

The Institution of Engineers (India)

TIRUCHIRAPPALLI LOCAL CENTRE

BHEL Main Office Road, Tiruchirappalli – 620 014

NEWS LETTER

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EDITORIAL NOTE

Happy New Year 2022 to all our members. We are glad to bring the first issue of TLC newsletter in 2022. In this issue the hot and trendy technical lectures presented by eminent personalities in various fields of engineering and technology viz. Patenting, Deep Learning, the top trends in aerospace sector & sustainable transformation in manufacturing are reported. The lecture on patenting elaborated the definition, protection to invention, and patent filing steps are detailed in this issue of newsletter. Similarly, the lecture on deep learning presented that artificial intelligence and machine learning has been the buzz word for more than a decade now, which makes the machine an artificially intelligent one. The smart technology in aerospace sector was well established in the lecture on top trends in Aerospace sector and Smart Technologies. The fourth industrial revolution was presented in the sustainable transformation in manufacturing.

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THE TEAM

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Dr.Ravimaran MIE

Dr.S.Titus MIE

Chairman

Er. R.Balasubramanian FIE

Hon. Secretary

Dr. Kevin Ark Kumar, MIE

Joint Secretary

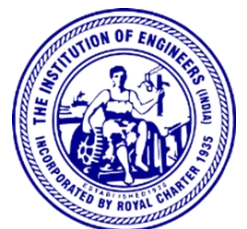
Er.S.P.Lakshmanan MIE

Joint Secretary

Dr.P.R.Venkateswaran MIE

Important Communication from IEI

All corporate members who have not registered their e-mail ids and mobile numbers are requested to update the same which is mandatory for any corporate member. They are also requested to intimate if there is any change in their postal addresses. This would facilitate IEI HQ to reach out and have access to them for all information. This information may please be furnished along with membership number directly to IEI, Kolkata by email to :datamemb@iendia.org



About IEI Tiruchirappalli Local Centre (TLC)

The Institution of Engineers (India) or IEI is the largest multidisciplinary professional body that encompasses 15 engineering disciplines and gives engineers a global platform to share professional interest. Tiruchirappalli Local Centre of the Institution of Engineers (India) is located in Bharat Heavy Electrical Limited (B.H.E.L.) factory campus, Tiruchirappalli, Tamilnadu very close to the great engineering marvel, "the 1000 years old Grand Anicut aka Kallanai. Tiruchirappalli Centre was inaugurated in the year 1973. Technical lectures are being conducted every week covering all branches of engineering. The Local Centre has been conducting on an average one National Seminar/ Convention / Workshop every year on subjects like computer engineering, coal technology, CAD, pollution control, integrated manufacturing, information technology, process control in industries, ERP, ISO 14000, OHSAS, energy conservation, sustainable development, NBC 2005 etc. The Local Centre has close liaison with leading engineering organizations, professional Institutions in and around Tiruchirappalli in the conduct of technical activities. Tiruchirappalli, more commonly referred to as Trichy / Tiruchy lies 320 km to the south of Chennai (the capital of Tamilnadu), on the banks of the river Cauvery. Trichy has a long history, going back to

the centuries, when it was a Chola citadel, in the 12th century, Trichy was under the Vijayanagar Kingdom, followed by the Nayaks of Madurai who constructed the Rock Fort and firmly established Trichy as the trading city. Tiruchirappalli has number of renowned education institutions, prominent industries and many industrial estates. Tiruchirappalli is also a temple city. The famous temples are Rockfort, Srirangam, the famous St. John's Church and Natharvalli Dargah. Tiruchirappalli has beautiful picnic spots like Kallanai, Mukkombu, Butterfly park, museums, it has a planetarium at Anna Science park near Airport. Tiruchirappalli is connected by road to Chennai (320 km), Madurai (127 km) and to all major towns in South India by regular transport services. Tiruchirappalli, is an important junction on the Southern Railways. It connects Chennai, Thanjavur, Madurai, Tuticorin, Tirupati, Rameswaram, Bangalore, Coimbatore, Cochin, Mangalore on the broad gauge. Tiruchirappalli has International Airport which serves Tiruchirappalli and adjacent districts in the state. Tiruchirappalli International Airport is the second biggest airport in Tamil Nadu next to Chennai International Airport. AirAsia, Air India Express, Jet Airways, Malindo Air, Srilankan Airlines and Tiger air connect the city with various destinations.

Former Chairman and Hon. Secretaries of IEI TLC

PERIOD	CHAIRMAN	HONORARY SECRETARY
1973-1974	P.V.K Achan	K.Veeraragavan Chary
1974-1976	P.S Manisundaram	K.Veeraragavan Chary
1976-1978	K.Veeraragavan Chary	S.Nagaratnam
1978-1980	S.Nagaratnam	M.K.Raghunathan
1980-1982	S.Nagaratnam	M.K.Raghunathan
1982-1984	K.G.Thyagarajan	A.Doraiswamy
1984-1986	S.Sridharan	A.Doraiswamy
1986-1988	S.Sridharan	T.V.krishnamurthy
1988-1990	R.Vasudevan	S.Samidas
1990-1992	A.V.Narayanan	S.Samidas
1992-1994	T.V.krishnamurthy	S.Dharmalingam
1994-1996	M.Kalidas	S.Dharmalingam
1996-1998	S.Samidas	C.Velayudham

PERIOD	CHAIRMAN	HONORARY SECRETARY
1998-2000	N.Gopaldaswamy	C.Velayudham
2000-2002	D.Harsha	P.Gothandaraman
2002-2004	G.Uma Shankerr	S.Shanmugam
2004-2006	C.Velayudham	R.Selvaraj
2006-2008	S.Dharmalingam	R.Dhanuskodi
2008-2010	R.Kumar	J.Sankaran
2010-2012	J.Sankaran	N.Sridhar
2012-2014	P.Nagamanikam	E.S.Salaikuberan
2014-2016	S.Kauppasamy	D.Varatharajalu
2016-2018	R.Selvaraj	S.Lakshmanan
2018-2020	N.Kumaresan	A.Anand
2020-2021	N.Kumaresan	A.Anand
2021 Nov-Dec	N.Rajasekaran	Kevin Ark Kumar

New Chairman for IEI Tiruchirappalli Local Centre

On 29th January 2022, **Er.B.Balasubramanian**, F.I.E., General Manager, B.H.E.L and CMD of Instrumentation Ltd, Palakkad, has been unanimously elected as new Chairman of the Institution of Engineers (India), Tiruchirappalli Local Centre by the committee. Heartiest congratulations to our new Chairman!!!



Committee Members of IEI TLC 2021-23

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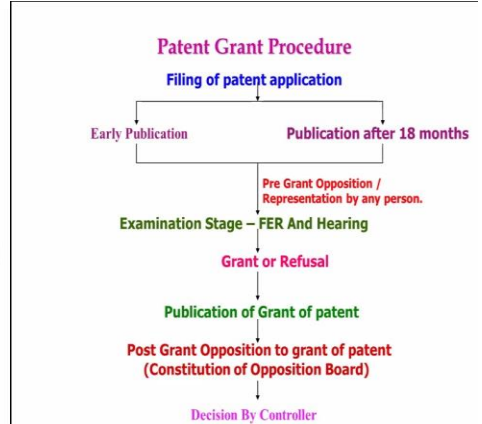
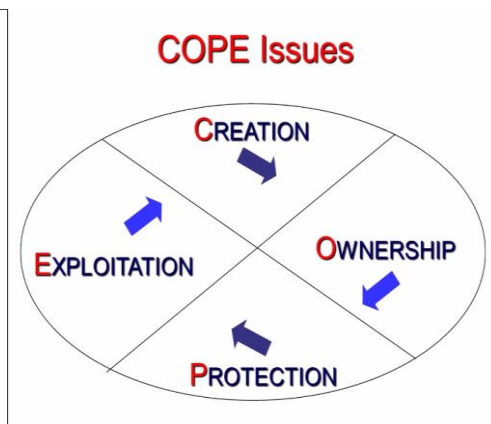
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Technical activities carried out by Tiruchirappalli Local Centre

Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		KNOW - HOW OF INDIAN PATENT SYSTEM	
Activity under Divisional Board		Mechanical Engineering	
Date:	04-01-2021 at 5.30 p.m.	Mode:	Online–Zoom
No. of Participants : 70			
Speaker : Er. Manivasakam M R Assistant Controller of Patents and Designs, Indian Patent Office, Chennai			

The Tiruchirappalli Local Centre of The Institution of Engineers (India), in association with Computer Society of India, Tiruchirappalli Chapter, Indian Institute of Welding Tiruchirappalli branch, Indian welding Society Southern zone and Indian Institute of Metals Tiruchirappalli Chapter, organized a lecture on 4th January 2022 at 5.30 pm through virtual mode. Er.Manivasakam M R, Assistant Controller of Patents and Designs, Indian Patent Office, Chennai, delivered the lecture on the Topic “KNOW - HOW OF INDIAN PATENT SYSTEM”. More than 70 participants have attended the online programme. Er. R.Selvaraj, Past Chairman, Tiruchirappalli Local Centre of IEI presided over the event and welcomed the gathering. Er. S. Lakshmanan, Past Secretary introduced the speaker to the audience. Dr. S. Karuppasamy, Past Chairman of IEI Tiruchirappalli Local Centre proposed the vote of thanks. Er. R. Selvaraj, Past Chairman conducted the proceedings.



Time Line – Expedited Route



PARAMETER	PATENT	DESIGN	TRADEMARK	COPYRIGHT	SICLDR
Definition	Right to exclude others from making, selling, using or importing a particular product or service	‘Design’ means only the features of shape, configuration, pattern or ornament or composition of lines or colour or combination thereof applied to any article whether two dimensional or three dimensional or in both forms, by any industrial process or means, whether manual, mechanical or chemical, separate or combined, which in the finished article appeal to and are judged solely by the eye, but does not include any mode or principle or construction or anything which is in substance a mere mechanical device, and does not include any trade mark	Right to prevent others from unfairly competing with you by using “confusingly similar” marks	Right to exclusively reproduce, publish, perform, display, or record the creative work, and also to create derivative works from the original	A semiconductor layout design means a layout of transistors and other circuitry elements and includes lead wires connecting such elements and expressed in any manner in semiconductor integrated circuits.
Protection for what?	Patent-eligible invention that is novel, useful, and non-obvious. It is given for: i. Product, device, apparatus, composition, article ii. System, installation, setup iii. Process, method	the “article” means any article of manufacture and any substance, artificial, or partly artificial and partly natural; and includes any part of an article capable of being made and sold separately	Any word, phrase, symbol, logo, or other devices that differentiates the source of goods or services from others	Original works of creative expression that have been fixed in a tangible medium, such as artistic output or technical work products	Layout Design

Who can file?	Any Individual(s), Institution Company or combination of these	Any Individual(s), Institution Company or combination of these	Any Individual(s), Institution Company or combination of these	Any Individual(s), Institution Company or combination of these	Creator(s) of a layout design
Is registration/filing Required?	Yes	Yes	Registration is not required, but it offers you added legal benefits	Registration is not required, but it offers you added legal benefits	Yes
Term of Protection	20 years from the date of Filing	10 Years	As long as the mark is being used in commerce	Author's life plus 60 years; but if owned by a company, then 95 years after the date the work is first made public	10 years
Validity of the right	It is also a territorial right and therefore it is effective only within the territory of India. Separate patents required to be filed for each country where protection is required.	Territorial in nature to claim rights should be applied to each country individually.	Territorial in nature to claim rights should be applied to each country individually.	Protection available in most of the countries in the world.	
Provisional Application allowed?	Yes. A provisional application gets you 12 months of time to file a complete specification, and a priority date claim.	No.	Trademark registration does not include provisional application, but it requires a trademark search.	No	No
Time of getting the right	1 year to 3 three years	1 year	1 year	6 months	---
Symbols to Represent	No symbolic representation. However the patentee can use the Patent Number on the product sold.	No symbolic representation. However the patentee can use the Design Number on the product sold.	Used when registration is in process: ™ Used when registration is complete: ®	No symbolic representation. But the rights holder can use ©	
Journal Publication	Last working day in that Week	Last working day in that Week	First Working day of that week		
Forms Required for filing	1,2,3,5,18	1	TM-A	XIV	LD-1
Fees	Rs.6150/- [Rs.1750+4500]	RS.1000/-	Rs.5000/-	Rs.500/- to Rs.5000/- Artistic work to Cinematographic film	Rs.5000/-
Mode of filing	Online or hard Copy	Online or hard Copy	Online or hard Copy	Online	
Is Renewal Required	Yes	Yes	Yes	Yes	NO

Postal Address For filing an Application	The Deputy Controller of Patents and Designs, The Patent Office, Intellectual Property Rights Buidling, G.S.T Road, Guindy, Chennai - 600032	The Deputy Controller of Patents and Designs, The Patent Office, Intellectual Property Rights Buidling, G.S.T Road, Guindy, Chennai – 600032	The Deputy Registrar of Trademarks, The Trademarks Registry, Intellectual Property Rights Buidling, G.S.T Road, Guindy, Chennai - 600032	Registrar of Copyrights and is located at Plot no. 32, Boudhik Sampada Bhawan, Sector 14, Dwarka, New Delhi- 110075	
For Information	Chennai-patent@nic.in and 044-22505200	Chennai-patent@nic.in and 044-22505200	044-22505200	copyright@nic.in	sicldrdelhi.ipo@gov.in
Revenue for the applicant	Highest	High	Moderate	Moderate	Not Known

Name of Centre / Overseas Chapter:	TIRUCHIRAPPALLI LOCAL CENTRE		
Title of Activity:	DEEP LEARNING		
Activity under Divisional Board	Computer Engineering		
Date:	11-01-2021 at 5.30 p.m.	Mode:	Online–Zoom

No. of Participants : 35

Speaker :

Dr. Shiram K.V
Project Manager,
M/s L&T Technology Services ,
Bengaluru.




The Tiruchirappalli Local Centre of The Institution of Engineers (India), in association with Computer Society of India, Tiruchirappalli Chapter, organized a lecture on 11th January 2022 at 5.30 pm through virtual mode. Dr. Shiram K.V, Project Manager, M/s L&T Technology Services, Bangalore delivered the lecture on the Topic “DEEP LEARNING”. More than 35 participants have attended the online programme. Er. S. Samidas, Past Chairman, Tiruchirappalli Local Centre of IEI presided over the event and welcomed the gathering. Dr.P.R. Venkateswaran, Joint Secretary of Tiruchirappalli Local Centre of IEI introduced the speaker to the audience. D. Senthil Kumar, Secretary, Computer society Tiruchirappalli chapter proposed the vote of thanks. Er. R. Selvaraj, Past Chairman conducted the proceedings.

DEEP LEARNING

Artificial Intelligence and Machine learning has been the buzz word for more than a decade now, which makes the machine an artificially intelligent one. The Computational speed and humongous amounts of data have fascinated academics to deep dive and unleash the tremendous research potential that lie within. Even though Machine Learning helped us start learning intricate and robust system, Deep learning has curiously entered as a subset for AI producing incredible results and outputs in the field.

Deep Learning architecture is built very similar to the working of a human brain, where scientists teach the machine to learn in a way humans learn. This definitely is a tedious and challenging task as understanding the working of human brain itself being a complex phenomenon. Our researchers in the field has come out with valuable outcomes to makes things easily understandable to the scholars and scientists to build worthy

Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		Top Trends in Aerospace sector and Smart Technologies	
Activity under Divisional Board		Aerospace Engineering	
Date:	18-01-2021 at 5.30 p.m.	Mode:	Online–Zoom
No. of Participants : 50			
Speaker : Dr. Enti Ranga Reddy, FIE Chairman & Managing Director, Legend Technologies (India) Pvt Ltd., Bengaluru.			

The Tiruchirappalli Local Centre of The Institution of Engineers (India), in association with Computer Society of India, Tiruchirappalli Chapter, Indian Institute of Welding Tiruchirappalli branch, Indian welding Society, Southern zone and Indian Institute of Metals Tiruchirappalli Chapter organized a lecture on 18th January 2022 at 5.30 pm through virtual mode.

Dr. Enti Ranga Reddy, FIE, Chairman & Managing Director, Legend Technologies (India) Pvt Ltd Bengaluru. delivered the lecture on the Topic “Top Trends in Aerospace sector and Smart Technologies”. More than 50 participants have attended the online programme. Dr. S. Karuppasamy, Past Chairman, Tiruchirappalli Local Centre of IEI presided over the event and welcomed the gathering. Er. Suresh Kumar Hon. Secretary of Indian Institute of Welding Tiruchirappalli branch introduced the speaker to the audience. Er.S.Lakshmanan Past secretary, Tiruchirappalli Local Centre of IEI proposed the vote of thanks. Er. R. Selvaraj, Past Chairman conducted the proceedings.

TOP TRENDS IN AEROSPACE SECTOR AND SMART TECHNOLOGIES

Smart technology is seen in many sectors like logistics, medical field, transportation, manufacturing industries, power sector and agriculture. Webinar deliberates noticeable change that we have to observe that India has developed in smart technology. We can see devices like iRobot, Neato designed to autonomously travel around your home and clean the floors. It is very helpful in this pandemic situation. Likewise self-driving cars, impersonate humans, machine learning are the applications of smart technology we can see in our daily life. In power sector lightening controls like turning on a lamp or ceiling light from a wall switch is old fashioned now. Now a days lights can be controlled from mobile devices, touch screen panels or an automated system.

Dr Reddy did a great job for making us to think that a car tells when it needs an oil change the same is applicable here it has to give alarm when we are going overuse of power budget for the month. Speaker stressed on the “Total home energy management program”, which tells the owner about home’s energy consumption. After smart technology with applications, Dr Reddy started to explain the Top trends in Aerospace sector as he is in the field of 30 years’ experience in Aerospace Engineering.

Dr Reddy mentioned all aerospace segments like fixed wing, rotor wing, Drone UAM, space rockets, satellites works involved with his experience.

He pointed out India is lacking Helicopters. India needs almost 1200helicoptes for next 10years. Accordingly, Dr Reddy signed MoU with Government of Karnataka to Design and Development of “Indian Ultra-Light Helicopter”.

Dr Reddy continued to explain the projects handled by Legend Technologies like RLV TD, GSLV, PSLV, ALH, LCH, SARAS, IJT, UAV TD etc.

Finally, Dr Reddy concluded the webinar session with the Technology readiness level of the aerospace projects and future scope of the Aerospace engineering.

Automated Robots

We are still a long way from a full-featured, humanoid-like robot that can operate freely. That said, automated robots already exist and are being used in a lot of homes today. Devices like the iRobot and Neato are designed to autonomously travel around your home and clean the floors. That's about as far as we've come for consumer-based robots anyway.



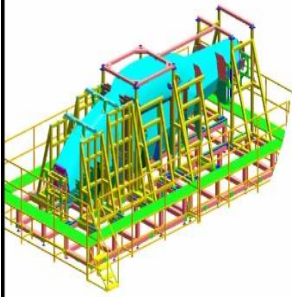
Fixed wing projects by Legend

➤ **LCA Tejas (1996)** – ADA. Major assembly jigs like Front fuselage, Centre fuselage, Control surfaces, Coupling jigs and sub assembly jigs. Supplied 200+ sets successfully.

➤ **SARAS (2002)** – NAL. 146 detailed parts, stub wing turnkey assemblies and Nassele, Tooling, Coupling Jigs.

➤ **Intermediate Jet Trainer - IJT (2003)** - HAL, Aircraft Division. 100 sets of Ruddar turnkey components

Rotary wing technology by Legend



- **Project:** ALH, LCH (1997).
- **Scope of work:** ALH – Jigs and fixtures of the fuselage and tail boom assemblies; Turnkey projects and LCH – Complete tooling partner; ED & TD.
- **Customer:** HAL



Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		Sustainable Transformation in Manufacturing	
Activity under Divisional Board		Mechanical Engineering	
Date:	25-01-2021 at 5.30 p.m.	Mode:	Online–Zoom
No. of Participants : 55			

Speaker :

Dr. JAYAKRISHNA KANDASAMY,
Associate Professor,
School of Mechanical Engineering,
Vellore Institute of Technology University,
Vellore, Tamil Nadu.



The Tiruchirappalli Local Centre of The Institution of Engineers (India), in association with Computer Society of India, Tiruchirappalli Chapter, Indian Institute of Welding Tiruchirappalli branch, Indian welding Society Southern zone, Indian Institute of Metals Tiruchirappalli Chapter and Indian Institution of Industrial Engineering Tiruchirappalli organized a lecture on 25th January 2022 at 5.30 pm through virtual mode. Dr. JAYAKRISHNA

KANDASAMY, Associate Professor, School of Mechanical Engineering, Vellore Institute of Technology University, Vellore, Tamil Nadu, delivered the lecture on the Topic “Sustainable Transformation in Manufacturing”. More than 55 participants have attended the online programme. Er. R. selvaraj, Past Chairman, Tiruchirappalli Local Centre of IEI presided over the event and welcomed the gathering. Dr. S.Titus, Committee Member of Tiruchirappalli local centre introduced the speaker to the audience. Er.B.Balasubramanian, Committee Member of Tiruchirappalli local centre proposed the vote of thanks. Er. R. Selvaraj, Past Chairman conducted the proceedings.

Sustainable transformation in manufacturing

Globalization has created a huge demand for capital and consumer goods that organizations worldwide need to meet, but without compromising the sustainable development of societies and without endangering the natural ecosystem. Also, the depleting natural resources and stringent government regulations force the manufacturing organization to adopt the strategies of sustainable manufacturing. To address this significant challenge, organizations, and especially manufacturing companies, must create value that is aligned to the social, environmental and economic pillars of sustainability.

The “Fourth Industrial Revolution,” known as Industry 4.0, evolving right now guarantees wide opportunities to gain a competitive advantage. The four elements of Industry 4.0 are Interoperability, Information transparency, Technical assistance and Decentralized decision-making. Presently, Industry 4.0 and its associated technologies like Internet of Things (IoT), big data and data analytics, additive manufacturing or 3D printing, advanced robotics, augmented and virtual reality, cloud computing, simulation, machine learning and artificial intelligence, among others, are asserting a substantial influence on the manufacturing sector. Cyber-Physical Systems (CPS) monitor the decision-making and the Internet of Things helps to communicate between the elements. The Industrial Internet of Things (IIoT) enables organizations to transform their business digitally and gain the advantage of getting real-time information which results in predicting the future challenges upfront. Yet, leveraging sustainable manufacturing practices towards Industry 4.0 is not explored fully. Additionally, new circular business models are being developed around these technologies.

The adoption of Industry 4.0 technologies and the development of new business models suitable to facilitate the digitalization of manufacturing systems and operations provide enormous opportunities for the realization of sustainable manufacturing capable of ensuring a balanced social, environmental and economic evolvement of human societies without compromising the existence of future generations. This lecture focuses on the fundamentals of Industry 4.0 and its potential contribution to making the manufacturing industry, and its systems and operations, more sustainable. And, understand how to adapt Industry 4.0 technologies and their new and disruptive circular business models to contribute towards the sustainable development of manufacturing systems and operations.

Shopfloor Repair and Maintenance

- The handset or smart glass interface displays data from a portable measuring device that is temporarily installed on the casing of a pump, motor, bearing or other component. This portability is a low cost way of extending the maintenance monitoring and failure detection capability within a plant.
- The cloud analysis of the current condition and maintenance history of this component shows whether service is needed or not

- Real time data with affected equipment status.
- Instruction to repair the affected equipment.
- Scope for watch the video to have the direction for repairment.

Use Case 3

How do you Implement Sustainable Manufacturing?

There is a spectrum of efforts to implement sustainable manufacturing. Some involve more effort and investment than others.¹

Housekeeping
Improvements in work practices and maintenance

Generally easier

Process Optimization
Making adjustments to processes to increase efficiency

Raw Material Substitution
Shifting to more environmentally sound inputs

More Difficult

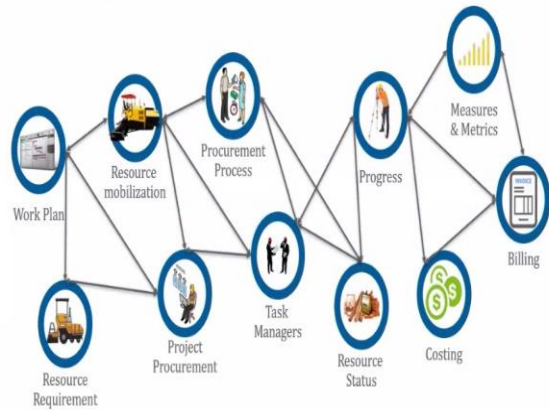
¹Government Strategies and Policies for Cleaner Production, United Nations Environmental Programme and "Eco Innovation in Industry Enabling Green Growth" OECD

Nine Technology Areas in Industry 4.0



Project Networking

Better Planning and Control



Future Events – February 2022

S. No	DATE & TIME	EVENT TITLE
1	01.02.2022 / 5.30 p.m.	Autonomous Ocean Monitoring Vehicles
2	08.02.2022 / 5.30 p.m.	Green Cloud Computing
3	15.02.2022 / 5.30 p.m.	The World of Marine Engineering – A Peak preview Marine Engineering
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