



SELF STUDY REPORT

FOR

2nd CYCLE OF ACCREDITATION

KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES

**KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES KARUNYA NAGAR
641114
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1. EXECUTIVE SUMMARY

1.1 INTRODUCTION

Karunya Institute of Technology and Sciences (KITS) was established in the year 1986 to impart professional education and execute socially relevant research in a value-based ecosystem. True to its name, *Karunya* meaning *Compassion* aligns all its programmes to fulfil this ideal. KITS was founded by Late Dr. D.G.S. Dhinakaran and Dr. Paul Dhinakaran as a residential Christian Minority Institution in a sprawling 476-acre land in the foothills of Western Ghats amidst the rural community in Coimbatore. KITS was upgraded to an Autonomous Engineering College in 1999, accredited by NAAC in 2003 with Grade A and conferred Deemed-to-be-University status in 2004 by UGC. In 2017, UGC granted the extension of Deemed-to-be-University status and AICTE approved all the existing Engineering and Management Programmes. Presently, 5 UG Programmes are accredited by NBA and the visit of the expert team for 5 PG Programmes has been scheduled. The Institution was ranked consecutively for 4 cycles in the assessment period within the top 100 by NIRF, MHRD under the University and Engineering Category and was ranked 80 under the Engineering category in 2020.



Figure : Fact File

There are 7035 students in this fully residential campus attending 19-undergraduate, 20-postgraduate and 17-doctoral Programmes in the interdisciplinary and emerging areas of engineering, arts and sciences,

agriculture and management. The campus has a built-up area of 2.44 lakh sq.m and an instructional agriculture farm of 329 acres. The teaching-learning process has been reconfigured to foster critical thinking, hone analytical skills and inculcate scientific temper culminating in product development, innovation and entrepreneurship. The Institution has state-of-the-art laboratories funded by GoI–Food Processing Ministry, Nano Mission, and collaborative Centres of Excellence namely, Karunya-Siemens, Salzer, Suse, Cisco and Water Institute. The Institution also has linkages with reputed Universities: Technion, Hebrew, Bar-Ilan and Ben Gurion-Israel, Technical University Berlin-Germany, Old Dominion-USA and Cape Breton-Canada.

Since the last accreditation, the Institution mobilized a grant of Rs.1569 lakh from Government agencies, generated a consultancy income of Rs.563 lakh, published 66 patents with 5 granted and has 3942 research papers published in Scopus indexed / Web of Science journals, with h-index of 65 / 62 respectively.

Vision

VISION STATEMENT: *True to its name Karunya which means 'Compassion' shall be an institution with social concern to address the problems of humanity through technical education, research and development, products, patents and extension. The faculty and students of Karunya will be nurtured in character, ethics and spiritual discernment to serve the society with fervor and zeal.*

Recognising the need for an institution of higher education in the region, the founders established KITS, to cater to the needs of first generation learners from rural areas, with emphasis on professional domains.

- Right from its inception, the Institution has focused on academic excellence incorporating industry oriented curriculum, contemporary pedagogic practices, collaborative learning and entrepreneurship.
- As the Institution grew in status and became the first autonomous institution among the self-financing professional institutions in the State, it enhanced focus on research, consultancy, extension and development of products. Four domains were identified as thrust areas viz., water, food, healthcare and sustainable energy. To fulfil the noble ideals, state-of-the-art-laboratories were established in all these four verticals to provide opportunities for the students to experiment, innovate and incubate, leading to start-ups and entrepreneurship.
- Strategic partnerships with leading industries, academic and research institutions provided a platform for cross-pollination of thoughts and creation of novel research perspectives. As a result, thousands of scientific papers were published in reputed journals and projects worth about Rs.3000 lakh relevant to its focal areas were executed and patents published.
- Along with their academic pursuits, the students are exposed to the problems of the poor, sick and the marginalized and encouraged to solve livelihood issues through scientific and technological intervention.
- A value-based approach that instills ethics, morality, honesty and confidence is accentuated in all the activities of the students and faculty, creating a positive influence on the community.
- The Vision of KITS that strives to inculcate moral and ethical values such as integrity, compassion, and stewardship in students, ensures that the graduates are recognized as competent professionals and socially responsible citizens.

Mission

MISSION STATEMENTS :

- *To raise students to serve humanity by attaining high levels of academic excellence and professional competence with exemplary values and social concern.*
- *To find solutions to human problems in areas relating to water, food, healthcare and sustainable energy through scientific, social and technological research.*
- *To setup care homes for physically and mentally challenged, the elderly and the terminally ill, enabling students to understand human needs through participation and dedication, solving problems through research, development, innovation and spiritual care.*

From the Mission statements, the *raison d'être* of Karunya is to excel in academics, perform socially relevant research and inculcate compassion with sound ethical moorings. In order to achieve this, KITS has identified 8 strategies :

- (i) providing unique student experience adopting the best global pedagogic practices in higher education;
- (ii) building a stimulating teaching and learning environment emphasising on product and technology development;
- (iii) initiating innovative and socially relevant research in water, food, healthcare and sustainable energy;
- (iv) enhancing faculty competence through training and quality improvement programmes;
- (v) involving Government Departments, NGOs, R&D institutions, institutions of national importance and industrial houses in India and abroad for collaborative learning;
- (vi) introducing efficient transparent management practices in academic, research and financial administration;
- (vii) incorporating the latest digital initiatives like e-governance, ERP tools, Learning Management System, digital library, digital and e-learning platforms and
- (viii) emphasising sustainability considerations in all academic missions.

The curricula and syllabi have been realigned to cater to the requirements of invention, innovation, incubation and entrepreneurship to assimilate the spirit of *Aatmanirbhar Bharat*, *ARIIA* and *NEP*. KITS believes in a multidisciplinary approach in teaching, learning and research with emphasis on a seamless integration of different disciplines across the institution for a holistic development of students. Regular capacity building and quality improvement initiatives are undertaken to empower the faculty and students.

To consummate the Vision, the students of KITS are engaged in extension activities in the care homes for the elderly and mentally challenged. Realising the importance of SDGs, the initiatives taken include: planting of indigenous herbs, establishment of agriculture farms, bioenergy units, paper recycling unit, sewage treatment plants and a solar photovoltaic plant.

1.2 Strength, Weakness, Opportunity and Challenges(SWOC)

Institutional Strength

Located in the foothills of Western Ghats in a serene environment, KITS draws students from 33 States/UTs to its fully residential campus.

- Excellent infrastructure facilities with a built-up area of 2.44 lakh sq. m, 149 ICT enabled class rooms; 131 well equipped laboratories, 19 Centres of Research, 329-acre instructional farm with polyhouse and meteorological observatory, Central Library of 3083.30 sq. m, Computer Technology Centre of 3046.60 sq. m, Karunya Innovation and Design Studio, Karunya Media Centre and a 15 acre sports arena, all catering to 19 UG, 20 PG and 17 Ph.D. programmes under 3 Schools.
- State-of-Art facilities with an investment of Rs.17313 lakh for augmentation of infrastructure, Rs.9834 lakh for maintenance of support facilities, Rs.750 lakh /year on an average for laboratory equipment, Rs.143 lakh /year for library infrastructure and learning resources, Rs.307 lakh to upgrade audio-visual facilities for developing e-learning resources at the Media Centre.
- Vibrant Teaching Learning Ecosystem with emphasis on project and product-based learning, innovation, incubation and entrepreneurship following the guidelines of GoI such as National Education Policy, *ARIIA*, and *Aatmanirbhar Bharat*. 78.41% faculty with Ph.D., and 30 with PDF and international research experience. The FSR is 1:15 and male-female faculty ratio is 1:1.
- Research and Consultancy Culture is in practice leading to research projects and consultancy assignments to the tune of Rs.2132 lakh. 3942 research papers in Scopus /WoS journals with a h-index of 65 and 62 respectively.
- Karunya Innovation and Incubation Centre has mentored 38 start-ups. 66 patents published through IPR Cell, 5 granted and 2 commercialized. 25 Technology Missions of KITS paved the way for research in emerging areas of social relevance.
- International Collaborations have facilitated 237 students to pursue projects in institutions abroad through IAESTE-Karunya, a nodal centre in India and other HEIs abroad, and KITS has hosted 165 foreign interns.
- Extension activities have been integrated into the UG curriculum to sensitize students to the community service and 1005 activities have been initiated in hamlets/villages.
- Decentralized Administration empowering Deans of Schools, Directors, Heads and faculty members to shoulder administrative and academic responsibilities.

Institutional Weakness

- Although 165 international students pursued internship in KITS, only a limited number of foreign students, the enrolment for degree programmes is not significant.
- Lack of public funds for overall development
- In spite of 66 patents filed and published, only two could be commercialised: 5 patents granted are awaiting commercialization
- The national declining trend in admissions of core engineering branches has its repercussions in Karunya as well
- The campus being at a distance of 30 km from the airport, is often difficult to attract experts from outside, in spite of other locational advantages suitable for an academic institution.

Institutional Opportunity

The vast campus of KITS offers great opportunity to expand and introduce multi-disciplinary programmes

embracing emerging areas in arts, sciences and technology as envisioned in the NEP.

- Having established strong links with some of the reputed universities in the top 500 ranking across the globe and with internationally renowned R&D Institutions, KITS is poised to forge joint research programmes.
- The laboratory facilities including a NABL lab and the research centres at KITS can cater to large scale incubation, testing and consultancy projects in the areas of food processing engineering, water technology, aerospace engineering, nanotechnology and waste management to name a few.
- The MoU with YNOS, a Venture Engine is expected to provide a technology platform for the early stage entrepreneurs of KITS and boost start-ups through consultation and interaction with venture capitalist.
- The Metro link to Karunya campus, as a part of Smart City is expected to reduce the travel time from the city and enhance the academia and industry connect.
- 25 Technology Missions initiated in cutting edge areas covered by industry 4.0 are already yielding encouraging results; this trend may help KITS in fulfilling its S&T targets.

Institutional Challenge

- Uncertainties with regard to admissions and placements in the pandemic scenario
- As a self-financing Institution, the lack of development grants from Government is a constraint for advancement
- Coping with changing technologies in the global scenario
- Strengthening industry-driven research as observed in many developed countries
- Attracting more students from abroad to enhance diversity and increase global visibility

1.3 CRITERIA WISE SUMMARY

Curricular Aspects

KITS has adopted all the core values espoused by NAAC in its curricular design and development. The core values integrate national development, global competency, value systems, use of modern technology and quest for excellence as reflected in the POs, PSOs and COs.

1. Curriculum Design and Development

- The courses and syllabi of different programmes of the Institution are developed and evaluated at different levels by Curriculum Development Cell, Board of Studies, Academic Council and Board of Management consisting of industrial experts, eminent academicians and alumni.
- The Institution offered 50 UG and PG programmes during the assessment period, 88% has undergone syllabus revision and updation, resulting in 96.3% employability and entrepreneurship.

2. Academic Flexibility

Under the CBCS , academic flexibility is ensured by offering multifarious electives covering fundamental and applied courses to acquaint students with advancements in diverse disciplines, and 38.95% of the new courses are in cutting-edge areas. 2164 students benefitted from 33 interdepartmental electives during the year

2019-2020.

3. Curriculum Enrichment

- The curriculum of different programmes are a combination of fundamentals, current and advanced trends in science, technology and humanities aimed at holistic and multi-disciplinary approach.
- During the assessment period, KITS offered 678 value added courses with a total participation of 77% of students.
- Several courses are interdisciplinary and technology-driven inculcating personality and skill development.
- 350 courses relating to cross-cutting areas are included in the syllabi: 7 in gender, 75 in professional ethics, 48 in human values, 107 in environment and 113 in sustainability. Curricula are enriched with blended and project based learning to cater to Industry 4.0, SDG, NEP, and requirements of statutory bodies: 75.98% of the students are exposed to internships and field projects.

4. Feedback System

- The Institution has a structured online feedback process, covering all the stakeholders, namely students, faculty, employers, parents and alumni.
- The feedback obtained is analysed every semester and action is taken for improvement and revision of curricula and syllabi.

High priority is given for curriculum development and enrichment, and KITS has succeeded in placing and providing higher education opportunity for 93% of its students.

Teaching-learning and Evaluation

Teaching and Learning is the *raison d'être* of KITS and its efforts to serve students of diverse backgrounds and capabilities are depicted hereunder.

- Faculty members with experience, required qualification and diversity are the academic strength and research asset of KITS. There are 468 faculty members constituting an STR of 15:1 and 20% are from other States. 78.4% have Ph.D. with an average career experience of 9 years in KITS, and 28 of them have post-doctoral experience.
- The excellence of the faculty is evidenced from 766 national and international awards/recognitions covering 33% of faculty.
- Students represent 33 States/UTs from diverse education and socio-economic background with a demand ratio of 1:10. Advanced and slow learners are identified during the Induction programme and appropriate bridge courses are offered for enhanced and inclusive learning experience.
- Students with a CGPA of 8.0 and above registered for 307 self-study courses; 7507 MOOC certified learners have gained through T-shaped learning.
- On an average, 15 students are assigned to a faculty mentor.
- Experiential learning is exemplified by the international internship opening for 237 students in universities/ organisations through IAESTE and other programs.
- 149 ICT enabled classrooms; 5575 courses uploaded in the in-house LMS, a digital library, remote access to laboratories of other reputed institutions enable effective teaching and learning.
- Flipped Classroom, Think-Pair-Share, Jigsaw, Plickers, Moodle, Google-Forms, Kahoot, Flubaroo,

Quizziz, Group Discussion, Concept and Mind mapping, Brainstorming, Peer-Review and Role-Play are some practices adopted for participative and project-based learning.

- 25,546 online classes were held on different platforms and 5086 video lectures were uploaded in GCR, from March to December 2020 during the initial lockdown period; KITS was awarded QS E-LEAD certification for its extraordinary performance.
- The Course Articulation Matrix ensures that the Vision and Mission are realized through the attainment of learning outcomes, aligning curriculum, teaching and assessment with Bloom's Taxonomy.
- Students are continuously assessed through Karunya Examination Platform designed for online examination with AI proctoring; results are published within 9 days; certificates accessible through NAD-Digilocker.
- The initiatives taken in TLP have resulted in 95.25% pass percentage.

Research, Innovations and Extension

KITS with its focus on socially relevant research equipped with technical expertise has consistently been on a growth trajectory. With 78.4% faculty having Ph.D. and international research experience, KITS makes a significant impact on the quality of research. Departmental Research Committees and Board of Research and Consultancy at the apex level coordinate research activities.

- KITS supports research by providing seed money of Rs.217 lakh and Rs.30.9 lakh as incentives for professional development.
- Strong commitment of faculty members in research has attracted substantial funding from national and international agencies to the tune of Rs.1569 lakh.
- The projects were supported by 147 JRFs/SRFs/RAs and 288 scholars obtained Ph.D. Facilities like central instrumentation laboratories, nanotechnology centre, NABL laboratory, structural dynamics laboratory, animal house, product museum, IPR cell, Karunya Design Studio, Karunya Technology Business Incubation Park, and media centre provide an interdisciplinary research ecosystem.
- KITS nurtures innovation and entrepreneurship and 66 patents are filed and published – 5 granted and 2 commercialized and initiated 38 start-ups. There are tie-ups with reputed R&D organizations of GoI, and MNCs.
- The KIIC, KIDS and IPR Cell foster innovation and 643 IPR events were conducted. Statutory committees ensuring ethics such as CPCSEA, IBC, IHEC have been constituted. Tools to check plagiarism are available.
- A total of 3942 research papers in WoS/Scopus indexed journals and 902 books/chapters have been published. The h-index of the institution is 65/62 in Scopus/WoS journals. Consultancy assignments worth Rs. 563 lakh have been executed.
- KITS has publications in collaboration with 80 countries across the globe.
- The faculty members are involved in collaborative research works with world ranked universities, such as, Technion, Ben-Gurion, Bar-Ilan and Hebrew University–Israel, Technical University-Berlin, Vilnius University-Lithuania, Donghua University-Taiwan.
- To transfer research from lab to land and apply modern technologies for solving field problems, KITS has commissioned 25 Technology Missions in its thrust areas. The Technology Missions have substantially contributed to research, IP, and extension and in applying next-gen technologies in agriculture, healthcare, food and water technology, and sustainable energy.
- NSS, YRC, Rotaract, Nature Club, organised 1005 community-centred extension activities and bagged 136 awards.

Infrastructure and Learning Resources

KITS has an excellent infrastructure and advanced learning resources to cater to efficient teaching-learning process, cultural and sport activities. The Institution commands vast ICT resources; the ICT enabled lecture halls purvey a learner-friendly ambience and foster an authentically interactive pedagogy.

- 131 state-of-art laboratories and workshops with cutting-edge technologies and professionally trained technical staff are available for practical and observational learning.
- KITS has an excellent centralised computing facility-Computer Technology Centre- providing network, computing and educational services. The CTC houses 15 laboratories, 44 high-end servers with 81TB storage area network, green computing by server consolidation, uninterrupted internet connectivity with 774 access points with a bandwidth of 1500 Mbps, and a student-computer ratio of 4:1. Rs.265 lakh is provided in the annual budget to upgrade and maintain IT infrastructure.
- An air-conditioned and fully automated Central Library of 3083.30 sq. m. area is available with an Integrated Library Management System, equipped with 1,40,913 volumes, 219 printed journals, 2377 e-journals and 2,00,042 e-books. The library has access to e-ShodhSindhu and Shodhganga. Web based AutoLib Software with mobile app is used for in-house operations. Library resources, INFLIBNET and digital library with web OPAC are accessible 24x7. KITS invests an average of Rs.143 lakh per annum for library resources.
- Sports complex of 15 acre includes 3 stadiums (2 indoor and 1 outdoor), athletic tracks (2–400m, 8 tracks), 44 play-fields, 7 fully equipped gymnasias and 3 auditoriums of 1,500-10,000 capacity. The Department of Physical Education encourages prodigies by providing experienced coaches and trainers.
- Centre for Extension Activities conducts talent-hunt and competitive events for identifying and nurturing talents through 19 clubs.
- KITS has campus facilities comprising of 100 bedded rural community hospital, post office, bank, ATMs, telephone exchange, guest house, restaurants, petrol station and police outpost.
- The green and biodiversity-rich campus of the Institution has sustainable energy conservation facilities like, 115 kW solar-power plant, 4 biogas plants, 7958 LED lights, vermi-compost unit, 5 sewage treatment plants and a waste paper recycling unit.

Student Support and Progression

KITS provides a student-centric and student-driven ecosystem aiming at the educational career of each student and their welfare on campus. Towards that, KITS has established scholarships, benevolent funds, skill development programmes leading to competitive examinations, placement and higher education, opportunities for extra-curricular activities, industrial exposure, alumni engagement, and value inculcation to groom students to be responsible citizens.

- Students from economically weaker section are supported with institution/ state/central/minority scholarships. In the last five years, Rs.2011 lakh has been made available as scholarship, of which Rs.1521 lakh and Rs. 490 lakh cover 3960 and 285 students under merit-cum-means and sports quota respectively.
- The Centre for Training and Placement caters to skill development, placement, higher education and organises competitive examinations. The average percentage of students benefitted by career counselling and guidance for competitive examinations is 83%. An average of 66% of students are placed annually; 28% of students progressed to higher studies making a total of 94% during the completed academic year.

- 519 students qualified in competitive examinations, of which 67 entered into Civil Services.
- 3038 students appeared for the BEC of Cambridge and qualified; KITS is a recognized centre for conducting this examination.
- Online/offline redressal mechanism is available for the students to report grievances, such as ragging, academic and residence-related issues including sexual harassment.
- KITS provides facilities for indoor and outdoor games, and the star facilities are the stadia, gymnasium and play courts spread over 15 acres. An average of 15 events/year including Karunya Evangeline Memorial Tournament were organized and students won a total of 104 awards.
- Students zealously participate in a host of extracurricular activities organized under the aegis of NCC, NSS, YRC, Karunya Arts and Literary Association, and other clubs; 1005 such activities were organized and 136 awards were won.
- Alumni have contributed Rs.342 lakh for welfare activities. Students are connected to the alumni network through social media platform - *AlmaConnect* and Karunya Alumni Business Network (KABN). Alumni members serve in statutory bodies and support their *alma mater* in the form of guest lectures, career guidance, internships and placement.

Governance, Leadership and Management

KITS in its vision and mission statements clearly articulates its commitment for academic excellence, socially relevant research in water, food, healthcare and sustainable energy, and value inculcation. TLP caters to the advancements in science and technology leading to quality research, publications, patents, products and grooming the students to be industry-ready. Aligning with the vision, KITS organizes visits to care homes as a part of extension activity for students, who are motivated to develop devices and products to address healthcare issues.

- Karunya follows a decentralized system of management wherein the HoDs prepare the budget in consultation with faculty and operate the same.
- The curricula are developed jointly by the department, CDC and BoS, the members of which are academicians, industrialists and alumni. The decisions of BoS are presented at the Academic Council.
- The apex statutory body of KITS is BoM chaired by the Vice Chancellor. There is also a Planning and Monitoring Board.
- The research activities are coordinated by departmental research committees. Board of Research and Consultancy is the apex body to draft policies, monitor and evaluate research. IPR Cell and Karunya Business Incubation Park registered under Section 8 of MIC support patenting and entrepreneurship.
- As part of e-Governance, campus is paper-free and administrative, financial and academic matters align with Digital India Initiative.
- The performance appraisal policy streamlines annual assessment of faculty and their assessment promotion. API indices and experience as per UGC norms are the criteria for promotion.
- 328 faculty members were supported for their academic/research performance in the form of professional incentives, awards, travel grants, foreign visits and industrial exposure.
- Majority of staff are provided accommodation on campus.
- 345 professional development and administrative training programmes were conducted.
- Funding was obtained from industries for developing products and processes, and in the form of equipment.
- KITS has a vibrant IQAC with a senior professor as Director and faculty coordinators. An IQAC advisory committee is constituted as per UGC norms. All quality initiatives are audited by IQAC.
- The finance section is headed by a chartered accountant. Internal and external audits as per statutes are

conducted and placed before finance committee.

Institutional Values and Best Practices

KITS engages students in a host of activities to sensitize them to constitutional obligations, gender equity, environment consciousness and harmony. Focus on waste management, water and energy conservation ensures an eco-friendly environment. Supporting facilities provided for the physically challenged facilitate a barrier-free environment.

◦ **Gender Equity Measures**

1. Special scholarship of Rs. 40,000 /girl student/year
2. Gender specific courses and webinars on women empowerment
3. Awareness on health and hygiene
4. Well protected halls of residence and special care rooms for women
5. Sexual Harassment Prevention Cell and Internal Compliance Committee

◦ **Green Campus Initiatives**

1. Motor vehicle-free campus
2. Incinerators, STPs, paper recycling and vermicomposting units
3. 115 kW solar power plant, 4 biogas plants, 29 solar water heaters and 7958 LED lights
4. Salzer energy saver device
5. 33 rainwater harvesting structures
6. Aeronet of NASA for aerosol monitoring
7. Automatic weather station
8. Micro-irrigation for water saving
9. Reuse of treated sewage for irrigation
10. Hotspot of biodiversity -a campus in the foot hills of Western Ghats
11. Energy, Environment and Green audit by external experts.

◦ **Disabled-Friendly Campus**

1. 20 lifts, ramps and disabled-friendly restrooms
2. Electric operated vehicle

◦ **Inclusive Campus**

1. Fully residential campus with focus on compassion, with community hospital, programmes on regional and cultural diversity, scholarships to all deserving students, mentoring, counselling, facilities for sports and games
2. Students from 33 States/UTs live in harmony in the halls of residences that serve region- specific food
3. 84 programs organized to sensitize students on national initiatives, Swachh Bharat, Swachahata Pakhwada, vigilance awareness and road safety
4. National Days, birth anniversaries of national leaders, regional festivals and events of global significance celebrated
5. Best Blood Donor Award-2016 and 2019. Certificate of Appreciation for creating awareness on “Blood

Stem Cell Donation”, 2017.

Best Practices

1. 25 Karunya Technology Missions in emerging areas of research
2. Innovation based learning for start-up and entrepreneurship

Institution Distinctiveness

1. Focus on Socially Relevant Domain of WATER considering water stress and scarcity, in several parts of the country; academics, research, consultancy, extension and networking with stress on water management.

NAAC

2. PROFILE

2.1 BASIC INFORMATION

Name and Address of the University	
Name	KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES
Address	Karunya Institute of Technology and Sciences Karunya Nagar
City	COIMBATORE
State	Tamil Nadu
Pin	641114
Website	www.karunya.edu

Contacts for Communication					
Designation	Name	Telephone with STD Code	Mobile	Fax	Email
Vice Chancellor	P Mannar Jawahar	0422-2614321	9383833388	0422-261561 5	vc@karunya.edu
IQAC / CIQA coordinator	D.tensing	0422-2614572	9487846515	0422-261543 1	director_qaa@karunya.edu

Nature of University	
Nature of University	Deemed University

Type of University	
Type of University	Unitary

Establishment Details	
Establishment Date of the University	23-06-2004
Status Prior to Establishment, If applicable	Autonomous College
Establishment Date	04-10-1986

Recognition Details		
Date of Recognition as a University by UGC or Any Other National Agency :		
Under Section	Date	View Document
2f of UGC	23-06-2004	View Document
12B of UGC		

University with Potential for Excellence	
Is the University Recognised as a University with Potential for Excellence (UPE) by the UGC?	No

Location, Area and Activity of Campus							
Campus Type	Address	Location*	Campus Area in Acres	Built up Area in sq.mts.	Programmes Offered	Date of Establishment	Date of Recognition by UGC/MHRD
Main campus	Karunya Institute of Technology and Sciences Karunya Nagar	Rural	476	244000	Fifty Programs		

2.2 ACADEMIC INFORMATION

Furnish the Details of Colleges of University

Type Of Colleges	Numbers
Constituent Colleges	0
Affiliated Colleges	0
Colleges Under 2(f)	0
Colleges Under 2(f) and 12B	0
NAAC Accredited Colleges	0
Colleges with Potential for Excellence(UGC)	0
Autonomous Colleges	0
Colleges with Postgraduate Departments	0
Colleges with Research Departments	0
University Recognized Research Institutes/Centers	0

Is the University Offering any Programmes Recognised by any Statutory Regulatory Authority (SRA)	: Yes				
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SRA program	Document				
AICTE	14442_6126_1_1626345996.pdf				

Details Of Teaching & Non-Teaching Staff Of University

Teaching Faculty												
	Professor				Associate Professor				Assistant Professor			
	Male	Female	Others	Total	Male	Female	Others	Total	Male	Female	Others	Total
Sanctioned	82				71				313			
Recruited	55	27	0	82	38	33	0	71	150	163	0	313
Yet to Recruit	0				0				0			
On Contract	0	0	0	0	0	0	0	0	0	0	0	0

Non-Teaching Staff				
	Male	Female	Others	Total
Sanctioned				114
Recruited	111	3	0	114
Yet to Recruit				0
On Contract	0	0	0	0

Technical Staff				
	Male	Female	Others	Total
Sanctioned				64
Recruited	64	0	0	64
Yet to Recruit				0
On Contract	0	0	0	0

Qualification Details of the Teaching Staff

Permanent Teachers										
Highest Qualification	Professor			Associate Professor			Assistant Professor			Total
	Male	Female	Others	Male	Female	Others	Male	Female	Others	
D.sc/D.Litt/LLD	0	0	0	0	0	0	0	0	0	0
Ph.D.	53	27	0	37	33	0	108	109	0	367
M.Phil.	0	0	0	0	0	0	0	4	0	4
PG	2	0	0	1	0	0	45	51	0	99

Temporary Teachers										
Highest Qualification	Professor			Associate Professor			Assistant Professor			Total
	Male	Female	Others	Male	Female	Others	Male	Female	Others	
D.sc/D.Litt/LLD	0	0	0	0	0	0	0	0	0	0
Ph.D.	0	0	0	0	0	0	0	0	0	0
M.Phil.	0	0	0	0	0	0	0	0	0	0
PG	0	0	0	0	0	0	0	0	0	0

Part Time Teachers										
Highest Qualification	Professor			Associate Professor			Assistant Professor			Total
	Male	Female	Others	Male	Female	Others	Male	Female	Others	
D.sc/D.Litt/LLD	0	0	0	0	0	0	0	0	0	0
Ph.D.	0	0	0	0	0	0	0	0	0	0
M.Phil.	0	0	0	0	0	0	0	0	0	0
PG	0	0	0	0	0	0	0	0	0	0

Distinguished Academicians Appointed As

	Male	Female	Others	Total
Emeritus Professor	1	1	0	2
Adjunct Professor	32	8	0	40
Visiting Professor	0	0	0	0

Chairs Instituted by the University

Sl.No	Name of the Department	Name of the Chair	Name of the Sponsor Organisation/Agency
1	Nil	Nil	Nil

Provide the Following Details of Students Enrolled in the University During the Current Academic Year

Programme		From the State Where University is Located	From Other States of India	NRI Students	Foreign Students	Total
UG	Male	2424	1743	41	1	4209
	Female	1234	784	33	0	2051
	Others	0	0	0	0	0
PG	Male	241	138	0	0	379
	Female	225	169	2	0	396
	Others	0	0	0	0	0
Doctoral (Ph.D)	Male	180	140	1	1	322
	Female	160	137	1	1	299
	Others	0	0	0	0	0

Does the University offer any Integrated Programmes?	No
--	----

Details of UGC Human Resource Development Centre, If applicable

Year of Establishment	Nil
Number of UGC Orientation Programmes	0
Number of UGC Refresher Course	0
Number of University's own Programmes	0
Total Number of Programmes Conducted (last five years)	0

Accreditation Details

Cycle Info	Accreditation	Grade	CGPA	Upload Peer Team Report
B	2.91			
Cycle 1	Reassessment			View Document

2.3 EVALUATIVE REPORT OF THE DEPARTMENTS

Department Name	Upload Report
Aerospace Engineering	View Document
Agriculture	View Document
Applied Chemistry	View Document
Applied Physics	View Document
Biomedical Engineering	View Document
Biotechnology	View Document
Civil Engineering	View Document
Commerce And International Trade	View Document
Computer Science And Engineering	View Document
Digital Sciences	View Document
Electrical And Electronics Engineering	View Document
Electronics And Communication Engineering	View Document
Food Processing Technology	View Document
Management Studies	View Document
Mechanical Engineering	View Document
Nano Sciences	View Document
Robotics Engineering	View Document

Extended Profile

1 Program

1.1

Number of programs offered year-wise for last five years

2019-20	2018-19	2017-18	2016-17	2015-16
51	54	63	56	50
File Description		Document		
Institutional data in prescribed format		View Document		

1.2

Number of departments offering academic programmes

Response: 17

2 Students

2.1

Number of students year-wise during last five years

2019-20	2018-19	2017-18	2016-17	2015-16
6652	7129	7389	6856	6889
File Description		Document		
Institutional data in prescribed format		View Document		

2.2

Number of outgoing / final year students year-wise during last five years

2019-20	2018-19	2017-18	2016-17	2015-16
1803	1985	1775	1749	1899
File Description		Document		
Institutional data in prescribed format		View Document		

2.3**Number of students appeared in the University examination year-wise during the last five years**

2019-20	2018-19	2017-18	2016-17	2015-16
6645	7121	7387	6853	6889
File Description		Document		
Institutional data in prescribed format		View Document		

2.4**Number of revaluation applications year-wise during the last 5 years**

2019-20	2018-19	2017-18	2016-17	2015-16
156	324	529	258	317

3 Teachers**3.1****Number of courses in all programs year-wise during last five years**

2019-20	2018-19	2017-18	2016-17	2015-16
1403	1462	1466	1342	1007
File Description		Document		
Institutional data in prescribed format		View Document		

3.2**Number of full time teachers year-wise during the last five years**

2019-20	2018-19	2017-18	2016-17	2015-16
450	493	478	448	462
File Description		Document		
Institutional data in prescribed format		View Document		

3.3

Number of sanctioned posts year-wise during last five years

2019-20	2018-19	2017-18	2016-17	2015-16
450	493	478	448	462
File Description		Document		
Institutional data in prescribed format		View Document		

4 Institution**4.1****Number of eligible applications received for admissions to all the programs year-wise during last five years**

2019-20	2018-19	2017-18	2016-17	2015-16
18289	17356	26740	21393	22593
File Description		Document		
Institutional data in prescribed format		View Document		

4.2**Number of seats earmarked for reserved category as per GOI/State Govt rule year-wise during last five years**

2019-20	2018-19	2017-18	2016-17	2015-16
1813	1809	2572	2117	2215
File Description		Document		
Institutional data in prescribed format		View Document		

4.3**Total number of classrooms and seminar halls****Response: 149****4.4****Total number of computers in the campus for academic purpose****Response: 1812**

4.5

Total Expenditure excluding salary year-wise during last five years (INR in Lakhs)

2019-20	2018-19	2017-18	2016-17	2015-16
7742.52	4674.67	4849.82	3195.46	2840.20

NAAC

4. Quality Indicator Framework(QIF)

Criterion 1 - Curricular Aspects

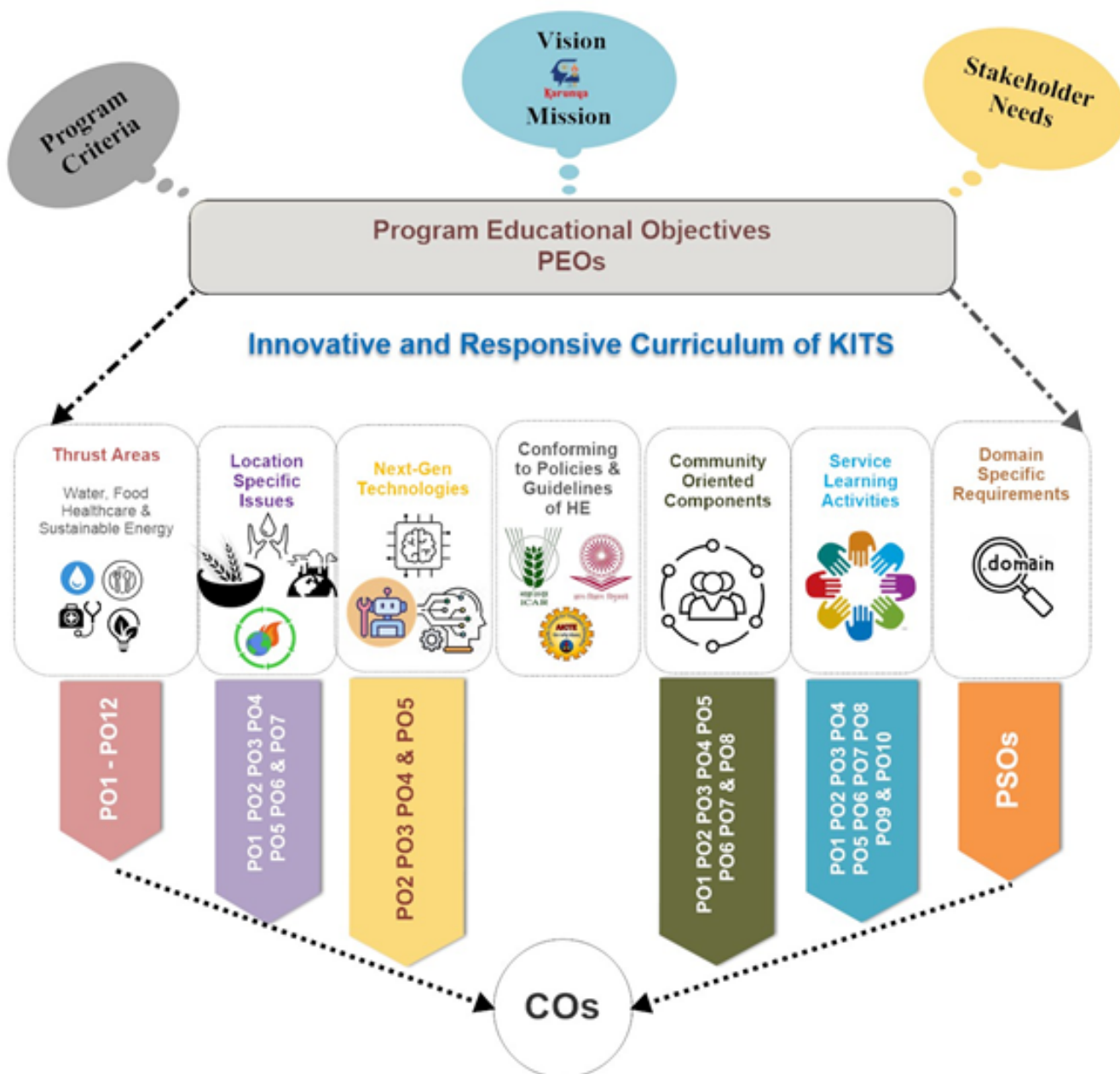
1.1 Curriculum Design and Development

1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme Specific Outcomes(PSOs) and Course Outcomes(COs) of the Programmes offered by the Institution.

Response:

KITS has designed and developed an innovative and responsive curriculum that is society-driven, technology-based, industry-compliant and product-inclined, guided by the **PEOs** formulated in alignment with its Vision and Mission, needs of stakeholders at local, regional and global level, and specific requirements in the Program Criteria.

- Apart from core concepts that define each programme, the curriculum also covers location-specific issues on water scarcity, food security, environmental pollution, energy crisis, climate change, water-food-energy nexus, irrigation, urbanisation and health and next-gen technologies such as AI, ML, Robotics and Automation to mitigate societal problems that are reflected in learning outcomes such as POs, PSOs and COs. Besides students are sensitized to the needs of the local, regional and national communities integrated into the curriculum.
- 157 courses in the thrust areas of food, 311-healthcare, 60-water, 277-renewable energy, 290-next-gen technologies are offered across engineering, arts & science, agriculture and management programmes.
- Domain specific requirements of the professional societies such as ASME, AIAA, ASCE, IEEE, CSI, BIO, ABLE, AIMA, CII, CMA, AICPA, ACCA are incorporated in the curriculum and reflected in the PSOs of engineering, agriculture, sciences, commerce, and management Programmes
- COs are mapped to relevant POs and PSOs to assess the knowledge and skillsets in students such as critical thinking, problem-solving abilities, scientific temper, environment awareness, managerial and entrepreneurial skills, and lifelong learning, necessary for solving national and global issues.
- Curriculum also conforms to the higher education policies and guidelines of Ministry of Education, UGC, AICTE, ICAR and fulfils the requirements of the industry and society.
- Curriculum and syllabi are subject to periodic revision for meeting the changes in the community with inputs received from stakeholders in industry, nationally reputed academic institutions, research organisations as well as the alumni, faculty and students.
- 678 value-added courses are offered to fill the gaps in the curriculum.



Curriculum and Learning Outcome:

- The **technology-driven curriculum** of KITS enhances the problem analyzing and solving skills of the students in the thrust areas, and next-gen technologies to address the societal problems at local, regional and global levels and develop innovative products, technology and IPR. 951 courses across Schools are technology-driven.
- The **industry-compliant curriculum** has enabled students to pursue internships through KITS-Industry collaboration equipping them with technical and employability skills that are reflected in the graduate attributes and learning outcomes. 1258 courses are industry-oriented.
- The **project-based curriculum** provided opportunities for students to pursue their research projects in Israel, Canada, Germany and United States under the banner of IAESTE in an attempt to address global issues. 632 courses are Project-based..
- The **community-oriented curriculum** for students in Agriculture, namely, the Rural Agricultural Work Experience, with its three-pronged approach to experience rural India, enables students to learn agricultural technologies and develop skills reflected in COs and POs. The Experiential Learning Program promotes entrepreneurship that cater to the societal needs.

- The **society-driven curriculum** engages students in social surveys in the neighbouring tribal and rural areas to learn livelihood issues and recommend solutions. POs pertaining to social responsibility, environment sustainability and lifelong learning are attained through extension activities. 301 courses are community and Society-oriented.

File Description	Document
Upload Additional information	View Document
Link for Additional information	View Document

1.1.2 Percentage of Programmes where syllabus revision was carried out during the last five years.

Response: 88

1.1.2.1 How many Programmes were revised out of total number of Programmes offered during the last five years

Response: 44

1.1.2.2 Number of all Programmes offered by the institution during the last five years.

Response: 50

File Description	Document
Minutes of relevant Academic Council/BOS meeting	View Document
Institutional data in prescribed format	View Document
Details of Programme syllabus revision in last 5 years	View Document
Any additional information	View Document
Link for additional information	View Document

1.1.3 Average percentage of courses having focus on employability/ entrepreneurship/ skill development offered by the institution during the last five years

Response: 96.28

1.1.3.1 Number of courses having focus on employability/ entrepreneurship/ skill development year-wise during the last five years

2019-20	2018-19	2017-18	2016-17	2015-16
1364	1405	1456	1255	959

File Description	Document
Programme/ Curriculum/ Syllabus of the courses	View Document
MoU's with relevant organizations for these courses, if any	View Document
Minutes of the Boards of Studies/ Academic Council meetings with approvals for these courses	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

1.2 Academic Flexibility

<p>1.2.1 Percentage of new courses introduced of the total number of courses across all programs offered during the last five years.</p> <p>Response: 38.95</p>	
<p>1.2.1.1 How many new courses were introduced within the last five years.</p> <p>Response: 1728</p>	
<p>1.2.1.2 Number of courses offered by the institution across all programmes during the last five years.</p> <p>Response: 4437</p>	
File Description	Document
Minutes of relevant Academic Council/BOS meeting	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document
<p>1.2.2 Percentage of Programmes in which Choice Based Credit System (CBCS) / elective course system has been implemented (Data for the latest completed academic year).</p> <p>Response: 100</p>	
<p>1.2.2.1 Number of Programmes in which CBCS / Elective course system implemented.</p> <p>Response: 51</p>	

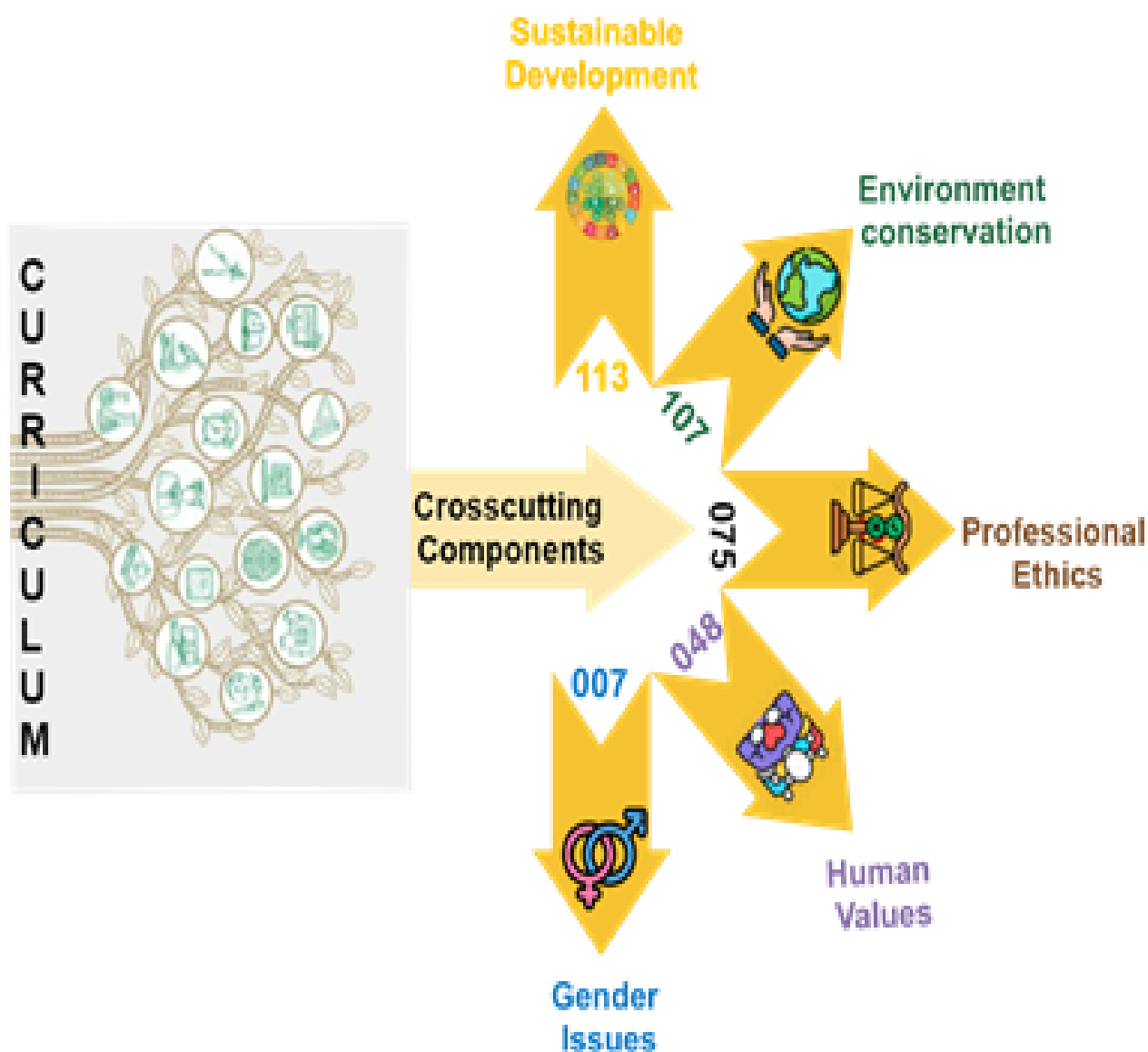
File Description	Document
Minutes of relevant Academic Council/BOS meetings	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

1.3 Curriculum Enrichment

1.3.1 Institution integrates crosscutting issues relevant to Professional Ethics ,Gender, Human Values ,Environment and Sustainability into the Curriculum

Response:

KITS has a structured curriculum offering 350 courses on crosscutting issues to inculcate integrity, dedication, inclusiveness, commitment, justice, harmony and a sense of belonging among students. Many courses are offered across disciplines, creating awareness on a host of issues pertaining to social and gender justice, constitutional rights, security issues in food, water, healthcare and sustainable energy, and work ethics. The courses the can Environment Studies and Constitution of India is common to all the B.Tech. Programmes.



Professional Ethics and Human Values:

- 75 courses pertaining to professional ethics and 48 courses oriented towards human values are offered across disciplines.
- Value Education is mandatory for PG programs, offered for 2 credits or as an audit course (Case-study mode).
- For all UG Arts, Science and Commerce Programmes, Value Education is offered for 2 credits in semester 1/2.
- For B.Sc. (Hons) Agriculture and Horticulture, on Human Values and Ethics is offered for one credit and 360 students/year on an average are groomed for a value-oriented life.

Gender Sensitization:

- 7 courses are offered in areas comprising of Gender and Crime, Society and Culture, Women's Rights and Empowerment, highlighting women-centric issues such as victimization of women, victim counseling and rehabilitation, female delinquency, women harassment and assault, gender inequality and cyber stalking.

- Awareness on legislation and enactments relating to sexual harassment of women, indecent representation of women, domestic violence and access to justice are disseminated through co-curricular and extracurricular activities.
- Due to the effectiveness of the awareness programmes on gender issues, no sexual harassment case has been reported.

Environmental Conservation:

- The 107 courses offered across departments make students environment conscious.
- Awareness programmes are conducted on the thrust areas of KITS, namely, water, food, healthcare and sustainable energy.
- Courses on natural resources management and environment conservation is offered by the School of Agriculture and Biosciences.
- Students earn non-academic credits for extension activities related to nature clubs in the areas of aqua, solid waste management, environment, green campus and community health in which more than 1000 students are involved.

Sustainable Development:

- KITS has integrated sustainability related issues in the curriculum by offering 113 courses covering renewable energy sources, sustainable building materials, global climate change, green and smart building across different programmes.
- The campus with 40% greenery has a rich biodiversity serving as a habitat for several indigenous plants endemic to Western Ghats, migratory bird species and a host of insects. Students are introduced to the diversity of flora and fauna through several courses offered, highlighting nature conservation.
- KITS has introduced green solutions for natural resources conservation, rainwater harvesting, sewage treatment, paper recycling, solar energy harnessing, biogas production creating an environment with a target of achieving SDGs.
- Courses on Cleaner Production and Sustainable Development, Renewable Energy and Green Technology and Sustainable Building Concepts and Design are offered for students across disciplines.

File Description	Document
Upload the list and description of the courses which address the Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum	View Document
Any additional information	View Document

1.3.2 Number of value-added courses for imparting transferable and life skills offered during last five years.

Response: 678

1.3.2.1 How many new value-added courses are added within the last five years.

Response: 678

File Description	Document
Institutional data in prescribed format	View Document
Brochure or any other document relating to value added courses	View Document
Any additional information	View Document

1.3.3 Average Percentage of students enrolled in the courses under 1.3.2 above.

Response: 76.99

1.3.3.1 Number of students enrolled in value-added courses imparting transferable and life skills offered year-wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
6652	7129	5983	5243	1894

1.3.4 Percentage of students undertaking field projects / research projects / internships (Data for the latest completed academic year).

Response: 75.98

1.3.4.1 Number of students undertaking field projects or research projects or internships.

Response: 5054

File Description	Document
List of Programmes and number of students undertaking field projects research projects / internships (Data Template)	View Document
Any additional information	View Document
Link for additional information	View Document

1.4 Feedback System

1.4.1 Structured feedback for design and review of syllabus – semester-wise / year-wise is received from 1) Students, 2) Teachers, 3) Employers, 4) Alumni

Response: A. All 4 of the above

File Description	Document
URL for stakeholder feedback report	View Document
Institutional data in prescribed format	View Document
Action taken report of the University on feedback report as stated in the minutes of the Governing Council, Syndicate, Board of Management (Upload)	View Document

1.4.2 Feedback processes of the institution may be classified as follows:

Response: A. Feedback collected, analysed and action taken and feedback available on website

File Description	Document
URL for feedback report	View Document
Institutional data in prescribed format	View Document

Criterion 2 - Teaching-learning and Evaluation

2.1 Student Enrollment and Profile

2.1.1 Demand Ratio (Average of last five years)

Response: 10.08

2.1.1.1 Number of seats available year wise during the last five years

2019-20	2018-19	2017-18	2016-17	2015-16
1813	1809	2572	2117	2215

File Description

Document

Demand Ratio (Average of Last five years) based on Data Template upload the document

[View Document](#)

• Any additional information

[View Document](#)

2.1.2 Average percentage of seats filled against reserved categories (SC, ST, OBC, Divyangjan, etc.) as per applicable reservation policy during the last five years (Excluding Supernumerary Seats)

Response: 95.38

2.1.2.1 Number of actual students admitted from the reserved categories year wise during last five years

2019-20	2018-19	2017-18	2016-17	2015-16
1696	1677	2572	2076	2051

File Description

Document

Average percentage of seats filled against seats reserved (Data Template)

[View Document](#)

Any additional information

[View Document](#)

2.2 Catering to Student Diversity

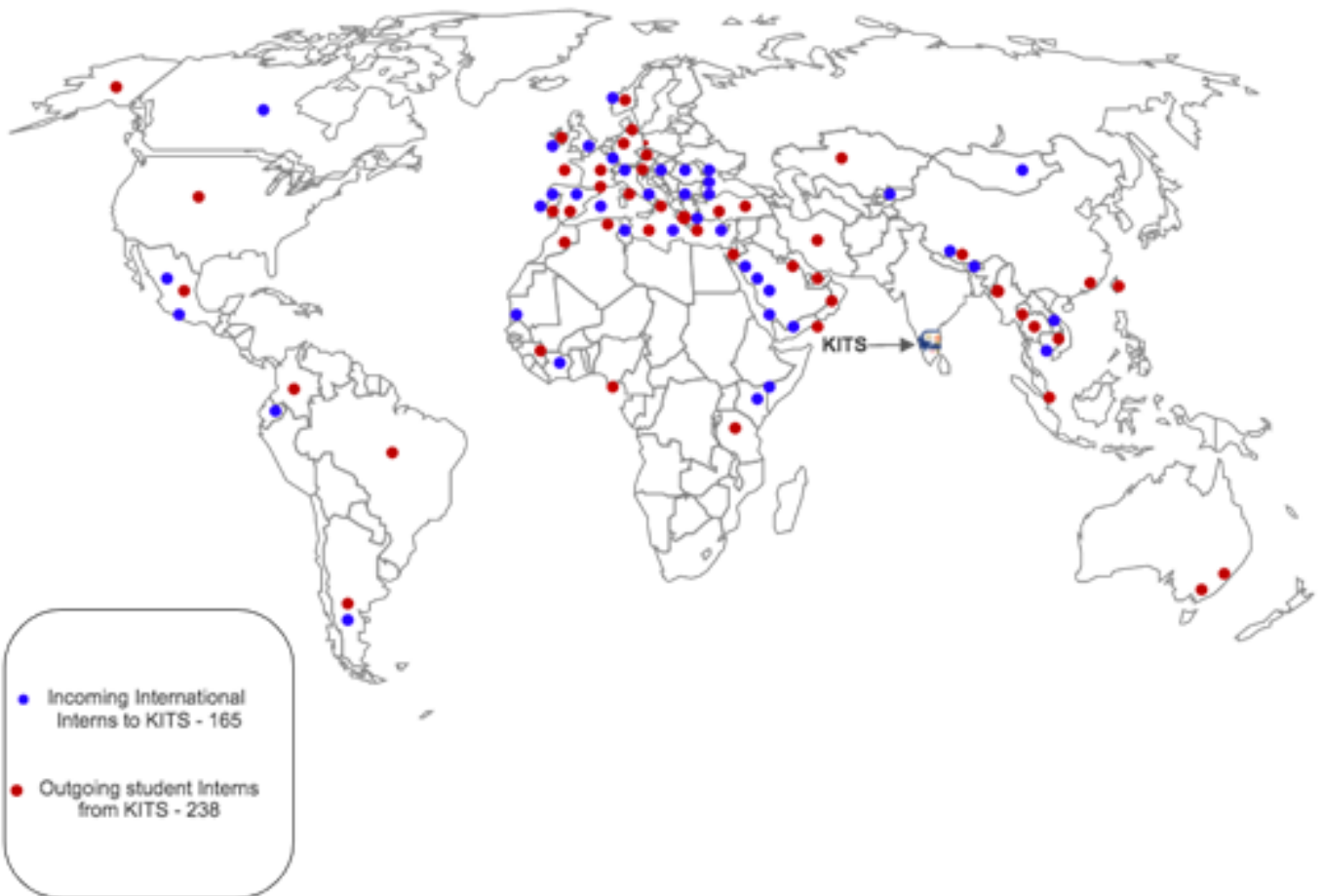
2.2.1 The institution assesses the learning levels of the students and organises special Programmes for advanced learners and slow learners

Response:

A 3-week Induction Programme “Launching Into Future” (LIFe) is organised for the first year UG students, following the AICTE guidelines, under the Student Induction Program (SIP). Since the students are a heterogeneous group from different Secondary Education Boards and diverse socio-economic backgrounds, an online test is conducted to identify learning levels and assess their communication and computational skills. A survey to identify the aspirations of students for placement, higher studies, entrepreneurship and civil services is undertaken to provide guidance and support.

Advanced Learners:

- Advanced learners are placed on a fast track to learn beyond the curriculum through online platforms, such as SWAYAM, NPTEL, edX and Coursera, and other add-on certification courses.
- They are also given exposure at the specialized industry laboratories established in collaboration with Siemens, Salzer, Cisco, IBM, Suse, AMZ-Automotive and Tessolve Semiconductor Pvt. Ltd.
- Coaching for competitive examinations such as GATE, CAT, GRE and eligibility tests- IELTS, TOEFL, NET and BEC-Vantage are offered and 519 students qualified in the following examinations: GATE-43, CAT-12, GRE-64, IELTS-285, TOEFEL-38, Civil Services-67 and BEC-3038.
- Advanced learners are encouraged to enroll in the student chapter of Professional Bodies-IEEE, ASME, CSI, IETE, ISHRAE, IIPE, SAE, ACCA and IGS.
- Internship opportunities are made available in renowned institutions abroad through IAESTE-Karunya, and also at IITs, NITs, National Labs for carrying out research; 165 students benefited through this unique international experience in universities like RWTH-Aachen, Hanover, Agricultural University-Athens, Vietnam Forestry University, Chemistry and Technology-Prague, Belgrade, Medical University-Poland, ETH-Zurich, Wisconsin-US, Aberdeen-Scotland and National University of San Juan-Argentina.



- Several advanced learners were given an opportunity for short-term summer programmes in the University of Texas-Dallas, Technion-Israel, University of British Columbia-Canada, Ben-Gurion University-Israel, Dong Hwa University-Taiwan, National University of Singapore, Tel Aviv University-Israel, Melbourne, Sydney, Australia to name a few; 72 students across disciplines were enriched through this learning experience.
- To motivate advanced learners, a short-term research grant of Rs.12.18 lakh was provided as seed money, leading to SCI indexed publications.
- KIIC nurtures advanced learners in invention, innovation and incubation leading to start-ups. The IPR Cell has enabled them to file and publish 50 patents along with the faculty.



Slow learners:

- Proficiency classes are arranged in Mathematics and Computers for the slow learners for a period of 2-weeks, while soft skill training is offered to improve communication capabilities and boost confidence.
- To equip slow learners and lateral entry students, remedial teaching, tutorial classes and bridge courses are conducted.
- Being a residential institution, the course teachers and mentors visit the students in the halls of residence during study hours to provide additional academic support. The practice of peer learning benefits the slow learners considerably.
- Online lectures are recorded and uploaded for access to slow learners.
- The Mentor-Mentee system has been effective in guiding the slow learners to achieve their career ambitions. A case study brings to light the development of a student who started B. Tech with diffidence, yet graduated with 10 SCI publications, 9 patents and admission in one of the top 25 institutions in world ranking.

File Description	Document
Upload Any additional information	View Document
Paste link for additional information	View Document

2.2.2 Student - Full time teacher ratio (Data for the latest completed academic year)

Response: 15:1

File Description	Document
Any additional information	View Document

2.3 Teaching- Learning Process

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences

Response:

All departments adopt learner-centric strategies such as flipped classrooms, domain specific workshops, concept and mind mapping, case studies, role play, peer group learning, presentations, industry and community-oriented projects, internships, virtual simulation labs, field visits and industry training to enhance the learning experience of students. Faculty members are trained from time to time to adopt the student-centric methods. In an effort to enhance professional competency and update their knowledge, faculty members have undergone 689 courses in the MOOC platform: 262-NPTEL, 250-Coursera, 41-edX, 78-Udemy and 54 in other online platforms.

Learning Practices Adopted at KITS:

Experiential Learning:

- In this practice, students understand and visualize the concepts, use analytical tools, acquire problem solving and decision making skills.
- Learning by doing is incorporated in the curriculum: mini project for 1/2 credits, half/final semester projects-6/12 credits, Experiential Learning Program for Agriculture-20 credits, industry internships -1/2/6 credits, and summer internship for 2 credits.
- Students work on funded projects and consultancy along with PIs and gain experience in research.
- Integrated, virtual and simulation labs enhance learning experience. During the pandemic, all practicals were conducted through virtual and simulation labs.
- Rural Agriculture Work Experience (RAWEx) and Rural Horticultural Work Experience (RHWE) are implemented for all final year students of B.Sc.(Hons) Agriculture and Horticulture programmes as per the norms of ICAR for 20 weeks with 20 credits. An Agro Industrial Attachment (AIA) is provided for a period of 3 weeks where the students are attached to an agro-based industry and earn 4 out of the 20 credits.



Participative Learning:

- Faculty members adopt a blend of traditional and trending methodologies to engage students in participatory learning and facilitate life-long learning.
- Through group discussions, brainstorming sessions, peer review, peer tutoring, meta plan, collaborative learning and product development, students enhance their technical knowledge, develop team building skills and improve their communication proficiency. This approach is practised by the faculty members to enrich learning experiences and make learning enjoyable. The methodology is incorporated in the teaching plan of all courses.
- Students participate in activities outside the classroom such as seminars, workshops, conferences and competitions to attain graduate attributes.
- MindKraft and Innovation Day are signature events of KITS that promote participatory and peer learning among students by providing opportunities to work in teams, showcase their prototype models and demonstrate technical prowess.
- The IAESTE programme is student-driven where they serve as Managers, Executives and Coordinators.

Problem Solving Learning:

- In this student-centred pedagogy, students learn the concepts and principles through a real world problem that improves cognitive ability, critical thinking skills and logical reasoning to solve open ended problems.
- Students learn to demonstrate creativity and innovative ideas by participating as teams in GoI initiative, such as Smart India Hackathons, Toycathons, Make in India, and AMCATathon. In collaboration with Major League Hacking, 12 and 24-hours hackathons were conducted. As an

outcome, 3 student organisations KarunyaHacks (Technical Team), KarunyaKreatives (Design Team) and Karunya E-Cell (Entrepreneurship Team) have emerged supporting innovation and entrepreneurship activities.

File Description	Document
Upload any additional information	View Document
Link for Additional Information	View Document

2.3.2 Teachers use ICT enabled tools including online resources for effective teaching and learning process.

Response:

KITS was an early adopter of the digital platform and embarked on it a decade ago to enrich the teaching learning process.

- Development of technologies in simulation, time-lapse photography, animation, media streaming, interactive online tools and improvement in download/upload speeds, have made teaching pedagogy effective.
- For many courses this adds a visualization component that complements the learning process and creates permanent visual images associated with the knowledge gained. Even with conventional delivery during online classes, writing tablets combined with online whiteboards such as Openboard™ enable saving of the lectures, which can be retrieved for revisits by the students later.
- Further, the use of simulation and animation enables the teaching of mathematics significantly, with permanent association of mathematical tools, concepts and methods with its applications.

The use of ICT tools and wide access to e-resources have improved the learning outcome of students and made their learning experience enjoyable. Some examples are listed below:

- 137 ICT enabled classrooms, 4 seminar halls and 8 gallery halls, lecture capturing classrooms with interactive boards and audio-visual aids to support technology-based teaching-learning.
- An in-house Learning Management System-<https://courses.karunya.edu>, with a wide range of learner-centric features enables students to access information related to the lecture plan, teaching materials and other resources. The LMS has provisions to attempt quizzes, submit assignments and lab reports for online assessment.
- During the pandemic period, KITS developed yet another in-house online portal-<https://online.karunya.edu>, that integrates Google Class Room and Google Meet, for conducting online classes; 2774 courses and 25546 Karunya-Meets were conducted during the lockdown from March – December 2020. Online tools such as Flipgrid and TechSmit-Jing are used for interactive sessions and Quizizz, Kahoot, Wooclap, Quizlet for assessment.
- KITS has developed Karunya Meet-<https://meet.karunya.edu> for conducting online sessions for a student strength of 100 and more, with features such as whiteboard, breakout rooms, chat, polling, shared notes and screen-sharing for effective and participative learning.

- Collaboration with edX has provided system-wide access to Massive Open Online Courses-MOOC through 'Online Campus Essential' Programme. 6346 learners have completed Coursera online courses, 671 in edX and 490 in SWAYAM NPTEL.
- For quick access to online resources, the Institution is connected to the National Knowledge Network that hosts MIT Open Courseware and NPTEL video lectures.
- Virtual Labs through NMEICT of the Ministry of Education provides access to Remote Laboratories in Science and Engineering.
- Data Lab (JupyterLab), a web-based software is used for interactive computing in Data Science, Machine Learning, Artificial Intelligence providing access to various programming languages such as Octave, R and Python.
- Digital library provides access to e-journals listed by Science Direct, EBSCO and Scopus, e-books, e-magazines, e-ShodhSindu, and Shodhganga @ INFLIBNET.
- KITS was awarded the QS E-LEAD(E-Learning Excellence for Academic Digitization) for efficiently engaging students and faculty through a virtual platform supported by adequate IT policy. QS-IGAUGE awarded 144 points on 150 for exemplary performance based on the qualifying parameters such as Student-Faculty Engagement, Learning Management System, Information Technology Support and Best Practices in Information Technology.

File Description	Document
Upload any additional information	View Document
Provide link for webpage describing the " LMS/ Academic management system"	View Document

2.3.3 Ratio of students to mentor for academic and other related issues (Data for the latest completed academic year)

Response: 15:1

2.3.3.1 Number of mentors

Response: 438

File Description	Document
Upload year wise, number of students enrolled and full time teachers on roll.	View Document
mentor/mentee ratio	View Document
Circulars pertaining to assigning mentors to mentees	View Document

2.4 Teacher Profile and Quality

2.4.1 Average percentage of full time teachers against sanctioned posts during the last five years

Response: 100	
File Description	Document
Year wise full time teachers and sanctioned posts for 5 years	View Document
List of the faculty members authenticated by the Head of HEI	View Document
Any additional information	View Document

2.4.2 Average percentage of full time teachers with Ph.D./D.M/M.Ch./D.N.B Superspeciality/D.Sc./D’Lit. year-wise during the last five years

Response: 51.69

2.4.2.1 Number of full time teachers with *Ph. D. / D.M. / M.Ch. / D.N.B Superspeciality / D.Sc. / D.Litt.* year wise during the last five years

2019-20	2018-19	2017-18	2016-17	2015-16
299	274	240	202	190

File Description	Document
List of number of full time teachers with Ph D/D M/M Ch/D N B Superspeciality/DSc/D Lit and number of full time teachers for 5 years	View Document
Any additional information	View Document

2.4.3 Average teaching experience of full time teachers in the same institution (Data for the latest completed academic year in number of years)

Response: 8.82

2.4.3.1 Total experience of full-time teachers

Response: 3971

File Description	Document
List of Teachers including their PAN, designation, dept and experience details	View Document
Any additional information	View Document

2.4.4 Average percentage of full time teachers who received awards, recognition, fellowships at State, National, International level from Government/Govt. recognised bodies during the last five years**Response:** 20.38**2.4.4.1 Number of full time teachers receiving awards from state /national /international level from Government/Govt. recognized bodies year wise during the last five years**

2019-20	2018-19	2017-18	2016-17	2015-16
48	4	2	37	4

File Description	Document
Institutional data in prescribed format	View Document
e-copies of award letters (scanned or soft copy)	View Document
Any additional information	View Document

2.5 Evaluation Process and Reforms**2.5.1 Average number of days from the date of last semester-end/ year- end examination till the declaration of results year-wise during the last five years****Response:** 9.2**2.5.1.1 Number of days from the date of last semester-end/ year- end examination till the declaration of results year wise during the last five years**

2019-20	2018-19	2017-18	2016-17	2015-16
10	8	11	8	9

File Description	Document
List of Programmes and date of last semester and date of declaration of results	View Document
Any additional information	View Document

2.5.2 Average percentage of student complaints/grievances about evaluation against total number appeared in the examinations during the last five years

Response: 4.78

2.5.2.1 Number of complaints/grievances about evaluation year wise during the last five years

2019-20	2018-19	2017-18	2016-17	2015-16
156	324	529	258	417

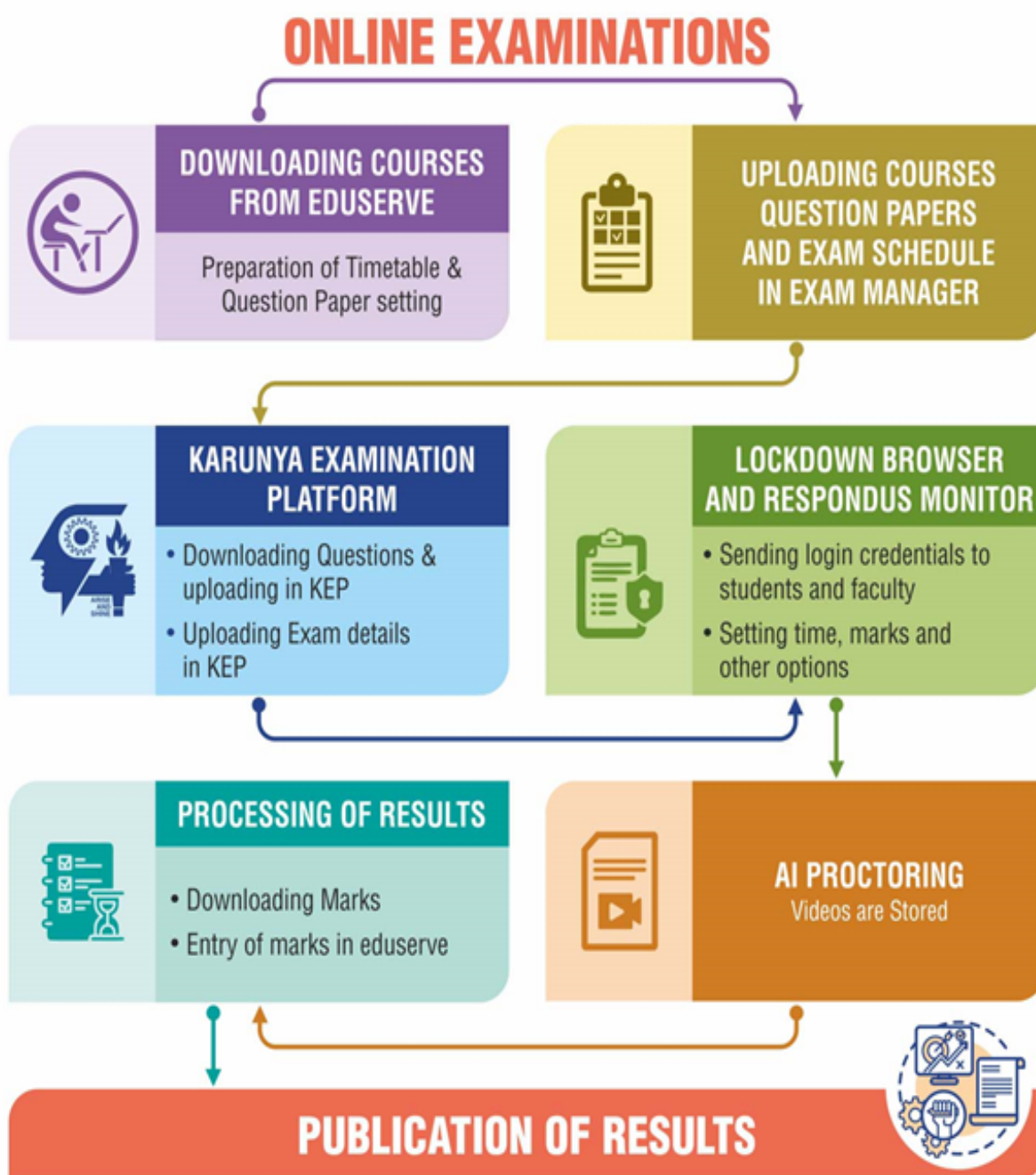
File Description	Document
Number of complaints and total number of students appeared year wise	View Document
Any additional information	View Document

2.5.3 IT integration and reforms in the examination procedures and processes (continuous internal assessment and end-semester assessment) have brought in considerable improvement in examination management system of the institution

Response:

IT Integration:

- KITS had integrated IT into the evaluation process in 2013, transforming the conventional practice into a credible and streamlined system benefiting all the stakeholders. Eduserve, a well-designed in-house ERP provides a platform for a host of examination and evaluation related metrics, such as course registration, time-table preparation, fee payment, hall ticket generation, attendance marking, question paper uploading, mark entry, processing and publication of results.
- Even before the outbreak of Covid-19, KITS has been conducting online examinations through the Karunya Examination Portal (KEP) developed by the Computer Technology Centre. Therefore, the challenge of conducting online examinations and evaluation for 8500 students during the lockdown was a seamless endeavour.
- During 2019-2020, a total of 2,79,257 online examinations were conducted.
- The success of the online examination is evident from the 96% students attendance and the pass percentage of 95.25%.
- To leverage the potential of ICT, Virtual lab examinations are conducted using Remote Lab and NMEICT.
- Evaluation of Doctoral thesis and the conduct of oral board examination are online to overcome glitches during the pandemic.
- Karunya being a partner in E-SANAD and NAD-Digilocker, verification of documents has been a contactless and paperless attestation service.
- As per statutory requirements of UGC and AICTE and as advocated by NEP, 266 students earned credits by registering for 490 courses on SWAYAM NPTEL platform during 2020-21.



Reforms and Improvements in Examination System:

- The Karunya Examination Platform has special features incorporating the Lockdown Browser and Respondus Software designed for online examination, evaluation and with AI based remote and live proctoring.
- The practice of uploading question papers prepared as per a template using individual secured login ensures uniformity and credibility.
- Encrypted uniform mark statements, tear and water proof, Degree Certificates with photograph are issued to students. 17 security features have been incorporated in the Degree Certificate to make it tamper- proof. Incorrect and damaged certificates are shredded to avoid misuse.
- Karunya maintains a question bank for each course and question papers are system generated through an automatic random selection.
- The computerised internal assessment system is integrated with Eduserve and added on to the end semester marks through an automated system.

- The examination process being automated; the activities are completed methodically with precision, minimizing human errors and facilitating easy retrieval, and data analysis.
- Challenges of Covid-19 were overcome by conducting online examinations in KEP enabling students to complete their programs on time.
- Online verification of documents and issue of provisional certificates helped students secure admissions in universities abroad and placements without delays.
- Online examination review option is available for students and faculty which has made the system more transparent.
- Online examination system has considerably brought down the time spent on evaluation process.
- For the benefit of students, the question papers of the previous examinations have been uploaded on the library website- <https://karunya.edu/library/question/banks>

File Description	Document
Year wise number of applications, students and revaluation cases	View Document
Any additional information	View Document
Link for additional information	View Document

2.5.4 Status of automation of Examination division along with approved Examination Manual

Response: 100% automation of entire division & implementation of Examination Management System (EMS)

File Description	Document
Current manual of examination automation system and Annual reports of examination including the present status of automation	View Document
Current Manual of examination automation system	View Document
Any additional information	View Document
Annual reports of examination including the present status of automation	View Document

2.6 Student Performance and Learning Outcomes

2.6.1 The institution has stated learning outcomes (generic and programme specific)/graduate attributes which are integrated into the assessment process and widely publicized through the website and other documents

Response:

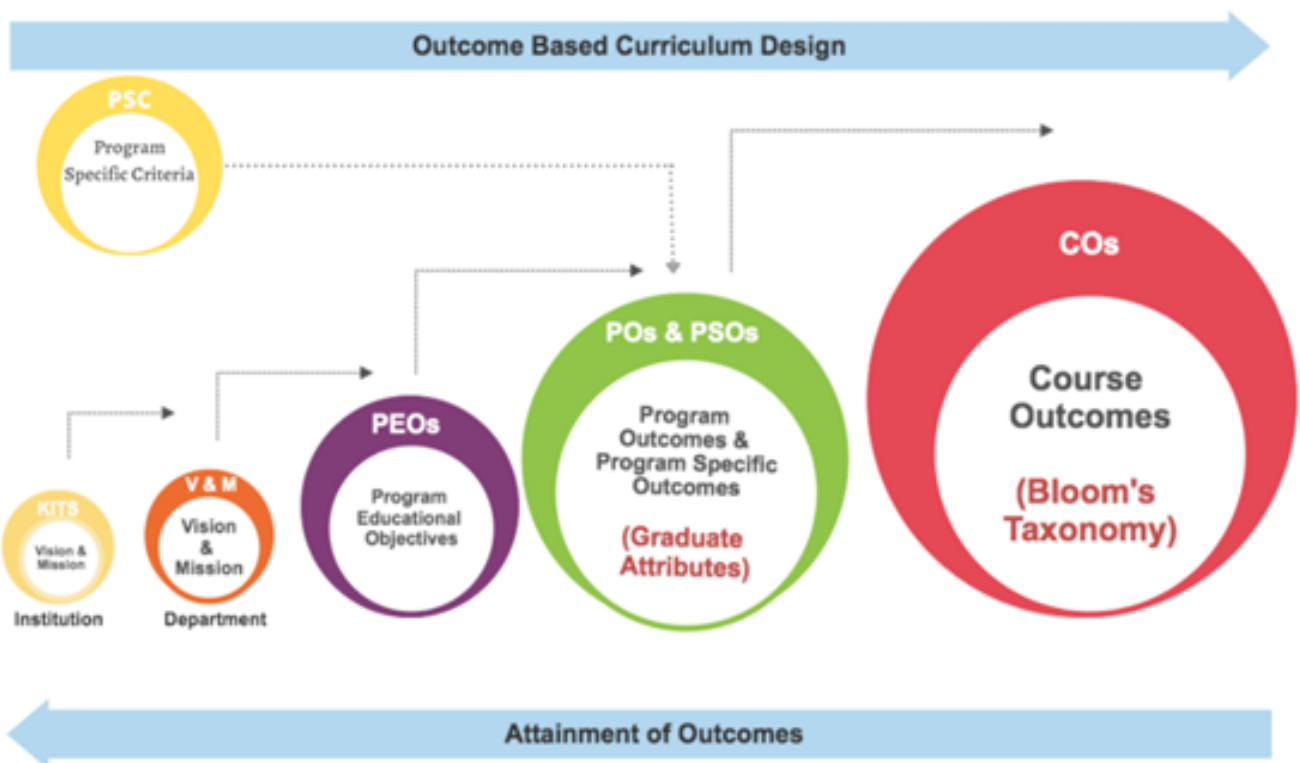
At the core of Karunya mission is academic excellence, and KITS has well defined Vision and Mission

statements that is reflected in the PEOs and correlated to the POs and PSOs. This drives the Outcome Based Education -OBE that the Institution is practising since 2012.

- The POs aligned with the graduate attributes measure the knowledge gained, skills acquired, values imbibed and attitude developed at the end of programme. The cognition-based POs are assessed through COs while skill-based POs are attained from practicals, projects, research, internships and behaviour-based POs through co-curricular and extra-curricular activities such as community services, outreach programmes, environmental awareness activities and relief camps organized as scheduled in the academic calendar for which 4 non-academic credits are earned.
- In order to cater to the specific needs and unique requirements of each programme, the PSOs are framed with reference to inputs from relevant professional societies such as ASME, ASCE, IEEE, CSI, BIO, ABLE, AIMA, CII, CMA, AICPA, AIAA. For instance, the PSO of the Aerospace B.Tech. Program is

“Understand aeronautical and space systems components and thereby perform aerodynamic, structural and propulsion system design, analysis, simulation and testing”

- The COs are domain specific, covering all modules of the syllabus and framed using Bloom’s Taxonomy to measure the learning outcomes. The Course Articulation Matrix (CAM) maps the correlation of COs with POs and PSOs and is included in the teaching plan. The correlation index is graded as 3 for high, 2 for medium, 1 for low and 0 for no correlation.



The learning outcomes are assessed through direct and indirect methods.

- Direct assessments include internal assessments, real-time projects, presentations, internships, seminars, MOOC and end semester examination. The question paper is set following Bloom’s Taxonomy and is mapped with specific COs and the attainment of Course Outcome is calculated based on the marks scored in all internal and external examinations. The components of the Quality

Assessment are also mapped to the specific course outcome.

- The indirect assessments include surveys from stakeholders such as students, faculty, industry/market expertise and parents. A structured rubric is adopted to assess the attainment level in indirect methods.

Practices followed to publicize Learning Outcomes

- The PEOs, POs, and PSOs of each program are published in the department websites and displayed in the prominent places in the Institution such as HOD's office, faculty cabins, class rooms, seminar halls, department library and laboratories.
- The COs feature in the academic handbook, teaching plan, and question papers. A copy of the syllabi with COs and Course Articulation Matrix is available in the department for ready reference.
- The students are apprised of the PEOs, PSOs POs, and COs during the induction program and provided with the curriculum, learning outcomes, and assessment pattern.
- Learning outcomes are disseminated to the newly recruited faculty members during the orientation programmes and to other stakeholders at placement drives and alumni gatherings.
- Training programmes are organized every semester for faculty on Bloom's Taxonomy based teaching plan preparation and question paper setting to bring in uniformity in the implementation of OBE.

File Description	Document
Upload COs for all courses (exemplars from Glossary)	View Document
Upload any additional information	View Document
Paste link for Additional Information	View Document

2.6.2 Attainment of Programme outcomes, Programme specific outcomes and course outcomes are evaluated by the institution

Response:

Measures taken by KITS to achieve academic excellence is evaluated by a set of criteria for quantitative assessment of the learning outcomes. Attainment of COs, POs and PSOs is assessed through direct and indirect methods which include Continuous Internal Assessment (CIA), End Semester Examination (ESE) and stakeholders' surveys.

CO Attainment:

Three Internal Assessments-IA and Quality Assessment-QA are conducted over 90 working days. The CoE conducts IA and ESE.

- Each IA is conducted for 40 marks and every question is mapped with the corresponding CO and the knowledge levels of the Bloom's Taxonomy. The answer booklets have provisions to enter CO for each question to map with the marks secured.

- QA components include assignments, seminars, mini projects, literature review, case study, term paper, patent and research paper review, industry visit, poster presentation, field survey, MCQ and conducted for 10 marks for UG and 15 marks for PG programmes.
- ESE is conducted for 100 marks. Questions are framed based on the levels of Bloom's Taxonomy to address the COs.
- Marks obtained by students for each question in IA, QA and ESE are mapped to the respective COs for calculating the CO attainment level.
- CO attainment for a given course is calculated by fixing a target(threshold) score decided by the course faculty. The attainment level is decided on the basis of a rubric and the sample calculation of CO attainment is explained below:
- Rubric: If 50% of the students achieve the target, the CO attainment level is 1, if 60% and 70 % or more achieve the target, the CO attainment levels are 2 and 3 respectively. The rubrics and target vary with course.
- Sample: If 120 students appear in an ESE and the target score set by the teacher is 60 % (average pass percentage for last three exams to be considered for fixing the target), the attainment for each CO is calculated as follows: Attainment % is $(\text{No. of students scoring 60\% or more marks} \div 120) \times 100$; If 100 students score above or equal to the target, then attainment % is $100 \div 120 \times 100 = 83.67\%$. Therefore, the level of attainment is "3" as per rubric.
- Since a weightage of 60% is assigned for IA and 40% for ESE, the overall CO attainment is $0.6 \times \text{COI(IA)} + 0.4 \times \text{COE(ESE)}$.



PO and PSO Attainment:

- Direct Assessment: Attainment of POs and PSOs are calculated using the Course Articulation Matrix. The formula: $(\text{Avg. weightage of the COs for a PO}/3) \times \text{overall CO attainment for the course}$. The same is repeated for every PO and PSO.
- Indirect Assessment: PO and PSOs are evaluated based on the survey of alumni, employers and parents survey. The questionnaire in the survey represents the POs and PSOs and their response are quantified on a scale of 3 based on predefined rubrics.
- Overall PO/PSO Attainment = 90% of direct PO/PSO Attainment + 10% of indirect PO/PSO Attainment
- Wherever a PO or PSO indicates a low attainment, efforts are taken to identify courses that have reduced the PO attainment.
- IQAC assigns targets for the attainments which are measured every year and action is taken to enhance the attainment levels and fix higher targets.

File Description	Document
Upload any additional information	View Document
Paste link for Additional Information	View Document

2.6.3 Pass Percentage of students(Data for the latest completed academic year)**Response:** 95.25

2.6.3.1 Total number of final year students who passed the examination conducted by Institution.

Response: 1803

2.6.3.2 Total number of final year students who appeared for the examination conducted by the Institution.

Response: 1893

File Description	Document
Upload list of Programmes and number of students passed and appeared in the final year examination	View Document
Upload any additional information	View Document
Paste link for the annual report	View Document
Link fo any additional information	View Document

2.7 Student Satisfaction Survey**2.7.1 Online student satisfaction survey regarding teaching learning process**

Response: 3.51

File Description	Document
Upload database of all currently enrolled students	View Document

NAAC

Criterion 3 - Research, Innovations and Extension

3.1 Promotion of Research and Facilities

3.1.1 The institution's Research facilities are frequently updated and there is a well defined policy for promotion of research which is uploaded on the institutional website and implemented

Response:

The Institution has a well-defined policy for research and related activities, which is revised, modified periodically and notified (https://www.karunya.edu/naacssr/3.1.1_a/1.pdf). The academic research regulations, aligning with UGC guidelines, are provided at www.karunya.edu/research/regulations. The funded research projects and facilities available for research are highlighted at (<https://karunya.edu/research/fundedresearch>). The Board of Research and Consultancy is chaired by VC and all Deans, Directors and Heads are members. The recommendations / discussions of the BRC are placed before the Academic Council and the BoM, and the minutes are hosted on the Institution website.

Salient features of promotion of research activities and facilities:

1. KITS provides both physical and scientific infrastructure for research and consultancy assignments, the average annual investment being Rs. 750 lakh
2. The institution has 131 state-of-the-art laboratories with modern analytical and other instruments and equipment
3. The important facilities for research include: polyhouse, animal house, meteorological observatories, NASA-AERONET, DST-Nano Mission funded laboratory, NABL laboratory for food testing, Ministry of Food Processing Industries funded pilot plant facility, AICTE-MODROB funded RF Lab, NVIDIA Lab, Siemens Centre, IBM-BIG DATA Centre
4. Analytical and experimental facilities include AAS, IC, TOC, NMR, HPLC, GC, FTIR, 100T Servo-hydraulic UTM, Supersonic and Sub-sonic wind tunnels, electrocoagulation, electro dialysis and CDI facility for water treatment
5. Seed money of Rs. 217 lakh provided to 282 students and 138 faculty members
6. Karunya-Israel and Karunya-USA Research Fellowship provided to 14 faculty members for joint research, amounting to Rs.25 lakh
7. Incentives amounting to Rs.5.83 lakh given to 94 faculty members for publishing papers in high impact journals
8. Professional incentive of Rs. 25.07 lakh provided for mobilizing funded research for 23 faculty members.
9. Expenses for patenting of Rs. 63.74 lakh extended to 67 faculty/students
10. Evangeline Dhinakaran Doctoral Fellowship awarded to 9 scholars in continuation of 25 Silver Jubilee Fellowships for Ph.D. scholars
11. Travel grants and registration fees of Rs. 71.38 lakh provided to 328 faculty members for presenting papers at conferences
12. Considerable weightage is given for research contributions in the API

There is a budget provision for procurement, repair and maintenance of equipment and instruments in the Departments which is operated by the Heads by raising PRs and following all store-purchase rules. When expensive instruments/equipment are to be purchased or repaired in central laboratories, general funds are provided. AMCs are entered into wherever necessary and in their absence, repairs/maintenance are done on

call basis. The Institution has a full-fledged Purchase Department under the Purchase Manager with 5 supporting staff. The instruments/equipment for external funded projects are also purchased, maintained/repared following the budget provision in the project and established policy and procedure. Stock registers are maintained as per the standard practice and inventory is taken annually by a special committee constituted by the Registrar. The defunct instruments are disposed off based on the recommendations the committee constituted exclusively for the purpose, who may suggest repairs/exchange/auctioning depending on the specific case.

File Description	Document
Minutes of the Governing Council/ Syndicate/Board of Management related to research promotion policy adoption	View Document
Any additional information	View Document
URL of Policy document on promotion of research uploaded on website	View Document

3.1.2 The institution provides seed money to its teachers for research (average per year, INR in Lakhs)

Response: 40.98

3.1.2.1 The amount of seed money provided by institution to its faculty year-wise during the last five years (INR in lakhs).

2019-20	2018-19	2017-18	2016-17	2015-16
44.73	47.85	38.21	37.31	36.82

File Description	Document
Minutes of the relevant bodies of the University	View Document
Institutional data in prescribed format	View Document
Budget and expenditure statements signed by the Finance Officer indicating seed money provided and utilized	View Document
Any additional information	View Document

3.1.3 Percentage of teachers receiving national / international fellowship / financial support by various agencies for advanced studies / research during the last five years.

Response: 10.42**3.1.3.1 The number of teachers who received national / international fellowship / financial support by various agencies for advanced studies / research year-wise during the last five years.**

2019-20	2018-19	2017-18	2016-17	2015-16
68	69	36	49	21

File Description**Document**

Institutional data in prescribed format

[View Document](#)

e-copies of the award letters of the teachers

[View Document](#)

Any additional information

[View Document](#)**3.1.4 Number of JRFs, SRFs, Post Doctoral Fellows, Research Associates and other research fellows enrolled in the institution during the last five years.****Response:** 147**3.1.4.1 The Number of JRFs, SRFs, Post Doctoral Fellows, Research Associates and other research fellows enrolled in the institution year-wise during the last five years.**

2019-20	2018-19	2017-18	2016-17	2015-16
61	25	22	24	15

File Description**Document**

Institutional data in prescribed format

[View Document](#)

Any additional information

[View Document](#)**3.1.5 Institution has the following facilities to support research**

- 1. Central Instrumentation Centre**
- 2. Animal House/Green House**
- 3. Museum**
- 4. Media laboratory/Studios**
- 5. Business Lab**
- 6. Research/Statistical Databases**
- 7. Mootcourt**
- 8. Theatre**

9. Art Gallery
10. Any other facility to support research

Response: A. 4 or more of the above

File Description	Document
Upload the list of facilities provided by the university and their year of establishment	View Document
Upload any additional information	View Document
Paste link of videos and geotagged photographs	View Document

3.1.6 Percentage of departments with UGC-SAP, CAS, DST-FIST, DBT, ICSSR and other recognitions by national and international agencies (Data for the latest completed academic year)

Response: 88.24

3.1.6.1 The Number of departments with UGC-SAP, CAS, DST-FIST, DBT, ICSSR and other similar recognitions by national and international agencies.

Response: 15

File Description	Document
Institutional data in prescribed format	View Document
e-version of departmental recognition award letters	View Document
Any additional information	View Document

3.2 Resource Mobilization for Research

3.2.1 Extramural funding for Research (Grants sponsored by the non-government sources such as industry, corporate houses, international bodies for research projects) endowments, Chairs in the University during the last five years (INR in Lakhs).

Response: 424.46

3.2.1.1 Total Grants for research projects sponsored by the non-government sources such as industry, corporate houses, international bodies, endowments, Chairs in the institution year-wise during the last five years (INR in Lakhs).

2019-20	2018-19	2017-18	2016-17	2015-16
144.75	70.66	104.86	56.68	47.51

File Description	Document
Institutional data in prescribed format	View Document
e-copies of the grant award letters for research projects sponsored by non-government	View Document
Any additional information	View Document

3.2.2 Grants for research projects sponsored by the government agencies during the last five years (INR in Lakhs).

Response: 1556.83

3.2.2.1 Total Grants for research projects sponsored by the government agencies year-wise during the last five years (INR in Lakhs).

2019-20	2018-19	2017-18	2016-17	2015-16
334.51	168.90	182.30	553.62	317.50

File Description	Document
Institutional data in prescribed format	View Document
e-copies of the grant award letters for research projects sponsored by government	View Document
Any additional information	View Document

3.2.3 Number of research projects per teacher funded by government and non-government agencies during the last five years

Response: 0.6

3.2.3.1 Number of research projects funded by government and non-government agencies during the last five years.

Response: 56

3.2.3.2 Number of full time teachers worked in the institution year-wise during the last five years..

Response: 467

File Description	Document
Supporting document from Funding Agency	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document
Paste Link for the funding agency website	View Document

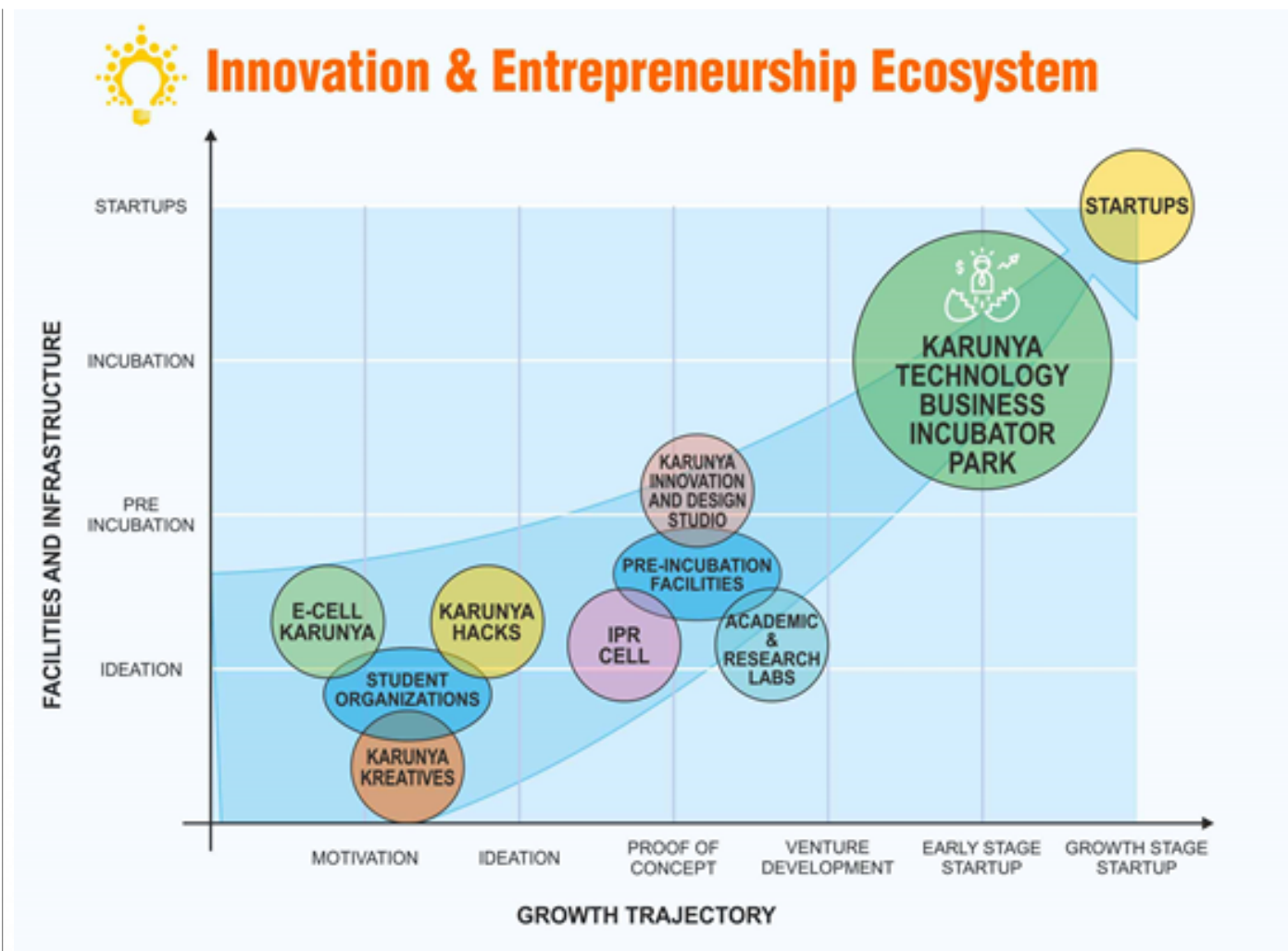
3.3 Innovation Ecosystem

3.3.1 Institution has created an eco system for innovations including Incubation centre and other initiatives for creation and transfer of knowledge.

Response:

KITS has a robust ecosystem for nurturing innovation and entrepreneurship leading to patents, products and start-ups.

- Karunya Innovation and Incubation Centre (KIIC), now incorporated as a Section 8 Company, namely, Karunya Technology Business Incubation Park (K-TBIP), was set up in 2016. KIIC, established with a cumulative investment of Rs. 86 lakh and an incubation space of 900 sq. m., includes Karunya Innovation and Design Studio (KIDS). The studio, an innovation hub came into existence in 2019 to promote technology-based entrepreneurship.
- KITS has a tie-up with Entrepreneurship Development Innovation Institute, Tamil Nadu (EDII-TN). A MoU has been signed with YNOS Venture Engine, a technology platform for early stage entrepreneurs to identify investors, obtain expert consultation and interact with venture capitalists and angel investors.
- Tie-ups have been initiated with reputed R&D organizations and 10 laboratories established with industry linkages.
- 25 Technology Missions address the issues related to four thrust areas, namely, food, water, healthcare and sustainable energy. During the period of assessment, 25 products were developed, 66 patents published, 5 granted and 2 technologies commercialized.



The following are the activities of all the outfits related to incubation and entrepreneurship:

- Innovation and entrepreneurship are integrated in the curriculum with 7 courses on entrepreneurship, IPR and business development and 3746 students trained
- A MoU was signed with National Entrepreneurship Network / Wadhvani Foundation for entrepreneurship education through curricular, practicum activities and start-up initiatives
- 5 faculty members have been trained as Innovation Ambassadors by MHRD Innovation Cell (MIC)
- The Harvard Medical School and Boston Children's Hospital have sponsored 32 student projects for developing products related to healthcare
- Facilities such as a 3D printer, Virtual Reality workstations, Electronic Workbenches procured at a total cost of Rs.45 lakh
- Company registration and mentoring support for incubatees
- 13 incubatees and 38 start-ups initiated during 2016-2020
- Abhi Repair Pvt. Ltd and New10 Online Shopping Pvt. Ltd selected as Best Start-ups in South India Start-up Awards 2018; Abhi Repair was also the winner of the 'Smart Fifty Competition' conducted by IIM-C
- Students have participated in national and international competitions such as Code Gladiators, Google Summer of Code, ACM-ICPC, DefCon, InCTF
- 10 teams participated in the Smart India Hackathon 2020, one of them becoming finalist
- 11 teams participated in National Innovation Contest 2020 conducted by MIC, MoE
- MIC-driven and self-driven activities are conducted regularly as per the IIC calendar
- Training, workshops, competitions and hackathons, including 12-hour and 24-hour hackathons are

conducted in collaboration with Major League Hacking, encouraging students to develop innovative ideas and products

- Students of KITS are mentored by Karunya Alumni Business Network in entrepreneurship development



File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

3.3.2 Number of workshops/seminars conducted on Research methodology, Intellectual Property Rights (IPR), entrepreneurship, skill development during the last five years.

Response: 643

3.3.2.1 Total number of workshops/seminars conducted on Research methodology, Intellectual Property Rights (IPR), entrepreneurship, skill development year-wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
203	110	157	111	62

File Description	Document
Report of the event	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.3.3 Number of awards / recognitions received for research/innovations by the institution / teachers / research scholars / students during the last five years.

Response: 95

3.3.3.1 Total number of awards / recognitions received for *research* / innovations won by institution / teachers / research scholars / students year-wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
48	4	2	37	4

File Description	Document
Institutional data in prescribed format	View Document
e- copies of award letters	View Document
Any additional information	View Document

3.4 Research Publications and Awards

3.4.1 The Institution ensures implementation of its stated Code of Ethics for research through the following: 1. Inclusion of research ethics in the research methodology course work 2. Presence of Ethics committee 3. Plagiarism check through software 4. Research Advisory Committee

Response: A. All of the above

File Description	Document
Code of ethics for Research document, Research Advisory committee and ethics committee constitution and list of members on these committees, software used for Plagiarism check, link to Website	View Document
Any additional information	View Document

3.4.2 The institution provides incentives to teachers who receive state, national and international recognitions/awards 1. Commendation and monetary incentive at a University function 2. Commendation and medal at a University function 3. Certificate of honor 4. Announcement in the Newsletter / website

Response: A.. All of the above

File Description	Document
Institutional data in prescribed format	View Document
e- copies of the letters of awards	View Document
Any additional information	View Document

3.4.3 Number of Patents published / awarded during the last five years.

Response: 67

3.4.3.1 Total number of Patents published / awarded year-wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
39	15	3	8	2

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.4.4 Number of Ph.D's awarded per teacher during the last five years.

Response: 2.44

3.4.4.1 How many Ph.D's are awarded within last five years.

Response: 288

3.4.4.2 Number of teachers recognized as guides during the last five years

Response: 118

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document
URL to the research page on HEI web site	View Document

3.4.5 Number of research papers per teachers in the Journals notified on UGC website during the last five years

Response: 8.89

3.4.5.1 Number of research papers in the Journals notified on UGC website during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
875	1074	762	517	918

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.4.6 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years

Response: 1.93**3.4.6.1 Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year-wise during last five years**

2019-20	2018-19	2017-18	2016-17	2015-16
116	260	183	216	127

File Description**Document**

Institutional data in prescribed format

[View Document](#)

Any additional information

[View Document](#)**3.4.7 E-content is developed by teachers :**

1. For e-PG-Pathshala
2. For CEC (Under Graduate)
3. For SWAYAM
4. For other MOOCs platform
5. Any other Government Initiatives
6. For Institutional LMS

Response: D. Any 2 of the above**File Description****Document**

Institutional data in prescribed format

[View Document](#)

Give links or upload document of e-content developed

[View Document](#)

Any additional information

[View Document](#)**3.4.8 Bibliometrics of the publications during the last five years based on average citation index in Scopus/ Web of Science or PubMed****Response:** 5.85**File Description****Document**

Bibliometrics of the publications during the last five years

[View Document](#)

Any additional information

[View Document](#)

3.4.9 Bibliometrics of the publications during the last five years based on Scopus/ Web of Science - h-index of the Institution**Response:** 42.5

File Description	Document
Bibliometrics of publications based on Scopus/ Web of Science - h-index of the Institution	View Document
Any additional information	View Document

3.5 Consultancy**3.5.1 Institution has a policy on consultancy including revenue sharing between the institution and the individual and encourages its faculty to undertake consultancy.****Response:**

KITS encourages faculty to undertake consultancy assignments that have a R&D component and in addition, have value to the society. The Institution advocates industrial collaborations so that the faculty get exposure to real field problems and potential solutions.

The Institution promotes the utilization of the laboratory facilities for the testing and evaluation needs of the industry and academic institutions in the region. KITS has a NABL accredited laboratory in the Department of Food Processing Engineering, which tests and certifies the quality of edible oils.

A well defined policy is followed by KITS to incentivise the faculty to take up consultancy projects. A Consultancy Coordinator is assigned to the project and is guided by a consortium of experts from within the Institution and/or outside. The responsibility for completing the work on time and to the satisfaction of the clients, rests with the coordinator. A copy of the interim and final report shall be submitted to Dean/Coordinator (Research) . The salient features of the policy that describe how the proceeds of the project are shared between the Consultancy Coordinator and the Institute are given below.

Projects where Institutional facilities (infrastructure) are utilized.

To the Consultancy Coordinator - 35%

To the Institution - 35%

To the Department Budget - 20%

To the Lab Assistant - 10%

This distribution is from the surplus amount remaining after deducting the consumables and other expenditure incurred by the Institution.

Projects where Institutional facilities (infrastructure) are not utilized.

To the Consultancy Team - 55%

To the Institution - 30%

To the Department - 15%

During the assessment period, KITS has carried out projects worth Rs. 563 lakh which includes projects from international companies like Boeing and Government departments like Rural Development and Panchayat Raj and environmental specialists like GIZ. Apart from such major assignments, KITS has also worked on consultancy projects from various Government organizations, academic institutions and companies who have opted to use KITS facilities for completing their assignments.

File Description	Document
Upload soft copy of the Consultancy Policy	View Document
Upload minutes of the Governing Council/ Syndicate/Board of Management related to consultancy policy	View Document
Paste URL of the consultancy policy document	View Document

3.5.2 Revenue generated from consultancy and corporate training during the last five years (INR in Lakhs).

Response: 563.52

3.5.2.1 Total amount generated from consultancy and corporate training year-wise during the last five years (INR in lakhs).

2019-20	2018-19	2017-18	2016-17	2015-16
213	71.91	104.5	89.27	84.84

File Description	Document
Institutional data in prescribed format	View Document
Audited statements of accounts indicating the revenue generated through consultancy	View Document
Any additional information	View Document

3.6 Extension Activities

3.6.1 Extension activities in the neighbourhood community in terms of impact and sensitising students to social issues and holistic development during the last five years.

Response:

Karunya is committed to the holistic development of its students, thereby transforming them to impact the society. It seeks to achieve this goal not only through its formal curricula, in-class interactive sessions, practicum and research, but also through a set of well-planned student-centric programmes, leading to a healthy discourse on social, cultural and national issues of the times, embodying and blending creativity, skill and social concern. As extension activities form a part of the curriculum, UG students across disciplines have to earn 3/4 credits.

Since its inception, Karunya has recognized community as a learning resource making community-centered activities an integral academic imperative and the epicenter of all its extension programmes. NCC, NSS, YRC, Rotaract, Nature, Journalism, Music, and Photography Clubs, and Karunya Arts Literary Association spearhead the non-formal curricular movement. These activities provide adequate opportunities to students to proffer services to the neighbouring communities and develop civic engagement skills through Service Learning.

- The felt needs of the community form the core principle driving all extension activities in Karunya. NSS and NCC were at the fore-front of rescue operations when floods affected Chennai, Cuddalore and Kerala. Faculty and students participated in the rescue operation and provided relief material to communities affected by natural disasters and families displaced due to Vardah and Gaja cyclones and floods in Kerala.
- KITS team camped and distributed food and water to the needy, besides offering first aid and referral services to the marooned population. Responding to the call of the Prime Minister under *Swatchch Bharat Abhiyan*, the students conducted a rural survey to identify the issues and problems of women and accordingly 8 toilets and a model pre-cast modular toilet were constructed in the fringe villages.
- YRC conducted health and blood donation camps amongst ruralites and the students disseminated messages of wellness and hygiene through posters and skits.
- KALA and Music Club encouraged and nurtured talents among the students by way of choreographing and participating in performing art forms.
- The green warriors from Nature Club and NSS organized Nature walk, trekking and afforestation drive besides lecture-demonstration on themes of Greener Earth. Journalism Club opened its portal to all students regardless of their discipline.
- Visits to TV studios, lectures on current trends in journalism, the importance of being a member of the Fifth Estate in the current scenario and bringing out in-house editions are some of the initiatives of the Journalism and Photography Clubs.
- Rotaract offers tutorial coaching to students of Government schools in and around Karunya Nagar. Member-students of Rotaract were involved in all AICTE supported programs like *Swachchata Pakwada*, *Mathru Baasha Andolan*, International Human Rights Day celebrations, National Unity Day.



- Visits to the Home for the aged and differently-abled children are some of the regular features of their programmatic itinerary. It is a matter of pride and spiritual gratification for Karunya administration to see that the extension programmes are in a symbiotic relation with its academic calendar, thus fulfilling its avowed mission of making a well-rounded personality out of every youth entering the portals of Karunya.

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

3.6.2 Number of awards received by the Institution, its teachers and students from Government /Government recognised bodies in recognition of the extension activities carried out during the last five years

Response: 136

3.6.2.1 Total number of awards and recognition received for extension activities from Government/ Government recognised bodies year-wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
82	28	12	10	4

File Description	Document
Institutional data in prescribed format	View Document
e-copy of the award letters	View Document
Any additional information	View Document

3.6.3 Number of extension and outreach programs conducted by the institution through NSS/NCC, Government and Government recognised bodies during the last five years

Response: 1005

3.6.3.1 Number of extension and outreach programs conducted by the institution those through NSS/NCC, Government and Government recognised bodies during the last five years

2019-20	2018-19	2017-18	2016-17	2015-16
92	153	172	163	425

File Description	Document
Reports of the event organized	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.6.4 Average percentage of students participating in extension activities listed at 3.6.3 above during the last five years

Response: 85.13

3.6.4.1 Total number of students participating in extension activities listed at 3.6.3 above year-wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
4900	6130	5980	6170	6550

File Description	Document
Report of the event	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document

3.7 Collaboration

3.7.1 Number of Collaborative activities for research, Faculty exchange, Student exchange/ internship per year

Response: 681

3.7.1.1 Total number of Collaborative activities with other institutions / research establishment / industry for research and academic development of faculty and students year-wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
633	871	528	546	827

File Description	Document
Institutional data in prescribed format	View Document
Copies of collaboration	View Document
Any additional information	View Document

3.7.2 Number of functional MoUs with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research during the last five years.

Response: 82

3.7.2.1 Number of functional MoUs with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research year-wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
29	17	14	13	9

File Description	Document
Institutional data in prescribed format	View Document
e-copies of the MoUs with institution/ industry	View Document
Any additional information	View Document

NVAAC

Criterion 4 - Infrastructure and Learning Resources

4.1 Physical Facilities

4.1.1 The institution has adequate facilities for teaching - learning. viz., classrooms, laboratories, computing equipment, etc.

Response:

KITS has made significant contribution to teaching and learning through its Avant-Garde facilities impacting generations of student communities, in its 35 years of service to higher education. The Institution has established the required facilities adhering to the stipulations of AICTE, UGC and ICAR. On an average, Rs. 750 lakh is invested annually for upgrading the laboratory facilities.

Physical Facility:

- KITS has 137 ICT enabled classrooms, 4 seminar halls and 8 large gallery halls with smart technology to accommodate 180 students and 131 well-equipped laboratories
- Three large auditoriums of 12,992 sq. m for co-curricular activities and capacity building programmes.



Domain Specific Laboratories:

Facilities for hands-on-experience and field/industry skills development:

1. DST Nano Mission Rs. 300 lakh funded state-of-the-art laboratories: Nanofabrication laboratory, Nanotoxicology and Tissue Engineering laboratory equipped with SEM, EDX, XRD, AFM, Particle Size Analyzer

2. Ministry of Food Processing Industries – Rs. 400 lakh funded Pilot Plant facility
3. RF lab funded by AICTE –MODROB and VLSI laboratory
4. NABL Accredited Food Quality Testing Laboratory
5. Aerospace laboratories with wind tunnel, supersonic, subsonic and water tunnel, shock tube facility and UAV
6. Karunya-Seimens, NVIDIA Laboratory, Karunya-SALZER Centre
7. NDT and Structural Dynamics laboratory with 100T Servo-Hydraulic UTM-MTS,
8. NASA Aeronet facility
9. 3D Printing and Nanofluid Heat Transfer laboratory
10. IoT laboratory for AI, Blockchain laboratory, CISCO-Advanced Networking, SUSE-cloud computing laboratory, IBM-BIG DATA centre
11. Wind Energy laboratory
12. Advanced Analytical Chemistry laboratory with NMR, HPLC, GC, FTIR, DSC
13. 329-acre Agriculture Farm with Polyhouse, meteorological observatory and well equipped specialized laboratories
14. Biosafety Class II facility, Genomics facility, RTPCR
15. Animal house for experimentation
16. Instrumentation centre with AAS, TOC, IC, UV and Electrochemical laboratory
17. Media labs with state-of-the-art audio and video studios and editing suites.

Apart from purely academic requirements, the students utilize the laboratories for project work, product development and faculty members use them for research, consultancy and training, optimally utilizing the above facilities.



Computing Facility:

- A Computer Technology Centre (CTC) with 15 laboratories of 3046.60 sq. m.
- 44 high-end Servers (IBM Pureflex System, IBM Storwize V7000 Storage, FreeNAS Storage Appliances, HP and Dell Rack Servers) with 81TB Storage Area Network.
- Green computing by server consolidation and desktop virtualization using VMware products.
- Campus network with 1Gbps fiber-optic backbone
- An uninterrupted internet connectivity with a bandwidth of 1500 Mbps through multiple service providers and fully Wi-Fi connected campus with 774 access points.
- Learning Management System-www.courses.karunya.edu provides a wide range of learner-centric tools including a knowledge repository-NKN in the Intranet with MIT Open Courseware, NPTEL and MOOC.
- Super Computer: Karunya procured Nvidia DGX station, the world's fastest work station to carry out exploration and research experiments in the fields of DS, ML and DL. The partnership has enabled students to train on AI technologies and prepare for a career in industry.
- Subscription to a host of licensed software for academic and administrative requirements.

Library:

A three-storey air-conditioned and fully automated Central Library of 3083.3 sq. m. An extensive reading area, digital library, dedicated sections for reference books, journals, thesis and dissertations, touchscreen

kiosks and research carrels.

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

4.1.2 The institution has adequate facilities for cultural activities, yoga, games and sports (indoor & outdoor); (gymnasium, yoga centre, auditorium, etc.,)

Response:

KITS has created an excellent infrastructure on campus for organizing a wide range of events to develop the mind and body of the students and place them at the highest realms of society. Considerable efforts are taken to identify the hidden talents and potential of the students and groom them to become dynamic engineers, managers and other professionals of social concern.

A significant investment on resources and infrastructure has been made over the years to enrich the students' cultural and social life.

- KITS has an imposing multi-purpose auditorium in the name of the Founder, late Dr. DGS Dhinakaran, of revered memory, with an area of 9449.25 sq. m and a seating capacity of 10,000 for conducting mega cultural events. The annual Mindkraft-innovation week, an inter-collegiate event conducted in this auditorium provides a platform to showcase the cognitive abilities of students, oratorical skills, theatrical skills, musical talents, choreography skills and creativity. The grand auditorium hosts yet another signature event of the Institution, the Megaplay, an event that draws the entire Karunya community for an evening of entertainment and fellowship.
- Emmanuel Auditorium with an area of 2330 sq. m and 2500 seating capacity, an air-conditioned Elohim hall with a seating capacity of 400 and El-Shaddai auditorium with an area of 1212.93 sq. m and 1500 seating capacity with a large stage and adjacent green rooms, ceiling mounted special lighting effects for concerts and cultural events.
- Karunya sports complex is a state-of-art facility that is extensively used by the student community for a host of sporting events. The vast arena spreads over 15 acres and accommodates 2 indoor stadiums of 9449.25 sq. m and 748.00 sq. m area, 10 volley Ball courts, 2 football courts, 1 hockey court, 9 badminton courts, 4 basketball courts, 13 kabaddi courts, 4 ball badminton courts, 1 handball court, 1 lawn tennis court, 2 standard 400 m 8 lane tracks and 10 viewing galleries for the audience. All courts are well-laid as per SAI standards with flood lights.



- The indoor sports facilities include 5 badminton courts, 1 basketball court, 1 kabaddi court, 8 table tennis tables, 14 carom boards and 40 chess boards.
- These remarkable facilities facilitate the institution to organize the prestigious event, the Karunya Evangeline Memorial Tournament (KEMT) that hosts 3000 sports men and women across institutions, fostering team spirit and promoting healthy competition among the youth.
- 7 sophisticated well equipped gymnasiums with modern facilities like twisting machine, stepper machine, peck deck machine, leg curl machine and abdomen machine for physical fitness have been established in the student residences.
- The facilities are well utilized by the students who register themselves in various clubs for earning

non-academic credits. The Institution earmarks 4 Saturdays per semester as non-academic working days to promote the involvement of students in extra-curricular activities. Contests in singing, painting, art, dance, quiz are organised to harness the talent of the students. About 3500 students participate in the events conducted in the multiple venues on these designated days.

File Description	Document
Upload any additional information	View Document
Geotagged pictures	View Document
Paste link for additional information	View Document

4.1.3 Availability of general campus facilities and overall ambience

Response:

Located 30 km from Coimbatore, KITS is situated amidst the mountain ranges of Western Ghats, one of the world's eight 'hottest hotspots' of biological diversity, as declared by UNESCO. The vast residential campus experiences a perfect monsoon system that provides an ideal ambience for living and learning. The security wing of KITS under a retired Dy. SP takes care of the security of the campus with a battalion of officials and security guards supported by the surveillance cameras.

- KITS has invested Rs.17300 lakh for augmentation of infrastructure in the past 5 years.
- A world class infrastructure with spacious academic blocks housing 17 departments, an administrative block with an elegant façade, a central air-conditioned library, a Computer Technology Centre in a five storey building that captures the panoramic view of the misty mountains, three large auditoriums with a seating capacity between 1500-10000 and 329-acre agriculture farm, collectively provide a robust academic ecosystem.
- The campus has well laid bitumen topped roads connecting the academic blocks, resident halls and all facilities. Paved footpaths along roads with avenue trees, manicured gardens and lush green lawns add to the scenic beauty of the campus.
- 7035 students are housed in 15 multi-storeyed residential halls with cozy single, double and four bedded accommodation and recreational facilities, hygienic kitchens equipped with automated steam cooking facilities supplying nutritious food, catering to the regional diversity of our students.
- 7 state-of-the-art gymnasiums, an extraordinarily large sports arena spanning over 15 acres that includes 2-indoor stadiums of 10197.25 sq.m and 2 lakh sq.m for outdoor sports and games, 3-football and hockey play fields, 2x400m 8-lane-track, 5-concrete basketball courts, 14-ball badminton courts, 6-kabaddi courts, 10-volleyball courts and 10-viewing galleries.
- A 100-bedded rural community hospital is located on campus for general consultation, specialized treatments and adequate in-patient facilities with 24x7 ambulance service.
- Amenities such as department stores, Post office, Canara bank, 7-ATMs for 24 hours transactions, telephone exchange, guest house, restaurants, petrol bunks, cooking gas agency and the Karunya Nagar police outpost are in the premises.
- Uninterrupted water and power supply to cater to the entire university community.
- Translating SDGs into action in the area of water and energy, the Karunya Conservation and

Management Centre-KCMC has taken several initiatives to Reduce, Reuse and Recycle for a green and clean campus.

- As part of energy conservation initiatives, a functional 115kW-solar power plant, 29-solar water heaters, 7958-LED lights are in place saving approximately 15,00,000 units/annum.
- For water conservation, treatment and management, 33 rainwater harvesting units and a 25,000 litres capacity ferro-cement tank for rainwater harvesting are in operation.
- To recycle and reuse wastewater, 5 Sewage Treatment Plants-STPs are installed on campus and the treated water is used for farming and gardening.
- Another initiative in managing wastewater in the students residences is the replacement of septic tanks with 4-biogas plants that generate 114kg/day of cooking gas, thereby reducing the consumption of LPG.
- An eco-friendly paper recycling unit converts 150-200kg of wastepaper into compact boards, files and writing pads.

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

4.1.4 Average percentage of expenditure for infrastructure augmentation excluding salary during the last five years (INR in Lakhs)

Response: 80.43

4.1.4.1 Expenditure for infrastructure augmentation, excluding salary during the last five years (INR in lakhs)

2019-20	2018-19	2017-18	2016-17	2015-16
1657.23	3172.39	8020.52	2477.24	1987.18

File Description	Document
Upload audited utilization statements	View Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document

4.2 Library as a Learning Resource

4.2.1 Library is automated using Integrated Library Management System (ILMS) and has digitisation facility

Response:

The air-conditioned Central Library of KITS is fully automated through a Web based advanced University version of AutoLib Library Automation and Management Software for complete digitization/computerization of all the in-house operations of the library along with Mobile app facilities. Average of Rs.143 lakh is the annual budget for the upgradation of library including the procurement and subscription of learning resources.

- The software supports the web-centric applications of the conventional functions such as circulation, cataloguing, serials control, user access, and acquisitions.
- Through the AutoLib software, links to e-resources such as Scopus, Science Direct, EBSCO, IEEE, Springer link, Proquest have been provided. In addition, access to question bank, uploading/downloading of e-books and different types of report generation are also available.
- The various housekeeping functions of the library such as user data entry, book issue, return and renewal, approval process, order placement, invoice processing, payment requisition, catalogue maintenance and stock verification are performed through the software.
- The books are classified according to Sewey Decimal Classifications. The user friendly OPAC (Online Public Access Catalogue) service is also provided where the users can search for books by title, author and publisher.
- The books are bar coded and the users are given unique barcode ID. E-gate entry and Touch screen Kiosks are installed in the library.
- The digital Library with web OPAIC is accessible from anywhere through <http://library.karunya.edu>. omputers exclusively for web OPAC are made available in the Central Library.
- A well-equipped dedicated Digital Library with computer facility and wide internet connectivity is a part of the Central Library for access to e-resources. All members of faculty and student community having personal computers can access the library through the fully connected wi-fi system in the campus. As the access facility to e-journals and e-books is multi-user and IP address-based with mobile app, students can access the e-resources from anywhere, within and outside the campus. Wi-Wi connections are provided in all the three floors of the Central library for easy access to the resources from their own devices.
- Access to 2,00,042 e-books and 2,377 e-journals subscribed by the Institution are given through the Electronic Resource Management Systems. In addition, link to scholarly open access journals/database is made available on the library webpage.
- The catalogue module in the AutoLib has facilitated the retroconversion of the library holdings.
- The circulation module in the AutoLib, monitors a host of has facilitated the retroconversion of the library holdings inter-library loan, overdue charges, reminders, search status, information on binding, replacing, missing and withdrawal of books, and generation of reports. The Autolib software provides details on books that are widely circulated, nonissue of books, new additions, failure to return books and reminders to students through SMS.

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

4.2.2 Institution has access to the following: 1. e-journals 2. e-ShodhSindhu 3. Shodhganga Membership 4. e-books 5. Databases 6. Remote access to e-resources**Response:** A. Any 4 or more of the above

File Description	Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document

4.2.3 Average annual expenditure for purchase of books/ e-books and subscription to journals/e-journals during the last five years (INR in Lakhs)**Response:** 136.57**4.2.3.1 Annual expenditure for the purchase of books and journals including e-journals year-wise during last five years (INR in Lakhs)**

2019-20	2018-19	2017-18	2016-17	2015-16
86.72	132.26	183.14	127.54	153.20

File Description	Document
Institutional data in prescribed format	View Document
Audited statements of accounts	View Document
Any additional information	View Document

4.2.4 Percentage per day usage of library by teachers and students (foot falls and login data for online access) during the latest completed academic year**Response:** 36.4**4.2.4.1 Number of teachers and students using library per day over last one year**

Response: 2585

File Description	Document
Details of library usage by teachers and students (Library accession register, online accession details to be provided as supporting documents)	View Document
Any additional information	View Document

4.3 IT Infrastructure

4.3.1 Percentage of classrooms and seminar halls with ICT - enabled facilities such as LCD, smart board, Wi-Fi/LAN, audio video recording facilities. (Data for the latest completed academic year)

Response: 100

4.3.1.1 Number of classrooms and seminar halls with ICT facilities

Response: 149

File Description	Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document
Paste link for additional information	View Document

4.3.2 Institution has an IT policy, makes appropriate budgetary provision and updates its IT facilities including Wi-Fi facility

Response:

IT infrastructure is crucial and paramount to support teaching-learning, research and extension in higher education sector. Responding to this need, KITS has invested significantly on the IT infrastructure to the tune of Rs.1845 lakh. Karunya has revisited its earlier policy to align with the guidelines of Govt. of India on IT. KITS has provided additional budget and infrastructure facility considering the need for online platforms for teaching-learning and conducting technology transfer programmes, especially in the context of emerging virtual platform and Covid-19 pandemic.

The Computer Technology Centre (CTC) is housed in a building with 3,614 sq.m and has 15 laboratories, 44 high end servers with 81 TB storage area network, a campus network with 1Gbps fibre-optic backbone, internet connectivity with bandwidth of 1500Mbps and wi-fi connections with 774 access points, providing a state-of-the-art computing, network and educational technology services.

KITS has a Data Centre for the Institutional computational needs, connected with AWS cloud for larger storage and computational requirements.

The CTC maintains the infrastructure and IT resources based on a well-defined, comprehensive IT policy. The policy describes the protection of information and information technology resources to assure the utility and availability of those resources to the user. The following are the salient features of the IT policy: (<https://karunya.edu/ctc/itpolicy>)

- Policy statements are framed in line with the guidelines of the Government of India and the existing IT laws of the country.
- The policy covers systems usage, Internet usage and all IT resources.
- The policy enforces the use of proper authentication and authorization mechanisms.
- The policy practices the usage of only legal and licensed software.

- Data and information related aspects including content creation, ownership, transfer, usage, storage, backup, recovery, retention, disposal, security and privacy are given importance.
- Privacy and security features are outlined.
- Guidelines for online examinations are provided.
- Purchase and replacement procedure for IT equipment and accessories are defined.
- Policies on video surveillance are detailed.
- Provision is made for disciplinary and legal action in case of violation.

Implementation and Adherence to the Policy:

The IT Policy applies to students, employees, project staff, contractors, consultants, temporary and other workers at KITS. This policy applies to all equipment that are owned or leased by KITS and also to any privately owned equipment that may be connected to the network services provided. The policy is enforced by way of:

- Centralized authentication and authorization servers
- Enterprise-grade firewall with Unified Treat Management features such as Gateway Antivirus, Anti-malware, Intrusion Prevention, Web Filtering and Content Filtering
- Centralized logging of user activity.

Budget Provisions:

Provisions for upgrading IT infrastructure is made in the budget and KITS allocates Rs.200 lakh annually for the purchase, upkeep, maintenance and replacement of IT equipment. The allocated budget is utilized effectively towards enhancing the facilities.

Expansion Plans:

The following plans are envisaged for future implementation:

- Increasing the internet bandwidth
- Implementation of ISO 27001 standard for Information Security Management
- Expanding data storage to support research and analytics
- Creating Karunya Cloud as an enterprise

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

4.3.3 Student - Computer ratio (Data for the latest completed academic year)

Response: 4:1

File Description	Document
Upload any additional information	View Document
Student – computer ratio	View Document

4.3.4 Available bandwidth of internet connection in the Institution (Leased line)	
Response: A. ?1 GBPS	
File Description	Document
Upload any additional information	View Document
Details of available bandwidth of internet connection in the Institution	View Document

4.3.5 Institution has the following Facilities for e-content development	
<ol style="list-style-type: none"> 1. Media centre 2. Audio visual centre 3. Lecture Capturing System(LCS) 4. Mixing equipments and softwares for editing 	
Response: C. 2 of the above	
File Description	Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document
Links of photographs	View Document

4.4 Maintenance of Campus Infrastructure

4.4.1 Average percentage expenditure incurred on maintenance of physical facilities and academic support facilities excluding salary component during the last five years				
Response: 42.88				
4.4.1.1 Expenditure incurred on maintenance of infrastructure (physical facilities and academic support facilities) excluding salary component year-wise during the last five years (INR in lakhs)				
2019-20	2018-19	2017-18	2016-17	2015-16
2797.51	2098.17	2422.62	1316.37	1200.09

File Description	Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document
Audited statements of accounts	View Document

4.4.2 There are established systems and procedures for maintaining and utilizing physical, academic and support facilities - laboratory, library, sports complex, computers, classrooms etc.

Response:

Envisaging the academic and scientific advancements, KITS equips its class rooms, laboratories, library, computer centre and sports complex to meet the global standards. Conscious efforts are taken regularly for the upkeep and maintenance of these valuable assets. Rs.9833 lakh was invested for infrastructure facilities and overall maintenance during the assessment period.

The institution has structured policies and governing procedures to procure, maintain and utilize the physical, academic and research support facilities

Academic Facilities, Utilization and Maintenance:

Classrooms:

1. Facility and utilization:

- For teaching and learning, 141-smart classrooms and 8-gallery halls with audio-visual facilities are available.
- Class rooms are optimally utilized according to the timetable uploaded in the Eduserve, an in-house ERP.
- The Heads of the Departments ensure that the classrooms have adequate furniture, proper ventilation, lighting facility and multiple electrical points, and are optimally utilized.
- All furniture, green/white boards, smart class rooms, LCD/overhead projectors, PA system, and podium are efficiently utilized for academic activities and research.

2. Procedure for Maintenance:

- The Heads of Departments ensure proper maintenance of the classrooms, seminar halls, equipment and furniture.
- Stock registers are maintained and annual stock verification is conducted by a committee constituted by the Registrar.
- Any damage/loss of the goods/leakage if detected is reported to the Construction and Maintenance Department for repair works/service by electricians/plumbers/carpenters.

Laboratory Facility:

1. Facility and Utilization:

- Catering to the academic and research requirements, state-of-the-art laboratories are established.
- Laboratories with industry connect for R&D, consultancy, inventions, innovation and incubation.
- Heads of Department and faculty coordinators of laboratories are responsible for effectively utilizing the laboratories for teaching-learning, research and innovation.
- Laboratory manuals are made available and time tables are prepared to achieve efficient and effective utilization of the facilities.
- Utilization of the gadgets are recorded in the logbooks.

2. Procedure for Maintenance:

- Heads and faculty oversee the maintenance of equipment and logbooks.
- The laboratories are maintained by qualified technicians who calibrate machines, fabricate and assemble prototype models.
- For the purchase of equipment, quotations are invited as per the Institution norms, comparative statements of rates are prepared and orders placed with the firm offering standard equipment at reasonable rate.
- AMCs are in place for sophisticated and sensitive instruments and for other equipment, on-call procedure is adopted. .
- Details of repairs, maintenance and depreciation values are documented in history cards.
- Obsolete laboratory equipment are disposed, based on the recommendations of the committee specifically constituted; the items are either exchanged for new ones or auctioned.

Library Facility:

1. Facility and utilization:

- The Central Library is equipped with all facilities and learning resources to support the academic pursuits of faculty and students.
- For optimum utilization of books and journals, the library is kept open from 8AM to 11PM from monday to friday and 8AM to 5.30PM on saturdays.
- Bar code system has been implemented for the issue of books for a period of 15 days and extended upon request
- The books are indexed following the standard codes and shelved with clear labelling and numbering systems.
- An annual budget of Rs.143 lakh is allocated for procurement, subscriptions and upkeep of facilities.

2. Procedures for Maintenance:

- The Chief Librarian is responsible for the overall management of the central library.
- All the housekeeping functions of the library are automated through the AutoLib software
- Stock registers are maintained and verified annually by the committee appointed by the Registrar.
- The gate register and issue register records daily users; footfalls are tracked through biometric registration.
- Xerox/copier machine and scanner in the library are serviced periodically through AMC and/or on call basis.

- Access, issue and return of the books is monitored by the Library staff.
- The different registers namely accession, circulation, fine, gate entry, missing books, no dues and journal usage reports are maintained systematically.
- Stock verification is done once in four years as per the Institution norms.

Computing Facility:

1. Facility and utilization:

- The Computer Technology Centre houses 15 well equipped laboratories and all students across disciplines utilize the facility.
- Aptitude tests, placement training and software training are conducted throughout the year.

2. Procedures for Maintenance:

- The CTC is maintained by a team of technicians under a Head
- Stock register are verified, updated and maintained.
- The systems in the computer labs are maintained by the hardware engineers and technicians under the supervision of the Head.
- Internet and Wi-Fi facilities for the entire campus are maintained by skilled engineers and technicians appointed for catering to this specific purpose.
- Online tickets are raised for any service requirement which is attended to within 2 days.
- Major hardware faults are handled by appropriate vendors.

II. Physical Facilities, Utilization and Maintenance::

1. Facility and Utilization:

- Academic and administrative blocks, auditoriums, residential halls and apartment complexes cater to the needs of faculty, staff and students.
- All the buildings are effectively utilized for academic, research, administrative and residential purposes.
- The campus is well secured using surveillance cameras.

2. Procedures for Maintenance:

- The overall maintenance of the infrastructure of the institution including the buildings and garden, stadiums and playgrounds is responsibility of the (CMD) headed by a Chief Engineer.
- All civil and electrical repair/service/works are carried out under the overall supervision of the competent engineers and technical staff of CMD.
- The CMD is responsible for periodical preventive measures for the maintenance of the buildings, white-washing/painting the buildings, plumbing works, rectifying leakages in pipe lines, providing uninterrupted water facility, maintenance of generator and other electrical works, replacing fire extinguishers, and ensuring a clean environment in the whole campus with the support of technical and housekeeping staff.
- The building permits, environmental clearance, wherever necessary, are obtained from competent authorities.
- Fire safety measures and provisions for physically challenged are systematically monitored.

Sports Facility:

1. Facility and utilization:

- A sports complex with indoor stadiums, play fields, tracks, courts and gymnasia are optimally utilized by students and faculty.

2. Procedures for Maintenance:

- The sports complex is under the leadership of the Head of Physical Education who ensures overall maintenance of the facilities.
- Stock Register are updated with every new procurement/condemnation
- Annual Stock Verification is undertaken by the committee constituted by the Registrar.

File Description	Document
Upload any additional information	View Document
Paste link for additional information	View Document

Criterion 5 - Student Support and Progression

5.1 Student Support

5.1.1 Average percentage of students benefited by scholarships and freeships provided by the institution, Government and non-government agencies (NGOs) during the last five years (other than the students receiving scholarships under the government schemes for reserved categories).

Response: 12.08

5.1.1.1 Number of students benefited by scholarships and free ships provided by the institution, Government and non-government bodies, industries, individuals, philanthropists during the last five years (other than students receiving scholarships under the government schemes for reserved categories)

2019-20	2018-19	2017-18	2016-17	2015-16
904	1156	1178	583	424

File Description	Document
Upload self attested letter with the list of students sanctioned scholarship	View Document
Upload any additional information	View Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.1.2 Average percentage of students benefited by career counseling and guidance for competitive examinations as offered by the Institution during the last five years.

Response: 85.28

5.1.2.1 Number of students benefitted by guidance for competitive examinations and career counselling offered by the institution year wise during last five years

2019-20	2018-19	2017-18	2016-17	2015-16
6652	6383	7389	6856	2538

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document
Link for additional information	View Document

5.1.3 Following Capacity development and skills enhancement activities are organised for improving students capability 1. Soft skills 2. Language and communication skills 3. Life skills (Yoga, physical fitness, health and hygiene) 4. Awareness of trends in technology

Response: A. All of the above

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document
Link for additional information	View Document
Link to Institutional website	View Document

5.1.4 The institution adopts the following for redressal of student grievances including sexual harassment and ragging cases 1. Implementation of guidelines of statutory/regulatory bodies 2. Organisation wide awareness and undertakings on policies with zero tolerance 3. Mechanisms for submission of online/offline students' grievances 4. Timely redressal of the grievances through appropriate committees

Response: A. All of the above

File Description	Document
Upload any additional information	View Document
Minutes of the meetings of student redressal committee, prevention of sexual harassment committee and Anti Ragging committee	View Document
Details of student grievances including sexual harassment and ragging cases	View Document
Link for additional information	View Document

5.2 Student Progression

5.2.1 Average percentage of students qualifying in state/national/ international level examinations during the last five years (eg: IIT-JAM/CLAT/ NET/SLET/GATE/ GMAT/CAT/GRE/ TOEFL/ Civil Services/State government examinations, etc.)

Response: 100

5.2.1.1 Number of students qualifying in state/ national/ international level examinations (eg: IIT/JAM/ NET/ SLET/ GATE/ GMAT/CAT/GRE/ TOEFL/ Civil Services/ State government examinations, etc.)) year-wise during last five years

2019-20	2018-19	2017-18	2016-17	2015-16
143	112	117	78	70

5.2.1.2 Number of students appearing in state/ national/ international level examinations (eg: IIT/JAM/ NET / SLET/ GATE/ GMAT/CAT,GRE/ TOEFL/ Civil Services/ State government examinations) year-wise during last five years

2019-20	2018-19	2017-18	2016-17	2015-16
143	112	117	78	70

File Description**Document**

Upload supporting data for the same

[View Document](#)

Institutional data in prescribed format

[View Document](#)

Any additional information

[View Document](#)

Link for additional information

[View Document](#)

5.2.2 Average percentage of placement of outgoing students during the last five years

Response: 65.83

5.2.2.1 Number of outgoing students placed year - wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
1177	1345	1187	1167	1187

File Description	Document
Upload any additional information	View Document
Self attested list of students placed	View Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.2.3 Percentage of student progression to higher education (previous graduating batch).

Response: 28.01

5.2.3.1 Number of outgoing student progressing to higher education.

Response: 505

File Description	Document
Upload supporting data for student/alumni	View Document
Institutional data in prescribed format	View Document
Any additional information	View Document
Link for additional information	View Document

5.3 Student Participation and Activities

5.3.1 Number of awards / medals won by students for outstanding performance in sports / cultural activities at inter-university / state / national / international events (award for a team event should be counted as one) during the last five years.

Response: 212

5.3.1.1 Number of awards/medals won by students for outstanding performance in sports / cultural activities at inter-university / state / national / international events (award for a team event should be counted as one) year - wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
80	46	29	38	19

File Description	Document
Institutional data in prescribed format	View Document
e-copies of award letters and certificates	View Document
Any additional information	View Document
Link for additional information	View Document

5.3.2 Presence of Student Council and its activities for institutional development and student welfare.

Response:

Considering the importance of student participation in governance and their input for modifying and improving the overall academic and administrative processes, KITS has evolved a three-tier system consisting of a student panel of class representatives, student-mentor forum and student assemblies.

- All class representatives constitute the Student Council. The student panel representatives meet at least once in a month and provide suggestions and recommendations to the Heads of Department. The members of different panels meet twice or thrice a year and give their feedback to the management on academic, administrative and student welfare matters, which are taken up by the management on priority basis. Apart from the executive officials of KITS, the Chancellor interacts with the student representatives once a semester and guides the officials to take action on their suggestions.
- The student committees manage important activities related to international exchange programme under IAESTE, innovation event–*MindKraft*, and other social, environmental and cultural clubs under extension activities and sports events.
- The student committees also play a major role in the halls of residences where they are actively involved in decisions pertaining to hostel events, study, food, amenities and hostel upkeep.
- These students organize special programmes conducted during the morning assemblies, which are attended by the entire student community

Indicators of student involvement in institution-building and their welfare are listed below:

- 1.As members and coordinators in Curriculum Development Cell and Entrepreneurship Cell, their input for introduction of new and add-on the courses leading a invention, innovation and incubation is well received;
- 2.Recommendations from students to conduct courses in cutting-edge areas by academicians from reputed universities abroad were considered favourably leading to the introduction of 3 credit courses from Technical University of Berlin and Old Dominion University (USA)
- 3.More than 300 students from KITS had undertaken internships / mini-projects in reputed international universities / industries and 165 students from across Continents pursued their internship at KITS under IAESTE, which is managed by the student coordinators designated as Heads, Managers and Team Leaders;
- 4.Three student groups, namely, KarunyaHacks (Technical Team), KarunyaKreatives (Design Team) and E-Cell Karunya (Entrepreneurship Team) organize Hackathons and programs on startups.
- 5.Suggestions from student’s sports committee to upgrade sports facilities such as courts, stadiums

and gymnasiums were implemented;

6. Involvement of students in the planning and implementation of skill development programmes and placement activities leading to better placement opportunities.

- Some of the student welfare activities include: scholarships and fee concessions to deserving students, 'earn while you learn' opportunities, seed Hackathons and programs on startups money for project work, international internships, incubation and start-up facilities, amenities such as uninterrupted water supply, electricity and wi-fi, digital library, state-of-art laboratories, hospital for healthcare within the campus, outdoor and indoor stadiums and gymnasiums.
- For every 15 students, there is a mentor who convenes meetings once in a fortnight to address mentee's concerns and problems. If required, the students are referred to the counsellors. There is a platform ' *tellus@karunya.edu* ' to address their grievances.

File Description	Document
Upload any additional information	View Document
Link for additional information	View Document

5.3.3 Average number of sports and cultural events / competitions organised by the institution per year

Response: 221.2

5.3.3.1 Number of sports and cultural events / competitions organised by the institution year - wise during the last five years.

2019-20	2018-19	2017-18	2016-17	2015-16
122	179	186	184	435

File Description	Document
Upload any additional information	View Document
Report of the event	View Document
Institutional data in prescribed format	View Document
Link for additional information	View Document

5.4 Alumni Engagement

5.4.1 The Alumni Association / Chapters (registered and functional) contributes significantly to the development of the institution through financial and other support services.

Response:

KITS has two registered Alumni Association: Karunya International Alumni Association (KIAA) and Karunya Alumni Association India (KAAI). Since 1990, KITS has groomed a large number of distinguished alumni - CEOs, industrialists, scientists, business tycoons and entrepreneurs, who are our best ambassadors. There are 18000 registered alumni who are actively engaged in the affairs of their alma mater. Karunya alumni have chapters in USA, Middle East, Germany and three chapters within India (Chennai, Mumbai and Hyderabad).

- Alumni are involved in mentoring, guiding the students in their projects, providing industrial exposure and equipping them with practical knowledge in the areas of engineering and management.
- The alumni serve in IQAC Committee, Board of Studies and Academic Council.
- Alumni play a significant role as brand ambassadors in their countries of domicile.
- The alumni have contributed Rs.341 lakh during the past five years towards development activities of the Institution.
- *Alma-Connect*, a social media platform, links up different national and international chapters. They facilitate networking and assist in building stronger ties.
- Alumni contribute to the development of the Institution in different dimensions through ‘Alumni Lecture Series’, career counselling programmes, mock interviews and opportunities for internships and placements. Through the multi-faceted activities, they have provided tangible benefits to the student community and KITS.
- They extend support to the students for initiating start-ups and entrepreneurship ventures.
- They take active interest in consultancy projects being carried out in KITS and in helping the faculty and students in skill development.
- Alumni contribute towards developing products for their respective companies at KITS.
- Karunya Alumni Conclave was conducted on September 7, 2019, wherein the alumni shared their experience and expertise with the faculty and students. On the occasion of Karunya Alumni Conclave, MoAs were signed with a few companies owned by the alumni
- A magazine called “Missing Link” is published quarterly by the Alumni to connect the past with the present. Through their mouthpiece ‘Missing Link’, the alumni help other alumni to build their career and serve as ‘Good Samaritans’.
- Alumni have volunteered to be a part of the research and product development related to the four thrust areas of societal importance –water, food, healthcare and energy.
- The alumni have taken initiatives to establish Karunya Alumni Business Network (KABN) which handholds students in their innovation, incubation and start-up ventures, using YNOS software developed at IITM.
- i-SPARK, an ‘Innovation Startup Platform to Accelerate Renaissance in Karunya’, is an initiative of the alumni to identify potential students with innovative ideas and train them to develop their skills. This year, 8 potential students have been groomed to become successful entrepreneurs under this scheme.



File Description	Document
Any additional information	View Document
Link for additional information	View Document

5.4.2 Alumni contribution during the last five years (INR in Lakhs)

Response: A. ? 100 Lakhs

File Description	Document
Any additional information	View Document
Link for any additional information	View Document

Criterion 6 - Governance, Leadership and Management

6.1 Institutional Vision and Leadership

6.1.1 The institution has a clearly stated vision and mission which are reflected in its academic and administrative governance.

Response:

KITS has a clearly articulated vision to serve humanity with social awareness corona concern, addressing their problems through technical education, research and extension, and nurture students to become leaders of society with exemplary character and noble values.

The Mission of KITS is to orient its students to: (i) attain academic excellence and professional competence tempered with social ethics; (ii) find solutions to human problems in the areas of water, food, healthcare and sustainable energy; and (iii) care for the elderly, physically and mentally challenged, enabling them to understand human needs, feel their pain and develop appropriate technology and products in the laboratories to alleviate their sufferings.

The vision and mission statements are displayed on the website (<https://karunya.edu>), digital signage, academic blocks and other prominent places of the Institution

Aligning with the vision and mission, eight goals are identified: (i) launching innovative and socially relevant research in water, food, healthcare and sustainable energy; (ii) building on teaching and learning environment with an accent on product and process development; (iii) providing unique student the best practices of reputed centers of education; (iv) collaborating with government departments, NGOs and R&D institutions; (v) enhancing the overall staff capabilities through training and quality improvement programmes; (vi) networking with reputed higher education institutions and industrial houses in India and abroad; (vii) introducing efficient management practices in academic, research and financial administration; and (viii) ensuring sustainability facets.



The BoM, Planning and Monitng Board, Finance Committee, AC, Board of Research and Consultancy,

BoS, CDC and different Consative Comees constituted as per the stipulations of UIJGC/MoE provide policies and guidelines, and monitor the achievements of the GOALS. The targets for each of the goals are fixed and systematically monitored using Logical Framework Analysis (LFA) and brought to the notice of the appropriate administrative authorities.

Administrative reforms have been introduced with regard to digitization of entire administrative procedures, digital campus, staff welfare activities, professional incentives for faculty, improving the quality of faculty by industry exposure, visit to HEIs and academic collaborations.

Programmatic actions leading to the achievement of Goals:

- Visioning programs for faculty and students are conducted annually to disseminate the ideals of the institutions.
- 3942 scientific papers have been published in Scopus Indexed/WoS journals.
- 66 patents have been published and 5 granted during the past years.
- State-of-the-art laboratories were established for research in water, food, energy, and healthcare.
- 11,260 students have graduated during the past five years, of which 3215 students have acquired more than 8.0 CGPA.
- Consultancy and sponsored projects were implemented by the students and faculty in the areas of water supply, sanitation, environmental management and employment for the deserving with the Government and other agencies.
- Employers feedback from industries/organizations, where Karunyans are employed, show that they are enterprising, work with integrity, have high ethical values and possess excellent soft skills.
- The quality parameters to achieve excellence in academics, administration and extension is mapped with benchmarks stipulated by the accrediting and ranking agencies and reviewed through regular auditing processes by IQAC for overall quality enhancement.

File Description	Document
Any additional information	View Document
Link for additional information	View Document

6.1.2 The effective leadership is reflected in various institutional practices such as decentralization and participative management.

Response:

Introductory:

The policies of the institution empower Deans, Directors and Heads of Departments to administer academics, research, infrastructure and finance giving them autonomy, and offer exposure to the nuances of administration in fulfilling their academic and research commitments. The Vice Chancellor, Pro-Vice Chancellors, Registrar facilitate them to achieve the required goals and targets. All faculty members shoulder one or more academic responsibilities ensuring a total participatory ecosystem resulting in efficient management.

Participatory Financial Management:

The Heads of Departments decide on the manpower and infrastructure requirements and prepare the annual budget in consultation with the faculty. The faculty on-charge of laboratories propose the procurement and maintenance of equipment, additional facilities and consumables required for each academic year at the faculty meeting for discussion and finalization of budget proposal. The Deans of the Schools scrutinize the proposals of the departments and recommend to the Executive Committee chaired by the Vice-Chancellor for necessary approval. The final budget is presented by the Finance Officer to the Finance Committee as per the statutory requirement. The approved budget is operated by the Deans and Heads. The faculty members raise the purchase of for them request through Heads to their procure the requirements through a streamlined process with the support of the Purchase Manager. The faculty members are entitled to take advance to meet the expenses for the organizing events. The campus is cash free and only digital transactions are in practice.

The need for creating additional facilities is communicated to the Chief Engineer who prepares the plan, design and budget to commence the work adhering to Institutional norms.

Academic Administration:

The Heads of Department manage academic matters, such as preparation of curriculum, syllabus revision, introduction of new courses through Curricula Development Cell (CDC). The proposals of the CDC are placed at the Board of Studies comprising of academicians, industry experts, alumni representatives and students for their recommendations to be approved by the Academic Council.

Besides the Heads also allocate faculty work load, ensure compliance of teaching plan, content delivery, maintenance of course files and conduct of internal assessments.

The Placement Coordinators of each department work in tandem with the Central Placement and Training Officer for company specific trainings, downskilling and placement. The faculty members are assigned the responsibilities of mentoring, collaborating with industries, career counselling, monitoring student progression and the status is regularly reviewed in the department faculty meetings, Heads and Deans meetings.

Research Management:

The Institutional research projects and the academic research are managed by the respective Principal Investigators, Ph.D. supervisors and Coordinators. The Department Research Committees discuss the project proposals and monitor the progress of external ongoing funded projects. The Head recommends incentives to faculty for quality papers, projects and consultancy assignments.

Student Residence Management:

The hotel administration adopts a decentralized approach by empowering faculty members as Chief Wardens, Joint Chief Wardens, Wardens, Mess Superintendents, Senior Resident Advisors under the overall guidance of the Director of Student Affairs.

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

6.2 Strategy Development and Deployment

6.2.1 The institutional Strategic plan is effectively deployed.

Response:

The Institution has framed strategic plan spreading over a period of five years for all its eight goals, of plans are monitored and evaluated periodically. In order to achieve objectivity they the progress of implementation of the strategic plans, it is realized that the Logical Framework Analysis(LFA) is an effective tool. The example of onel successfully implemented activity based on the strategic plan can illustrated below. The thrust areas identified in the Mission statements of KITS are: Water, Food, Healthcare and Sustainable Energy, which have diroct impact on the livelihood of people (**link**).

Implementing Socially Relevant Research

To orient all the research activities of KITS towards social relevance, the LFA was adopted

Summary	Narrative	Verifiable Indicators	Means of Verification	Important Assumptions
GOAL: Socially relevant research for knowledge enhancement and livelihood improvement (Thrust Areas: Water, Food, Healthcare and Sustainable Energy)		<ol style="list-style-type: none"> 1. Scopus and WoS indexed publications. 2. Patent filing, publishing and granting 3. Consultancy assignments 	<ol style="list-style-type: none"> 1. SCIVAL or Scopus and Web of Science portals 2. Portal of Patent Office 3. Finance Section 	Under normal functioning of the system (Pandemic, a constraint)
PURPOSE: To improve the research output of KITS through the following		<ol style="list-style-type: none"> 1. No.of publications 2. No.of patents filed and published 3. No.of conferences/seminars 4. No.of consultancy assignments 5. No.of theses and projects 	<ol style="list-style-type: none"> 1. SCIVAL or Scopus and Web of Science portals 2. Portal of Patent Office 3. Papers/Proceedings 4. Finance Section 5. Controller of Examinations 	
OUTPUT/ACTIVITIES:		<ol style="list-style-type: none"> 1. 1 meeting of DRC/month and 2 BRC Meet/Yr.) 2. 1 motivation session every 2 months 	<ol style="list-style-type: none"> 1.Department Records 2.IQAC Records 3.Finance Section 	Under normal functioning of the system and flow of funds
Targets:		<ol style="list-style-type: none"> 1. Project mobilization 		

<p>meetings (60/Dept.) – 5 years</p> <p>2. Empowering the faculty (30 meeting/Dept.) – 5 years</p> <p>3. Incentives (Rs.25 lakh)</p> <p>4. Activating technology missions (constituting Missions),</p> <p>5. Providing seed money for research (Rs.200 lakh)</p> <p>6. Applying for consultancy works (25 No.),</p> <p>7. Conducting conferences (avg.10 Conferences/major Depts.),</p> <p>8. Scientific infrastructure (Rs.200 lakh/year).</p>	<p>3. Rs.25 lakh as incentives for faculty</p> <p>4. 25 Technology Missions constituted and effective</p> <p>5. Rs.217 lakh Seed Money for faculty/students</p> <p>6. 30 EoIs submitted for Consultancy</p> <p>7. 60 Conferences/Seminars</p> <p>8. Rs.170 lakh/year</p>	<p>4.Records of Research Office</p> <p>5.Finance Section</p> <p>6.Dept.Records</p> <p>7.Dept.Records and Annual Report</p> <p>8.Finance Section</p>	<p>(Pandemic, a constraint)</p>
<p>OUTCOME:</p> <p>Targets:</p> <p>1.3000 Scopus/WoS publications (average 1.5/faculty/year)</p> <p>2.75 patents filed/published (20% of faculty strength)</p> <p>3.Rs.1200 lakh worth projects (av. Rs,100 lakh by major Depts.)</p> <p>4.Rs.200 lakh worth consultancy (av. 20 lakh by major Depts.)</p> <p>5.120 Conferences (av.10 by major Depts.)</p> <p>6.300 Ph.D. degrees to be awarded</p> <p>7.Laboratory and Scientific infrastructure (3 new laboratories per year and equipment worth Rs.100 lakh /year)</p>	<p>1. 3942 Papers published in Scopus/WoS journals (2/faculty member/year)</p> <p>2. 66 patents filed and published, and 5 granted</p> <p>3. Rs.2300 lakh worth projects obtained</p> <p>4. Rs.563 lakh worth consultancy executed</p> <p>5. 150 Conferences/ Workshops organised</p> <p>6. 288 Ph.D. Degrees awarded</p> <p>7. 25 new laboratories in total and purchase of equipment like NMR, Ion Chromatograph, Super Computers, instruments for Agriculture</p>	<p>1.SCIIVAL/Scopus/WoS portal</p> <p>2.Portal of Patent Office</p> <p>3.Finance Section</p> <p>4.Finance Section</p> <p>5.Dept. Records/IQAC</p> <p>6.Office of CoE</p> <p>7.Finance Section/Departments</p>	<p>Under normal functioning of the system and offices of funding agencies and publishers (Pandemic, a constraint)</p>

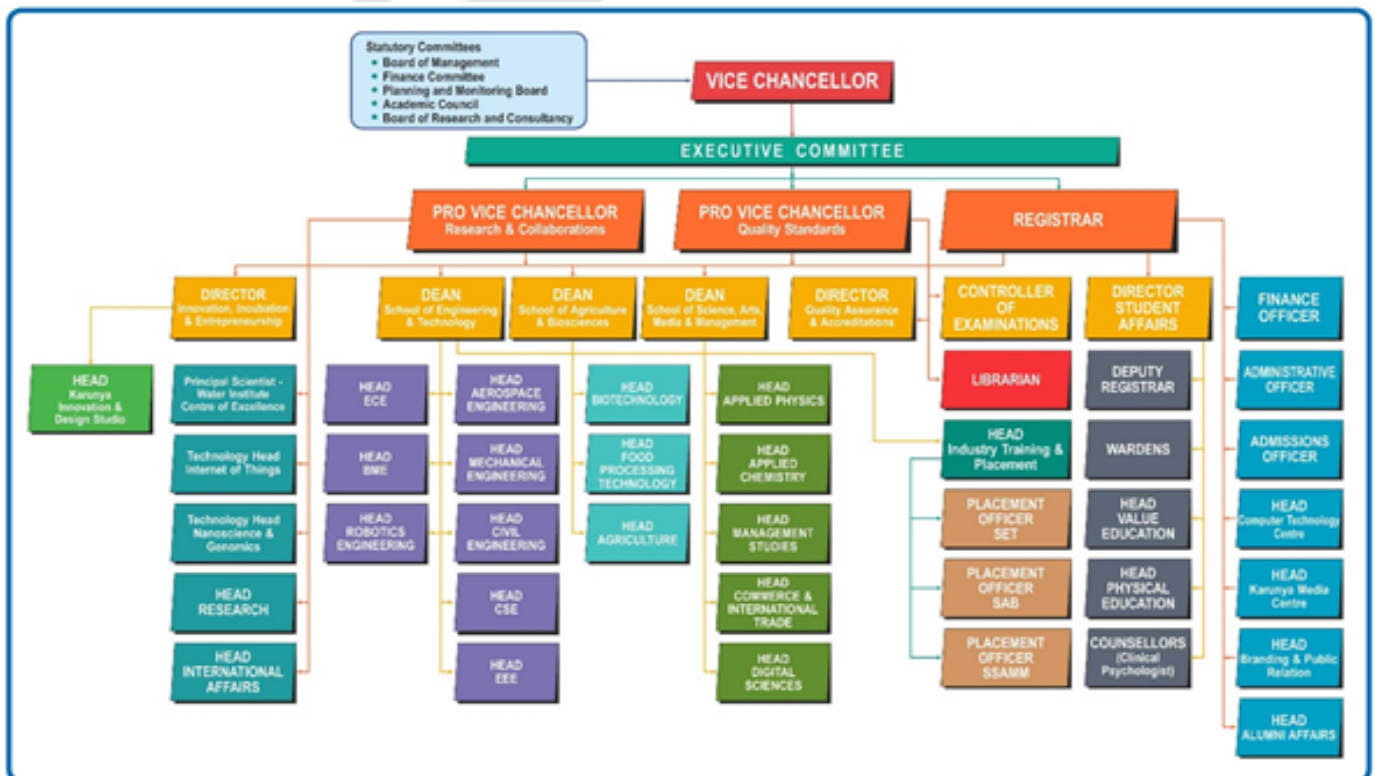
File Description	Document
Any additional information	View Document
Strategic Plan and deployment documents on the website	View Document
Link for Additional Information	View Document

6.2.2 The functioning of the institutional bodies is effective and efficient as visible from policies, administrative setup, appointment, service rules and procedures, etc.

Response:

All the guidelines and norms prescribed by UGC for the governance of Deemed to-be University are scrupulously followed by KITS. The Vision and Mission statements are well articulated and publicized among all the stakeholders.

- The institution is headed by the Vice-Chancellor who in consultation with the members of the Board of Management (BoM) consisting to representatives of UGC and MHRD, frames the governing statutes. The Vice-Chancellor oversees the governance and of the institution and ensures proper and timely functioning to of the statutory and other supporting bodies.
- The Registrar ensures that a decisions are implemented to attain the desired outcome.
- The organizational structure of reflects participatory and bottom-up approach with the faculty members, Heads, Deans, Directors and Controlling Officers working within the a framework of the to rules to achieve the goals of the institution.



- Different statutory bodies monitor and evaluate the implementation of the policies and decisions,

and recommend the required policy level changes to the BoM. For transparency, the HR policy is hosted on the website (<https://ctc.karunya.edu/sites/default/fHR%20Personnel%20Policy%20last%20updated%20on%2014.01.2020.pdf>)

- The Institution has well specified outcomes and targets to utilize its human resources optimally. Based on the performance appraisal of the faculty and the recommendations of the Head/Dean, the HR committee chaired by the Vice Chancellor awards annual decrement and cad revision. New posts are proposed by the Department and created by the BoM considering the requirements. For filling the vacancies in higher positions, promotional opportunities are extended to the existing faculty along potential applicants from other institutions. This practice not only motivates faculty members to enhance their quality standards but also ables the Institution to attain its targets.
- Being a self-financing institution, the fee structure is derived considering the operating cost of each programme and following the guidelines of statutory authorities. Fees collected from students constitute a major source of revenue. The Heads in consultation with faculty members arrive at the annual budget and recommend it to the Dean, who scrutinizes and presents the budget to the Executive Committee.
- The consolidated budget is placed before the finance committee for approval
- All policies, service rules and guidelines are uploaded in the Karunya intranet for transparency and vacancy positions are advertised in the leading newspapers and posted on the Institution website.

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document
Link to Organogram of the University webpage	View Document

6.2.3 Institution Implements e-governance covering following areas of operation

1. Administration
2. Finance and Accounts
3. Student Admission and Support
4. Examination

Response: A. All of the above

File Description	Document
Screen shots of user interfaces	View Document
ERP (Enterprise Resource Planning) Document	View Document
Details of implementation of e-governance in areas of operation, Administration etc (Data Template)	View Document
Any additional information	View Document
Link for additional information	View Document

6.3 Faculty Empowerment Strategies

6.3.1 The institution has a performance appraisal system, promotional avenues and effective welfare measures for teaching and non-teaching staff .

Response:

- The Institution has a well-defined automated performance appraisal system. The faculty members update their publications and achievements on the online portal, which computes his/her API score.
- The IQAC jointly with KCDC organize annual programmes to sensitize and orient the faculty members on teaching-learning, question paper setting, evaluation system, research proposal preparation and IP.
- All the faculty members utilize Karunya LMS and Karunya MEET in the teaching learning process and ensure compliance to the COs and POs.
- 117 faculty have received Incentives to the tune of Rs. 30.98 lakh for good quality SCI indexed publications, consultancy assignments and funded projects, motivating faculty to publish in high impact factor journals.
- All faculty members are trained in professional video recording tools to conduct online classes and upload the teaching materials
- The non-teaching staff are trained periodically to upgrade their technical skills.

Other programmes to empower non-teaching staff include:

1. Training in Spoken English
2. Team building exercise
3. Leadership skills
4. Interpersonal skills
5. Planning and scheduling activities
6. Exercises on MS Word, MS power point, Google Doc, Google Drive, Google Slides, Google Calendar and Google Classroom
7. Work place etiquette and ethics
8. Video recording
9. Non-teaching staff are given cash incentives for their assistance in consultancy works as per the Institute policy

Welfare Measures

Faculty and Staff

- Pay scale fixation as per 6th Pay Commission with appropriate DA
- EPF and Gratuity, Staff Benovolent Mund, Medical Insurance for self, spouse and two children
- 328 faculty members have received an amount of Rs 96.38 lakh to present papers in national and international conferences.
- Quarters at subsidized rent to faculty and staff. Quantification
- Scholarship for children of staff at admission sage; School fee concession / scholarship in Karunya School
- Facilities on campus: Bank, ATMs, post office, schools, buses, campus security, telephone change,

- guest house, restaurant, canteen, police station, rural community hospital and electricity sub-station
- Workload concessions for faculty having ongoing funded research projects and consultancy assignment
- KITS has granted Rs. 25 lakh for summer industry experience fellowship, Karunya-Israel Research Fellowship, Karunya-US Research Fellowship for faculty
- Gift cheque for the newly married staff

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

6.3.2 Average percentage of teachers provided with financial support to attend conferences / workshops and towards membership fee of professional bodies during the last five years.

Response: 14.03

6.3.2.1 Number of teachers provided with financial support to attend conferences/workshops and towards membership fee of professional bodies year wise during the last five years

2019-20	2018-19	2017-18	2016-17	2015-16
78	87	72	60	31

File Description	Document
Details of teachers provided with financial support to attend conferences, workshops etc. during the last five years (Data Template)	View Document
Link for Additional Information	View Document

Other Upload Files

1	View Document
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6.3.3 Average number of professional development / administrative training Programmes organized by the institution for teaching and non-teaching staff during the last five years.

Response: 69

6.3.3.1 Total number of professional development /administrative training Programmes organized by the institution for teaching and non teaching staff year-wise during the last five years

2019-20	2018-19	2017-18	2016-17	2015-16
98	66	90	51	40

File Description	Document
Reports of the Human Resource Development Centres (UGC ASC or other relevant centres)	View Document
Reports of Academic Staff College or similar centers	View Document
Details of professional development / administrative training Programmes organized by the University for teaching and non teaching staff (Data Template)	View Document
Any additional information	View Document
Link for Additional Information	View Document

6.3.4 Average percentage of teachers undergoing online/ face-to-face Faculty Development Programmes (FDP) during the last five years (Professional Development Programmes, Orientation / Induction Programmes, Refresher Course, Short Term Course).

Response: 59.08

6.3.4.1 Total number of teachers attending professional development Programmes, viz., Orientation Programme, Refresher Course, Short Term Course, Faculty Development Programmes year wise during last five years

2019-20	2018-19	2017-18	2016-17	2015-16
407	218	302	281	161

File Description	Document
Reports of the Human Resource Development Centres (UGC ASC or other relevant centers)	View Document
IQAC report summary	View Document
Details of teachers attending professional development Programmes during the last five years (Data Template)	View Document
Any additional information	View Document
Link for Additional Information	View Document

6.4 Financial Management and Resource Mobilization

6.4.1 Institutional strategies for mobilisation of funds and the optimal utilisation of resources

Response:

Resource Mobilisation Policy

The resource mobilisation policy focuses on achieving the targets of the Institution aligning with its vision and mission, and the ideals of higher education at global and national level by maintaining accountability and credibility. The Institution has a well-planned financial management system that has adapted the digital mode for transparency and efficiency. The primary source of income is fee from students and research grants from Government funding agencies, including funded projects, consultancy income and alumni contribution.

Scope of the Policy:

Planning Infrastructural requirements:

In order to operate the approved academic programmes effectively and provide administrative support, the building and basic infrastructure requirements are worked out in the beginning of the fiscal year by the Infrastructure Development Committee that assess the financial requirement and time needed to complete the assignment. Thereafter, the Construction and Maintenance Department and Purchase Department proceed with the implementation.

Budget Planning for yearly recurring and non-recurring expenditure:

Provisional budget proposals are invited from the Deans, Heads of Departments and Controlling Officers in the month of Jan / Feb for the next academic year. The budget is prepared considering the projected income and the specific requirements. Thereafter, it is placed before the Finance Committee and the BoM of approval. A sanctioned budget is communicated to the concerned officials to execute based on the approved provisions. A mid-term revision of the budget is carried out to optimally utilize the sanctioned amount if the fiscal year. If there are any specific requirements not included in the original budget, there are provisions to incorporate them with special approval.

Fund Mobilisation:

On the basis of student intake, faculty requirements, laboratory/library and other infrastructural needs, the details of fund requirements are examined, and a fund mobilization plan is prepared and optimally utilized.

The objectives of the policy and the optimal utilisation of resources:

1. To draw the annual financial plan and implement within the Institution's approved budget.
2. To monitor the budget operation and modify wherever necessary for optimal utilization of the resources.
3. To generate periodic financial reports for effective monitoring of the expenditure.
4. To monitor balance mechanism and ensure financial discipline and cost control, wherever applicable.
5. To create an awareness on resource mobilization, time and cost management among the entire team of KITS.

Monitoring the Utilisation of funds:

KITS has an independent Statutory Audit Firm to audit the accounts as per the statutory requirements of the Institution and the government. An in-house internal auditor is appointed to audit the day to day operations on a regular basis.

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

6.4.2 Funds / Grants received from government bodies during the last five years for development and maintenance of infrastructure (not covered under Criteria III and V) (INR in Lakhs).

Response: 1265.15

6.4.2.1 Total Funds / Grants received from government bodies for development and maintenance of infrastructure (not covered under Criteria III and V) year wise during the last five years (INR in Lakhs).

2019-20	2018-19	2017-18	2016-17	2015-16
279.47	198.46	166.90	387.47	232.85

File Description	Document
Details of Funds / Grants received from government bodies during the last five years (Data Template)	View Document
Any additional information	View Document
Annual statements of accounts	View Document
Link for Additional Information	View Document

6.4.3 Funds / Grants received from non-government bodies, individuals, philanthropists during the last five years (not covered in Criterion III and V) (INR in Lakhs)

Response: 11.53

6.4.3.1 Total Grants received from non-government bodies, individuals, Philanthropers year wise during the last five years (INR in Lakhs)

2019-20	2018-19	2017-18	2016-17	2015-16
3.96	3.78	3.79	0	0

File Description	Document
Institutional data in prescribed format	View Document
Any additional information	View Document
Annual statements of accounts	View Document
Link for Additional Information	View Document

6.4.4 Institution conducts internal and external financial audits regularly

Response:

KITS conducts internal and external financial audits regularly as per the statutory norms. The Finance Officer, who is a qualified Chartered Accountant and his experienced team ensure proper utilization and accounting of funds.

External Audit:

A firm of Chartered Accountants conducts the external statutory audits, covering all financial and accounting activities of the Institution. This includes scrutiny and verification of the following:

1. All receipts from fees, grants, contributions, interest earned and miscellaneous incomes;

2. All payments to staff, vendors, contractors, other service providers and student refunds;
3. Fixed asset accounting, asset capitalisation, accounting of fixed deposits, renewal and loan repayment;
4. All the contracts and agreements entered into by the Institution with banks and financial institutions, corporates, contractors, vendors, etc.; and
5. Compliance of all statutory returns to Government agencies like Income Tax, Goods and Service Tax, Provident Fund, etc.,
6. Financial transactions pertaining to all externally funded projects are also subject to external auditing and the expenditure statement and utilization certificate are endorsed by the external auditor.

Internal Audit:

KITS engages qualified independent Internal Auditor and a team of auditors and staff under them to check and verify all vouchers and documents.

Mechanism for Settling Audit Objections:

The audit reports submitted by the auditors are reviewed by a Committee comprising of in-house internal auditor, Finance Officer, a nominee pertaining to all externally. The outcomes of both in-house and external / internal audit observations are compiled and presented to the Finance Committee. Any corrections all externally funded projects are also corrected / rectified and precautionary steps are taken to avoid recurrence. During the last five years, the audit committees have not reported any serious discrepancies or fraudulent practices.

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

6.5 Internal Quality Assurance System

6.5.1 Internal Quality Assurance Cell (IQAC) has contributed significantly for institutionalizing the quality assurance strategies and processes by constantly reviewing the teaching learning process, structures & methodologies of operations and learning outcomes at periodic intervals.

Response:

The Institution has a dynamic Internal Quality Assurance Cell (IQAC) to scaffold the strategies and processes for the academic growth of the institution. IQAC facilitates the creation of a learner-centric environment and plays a very significant role in monitoring and maintaining quality assurance within academic systems, the foremost being teaching, learning, evaluation and student progression.

Practise 1: Transforming Outcomes Through Active Learning (TOTAL)

1. Direction and Orientation Phase
2. Devising and Reviewing Phase

1. Direction and Orientation Phase

- The Karunya Competency Development Centre (KCDC) established in 2017, has organised 109 training programs to prepare faculty members to understand and implement Outcome Based Education (OBE) and Revised Bloom's Taxonomy.
- KITS follows a structured mechanism in framing the Teaching plan towards a learner-centric, activity based ecosystem.
- A 2-3-week induction program is organised for the newly recruited faculty members to prepare them to be effective teachers, mentors, counsellors and leaders in moulding the students to attain the graduate attributes.

2. Devising and Reviewing Phase:

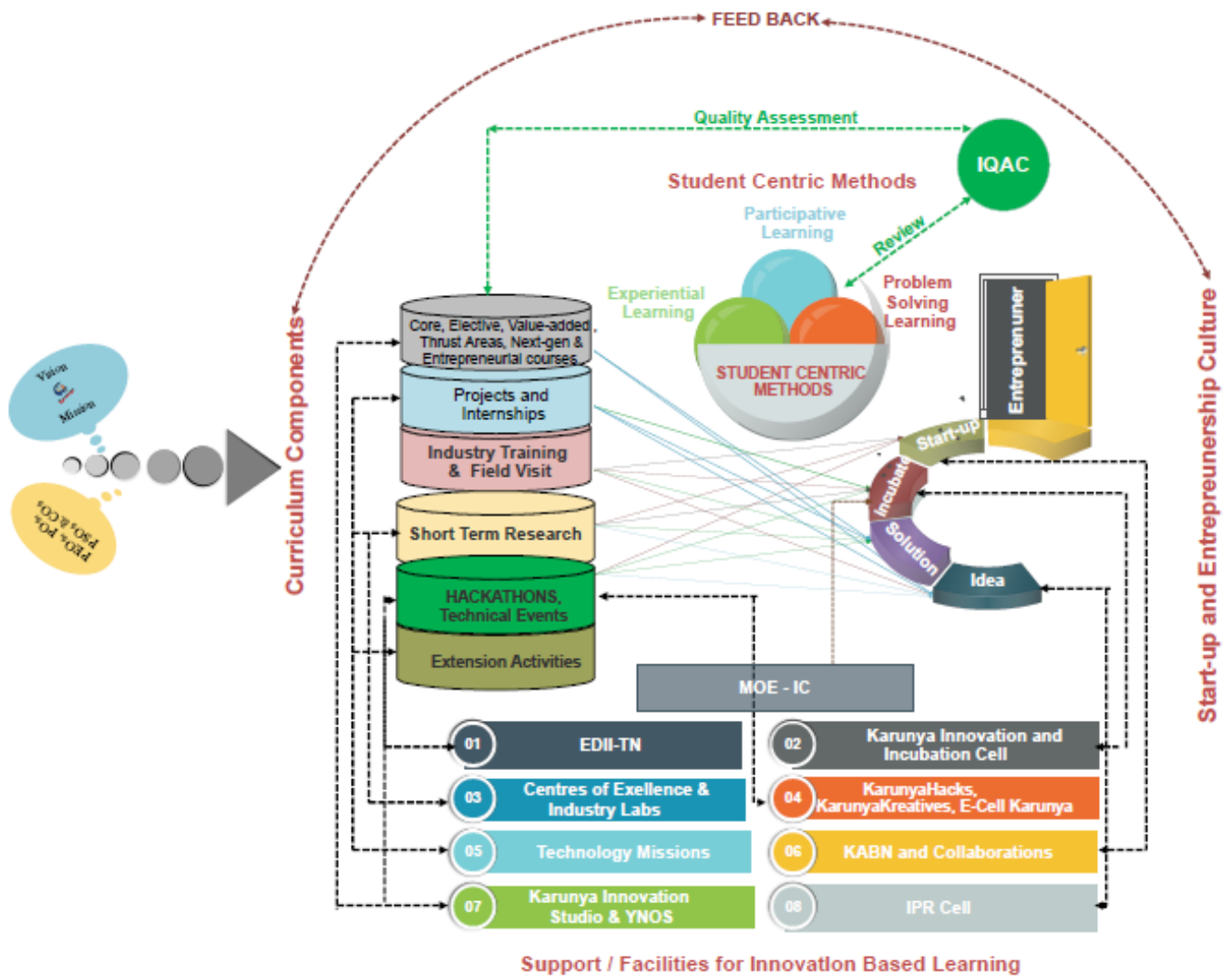
- The training facilitates the faculty members to devise a detailed teaching plan comprising of lecture topics with learning resources and appropriate teaching mode using ICT tools. To implement the plan effectively, they develop a concept map, course articulation matrix and assessment pattern based on Blooms' Taxonomy.
- The entire teaching learning process is documented in the form of a course file and evaluated through academic audits conducted with external experts.

Practise 2: Academic Audit for Quality Assurance in Teaching, Learning and Evaluation

The Primary objective of the Audit is to streamline the appropriate training academic functions of KITS and standardize practices to ensure that every faculty member delivers his/her best in teaching and learning through structured feedback and systematic monitoring. Academic audit has been institutionalized to evaluate the teaching-learning practice of faculty members by a team of external experts from reputed National Institutions like IITs and NITs.

- Faculty members prepare e-Course files for every Course in the format prescribed by IQAC. The content of Course file includes – syllabus, teaching plan, a report of lecture topics downloaded from the ERP-Eduserve, POs and PSOs, course articulation matrix, internal assessment and end semester examination question papers with sample answer scripts, result analysis report, attainment of COs, innovative teaching practices introduced and student's feedback.
- The external academic experts evaluate the Course files and award marks for a maximum of 50 with their comments.
- The IQAC communicates the evaluation reports to the Heads for necessary corrective measures. The Action Taken Reports from the Departments are sent to the IQAC.
- Based on the ATR, the faculty members are given appropriate training by KCDC. Several faculty members have recorded remarkable progress in their performance in the subsequent semesters. (process flow chart)

- The CO attainment values vetted by the academic audit experts are used for evaluating attainment of POs and PSOs at the time of graduation of every batch. This institutionalized practice appropriate training supports the departments in the NBA accreditations of their Programmes.



File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

6.5.2 Institution has adopted the following for **Quality assurance** 1. **Academic Administrative Audit (AAA)** and follow up action taken 2. **Conferences, Seminars, Workshops** on quality conducted 3. **Collaborative quality initiatives** with other institution(s) 4. **Orientation programme** on quality issues for teachers and students 5. **Participation in NIRF** 6. **Any other quality audit** recognized by state, national or international agencies (ISO Certification, NBA).

Response: A. Any 5 or more of the above

File Description	Document
Upload e-copies of the accreditations and certifications	View Document
Upload details of Quality assurance initiatives of the institution (Data Template)	View Document
Any additional information	View Document
Paste web link of Annual reports of University	View Document
Link for Additional Information	View Document

6.5.3 Incremental improvements made for the preceding five years with regard to quality (in case of first cycle), Post accreditation quality initiatives (second and subsequent cycles).

Response:

KITS has taken necessary steps to implement the recommendations made by the peer team during the last NAAC visit in May 2016. Improvements made in various initiatives are summarized below:

Criteria	Metrics	Cycle 1	Cycle 2
Curricular Aspects	i) Implementation of Outcome-Based Education	Implemented for Civil and Mechanical Engineering Programs	Implemented for all Programs (39)
	ii) Industries in curriculum development	70	106
	iii) Value added Courses	64	678
	International Internship	91 KITS students interned in Universities/Industries abroad; 140 International interns at KITS	237 KITS students interned in Universities/Industries abroad; 165 International interns at KITS
	Interdisciplinary Programs	13	17
Teaching Learning Process	Wi-Fi	800 Mbps	1500 Mbps
	SFR	1:17.5	1:15
	% Faculty with Ph.D	37%	78.41%
	Faculty Awards/ Recognition	61	816
	Results Publication	10 days	9 days
Research, Innovation and	Average annual investment on advanced equipment	Rs.500 lakh	Rs. 750 lakh

Self Study Report of KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES

Extension	Seed Grant	Faculty	Rs. 56.65 lakh	Rs. 204.92 lakh	
		Students	Rs. 8.54 lakh	Rs. 12.18 lakh	
		Beneficiaries	208 students; 76 faculty	282 students; 138 faculty	
	Amount granted to faculty for International visits towards research		Rs.12.4 lakh	Rs. 25 lakh	
	PDA for Faculty		Rs.3.19 lakh	Rs. 30.9 lakh	
	Investment on Patents		Rs. 11 lakh	Rs. 63.74 lakh	
	Grants from Funded Projects		Rs.998 lakh	Rs.1569 lakh	
	PhDs awarded		116	288	
	Ph.D. Guides		84	118	
	IF range		0.017 to 12.11	0.170 to 14.588	
	h-index		23 Scopus	Scopus - 65	
	Citations		3232 Scopus	Web of Science - 62 23844 Scopus	
	Publications		1222 Scopus	10676 WoS 2913 Scopus	
	Books/Book Chapters		501WoS 122	1029 WoS 902	
	Patents		11 patents filed	66 Patents published and 5 granted, 2 commercialized	
	Consultancy income		Rs. 327 lakh	Rs. 563 lakh	
	Awards for extension activities		4	136	
		MoU with Institutions and Industries	70	79	
	Infrastructure and Learning Resources	Central Library - area		3083.30 sq.km.	3083.30 sq.km.
		Resources		1,04,000	1,40,913
2430 e-Journals & 3528 CD-ROM				2,00,042 e-books and 2,377 e-journals	
Average annual expenditure on Computer Technology Centre		Rs. 213.32 lakh	Rs. 265 lakh		
Student Support and Progression	Scholarship		442.5 lakh	1521 lakh	
	Student beneficiaries		3380	4245	
	Sports scholarships		Rs. 93 lakh	Rs. 490 lakh	
	Students cleared competitive exams		186	519	
	Average placement		55%	67.6%	
	Highest package		8 lakhs per annum	32 lakhs per annum	
	Higher Studies		19%	28.12%	
	Placement/Internships through Alumni		123/31	177/101	
	Alumni contribution		307 lakhs	342 lakh	
Governance,	Financial support to teachers to		147	328	

Leadership and Management	attend academic programs		
	Professional and Administrative Training Programs	130	345
	Corpus fund	Rs. 8.51 crores	Rs.10.6 crores
Institutional Values and Best Practices	Promotion of gender equity	-	Rs.40,000/girl/year fee concession (E&T)
	Energy conservation (Solar Energy)	<ul style="list-style-type: none"> • Energy saver elevators • Electronic chokes in tube lights • Sensors for lights, fans and air conditioning units • Solar-powered computers and heaters 	<ul style="list-style-type: none"> • 115kW Solar Energy • Salzer energy saver • 7958 LED lights
	Water conservation	Spring-loaded stoppers in water taps 33 Rainwater harvesting Units	33 rainwater harvesting units and micro-irrigation
	Green campus initiatives	Marginal	Green Audit and Environment Audit
	Energy Audit	Internal Audit	Internal and External Agency

File Description	Document
Any additional information	View Document
Link for Additional Information	View Document

Criterion 7 - Institutional Values and Best Practices

7.1 Institutional Values and Social Responsibilities

7.1.1 Measures initiated by the Institution for the promotion of gender equity during the last five years.

Response:

Karunya Institute of Technology and Sciences is committed to create a safe environment for women, a gender-just environment free of violence, harassment, exploitation and intimidation. In order to achieve these, an Internal Compliance Committee (ICC) was set up in pursuance of the UGC guidelines and directives of Supreme Court (Prevention, Prohibition and Redressal Act, 2013).

- KITS offers 7 gender related courses and has an annual action plan for gender sensitization.
- The female-male gender ratio for faculty and students is currently 1:1 and 1:3 respectively.
- A special scholarship of Rs. 40,000 /annum has been awarded to 433 students to encourage girl students to pursue professional programmes.
- Women faculty members are encouraged to take up academic-administrative positions in the Institution, and also serve as members of various boards and committees



- In the field of research and consultancy, their contribution has been commendable, as 37 patents among 66 patents published are from women and all the 5 patents that are granted include women inventors. This achievement by women is attributed to the continuous support extended to them by the management.

Safety and Security

Safety and security of the girl students have been the top priority of the administration, with multiple steps taken including installation of biometric devices and CCTVs at strategic locations on campus, regular patrolling and deployment of ample security guards including female security personnel under the leadership of a former woman Dy. SP.

- The girl students are accommodated in safe and well protected resident halls which are equipped with amenities such as water doctors, solar water heaters, ATM, department stores, gymnasium, sports complex, beauty parlors, tailoring units, fruit juice shops and food court. An infirmary with nursing care, first aid and facilities for emergency is available in the women's residences.
- A functional 100 bedded rural community hospital is located within 100 feet reach from the women's residences for general consultation and specialized treatments in, gynaecology,

orthopaedics, dentistry and physiotherapy.

- On long holidays and unforeseen situations, buses are arranged for travel to the nearest railway and bus stations.



Counselling

- Senior Resident Advisors (SRAs) and caretakers are and seminars on various women appointed to provide day to day assistance and also address the needs and concerns of students.
- Women Counsellors offer professional guidance in areas related to academics, career, health, family and relationships.
- Educative and gender specific courses with value addition, focusing on issues pertaining to women and other vulnerable groups, are taught by the faculty of English, Criminology and Forensic Science.
- Regular talks on domestic violence and abuse, legal remedy on various women related challenges are being organized to sensitize women.

Common Room

- In the university campus, each academic block has a women’s care room equipped with a bed, first aid kits and other essentials; ambulance service and transport are readily available in emergencies.
- It is apparent that the institution is a safe haven for women ensuring they live with security and dignity, creating a healthy ecosystem free from anxiety and fear, which shapes their personality and empowers them to achieve their goals.

File Description	Document
Specific facilities provided for women in terms of: a.Safety and security b. Counselling c. Common Rooms d. Day care center for young children e. Any other relevant information	View Document
Annual gender sensitization action plan	View Document

7.1.2 The Institution has facilities for alternate sources of energy and energy conservation measures

1. Solar energy
2. Biogas plant
3. Wheeling to the Grid
4. Sensor-based energy conservation
5. Use of LED bulbs/ power efficient equipment

Response: A. 4 or All of the above

File Description	Document
Geotagged Photographs	View Document
Any other relevant information	View Document

7.1.3 Describe the facilities in the Institution for the management of the following types of degradable and non-degradable waste (within 500 words)

- Solid waste management
- Liquid waste management
- Biomedical waste management
- E-waste management
- Waste recycling system
- Hazardous chemicals and radioactive waste management

Response:

KITS being a residential institution with 7035 students and 468 faculty living in the 15 resident halls and 15 apartment complexes spread across 476-acre campus, several strategies have been adopted to implement the *Sustainable Development Goals of UN*, for effective management of solid waste, grey and black water.

Solid Waste Management and Recycling:

- To manage solid waste, collection bins have been placed at different locations on campus. After segregation, the biodegradable waste is subject to degradation by organic composting and the bio-fertilizer is utilized in the 329 acre experimental farm for academic, research and community development activities.
- Considering the health and hygiene of the students, 2 incinerators have been installed in the ladies' residence.

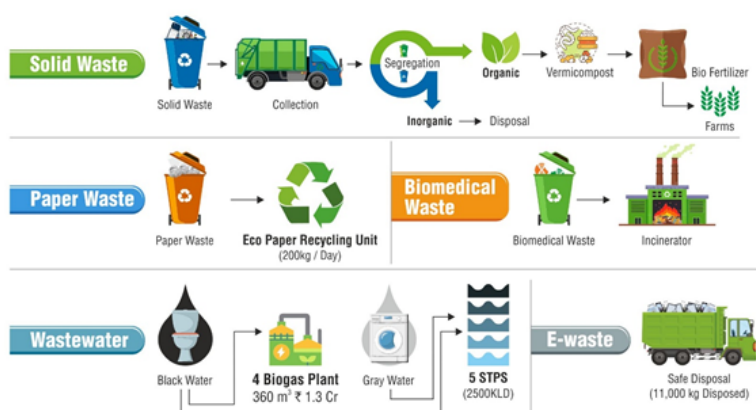
Type of Waste	Treatment / Management
Solid Waste	<ul style="list-style-type: none"> • Collection, Segregation and disposal of waste • Organic waste: Aerobic composting ,Vermicomposting
Paper Waste	<ul style="list-style-type: none"> • Eco-Paper Recycling Unit to treat 150-200 kg of paper
E-Waste	<ul style="list-style-type: none"> • 11000 kg generated and disposed through authorized agency of Pollution Control

Biomedical Waste	• Incinerators
Kitchen and Food Waste	• 80 cu.m Biogas Plant

Liquid Waste Management:

The grey and black water from the residences are treated in the 5 Sewage Treatment Plants (STP) installed on campus, at an investment of Rs. 300 lakh. 2500 KLD of wastewater is treated through the primary, biological and tertiary units that are fitted with screens to remove large non-biodegradable and floating solids such as rags, papers, plastics, tins, containers and wood chips, a fluidized bed bio-reactor for aerobic treatment of degradation of wastewater and a filtration system to remove suspended matter, micro-organisms and algae, and a sludge drying bed. The water is reused for gardening and irrigation through 118 outlets on campus.

The four Biogas plants of 360 cu.m capacity generate 114 kg of cooking gas/day (equivalent to 6 commercial gas cylinders) through the treatment of black and grey water from resident halls. The facility was installed with an investment of Rs. 130 lakh.



Hazardous Waste:

KITS follows the UGC guidelines, 2011 with regard to usage and storage of chemicals for academic and research purposes.

Scientific and Technological Intervention in Waste Management at KITS:

Faculty and students are involved in pilot projects, demonstration related to waste management. At the Water Institute – a Centre of Excellence, the following research activities are pursued with grants from MoEF&CC and DST, GoI

- Evaluating the performance of the unit operations in the STPs, based on modeling and simulation studies – Model
- Periodic monitoring and characterization of the raw and treated effluents from STPs
- Biochar preparation using agricultural farm waste for purification of contaminated water
- Isolation of microbes from campus STPs for the bioremediation of waste water and treatment of effluents from small scale textile dyeing units in and around Coimbatore
- Treatment of used cutting fluid from mechanical workshops on campus using the Petroleum Remediation Product (PRP®), a NASA product from UniRem Technology, Pittsburgh, USA
- Treatment of greywater using microbial fuel cells.
- Recycling and reuse of detergent water using electrocoagulation technology
- A conceptual model on decentralized wastewater treatment at household and community level

File Description	Document
Relevant documents like agreements/MoUs with Government and other approved agencies	View Document
Geotagged photographs of the facilities	View Document
Any other relevant information	View Document

7.1.4 Water conservation facilities available in the Institution:

- 1. Rain water harvesting**
- 2. Borewell /Open well recharge**

3. Construction of tanks and bunds
4. Waste water recycling
5. Maintenance of water bodies and distribution system in the campus

Response: A. Any 4 or all of the above

File Description	Document
Geotagged photographs / videos of the facilities	View Document
Any other relevant information	View Document

7.1.5 Green campus initiatives include:

1. Restricted entry of automobiles
2. Use of Bicycles/ Battery powered vehicles
3. Pedestrian Friendly pathways
4. Ban on use of Plastic
5. Landscaping with trees and plants

Response: Any 4 or All of the above

File Description	Document
Various policy documents / decisions circulated for implementation	View Document
Geotagged photos / videos of the facilities	View Document
Any other relevant documents	View Document

7.1.6 Quality audits on environment and energy are regularly undertaken by the Institution and any awards received for such green campus initiatives:

1. Green audit
2. Energy audit
3. Environment audit
4. Clean and green campus recognitions / awards
5. Beyond the campus environmental promotion activities

Response: A. Any 4 or all of the above

File Description	Document
Reports on environment and energy audits submitted by the auditing agency	View Document
Certification by the auditing agency	View Document
Certificates of the awards received	View Document
Any other relevant information	View Document

7.1.7 The Institution has disabled-friendly, barrier free environment

1. Built environment with ramps/lifts for easy access to classrooms.
2. Divyangjan friendly washrooms
3. Signage including tactile path, lights, display boards and signposts
4. Assistive technology and facilities for Divyangjan accessible website, screen-reading software, mechanized equipment
5. Provision for enquiry and information : Human assistance, reader, scribe, soft copies of reading material, screen reading

Response: A. Any 4 or all of the above

File Description	Document
Policy documents and information brochures on the support to be provided	View Document
Geotagged photographs / videos of the facilities	View Document
Details of the Software procured for providing the assistance	View Document
Any other relevant information	View Document

7.1.8 Describe the Institutional efforts/initiatives in providing an inclusive environment i.e., tolerance and harmony towards cultural, regional, linguistic, communal socioeconomic and other diversities (within 500 words).

Response:

KITS offers multicultural and multilingual atmosphere to its students representing the 33 States and Union Territories of India. As the institution promotes holistic development of students, various events are organized to enhance the spirit of patriotism, fraternity, stewardship, social and environmental consciousness, gender sensitization and more.

- Inclusive admission policy of KITS has opened up the portals of the institution for student enrolment across the nation and other countries. To make them feel at home, a variety of regional menus are made available.

- National and State festivals are celebrated with gaiety thereby promoting communal harmony. This sense of solidarity soars to great heights towards the host of foreign interns who enter the portals of Karunya through IAESTE. Recognizing the diverse nationality and honouring their culture, KITS organises a multi - cuisine banquet, where the interns dressed in their national costumes participate with excitement while enjoying the warmth of KITS.
- Special programs are conducted annually commemorating significant days such as Independence Day and Republic Day to highlight the cultural diversity of India, remember the valour and sacrifice of the freedom fighters and celebrate the harmony of Independent India. Students sport their ethnic wear and showcase the rich heritage of India through folk songs and dance.
- On such special occasions, sports and cultural events are organised for the children in the neighbouring rural and tribal communities to entertain and enlighten them on the responsibilities as citizens of free India. Students also visit orphanages and homes for physically and mentally challenged and distribute sweets and gifts.
- To instil confidence and a sense of belonging in the minds of differently abled children, games are conducted for them on ‘World Disabled Day’ observed annually.
- During weekends students engage themselves in clean-up campaigns aligned to Swachh Bharat Mission. Under the scheme, toilets were built in Mathuvarayapuram village in 2019 and a modular unit (precast structure) powered by solar energy has been set up as a pilot project.
- Vocational training programs on vermicomposting, seed balls for germination, disinfectant preparation and pickle making are conducted for farmers, Self Help Groups (SHG) to improve their livelihood
- Value added courses that enhance group dynamics and team building are incorporated in the curriculum. Environmental studies offered at the UG level includes field-oriented activities in managing pollution and improving green initiatives to abate global warming. ‘Personality Development and Extension Activities’ was offered to impart awareness on rural development, ethical societal life and civic sense. Courses like Feminism and Eco critical studies offered to PG students sensitize them to society’s attitude towards women and literature related to environment.
- The annual Mega Play at Karunya is a grand spectacle and a pride of Coimbatore in which the students showcase their singing, dancing and histrionic skills promoting the message of universal love.
- KITS supports senior citizens in care-homes providing them physical and emotional support. During the graduation ceremony, wheel chairs and tri-wheel vehicles are proffered to the differently abled people and sewing machines for economically disadvantaged tribal and rural women.

File Description	Document
Supporting documents on the information provided (as reflected in the administrative and academic activities of the Institution)	View Document
Any other relevant information	View Document

7.1.9 Sensitization of students and employees of the Institution to the constitutional obligations: values, rights, duties and responsibilities of citizens (within 500 words).

Response:

The curriculum of KITS includes a compulsory course on 'Constitution of India' for all students. Conferences and action programmes are conducted regularly to create consciousness among students to become responsible citizens. Extramural lectures are organized to highlight the salient features of Indian Constitution and the Architects of freedom struggle of India. Awareness programs are conducted on stewardship of natural resources, conservation of ecosystem, protection of public property, human rights, duties and responsibilities of citizens enshrined in the Constitution of India. On an average 200 faculty members serve as coordinators for these annual events.

- Independence Day and the Republic Day are celebrated annually with patriotic fervor. The NSS students demonstrated the message of citizen rights and duties through street plays and flash mobs. Karunya community participates in the "Indian Student Parliament" organized by MHRD
- Birth anniversaries of national leaders-Mahatma Gandhi, Pandit Jawaharlal Nehru, Sardar Vallabhbhai Patel and Shri S Radhakrishnan are observed, emulating their exemplary life.
- Fit India Marathon race was organized to educate the community on the need for physical fitness.
- Swachh and Swasth Bharat campaigns were organized under the Swachh Bharat Abhiyan to promote healthy environment and longevity. Plantation of saplings, cleanliness drive and poster presentations on water and forest conservation marked the Swachhata Pakhwada celebrations from 16th to 31st January 2020.
- Display boards and banners depicting the precautionary measures against Covid-19 are put up on campus in strategic places.
- 'Go-Digital' campaign to launch cashless transactions and paperless administration was organized on 22nd September, 2017 to usher in a digital era. Subsequently, PayTMs have been installed in the stores functioning on campus and hostel residences.
- As a part of the Nation Building drive, 'Vigilance Awareness Week' was observed from October 29-3 November 2018, on the theme, 'Eradicate Corruption and Build New India'. Students took a pledge to keep India a corrupt-free Nation.
- NSS in collaboration with the Traffic Police, Coimbatore City organized a 'Mega Road Safety awareness campaign' at 15 prominent signal islands.
- Following the guidelines of Unnat Bharat Abhiyan (UBA), students participated in the Gram Sabhas at Mathuvarayapuram Gram Panchayat, on 15th August, 2018 creating awareness on Village Development proposed by AICTE- UBA.
- As per the guidelines of the UGC and NSS Regional Directorate, various programmes were organised to commemorate the 150th birth anniversary of Mahatma Gandhi, an Interstate Peace Cycle Rally was organised on 2nd Oct. 2019.
- To honour the birth anniversary of Sardar Vallabhbhai Patel, Rashtriya Ekta Diwas or National Unity Day announced by the GoI, a pledge was taken to evoke the spirit of unity.
- A series of programmes were conducted as a part of Azadi Ka Amrut Mahotsav, an initiative of GoI.
- The Best Blood Donor Award for donating 200 units of blood was presented by KG Hospital, Coimbatore, 2016 and 2019.
- A Certificate of Appreciation from Datri for awareness on "Blood Stem Cell donation for treatment of fatal blood disorders", 2017

To inculcate values in students, KITS sows the seeds of patriotism and communal harmony, thus moulding them as citizens with societal concern.

7.1.10 The Institution has a prescribed code of conduct for students, teachers, administrators and other staff and conducts periodic programmes in this regard.

- 1. The Code of Conduct is displayed on the website**
- 2. There is a committee to monitor adherence to the Code of Conduct**
- 3. Institution organizes professional ethics programmes for students, teachers, administrators and other staff**
- 4. Annual awareness programmes on Code of Conduct are organized**

Response: A. All of the above

File Description	Document
Details of the monitoring committee composition and minutes of the committee meeting, number of programmes organized, reports on the various programs etc., in support of the claims	View Document
Code of ethics policy document	View Document
Any other relevant information	View Document

7.1.11 Institution celebrates / organizes national and international commemorative days, events and festivals (within 500 words).

Response:

KITS inculcates in students the spirit of nationalism and social values by blending co-curricular activities with core learning.

- Karunya community observes significant National Days such as Independence Day, Republic Day, *Rashtriya Ekta Diwas*, Martyrs' Day to instil patriotic fervor, inspire future generations to live in harmony and ignite young minds to serve the nation with passion.
- On the 15th August every year, we recall the sacrifice of the freedom fighters, cherish the rich heritage of our country, remember with pride the achievements and progress made since Independence, depicted through performing arts and motivational speeches. The events that follow the flag hoisting ceremony are aimed at propagating the messages and values embodied in the state initiatives such as Swachh Bharat, Beti Bachao, Beti Padhao and Swachhta Pakhwada campaigns.
- On 26th January, the KITS community rises to celebrate the emergence of India as a sovereign republic and organizes portrait gallery to honour the architects of Indian Constitution and conducts essay competitions, elocution and debates on Fundamental Rights.
- The Martyrs Day and Armistice Day are observed to pay tribute to the host of warriors of freedom and instil in our students a spirit of sacrifice.
- The Rastriya Ekta Diwas is celebrated to foster and strengthen unity, integrity and security of our nation and preserve our rich diversity. KITS with its pan-Indian population celebrates unity in our diversity by taking a solemn Pledge to reiterate oneness and harmony.
- World Water Day, World Meteorological Day, World Forestry Day, World Wetlands Day, International Women's Day, World Science Day, World Literacy Day are observed in KITS with

zeal and enthusiasm.

- Water being one of the thrust areas in the Technology Mission of KITS, the World Water Day is celebrated with verve. To highlight the significance of this life giving source, Water Institute – A Centre of Excellence, organizes various theme centric seminars, conferences and workshops in the realm of water conservation and management. An awareness rally was organized under the aegis of Jal Sakthi Abhiyan of MHRD, GoI.
- World Wetlands Day is observed every year to showcase our rich biodiversity and impress upon the need to maintain a robust ecosystem for sustaining livelihood. Incidentally, KITS was awarded a prestigious Indo-German (GIZ) consultancy project on Conservation of Ramsar Wetland, Point Calimere.
- On International Women’s Day, the women faculty are recognized for their contribution to teaching, mentoring, research and corporate life.
- On the occasion of International Literacy Day, the Rotaract club disseminates the message of the UNESCO to eliminate illiteracy for a life of dignity and empowerment.
- National Science Day and Innovation Day: Innovation being the buzz word in science and technology institutions, KITS provides opportunity for students to showcase their creativity, novelty in inventions, ability to incubate their ideas and develop avant-garde technologies to solve complex problems.
- Besides KITS celebrates a plethora of festivals – Christmas, Diwali, Pongal, Onam and Holi with cultural events highlighting the significance and followed by a fellowship meal for the resident students.

File Description	Document
Geotagged photographs of some of the events	View Document
Any other relevant information	View Document
Annual report of the celebrations and commemorative events for the last five years	View Document

7.2 Best Practices

7.2.1 Describe two best practices successfully implemented by the Institution as per NAAC format provided in the Manual.

Response:

Best Practice I:

1. Title of the Practice:

INNOVATION BASED LEARNING FOR INCUBATION AND ENTREPRENEURSHIP

2. Objectives of the Practice:

Towards inculcating an innovative culture and creative thinking leading to a start-up ecosystem, the curricula and syllabi were restructured with emphasis on application through mini and major projects, internships, industry connect, product development, technology transfer and establishment of an incubation cell. The best practices to achieve the objective include:

1. Adopting experiential learning through enriched academic curricula to solve societal problems
2. Imparting practical skills to students utilizing the well-equipped infrastructure meeting the industrial standards
3. Developing indigenous technologies and products for a self-reliant India (*Aatma Nirbhar Bharat*)
4. Enabling Karunya community to incubate their ideas leading to start-ups and entrepreneurship.

3. The Context

The justification for introducing this best practice arise from the need to:

- Meet the demands of Industry 4.0
- Achieve the Sustainable Development Goals (SDGs)
- Face the challenges of food, water, healthcare, energy security and livelihood
- Fill the gap in the area of practical training in the present curricula
- Connect between academia and industry - presently a weak area
- Provide a new dimension to the existing education system
- Make the student community solve practical problems
- Take technology from lab to land
- Expose the student community to global standards in learning
- Create confidence among the student community to solve problems on the floor and field
- Contribute to the theme of Self-reliant India (*Aatma Nirbhar Bharat*)
- Develop a model for entrepreneurship ecosystem in an educational institution

4. The Practice

In a phased manner, KITS introduced the best practices in teaching and learning with respect to innovation and entrepreneurship from 2016 down to 2029, by making changes in the curricula and syllabi, assigning more credits for practically oriented learning process, establishing KIIC and connecting students with the industry for internship and project work, providing industry exposure to the faculty during summer, conducting specific training programmes, introducing considering mini project, literature review, seminars and model making in the Quality Assessment component of evaluation.

The different components of the practice are listed below:

- Transdisciplinary studies and related activities, knowledge application and broadening of the expertise of faculty and students, in the context of NEP.
- Entrepreneurship oriented courses and development of products and processes integrated with practicals
- Digital learning leading to innovation and extension
- Funded research projects, product development and consultancy involving students
- Peer learning to promote healthy interaction and inculcate a team spirit
- Active blended learning and project based learning

Specific Initiatives:

- Experiential learning encompassing project based, participative and problem solving approaches
- 1 to 3 credit programme-specific skill-oriented courses namely Entrepreneurship Development to Business Management; Biomedical Engineering Entrepreneurship; Concepts of Entrepreneurship; Entrepreneurship and Product Development; Entrepreneurship, IPR and Biosafety; Basic Course in Entrepreneurship and Advanced Course in Entrepreneurship
- Utilizing the inter-departmental facilities in project work and research
- Exchange programme in learning and research with institutions in other countries under the aegis of International Association for the Exchange of Students for Technical Experience (IAESTE)
- Establishment of Institute's Innovation Council (IIC) and Advisory Committee as per the Central, National and State guidelines, collaborating with MoE/AICTE and Entrepreneurship Development Innovation Institute, Tamil Nadu (EDII-TN)
- Induction of Karunya Alumni Business Network (KABN) to mentor and support students and faculty in entrepreneurship development
- Training of faculty members in entrepreneurship by NEN and AICTE
- Establishment of Karunya Innovation and Design Studio (KIDS) to sow the seeds of innovation in the minds of students
- Formulation of 25 Technology Missions to develop innovative and emerging technologies and applying them for socially relevant research and product development
- Utilization of YNOS software of IITM to promote entrepreneurship
- Establishment of a Company under Section 8 within Karunya to provide students an opportunity for startups and entrepreneurship
- Trainings at the centers of multinationals such as Siemens Ltd., Bosch, IBM, NVIDIA, Seuz, and Tessolve Semiconductors Pvt. Ltd on campus

Evidence of Success

Activity	2015-2020
Incubation Entrepreneurship Cell	Established in 2016
No. of incubatees	13
No. of start-ups (by students)	38
No. of Courses on Entrepreneurship	7
No. of faculty trained in Entrepreneurship	7
No. of students undertaken courses	3746
No. of patents filed and published/ No. of students involved	66/50
No. of patents granted	5
No. of COVID specific products of faculty and students	10
No. of internships abroad	237
No. of technologies commercialized	3
Student projects from Harvard funding for innovation in health sector	32
Company registration under Section 8	Initiated and registered in 2021

The success of this practice can be mapped to the changes brought about in the curriculum, syllabi, credits and motivation and capacity building among the faculty and student community by Karunya Competency Development Cell established in 2016.

Problems Encountered:

- Limited industry-academia connect in the Indian context
- Gestation period for training the faculty and students
- Initial resistance by academicians to change the curricula and syllabi
- Lockdowns and containment did not permit the students to physical classes from March 2020 to the present

Notes

The formation of a Section 8 Company under The Companies Act, 2013 to promote innovation based learning, leading to incubation and entrepreneurship is recognized as the need of the day in the light of the initiatives taken up by the GoI, such as Startup India, Make in India and Self Reliant India (*Atma Nirbhar Bharat*). The changes brought about in TLP, establishment of KIDS and the funds received from Harvard Medical School and Boston Children's Hospital have helped the students of KITS in their pursuit of incubation and startups. The revision of syllabi of the order of 20% have been well received by the student community, equipping them for demands of Industry 4.0. The other HEIs may emulate these practices, if they have not already ventured into these areas.

Best Practice II

Title of the Practice

KARUNYA TECHNOLOGY MISSIONS IN EMERGING RESEARCH DOMAINS

Objectives of the Practice

The main objective of the Technology Missions (TM) is to develop innovative technologies and apply emerging techniques for socially relevant research and product development by ensuring team work among students and faculty members. The pathways followed to realize the objective are:

- Achieve outcomes in the shortest possible time on a Mission mode
- Initiate capacity building activities, adopt technological and scientific interventions in the four focal areas, namely water, food, healthcare and sustainable energy to develop techno-economic solutions
- Disseminate knowledge through research publications, develop technology and products, generate IP and collaborate with academia and industry
- Create scientific temper and spirit of enquiry among students by evolving an ecosystem to ideate, innovate and incubate.

The Context

Aligning with Industry 4.0, the technologies such as DA, Cloud Computing, AI, ML, Block Chain, DL, Sensor Applications, IoT and IoE have become part of the curriculum of all disciplines. In order to enhance its practical application, the need for a Mission mode to address them has been adopted by KITS. Apart from applying these technologies to solve societal problems in the Indian context, the lessons learnt by the application of these technologies in advanced countries can be introduced through collaborative ventures. To effectuate this, several relationships with international institutions have been established. In this context, the main thrust has been to develop modern tools in mathematics, computer science and electronics, and apply them in agriculture, food processing, healthcare, water resources management and sustainable energy. In addition, some of the enabling technologies to bolster the indigenous strengths of the country and the environmental implications of development have been identified.

The Practice

Of the 25 Technology Missions, five are in the area of Agriculture and Food Processing: Smart Technology for Precision Farming, Food Security, Indigenous and Herbal Medicine, Millets for Nutrition and Drone Technology. The objectives are to develop IoT and AI based management along with application of drones for smart farming, crop management, soil and plant health. It is also envisaged to popularize the health benefits of millets and develop millet processing technologies.

Two Missions related to water are executed by the Water Institute and the Department of Civil Engineering. Water treatment focuses on development of cost-effective methods for treatment of drinking water and grey water. Wetland conservation concentrates on the restoration of select Ramsar sites, in particular Point Calimere.

To promote interdisciplinary research, three Technology Missions have been initiated by the Departments of Agriculture, Aerospace, Chemistry and Civil Engineering. Isotope Application utilizes stable isotopes in hydrology and agriculture. Satellite and GIS mission maps spatial and temporal changes in environment, develops early warning systems for disaster management and creates database of natural resources. Drone Technology develops efficient drones for LULC detection and spraying fertilizers in agriculture fields.

Four Technology Missions have been identified to find solutions to human health problems. Virology Mission led by the Department of Biotechnology is developing a screening platform for anti-viral agents against Japanese Encephalitis and Dengue. Stem Cell Mission has linked up with a Canadian expert to take up joint project. Nanotechnology for Healthcare Mission develops nanomaterials for drug delivery, nano-formulations for bacterial and viral diseases and drug eluting implants. Medical Devices Mission led by the Department of Biomedical Engineering develops cost-effective devices for the diagnosis of diabetes, cardiovascular diseases, orthopedic and neurological conditions.

To re-engineer the green energy technology programme, redefine the manufacturing processes in industries and develop a sustainable manufacturing environment; five Technology Missions, namely Green Energy, Green and Sustainable Manufacturing, 3-D Printing and Additive Manufacturing, Smart Intelligent Buildings and Smart City have been identified by the Departments of ECE, Civil and Mechanical Engineering.

Missions on Data Analytics and Block Chain, Cyber Security, ML for Societal Problems, Smart Vehicles and Robotics in Everyday Life have been launched by Circuit branches and Robotics Engineering Department. Mission on Rural Development has been setup to achieve the targets of SDGs.

Evidence of Success

The Technology Missions were initiated as part of the activities in the thrust areas of Karunya right from 2017. All the faculty members and staff were involved in the activities in one thrust area or other related to academics, research, consultancy and extension; a few alumni also enrolled under different thrust areas. Subsequently, it was decided to have Technology Missions with a leader and team to integrate next-gen and sustainable technologies to solve problems in the thrust areas.

After the introduction of this best practice, reviews have shown notable results as given below against the annual targets of 2020:

Sl.No.	Activities	Projections	Achievements
1	Awareness Programs/Seminars/Workshops	25	73
2	Project Proposals	25	25
3	Research Publications	25	202
4	Products and Patents	25	23
5	Collaborations (National & International)	7	5
6	Field Applications of Technology	12	14

- Development of drones for spraying fertilizers in sugarcane fields in Andhra Pradesh by Drone Technology for Agriculture Mission.
- Design and fabrication of a UV based product to sanitize vegetables and fruits to combat microbial contamination by Medical Devices Mission
- Fabrication of polyhouse for the semi-arid zones of India in collaboration with ARO-Israel by Precision Farming Mission
- Development of Python toolkit for calculating the schedule of rates for Time and Motion Study under MNREGA for NIRD, Hyderabad and RDPR of GoTN, by Rural Development Mission
- Fabrication and demonstration of electrocoagulation treatment for textile dye effluent by Water Treatment and Desalination Mission
- Development of sustainable technology for recycling the metallic wastes for Boeing company, USA by Green and Sustainable Manufacturing Mission
- Development of nanofibre incorporated masks for use during the pandemic time by Nanotechnology for Healthcare Mission

Problems Encountered and Resources Required

- The major problem encountered was the lockdown caused by COVID-19. However, it was an opportunity to develop several products under the Mission on Medical Devices to fight against COVID
- The short-term research grant from Boston Children's Hospital, USA enabled faculty members to take up product development under Medical Devices Mission.

Notes (Optional)

- The Technology Missions were initiated to apply existing and newly developed technologies in the

thrust areas of KITS.

- The Mission mode has proved effective in achieving the scientific and research goals in a time-bound and efficient manner.
- Missions have contributed considerably to innovation, IP and application of modern technologies.
- Missions have led to more scientific papers and patents in the focal areas and had the involvement of maximum number of faculty and students.
- In the light of the advantages highlighted, it is felt that Mission mode activities can be adopted by other HEIs if they have not already taken up such Missions.

File Description	Document
Best practices in the Institutional web site	View Document
Any other relevant information	View Document

7.3 Institutional Distinctiveness

7.3.1 Portray the performance of the Institution in one area distinctive to its priority and thrust within 1000 words

Response:

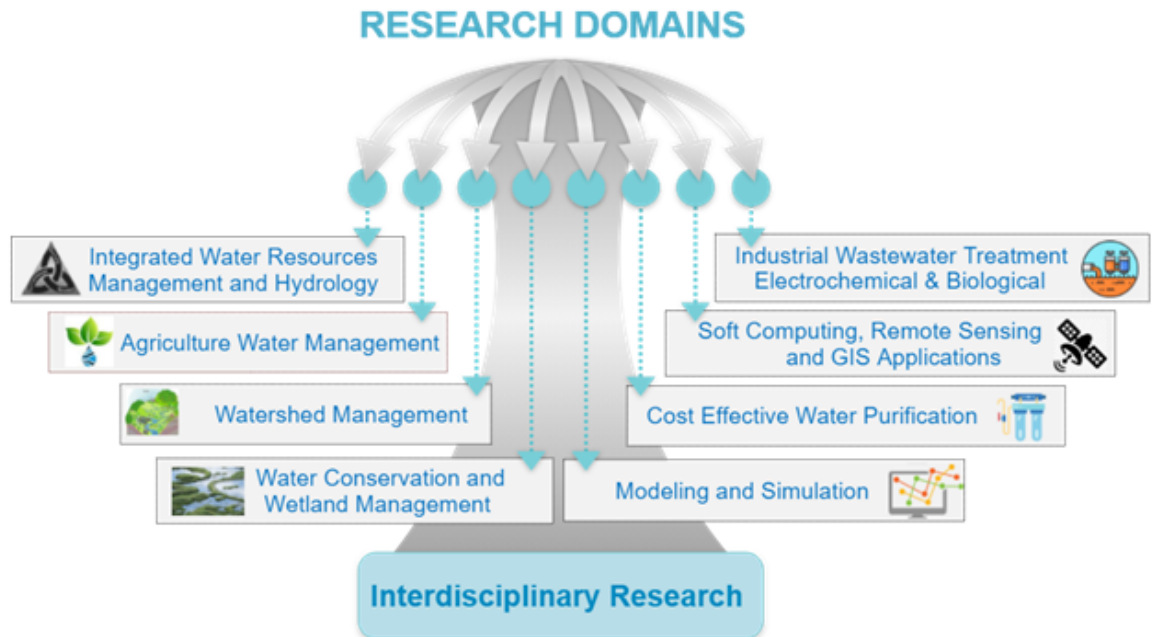
Title: Focus on Socially Relevant Domain of WATER

KITS identified four thrust areas of societal importance in 2008, namely water, food, healthcare and sustainable energy. The Water Institute (WI) was established in 2008 as a flagship programme to encourage interdisciplinary research aiming at scientific water management, and ensuring water security, especially in semi-arid zones. WI was established keeping in view MDGs; since 2016, the focus shifted to SDGs. The Dublin Conference-1912, Rio Conference-1942 and Johannesburg Conference-2022, and the initiatives of GoI, namely the National Drinking Water Mission and WAR for Water prompted by the Supreme Court of India motivated KITS to focus more on water. The relevance of research in WI gained significance with more areas coming under water stress or water scarcity in India. The WI succeeded in bringing together the faculty and students of different Departments-arts, science, agriculture, engineering and management for interdisciplinary research and to address multifarious water related issues. As a result, several projects, papers, products, consultancy, capacity building and extension activities emerged.

ACADEMIC PROGRAMMES

- In the background of the Dublin Conference and the importance assigned to sustainability, WI introduced a M.Tech. in Integrated Water Resources Management (IWRM) in 2009; this programme was revamped in 2017 by including the overall environmental perspective, as M.Tech. Environmental and Water Resources Engineering. Around 55 students passed out of the portals of Karunya to practice IWRM in different parts of India and abroad.
- WI also offers Ph.D. Programme, and more than 20 doctoral theses related to water are either completed or in the process of completion. These works cover a large spectrum of topics in hydrology and water management: impact of LULC on hydrology, isotope application for

groundwater recharge studies; evolving reservoir operation policy, contribution of hydroelectric projects to environmental flows, application of nano-membranes, electrocoagulation, electro-dialysis, CDI and bio-remediation for water treatment.

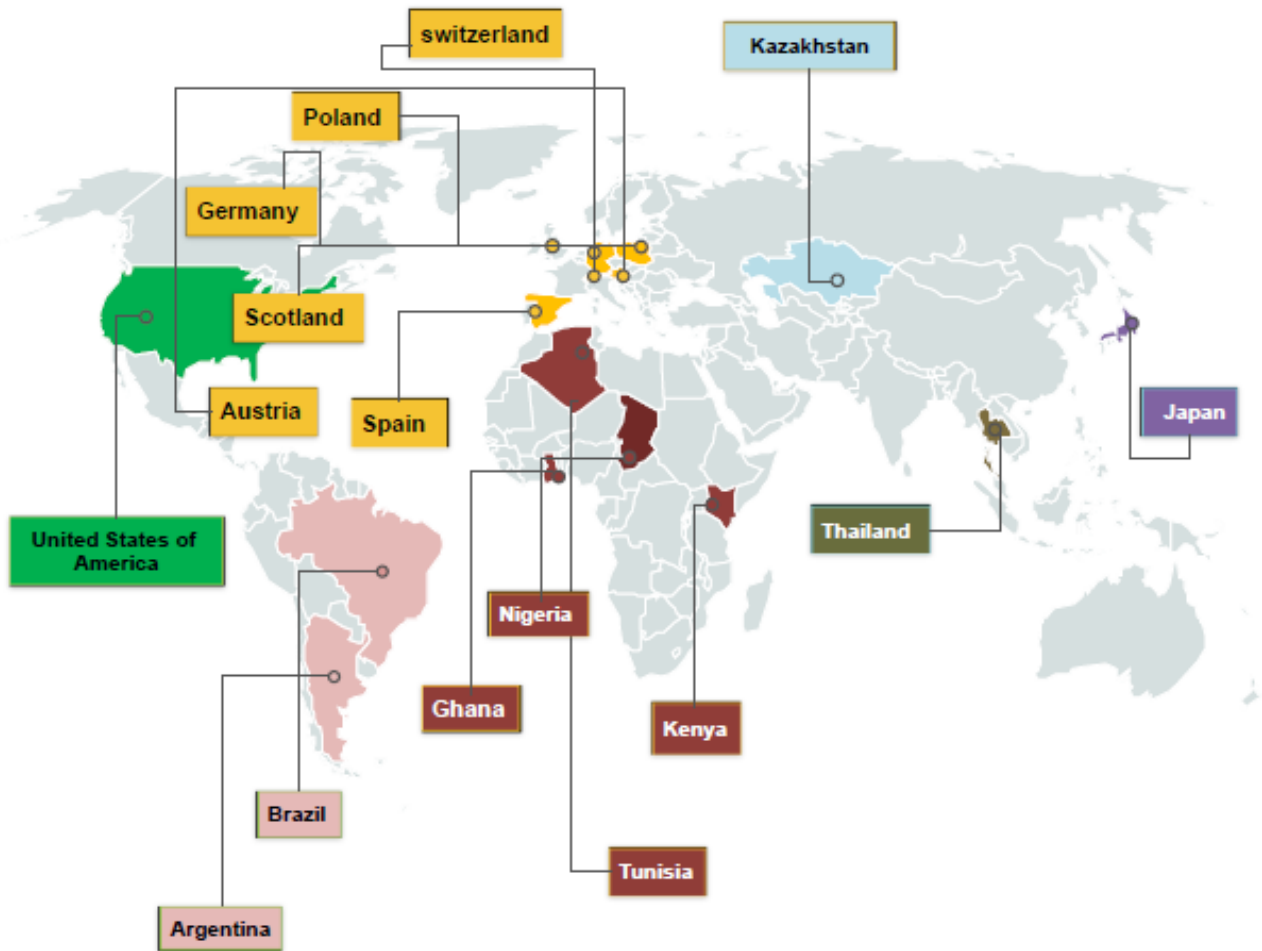


RESEARCH OUTPUT

During the past decade, more than one dozen projects were carried out in water domain at a total outlay of more than Rs.250 lakh, most of which are funded by DST, MoEF&CC and DRDO. The projects dealt with a spectrum of topics like river basin management in relation to wise use of wetlands, isotope hydrology, electrochemical methods for water treatment, and bio-remediation for improving water quality. An interdisciplinary group of 40 faculty members are involved in water research and more than 100 papers on the theme of water have been published in Scopus/WoS indexed journals.

- The emerging tools used, methodology and models evolved would be of use to the water resources management in different hydro-ecological and agro-climatic zones of the country.
- A laboratory with analytical instruments has been established with AAS, IC, TOC analyser, UV spectrophotometer and also for studies on water treatment using electrochemical, membrane and bioremediation techniques

IAESTE INTERNS OF WATER INSTITUTE



CONSULTANCY ASSIGNMENTS

The faculty members of Karunya, under the umbrella of WI, have taken up consultancy assignments worth more than Rs.100 lakh from international agencies like Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Wetlands International - South Asia (WISA) and Japan International Cooperation Agency (JICA) as well as from Government of India, and Government of Manipur, Kerala, Tamil Nadu and Odisha. The major consultancy work pertains to the Point Calimere wetland, Loktak lake, watershed model of Attapady, electro-fluorination, and integrated management of Mahanadi river. The methodologies and models evolved can be replicated in other parts of the country.

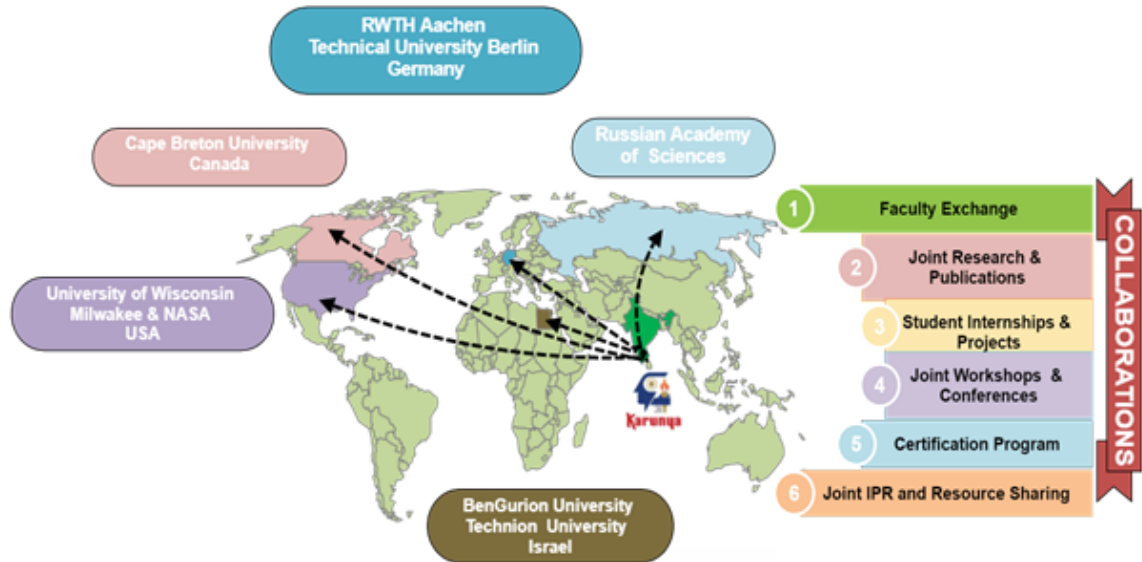
PRODUCTS AND PATENTS

KITS has developed more than 20 patents and products in the water sector of which 2 are granted. A few of these products are being commercialized. 2 patents on water treatment have been jointly filed by KITS and ZIWR, Israel, and Cape Breton University, Canada.

COLLABORATIONS

Karunya has established collaborative links with National Institute of Hydrology, Roorkee and Center for Water Resources Development and Management, Calicut and National Environmental Engineering ... It

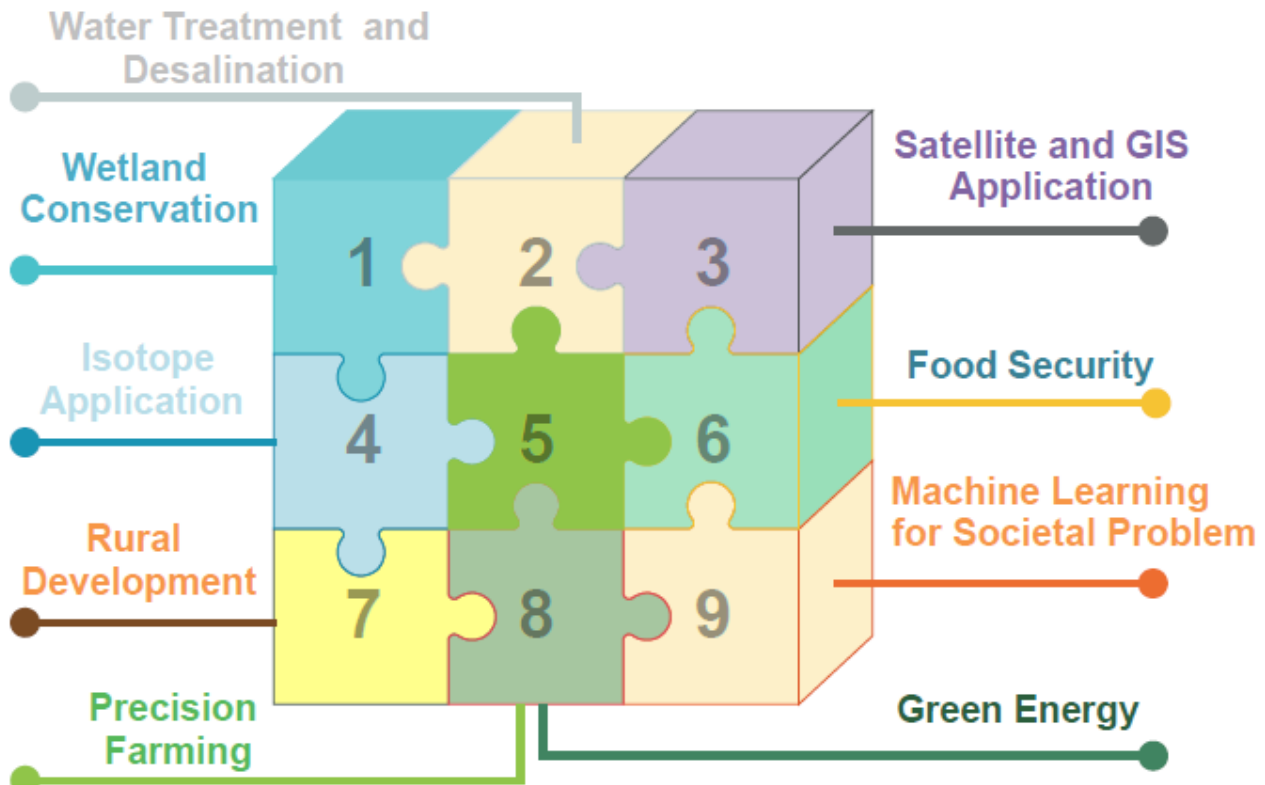
has entered into MoUs with institutions in Israel: Water Institute of Technion of Haifa, Smith Faculty of Food and Water of Hebrew University (Rehovot campus), Jacob Blaustein Institutes for Desert Research, Agricultural Research Organization of Israel and also with Water Partnership of University of Wisconsin, Milwaukee, Hydrogeology Group of Technical University of Aachen, and Environmental and Water Groups of Brandenburg University of Germany, and Cape Breton University and University of Saskatchewan of Canada.



TECHNOLOGY MISSIONS IN THE WATER SECTOR

Nine of the Technology Missions of KITS have relevance to water resources development and management. These are in the emerging areas of application of drones, remote sensing, and isotopes, wetland conservation, desalination and solving the water problems of smart cities and rural areas. Around 25 faculty members and more than 200 students are involved in these Missions. These Missions are initiated keeping in view the Government schemes like *AatmaNirbhar Bharat Abhiyan*, *Swachh Bharat Mission* and *National Mission on Water*.

Technology Missions in the Domain of Water



TRANSFER OF TECHNOLOGY AND CAPACITY BUILDING

More than one dozen transfer of technology programmes and capacity building workshops were conducted by WI, most of which were sponsored by the Government of India; an International Regional Science Meeting on LULC Change Dynamics was sponsored by NASA. These programmes were conducted at a total outlay of Rs.40 lakh. More than two dozen keynote addresses on water were delivered by the faculty of WI; the faculty members also served in the Central Wetland Regulatory Authority (Hydrology Expert), National Wetland Atlas Project (Chairman, Steering Committee), Working Group on Tidal Waters of ICID, Surface Water Research Group of CWC, Wetland Authority of Tamil Nadu and Kerala, and Wetlands International-SA (Governing Body). Conferences were conducted together with experts from Russian Academy of Sciences, University of Berlin, University of Cape Breton and Blaustein Desert Research Institute-Israel.

EXTENSION ACTIVITIES

Team Karunya was active in creating awareness on water and sanitation among the rural population. Several water samples were tested and solutions to local problems provided. The groundwater and surface water problems were studied in the nearby water sources especially Sulur and Ukkadam lakes in Coimbatore. Together with the LSGs, KITS provided sanitation facilities in rural areas. A prototype model of multi-channel baffle type electrocoagulation was installed, experimented and demonstrated in a small-scale thread mall in Coimbatore.

File Description	Document
Any other relevant information	View Document
Appropriate web in the Institutional website	View Document

NAAC

5. CONCLUSION

Additional Information :

One of the flagship programmes of KITS is B.Sc (Hons)- Agriculture. A farm of 329 acres has been developed by applying the principles of precision farming to a variety of crops to come out with standards, specifications and package of practices for the semi-arid zone of Coimbatore with the support of experts from Agriculture Research Organisation, Hebrew University, and Ben-Gurion University of Israel. The polyhouse farming is also being standardized. The large farm area provides opportunity for field experimentation in the focal areas of KITS, namely food and water. Karunya through its extension services provides advice to the local farmers in the area of agriculture, horticulture and veterinary science, apart from scientific water management practices.

Two professional studios of Karunya are used for academic purpose by students of VisCom and to create e-content for online learning.

The biodiversity of the campus situated in the lap of Western Ghats is being recorded by the faculty and students and a few bioremediation products have been developed based on the plants and microorganisms of this ecological niche. There has been several tree-planting campaigns, spices and herbal plant cultivation on campus in an effort to create awareness on nature conservation and the need to reduce carbon foot print. Several awareness programmes are conducted regularly among the neighbouring rural communities and tribal hamlets fulfilling the SDGs in the areas of education, water, sanitation, sustainable energy and livelihood in general.

The care homes for the elderly and mentally challenged are visited by the faculty and students. Feeling their pain, the students have devised gadgets and developed products in the area of healthcare, which is one of the thrust areas of KITS.

Concluding Remarks :

With its lofty Vision and strategic Mission, KITS is poised to forge ahead in higher education, equipping the youth with academic excellence, professional competence, leadership skills and commendable values to scale great heights in their career, while serving the nation with commitment and compassion.

The vast campus with excellent academic infrastructure, modern and sophisticated laboratories in emerging areas of research, extraordinary sporting facilities, highly competent and dedicated faculty, provide a perfect learning ambience for the 7035 students living in 15 multi-storeyed residence halls spread over 70 acre within the campus.

With structured policies and procedures for diligent governance, decentralized administration, a responsive leadership, KITS has embarked on a journey that has aligned itself with the National Education Policy in providing multidisciplinary education to its students for a lifelong learning experience and a successful career.

6.ANNEXURE

1.Metrics Level Deviations

Metric ID	Sub Questions and Answers before and after DVV Verification																				
1.2.2	<p>Percentage of Programmes in which Choice Based Credit System (CBCS) / elective course system has been implemented (Data for the latest completed academic year).</p> <p>1.2.2.1. Number of Programmes in which CBCS / Elective course system implemented. Answer before DVV Verification : 51 Answer after DVV Verification: 36</p> <p>Remark : Value as per data provided by HEI for 2019-20</p>																				
2.4.4	<p>Average percentage of full time teachers who received awards, recognition, fellowships at State, National, International level from Government/Govt. recognised bodies during the last five years</p> <p>2.4.4.1. Number of full time teachers receiving awards from state /national /international level from Government/Govt. recognized bodies year wise during the last five years Answer before DVV Verification:</p> <table border="1"> <thead> <tr> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> <th>2015-16</th> </tr> </thead> <tbody> <tr> <td>258</td> <td>161</td> <td>155</td> <td>135</td> <td>56</td> </tr> </tbody> </table> <p>Answer After DVV Verification :</p> <table border="1"> <thead> <tr> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> <th>2015-16</th> </tr> </thead> <tbody> <tr> <td>48</td> <td>4</td> <td>2</td> <td>37</td> <td>4</td> </tr> </tbody> </table> <p>Remark : Values as per data provided</p>	2019-20	2018-19	2017-18	2016-17	2015-16	258	161	155	135	56	2019-20	2018-19	2017-18	2016-17	2015-16	48	4	2	37	4
2019-20	2018-19	2017-18	2016-17	2015-16																	
258	161	155	135	56																	
2019-20	2018-19	2017-18	2016-17	2015-16																	
48	4	2	37	4																	
3.3.3	<p>Number of awards / recognitions received for research/innovations by the institution / teachers / research scholars / students during the last five years.</p> <p>3.3.3.1. Total number of awards / recognitions received for <i>research</i> / innovations won by institution / teachers / research scholars / students year-wise during the last five years. Answer before DVV Verification:</p> <table border="1"> <thead> <tr> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> <th>2015-16</th> </tr> </thead> <tbody> <tr> <td>393</td> <td>234</td> <td>202</td> <td>197</td> <td>42</td> </tr> </tbody> </table> <p>Answer After DVV Verification :</p> <table border="1"> <thead> <tr> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> <th>2015-16</th> </tr> </thead> <tbody> <tr> <td>48</td> <td>4</td> <td>2</td> <td>37</td> <td>4</td> </tr> </tbody> </table>	2019-20	2018-19	2017-18	2016-17	2015-16	393	234	202	197	42	2019-20	2018-19	2017-18	2016-17	2015-16	48	4	2	37	4
2019-20	2018-19	2017-18	2016-17	2015-16																	
393	234	202	197	42																	
2019-20	2018-19	2017-18	2016-17	2015-16																	
48	4	2	37	4																	

Remark : Values as per data provided

3.7.1 Number of Collaborative activities for research, Faculty exchange, Student exchange/ internship per year

3.7.1.1. Total number of Collaborative activities with other institutions / research establishment / industry for research and academic development of faculty and students year-wise during the last five years.

Answer before DVV Verification:

2019-20	2018-19	2017-18	2016-17	2015-16
1079	1268	692	697	1004

Answer After DVV Verification :

2019-20	2018-19	2017-18	2016-17	2015-16
633	871	528	546	827

4.3.5 Institution has the following Facilities for e-content development

1. **Media centre**
2. **Audio visual centre**
3. **Lecture Capturing System(LCS)**
4. **Mixing equipments and softwares for editing**

Answer before DVV Verification : A. All of the above

Answer After DVV Verification: C. 2 of the above

Remark : HEI has not affixed the ecopies of the stock register for fulfilling metric 4.3.5

2.Extended Profile Deviations

ID	Extended Questions																				
1.1	<p>Number of programs offered year-wise for last five years</p> <p>Answer before DVV Verification:</p> <table border="1"> <thead> <tr> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> <th>2015-16</th> </tr> </thead> <tbody> <tr> <td>51</td> <td>54</td> <td>63</td> <td>56</td> <td>50</td> </tr> </tbody> </table> <p>Answer After DVV Verification:</p> <table border="1"> <thead> <tr> <th>2019-20</th> <th>2018-19</th> <th>2017-18</th> <th>2016-17</th> <th>2015-16</th> </tr> </thead> <tbody> <tr> <td>36</td> <td>41</td> <td>50</td> <td>43</td> <td>34</td> </tr> </tbody> </table>	2019-20	2018-19	2017-18	2016-17	2015-16	51	54	63	56	50	2019-20	2018-19	2017-18	2016-17	2015-16	36	41	50	43	34
2019-20	2018-19	2017-18	2016-17	2015-16																	
51	54	63	56	50																	
2019-20	2018-19	2017-18	2016-17	2015-16																	
36	41	50	43	34																	
2.4	Number of revaluation applications year-wise during the last 5 years																				

Answer before DVV Verification:

2019-20	2018-19	2017-18	2016-17	2015-16
156	324	529	258	317

Answer After DVV Verification:

2019-20	2018-19	2017-18	2016-17	2015-16
156	324	529	258	417

NAAC