Quarterly Newsletter

IEI Alumni Association

Issue III

4th Quarter 2017

IEIAA Chairman's Message

Dear Alumni,

I am glad to see the third edition of the Newsletter and happy to see that it coincides with the North Zone Meet. I congratulate the Editorial team for their efforts. It is also nice to see articles of relevance getting published and it is great to see the reception and the calls I get talking of the quality of articles.

Some complaints remain. One of the main issues readers have is that we are not devoting enough space for the reporting of Alumni related Awards, Achievements and Functions around the globe. It is my belief that the purpose of Newsletter is to serve the Alumni Community and it make abundant sense to get this done. Towards this I am opening a new mail ID newsletterinfo@ ieialumni.org to which readers can write. This forum is for users to use to report information regarding happenings, and achievements and also to send Letters to the Editor.

I request the Alumni Community to use this extensively to help the Newsletter become even better.

Dr. Ranga Reddy Enti
Chairman

Message from the editor

Dear Alumni,

In your hands is the third edition of the Newsletter. I am pleased with the articles we have covering the interest areas of the Alumni Community. Composites have already proven their worth as weight-saving materials, the current challenge is to make them cost effective. The efforts to produce economically attractive composite components have resulted in several innovative manufacturing techniques currently being used in the composites industry. Alumni have many advantages of being associated with the Association. The Article by Dr Gopalakrishnan is relevant as it give the real advantages of the Association and will act as a benchmark for work done and work to be done. We hope the User Community will find the article useful.

In Future, we plan to have one full page devoted to Happenings and also publish a Letters to Editor Column. This is how we can get feedback from you and without it our efforts will be in vain. I request members to use the new mail id Newsletterinfo@ieialumni.org to give us feedback and information on regular basis.

It is a great time to be an Engineer in the World. The transformations happening around us would make the world even as we knew about 10 years ago seem "Old Times". We plan to have a series called the "Changing Technologies", a series of articles on the Technologies that are changing the World. I request and Encourage our members to come forward with articles about the subject, so that our community can be richer with your sharing of knowledge.

S.A. Sathyamurthy
Editor

Alumni News

IEI Delhi State Centre in association with IEI Alumni Association is hosting a North zone Alumni Meet on Sept 3, 2017 in the New Delhi Local Centre premises.

On 26th August, 2017, the Alumni Association had its Second Annual General Body Meeting. Many Alumni related issues were discussed during the meeting. Look in our Website for Details.

Er Devendra Gill received the Safety Systems Excellence Award from FICCI. This is a significant honour for a member of our association.

Dr R Venkatesan was chosen by the Marine Technology Society (MTS), USA, to receive the prestigious 2017 Lockheed Martin Award for Ocean Science and Engineering. The award is presented for the highest degree of technical accomplishment in marine science, Engineering or technology. He is reportedly the first Indian to be honoured by this organisation that was established in 1963.

We join Hands to congratulate the Award Winners and give a round of applause with our Alumni Community to both of them.

Need for Composite Centers for Excellences in India

I. COMPOSITES INDUSTRY IN INDIA

The very first use of fibre reinforced plastics (FRP) started in 1962 in India for manufacturing roofing sheets by Praga Industries, Coimbatore. During the year 1964, Chemical Process Equipments Pvt. Ltd. Mumbai started fabricating composite tanks for chemical industries. Production of polyester resins was first started by Bakelite Hylem Ltd., Hyderabad in 1973. Availability of these essential raw materials triggered setting up of several small-scale units in India for making composite products using hand lay-up process. During last three decades, more than 1200 small-scale industries have been established in the country. More than 98% of them use hand lay-up technique for composite fabrication. Improvements in volume growth only started in early 2000 as a result of the globalisation of the Indian economy. Indian composites market has been growing rapidly with newer products manufactured with the gradual induction of modern technology. The analysis of India's composite market reveals that although many small fabricators are using hand lay-up methods for manufacturing composite products, the use of computer controlled advanced fabrication equipment such as filament winding system, pultrusion, Resin Transfer Moulding (RTM), Vacuum Assisted Resin Transfer Moulding (VARTM), and other equipments is growing rapidly.

There is a huge potential for use of composites in Indian automobile industry, especially in catering to the transportation needs of growing middle class population. There is a good market for bumpers, hoods, cabs, frames, leaf springs, and cargo containers that could be used as part of these locally built vehicles. The business opportunities for Indian composites industry also include air intake manifold, composite fishing trawlers, refrigerated freight containers, pressure vessel for gas, motor driven carts, concrete pillar jacketing, components for electrical industry (glass fibre composites only), theme park rides casings, storage light houses, thermoformed components for automotive applications, walkways & piles for building foundation, RCC casting shutters, etc.

Figure.1. shows the current distribution of composites among various industries in India. Building, automotive and infrastructure take up the major share whereas pipes, and electrical appliances also have a strong presence. Wind energy and marine areas are opening up opportunities, but may need government support to prosper.

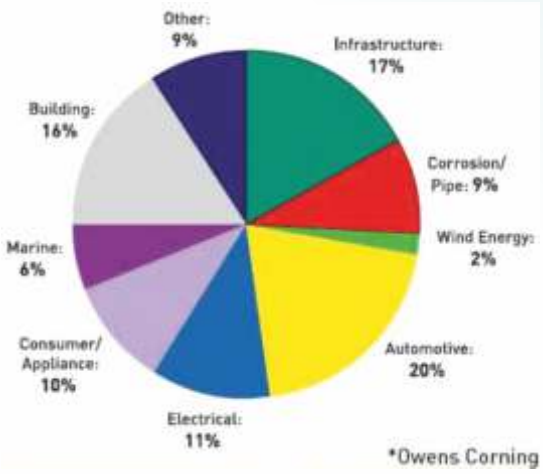

Fig.1: Current distribution of Composites in India (Courtesy: JEC Composites)

The Indian composites industry, which is a global enterprise with fragmented markets, finds itself passing through a period of transformation. Profit margins have been shrinking and the recent Eurozone recession has worsened the problems. Growth in the Indian composites industry has been driven by an increased penetration of composite materials in pipes and tanks, renewable energy, railways, industrial, aerospace/defence, entertainment, sporting goods, oil & gas and chemical Industry. The market has been growing rapidly driven by the shift of North America and European manufacturing bases to China and India as well as an increased demand for “Made in India” composites from the developing countries. There is also a wide variety of other applications, unique to the Indian market, where composites have excellent demand, for example, Compressed Natural Gas (CNG) tanks, Sheet Moulding Compound (SMC) and Bulk Moulding Compound (BMC), dairy, agriculture, pharmaceuticals and Liquified Petroleum Gas (LPG) cylinders.

The future of the Indian composites industry looks very prosperous through 2014 and beyond. Demand for composite materials in India is expected to grow to $1400 Million in 2014 at a Compound Annual Growth Rate (CAGR) of 17.4% as shown in Figure 2. End user segment growth contributes greatly to this increase. More interestingly, however, the role of growth from metals replacement and new applications, which have been on the verge of possibility for a very long time, is increasing. India

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offers many opportunities in the composites industry for new entrants as well as existing and expanding companies. This is the ideal time for industrialists to take part in the rapid and systematic growth that is expected in the Indian composites industry in the next few years.

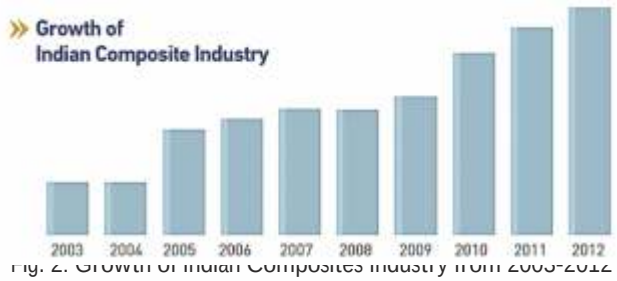

Fig. 2: Growth of Indian Composites Industry from 2003-2012
(Courtesy: India Composites Show-2013)

The per capita composites consumption has increased from 0.1 Kg to 0.2 Kg between 2005 and 2011. However, pipes & tanks, transportation, and wind energy sector represent the highest growth rate while there is some traction towards construction, Electrical and Electronics (E&E), and aerospace/defence. Unsaturated Polyester Resins (UPR) is the most dominant resin used in the Indian composites industry, capturing 83% share of total resins used in composites, followed by vinyl-ester and epoxy.

There is a definite need for interaction between Indian and global composite community, for the benefit of both. Whilst the industries in the advanced countries can promote their raw materials, process know-how, process machinery and technology, the Indian industry will benefit by improving its technology, production processes and products. The Indian industry has opened many windows for international players to market in the country via channel partners and distributors.

Continuing to be a fast growing economy, India offers opportunities for international trade and investments in the composite sector. Composites have made an entry into diverse end-user segments, with ongoing developmental efforts for finding newer composites for existing & novel applications. This growth is much evident, owing to the increasing demand of composite products, majorly from aerospace, automobile, defence, railway, mass transportation, renewable & wind energy, chemical and infrastructure.

II. NEWER MARKETS FOR COMPOSITES IN INDIA

There are three main sectors that are growing in India: marine with +25% expected growth, wind energy with +28%, railways with 20% per year, while the automotive and aerospace industry is not far behind. The use of composites in aerospace and defence sectors have shown rapid technological developments. Extensive use of composites in applications such as rockets, satellites, missiles, light combat aircraft, advanced light helicopter and trainer air craft reinstates that India is at almost on par with the advanced countries in the development and use of composites in this area.

The building and construction sector could do more to make optimum use of composite materials. Composed of environment friendly resins and reinforcements (bio-composites) are very efficient for applications that do not require high resistance. In construction, they can be used in building interiors and decoration. Applications of composites also include the rehabilitation of infrastructures such as bridges, cabling under constraints, old or historical buildings, etc. An emerging interest is the development of a new texture and touch to construction materials. This is a new field being increasingly explored by architects and designers.

The Indian composites industry has grown significantly in the last two decades to cater to the requirements from the various sectors. The Indian composites market, currently at about Rs. 16,000 Crores, has been on an upswing over the last five years with a growth of 15.6%, spurred by a strong demand in pipes & tanks, renewable energy (wind & solar energy), mass transit, automotive, trucks, and power sector.

India's consumption of composites, which is expected to grow by 1.5 times from 2012 to 2017, undoubtedly presents a host of new opportunities as well as challenges to the supply chain. In India, composites consumption per capita is very low as compared to other leading countries like China, US, and the European Union, but demand upsides could take this higher.

There is a great scope in the global export market, where India can cater to untapped opportunities abroad. This will boost India's composites foothold by 2017. India has

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potential to become one of the leading exporting countries to the Middle East and North Africa (MENA) countries, SouthEast Asia (SEA), and South Asia. However, it needs to improve its current industrial hierarchy and set a concrete vision. The amount of money spent on research & development, and Intellectual Property Rights (IPR) portfolio in composites is negligible and government should consider resources for the composites industry as well as start pure applied courses in composites science and technology. Currently, there are no/very limited courses with regard to composites science and technology in India, which needs to be addressed at a quicker rate. The proposed composites market in the Indian scenario is presented in Figure 3.

III. BRIDGING THE GAP BETWEEN ACADEMIA AND INDUSTRY

Over the past 60 years, the composites industry has progressed and advanced beyond science fiction to become a reality in a wide range of applications, processes, manufacturing processes, design, analysis and testing methods. The composites industries has a good handle on most of the aforementioned elements, and is now concentrating on sustaining the research impetus on new materials, and develop well documented procedures, manuals and guidelines towards product development.

While there has been tremendous progress towards the end goal of making the performance of composite

Fig. 3: Indian Composite Market Future Opportunities (Courtesy: India Composites Show)

structures repeatable, reliable and affordable, there still exists a fair gap between the industry and academia in India, which needs to be bridged. The theoretical aspects of composites are well defined, and are being imparted to the students through a structured course-work. However, the hands-on experience still eludes the young engineer in varying degrees. In the authors' opinion, this has been the result of a general mind-set in the academia that composite materials are difficult to work with and expensive.

The academia needs to realize that there is a wide range of research opportunities in composites, across a wide range of industries such as aerospace, marine, automotive, construction, interior decoration, machineries, etc. in the field of new product development as well as repairs of existing composites. In order to bring the academia closer to the industry, this paper proposes a three step approach of building a composites laboratory, with the end goal of enabling engineers to think, design, build, break, understand, and work with composite materials. The three stages involve the building of a basic, intermediate, and an advanced composites laboratory. Along the journey, the engineer will also grasp the importance of adherence to processes, and be able appreciate and relate the concepts taught in class to his hands-on experience, thereby making him/her ready for the industry. The approach presented in this section is not limited to composites, but can in fact be applied to any other field as well, such as embedded electronics, robotics, fuel cells, etc.

IV. OVERVIEW OF COMPOSITES CENTER OF EXCELLENCE

enti INNOVATIONS's Composite Center of Excellence is founded on the credo "You Dream it, We build it." The purpose of this proposal is to bring composite technology to the portals of your academic institution, transfer technology, establish a C^2oE in your premises and render all assistance for a period of 1 year to successfully operate it. The C^2oE as visualized by enti INNOVATIONS and customized to suit your needs with contributions from the four departments of this center.

It is very important to note that the principal focus of this program is to impart training to lab assistants, demonstrators, assistant lecturers etc., so that later on they can transfer the practical skills and basic theory acquired by them to the students or even to other trainers.

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The scope of the undertaking will depend on the customers' requirements such as budgets, time schedules, existing facilities and key result areas.

Enti has however structured the C^2oE at three levels called Basic Module, Intermediate Module and Advanced Module so that the project progresses in affordable and manageable stages.

The C^2oE 's focus will of course differ in the case of industries whose goal will be to commercialize the technology from that of academic institutions whose thrust will be to impart quality education with practical orientation to the students passing out and entering the industry with approved credentials.

"Composites- Center of Excellence" (C^2oE) is a unique offering from enti INNOVATIONS to establish a an academic cum industrial unit in the field of advanced composites.enti INNOVATIONS brings together the class room and laboratory facility, knowledge engineering, hands on training to enable the Institutions to turn out qualified technicians and engineers in this emerging of technology and at the same time create industrial facilities to undertake limited production.

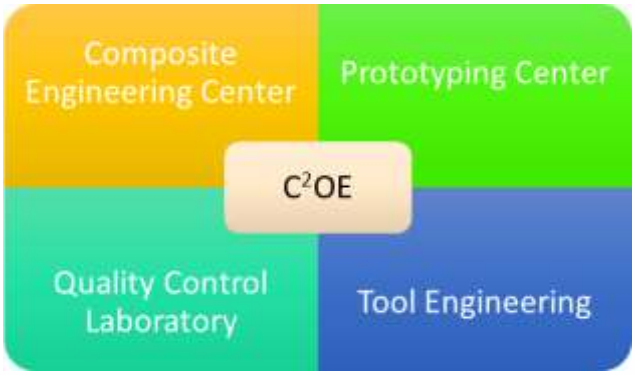
The curriculum is designed to ensure that the participants to derive maximum value through not only class room lectures but also live shop experience.

enti INNOVATIONS has developed a comprehensive Project Management Plan to support the client in the establishment of the Composites-Centre of Excellence to ensure the objectives of establishing the Centre of Excellence are within the specified time and cost. enti INNOVATIONS's "Composite Center of Excellence (C^2oE)" is promoted by industry leaders steeped in the manufacturing technologies and allied engineering field.

This programme is meant for graduate and post – graduate level in engineering colleges and Technological Universities; and professionals working in the field of engineering broadening their knowledge and competence. It would get the Institutions branding, technical competency and better value for their students, and also help the institutions showcase the facility and participate in major research programs. The C^2oE would also provide a career path to the faculty in the area of composites.

The center would have facilities for training and workshop facilities. Solutions to problems faced by the students would be answered by our enti experts. The knowledge management of the research and projects that come out of the center would be supported by our enti team.

The above The students and faculty who have participated in C^2oEbecome life time members of the enti INNOVATIONS COMPOSITES COMMUNITY. Membership of the community enables and students and faculty to keep abreast of the latest technological breakthroughs in the areas of manufacturing of composites, post queries and seek solutions to challenges by practitioners and also receive job postings and alerts on the current research programs.



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Advantages for AMIE Alumni with His/Her Association

Major Steps Taken by AMIE Alumni Association:

a) Introduction of "One Day-One Exam" for Section "A" of AMIE Examinations for the Benefits of AMIE Aspirants.

b) Introduction of Graduation Certificate to AMIE Graduates which is very useful in getting Admission to PG Programmes/Visa Stamping for Overseas employment/Higher Studies

c) Introduction of Convocation (Graduation Ceremony) to AMIE Graduates

d) Introduction of Classification of Results like First Class, Distinction etc for current Batches and also for the Old Batches (Many Director Positions at DRDO / DRDL / ISRO / CSIR / PSU needs "First Class" to get the promotion etc.

e) Up gradation of AMIE Syllabus Periodically and in the process of Introducing Industry Relevant Contemporary Electives in Section "B".

f) Introduction of Course Materials for AMIE Section "A & B".

g) Providing Opportunities for Acquiring Higher Qualifications (ME/MTech/MBA/PhD etc)

h) Protecting the Interest/Qualification of AMIE equivalent to BE/BTech in the background of AICTE/MHRD Circulars on Challenging validity of AMIE Equivalence and to avoid the de-recognition of AMIE eligibility for Government/UPSC/PSU Jobs etc, has published "Compendium of AMIE Recognition Letters" issued by Government/PSUs/Overseas Universities as Equivalent to BE/BTech both for Employment and Higher Studies in the last 96+ Years.

i) To protect the AMIE Equivalence Status to BE/BTech, Alumni Association is in the process of networking with Majority of Indian Universities to get the Permanent Solution to this crisis under Choice Based Credit System (CBCS) and Transfer of Credits, will get BE/BTech degrees. Also will do the needful for the interested Candidates to Qualify for ME/MTech/PhD (Integrated) Programmes while they are in services etc. it is also working on Establishing IEI University to ensure the Vertical Mobility of AMIE Graduates.

j) IEI Corporate Members (AMIE/MIE/FIE) in-service/retired with good amount of industry experience/rich domain knowledge can play in the affairs of proposed IEI University:

The Council Members can contribute immensely to the successful functioning of IEI University in the following specific roles while they are in active service or even after their retirement based on their interest / qualification / competency / convenience:

i. Advisors/Governance and Management of IEI University Affairs

ii. Emeritus Professors

iii. Administrators (Honorary/Part-Time/full-Time)

iv. Faculty with Rich Experience/Resource from Industry/Academics: Professors/Asst. Professors

v. Project Guides/research Supervisors

vi. Providing Opportunity for Internships to our Students at their Industry/Place of Employment

vii. Mentors

viii. Visiting Faculty/Trainers

ix. Support Collaborative Research/Sponsored Research/Projects etc

x. Support Knowledge Conferences/Seminar/Symposium/Colloquium/Workshops etc

1. What is Choice Based Credit System (CBCS)?

a) Choice based credit system (CBCS), or a cafeteria like system is the solution for this type of transformation from the traditional teacher oriented education to a student-centered education. Taking responsibility for their own education in this way, students can benefit the most from all the available resources. Academic commissions and committees such as UGC, TANSCHE and NAAC recommend CBCS for higher education.

b) It is followed in top world universities and also IITs, IISc. CBCS has several unique features. They are enhanced learning opportunities, ability to match students' scholastic needs and aspirations, inter-institution transferability of students (following completion of a

Dr. K. Gopalakrishnan
Chairman, R&D Committee, IEI

semester), and part-completion of an academic programme in institution of enrolment and part-completion in a specialized (and recognized) institution or even earn the credits from Industry related trainings and short term courses offered at multiple locations/industries to fulfill the requirement of total credits to be earned by candidate to be eligible to get the award of degree.

c) It also leads to improvement in educational quality and excellence, flexibility for working students to complete the programme over an extended period of time, standardization and comparability of educational programmes across the country.

2. What are the advantages of introducing CBCS in AMIE?

a) The IEI University will be granting Degree Certificate by having proper "Credit Transfer" based on the Pass/Graduation Certificate/Marks Card of AMIE Examinations issued by IEI.

b) The IEI University will help AMIE passed candidates by granting Degree Certificate by having proper "Credit Transfer" based on the Pass/Graduation Certificate/Marks Card of AMIE Examinations issued by IEI.

c) The proposed "Credit Transfer" at IEI University will facilitate and provide an unique opportunity for those candidates of our AMIE who could not able complete one or two or few more papers/subjects within the prescribed maximum period of study and otherwise they will not get any other opportunity to continue their academic pursuit in the engineering programme (equivalent to BE/B.Tech). They can realize their dream through IEI University.

3. How AMIE dropped out candidates who are unable complete their study due to the lapse of prescribed maximum period will get benefit from IEI University?

The proposed "Credit Transfer" at IEI University will facilitate and provide an unique opportunity for those candidates of our AMIE who could not able complete one or two or few more papers/subjects within the prescribed maximum period of study and otherwise they will not get any other opportunity to continue their academic pursuit in the engineering programme (equivalent to BE/B.Tech). They can realize their dream through IEI University.

4. How AMIE passed out candidates will get benefit from proposed IEI University?

The IEI University will help AMIE passed candidates by granting Degree Certificate by having proper "Credit Transfer" based on the Pass/Graduation Certificate/Marks Card of AMIE Examinations issued by IEI.

5. How transfer of credits will be done at proposed IEI University or at any other University?

a) Academic commissions and committees such as UGC, TANSCHE and NAAC recommend CBCS for higher education.

b) It is followed in top world universities and also IITs, IISc. CBCS has several unique features. They are enhanced learning opportunities, ability to match students' scholastic needs and aspirations, inter-institution transferability of students (following completion of a semester), and part-completion of an academic programme in institution of enrolment and part-completion in a specialized (and recognized) institution or even earn the credits from Industry related trainings and short term courses offered at multiple locations/industries to fulfill the requirement of total credits to be earned by candidate to be eligible to get the award of degree.

c) It also leads to improvement in educational quality and excellence, flexibility for working students to complete the programme over an extended period of time, standardization and comparability of educational programmes across the country.

d) To develop a structured programme for CBCS that would

- Enable students to have a flexible learning within a structured model
- Enable students to have wider choices outside their discipline of their study

The IEI University will help AMIE passed candidates by granting Degree Certificate by having proper "Credit Transfer" based on the Pass/Graduation Certificate/Marks Card of AMIE Examinations issued by IEI.

- Enable students to have an exposure to real life experience by participation in internships as well as vocational training
- Enable students to have facility of Credit transfer across the country

8. What are the specific roles IEI Corporate members (FIE/MIE/AMIE) in-service/retired with good amount of industry experience / rich domain knowledge can play in the affairs of proposed IEI University?

The Council Members can contribute immensely to the successful functioning of IEI University in the following specific roles while they are in active service or even after their retirement based on their interest / qualification / competency / convenience:

a) Advisors/Governance and Management of IEI University Affairs

b) Emeritus Professors

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e) Project Guides/research Supervisors

f) Providing Opportunity for Internships to our Students at their Industry/Place of Employment

g) Mentors

h) Visiting Faculty/Trainers

i) Support Collaborative Research/Sponsored Research/Projects etc

j) Support Knowledge Conferences / Seminar / Symposium / Colloquium/Workshops etc

Need of the Hour:

Either Institution of Engineers (India) or AMIE Alumni Association can establish the proposed "IEI University" to safe guard the interest and privileges of AMIE (Equivalent to BE/BTech) Graduation Certificate in a time bound manner. Eminent Alumnus of Institution of Engineers (India) can raise to the occasion can together establish such "IEI University" and save the reputation permanently from any more future attacks/uncertainties about recognitions of AMIE etc.

Note:

The above views are expressed by the author himself based on his experiences in higher education and with IEI.

Report on the West Zone Alumni Meet 2017

IEI Alumni Association, with IE(I) Gujarat State Centre organised the IEI Alumni Meet for West Zone in the august Bhaikaka Bhavan premises of Ahmedabad State Centre on 11th June 2017. This was organised based on the vision of the President IE(I) Er. Navin B. Vasoya, whose direction helped generate great enthusiasm in the Alumni Community. The program was attended by a large number of Alumni from across five states of West India (Gujarat, Maharashtra, Chhattisgarh, Goa, Madhya Pradesh), and included many successful entrepreneurs, eminent bureaucrats, educationists, and many distinguished personalities.

The inaugural session started with lighting the lamp and invocation. The Secretary Gujarat State Centre Er. Kalyani Hiro Udhavdas welcomed the guests and participants and lauded the efforts of Organisers and the large number of Alumni who were present. While Er Sandeep B Vasava, Chairman, Gujarat State Centre, was unable to attend the function due to his other commitments, he sent his regards and best wishes for the function, which was conveyed by the Secretary to the August gathering.

If undelivered please return to:

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