From Chairman...

My advance Ayudha Pooja Greetings to all of you.

At the outset, I am happy to announce that we have made significant progress in taking the Quality For Industry 4.0 Message across India and we have been able to touch more than 7000 hearts so far. I would like to place on record that our Mr. C. V. Gowri Sankar, Secretary Chennai Branch is single handedly driving this initiative very well with all your support. Our message is sinking in people's hearts and many industry bodies are now following our foot steps in spreading this message. I am hopeful of reaching the mission target we set for ourselves in this aspect. We can still do much more than what we are already doing and we have plans for that. Request all your support for that.

On the digitization front, there is considerable progress. We are targeting to enroll our first online NIQR member in the first week of Sep 2017. This will be the greatest milestone in NIQR History and very soon NIQR will lead similar organizations in digitization aspect.

We are able to offer considerable value to all our members through our evening lectures. Our evening lectures are becoming more and more enriched with contemporary subjects and many participants are reaping the benefits.

Request all your ideas and support.
Together We Can....
K. Manikandan

From Secretary...

Mission 20K of Industry 4.0 is on fast track; we have conducted a series of programs in the last two months. The silver jubilee program was a grand double bonanza with two sessions on the same day in RMK Engineering College. The enthusiasm shown by the students and staff of all the institutions in learning new concepts and skills was of high level with follow up from some of the students showing keenness in knowing which skills to acquire for career prospects.
These programs received good coverage from the press also.

The next big event, National Conference on Industry 4.0 with Dr. M. G. R. Educational & Research Institute University is scheduled for October 2017. The 11th Students Chapter of the Chennai Branch of NIQR will be inaugurated at Manakula Vinayagar Institute of Technology in Pondicherry in September 2017. NIQR Chennai Branch is now organising two lecture programs every month with the active support and participation of members. We have organised programs on 'GST', 'ZED' and 'Cloud Computing'. A new series about Standards Organizations That Affect You is beginning from this issue. It is written by Mr. S. Kumar, Joint Secretary, NIQR Chennai Branch.

NIQR - Chennai Branch extends to all its Dassara Greetings.
C V Gowri Sankar

NIQR welcomes the new members who joined during July August 2017

Individual Life Members

Mr. A. Kathiresan Divl. Mgr. Ashok Leyland Ltd., Ennore

Dr. T. Kalaiselvan Addl. Director, Centre for University Industry Collaboration, Anna University

Mr. V. Kumar. Sr. Mgr. Brakes India Pvt. Ltd.,

Mr. S. B. Borwankar ED - Quality, Tata Motors, Pune

and 180 Individual Annual Members

Chennai Branch Activities

Monthly Evening Lecture Programs

June 2017

On 30th June 2017, Mr. P. M. Karthick, Big Data Analyst, CTS delivered a lecture on "Data Engineering" at NIQR Conference Hall. Mr. C. V. Gowri Sankar welcomed the record gathering and introduced the speaker.

Kim Eric Drexler, American Molecular Nanotechnology Engineer: the essence of science is inquiry and the essence of engineering is design.

Quoting the above, Mr. Karthick analysed the flow of information in scientific inquiry & engineering design. Data science is the study of where information comes from, what it represents and how it can be turned into a valuable resource in the creation of business and IT strategies.

He explained the evolution of the term big data as below.

1) **Matrices & Linear Algebra Fundamentals**
2) **Statistics**
3) **Programming**
4) **Machine Learning**
5) **Text Mining/Natural language processing**
6) **Visualization**
7) **Big Data**
8) **Data Ingestion**
9) **Data Munging/Wrangling**
10) **Tool Box**

The speaker then explained the requirements of data science; due to its interdisciplinary nature, it requires an intersection of abilities – math and statistics knowledge, hacking skills and substantive expertise in a field of science. He gave an idea of the most-in-demand skill sets of data scientist; SQL, Hadoop, Python, R etc. He also listed the ever-changing tools and training needs in the last ten years and the scope of a data scientist in different market segments across India. Mr. A. Pradeep, NIQR Chennai Branch ECM, summed up the proceedings and praised the speaker for having taken pains to make the highly complex subject very simple to grasp in one hour. Mr. K. Manikandan honoured the speaker with a shawl and a memento. Mr. Karthick released the May-Jun Newsletter of Chennai Branch.

Dr. P. Ramesh Vice Chairman NIQR Chennai Branch complimented the printer M/s Printfaast for their part in releasing our Newsletters in time for the last three years and honoured Mr. Muthukumar with a shawl and a memento and designer Mr. P. Jagan with a memento. Mr. K Sridharan Balaji, NIQR National Secretary welcomed the new member Mr. V. Kumar of Brakes India and presented the Life Membership Certificate.

Mr. C. V. Gowri Sankar proposed a vote of thanks.

Mr. Karthick is a Big Data Analyst currently associated with Cognizant for the past 1 year and has an overall experience of 6 years. Before moving to Cognizant he worked as Senior Consultant in Mobius Knowledge Services for 2 years providing solutions in Data Services to various eCommerce giants such as Amazon, FlipKart & SnapDeal. His overall experiences were in domains such as ecommerce, Banking & financial sectors. He is an MBA graduate specialized in Business Analytics from, NIT Trichy and completed his under graduation from College of Engineering Guindy. He is an active participant in data science competitions like Kaggle.

Monthly Lecture Programs - July 2017

On 16th July 2017, a Knowledge Sharing Session on "GST" was conducted by Mr. R. Gopinath, Deputy Manager (Retd) Ashok Leyland at NIQR Conference Hall from 9.00AM to 10.30AM. Mr. C. V. Gowri Sankar welcomed the gathering and expressed his happiness on the good attendance on a Sunday morning. He reminded the members that this is a KSS and requested all to share their knowledge. Mr. R. Gopinath made an elaborate presentation of GST he acquired from a workshop he attended recently.

Goods and Services Tax is an important reform which will lead India into next rapid phase of economic growth. It is a consumption based tax levied on sale, manufacture and consumption on goods & services at a national level. This tax will be substitute for all indirect taxes levied by state and central governments. He gave details about GST rates and goods exempted from GST and elaborated on the procedure of GST registration and e-payment of tax and input credit. Listing down the benefits of GST, he also indicated price increase in some goods. The Q&A session was very informative and members exchanging lot of information, Mr. V Raghavan shared the stage for some time and explained the input tax credit system.

A NATION IS MADE WHEN TAXES ARE PAID

Mr. C. V. Gowri Sankar proposed a vote of thanks.

Mr. R. Gopinath is a BE from Mysore University with GradIE (Graduate in Industrial Engineering) from Indian Institute of Industrial Engineering, Bombay. He had worked in various departments in Ashok Leyland Ltd like Machine Shops, Tool Room, Improvement Cell and Planning. He is a very good teacher.

Monthly Evening Lecture Programs
July 2017

On 29th July 2017, an Awareness Program on "ZED Certification" was conducted by Dr. V. M. Gunasekaran, Lean Management Consultant at NIQR Conference Hall.

Mr. C. V. Gowri Sankar welcomed the gathering, He informed the members that henceforth two lecture meetings will be planned every month. In the program on awareness on "ZED Certification" Dr. V. M. Gunasekaran, shared his learnings from the 5-day Master Training program. Dr. VMG had made a detailed presentation about the ZED scheme and its features.


Some of the important points are given here.

- It is a scheme of Ministry of Micro, Small and Medium Enterprise
- to enhance global competitiveness of MSMEs
- the government has decided to implement the ZED Certification Scheme for 22,222 MSME units with a total budget of Rs.491Crores (including Government of India contribution of Rs.365 Crores) during the 12th Five Year Plan
- MSME will be assessed on 50 parameters consisting of 36 Enablers and 14 Outcomes
- Details of the compulsory and optional parameters and
- additional 25 parameters for Defence sector
- ZED Rating Model with example

Col. K. S. Chakravarthi, NIQR Life Member summed up the proceedings and praised the speaker for making the audience understand the ZED and ISO schemes. The members expressed their happiness at the enormous amount of details presented.

Prof C. Uthayakumar, ECM, NIQR Chennai Branch honoured the speaker with a shawl and memento.
Mr. C. V. Gowri Sankar proposed a vote of thanks
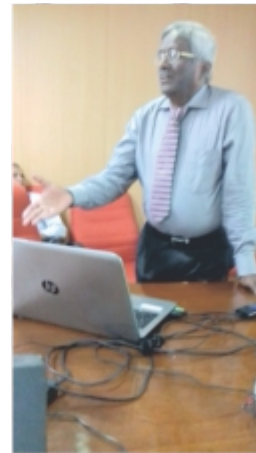
A former National Expert, UNIDO, Dr. V. M. Gunasekaran has received training from many of the Japanese Sans namely Washio, P Tsuda , Hirano, Sueo Yamaguchi, Takao Kasahara and Katsumata. He has a vast experience in different fields including 18 years in Manufacturing Systems Engineering. He is currently Director of ARISE & SHINE ASSOCIATES, Management Consultants

Monthly Evening Lecture Programs
August 2017

On 12th August 2017, Mr. K. Bhaskara Vignesh, Technical Lead, Cognizant delivered a lecture on "Cloud Computing" at NIQR Conference Hall. Mr. C. V. Gowri Sankar welcomed the gathering and introduced the speaker.

The session started with all the participants shaking hands with their neighbor; In order to make the entire audience to be in tune with his topic, Mr. Vignesh started with the basics of Client & Servers. The audience understood the meaning of the handshake when the speaker explained about LAN & WAN. He went through the history of cloud computing from John McCarthy's mainframe time sharing in 1960s to the present day giants of Amazon and Google.

He then gave the features of cloud computing today like Pay as you use, Reliability, Scalability & Sustainability and types of cloud computing like SaaS, PaaS and IaaS. The Q&A session had become very lengthy for the last few lectures and today also, the speaker gave lot of technical stuff to an array of interesting questions. After the formal closure, the discussions lasted for another half an hour, which showed the interest of the audience. Dr. V. M. Gunasekaran, NIQR Chennai Branch ECM, summed up the proceedings and praised the speaker for making a technical subject easy to follow for everybody. Mr. V. Kumar of Brakes India honoured the speaker with a shawl and Mr. Dinesh Uthayakumar honoured the speaker with a memento. Ms. Muthulakshmi Selvakumar, Managing Director of Labtech Electronics Pvt. Ltd. speaker for the next lecture program on IOT presented Mr. Vignesh with a laminated memento, a new feature introduced from this program.

Mr. Vignesh was wowed by Computers when he was in Eighth Standard. From there, the journey to a Technical Lead has been enchanting. An AWS Certified Associate; he has 6 Years of experience in IT. He has tried his hands on various technologies during this period, Cloud and Data Science being the streams close to his heart. An avid reader, he enjoys music during his free time.

INDUSTRY - 4.0 Awareness Program: No. 15

The 15th Program in the series was conducted in Achariya College of Engineering Technology, Pondicherry on 3rd July 2017. There were 400+ students and staff of CSE discipline.

Dr. Albert Alex, AP-CSE welcomed the students and staff and special guests, Mr. Sekhar of ACMA and Mr. Ganesh, NIQR life member in Pondicherry and introduced the speaker, Mr. C. V. Gowri Sankar, Secretary, NIQR Chennai Branch. The special guests spoke briefly about the emerging trends in the manufacturing industry.

The faculty started the session explaining NIQR and its activities and its mission of sensitising 20000 minds this year about Industry 4.0. The program was from 10.15 AM to 12.45 PM. Starting with the industrial and economical Scenario of India, he showcased the challenges and opportunities facing India.

Elaborating on the need of the day, he advised the students to be in the forefront to take up the challenges in embracing Industry 4.0 instead of being mere followers of technological changes as in the past.

Dr. L. Ramachandran, Principal of the College spoke about the recent technological changes in the data analytics field and asked the students to make full use of the lecture about the Industry 4.0. He thanked NIQR and the faculty for having ignited the minds of the students about skilling themselves apart from mere rote learning in the academia.

INDUSTRY - 4.0 Awareness Program: No. 16

The 16th Program in the series was conducted in Lucas TVS, Pondicherry on 3rd July 2017. There were 35 engineers from all departments.

Mr. Muthuramalingam, Manager HR introduced the speaker, Mr. C. V. Gowri Sankar, Secretary, NIQR Chennai Branch and asked the participants to be interactive and learn a lot from this useful subject.

The session was very lively with lot of discussion by the participants about their need to skill in different fields to be in the forefront in the future.

Mr. Muthuramalingam thanked NIQR and expressed his happiness for the inputs given by the faculty in various fields.

INDUSTRY - 4.0 Awareness Program: No. 17

The 17th Program in the series was conducted in Manakula Vinayagar Institute of Technology, Pondicherry on 4th July 2017. There were 320+ students and staff of Mechanical Engineering.

Dr. Radjaram, HOD Mech Engg. welcomed the gathering and complimented NIQR for its mission of covering 20000 people about Industry 4.0.

The session proved to be the best interactive of all sessions so far and students showed their keenness in learning new things. The best part of the students' interaction was debate like session about job loss due to industry 4.0 and whether India needs it; the students expressed their need to skill themselves to embrace Industry 4.0 as they understood that there will be no job loss as such but creation of jobs of different skills like computerisation in Banking sector some decades back.

Dr. S. Malarkannan, Principal of the college advised the students to skill themselves in all the fields the faculty had mentioned in his lecture to embrace Industry 4.0.

The Pondy editions of THE HINDU and Dhinamalar covered the event.

'தொழில்துறை 4.0' கருத்தரங்கம்

புதுச்சேரி, ஜூலை 11— புதுச்சேரி மணக்குள விநாயகர் இன்ஸ்டிடியூட் ஆப் டெக்னாலஜியில் 'தொழில்துறை 4.0' என்ற சிறப்பு கருத்தரங்கம் நடந்தது.

கல்லூரி மெக்கானிக்கல் இன்ஜினியரிங் மாணவர்களுக்கு நடந்த இந் நிகழ்ச்சிக்கு மணக்குள விநாயகர் கல்வி அறக்கட்டளை தலைவர் மற்றும் நிர்வாக இயக்குனர் தன சேகரன் தலைமை தாங்கினார்.

கல்லூரி முதல்வர் டாக்டர் மலர்கண்ண வர வேற்றார். மெக்கானிக்கல்

இன்ஜினியரிங் துறைத் தலைவர் டாக்டர் ராஜா ராம் அவசியமான அம் சங்களை அறிமுகப்படுத் தினார்.

சிறப்பு விருந்தினர் கவ ரிசங்கர் தொழில்துறை 4.0 வின் முக்கியத்துவம், அதன் பயன்கள் குறித்து பேசினார்.

தொழில்துறை 4.0 என்ற கருத்தரங்கு நிகழ்ச்சி குறித்து மணக்குள விநா யகர் கல்வி அறக்கட் டளை துணைத் தலைவர் சுகுமாறன் மற்றும் செய லாளர் டாக்டர் நாராயண சாமி ஆகியோர் பாராட் டினர்.

CAMPUS CONNECT

Performance of manufacturing industries highlighted

Guest lecture on Industry 4.0 at Manakula Vinayagar Institute of Technology

A guest lecture on "Industry 4.0" was organised for students of Mechanical Engineering of Manakula Vinayagar Institute of Technology recently. M. Dhanasekaran, Chairman and Managing Director of Sri Manakula Vinayagar Educational Trust, presided over the function.

Dr. S.Malarkkan, college principal delivered the welcome address. C.V. Gowri Sankar was the chief guest for the programme.

Graduation Day

The Graduation Day of Joseph Arts and Science College and Kamala College of Education in Villupuram were held recently. Lieutenant Governor Kiran Bedi, chief guest of the function awarded the degrees to the students.

In her convocation address, Ms. Bedi attributed Truth and Bakthi as the real reason

for her courage and said that without courage there is no life. "I don't have any weakness." The body is a gift of God and we have to utilise the life endowed by God in a best way and should not try to destroy it.

Dr. Murugan, Vice-Chancellor of Tiruvalluvar University gave away the degrees to the students and delivered his special address. Rev J.D. Joseph, college Principal and Secretary Prabhakar Jeyaraj felicitated the students.

Guest lecture

A guest lecture on Industrial Disputes Act was organised in the IFET College of Engineering for MBA students recently. N. Mani, retired HR Manager of NLC India, spoke on various concepts. K.V. Raja, Chairman of the college and A. Mohammed Ilyas, Vice-Chairman, Dr. G. Mahendran, Principal participated.

Plantation drive

A drive to plant saplings under the Swachh Bharat Mission was organised by Dr. Ambedkar Chair of Annamalai University recently. Dr. V. Thiruvalluvan, member Syndicate, Professor and Dean, Faculty of Indian Languages, Annamalai University presided over the event. Dr. A. Shanmugam, Professor and Dean, Faculty of Marine Sciences and Dr. K. Soundararajan, Chair and Associate Professor, Dr. Ambedkar Chair, Annamalai University participated.

Study tour

Five students from the Departments of BBA, Commerce, English and Maths along with one faculty member of Theivanai Ammal College for Women visited Singapore as part of an International study tour recently.

(Reporting by S. Prasad)

INDUSTRY - 4.0 Awareness Program: No. 18

The 18th Program in the series was conducted in NIQR Conference Hall on 9th July 2017 for the Executive Committee Members. There were 12 participants.

Mr. Bharani Perumal, Ms. Geetha and Mr. C V Gowri Sankar conducted the session consisting of four modules. The thread-bare analysis by the participants threw open opportunities for improving the content for future programs. They also appreciated the videos and explanations which improved the reach of the program.

INDUSTRY - 4.0 Awareness Program: No. 19

The 19th Program in the series was conducted in Chennai Institute of Technology, Kunrathur on 14th July 2017. There were 650 students and staff of all disciplines.

Mr. Vijayakumar, HOD Mech Engg. welcomed the gathering and introduced the speaker, Mr. C. V. Gowri Sankar. Dr. K. S. Srinivasan, Principal of the College briefly explained the importance of additional skills/knowledge other than academics to succeed in career.

The students showed their interest by participating in the discussions in the first module about India's strength and challenges today. Some of the students who have made startups were so enthused that they had to be reminded repeatedly about their lunch!

INDUSTRY - 4.0 Awareness Program: No. 20

The 20th Program in the series was conducted in SRM University, Kattankulathur on 25th July 2017. There were 550 students and staff of Mechanical Engineering.

Dr. T. Rajasekaran, Deputy Head, Mech Engg. welcomed the gathering and introduced the speaker, Mr. C. V. Gowri Sankar. He wanted the students to make use of the lecture to know about the future in manufacturing sector.

The students were very much impressed by the presentation of potentials and challenges of the Indian economy. They showed keen interest in the constituents of Industry 4.0. After the session, number of students enquired about the skills to be acquired to become industry ready.

INDUSTRY - 4.0 Awareness Program: No. 21

The 21st Program in the series was conducted in Hindustan University, Kelambakkam on 27th July 2017. There were 150 students and staff of Mechanical Engineering.

Dr. Viswanathan, Professor, Mech Engg. welcomed the gathering and introduced the speaker, Mr. C. V. Gowri Sankar. He spoke about the activities of NIQR and advised them about starting a NIQR Students Chapter.

One of the best interactive sessions so far; the students were showing interest in learning new skills; some of the students voiced their appreciation of the presentation in module 2 wherein lot of videos have been shown to drive home the use of new tools and technologies.

Dr. Viswanathan thanked the faculty and NIQR for the excellent program. He vieldly indicated his desire to having the same for a larger audience.

INDUSTRY - 4.0 Awareness Program: No. 22

The 22nd Program in the series was conducted in Jeppiaar Institute of Technology, Sriperumbudur on 2nd August 2017. There were 250 students and staff of Mechanical Engineering and CSE.

Dr. D. Muruga Anandam, HOD, Mech Engg. welcomed the gathering and introduced the speaker, Mr. C. V. Gowri Sankar. He spoke about the activities of NIQR and advised them about starting a NIQR Students Chapter.

The faculty explained the skill requirements of industries in particular and all service sectors in general. He shared with the enthusiastic gathering the additional skills to be acquired to face the 4th Industrial revolution successfully.

He enumerated the advantages of each skill for Industry 4.0 with examples through videos.

Dr. D. Muruga Anandam thanked the faculty and NIQR for the excellent program and lauded NIQR for the mission to cover 20K minds.
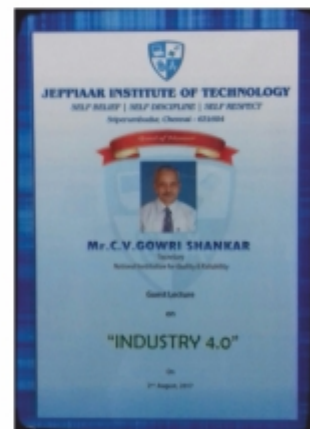
INDUSTRY - 4.0 Awareness Program: No. 23

The 23rd Program in the series was conducted in Indian Institute of Information Technology, Srirangam on 4th August 2017. There were 150 students and staff of Electrical and Electronics Engineering and Computer Science Engineering departments.

Dr. S. Selvakumar, Dean of the IIIT welcomed the gathering and introduced the speaker, Mr. C. V. Gowri Sankar. He asked the students to take the session seriously and learn from the program what is required for their career development.

The faculty explained the activities of NIQR and the benefits to students. He elaborated on the skill requirements of industries in particular and all service sectors in general and shared with the enthusiastic gathering the additional skills to be acquired to face the 4th Industrial revolution successfully.

The feedback was excellent and a few students thanked the faculty for exposing them to the needs of the future.

INDUSTRY - 4.0 Awareness Program: No. 24

The 24th Program in the series was conducted in ATV Precision Components Pvt. Ltd. on 5th August 2017. There were 25 senior and middle management staff from ATV Precision Components Pvt. Ltd., Venu Engineering Services Pvt. Ltd. & Ready Led Lighting Pvt. Ltd.

Mr. Vinoth, HR Head of ATV welcomed the gathering and introduced the speaker, Mr. C. V. Gowri Sankar. The session was very interactive as participants wanted to understand the forthcoming changes in the manufacturing industry due to use of Data Analytics, Artificial Intelligence and 3D Printing. The participants shared some of their knowledge in the topic and were eager to know the additional skills required to excel in their job.

Mr. M. Ramachandran, GM-Operations of ATV thanked NIQR for having taken up the mission 20K; he complimented the faculty for the selection of videos and apt explanations given for the 25 odd videos which helped them understand the subject better. He assured that all the participants were fully charged for doing improvements at their respective areas. The feedback from all the participants was excellent.

INDUSTRY - 4.0 Awareness Program: No. 25

The SILVER JUBILEE program on Industry 4.0 was conducted with lot of new initiatives on 10th August 2017 at R. M. K. Engineering College, Gummidipoondi, Chennai.

- This was the first program in which the faculty handled 2 sessions for 2 different sets of students on the same day.
- Total number of students and staff benefitted by the program was a mammoth 902.
- NIQR Chennai Branch issued Participation Certificates to all the participants.
- 20 students handpicked by the faculty on the level of interaction were presented the certificates in the valedictory function.
- The audience comprised of students from seven engineering disciplines.

The first session for 483 students and staff was from 9.00Am to 11.10AM; Dr. K. A. Mohamed Junaid thanked NIQR for the program and complimented for its mission of sensitising 20K minds. Mr. Sankarlal, AP/ Mech. Eng. introduced the faculty Mr. C. V. Gowri Sankar.

The second session for 419 students and staff was from 12.45PM to 3.10PM; Dr. A. Kadirvel, Prof. Mech. Eng. Introduced the faculty.

Both the sessions were very interactive with lot of enthusiasm shown by the students in understanding the importance of preparing oneself for Industry 4.0 and the necessity of multi skilling for better career growth. The excellent level of discipline maintained by the students enabled the speaker to interact well with the gathering.

Dr. V. Sivakumar of Mechanical Engg. organised and coordinated the entire program; and kudos to the students for maintaining excellent discipline throughout the program.

INDUSTRY - 4.0 Awareness Program: No. 26

The 26th Program in the series was conducted in TVS Training School, Ambathur on 11th August 2017. There were 25 Graduate Engineer Trainees of the school.

Mr. Sasidhar, DGM of the Training School introduced the speaker, Mr. C. V. Gowri Sankar and asked the trainees to derive full benefit from this important program which will develop their career.

The faculty handled three modules for the engineers and explained the importance of 5S for industry 4.0 and how skills in newer quality tolls will be required in future.

The young engineers came forward to share their knowledge of some of the technologies for the benefit of their colleagues.

INDUSTRY - 4.0 Awareness Program: No. 27

The 27th Program in the series was conducted at Saveetha Engineering College, Chennai on 17th August 2017. There were 200 students and staff of Mechanical Engineering and MBA departments. Dr. A. R. Nithya Asst. Professor, Department of Management Studies welcomed the gathering and introduced the speaker, Mr. C. V. Gowri Sankar. Dr. Uma Rani, HOD explained the mission 20K of NIQR and urged the students to derive maximum benefit out of this program.

The speaker elaborated on the skill requirements of industries in particular and all service sectors in general and shared with the enthusiastic gathering the additional skills to be acquired to face the 4th Industrial revolution successfully.

The feedback was excellent and a few students came forward to express their happiness about learning what is very essential for their career growth.

INDUSTRY - 4.0 Awareness Program: No. 28

The 28th Program in the series was conducted at P. T. Lee Chengalvaraya Naicker Polytechnic College, Chennai on 18th August 2017. There were 200 students and staff of Mechanical Engineering department.

Dr. M. Venkatraman, Principal thanked the speaker, Mr. C. V. Gowri Sankar for conducting the program in a short notice. He informed the students that he had participated in the same program in March in his previous college (Arupadai Veedu Institute of Technology) and it is of immense value to students for their career development.

The speaker listed the skill requirements of industries in future in manufacturing sector in particular and all service sectors in general. The students showed keen interest in a topic which was new to them and promised the Principal at the end that they will start acquiring new skills during their spare time.

Standards Organizations That Affect You (Whether You Know It Or Not)

There are thousands of standards organizations around the world, and they can standardize pretty much anything to make life easier, safer, and more productive. Often, these bodies have agreements to cooperate with each other. They may endorse each other's standards, build upon them, or purposely avoid duplicating efforts.

In this serious of articles we will understand the top standards organization for their establishment, method of developing standards and their contribution towards industrial development.

ISO

The International Organization for Standardization (ISO) was founded in 1947 and is headquartered in Geneva, Switzerland. ISO has three official languages: English, French, and Russian. ISO is an independent, non-governmental international organization whose membership comprises national standards organizations, one from each of 163 countries

Each member represents its country's standardization activities to ISO and, in turn, represents ISO back to its own country. Since its inception, ISO has published 21693 International Standards and related documents, covering almost every industry, from technology to food safety to agriculture and healthcare. ISO International Standards impact everyone, everywhere.

Perhaps the most familiar is the ISO 9000 family of quality management standards. ISO's standards deal with a wide range of aspects of everyday life, including food, water, health care, cars, climate change, energy efficiency, and sustainability. More than 250 technical committees produce the standards.

Through its members, it brings together experts to share knowledge and develop voluntary, consensus-based, market relevant International Standards that support innovation and provide solutions to global challenges.

Standards Development Process

Like a symphony, it takes a lot of people working together to develop a standard. ISO's role is similar to that of a conductor, while the orchestra is made up of independent technical experts nominated by each country.

The experts form a technical committee that is responsible for a specific subject area. They begin the process with the development of a draft that meets a specific market need. This is then shared for commenting and further discussion.

The voting process is the key to consensus. If that's achieved then the draft is on its way to becoming an ISO standard. If agreement isn't reached then the draft will be modified further, and voted on again.

From first proposal to final publication, developing a standard usually takes about 3 years.

Key Principles followed in the standards development process.

1. ISO standards respond to a need in the market

ISO does not decide when to develop a new standard, but responds to a request from industry or other stakeholders such as consumer groups. Typically, an industry sector or group communicates the need for a standard to its national member who then contacts ISO.

2. ISO standards are based on global expert opinion

ISO standards are developed by groups of experts from all over the world that are part of larger groups called technical committees. These experts negotiate all aspects of the standard, including its scope, key definitions and content.

3. ISO standards are developed through a multi-stakeholder process

The technical committees are made up of experts from the relevant industry, but also from consumer associations, academia, NGOs and government.

4. ISO standards are based on a consensus

Developing ISO standards is a consensus-based approach and comments from all stakeholders are taken into account.

BIS (Bureau of Indian Standards) is representing India in the ISO technical committee

...compiled by **Mr. S. Kumar,** General Manager
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Industry 4.0 for Smart Manufacturing

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The first industrial revolution - Industry 1.0, was triggered in the 18th century by the invention of steam engine and the mechanization of manual monotonous repetitive work. The second revolution - Industry 2.0, involved the implementation of mass production techniques in the early 20th century driven by Henri Ford in assembly lines, and in seventies a third revolution - Industry 3.0, happened when electronic systems and computer technologies made its entry into the industrial automation and revolutionized manufacturing. Now we are at the dawn of the fourth industrial revolution. Industry 4.0 is synonym for the fourth industrial revolution which boils down to the technical integration of cyber-physical systems (CPS) in production processes and logistic services as well as the application of the Internet of Things (IoT) and the Internet of Services (IoS) in industrial processes for value creation where smart devices will assume vital role in controlling of machines and distribution systems.

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Industry 4.0 is a confluence of trends and technologies that will transform the way things are made and distributed. It is a means that will bring phenomenal improvements in manufacturing operations. Over the years industries have evolved from mechanical production through electrically powered machines to electronics based computer controlled machines and systems. By combining components of the cyber physical world, industry is moving towards making manufacturing digital, smart, flexible, responsive, and integrated with focus on collaboration. New advanced technologies will give organizations the ability to access and understand every measurable parameter in plants and their interactions. Connected machines, artificial intelligence, thinking smart factories, global facilities, smart products and virtual production advances will make industry agile and responsive to the market needs.

Industry 4.0 marks the next phase in digitization of the manufacturing sector. It is driven by four disruption technologies characterized by a) explosion of data, data volumes, computational skills, computational power, and connectivity; b) emergence of big data, analytics, automated knowledge work and business intelligence capabilities; c) new ways of human-machine interfaces, collaborative robots (Cobots) and augmented realities; and d) digital to physical interface - characterized by improvements in transforming digital instructions to physical world - robotics, 3-D printing, rapid prototyping and advanced production methods.

Most of these technologies have been around for some time. Increased usage of such advanced technologies is bound to affect every manufacturing industry and entire supply chain. The pace of change in India however is expected to be slower compared to the revolution brought by the consumer and telecom sector. Industry 4.0 will give rise to the capital investment as machines will need up-gradation or replacement. There will be a huge potential for start-up companies to ride on this transformation wave to bring speedy change.

We live in highly connected world in a disconnected society. Connectivity is the core of our existence as human being. Connectivity improves business. A world without internet and social media is unimaginable. For organizations from remote locations to urban areas telephone calls, conference calls, video conferencing, social media etc. make use of internet connectivity. According to McKinsey report in manufacturing, the potential for cyber physical systems to improve productivity in production processes and supply chain is vast. Consider processes that govern themselves, where smart products can take corrective action to avoid damages and where individual parts are automatically replaced. In other words, we are talking about making factories more smart, more automated and responsive to changing demands. This is revolutionary and is in making and happening at a fast pace.

The vision of Industry 4.0 is for cyber physical production systems in which sensor-laden 'smart products' tell machines how they should be processed. Processes would govern themselves in decentralized, modular systems. Smart embedded devices start working together wirelessly either directly or via the internet 'cloud' - the Internet of Things (IoT). Rigid, centralized factory control systems give way to decentralized artificial intelligence as machine-to-machine communication hits the shop-floor. This is the core idea of the forth Industrial Revolution.

India is leapfrogging through the stages of e-governance, e-banking, digitization, development of smart cities, infrastructure as well as smart industries and smart products that are leveraging on Artificial Intelligence (AI) to improve their efficiency and performance. Indian Industries are predominantly dominated by MSMEs and SMEs. They are willing to invest in advanced technologies. With development of newer industrial zones and investments by foreign players for setting up their manufacturing footprint in India we could be very soon seeing automated and intelligent factories in India.

High risk and labor intensive industries such as mining, oil explorations, explosive and highly inflammable chemicals / petroleum which are likely to pose threat to the health and safety of workers will be first to take advantage of these advanced and integrated technologies for optimization of the complete value chain and get a complete unified view of the production. With complete and integrated automation we can mitigate the safety risk and close the gaps across entire value chain.

Many key technology and drivers that form the foundation for Industry 4.0 are already used in manufacturing, but with Industry 4.0, they will transform production. Isolated, optimized cells will come together as a fully integrated, automated, and optimized production flow, leading to greater efficiencies, changing relationships among suppliers, producers, and customers as well as between human beings and machines.

Big Data and Analytics will become standard to support real-time decision making. Autonomous interactive and interconnected robots will enable close collaboration with human beings. 3-D Simulation will drive down machine set-up time. Horizontal and Vertical Integration will bring in cohesiveness across value chain. The Internet of Things (IoT) will allow devices to communicate and interact with each other enabling real-time decision making and responses.

Cyber Security will attain importance to protect and secure access to proprietary data and intellectual property. Cloud based applications will reduce reaction time to milliseconds, as a result machine data and functionality will increasingly be deployed to the cloud. Additive Manufacturing such as 3-D Printing will be increasingly used for prototyping, small batches of customized products and for new product development bringing down time to market.

Augmented Reality will help workers with real-time information to improve decision making, and enable virtual training addressing complexities. Creation of Digital Twins will help real-time communication with assets to get equipment insights to detect changes in physical behaviours, digital inspection, and real-time analytics.

Industry 4.0 can best be used to its potential only by means of the practical knowledge, acumen and adaptability of employees. While it's true that simple repetitive work will increasingly be replaced, new jobs will emerge elsewhere due to new business models. Employees' existing qualifications and experience will require reallocation of tasks and new responsibilities that need to be developed further through appropriate training with additional IT skills. The industries will have to analyze the long-term impact on the workforce and conduct strategic workforce planning. The challenge for industries is to create flexible organization structures and to boost their employees' interdisciplinary thinking.

Strategists should also take Industry 4.0 into account as they decide the company's future directions. The traditional manufacturing business model is changing, and new models are emerging; industries must be quick to recognize and react to these new competitive challenges. A more disciplined approach to lean, combined with the introduction of Industry 4.0 techniques, can help companies accelerate and sustain improvement in labor costs, throughput, and quality.

Industries and countries will embrace Industry 4.0 at different rates and in different ways. Industries with a high level of product variants, such as the automotive and food-and-beverage industries, will benefit from a greater degree of flexibility that can generate productivity gains. Countries with high-cost skilled labor will be able to capitalize on the higher degree of automation combined with the increased demand for more highly skilled labor. However, many emerging markets like India with a young, technology-savvy workforce might also jump at the opportunity and might even create entirely new manufacturing concepts.

India is certainly joining the league of the countries adopting the Industry 4.0 and its associated technologies with a slow and steady pace. The progressive Indian industries are preparing a roadmap to maximize the benefits of adopting these latest techniques of digitization which will optimize their operations and make them smart. The question is, are we equipped, do we have economies of scale, and do we have knowledge and skill-sets required to adopt and adapt to these transformational advance technologies and concepts although it is clearly understood that adoption of such advanced technologies will ensure better value for money and will improve industries competitiveness which is essential for survival in the globally competitive environment.

Being one of the highly populous countries across the globe, India's unique advantage lies in its young aspiring population - 65% of India's population is below 35 years of age. In the countries which are in the forefront of driving and adopting Industry 4.0 such as Germany and many other European/Western countries, the population growth is stagnant or declining and aging. This is not the case with India. We have to take cognizance of this fact and choose and implement the best parts of Industry 4.0 and its associated technologies and make use of human talents in a collaborative manner.

The high labour cost coupled with unavailability of skilled manpower due to declining population growth is the major consideration of adopting industry 4.0 to improve cost competitiveness by the developed countries - Doing more with lesser manpower is the mantra of these countries. Making equipment smart by connecting to cyber physical systems will certainly help them to optimize their operations using lesser and lesser manpower.

We in India can't do that since this approach may develop socio-economic problems for us. We need to assure our workforce that Industry 4.0 with automation, computerization, digitization, human interventions and collaborative efforts is a tool to improve their effectiveness which will compliment their efforts and not a tool to replace them.

Our challenge is to make use of huge pull of the young aspiring population in the development of India by creating employability and entrepreneurial opportunities. Adoption of Industry 4.0 and its associated technologies is inevitable for survival and growth of the Indian industries.

This digital transformation will reshape every industry and service sector. Indian industries should choose and adopt the best part of Industry 4.0 technologies and make use of their skilled, talented, aspiring human resource for improving their competitiveness which is essential for their survival and growth.

Implementing Industry 4.0 at a running plant is not a one-stop solution but a continual process. The current skill sets of our human resources are adequate for Industry 3.0. Creating skilled knowledgeable work force for adopting advanced technologies of Industry 4.0 is a need that all industries will have to consider. Industry needs to develop such skilled manpower urgently. Workforce re-skilling, unlearning and re-learning and flexible agile deployment of the workforce is the need that every industry has to address.

Adoption of Industry 4.0 by Indian industries will bring about companywide transformation by addressing and changing mind set to move out of comfort zone of using traditional tools and techniques to achieve improvements. Industry 4.0 will compel engineers to become practicing engineers. Adoption of Industry 4.0 will come up with pre-requisite of having practicing engineers at the plant.

Engineer have to be multitasking professional who along with applying their engineering knowledge can use different world-class manufacturing tools & techniques and also acquire & apply data analytics skills and understand and interpret patterns to find most cost effective solutions. Engineers will have to create success stories. They will have to become enablers of connected enterprise.

However the main challenge in India is the unavailability of proper infrastructure, in terms of systematic development of manpower and connectivity, which form a major part of the manufacturing industry. Improving connectivity and infrastructure will boost the adoption rate of Industry 4.0 and confidence of the Indian industries in creating connected enterprises.

In addition some of the industries are not even aware of Industry 4.0 concepts and the few who are aware of this are hesitating to upgrade their operations due to major investments involvement as they are not clear of its ROI. A smart factory, armed with data exchange in manufacturing and the Internet of Things (IoT) is the future. Indian companies will adopt this to keep the competitive edge and faster response to customer needs.

Members in News

ASM International Chennai Chapter conducted a 2 day workshop Applied Metallurgy for Non-Metallurgists on 16th and 17th June 2017 at Hotel Le Royal Meridien, Chennai.

Mr. G. S. Shankar, Life member of NIQR delivered a lecture on Applied Metallurgy providing a sound understanding of the scientific principles of metallurgy and how to apply them to specific process metals in industrial applications.

Under the initiative of their Principal, Dr Babai, Dept. of EEE of Meenakshi Sundararajan Engineering College encourages the students to present papers on latest trends which helps them gain confidence in public speaking and enhances their technical knowledge.

For the last four years, NIQR has been supporting the college by providing Technical Juries for the event. This year the event was organized during 27th June to 1st July, 2017

This year, **Mr. A. Vellapandian, Mr. V. Rajagopalan, Mr. S. Murugan and Prof. C. Uthayakumar from NIQR** evaluated the paper presentations.

Dr. (Mrs.) K. S. Babai, National Council Member NIQR and Principal, Meenakshi Sundararajan Engineering College was installed as the District Governor of Lions District 324A1 during the International Centennial Lions Convention in Chicago on 1st July, 2017.

She is indeed the first governor of 324A1 in nearly two hundred years of public service of the Lions movement.

M/S Ashok Leyland conducted Mini-Improve, a home-grown employee engagement programme from 3rd July to 22nd July 2017 throughout all its plants. It has emerged as a platform to showcase the best projects by their employees on productivity improvement, efficiency enhancement and cost cutting and it goes beyond the existing Quality Circles (QCs) to include new cross functional employee teams too. NIQR Chennai Branch ECMs, **Prof C. Uthayakumar and Mr. C. Sundaravadivelu** were the external Juries for evaluating the Projects.

Mr. Anbuchezhian, NIQR National EC member and Chairperson of Mfg Panel of CII inaugurated a one-day seminar on TPM Deployment in collaboration with TPM club of India on 28th July 2017 at Hotel Taj Coromondal.

In his inaugural address he recalled how factory operations were transformed to deliver globally accepted quality products.

Dr. MGR Educational & Research Institute conducted three day Faculty Development Program from 2nd to 4th August 2017.

Mr. V. K. Venkataramani, NIQR Chennai Branch ECM delivered a lecture on "Effective Teaching Skills".

Prof. C. Uthayakumar, NIQR Chennai Branch ECM conducted a Workshop on TQM and TPM on 4th August 2017 at Anand Institute of Higher Technology, Chennai. He dwelled on how TQM is used in large manufacturing companies to manage processes for high quality, defect free output. He explained how TPM method is helpful in increasing the effectiveness of production machinery and reliability of production processes.

Indian Institute of Founderymen Southern Region & Chennai Chapter conducted the 2nd Shri E K Parthasarathy Kaizen Competition during their 67th National Foundry Day Celebrations on 16th August 2017 at Chennai.

Mr. C. V. Gowri Sankar, Secretary, NIQR Chennai Branch and Mr. N. Jagannatha Rao ECM, NIQR Chennai Branch were the juries for the competition.

Announcement of Annual General Meeting

Annual General Meetings of NIQR Head Quarters

&

NIQR Chennai Branch are scheduled on
9th September 2017 at Evolve Hall, First Floor,
Hotel The Westin Chennai Velachery, Chennai