (IIC)

Institution's Innovation Council , MoE's Innovation Cell announced the result for the academic year 2020-2021 . KLE Technological University was awarded as a 4 star institute under the program.

Mentor-Mentee Program

Institution's Innovation Council (IIC) program of MIC aims at establishing IICs in HEIs to streamline and strengthen the I&E ecosystem in HEIs . There are a large proportion of IIC institutions still need continuous guidance on expert linkage, infrastructure creation and facility management, and resource mobilization to conduct I&E activities. To address this, MIC has designed a Mentor-Mentee scheme for IIC institutions. This twining program will help IIC institutions to facilitate knowledge exchange and resource mobilization between institutions by offering inter-institutional collaborations.

CIPD - Centre for Innovation & Product Development

Centre for Innovation and Product Development (CIPD), was established in 2016 under the guardianship of KLE Technological University as product innovation, design, and development center, to support industries in the "Idea to Market" journey. The centre's vision is to foster innovations, business growth, and employment opportunities in rural India, tier II and III cities of India. CIPD has commercialized products and system-level innovation. The center was granted four design patents and has filed one utility patent. There are few products on the anvil to be commercialized.

Over the years , CIPD grew in different areas to further support start-ups and entrepreneurs by establishing an business incubator and an IP facilitation cell. Both these endeavors have been supported by the Department of MSME, Government of India. CIPD has been recognized by the Department of MSME as a "Design Centre" specifically to support MSMEs in this region. CIPD-BI has Eight start-ups incubated with the KLE Tech - MSME business incubator.

CIPD has developed socially relevant innovations into world class products; We have partnered with entrepreneurs to take these products to the market. We focus on indigenous / traditional knowledge technologies, green technologies and technologies that help physically challenged members of the society. Our endeavor shall support "Make in India" and "Atmanirbhar Bharat" vision for India as a country in a small way. We have created an ecosystem for innovation to product journey for all inventors.

CIPD has developed a unique consortium business model to deliver system solution to local MSME and Multi-national. This model is proven in implementing Smart Campus Solution within our campus with KLE Tech itself as the teacher customer.
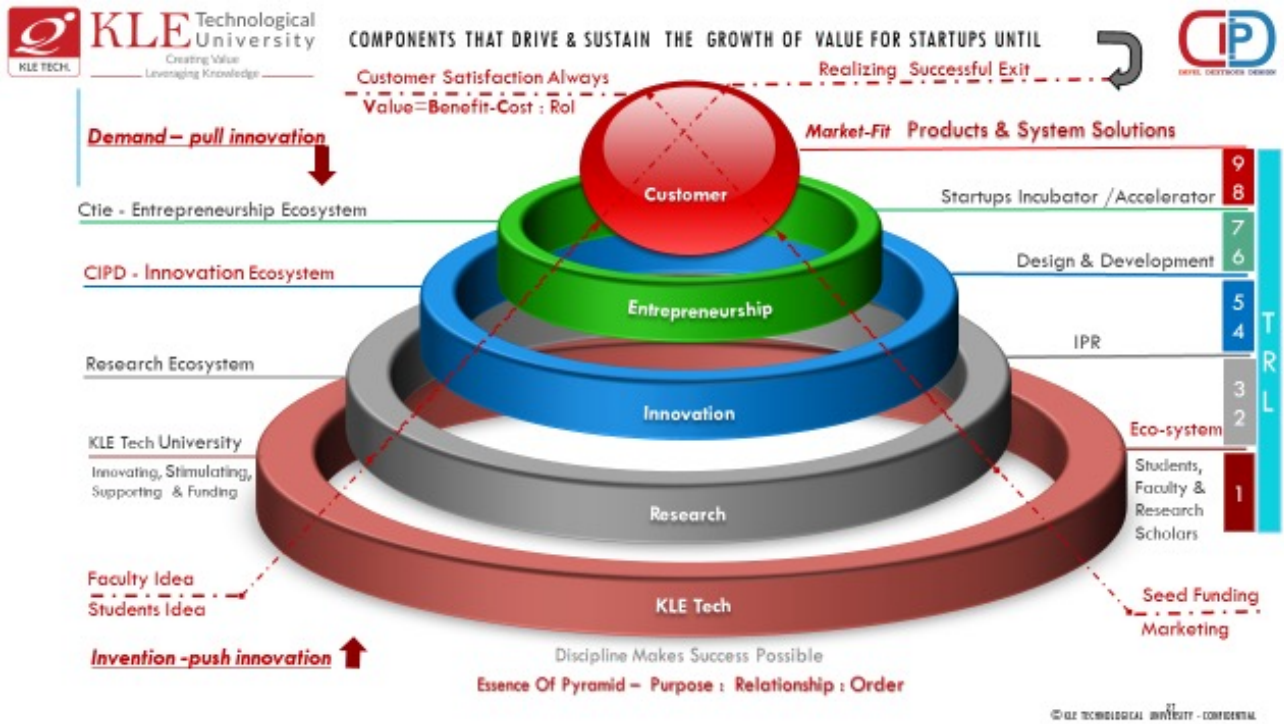
CIPD has the capability to deliver solutions as per the 4 layer System solution technology architecture
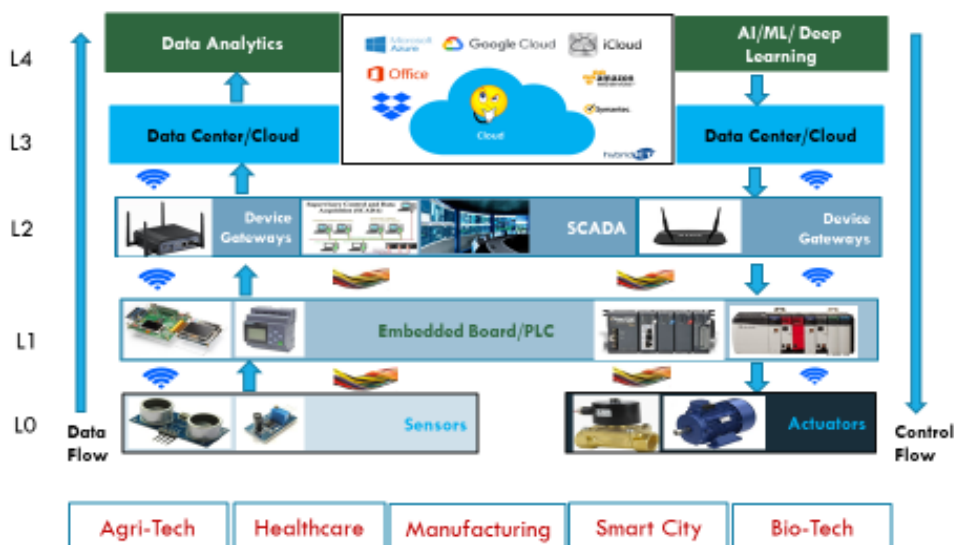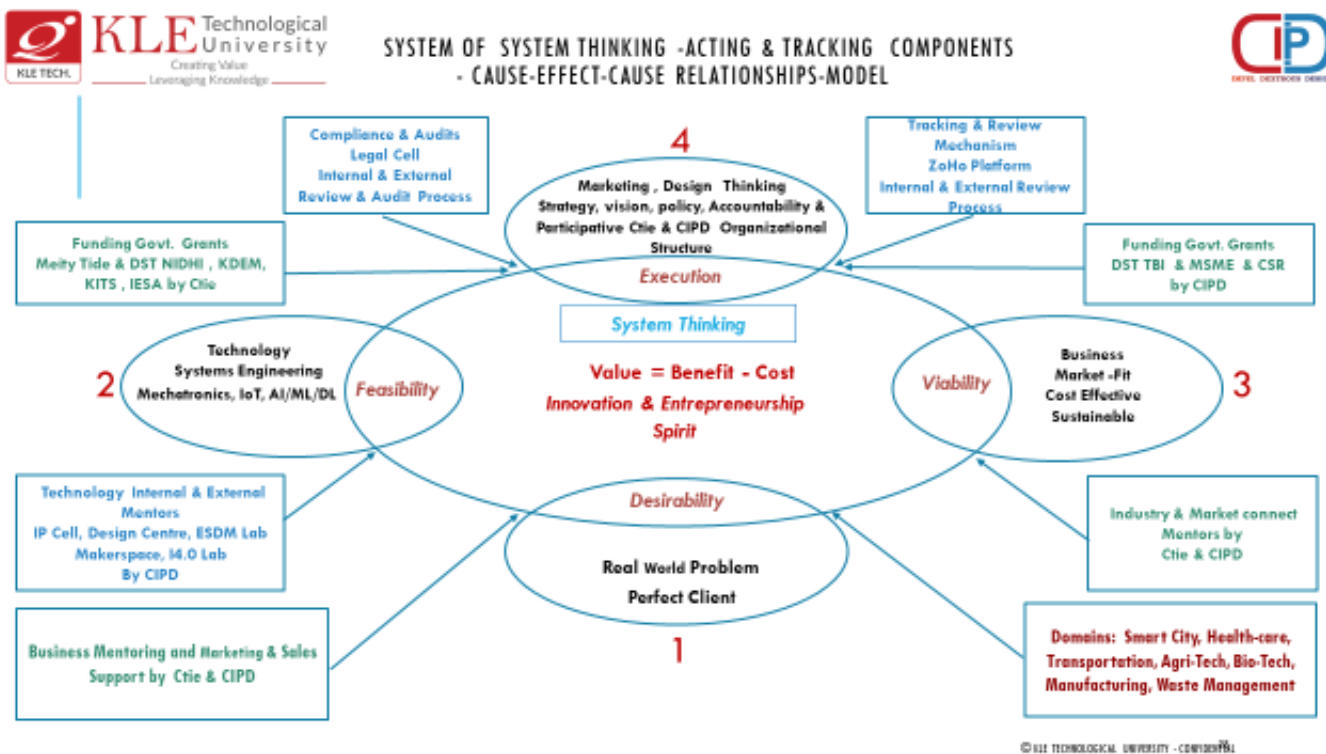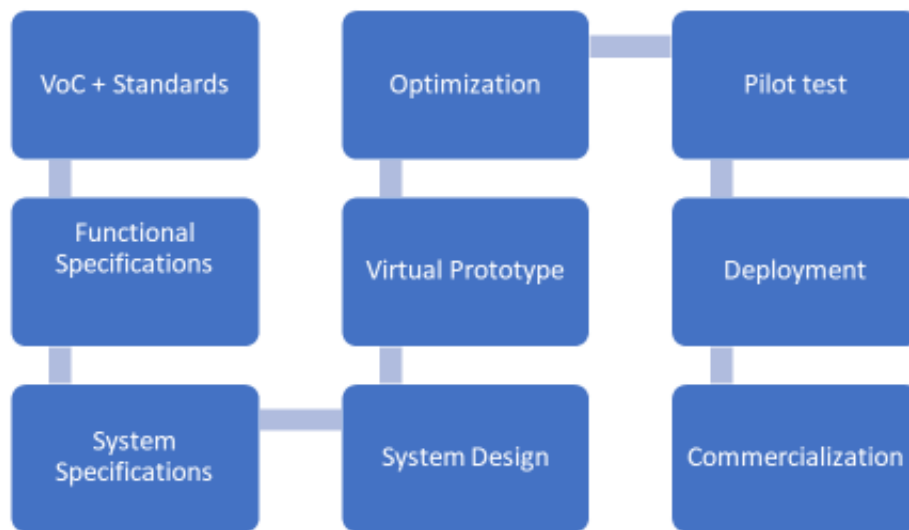
CIPD   New Product Development & System Solution Development Model components
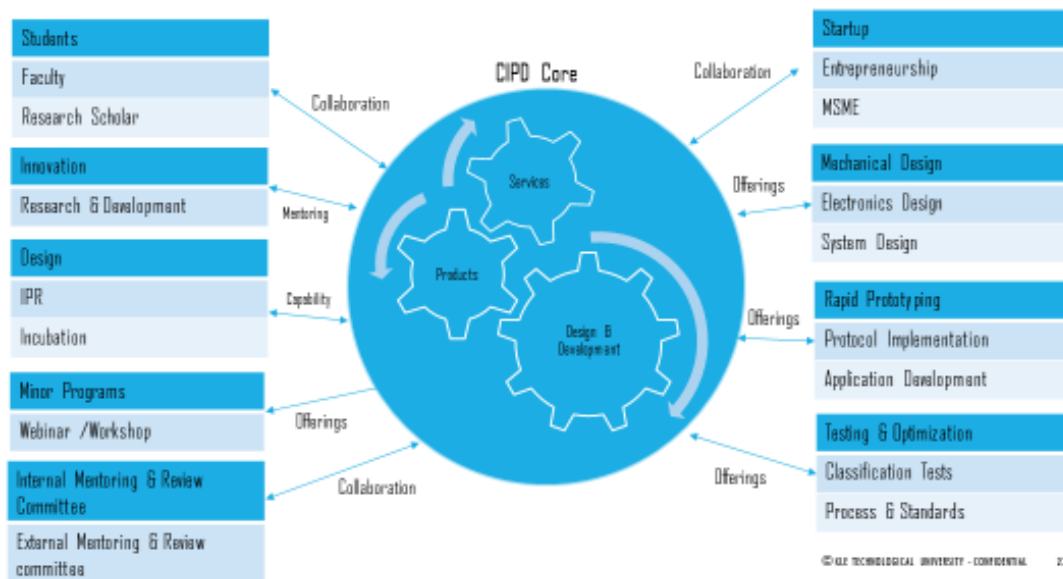

CIPD System Solution and Execution Model

CIPD Process Map

CIPD Collaboration , Capability and Offerings

Availability of proof of concepts

Details about PoCs

- Device and Chair for elderly/physically challenged to treat piles with warm medicated water – In process of applying for design registration
- Traffic Suraksha - Smart system to manage traffic and deterrent for traffic rule violations - design registration granted
- Biodegradable Plastic substitute with organic fillers – Patent filed
- Frugal solar Incinerator for incinerating sanitary pads – Had come as a request from municipal waste management organization
- Household oil adulteration detector a device to identify adulterated edible home at home using AI-ML technologies – Patent application in process
- Bio-composite – a biodegradable (green) substitute for high strength plastics used in automotive and durable goods industry – patent application in process
- Vision – Aid for visually impaired - patent published
- Smart Katti Basti – Technology Intervention for Katti Basti Ayurveda treatment – patent application in process

Ready prototypes

- Low density biomass shredding machine – Design registration granted – Technology transferred to Beam Laser Engineering Pvt. Ltd. In 2020
- Medhya – Domestic Oil extraction machine completed indigenized a truly Make in India product – Technology transfer activities in process
- Indian Automated Beehive – Patent Published – Technology developed for Farmers First LLP, technology transfer process initiated
- Smart Campus eco-system – Systems installed in 6 buildings within the campus. Commercial deployment by a consortium of startups in progress.
- Saathi – Foldable walker cum chair – Patent published, product developed by student entrepreneurs during their course work. Technology ready for transfer

IP holding

- Utility patents   – 18
- Design registrations   – 4

Incubator activity

- Incubation for startups in Tier II cities of India

- 10+ years of incubation experience

- KLE Tech. Innovation and Entrepreneurship Ecosystem attracts a lot of local

entrepreneurs, alumni entrepreneurs, student entrepreneurs and industry experienced veterans who wish to start something of their own. This is due to gamut of service that it offers to budding start-ups.

1. Electronics Enabling Lab (EEL) – housing RF Testing Equipment and Anechoic Chamber for rapid prototyping and testing

2. Idea to Prototype ESDM Lab to support ESDM Startups and contribute to build region as ESDM Cluster

3. Maker's Space, Tinkering Lab and lab facilities at various departments.

4. Access to skilled student pool who come on board to deliver real time projects by way of internship and minor projects.

5. Experienced mentors, who handhold the start-ups in various technical and non – technical areas and upskill them.

6. Access to funding opportunities by connecting to right investors.

MakerSpace

The 'MakerSpace' is a central facility created to promote product development and realization eco-system on the campus. It intends to provide students with unique learning experiences on real industry problems and products in a work-emulating environment. It helps them understand industry needs, professional requirements and the product realization process. The MakerSpace provides modern design, prototyping, and manufacturing facilities required for realization of any electro-mechanical product. It also provides expert supervision and training to use the facilities.

The MakerSpace is administered by the College as a resource for all engineering departments. Facilities, with an investment of about 3.0 crores of rupees, occupying 10,000 square feet, include a machine shop (4000sq. ft), model shop (2000sq.ft) and project work area (4000sq.ft). Engineering student can use the MakerSpace for concept design & realization, course-related activity and/or competition projects such as SAE Formula, SAE- BAJA SAE- ecokart, SAE-Efficycle, ROBOCON, etc. The shop is open 8 am-8 pm weekdays and on weekends as needed. Supervision is provided and advice is offered to get them started, but students build their own dreams, make their own mistakes, and learn from them. Facilities include state of the art machine tools and support systems that compliment the prototyping process The ultimate goal of the MakerSpace is to support the students and entrepreneurs to convert their product ideas into a reality. The facilities are open to student teams, faculty members and entrepreneurs working towards creating products to realize our national dream 'Make in India'

MakerSpace *Dream it.., Make it…*

Facilities in nutshell		
SNo.	Facility	Capability
1.	CNC Turning Centre	Precision Cylindrical parts High-speed Machining Versatile
2.	CNC Vertical Machining Centre	Parts of dies and molds High-precision parts Prismatic part machining
3	CNC Wire EDM Machine	Electric Discharge Machining, Machining difficult to machine materials, Delicate parts
4	CNC Router	Machining various materials, Complex contours, Easy to operate
5	CNC Laser Cutting Machine	Cutting materials such as acrylic, Double colored board, leather, fabric, paper, wooden packaging box, bamboo craft, leather shell, ivory and so on. Architectural model, aviation and navigation model
6	CNC Plasma Cutting Machine	Any thickness from 0.3mm through to 25mm can be cut. Virtually any metal can be plasma cut including: steel, stainless steel, aluminum, copper, galvanized sheet Cut precise and intricate flat shapes.
7	3D Desktop Milling Machine	PCB making, Non-proprietary materials – acrylic, wax, . . . Creating prototypes
8	3D Printing Machine	High-end prototyping Powered by Poly-jet technology ABS as printing material.
9	3D Imager	Fast and consistent measurements for dimensional inspection and reverse engineering applications. On parts, assemblies, and tools. Reverse engineering applications
10	Portable Co-ordinate Measuring Machine	Verification of product quality by performing 3D inspections, tool certifications, CAD comparison, dimensional analysis, reverse engineering. Measurements with regard to GD&T
11	Plastic Injection Molding Machine	The plastic injection molding machines along with the customized mold are used to produce vast quantities of identical plastic items ranging from disposable consumer goods to high precision engineering components. Mass Production
12	Universal Cylindrical Grinding Machine	Grind the external and internal surfaces of a cylindrical work-piece to a very close tolerance up to 0.003mm with high quality surface finish (up to N4).
13	Universal Tool & Cutter Grinding Machine	Sharpening and reconditioning wide range of high speed and carbide tipped tools
14	PCB Machining	PCB Prototyping systems enable easy and high precision board making Ideal for in-house prototyping Time saving of product development Produces boards with the precision expected in a laboratory Processing without chemicals

List of Startups & activities at MakerSpace

## Jivanah Platform Services Pvt. Ltd.

The Firm has business of providing farm mechanization services to small and marginal farmers of India. Different types of services include Harvesting, Crop Care and Land preparation etc. JPS Pvt. Ltd intends to solve the farm mechanization problems through developing machinery that would add value to farmers in terms of increasing their yields and lowering the costs. Technology is the centre-piece of the Business. Currently JPS Pvt. Ltd is targeting two crops Viz., Potato and Groundnut. JPS Pvt. Ltd is also pursuing the Autonomous Agricultural vehicles that would help deliver the precision farm mechanization services. Dr Nijagun Hiremath is Founder and CEO of the company. He holds a PhD degree in Agricultural Sciences and also an MBA from WLU, Canada. He has 20+ years of experience in the Agri Business domain.

Product: Mini combine potato harvester (single row): A tractor driven harvester which helps small and marginal farmers to harvest potato in a better way and solve the labor shortage problem, such that the farmers won't miss the optimal harvesting window.

Working Specification:

- Harvest 3 ac (15 bigas) per day.
- Harvest without hassles with only 2 labors.
- No Potatoes left or cut.
- Clean potatoes with no weeds and clods.

Prototype-I
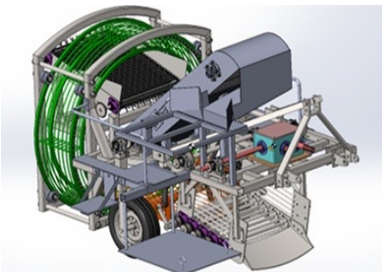
Idea Conceived

Proto-I making @MakersSpace

Field Testing

Prototype-II

Idea Conceived

Proto-II making @MakersSpace

Proto-II making @MakersSpace

GLIDE WHEEL

GLIDEWHEEL is founded in 2021 by an enthusiastic mechanical engineering student Mr. Hashim Kazi (7349543306), under the mentorship of Dr. Ravi Guttal and Prakash Kurdekar. GLIDEWHEEL is a single-wheeled, self-balancing, electrical motor- powered board where the rider moves without stepping or pushing off the ground with feet as in a normal skateboard. In India, where the youth population is around 40%, most of them prefer to use public/ personal vehicles for short-distance travel, which causes a delay in reaching destinations. Most public transports run on fuel, which is a major concern for our environment. Therefore, the proposed solution, i.e, a portable electric vehicle, is a need of the hour product that is user-friendly, eco-friendly, cost-efficient, and suitable for daily use.

Motor Sports club

A formula student team under KLE TECH Motorsports Club representing the University at national level competition conducted by SAEINDIA since 2016.

Team Vegadooth Racing; a Formula Student team with 20 enthusiastic undergraduates coming from various disciplines to meet one common goal - build the best race car; competitors, innovators and grafters: determined, passionate and strong engineers

Open Cockpit Formula Style Race Car powered by KTM 390 engine clocking top speed of 119 kmph. The car is completely designed and manufactured in the college workshop facility at KLE Tech – Makerspace.

Euros Racing is a team of 20 automotive multi disciplinary enthusiasts under KLE TECH Motorsports Club representing the University at national level competition SAE INDIA M-BAJA since 2018

Team Euros Racing is an off-road vehicle racing team which participates in the M-Baja competition, held by SAE India. The team is a clustered set of subsystems, to full fill the requirement of design, build, and race. Also, the team was concentrating on enforcing inter-disciplinary individual talent to mutual talent as to reinforce overall team combination. The main motive is to design and build All-Terrain, AWD off-road vehicle, as per the guidelines of M-Baja, to conquer better result in the versatile events held by M-Baja, SAE India.

All India ranking 36 out of 214 teams-• COST category finals AIR 4th •CAE category finals AIR 7th

An E Baja Team under Motorsports Club representing the University at National level competition conducted by BAJA SAE INDIA since 2016.


All India Ranking 9 at SAE E-Baja National Competition Runner up in overall virtual dynamics.

Formula Bharat – Kari Motor Speedway, Coimbatore • Virtuals 2021 • Winners- Business Plan Presentation • Overall AIR 5

aeroKLE - Aero Design Team

aeroKLE is the University Aerospace Club formed by a bunch of likeminded students from different disciplines under the mentorship of Dr. BB Kotturshettar and guidance of Professor Dr. Nagaraj Banapurmath and Professor G.M. Hiremath to carry out cutting edge research in development of unmanned aerial vehicles. Started in 2016, aeroKLE is one of the youngest budding student projects in the country. With Hand Launched Glider Competition, Dyaus Pita 2016 the team started the drive of igniting inquisitiveness and interest in the young minds in aerospace domain.

aeroKLE Aerodesign team has secured AIR #2 in the final round and AIR #1 in the preliminary round of the 1st edition of SAE India's Aerothon 2021. The team bagged a cash award of $75,000 after competing against 76 other teams throughout the nation. With our third triumph, the club has maintained its two-year winning streak. Due to the pandemic, the competition was held virtually. The competition featured two rounds: the preliminary phase, in which the team had to submit a design document for the given problem statement, and the final round, in which the team had to present the design for the given design constraints. Five teams were chosen from the first round to advance to the final round. This round consisted of a 24-hour HACKATHON in which a problem statement was given on the spot. At the end of 24 hours, the team had to complete the design and present it in front of the jury. During the competition, the event was judged and mentored by dignitaries from the most esteemed universities and companies of India. Professors from IISC, IIT Mumbai, IIT Kanpur, IIT Madras and Executives from CEMILAC, HAL, General Aeronautics, Honeywell, Boeing, HCL were the jury members and mentors of the event.
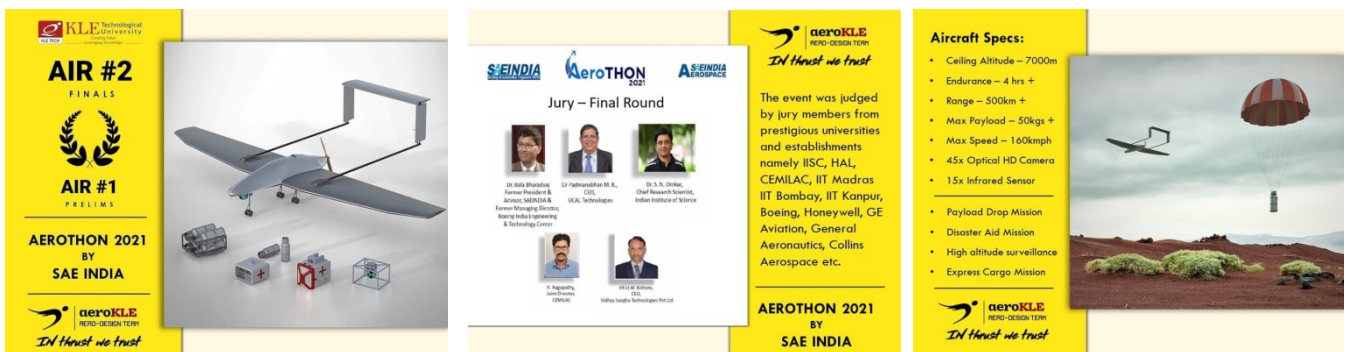
Minor project (School of Mechanical Engineering)

UPI enabled vending machine for ISKCON (A CUSTOMISED VENDING MACHINE)

Inspired by this feeding as an act of service team of students set up their journey to improve the mode of food delivery system taking guidance from the international society for Krishna consciousness (ISKCON), DHARWAD, to address the issues with event crowd management and setup a non contact vending delivery.

Features:

- Devotionally attractive vending machine exterior.
- Contactless delivery using UPI payment
- Helps the management in serving
- Separate storage units for different Prasad
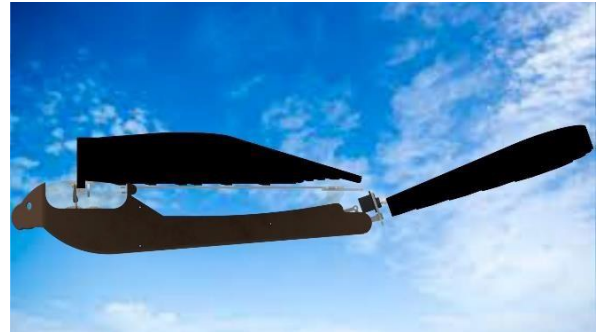
Achievement:

Bagged third place in SHRISHTI Competition 2021

Ornithopter:

This project is inspired by bird flight which replicates the motion of the articulated wing structure in birds. Its wings move not only up and down, but also twist at specific angles to make efficient aerial moves. We aim to achieve an overall structure with minimal overall weight, in conjunction with functional integration of propulsion & lift in the wings. Further development of the bio-mimetic model will make it good option for many works related to aerial vehicles.

An ornithopter is an aircraft designed to achieve flight by means of flapping wings. Development of bird scale flapping flight has led to interesting results and advances in the flight mechanics and control of non-flapping flight as well, under the broad umbrella of wing articulation, morphing wing technologies, and bio-inspired maneuvers. Unlike airplanes birds do not have vertical tail. Central issue of yaw stability in birds is how the aerodynamic moments are generated to provide a restoring capability against a disturbance in the side slip. Since birds do not have vertical tail which would be an efficient means for achieving yaw stability, they relay on the wing, the body and possibly the tail to produce yawing moments due to side slip.

Specification:

An ornithopter is an aircraft having weight of 650-700 gm, 6-7 Hz number of flaps, 14.8V & 850mAh power supply, 7.5:1 aspect ratio, 18 min flight time and 80 m (R) 10 m (H) controlling range,

Participated in SHRISHTI Competition 2021.

Industry Partnership

It is essential that the institute continues to strengthen its association with the industries to enhance its student learning experience and relevance of its research activities.

Curriculum intervention:

Board of studies of every program is having at least two senior members from Industries like Microsoft, GE, Tata motors, TCS, Samsung, and Sankalp etc.

Industry Oriented Courses:

Active Directory Services: Has been offered in Collaboration with Microsoft IGTSC for the students of CSE, ISE and EC branches.

Fundamentals of IT: Has been offered by the Mechanical stream departments in collaboration with Infosys.

Automotive Electronics: Has been offered in Collaboration with Robert Bosch and KPIT. This has led to increased placements for the companies in the field of automotive electronics in Bosch, KPIT and Continental.

Data Integration and Cloud Services: Has been offered for the Computing sciences stream departments in collaboration with Informatica

Course design, Co-delivery of content, mentoring/reviewing of students' mini and minor projects and Certification Programs are conducted in association with companies like Dassault Systems, Bangalore and Pune, Altair, Bangalore, Microsoft, Juniper networks, Akamai, Fortinet, Robert Bosch, Indian Machine Tool Manufacturers Association, Bangalore,

Industry based projects:

Around 175 capstone projects/senior design projects have been carried out in collaboration with Industries like Microsoft, Juniper Networks, Sankalp, Ion Idea, Hi- WI etc. along with startup companies

MOU's:

Mou's have been signed with

1. Samsung
2. Dana Anand India Pvt. Ltd
3. YourDOST Health Solutions Pvt Ltd

Smart India Hackathon 2022

K L E Technological University hosted SIH 2022 grand finale, which was identified as Nodal center by the Ministry of Education's innovation cell (MIC)/AICTE, for the Department of school Education and Literacy. Around 27 teams from different parts of India participated in the event.

Internships:

1097 students were offered full time Internship by various Industries like Microsoft, Bosch, Infosys, Amazon, Samsung, Informatica, Juniper Networks, Mercedes Benz R& D, Siemens Healthcare, Volvo, SAP Labs, Dassault System, AWS, Salarpuria, Sattava Group Bangalore, HAL, IISc Bangalore, IIT Dharwad, SWR, Texas Instruments, JSW steels etc. with stipend ranging from Rs 5000 to Rs 50000 per month.

Education Research

Centre for Engineering Education Research (CEER)

About CEER:

KLE Tech is playing the vital role of creating engineering education system offering opportunities for students to realize their potential and prepare themselves for a professional career. This includes designing industry-relevant curriculum, practicing active, collaborative, and experiential learning pedagogies, and assessment and evaluation. Today KLE Tech is recognized for innovations in this space. The need to learn from these innovations and sustain them resulted in establishing Centre for Engineering Education Research (CEER). CEER was established in 2010 to promote innovations in engineering education, learn from these innovations, collect best practices and institutionalize them.

Vision: To promote innovation and research in Engineering Education to bring about a qualitative change in students' learning experience.

CEER works with the following objectives:

1. Empower faculty members with the best practices in curriculum design, teaching-learning and assessment through training, workshop and allied activities

2. Encouraging innovation in curriculum design, teaching-learning and assessment

3. Influence faculty mindsets to recognize the importance of research-driven instructional practices

4. Design and offer innovative courses and programs

5. Identify and build strategic global partnerships and collaborations to elevate our research capabilities and those of the wider engineering education community

6. Conduct outreach activities like workshops, trainings and conferences.

The processes and practices towards accomplishing these objectives have made significant contribution in enriching the engineering education ecosystems of the University. The number of engineering education research publications is growing steadily since the last five years. CEER has earned a respectable position among the practitioners of engineering education. A good number of Engineering Colleges in India have taken inspiration and have set up such centers in their respective Institutions taking best practices and courses from CEER

PRAYOG VARSH- 2021 – AUGUST 2021

Objectives: The objectives of PRAYOG exhibition are to promote PEER LEARNING, as students learn from other projects and what they can incorporate from the other projects, and to CELEBRATE STUDENT SUCCESS.


Description:

KLE Technological University, Hubballi organized Prayog Varsh 2021, an exhibition of Engineering Exploration course projects done by first-year B.E students. Showcasing the efforts put in by 750+ students in designing 185 projects and their corresponding learning during these challenging times of the COVID pandemic. We are happy to share that the event was inaugurated by Dr. Ashok Shettar – Vice Chancellor, KLE Technological University. Dr. Gopalkrishna Joshi, Executive Director, KSHEC, and Mr. Mahadesha V, Program Director, CeG graced the event.

The event was scheduled for 07th August 2021 between 8.00 am and 11.40 am. The inaugural event was held between 8.00 am and 8.30 am and was telecasted live on YouTube and many other websites. The exhibition was split into two sessions: Session 1 (8.30 am to 10.00 am) and Session 2 (10.10 am to 11.40 am). Each session included 97 and 88 projects done by more than 750+ students on 21 problem statements.


Prayog Varsh is a platform for students to share their experiences with the world. Prayog Varsh also serves the purpose of peer learning for our students. The exhibition provided an opportunity for the visitors to comprehend the projects and interact with the students' teams and their mentors virtually. A total of 24,000+ visitors from different locations visited the exhibition. The representations included India, The United States, United Arab Emirates, Australia, Germany, France, Hong King, Ukraine, Australia, and Saudi Arabia
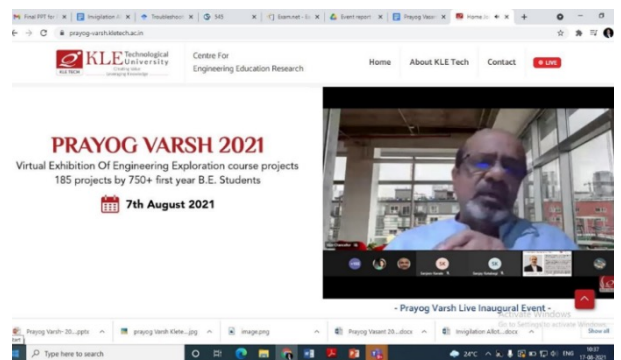
LMS ORIENTATION TO THE FACULTY OF KLE TECHNOLOGICAL UNIVERSITY

The Centre for Engineering Education Research conducted a 2 days' workshop for all faculty of KLE Technological University on 31st of July and 2nd August 2021.

The resource persons for the training are Dr. Vijayalakshmi M, Mr. Sanjeev Kavale, Mrs. Unnati Koppikar and Mrs. Radhika Amashi.The aim was to make all faculty aware of new features developed on KLE Tech LMS and prepare the LMS for the odd semester of the academic year 2021-2020. The training focused on the following topics:-
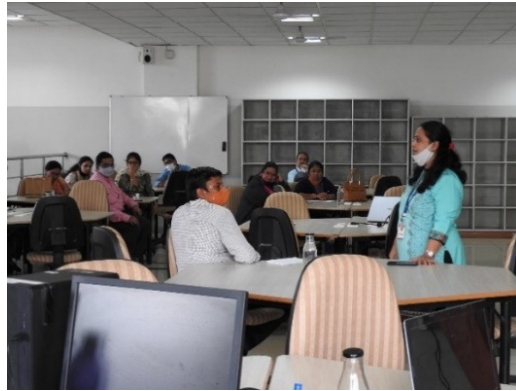
ENGINEERING EXPLORATION AND BLENDED LEARNING WORKSHOP FOR DR. M. S. SHESHGIRI COLLEGE OF ENGINEERING AND TECHNOLOGY

The Centre for Engineering Education Research conducted a one-day training program on "LMS Orientation and Operationalization" for a group of five faculty members of KLE Dr. M.S. Sheshgiri College of Engineering and Technology on Friday, August 13th, 2021. The aim was to Introduce KLE

Tech's learning management system, its features, and its operationalization factors to the faculty. The training focuses on the following:-

Features of KLE Tech's LMS.

1. Roles in LMS.

2. Organization hierarchy of LMS.

3. Operationalization of LMS.

PRAYOG VASANT- APRIL 2022

Objectives: The objectives of the PRAYOG exhibition are to promote PEER LEARNING, as students learn from other projects and what they can incorporate from the other projects, and to CELEBRATE STUDENT SUCCESS.

KLE Technological University, Hubballi organized Prayog Vasant 2022, an exhibition of Engineering Exploration course projects done by first-year B.E students. Showcasing the efforts put in by 540+ students in designing 130 projects and their corresponding learning. We are happy to share that the event was inaugurated by Dr. Ashok Shettar – Vice-Chancellor, KLE Technological University. Dr. Vijayalakshmi M, Director Centre for Engineering Education Research, KLE Technological University, Deans and HoD's KLE Technological University, Guests invited from various institutions/industries graced the event.

CERTIFICATE OF AWARD
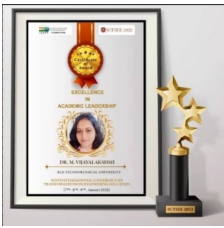
Dr. Vijayalakshmi M, Director of CEER KLE Technological University, won the award in the EXCELLENCE IN ACADEMIC LEADERSHIP. Participated in the "Ninth International Conference on Transformations in Engineering Education" on 7th 8th 9th January 2022 Conference on Transformations in Engineering Education 2022 hosted by IUCEE.

FACULTY CONCLAVE 2021-2022

A two-day Faculty Conclave 2022 was organised by Centre for Engineering Education Research (CEER), KLE Technological University, Hubballi on 3rd and 4th January, 2022. This is one of the annual events.

Faculty Conclave is a celebration that showcases and shares innovations in engineering education done by faculties in the previous academic year. This year`s conclave theme is "Digital Revolution in Engineering Education" with 10 different themes as shown in table 1. The focus of this edition of the Faculty Conclave is the use of technology in engineering education. This year`s faculty conclave has 20 paper presentations, 5 poster presentations, 3 workshops, and 2 keynote sessions.

IMPROVING STUDENT LEARNING OUTCOMES THROUGH TECHNOLOGY ENHANCEMENT AND SERVICE-LEARNING

CEER was established with the goal of enhancing research and innovation in Engineering Education in India. In pursuit of this goal, CEER organized a guest talk on improving students learning outcomes through service learning, leveraging technology for fostering classroom management, and promoting student engagement.

The talk was conducted on 2nd March 2022. The event included with guests and session,

Guests are: Dr. Audra Anjum and Dr. Javad Anjum

Session: Education research discussion

STUDENT PROJECTS WITH HARDWARE AND IOT USING MATLAB AND SIMULINKA

Center for Engineering Education Research KLE Technological University organized a "Students Projects with Hardware and IOT Using MATLAB and Simulink" On 24th May 2022 (3:45 pm to 4:45 pm) in CEER LHC 201.

Agenda:

Introduction to Model-based design

Discussion on Math Works support for low-cost hardware

Demos to showcase deployment on Arduino and Android

Ideas for industry-relevant student's projects.

DTSI WORKSHOP ON PROTOTYPING

Resource Persons: Badri Narayana, Sreenivasan & Rohit R V

Date: 25-06-2022 **Time:** 9am to 11am.

Participants: Dr. Vijayalakshmi M, Director of Centre for Engineering Education Research (CEER), Dr. Preeti Patil Asst. Prof CEER, Preeti Baligar Asst. Prof CEER, and 20 DTSI teaching faculties.

The workshop concentrated on the detailed go-through of the LMS on the Prototyping Phase. Activities and Exercises like the Mirror Game were conducted for the faculty members. Training on Logo Soft.

IT Platforms and Services

The present IT infrastructure of KLE TECH was redesigned in the year 2014-15, as to cater modern engineering day's needs and challenges. We have upgraded the basic network infrastructure under TEQIP Grants; we upgraded Campus back bone from Copper to OFC.

Major highlights of our IT Infrastructure are

- Campus back bone is of OFC (Ring structure) 10Gbps.

- Department Internal LAN is 1Gbps.

- Number of nodes in Campus is 2400 plus (desktops).

- With 09 VLANs / sub nets and internal LAN with different topologies.

- Internet bandwidth is 1250 Mbps leased line (service provider is BSNL, TATA and AIRTEL).

- 95 wireless access points across campus and 125 across hostels. (with SSID KLE _Tech)

- More than 52 servers and 33 Workstation to cater academic and research needs of faculties and students.

- DGX-1 super computer for research activities.

- Firewall, AAA Server, Access point controller unit which can withstand 30 lakh concurrent sessions with highly secured network. (Viz. SophosXG-450, Aruba Controller etc...)

- Every single machine in campus is connected with internet facilities.

- Every single classroom and laboratories in campus are well equipped with audio visual facilities.

- Video conferencing and teleconferencing tools at seminar halls. (Cisco WebEx with 70s smart board and Polycom)

- 12 Well-equipped studio rooms for lecture capturing systems

- Well defined IT policy for smooth procurement, and managing IT infra across campus.

- Telephone & EPABX: Matrix – ETERNITY MENX16SDC Hybrid PBX with Analog Extension – 248, Trunks -8, DKP-1, PRI- 1

- Mat Lab campus wide License for students and staff for academic use.

- Antivirus – Sophos End Point Advance. Intercept X with 2000 Licenses.

- Microsoft Academic Alliance License for Operating systems and Development tools.

Infrastructure

Inauguration of KLE Tech Park Building by Honorable Chief Minister of Karnataka Shri Basavaraj S. Bommai and Shri Murugesh R. Nirani, Honorable Minister for Large and Medium Industries, Government of Karnataka in the month of September 2021

Student Accolades

AeroKLE Won the All India SAE Aeri Design Challenge

KLE Technological University's team #AeroKLE won the All India SAE Aero Design Challenge! Competing with the best of best engineering colleges in India, Team #AeroKLE beat 74 teams to come out on tops for the third time, This is the maximum number of times any college has won it. The team consisted of Prajwal G (Captain), Vinayak V Pastey (Team Manager), Vinutha S, Aditya Deshpande, Preeti Hegadal, Samarth Guruji, Amrut Nuli, Laxmi Kolkar, Ranjeeta Angadi, Prajwal Kerudi, Santosh Jayi, Anurag Shekhar, Jagadeesh Pradhani, Nandan Date, Nishad Hooli, Rohan Kolhar, Siddaraj K and Vrishab P Yethanahalli.

SRISHTI 2022

Our students Devyansh Agrawal, Manisha Belegal, Krupa C. Patil and Mehar Anjum for their spectacular performance SRISHTI 2022, the state-level Engineering Student Project Exhibition competition, held at B.M.S College of Engineering, Bengaluru between 23-27th July 2022. KLE Technological University was awarded the Runner Up prize for their overall performance among 104 colleges and 1,700 students across Karnataka. It is with great delight that we describe their prize-winning projects.

Vande Bharat Nritya Utsav

Two of our students selected for Vande Bharat Nritya Utsav at Republic Day Parade i.e on 26th February 2022 at New Delhi

NASA India

School of Architecture is proud to address that 50 students of our school have actively participated in NASA India Competitions and brought glory to our university.

We have managed to get shortlisted in multiple trophies of the 64TH Year such as ANDC, G-SEN, MSL, ZNDC, SHORT FILM, and DANCE. We sent 3 entries for ANDC in October – December 2021 (all the 3 entries got shortlisted in the top 30 and 1 entry in the top 24 (National Level), G-SEN (January – February 2022) got shortlisted in the top 30, Landscape (MSL, March – April 2022) in the top 11, Short film (September-October 2022) in top 5, Dance in top 5 (September- October 2022) and we won Special mention - 1 for ZNC Design Trophy (September- October 2022) .
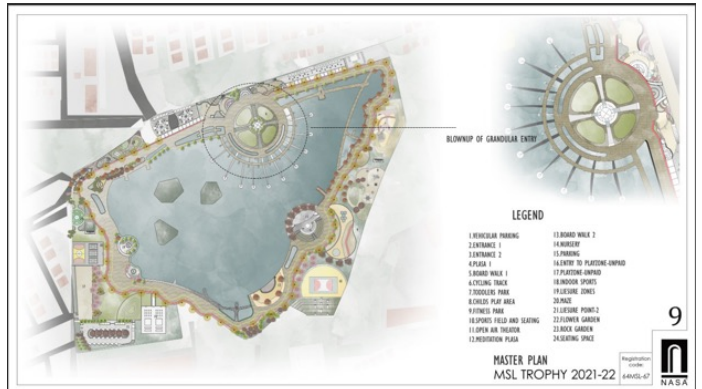

DESIGN TROPHY – KLE SCHOOL OF ARCHITECTURE WON the CITATION
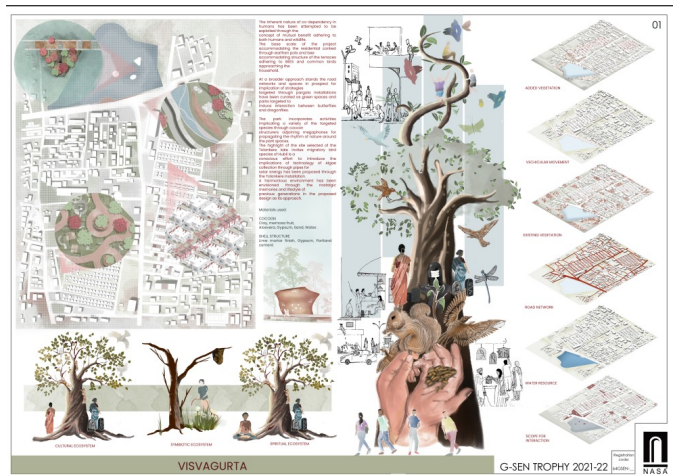
G –SEN - KLE SCHOOL OF ARCHITECTURE SHORTLISTED IN THE TOP 30 (NATIONAL LEVEL)

MSL TROPHY

STUDENTS AT ANDC 2022 & ZNC 2022

Board of Governors

Name	Designation
Dr. Prabhakar B. Kore Chairman, Board of Management KLE Society, Belagavi and Chancellor, KLE Technological University, Hubballi	Chairperson
Prof. Ashok S. Shettar Vice Chancellor, KLE Technological University, Hubballi	Member
The Principal Secretary/Secretary Higher Education,Government of Karnataka.	Member
The Principal Secretary/Secretary Medical Education, Government of Karnataka.	Member
Prof. R. Natarajan Nominee of sponsoring body, KLE Society, Belagavi.	Member
Dr. Sudha N. Murty Nominee of sponsoring body, KLE Society, Belagavi.	Member
Prof. P. G. Tewari Dean Academic Affairs, KLE Technological University, Hubballi	Member
Prof. B. L . Desai Executive Dean, KLE Technological University, Hubballi	Member
Dr. N. H. Ayachit Registrar, KLE Technological University, Hubballi	Member Secretary

4 Star Ranking

Success comes down to one's efforts and focus.With amplified joy, we would like to announce that KLE Technological University (India) has secured 4 star ranking (Highest in 2020-21) in Institution's Innovation Council (IIC) 3.0 (2020-21) Annual Performance: University Category, under Ministry of Education, AICTE and MoE's Innovation Cell

Life Time Achievement Award

It's a proud moment for KLE Technological University, Dr Prabhakar Kore, Honarable Chancellor, KLE Technological University, Hubballi and Chairman, KLE Society, Belagavi was bestowed with a Life Time Achievement Award by the prestigious Indo American Press Club USA on 21st May 2022 in New York. This award is in recognition of contributions to society and nation-building activities by providing affordable education and health care in North Karnataka and Maharastra, especially in the rural areas. The event was organized by the Press Club of the USA at the Indian consulate in New York, His Excellency Mr. Randhir Jaiswal, Consul General, Consulate General of India, New York

Government of Karnataka forms task force to develop R&D policy with Dr. Ashok Shettar as its Chairman.

The state government has formed a task force to develop the state's research and development policy. Dr. Ashok Shettar, the Vice Chancellor of KLE Technological University will lead the task force as its chairman.

He heads a 10-member Special Task Force constituted by Chief Minister Basavaraj Bommai to draft an R&D Policy for Karnataka.

Highly Cited Researchers in 2021

Researchers of KLE Technological University, Hubballi, Prof. Tejraj Aminabhavi and Dr. Nagaraj Shetti, are ranked among World's Top 2% Scientists in the 2020 List of outstanding researchers prepared by Elsevier BV, Netherlands and Stanford University, USA. Prof. Tejraj M. Aminabhavi and Dr. Nagaraj P. Shetti are receiving this recognition for the successive second year. This is the newest data-update for "Updated science-wide author databases of standardized citation indicators". This ranking has been standardized using information from citations, h-index, co-authorship adjusted h-index, citations to papers in different authorship positions and a composite indicator. Separate data were shown for career-long and single year impact. Scientists are classified into 22 scientific fields and 176 sub-fields. Field- and subfield-specific percentiles are also provided for all scientists who have published at least 5 papers. Career-long data are updated to end-of-2021. The selection is based on the top 100,000 by c-score or a percentile rank of 2% or above.

Prof. Tejraj M. Aminabhavi is ranked among Top 1% Highly cited researchers of the world in the 2021. The Highly Cited Researchers list from Clarivate (Web of Science Core Collection) identifies scientists and social scientists who have demonstrated significant influence through publication of multiple highly cited papers during the last decade. Highly Cited Researchers from Clarivate is an annual list recognizing influential researchers in the sciences and social sciences from around the world.

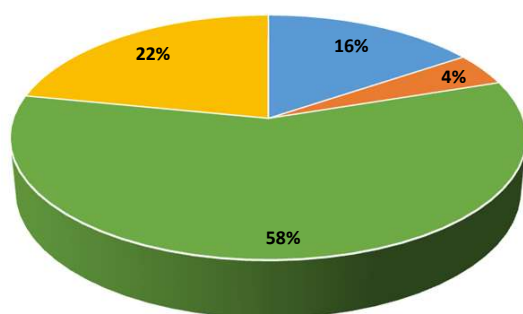Prof. Tejraj M. Aminabhavi   Dr. Nagaraj Shetti

Financials

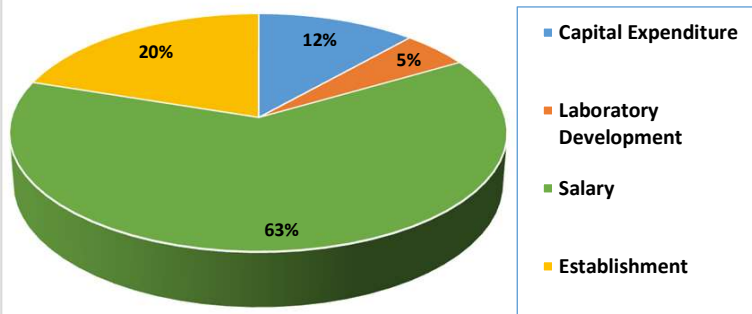**Financials**
KLE Technological University, Hubballi

Income and Expenditure Statement for the Financial year 2021-22
(Includes Capital Expenditures)

Income	Amount (Rs)	Revenue Expenditures	Amount (Rs)	Capital Expenditures	Amount (Rs)
Academic Receipts	874,683,839	Staff Payments & Benefits	508,011,577	Buildings	117,860,087.00
Grants and Donations	112,225,793	Academic Expenses	48,065,474	Equipments	10,683,613
Income from Investments	4,887,466	Administrative & General Expenses	63,550,656	Computers	7,087,462
Other Incomes	13,179,912	Transportation Expenses	1,622,666	Furnitures & Fixtures	17,010,771
Grant Received (R & D) - To the extent utilised -Revenue	1,885,899	Repairs & Maintenance	48,418,319	Software	1,849,025
Grant Received (General)- To the extent utilised -Revenue	264,202	Finance Costs	11,968,714	Books	1,527,804
Grant Received (R & D) - To the extent utilised -Capital	900,110	Research and Development	19,322,732	Vehicle	400,000
		Revenue Expenses out of Grants	635,731	Equipments R & D	11,967,450
		Revenue Expenses out of Grants (R & D)	1,986,055	Computers R & D	1,472,433
				Software R & D	4,996,914
		Depreciation	105,735,045	Books - R & D	225,980
Total	**1,008,027,221**	**Total**	**809,316,968**	**Total**	**175,081,539**
		Capital Expenditure Total	175,081,539		
		To Surplus (Excess of Income over expenditure)	23,628,713		
Grand Total	**1,008,027,221**	**Grand Total**	**1,008,027,221**		

Expenses in F.Y 2021-22 — Capital Expenditure 16%, Laboratory Development 4%, Salary 58%, Establishment 22%

Expenses in F.Y 2020-21 — Capital Expenditure 12%, Laboratory Development 5%, Salary 63%, Establishment 20%

Alumni Association

Nurture Merit @ BVBCET

Nurture Merit @BVBCET started from 2004-05. Nurture Merit @ BVBCET Project has been molded into an everlasting activity to contribute to the needy BVBians - needy and merited students for the years to come. Association has set target to collect an endowment of Rs.1.5 Crores at the earliest. This project took off when the 1978 & 1979 batch alumni met in the College campus on 13th June, 2009. They donated Rs.2.5 lakhs on that day. They again collected another Rs.2.5 lakhs and donated for the Project within another one week. Further these two batches have also donated Rs.10.0 lakhs.

The endowment donation for one student has been raised to Rs.4.0 lakhs from June, 2022. Total of 118 students have availed the benefit under this scholarship scheme until 2021-22. From the data available 39 beneficiaries have passed out since 2016-17, of whom 30 have been placed with an average package of Rs.5.2 lakhs.

he project has been made as self-sustaining by collecting donations from alumni members and one beneficiary is connected to a single donor/ one donor (if group has contributed donations) for further mentoring.

Corpus fund set aside for the Nurture Merit project stands at Rs.56.0 lakhs as on July, 2022.

Our Alumni Association office is housed in the KLE Tech Park building.

KLE Tech has proven to be one of the top universities for startup creation over the past few years. A new entrepreneurial and innovation culture is hallmark of KLE Tech campus.. This cultural movement was catalyzed by 'Centre for Technology Innovation and Entrepreneurship' (CTIE) through formal and informal activities across the campus.

Transcripts procurement support to Alumni

On the Alumni Association website, option is provided for alumni to upload their application for procuring Transcripts for their higher studies. Till date Association has processed more than 500 applications.

Alumni Building Project

BVB-CTiE (KLE Tech Park) has been inaugurated by Shri Basavaraj Bommai our alumnus and Hon. Chief Minister of Karnataka State along with Shri Murugesh Nirani, Minister for Mines & Geology, Karnataka State.

KLE Tech Executive Leadership Team

Dr. Ashok Shettar
Vice Chancellor

Prof. B. L. Desai
Executive Dean

Dr. N. H. Ayachit
Registrar

Dr. P. G. Tewari
Dean - Academics

Dr. B. B. Kotturshettar
Dean - Planning &
Development

Dr. Uma Mudenagudi
Dean - Research & Development

Prof. S. B. Kurubar
Dean - Examinations

Dr. Anil Nandi
Controller of Examinations

Dr. Sanjay Kotabagi
Dean - Student Welfare

Heads of Schools / Departments

Dr. B. B. Kotturshettar
Mechanical

Dr. Nalini Iyer
Electronics &
Communication

Dr. Meena M
Computer Science

Dr. M. V. Chitawadagi
Civil

Dr. A. B. Raju
Electrical & Electronics

Prof. A. C. Giriyapur
Automation & Robotics

Dr. Basavaraj Hungund
Biotechnology

Dr. Vinaya Hiremath
Architecture

Prof. P. R. Patil
Master of Computer
Applications

Prof. Jagdish Bapat
Master of Business
Administration

Prof. Sanjay Kotabagi
Humanities

Prof. T V Swamy
First Year

Center Heads

Mr. Shivayogi Turmari
Director, KLE CTIE

Dr. Vijayalakshmi M
Director, CEER

Dr. Satyadhyan Chickerur
Coordinator, CIAP

Prof. N R Banapurmath
Head, CMS

Prof. C. D. Kerure
Placement Officer

Prof. Parikshit Hegde
Coordinator, Infocell

Dr. M. R. Patil
Head, C & M Cell

Mr. Prakash Kurdekar
Associate Director, CIPD

KLE TECH

Annual Report 2021-22

KLE Technological University

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