IEI - TLC - NEWS

IN-HOUSE NEWS LETTER OF

THE INSTITUTION OF ENGINEERS (INDIA)

TIRUCHIRAPPALLI LOCAL CENTRE

www.ieitiruchi.org

Issue No. 2019/9-10

IEI – TLC – NEWS

CONVEYS GREETINGS TO ALL FELLOW ENGINEERS

From the Chairman's Desk…

Dear Fellow Engineers,

Greetings.

Extremely happy to share the major activities of The Tiruchirappalli Local Centre of The Institution of Engineers (India) through E-Newsletter. I congratulate the editorial team for bringing out this edition in a professional way and timely manner.

Royal Charters Day was celebrated by IEI TLC on 10.09.2019 and the theme address was delivered by Dr. S. Dharmalingam, Past Chairman, IEI TLC. The 52nd Engineers' Day was celebrated on 15.09.2019 at Anna University, (BIT Campus), Tiruchirappalli. As the Chairman of IEI TLC, I wholeheartedly appreciate the magnanimity shown by the Dean and his team for hosting 52nd Engineers' Day Celebration at this great Institute, Anna University Tiruchirappalli.

The Chief Guest Er K S Kasi Viswanathan, Managing Director, Seshasayee Paper & Boards Ltd, Pallipalayam spoke on the 52nd Engineer's Day theme " Engineering for Change". He highlighted that as engineers/entrepreneurs, it is essential to acknowledge that change is inevitable. As part of Engineer's day celebrations, IEI TLC honoured Dr. G. Swaminathan, Professor (HAG), Department of Civil Engineering, NIT, Tiruchirappalli with the BEST ENGINEER AWARD 2019 in recognition of his outstanding contributions to the Society and Engineering and Technology in Higher Education areas. 2019-20 being the centenary year for The Institution of Engineers (India), all the Past chairmen and Past Honorary Secretaries of IEI TLC were also honored. The prizes were distributed to the winners of various contests organized for the members of Student chapters in engineering colleges & technician chapters under IEI TLC.

IEI TLC has organised (i) Two day All India Workshop on "Theory and Practice of Sustainable Manufacturing" under the aegis of Production Engineering Division during 20-21 September 2019 in association with National Institute of Technology, Tiruchirappalli and (ii) One day Workshop on "Emerging Technologies in Aerospace Engineering" under the aegis of Aerospace Engineering Division on 27th September 2019 in association with J.J. College of Engineering and Technology, Tiruchirappalli. Like earlier programmes, these workshops were also well organised and received appreciation from all corners. Further, IEI TLC has planned to organise more number of workshops and details can be obtained in our website (http://ieitiruchi.org/).

Before I conclude, I request my team members to focus on approaching the colleges and industries to boost the membership strength of IEI. Let us put our collective efforts to reach further heights and also to bring many honors to IEI TLC. I solicit your support to make IEI TLC the Best Centre to disseminate the Engineering Advancement to this part of our country.

My Advance Wishes to You & Your Family for a Happy Deepavali.

Thank you.

Dr. N Kumaresan

Chairman

contents

52nd Engineer's Day Celebration

Venue: **Anna University (BIT Campus), Tiruchirappalli** **Date:15/09/2019**

Dr. S.Dharmalingam, Past Chairman of TLC-IEI presents the Scroll of Honour to Dr. G. Swaminathan, Professor, Civil Engg. Department, National Institute of Technology, Tiruchirappalli

Dr. N.Kumaresan, Chairman of TLC-IEI presents the Best Engineer award to Dr. G. Swaminathan, Professor, Civil Engg. Department, National Institute of Technology, Tiruchirappalli.

Tiruchirappalli Local Centre of The Institution of Engineers (India) located in BHEL Campus, has celebrated 52nd Engineer's Day on 15th Sep. 2019 at Anna University (BIT Campus), Tiruchirappalli.

The function was presided over by Dr. T. Senthilkumar, Professor & Dean, Anna University (BIT Campus). In his presidential address he highlighted on the contribution of Engineers for the betterment of the society and also on nation building. He recalled the excellent talent available with the earlier generation of tamil people in every field – be it construction of temple or construction of bridges etc. He indicated that every year around 20 lakhs of engineering graduates are produced in India in all specializations.

The Chief Guest Er K S Kasi Viswanathan, Managing Director, Seshasayee Paper & Boards Ltd, Pallipalayam spoke on the 52nd Engineer's Day theme " Engineering for Change" . He paid rich tributes to the great engineer Sir. M. Visveswaraya by highlighting his contributions – Construction of Krishnarajasagar dam, patented flood gates, water management, flood management etc. On the theme he spoke on the following aspects : Great ideas start with freshness of mind / thinking, they ignite a spark that ends up lighting up the world making it a better place to live etc..

He highlighted that as engineers/entrepreneur, it is essential to acknowledge that change is inevitable, nothing we can do to stop it and anticipate before it becomes too late.

As part of Engineer's day celebrations, The Institution of Engineers, Tiruchirappalli Local Centre honours one Best Engineer in this region every year. For the year 2019, Dr. G. Swaminathan, Professor, Civil Engg. Department, National Institute of Technology, Tiruchirappalli has been selected as the Best Engineer.

Dr. N Kumaresan, Chairman, Tiruchirappalli Local Centre presented the Best Engineer Award 2019 to Dr. G. Swaminathan. Earlier Dr. Dharmalingam, past chairman of The Institution of Engineers, Tiruchirappalli Local Centre read out the scroll of honour and presented the same to Dr. G. Swaminathan.

Er. J. Sankaran, past Chairman, Tiruchirappalli Local Centre and Dr. Anantharaman, Professor, Head of the Department of Energy and Environment, NIT, Tiruchirappalli offered felicitations to Dr. G. Swaminathan.

In his acceptance speech, Dr. G. Swaminathan thanked Tiruchirappalli Local Centre for honouring him with the award. He complimented the wonderful role played by the Institution of Engineers, Tiruchirappalli Local Centre in boosting technical activities in Tiruchirappalli region.

2019-20 being the centenary year for The Institution of Engineers (India), all the Past chairmen and Past Honorary Secretaries were honored. Also prizes were distributed to the winners of various contest organized for the members of Student chapters in many engineering colleges and technician chapters, as part of 52nd Engineer's Day.

Earlier Dr. N Kumaresan, Chairman welcomed the gathering. Dr. N Sivakumaran, Convener presented the life sketch of Sir. M. Visveswaraya. Subsequently, the portrait of Sir. M. Visveswaraya was garlanded by The Chief Guest Er K S Kasi Viswanathan. Mr. Anand, Honorary Secretary proposed the vote of thanks. Dr. Kumaraguru Professor, Anna University took care of organizing this function in a professional way. Senior officials from National Institute of Technology, BHEL, Anna University and large number of engineers from other organizations participated.

Engineer's Day Press Clippings

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Engineer's Day celebrated

SPECIAL CORRESPONDENT
TIRUCHI

It is essential for engineers to acknowledge that change is inevitable before it becomes too late, K S Kasi Viswanathan, Managing Director, Seshasayee Paper and Boards Ltd, Pallipalayam, said on Sunday.

Great ideas start with freshness of mind; the ideas ignite a spark that ends up lighting up the world, making it a better place to live in, said Mr. Kasi Viswanathan, who was the chief guest for the 52nd Engineer's Day celebrations organised by the Tiruchi Local Centre.

Presiding over the funciton, T. Senthilkumar, Professor and Dean, Anna University (BIT Campus) spoke on the contribution of engineers for betterment of the society and nation-building.

G. Swaminathan, Professor, Civil Engineering Department, National Institute of Technology, Tiruchi, was honoured with the Best Engineer Award for 2019 by N. Kumaresan, Chairman, Tirchi Local Centre.

Past Chairman Dharmalingam presented the scroll of honour.

Prizes were distributed to winners of various contests. These were organised for members of student chapters in engineering colleges and technician chapters.

'Ocean of for engine

As Indian Navy goes fo

SPECIAL CORRESPONDENT
TIRUCHI

Being at the forefront of technology, the Indian Navy has unveiled a long-term indigenisation plan 2015-30 aimed at development of systems and equipment involving the Defence Research and Development Organisation and the industry in a big way, Rear Admiral V. Mohan Doss, Assistant Chief of Naval Staff (Air Materiel) said on Monday.

With the country spending huge amounts of money for purchasing defence equipment from abroad, young engineering graduates have immense avenues and opportunities today to come out with innovative ideas and technologies besides out-of-the-box solutions in making and fabricating products for the Navy and other services thus helping in its indigenisation plan, Rear Admiral Mohan Doss said.

He was addressing students of the National Institute of Technology, Tiruchi on Indian Navy and the ocean of opportunities it provided to those who joined it.

Giving a detailed account of the Indian Navy, its command structure, fleet strength, its assets, the number of branches, crucial roles played by it in ensuring maritime security, Rear Ad-

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NIT professor conferred Best Engineer award

EXPRESS NEWS SERVICE @Tiruchy

NIT Tiruchy Civil Engineering department faculty member G Swaminathan was conferred the Best Engineer award on the occasion of Engineer's Day by The Institution of Engineers, Tiruchy Local Centre (IEI TLC). The event was held on Sunday at Anna University (BIT Campus) in Tiruchy.

Swaminathan was honoured for his contributions to environmental engineering, especially rural water supply and waste management. His work as a consultant to the State-appointed committee for Srirangam temple wall repair and and his innovations in testing and ensuring purity in Rameshwaram temple theertham wells were also mentioned. He had also included various environmental topics into the curriculum of NIT Tiruchy, organisers said.

KS Kasi Viswanathan, Managing Director, Seshasayee Paper & Boards conferred the award.

Viswanathan called for engineers and entrepreneurs to acknowledge change and cater to it by anticipating challenges and demands beforehand. Also present at the event were Dr T Senthilkumar from Anna University (BIT Campus) and Dr N Kumaresan, IEI TLC Chairperson and NIT professor. At the event, prizes were also distributed to winners of various contests organised for members of student chapters in many engineering colleges as well as technician chapters.

Swaminathan has worked as a consultant to the State-appointed committee for Srirangam temple wall repair and innovated methods for testing and ensuring purity in Rameshwaram temple Theertham wells

Organisers

THE NEW INDIAN EXPRESS Mon, 16 September 2019
epaper.newindianexpress.com/c/43629274

The Institution of Engineers (India)
(ESTABLISHED 1920, INCORPORATED BY ROYAL CHARTER 1935)

RECENT TECHNICAL LECTURES

Name of Centre / Overseas Chapter:		**TIRUCHIRAPPALLI LOCAL CENTRE**	
Title of Activity:		**Rapid Product Development through 3D Printing**	
Activity under Divisional Board		**Production Engineering Division**	
Date:	03-09-19	Venue:	**IEI TLC Institution Building**
			
Dr.P.Senthil Associate Professor Department of Production Engineering NIT Tiruchirappalli-15 is Presenting a lecture on the Topic through Power Point slides to the participants.		Er.S.Samidas Former General Manager BHEL Tiruchirappalli is presenting Memento to the speaker in the presence of Er.A.Anand Hon.Secretary of IEI TLC	

Lecture Title: **Rapid Product Development through 3D Printing**

Dr.P.Senthil,

Associate Professor,

Department of Production Engineering, National Institute of Technology, Tiruchirappalli

This lecture starts with the role of Rapid Prototyping in product development, basics of Rapid Prototyping processes. Classification and details of Rapid Prototyping processes for 3D Printing. Rapid Prototyping extension for tooling and manufacturing will be discussed. Trends of 3D Printing, and applications will be presented. Industrial applications of 3D Printing will be deliberated

ROYAL CHARTER DAY

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<td>Dr.S.Dharmalingam ,Past chairman of IEI / TLC and Former General Manager BHEL Tiruchirappalli is presenting a lecture about Royal Charter Day
.</td>
<td>Dr.N.Kumaresan Chairman,Professor of NIT-Tiruchirappalli is presenting Memento to the speaker in the presence of Er.A.Anand Hon.Secretary of IEI TLC</td>
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<td>Dr.N.Sivakumaran Committee member of IEI/TLC and Professor of NIT- Tiruchirappalli is presenting a gift to the speaker in the presence of Dr.N.Kumaresan Chairman and Er.A.Anand Hon.Secretary of IEI TLC</td>
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Dr.S.Dharmalingam ,Past chairman of IEI / TLC is presenting a lecture about Royal Charter Day-10/09/2019

1. **History:**

IEI was established in 1920 in Madras with Sir Thomas R. J. Ward as the founding president. It was formally inaugurated in 1921 by Lord Chessboard, the then-Viceroy of British India. In 1935.

IEI obtained the Royal Charter of Incorporation from King George V 'to promote and advance the science, practice and business of engineering'. Sir Thomas Guthrie Russell (President 1933–34) led the successful petition for a Royal Charter. Harold Williams served as President for a period in the 1950s.

Dr. L V Muralikrishna Reddy, FIE, Int. PE, CEng (UK) is the youngest President and has assumed office at the Annual General Meeting held at Hyderabad on 21 December 2014. The Institution obtained the full membership of the Engineers Mobility Forum (EMF) at the Bi-annual International Engineers Meetings 2009 held at Kyoto, Japan on 17 June 2009.

2.**Development:**

Subsequently led to the birth of the local institutions. Sdasysnkya of this institution in 1920 where it was only 138 thousand in 1926 exceeded there. The organization launched a quarterly magazine to remove 1921 and June 1923, a quarterly bulletin (Vivrnptrika) put out with him.

Membership in this organization, its Aesoshiatt 1928 (associate membership) had started to take the exams, every level of government engineering college b. S. C. The degree considered equivalent. December 19, 1930, the then Viceroy Lord Irwin, the foundation of its own private building 8, Gokhale Road, in Calcutta. January 1, 1932 the company's office moved into the new building. September 9, 1935 in relation to a State Charter of the emperor George V accepted. In the second paragraph of the declaration of the institution duties are described briefly as follows:

"Indian engineers to meet the goals and objectives of the entity being established, they increase the general development of engineering and engineering science, their implementation in India and people associated with the organization and members of engineering related topics Information Adn-in providing facilities to receive and give ideas." The branches of this institution slowly began spreading across the country. Timely Mysore, Hyderabad, London, Punjab and open its center in Bombay.

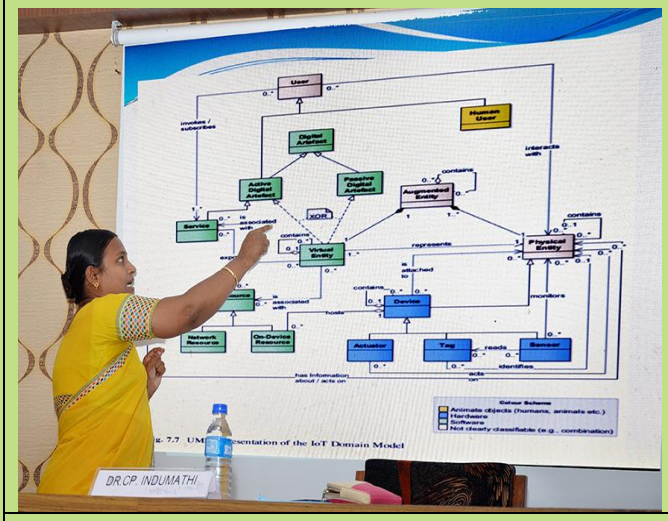
May 1943 Associate Membership exams began to be taken twice a year. In 1944, four major categories of technical operations were established. Civil, Micanikl (mechanical), electrical (electrical) and General (General) Engineering. Different for each department head has to be elected for a term of three years. The Silver Jubilee was celebrated in 1945 in Calcutta. Bihar in 1947, Mdhyprant, Sindh, Balochistan and Tiruwankur, these four locations open new centers.

3 Fora:

There are five fora of the IEI: the National Design & Research Foundation F (NDRF), Water Management Forum (WMF), Safety and Quality Forum (SQF), Sustainable Development Forum (SDF) and Rural Development Forum (RDF). The IEI also has an autonomous organ, the Engineering Staff College of India.

4 Functions:

In addition to representing India in the Engineers Mobility Forum, the institution has been prominent in World Mining Congress (WMC), the World Federation of Engineering Organizations (WFEO), the Commonwealth Engineers' Council (CEC), the Fédération Internationale du Béton (fib), and the Federation of Engineering Institutions of South and Central Asia (FEISCA). It has no worldwide bilateral agreements with other professional societies.

Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		Modelling of IOT systems using UML Diagram	
Activity under Divisional Board		Computer Engineering Division	
Date:	10-09-19	Venue:	IEI TLC Institution Building
			
Dr.C P Indumathi ,Assistant Professor ,CSE Department,Anna university Tiruchirappalli is presenting a lecture on the topic through power point.		Er.K.Ramadoss Former General Manager BHEL Tiruchirappalli is presenting a Memento to the speaker in the presence of Dr.N.Kumaresan Chairman,and Er.A.Anand Hon.Secretary of IEI TLC	

Modelling of IOT system using UML diagrams

Internet of Things (IoT) is changing the world. The term “Internet of Things” (IoT) was first used in 1999 by British technology pioneer Kevin Ashton to describe a system in which objects in the physical world could be connected to the Internet by sensors to count and track goods without the need for human intervention. Today, the Internet of Things has become a popular term for describing scenarios in which Internet connectivity and computing capability extend to a variety of objects, devices, sensors, and everyday items.

Software engineering as a discipline provides the necessary platform to carry on the underlying design, coding, implementation as well as maintenance of such systems. With the abundance of applications that have emerged due to the IoT concept, there are a number of underlying processes that now need to be generalized as for example the data gathering, service discovery and the interfaces design. The contributors to successful software for IoT are mainly the designers, testers and the developers. However their level of association to an IoT project is different. An application designer works with the design of the application while the tester and the developer are more connected to the simulation, programming framework and execution platform backend. UML diagrams aim to guide the IoT design to a more standardised methodology of development and deployment. UML (Unified Modeling Language) is a standard visual language adopted by the OMG. It presents a visually comprehensible outlay of the construction of IoT systems. This lecture covers the modelling of IoT systems using UML diagrams.

For instance, there are several proposals for model-based approaches for developing IoT applications, e.g. the ThingML language as well as other proposals. The motivation for model-based development is to describe a system on a higher level of abstraction. Typically, this is done in UML and other languages by diagrams modeling specific aspects or views of a system.

Moreover, UML is the most used language for software architecture description in industry. Approaches the programming of IoT systems through visual programming based on UML to enhance its usability for people without engineering background.

Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		Food Safety standards	
Activity under Divisional Board		Agricultural Engineering Division	
Date:	17-09-2019	Venue:	IEI TLC Institution Building

Dr.V.Thirupathi Ph.D.,Dean Agricutural Engineering college and research Institute,Tamil Nadu Agricultural University,Kumulur is presenting a lecture on the topic through power point.

Dr.S.Dharmalingam past chairman, Former General Manager BHEL Tiruchirappalli is presenting a Memento to the speaker in the presence of Er.S.Lakshmanan past Secretary of IEI TLC

Food Safety Standards

Dr.V.Thirupathi, Dean,
Agricultural Engineering College & Research Institute,
TNAU, Kumulur

Food safety has become one of the biggest consumer issues of recent years. Food safety means access to sufficient amounts of safe and nutritious food is key to sustaining life and promoting good health.

FOOD SAFETY AND STANDARDS ACT, 2006

The issues with existing regulatory regime in India with nine different laws and eight different ministries governing the food sector and laws framed by different Ministries / Depts. with different perspective and enforcement approach. Overlapping laws with different quality standards & labelling requirements.

Hence, Government of India planned to create new authority for removal of multiple regulations, harmonizing with international law, framing regulatory requirements based on science & risk analysis, facilitating trade without compromising consumer safety and bringing in innovation in foods is Food Safety and Standards Authority of India (FSSAI). Aim of this authority is One Nation One Food Law.

Objectives of FSSAI

- To consolidate multiple laws and establish single point reference system
- To establish Food Safety and Standards Authority
- To regulate the manufacture, storage, distribution, sale and import of food products
- To ensure availability of safe and wholesome food for human consumption

Salient feature of the act:

- ❑ To ensure that all food meets consumers' expectations in terms of nature, substance and quality
- ❑ To provide legal powers and specify offences in relation to public health and consumers' interest;
- ❑ To shift from regulatory regime to self-compliance through Food Safety Management system.
- ❑ Science based standards
- ❑ Proprietary food, novel food, GM food, dietary supplements, nutraceuticals etc., brought into the ambit of the new act.

Scope of the act:

The Act covers activities throughout the food distribution chain, from primary production through distribution to retail and catering. It gives the Government powers to make regulations on matters of food safety. The Food Safety & Standards Authority of India is the principal Government Authority responsible for preparing specific regulations under the Act.

Role of state as per the act

Food safety commissioner is chief administrator in the concern state of FSSAI. The roles and responsibility of food safety commissioner is prohibit in the interest of public health, the manufacture, storage, distribution, or sale of any article of food; carry out survey/inspection of the food processing units in the state to find out compliance of prescribed standards; conduct training programmes for the personnel engaged in food safety; ensure efficient and uniform implementation of the standards and other requirements of food safety. Sanction prosecution for offences punishable with imprisonment under this Act.

The roles & responsibilities of designated officer is to issue or cancel license of Food Business Operator and to prohibit sale in contravention of this Act; receive report and samples of articles of food from Food Safety Officer and get them analyzed; make recommendation to the Commissioner of Food Safety for sanction to launch prosecutions; maintain record of all inspections made by Food Safety Officers; get complaints investigated in respect of any contravention of the provision of this Act or against FSO.

The roles & responsibilities of food safety officer is taking samples of food intended for sale; seize any articles of food which appears to be in contravention of this Act; enter and inspect any place where food is manufactured, or stored for sale; may after giving notice, destroy unsafe food; seize any adulterant found in possession of a manufacturer or distributor; FSO can be penalized for harassment of business operator (There is provision for penalizing complainant for false complaint).

Name of Centre / Overseas Chapter:		**TIRUCHIRAPPALLI LOCAL CENTRE**	
Title of Activity:		**Hybrid Welding Process**	
Activity under Divisional Board		**Production Engineering Division**	
Date:	**24-09-2019**	Venue:	**IEI TLC Institution Building**

Dr.P.Sathiya Professor,Departmnt of Production Technology, National Institute of Technology,Tiruchirappalli-15 is presenting a lecture on the topic through power point

Dr.S.Samidas Past Chairman,Former General Manager BHEL Tiruchirappalli-14 is presenting a Memento to the speaker in the presence of Dr.N.Kumaresan Chairman and Er.A.Anand Hon.Secretary of IEI TLC

Effect of shielding gases on microstructure and mechanical properties of super austenitic stainless steel by hybrid welding

Dr.P.Sathiya
Professor & Head
Department of Production Engineering
National Institute of Technology
Tiruchirappalli-620 015
Tamilnadu, India

The laser–arc hybrid welding which integrates laser beam and arc welding into one process eliminates the disadvantage of individual processes. At the same time it has its own particular advantages, viz., the deeper welding penetration, high welding speed, less deformation, the ability to bridge relatively large gaps and the capability of handling highly reflective materials[1–4].For these advantages, laser–arc hybrid welding technology has received significant attention in recent years. But there were only a few studies that reported the industrial applications of the laser–arc hybrid welding. Most of the researches carried out so far have dwelt on the improvement of the weldability of a particular material. In order to get the most efficient synergetic effects between the laser and the arc, many problems like lack of penetration and gap bridge ability about the matching of numerous hybrid welding parameters must be solved. Laser CO_2–GMAW is suitable for shipbuilding and transport industry and panel fabrication in aerospace industry. The two welding sources, coupled to perform a hybrid welding process, require a fine tuning of both sets of technological parameters: laser welding parameter and GMAW parameters in order to obtain a stable, repeatable and productive process. Based on hybrid welding, many studies have been carried out regarding power related parameters viz., coupled arc volt-age, laser beam power and on source positioning related ones such as defocus position and distance between the sources, in order to trace out the basics regarding the applicability of the process. More specific studies have been carried out considering plasma interaction and molten pool fluid dynamics with the aim of tuning the complex equilibrium which stands behind this kind of processes. The shielding gas and its protecting methods were also important for the behaviours of CO_2 laser MIG hybrid welding such as the laser–arc interaction and the energy transfer of the two heat sources, which directly impacts the laser–arc synergetic effects. One of the author had discussed how the shielding gas composition (helium–argon–CO_2) affected the weld quality, weld profile and process stability of the CO_2laser–metal active gas (MAG) hybrid welding. Super austenitic stainless steel is Fe-based system highly alloyed with Cr, Ni, Mo, and N to produce excellent pitting and crevice corrosion resistant properties at high temperatures and in seawater. When exposed to elevated temperatures for long periods of time, large amounts of precipitates, including carbides, nitrides and intermetallic phases, are formed in this steel. The most commonly observed secondary phases include $M_{23}C_6$ carbide, and intermetallic σ, χ

and Laves phases. Other less commonly observed secondary phases include M_6C, π, R, and Cr_2N.

This investigates focused on the bead geometry, microstructure and mechanical properties of AISI 904 L super austenitic stainless steel joint by CO_2laser–GMAW hybrid welding process. Shielding gas is one of the important parameters for the process stability and efficient synergetic effects between laser and gas metal arc welding (GMAW). A detailed study of CO_2laser–GMAW hybrid welding with different shielding gas mixtures in different ratio (50%He + 50%Ar, 50%He + 45%Ar + 5%O2, and 45%He + 45%Ar + 10%N2) was carried out on AISI 904 L super austenitic stainless steel sheet of 5 mm thickness. The weld penetration of hybrid welding was determined by the plasma shape varying with the shielding gas parameters, especially the plasma height interacting with incident plasma. The X-ray diffraction was used to analyze the phase composition, while the microstructural characterization was performed by phase microscopy of the joints. The impact and tensile tests were performed and fracture surface morphology had been analyzed through scanning electron microscope (SEM). Finally, hardness test is performed along the longitudinal direction of the weld zone. The results showed that the joint by laser–GMAW hybrid had higher tensile and impact strength than the base metal. The fractography observation showed the cup-cone shaped fracture while the hybrid welding joint mixed mode of fracture. The laser–GMAW hybrid welding is suitable for welding of AISI 904 L super austenitic stainless steel owing to their high welding speed and excellent mechanical properties

The Institution of Engineers (India)
(ESTABLISHED 1920, INCORPORATED BY ROYAL CHARTER 1935)

IEI – TLC – NEWS solicits technical articles from members on various topics for publication.

Visit our Website

http:ieitiruchi.org

Send your feedback to

ieitlc1973@gmail.com

On behalf of the Institution of Engineers (India), Tiruchirappalli Local Centre, published by Er. A. Anand, Hon. Secretary, IEI, TLC

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