2018 Annual Report

INDO-UNIVERSAL COLLABORATION FOR ENGINEERING EDUCATION

IUCCEE’s Mission is to build an ecosystem for transforming engineering education in India with the assistance of engineering education experts and industry from around the world.

Engineering Projects in Community Service

Engineering Projects in Community Service (EPICS) couples design practice with solving critical needs in the community. Founded at Purdue University, EPICS has been serving in communities for over 20 years. EPICS arrived in India in 2016 and this year.

See EPICS Page 3

Internationally Accredited Faculty Certification

The Internat’l Engineering Educators Certification Program (IIEECP) was inspired by the teaching workshops run by two distinguished educators from the US, Professors Richard Felder and Rebecca Brent. In 2018, 535 participated in the Phase I workshop and 512 in the Phase 2-3 workshops, resulting in 131 total faculty certified. Certified faculty have not only engaged in their own design projects but have shared knowledge through webinars and conferences.

See IIEECP page 6

2018 Program Highlights

♦ Over 2500 Indian Students participated in 17 student-led workshops as part of The Student Consortium for Advancement and Learning in Engineering Education (SCALE).
♦ The 5th International Conference on Transformations in Engineering Education was hosted by two Universities in India where 185 papers were presented (acceptance rate of 85%) and over 1000 faculty and students attended. Five Indian faculty were named fellow and three Engineering Educator Awardees were named.
♦ The state of Andhra Pradesh invested in IUCCEE programs through the AP State Skills Development Corporation. Over 1500 faculty benefited from IUCCEE programs through this alliance.
♦ 23 colleges participated as IUCCEE-EPICS (Engineering Projects in Community Service) partners in 2018. These included training workshops for over 300 faculty and over 2000 student participants.
♦ The Second Annual IUCCEE Leadership Summit was held in Goa. Over 100 leaders from colleges attended.
♦ The IUCCEE International Engineering Educators Certification Program (IIEECP) certified over 130 faculty, providing them with skills and tools to be effective teachers.
♦ The IUCCEE Virtual Academy hosted 74 webinars participated in by over 4000 Engineering Faculty on various topics including technical themes by international experts as well as themes related to Engineering Education.
♦ 125 Colleges and Universities participated as Consortium members of IUCCEE, providing faculty and students with unique e-resources, advice from international experts and other benefits.

Student-led Workshops Across India

The best role models for students today are other students. In India, together with the IUCCEE leadership and network of consortium institutions, the students are embracing the transformation of engineering education by engaging in their own workshops.

See SCALE page 4

Global Colloquium on Engineering Education

The Internat’l Conference on Transformations in Engineering Education (ICTIEE) has brought together students, faculty and industry professionals from around the globe that enables the sharing of best practices in STEM education each year since 2014.

See ICTIEE Page 5

State of AP invests in Engineering Faculty and Students

Under the leadership of Nara Chandrababu Naidu, the Engineering Colleges in Andhra Pradesh were registered this year to participate in IUCCEE programs. Through the Andhra Pradesh State Skills Development Corporation (APSSDC) fifty of the colleges became consortium colleges, with all the benefits of participation that entails. Two hundred faculty were enrolled in the IIEECP certification program, and there were three Phase I courses in the state in three cities in July. Ten of the colleges became IUCCEE-EPICS partnering.

See APSSDC Page 4
Global Advisory Board

Dr. Michael Milligan, Executive Director and Chief Executive Officer of ABET
Dr. Stephanie Farrell, Rowan University (President-Elect of ASEE)
Dr. Lueny Morrell, MS, PE, Ing. Paed. Founder & Director of Innovahied
Dr. Michael Auer, University of Klagenfurt, Austria
Dr. Anil K. Kulkami, Pennsylvania State University
Dr. Neeraj Buch, Michigan State University
Dr. Hans Jurgen Hoyer, Secretary General of IFEES, executive secretary of the Global Engineering Deans Council.
Dr. Subramanian Dharma Rajan, Arizona State University
Dr. Veena Kumar, Executive Director of the IUCEE International Educators’ Certification Program.
Dr. Prathiba Nagabhushan, Australian Catholic University
Dr. Vijay Kanabar, Boston University
Dr. Ashok Saxena, University of Arkansas
Dr. Guru Subramanyam, University of Dayton
Dr. Ranji Vaidyanathan, Oklahoma State University
Dr. William Oakes, EPICS, Purdue University
Dr. Mohan Rao, Tennessee Technological University

IUCEE Staff

Dr. Krishna Vedula, Executive Director, IUCEE
Kantha Reddy, Director, IUCEE India Operations
Sridhar Nori, Manager, IUCEE Virtual Academy
Dr. Sohum Sohani, Associate Director
Sheetal Sohoni, Marketing Consultant
Dr. Claire Komives, Program Consultant
Surendra Reddy, Staff Assistant, IIEECP program
M.V. Babu, Staff Assistant, EPICS program
Amit Lathigara, Manager Website

Leadership Team from IUCEE Consortium Institutions

Dr. Archana Mantri, Chitkara University
Dr. Sushma Kulkarni, Rajarambapu Institute of Technology
Dr. Gopalkrishna Joshi, KLE Technological University
Dr. Rio D’Souza, St. Joseph College of Engineering

Global Industrial Advisory Forum (GIAF) Leadership

Jayant Sathe, formerly Procter and Gamble
Anil Pandit, formerly General Electric
Ravi Salagame, Delphi Systems
Madhu Atre, formerly Vegashakti
Dilip Chemburkar, formerly General Electric
B. Kalyan Ram, Electronicsolutions
Sujatha Wadhw, First Step Overseas Consultant
Vasant Marathe, formerly Swifts Pvt Ltd.

State Skills Development Corporation supported 75 consortium colleges, hundreds of faculty to participate in the IIEECP, and a regional ICTIEE conference located at Amaravati in July. A highlight of the conference was a provocative presentation by the Cabinet Minister of Information Technology and Rural Development, Hon’ble Nara Lokesh. Of note, he urged the faculty attending to cultivate in the students a desire to be not just job seekers, but job creators. IUCEE is striving to bring that message to all colleges in India.

Also new this year we began to engage Indian experts from Silicon Valley to participate in IUCEE programs. The Silicon Valley Indian Engineering Education Forum brought together about 75 entrepreneurs, educators, and technical experts to discuss how to contribute to IUCEE for the good of India.

There are countless volunteers who have made IUCEE programs and expansion possible, to whom I transmit my sincerest thanks. We look ahead to more transformations in colleges all across India in 2019.

Jai Ho
Krishna

Krishna Vedula is Professor of Chemical Engineering and Dean Emeritus, Francis College of Engineering, University of Massachusetts Lowell. He has also been the President of IFEES (International Federation for Engineering Societies) from 2010 to 2012.
year, 23 institutions supported IUCEE-EPICS partnerships. These institutions included:

- KLE Technological University, Hubbali
- Nalla Malla Reddy Engineering College, Hyderabad
- MLR Institute of Technology, Hyderabad
- Vardhaman College of Engineering, Hyderabad
- CMR College of Engineering and Technology, Hyderabad
- Sri Venkateswara College of Engg&Tech.
- SR Engineering College Warangal
- Hyderabad Institute of Technology and Mgmt.
- Silver Oak College of Engineering and Technology, Ahmedabad
- Chitkara University, Chandigarh
- Marwadi Group of Institutions
- S.R.K.R Engineering College
- Thiagarajar College of Engineering, Madurai

As part of the Andhra Pradesh program through the APSSDCf, the following colleges participated this year as IUCEE-EPICS partners:

- Vignan’s Institute of Information Technology
- Godavari Institute of Engineering & Technology
- Shri Vishnu Engineering College for Women
- Lakireddy Balireddy College of Engineering
- Vavilapalli Venkatadri Institute of Technology
- RVR & JC College of Engineering
- Sri Padmavathi Mahila Viswa Vidyalayam

The IUCEE-EPICS partnerships include training and mentoring of faculty to support student practice in service-learning, namely, promoting the solution of local challenges by engineering projects. Student teams visit farms, schools and other local businesses and interview the clients regarding work flow, issues associated with employee health and safety, outdated manufacturing processes, inefficient equipment, and the like. Once understanding the challenges the students proceed to design solutions using their engineering skills. Through the EPICS program, students learn to identify and solve problems, communicate with clients, develop prototypes for new and better machines and tools, and implement the solutions.

Students learn valuable communication skills, including working on multidisciplinary teams and presentation skills. It is known that professional skills are critical for students to become employable after they complete their education. Professor Oakes visits the IUCEE-EPICS partner institutions several times during each year they participate, providing a course in Design-thinking to faculty at the institution and mentorship to faculty and student teams working on projects. At the end of the project period, both faculty and students receive certificates for completing the training and project sequence.

Becoming an IUCEE-EPICS partner is a win for both the institution and the community. It is important for engineering programs to be active in their local community. Program constituencies include the students but also the local community who can benefit from the practice of engineering in among the local people. Students who participate in the EPICS projects have a technical project to describe when they interview for a job. As they do their own project and not something cookbook from the university, the students have true ownership and are better able to describe why they chose the project, process, materials and other aspects of the design. The skills gained by the students increases their employability, which is good for the student, school and community.

Students at Malla Reddy Engineering College present a design to Professor Oakes

Students at HITAM assemble a prototype

Students from SR college of Engineering visit a farm to identify projects
Ten of the colleges became IUCEE-EPICS partnering institutions involving the participation of over 150 faculty and 10,000 students. Four other courses for faculty were delivered involving over 500 faculty participants. For the first time this year, a regional Conference on Transformations in Engineering Education was held in July in Amaravati, enabling the participation of over 150 institutions involving the participation of over 150 institutions. The workshops led by students offer the chance to interact with students from other institutions who are role models of enthusiasm and leadership. The workshops gave the students an opportunity to learn brainstorming and debating skills, and to work in teams. It is a wonderful strategy to motivate the students to think about world problems and to discuss solutions with each other. IUCEE is proud to enable financial support for the students to travel to different schools and show others what their future can entail if they take their studies seriously. The SCALE team also hosted the Annual Student Conference in Madurai in January. The conference included a Student Forum, Student Poster Presentation, and Prototype Presentation. 235 students attended from around India. The SCALE team is gearing up to host the Global Student Forum at the World Engineering Education Forum to be held in Chennai in November 2019. They are preparing to host students from all over the world to engage in inspiring presentations, activities and competitions. Faculty are encouraged to inform their students about this opportunity.

The SCALE team started in January 2017 and has continued to grow and expand in 2018. This past year, over 20 workshops were held all over India, with over 2500 student participants and 400 action plans to change India for the better. The workshops last 3 days and consist of an introductory session outlining the goals of the workshop, presentation of world challenges in three tracks for students to brainstorm solutions, debates on the challenge solutions, preparation of a dynamic action plan to solve the world challenges. The tracks this year were Energy, Infrastructure and Development, and Advanced Personalized Learning. After identifying a solution and establishing the action plan, a final presentation is given in front of student judges and a prize for the best presentation is awarded.

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The IUCEE Virtual Academy is a series of webinars on a variety of topics ranging from Engineering Education Best Practices to Emerging Technologies. Remote learning by webinars is commonly practiced by every professional organization and IUCEE has been hosting webinars for over five years. This year a total of 74 webinars on different topics were hosted and over 4000 participated in the webinars. The webinars are hosted at convenient times for India. Most of the webinars were led by Faculty from across India. The Outstanding Educators who were awarded at ICTIEE 2018 led presentations and others from various locations. Topics ranged from pedagogy to use of technology and others. A few of the webinars were from other countries.

In addition to individual webinars, courses were held that involved a series of webinars. This year the courses included:
- Engineering Education Research
- Remote Labs
- Internet of Things
- Outcomes-Based Education
- Virtual and Remote Labs
- Design Thinking (EPICS)
- Machine Learning

Over 800 faculty participated in the different courses.

The most highly attended course was Design Thinking with 249 participants. Many new IUCEE-EPICS partners joined this year, and the course is the initiation into the EPICS program.

The most highly attended webinars were on topics related to Engineering Education, including Cooperative Learning, Communication Skills, and The Art of Making a good Presentation. The most popular technical topics included Concepts and Internals of Real-time operating system and Interventions in Rural Areas By RuTAG, IIT Bombay. The virtual academy webinars are announced weekly by Dr. Krishna Vedula through an email to Consortium Member Institutions. These webinars are free for Consortium members. This is an excellent and convenient strategy to learn emerging technologies and techniques for the classroom.
Faculty present strategies for student success they have tested in their courses, schools and communities. The annual SCALE student conference also occurred, this year in Madurai. Global experts motivate participants to strive for excellence in the classroom with ideas of new pedagogies as well as the importance of establishing a culture of ethics in their institutions. Industry practitioners share the need for employability of the graduates and important outcomes for achieving that goal. Industry sponsors showcase novel educational technologies as well as show their support for IUCEE programs in India.

This year the conference was initiated at Bennett University in Greater Noida. The first morning of the conference, sponsors offered workshops on various educational technologies. Following the inaugural event, several keynote presentations were given by global experts. The second day, following more keynote presentations, engineering faculty presented 58 papers (84% acceptance rate) including some in the Work in Progress category that was new this year. Deepak Garg, Head of the Computer Science Engineering Department at Bennett was our host. In addition to the wonderful hospitality at Bennett, we were able to tour their new computing facility.

The global expert team and many faculty participants traveled to Madurai to Thiagarajar College of Engineering for the second part of the conference. The day before the official beginning of the conference, a full-day workshop on outcomes-based education was delivered with a focus on national and international accreditation with guest speakers NJ Rao, member of NBA Expert Committee, and Dr. Michael Milligan, CEO of ABET, USA. There, faculty presented 127 papers (86% acceptance rate). Again, the sponsors delivered workshops on their educational tools for faculty and students. In addition to the faculty presentations and keynotes, a workshop on entrepreneurship was given by Dr. Ranji Vaidyanathan of Oklahoma State University. Students or faculty/student teams could participate and included a pitching competition.

The SCALE Annual Student Conference was held in Madurai in the days leading up to the conference. Students from all over India attended, but most came from the south.

There were Industry and Institutional sponsors at the event with representatives describing their technology or recruiting students for M. Tech degrees. “We depend on our Industry sponsors to both support the finances of the conference as well as to enrich us with presentations of educational technologies that can advance student learning in a high tech world. We are deeply grateful for their support of IUCEE.” Krishna Vedula.

Sponsored workshops at ICTIEE 2018 included Quanser, Dassault Systems, National Instruments, Mathworks, IONCudos, Comsol and Cypress Semiconductor, as well as a workshop on Global Engineering Education.

Keynote presentations included D.K. Subramanian presenting on Artificial Intelligence Transforms Education and Teaching, Dr. Hans Hoyer presenting on Global Engineering Education Experience, Prof. N.J. Rao presenting on Desired Reforms to Improve Engineering Education in India, and Prof. R. Hariharan who serves as Adviser to the Approval Bureau AICTE, New Delhi.

The ICTIEE 2019 Conference will be held at Malla Reddy University in Hyderabad followed by Chitkara University in Chandigarh. The Annual Student Conference will be hosted by CMR College of Engineering and Technology in Hyderabad.
only participated in the workshops but carried out homework that involves practicing the new pedagogies in their classrooms. These include different approaches to active learning as well as effective assessment, teaching professional skills and problem solving, effective lecturing skills, student-centered learning, educational technology, and course assessment.

The first IIEECP program occurred in 2015, spearheaded by Dr. Veena Kumar, who continues to contribute to and monitor the program that has expanded significantly. The program has three phases. The Phase I workshops are given face-to-face in India. Institutions may host workshops for their faculty as well as those from other institutions. A trained instructor visits the institution and runs the workshop. The workshop is designed to model effective teaching, namely, it is interactive and involves team projects and assignments that can be used by the faculty who complete the three-day workshop. Faculty who complete the Phase I workshop may elect to proceed to the Phase II program which is run over the course of a semester via online modules. Webinars given by global experts on the topics begin each of the six two week modules. The topics expand the Phase I program and include written assignments that apply to the participants’ courses they are currently teaching. For example, in the assessment module, faculty update an exam they have used in a course, employing the information covered in the webinar and readings in the first week. In the second week of the module they update a rubric used in their course. They also participate in a discussion on a topic that is critical to success in the theme of the module. At the end of the Phase II program, the participants write a summary portfolio describing how they have utilized the material in their course and how it has impacted student learning. The portfolios are evaluated for depth of understanding and appropriateness of the applications. Only the portfolios that demonstrate the faculty have learned and applied the material from the Phase II program may participate in the Phase III program which is the valedictory workshop. At the Phase III program, held in India, participants present what they have learned and how they have modified their teaching to improve student learning. At that point they receive their certificate, which is endorsed by both IUCEE and IGIP.

Faculty who have been certified may elect to receive the title of “Ing Paed IGIP” by publishing a paper in the Journal of Engineering Education Transformations (JEET) or any journal dedicated to research in engineering education.

IIEECP Faculty

Dr. Veena Kumar, U of Maryland University College
Dr. Neeraj Buch, Michigan State University
Dr. S.D. Rajan, Arizona State University
Dr. Sohum Sohoni, Arizona State University
Dr. Rio D’Souza, St. Joseph College of Engineering
Dr. Claire Komives, San Jose State University
Dr. Anil Kulkarni, Pennsylvania State U
Mr. Tom Iwinski, Pennsylvania State U
Dr. Archana Mantri, Chitkara University
Dr. Prathiba Nagabhushan, Australian Catholic University

The IIEECP program enlightened me regarding how to make lectures more effective and interesting to the students. Since I started with new methods of teaching, such as flipped classroom, collaborative learning methods like JIGSAW, and think-pair-share, I observed more interest and involvement of the students into learning the different topics. They attended classes with more energy.

A. Rajani, Annamacharya Inst. of Tech. and Sciences

For more information about the certification program, visit the IUCEE website (http://iucee.org/iucee/iieecp/) where you will also find information about hosting a Phase I workshop at your institution, including the fee structure.
Silicon Valley Indian Engineering Education Forum

While in the US it is understood that industry professionals play a significant role in shaping engineering programs at universities, industry participation in Indian colleges is not yet part of the culture, especially for colleges that are in Tier 2 and Tier 3 cities. To this end, San Jose State University hosted the Forum in Silicon Valley where Indian engineers, many of them successful entrepreneurs, reside and work.

Over 75 professionals and academics attended. Three keynote presentations were given, including by Vice Chancellor Ashok Shettar, KLE Technical University – Hubballi, who described the process of evolving from an affiliated Tier 2 college to a deemed university. He described how they were able to incorporate entrepreneurship into their programs. Since they began this effort in 2008, over 40 companies have been incubated in Hubballi enabling over 550 jobs in their city. AG Karunakaran, CEO of MulticoreWare gave a keynote on entrepreneur-ship and Prof. Vivek Wadhwa spoke about exponential innovation.

Following the Breakout sessions on “contributing in India”, “entrepreneur-ship,” “emerging technologies,” and Executive Round-table: the skillset of the graduating engineer in India were held.

IUCEE hosted leadership teams at the Second Annual Leadership Summit in Goa this summer, following upon the success of the 2017 Summit. This year 110 leaders participated, showing a significant growth from the previous year. This year, the goal was Transformations through Collaboration and Clusters of Excellence to foster synergy between institutes improvements that could help both the faculty and students. These same themes will be the tracks at the upcoming ICTIEE 2019 in Hyderabad and Chandigarh.

At the summit, presentations were given by 18 Global Experts in engineering education. The themes related to the Cluster topics. Many of the experts have won awards for their contributions to Engineering Education research. These experts included

- Sohum Sohoni, Arizona State University
- Bill Oakes, Purdue University, US (EPICS)
- Lyle Feisel, former Dean, SUNY, US (Ethics)
- Cynthia Altman, U of Washington, US (Design)
- Matthew Ohland, Purdue University, US (Teamwork)
- Scott Roberts, U of Maryland, US (CTL)
- Jim L. Borgford-Parnell, U of Washington, US (CTL)
- Janusz Kozinski, NMITE, UK (Institutional Transformation)
- Michael Milligan, CEO, ABET, US (OBE)
- Hans J. Hoyer, IFEES, GEDC, US (Global perspective)
- Claire Komives, San Jose State University, US (Embedded research)
- P. Mohsen, U of Louisville, US (Peer Evaluation)
- Duane Abata, SD School of Mines and Tech

- Jennifer Carpenter, Campbell University (Academic Leadership)
- Yakob Astatke, Morgan State University, US (Modern Technology Tools)

In addition to academic experts, several industry practitioners were included in the program to share first-hand experiences with engineering practice in industry. Entrepreneurship was a significant theme in their presentations. They came from across the globe, from Silicon Valley to India. These included the following:

- V Kovaichelvan, TVS
- Sarita Nagpal, CII (Clusters)
- Vineeth Vijayaraghavan, IEEE
- Xavier Fouger, Dassault Systemes
- AG Karunakaran, CEO, Multicore Systems
- Sandeep Shroff, CEO, MyStartupCFO
J. Engineering Ed. Transformation: 2018 Significant Milestones

The Journal for Engineering Education Transformations (JEET) was initiated in 2014 by Prof. Krishna Vedula, in collaboration with one of the IUCEE Consortium Colleges, Rajarambapu Institute of Technology (RIT). This year 146 articles were published in five issues.

Through the hard work of the Rajarambapu Institute of Technology and the entire JEET team, in particular Dr. Sohumi Sohoni of Arizona State University who has taken over the mantle of co-chief editor, three important milestones can be reported for 2018. First, JEET has been approved by SCOPUS for indexing, after a thorough review that lasted more than a year. Second, JEET has also been selected for indexing by Elsevier. Third, the journal has moved up in the Google Scholar Metrics listing for Engineering Education outlets from #19 in 2017 to #14 in 2018. JEET now can maintain a portfolio of articles that are useful to researchers and engineering educators.

Now with JEET’s growing visibility, the number of articles directly submitted to the journal has gone up tremendously from an average of about 2 per month to more than 20 per month in recent months. To address the scale while still maintaining quality, we have added new associate editors and are actively recruiting and training reviewers for the journal. As a peer-reviewed archival journal, JEET serves to document the maturing of the conversation around engineering education in India. This journal is a vehicle for sharing best practices in engineering education by Indian and global engineering educators. JEET solicits scholarly publications relevant to transformations in engineering education. The transformations may be at the institutional level, an individual course level, or at the level of the entire engineering education ecosystem, regionally, nationally or globally. Through its focus on the application of research, in terms of transformation, JEET aims to bridge the gap between research in education, and its application in the engineering education ecosystem. It also publishes selected papers presented at the Annual ICTIEE Conferences. Dr. Hemlata Gaikwad is currently the Journal Manager and new publications are continuously being accepted.

For more information, see the JEET website: [http://www.journaleet.org](http://www.journaleet.org) or contact Dr. Hemlata Gaikwad if you would like to submit a paper or Dr. Sohuni (sohumi.sohoni@asu.edu), if you are willing to serve as a reviewer.

Industry Practitioners Support IUCEE Programs

Employability of engineering graduates is one of the primary concerns of both the industries seeking fresh talent as well as colleges who aim to enable student success. To this end, IUCEE has begun a network of Global Industrial Advisory Forum (GIAF) who are working together to catalyze the interaction between engineering colleges and industry.

Historically, engineering colleges have been disinclined from seeking industry input or have been unable to identify practical ways for industry to participate with their programs and students due to distances or other obstacles. With Make in India on the horizon, it is clear that more and more engineering graduates will be needed to serve the needs of corporations that are increasing their product output.

The Mission of the GIAF is to collaborate with IUCEE to raise employability of engineering students through enhanced engagement between Industry and Engineering Academia. The primary academic institutions of interest to the GIAF are the IUCEE Consortium Members and especially the Gurukuls, a small set of the Consortium members that have committed to enabling excellence through the assistance of IUCEE.

The GIAF team are able to assist colleges in a number of ways. Giving presentations of new technologies, evaluation and mentoring of senior design project teams, mentoring of faculty, serving on M. Tech and Ph.D. reading committees are just a few. Colleges that have graduates successfully employed in industries are encouraged to recommend their employed graduates to become members of GIAF. They are particularly eager to assist with the evaluation of EPICS projects.

Interacting with the accreditation bodies in India is a high priority for the GIAF team. There needs to be a collective effort to increase the employability of the engineering graduates and this will require meeting with the AICTE and other accreditation organizations.

Members of the GIAF have also been participating at the ICTIEE conference. The messages from industry can assist faculty with incorporating such themes as entrepreneurship in their courses and programs. Other topics such as technology transfer, business plan development and the like are ideally given by folks who have direct expertise in these areas.

New members of this group joined in 2018 after the Silicon Valley event. Some of them participated at the Leadership Summit in Goa.

Consortium Membership to IUCEE

The primary objective of inviting institutions to become members of the IUCEE Consortium is to assist them in improving the quality of their engineering graduates. IUCEE works with the institutional leadership and faculty to understand the strategic plan of the institution and facilitate the transformation of the process of engineering education at the institution. For this purpose, IUCEE provides access to the ecosystem nurtured over the past ten years. Annual membership fees are essential for the sustainability of IUCEE and its ability to maintain this ecosystem.

Colleges that become members get access to over 200 global experts for advise on strategic planning, outcomes based education, hosting international conferences, improving academic curriculum and infrastructure, setting up centers of excellence and formation of advisory boards. Consortium colleges are given preferred access to short workshops, courses and webinars as well as discounted fees for IUCEE events. IUCEE also offers assistance with setting up collaborations with US colleges. In 2018, 125 Indian Institutions participated in IUCEE as Consortium Members.

You can find more information regarding Consortium membership on the IUCEE website: [http://iucee.org/iusce](http://iucee.org/iusce).
The tremendous impact of IUCEE in India happens thanks to the time commitment of numerous volunteers. IUCEE operates as a non-profit organization based at the University of Massachusetts. Table 1 shows the income of IUCEE in 2018.

### Table 1. IUCEE Income 2018

<table>
<thead>
<tr>
<th>Membership Fees</th>
<th>$52,000</th>
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<tbody>
<tr>
<td>Consortium Members</td>
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<tr>
<td>Program income</td>
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<tr>
<td>EPICS Partnership</td>
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<td>IIEECP Certification Fees</td>
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<td>IUCEE Course Fees</td>
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<td>ICTIEE Delegate Fees</td>
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<td>Leadership Summit Fees</td>
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<td>APSSDC Program Income</td>
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<td>Corporate sponsorships (ICTIEE)</td>
<td>$61,000</td>
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<tr>
<td>Total Program Income</td>
<td>$493,810</td>
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</tbody>
</table>

**Total Income** $545,810

The stable source of income for IUCEE has been colleges in India that pay $1000 per year to be Consortium Members. In 2018, the AP State Skills Development Corporation invested $270,000 in IUCEE programs to support 75 Consortium memberships, registration fees for the IIEECP course for over 100 faculty, ten institutions to participate as EPICS partners, and support to host the APICTIEE conference in July at Amaravati.

This year 16 colleges paid to be EPICS partners, additional faculty from around India attended Phase I-III of the IIEECP program and there were additional courses offered for India and the Leadership Summit in July. Finally, several companies and Engineering institutions paid sponsorship fees to participate in the annual conferences held in January and July. The total income for 2018 is shown in Table I. The income for 2018 is more than double the income from 2017, particularly due to the APSSDC participation in IUCEE programs.

Table 2 shows the 2018 expenses of IUCEE. The cost of operations includes two full time employee salaries in India for management of program logistics and for IT requirements for webinars, IIEECP courses and other computer needs. Consultants were hired in 2017 to assist the Executive Director with organization and implementation of expanding initiatives. The total cost of operations is $59,600.

The IUCEE programs, including the IIEECP certification program, EPICS partnerships, ICTIEE annual conference, annual leadership summit, student conference and workshops and Virtual Academy all have costs associated with them. Costs included venue rental, catering, travel of international experts and domestic travel. The assistance of the corporate sponsors is greatly appreciated for defraying the costs of the annual conference. There are costs associated with the publication of JEET, including printing and distribution costs. Finally, on-line tools are required for running the programs, namely GoToMeeting annual fee and Dropbox.

Because IUCEE seeks to expand its impact to as many colleges and universities in India as possible, money is invested annually in marketing the programs offered. The costs include domestic and international travel of the ED and Indian IUCEE employees. IUCEE pays an annual membership fee to IFEES to secure access to a network of experts. Attendance at conferences by consultants and IUCEE employees to host booths and network to broaden the base of IUCEE influence are also supported.

### Table 2. IUCEE Expenses 2018

#### IUCEE Operations

<table>
<thead>
<tr>
<th>Salaries</th>
<th>$39,600</th>
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<tbody>
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<td>Consultants</td>
<td>$30,000</td>
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<tr>
<td>Administration, acct. svcs.</td>
<td>$30,000</td>
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<tr>
<td><strong>Total Operation Expenses</strong></td>
<td><strong>$99,600</strong></td>
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</tbody>
</table>

#### Program expenses

| IIEECP Certification costs            | $86,000 |
| Honoraria for instructors             | $25,000 |
| Leadership Summit                     | $15,000 |
| EPICS related expenses                | $77,000 |
| Student conference costs              | $8,000  |
| ICTIEE travel expenses                | $114,000|
| JEET publication expenses             | $7,500  |
| GoToMeeting; Dropbox                  | $1,600  |
| **Total Program Expenses**            | **$334,100** |

#### Marketing/Development

| Travel to ASEE, GEDC, NI week          | $25,000 |
| Staff travel in India                  | $22,000 |
| Membership fees IFEES                  | $1,000  |
| Website fees                           | $5,000  |
| **Total Marketing/Development expenses**| **$53,000** |

#### Awards

| Annual awards at ICTIEE                | $3,000  |
| **Total Expenses**                     | **$489,700** |

For the second year, IUCEE presented awards at the annual conference. Winners received money in the form of cash, a plaque and their expenses to the conference were also covered. Support for these awards will be sought in the future directly from corporations.

IUCEE programs are having a significant impact across India and additional funds would enable scale-up of programs and new initiatives. It is clear that IUCEE merits support from additional corporate sponsors who ultimately will benefit from high quality graduates from engineering colleges across India.
Special Thanks to our 2018 Sponsors!

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