



Issue No. 2019/8-9

**IEI - TLC - NEWS**  
IN-HOUSE NEWS LETTER OF  
**THE INSTITUTION OF ENGINEERS (INDIA)**  
TIRUCHIRAPPALLI LOCAL CENTRE  
[www.ieitiruchi.org](http://www.ieitiruchi.org)



CHAIRMAN: **Er. N. KUMARESAN, FIE**

HON. SECRETARY: **Er. A. ANAND, MIE**

**IEI - TLC - NEWS**  
**CONVEYS GREETINGS TO ALL**  
**FELLOW ENGINEERS**





## From the Chairman's Desk...

Dear Fellow Engineers,

Greetings.

I am happy to inform through this Newsletter that the celebration of 52<sup>nd</sup> Engineers' Day will be organized by Tiruchirappalli Local Centre of The Institution of Engineers (India) on 15.09.2019, 10.00 a.m. at Dr APJ ABDUL KALAM Auditorium, Anna University, (BIT Campus), Tiruchirappalli. As the Chairman of IEI TLC, I extend a cordial invitation to all of you to make the function a grand success.

IEI TLC has organised a two day All India Workshop on "Optical Fiber Technology and Photonic Integrated Devices for Communication and Industrial Applications" under the aegis of Electronics and Telecommunication Engineering Division during 9-10 August 2019 in association with National Institute of Technology, Tiruchirappalli. Like earlier programmes, this workshop was 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/>).

The inaugural function of the centenary celebration has been planned by IEI TNSC on 13.09.2019 at Hotel Le Royal Meridien, Chennai. In this regard, make yourself to participate in this mega event at Chennai.

I congratulate the editorial team for bringing out this edition of this Newsletter in a professional way and timely manner. Let us aim to reach further heights with collective efforts and also to bring many honors to IEI TLC. Thank you one and all.

Dr. N Kumaresan  
Chairman



# contents

- ✓ **IEI-TLC –Upcoming Workshop Details**
- ✓ **Membership Drive**
- ✓ **Engineers Day Invitation**
- ✓ **Recent Technical Lectures**



## IEI, TLC organizes All India Workshop on “Theory and Practice of Sustainable Manufacturing”

It is our great pleasure to inform you that an **All India Workshop on “Theory and Practice of Sustainable Manufacturing”** is being organized by our **Tiruchirapalli Local Centre** under the aegis of Production Engineering Division in association with **NIT, Tiruchirapalli** during **Sep 20-21, 2019 at NIT, Tiruchirapalli**.

We request you to please make it convenient to attend the programme to make it a grand success and also extend your valuable support and contribution by way of your presence, presenting papers, deputing delegates and the way you would like to do and also provide wide publicity to the aforesaid programme by sharing this invitation among your colleagues & friends for their participation for mutual benefit to the fraternity.

For further details, you may contact:

Hony. Secretary,

The Institution of Engineers (India), Tiruchirapalli Local Centre

BHEL Main Office Road,

Tiruchirapalli 620 014

Phone: 0431- 2554285, 9442236476

Email: [tiruchirapallilc@ieindia.org](mailto:tiruchirapallilc@ieindia.org)

[ieitlc1973@gmail.com](mailto:ieitlc1973@gmail.com)



## IEI, TLC organizes All India Workshop on “Emerging Technologies in Aerospace Engineering”

It is our great pleasure to inform you that an **All India Workshop on “Emerging Technologies in Aerospace Engineering”** is being organized by our **Tiruchirapalli Local Centre** under the aegis of Aerospace Engineering Division in association with **J.J. College of Engineering and Technology, Tiruchirapalli** on **27th Sep, 2019** at **J.J. College, Tiruchirapalli**.

We request you to please make it convenient to attend the programme to make it a grand success and also extend your valuable support and contribution by way of your presence, presenting papers, deputing delegates and the way you would like to do and also provide wide publicity to the aforesaid programme by sharing this invitation among your colleagues & friends for their participation for mutual benefit to the fraternity.

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## Initiative by IEI-TLC to increase membership strength

As part of the initiative to increase the membership strength IEI-TLC and based on the keen interest shown by Rane Polytechnic Technical College, Sethurappatti village Trichy, a presentation was arranged in the afternoon of 6 Sep. 19 at the college. Chairman Dr. Kumaresan and past Chairman, and Dr. Dharmalingam participated.

Dr. Dharmalingam made separate presentations for first year diploma students to become member of the students' chapter and all faculty members to become the corporate member of IEI. The detailed presentation highlighting the activities of IEI and the benefits of becoming a member of IEI was well received by the participants. Initially Er. M. Sankar, Principal Rane Polytechnic Technical College delivered the welcome address. Dr. Kumaresan Chairman, IEI-TLC explained the importance and advantages of becoming a member of professional bodies.







# Engineers Day Invitation

**The Institution of Engineers (India)**  
99 Years of Relentless Journey towards  
Engineering Advancement for Nation Building

**Tiruchirappalli Local Centre**  
*Cordially invites you*  
For the

**52<sup>nd</sup> ENGINEERS' DAY**

**ER K S KASI VISWANATHAN,**  
Managing Director,  
Seshasayee Paper & Boards Ltd,  
Pallipalayam  
*has consented to be the Chief Guest &  
& deliver the theme address*

**DR T SENTHILKUMAR**  
Professor & Dean,  
Anna University (BIT Campus)  
Tiruchirappalli  
*Presides Over*

Theme: **"Engineering for Change"**

**Time & Venue**  
**1<sup>st</sup> September 2019 10:00 Hours**  
Dr APJ ABDUL KALAM Auditorium, Anna University,  
BIT Campus, Tiruchirappalli

**INVITATION**



## 52<sup>nd</sup> ENGINEERS' DAY

# P R O G R A M M E

*Tea*

*Welcome Address*

**Dr N Kumaresan**  
*Chairman, IEI, TLC &  
Professor, NITT*

*Garlanding the portrait of Sir M. Visvesvaraya*

*Brief Life sketch of Sir M. Visvesvaraya*

*Presidential Address*

**Dr T Senthilkumar,**  
*Professor & Dean,  
Anna University (BIT Campus),  
Tiruchirappalli*

*Theme address by the Chief Guest*

**Er K S Kasi Viswanathan,**  
*Managing Director,  
Seshasayee Paper & Boards Ltd,  
Pallipalayam*

*Announcement of Engineers' Day Award*

*Prize Distribution for Students & Technicians*

*Vote of thanks*

**Er A Anand**  
*Hon. Secretary, IEI, TLC &  
Manager, BHEL, Tiruchirappalli*

*Lunch*



# RECENT TECHNICAL LECTURES

Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		Opencast Mining – Mine Planning & Method of Working	
Activity under Divisional Board		Mining Engineering Division	
Date:	30-07-19	Venue:	IEI TLC Institution Building
			
<p>Er.R Kamaraj Mine Manager Dalmia Cement (Bharat) Ltd. Dalmiyapuram is Presenting a lecture on the Topic through Power Point slides to the participants.</p>		<p>Er.R Selvaraj immediate past Chairman Former Senior Deputy General Manager BHEL Tiruchirappalli is presenting Memento to the speaker in the presence of Er. S.Lakshmanan Immediate past Secretary of IEI TLC</p>	

## Opencast Mining-Mine Planning & Method of Working

Mr.R.Kamaraj, Manager(Mines) DalmiaCement(Bharat)Limited,Dalmiapuram Unit,Trichy

Introduction: Mining may well have been the second of humankind's earliest endeavors standing next to agriculture. Minerals are being used from ancient period. Contributions made by mining have played a much more significant role in the development of civilization than is generally conceded by historians or recognized by ordinary citizens. In modern society, mined products pervade all industry and the lives of all civilized people. Civilization and Industrialization growth accelerated the search for minerals. Mining is on the Leading Edge of the Future.



## Mine Planning Basic elements Considered for Mine Planning

- ✓ Distribution of Ore Deposits
- ✓ Stripping Ratio
- ✓ Quality of Ore
- ✓ Infrastructure Facilities Available
- ✓ Environment & Social Issues Distribution of Ore Body Deposits
- ✓ Form and Shape of the deposit.
- ✓ Size and extend of deposit
- ✓ Depth from surface
- ✓ Grade of deposits
- ✓ Geological disturbances, Intrusions etc.,

Stripping Ratio Generally expressed in amount of over burden removed in mining a unit of Ore/ Mineral. Weight of the Recoverable Mineral Reserve, in tones Stripping Ratio

Volume of the Over burden in Cubic Meter Quality of the Mineral The quality of mineral decides the economic working of mine as blending of low grade and high grade, planto mine both High Grade and Low grade at the same time, so that longevity of mines is increased.

Infrastructure Available of approach roads, short lead to nearby town, power supply, housing, medical, school facility reduces the initial investment.

Environment & Social Issues Besides climatic conditions, close proximity of mining near regular habitation influence the Method of working, mechanization, transportation.

## Mineral Exploration

- ✓ Trenches & Pits-Sinking ash allow shaft Or Shallow pits and analyzing the samples
- ✓ Remote Sensing – Collecting and interpreting information about the terrain and other



- ✓ Exploration Drilling - Primarily aimed at its target ore its presence, size and grade Secondary objective involve testing geological conditions. Diamond Drilling is the most Versatile method, providing superior core sample for observation and testing. Drill Cutting is caused by the combined mechanism of rock fracture and rock shearing Diamonds under the drilling load acts like an intender and causes plastic deformation of rock. The diamonds when forced against the rock break the bond holding rock particles together or causes fracture of material. Drilling of 1200 m to 1800 miscommon with this method
- ✓ Detailed Exploration This is done only after preliminary investigation report is satisfactory. This involves two phases:  
  
Phase1: Topographical Survey Topographical survey is carried out and Contour plan with 1to2Mtr interval on a scale of 1:1000to1:2000is prepared. Geological Mapping In this map out crops, structural features, ore body boundary and various types of mineral in corporate sona scale of 1:1000to1:2000
- ✓ Core Drilling: Core drilling in grid pattern is done to determine
  - Depth of Mineral body
  - Variation in grade of Mineral
  - Knowledge of Reserve
  - Structure of Mineral deposit
  - Dip and strike of deposit
  - Presence of geological disturbances
  - Stripping Ratio
- ✓ Sampling: A small amount /Portion of ore substances from the mass, which shall be representative of the whole mass The assay value is termed for physical or chemical which may affect the value of ore It may be conducted in any exposed surface of the ore body in Out crops, Trenches and sampling drill holes Slice Plans& Section For mechanized mine a provisional bench with height of 10 Mis chosen and geological plans for each bench is prepared Various longitudinal and cross sections are prepared based on results of Bore hole Calculation of Total ore, Bench wise ore reserve are computed from the seslice plans and sections



Phase2 Core Drilling @ Closer Interval Further core drilling on a smaller interval to define the quantity and chemical composition of ore Engineering Investigation Engineering investigation is carried out to design and locate Crushing plant, Railway siding, Workshop, Stores, Office, Electrical sub-station and Waste dumps

Reserve Estimation Methods-Geometrical Method (Area & Average Factor Method, Polygonal Method, triangular Method, Cross Sectional Method)

- ✓ Reserve Classification-Possible Reserve, Probable Reserve & Proved Reserve.
- ✓ Mine Planning
- ✓ Long Term Planning-The requirement of the factory, the number of benches to be worked at an time is worked out for every five years, Equipment Selection forms the Long Term Planning.
- ✓ Short Term Planning-Yearly plan for budget purpose is break into number of blasts, number of shovel location which forms the Short Term Planning
- ✓ Mining Method
- ✓ Amineisan excavation made in earth to extract minerals. Amine may be
- ✓ Opencast or Surface Mines
- ✓ Under ground Mines
- ✓ Criteria for selecting U/G or Opencast Method of working
- ✓ Geological Characteristics
- ✓ Cost of the Mineral
- ✓ Thickness of Over burden/TopSoil
- ✓ Thickness of Mineral Deposit
- ✓ Stripping Ratio
- ✓ Density of Over Burden



When Do we use surface mining technology? Surface Mining technology is adopted based on the requirements given below

- ✓ Large tonnage
  - ✓ High rates of production
  - ✓ Over burden (including rock) is thin
- When do we use Under ground Mining? Under ground technology is a adopted under the following situations
- ✓ Theore deposit is deep
  - ✓ Ore body is steep
  - ✓ Grade is high enough to cover costs

Commonly used Surface Mining Terminologies  
Bench: A ledge that forms a single level of operation above which mineral or waste materials are mined back to a bench face  
Bench height: The vertical distance between the highest point of the bench, or the bench crest, and the toe of the bench.

Bench Face: Working Place in Bench Berm: A berm is a horizontal shelf or ledge with in the ultimate pit wall slope  
Classification of Open cast mining Methods

1. Conventional Method
2. Non Conventional Method–

Technology Advancements Technology has changed with time and with the application of computers in mining, decision making has changed to a great extent. With the Globalization and industrialization, demand for the output increases which in turn leads to growth of large open cast mines. Although government has made stringent laws to protect the environment in order to maintain the sustainable growth of mineral industry, mining activities slowly transformed from conventional to Nonconventional Methods. Technology Advancements in conventional Methods



### Fragmentation:

- ✓ Fractures, faults, weakplanes, bedding, fissures, .Etc.
- ✓ Amount of weathering
- ✓ Intact rock strength
- ✓ The rock texture:
- ✓ Abrasiveness, porosity, brittleness Etc. Not Recommended in
- ✓ Massive and homogeneous rock formation
- ✓ Non-crystalline and, therefore, not brittle
- ✓ Without planes of weakness
- ✓ Fine grained material with a solid cement in gplant
- ✓ Of clay origin, where plastic nature of material impedes ripping Advantages
- ✓ Environmental friendly
- ✓ Better fragmentation
- ✓ Less hazardous operation
- ✓ Better slope stability
- ✓ Helps to increase capacity due to better fragmentation
- ✓ Facilitate blending

Drilling Blasting Loading Transportation

Rock Breaking/Cutting Loading Transportation

Disadvantages

- ✓ Only suitable in geotechnical areas which have sufficient mining-induced stress fracturing.
- ✓ Unable to mine hard patches which sometimes occur in gold-bearing reef.



This requires blasting on a small scale to pre-fracture the rock before the Impact Ripper may proceed. Rock Breaker Hydraulic rock breaker were initially invented for demolition work The versatility of rock breaker it can work even in narrow, wider and steeper deposits, where inhabitants are situated closer to mines, dwellings, houses or some important monuments.

Application:

- ✓ Selective Mining
- ✓ Secondary Reduction
- ✓ Removing Over burden
- ✓ Rock Mining without Blasting Advantages
- ✓ Winning of mineral close to the inhibited area is possible
- ✓ Less man power required
- ✓ Selective mining is possible.
- ✓ Selective mining helps to increase the Mineable reserves
- ✓ It can be used for small patches left out in the old workings

Disadvantages

- ✓ When the mineable reserves are meager then this machine is not economic as well cannot justify the capital that has to be invested.
- ✓ When the mineral to be exploited has more compressive strength or hardness the none has to go for higher capacity mega breaker which needs more capital.
- ✓ Operators should be trained to operate the machine, otherwise the breakage of moil point goes up and hence cost of operation may also goup. Surface Miner In German Surface Miner were introduced for road work and open cast coal mines This machine has the feature of cutting the earth, layer by layer and loading simultaneously in to the transporting equipment. This equipment has got limited application in deeper, narrow deposits.



## Advantages

- ✓ Single lift operation
- ✓ Production rate is very high
- ✓ Continuous operation
- ✓ Environmental friendly.
- ✓ Suitable where blasting is prohibited ores tried
- ✓ Eliminates primary crushing of mineral completely
- ✓ Designed for selective mining

## Disadvantages

- ✓ It required atleast 500m travel to excavate the mineral
- ✓ High Initial Investment around Rs. 11 Crore
- ✓ If the mineral distribution was uneven it affects very much in production rate.
- ✓ If it's break down total production was stopped
- ✓ Marching time is more i.e. shifting of machinery from one layer to another layer
- ✓ Mechanical Driven Chain Trenchers
- ✓ These are mechanically driven trench cutters which can be used for mining of hard mineral deposit.
- ✓ The operation is similar to Surface miner which differ in the mechanism of operation
- ✓ Mechanical Drive ensures SIGNIFICANTLY LESS Tooth Wear
- ✓ Maximum Break out Force: Slow Chain Speed=More Torque
- ✓ Long machine life
- ✓ Low cost and easy repair
- ✓ Fuel savings
- ✓ High production Wide range of Chain Speeds



### X-CentricRippers

- ✓ HighRate of Production
- ✓ Maintenance Free
- ✓ Minimum Noise
- ✓ Works under water
- ✓ Easy operation
- ✓ Works in any position

**Conclusion:** Surface Mining technology is adopted based on the massive production and thin layer of Overburden. In order to meet the increase in demand for the mineral requirement many advanced technologies are adopted to win the deposit by integrating sustainable mining techniques. Mining can become more environmentally sustainable by developing and integrating practices that reduce the environmental impact of mining operations by selecting right method for the right deposit.



Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		Psychological issues related to health	
Activity under Divisional Board		General & Inter Disciplinary	
Date:	06-08-2019	Venue:	IEI TLC Institution Building



Dr.C S Gunasekaran ,Director Manitham Homeo healing Centre Trichy is Presenting a lecture on the Topic through Power Point slides to the participants.

Er.K.Ramadoss, Former General Manager BHEL Tiruchirappalli is presenting Memento to the speaker in the presence of Dr.N.Kumaresan Chairman and Er.A.Anand Hon.Secretary of IEI TLC

**DISEASE - CAUSE - CURE UNDERSTANDING IN - A - NUTSHELL**

**ARE WE REALLY DISEASED?**

- There is no such thing as diseases.
- If everything is functioning in line with the system , we are at ease , feel comfortable and happy.
- In case of some changes, disruptions, that take place in the system of functioning in the Mind - body combination , we feel some uneasiness that is dis-ease.
- It is only the expression of the vital force through its sensation and function , about its problem encountered.
- Currently the medical community has labelled that all the symptoms displayed by the body , are the diseases.
- Health is restored once we understand what exactly is happening within the body and stop the activity that brings in disharmony.
- Chemistry in the body can be understood in two fold. Base –which is alkaline and the Acid , the other side.



All the tissues in the body, irrespective of what it is, liver, heart, lungs, muscles etc., are made of cells

- We have trillions of cells , they all need to be fed and cleaned.
- To feed and clean the human cells, we have two prime fluids that dominate the human body, they are –THE BLOOD and THE LYMPHATIC SYSTEM.
- Blood supplies essential substances and nutrients such as sugar and oxygen , which feed the cells.
- Analogy of this would be the –The Kitchen of the Body.

The lymphatic system is like a SEWER SYSTEM

- Our body has hundreds of septic tanks known as Lymph Nodes.
- Microphages which are our immune cells live in the Lymph nodes to break down the cells that have to be transported to the Lymph Node.(gland)
- This is why we see cancer cells in the lymph nodes, as they are waiting for the cells to break down because they are damaged cells.
- Once the waste from the damaged cells and the healthy cells (they must eliminate their own waste and by-products) are broken down they are carried away to be eliminated via the lymphatic system and the kidneys.
- The kidneys are vital component for the elimination of sewerage of the damaged /dead cells.
- The body's Primary Eliminating pathways –the kidneys-are the important filters for the lymphatic system.( tissue, vessel, cell, node)
- Skin sweating , large intestines –expels digestive waste.
- The secondary eliminating pathways – are the lungs – expelling carbon dioxide and expectorating mucus through coughing.
- Nose also expels mucus ;
- Eyes - through tear ducts ;
- Ears - the wax.
- While there are number of ways the waste products could exit through,
- the most important method for wastes produced by cells (where the lymphatic system is concerned) is via filtration through the kidneys and exiting out in the urine
- When the kidneys are not functioning at their best they will lose their filtering ability.
- This then results in a gradual build-up of lymphatic sewerage throughout the body. (Not only in one location ).
- The body then must find other ways to expel this built-up wastes. The skin being such a large organ , will do its best to compensate
- But if we are putting in more toxins and chemicals ( via what we eat , drink , breathe and put on our skin)
- plus the addition of metabolic waste, when the kidneys are not functioning at their best optimum ,
- the end result is that it accumulates within the tissues of the body, usually lodging in the weaker areas.
- This then manifests in our body as inflammation, pain , or acidosis of blood( displaying abnormal high acidity - excess hydrogen concentration )



- damaging , weakening and coagulating the cells, eventually in to hardened masses.
- These symptoms are what the medical community has labelled as diseases, which are not in reality.
- When the body is overburdened with external and internal toxic substances for a prolonged time ,
- it loses its capacity to detoxify at the same rate that toxins are being produced and ingested.
- It is under these unnatural conditions that we begin to manifest symptoms of being overloaded, with toxicity and our organs are weakened.

### **ACTION PLAN**

- Focus on the cause of the problem.
- Stop doing what caused it in the first place.
- Begin to eliminate the unwanted substances in the body, the root cause of the illness.

This process of eliminating unwanted substances from body at a cellular level that addresses and corrects imbalances is called detoxification

- The mind and body is a inseparable nexus , detoxification only at the physical level is not sufficient
- But also to be done in holistic way through the vital force which animates the material body.
- Giving a fillip to the vital force and its operating tool viz. the defence Mechanism to act,
- which will start the elimination process at the physical level and the imbalance of the system at the mental level,
- eventually results in Homoeostasis
- A state of metabolic equilibrium,
- actively maintained by several complex biological mechanisms
- that operate via, the autonomic nervous system, to off-set disrupting changes
- When the focus is on the symptoms with the illusionary concept of diseases in mind ,
- good health is hard to come by.
- A cure will never be found for what does not exist.

### **In the Human being**

The Energy is expressed in the form of two distinct entities

THE ENERGY

1. THE MIND

2. THE BODY

### **VITAL FORCE - THE DYNAMIS**

- Intelligent – animates, guides & balances organisms on all 3 levels ( MEP) – both in healthy & diseased states.
- In Healthy state:- maintain psychosomatic equilibrium of the human being by itself.
- No disease symptoms are produced / manifested
- In disease state – PSE – changed, altered – manifesting – symptoms & signs.



Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		Revealing the secrets of search Engine.3	
Activity under Divisional Board		Computer Engineering Division	
Date:	13-08-19	Venue:	IEI TLC Institution Building



Dr.K.Latha M.E.,Ph.D.,Assistant Professor Department of Computer science and Engineering,Anna University Trichy is Presenting a lecture on the Topic through Power Point slides to the participants.



Er.S.Samidass, Past Chairman, Former General Manager BHEL Tiruchirappalli is presenting Memento to the speaker in the presence of Er.A.Anand Hon.Secretary of IEI TLC

## Revealing the Secrets of Search Engines: A Technological Overview

This article focuses on the Search Engine design issues and solutions to the problems. Some of the issues are, use of Web search engines to find results in foreign languages (Dirk, 2008), Duplicate content penalty, Search Engine Spiders Can't Index Pages, and Losing Visibility by Duplicating Titles (originally published: Search Engine promotion help).

### A Search Engine Technology

A search engine (Wikipedia) is an information retrieval software program that discovers, crawls, transforms and stores information for retrieval and presentation in response to user queries. Search engines provide an interface to a group of items that enables users to specify criteria about an item of interest and have the engine find the matching items.



### **Relevance Feedback (Improvisation of Search Engines)**

The idea behind relevance feedback (Wikipedia) is to take the results that are initially returned from a given query, to gather user feedback, and to use information about whether or not those results are relevant to perform a new query. There are three types of feedback: explicit feedback, implicit feedback, and blind or "pseudo" feedback.

**Explicit Feedback:** Users may indicate relevance explicitly using a binary or graded relevance system. Binary relevance feedback indicates that a document is either relevant or irrelevant for a given query. Graded relevance feedback indicates the relevance of a document to a query on a scale using numbers, letters, or descriptions (such as "not relevant", "somewhat relevant", "relevant", or "very relevant").

**Implicit feedback** is inferred from user behaviour, such as noting which documents they do and do not select for viewing, the duration of time spent viewing a document, or page browsing or scrolling actions there are many signals during the search process that one can use for implicit feedback and the types of information to provide in response.

**Pseudo relevance feedback**, also known as blind relevance feedback, provides a method for automatic local analysis. It automates the manual part of relevance feedback, so that the user gets improved retrieval performance without an extended interaction.

### **Problems with the use of Web search engines to find results in foreign languages**

The language of the target document is important because it determines whether the user can understand the search results. There are some issues with specific languages that search engines have to face and focus on the language identification aspect of search engines. Search engines consider language factors when ranking results. However, these rankings should not be confused with geographically dependent rankings, which employ the location of the user (as determined by his IP address or the country interface) and provide a higher ranking for documents from the user's country than from foreign countries.

### **Duplicate content penalty**

Duplicate content can happen if web pages publish the same articles, if different domains point to the same web space or if webmasters steal the content of other pages. If two shops sell the same item and use similar shop systems, some product pages can also look like duplicated web pages.

**Solution:** Not all web pages with the same content have the same search engine rankings. If a web site is older than another, if it has better inbound links and if that site has more content than it's likely that it will get better rankings than another page that lists the same article.



### **Search Engine Spiders Can't Index Pages**

Web designer has created a beautiful page with nice graphics and great Flash animations. Unfortunately, it seems that search engines won't list your website no matter what you do. Search engines use very simple software programs to index your web pages. A web page that looks great to the human eye can be totally meaningless to search engines. Search engines cannot see content that is presented in images (GIF, JPEG, PNG, etc.), Flash elements, JavaScript and other script languages or other multimedia file formats. If you use JavaScript links for your website navigation then search engines might not be able to find your website page.

Solution: If you want to get high rankings for a special keyword then this keyword must appear in the right places on your web page. For example, it usually helps to use the keyword in the web page title.

### **Title Tags for search engines**

**Avoid Duplications:** Sometimes taking simple steps can make a noticeable difference in the visibility of your Web site. Although duplicating titles and Meta tags across multiple pages on your site will not get you in potential keywords and phrases that people might search on to find you. You should use as many of them as you can. A good way to start is to double check that your page titles and Meta tags are unique and have been properly optimized for each page.

**Regionalize Your Title:** If your business primarily seeks local or regional business, include your city, state, or region in your title. Even if you offer services to anyone in the world, such as Web Site Design services, you'd be wise to still regionalize one or more of your page titles. Include the name of your city, state or province, and country in the title.



Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		Optimization under uncertainty in process Industries	
Activity under Divisional Board		Chemical Engineering Division	
Date:	20-08-2019	Venue:	IEI TLC Institution Building
			
Dr. Nagajyothi Virivinti., Assistant Professor, Department of Chemical Engineering National Institute of Technology Trichy is Presenting a lecture on the Topic through Power Point slides to the participants.		Dr. N. Kumaresan Chairman, Assistant Professor National Institute of Technology Tiruchirappalli is presenting Memento to the speaker in the presence of Er. S. Lakshmanan immediate past Secretary of IEI TLC	

### Optimization Under Uncertainty in Process Industries

#### Synopsis:

Chemical process converts some raw material into some useful products by integration of several processing units arranged in a systematic manner. In any chemical process or industry, the main aim is to obtain maximum profit in a minimum time. Therefore, optimization of a chemical processes is necessitated as it provides the best possible values of profit and time. In general, while conducting optimization based studies, the formulations are most frequently established in a deterministic fashion where it is ensured that all parameters appearing in the optimization formulation, other than the decision variables, are certainly known and their values cannot be changed during the entire course of optimization. However, if some of these parameters are exposed to real life uncertainty, the results obtained assuming them as constants may lead to infeasibility when they are changed even slightly from their existing values.



Conventionally, these uncertainties can be handled by overdesigning the equipment or overestimating the operational parameters and thereby absorbing the uncertainty embedded in them. Another popular approach is to replace the uncertain parameters with their nominal values and solve the deterministic formulation. These ideas are not pragmatic because the former leads to a very conservative solution where full potential of the plant / equipment is never utilized, whereas in case of the latter, the benefit of the changing operating conditions can never be exploited leading to either missing opportunities or unnecessary inventory piling due to under and over production situations. The paradigm of optimization under uncertainty (OUU), has, therefore, become popular as it allows a decision maker to create reliable solutions that remain feasible in the presence of parametric uncertainty.

As mentioned earlier, most of the processes lead to multi-objective optimization problems which contains more than one objective function. If the objective functions are conflicting nature, optimization problem does not contain a single solution and it contains several equally important solutions called Pareto optimal solutions. Evolutionary algorithms can be used to determine the Pareto front for the multi-objective optimization problem. Non-dominated sorting genetic algorithm is one of the techniques used to generate the Pareto optimal solutions for the multi-objective optimization problem. An industrial grinding process has been considered here to perform the uncertainty analysis which contains two conflicting objective functions: Throughput and Mid-size fraction and NSGA-II is used to generate the Pareto optimal solutions. However, the industrial grinding process contains some uncertain parameters such as grindability constants, exponents etc., which are obtained by regression analysis of experimental results. It is necessary to consider them as uncertain as there may be any experimental and regression errors. Therefore, the constants are considered as uncertain and uncertainty analysis has been carried out and determined the movement of Pareto front under parametric uncertainty.

Broadly, two types of optimization under uncertainty methodologies exist in the literature. The first category comprises the probability based approaches, e.g. Stochastic programming (SP), chance constrained programming (CCP) and, expected value model (EVM), and, therefore, assumes that the uncertain parameters have to follow some well-behaved, known probability distributions. However, estimating these distributions quite accurately usually requires an astronomical, completely unrealistic number of observations and might not be a practical task under real life situations. Hence, fuzzy based approaches which overcome the drawback of probabilistic based approaches came into realization. Fuzzy based approaches use membership function to represent the degree of uncertainty whose value lies in between 0 and 1. Based on the availability of distribution information, fuzzy based approaches can be used to carry out the uncertainty analysis. Therefore, based on the availability of distribution information, suitable approach can be selected and uncertainty analysis can be performed.



Name of Centre / Overseas Chapter:		TIRUCHIRAPPALLI LOCAL CENTRE	
Title of Activity:		RFID based wireless Sensorsfor structural health Monitoring	
Activity under Divisional Board		Electronics & Communication Engineering	
Date:	27-08-2019	Venue:	IEI TLC Institution Building



Dr.C.Geetha,Assistant Professor, Department of Instrumentation & Controls Engineering National Institute of Technology Trichy is Presenting a lecture on the Topic through Power Point slides to the participants.



Er.K.Ramadoss Former General Manager BHEL Tiruchirappalli is presenting Memento to the speaker in the presence of Dr.N.Kumaresan, Chairman and Er.A.Anand Hon.Secretary of IEI TLC

### RFID based wireless sensors for Structural Health Monitoring (SHM)

Recent advancements in sensor technology, rapidly increases the growth of condition monitoring of engineering structures. The various structural components are fabricated using metallic materials are subjected to severe fatigue and impact load condition, reducing its strength gradually with time. Though the engineering structures are designed against fatigue failure, more than 50% of mechanical failures are due to fatigue crack. In engineering structures, small cracks lead to inadequate serviceability and large cracks can result in structural failures. Hence continuous Structural Health Monitoring (SHM) is essential for the exponential increase of infrastructure, which demands cost effective reliable and passive sensors with small size to detect mechanical defects.



Periodic inspection using conventional acoustic, electromagnetic and visual inspection techniques are laborious, lengthy and expensive. Different types of crack sensors have been developed, and the most commonly used sensors were the strain gauge and optical fiber sensors. However, large structure require a network of sensors, strain gauges are not suitable for SHM systems due to complexity and wiring. Even though optical fiber - based strain sensors are an attractive choice of sensor for SHM systems, the inherent shortcomings such as expensive interrogation equipment, limited strain range for crack detection and fragility, etc, have not been resolved. Due to the high instrumentation cost and measurement complexity in gathering large amount of real time data from engineered structures, wireless structural health monitoring is gaining significance.

Radio Frequency Identification (RFID) sensor is one of the cheap and easily implementable technologies for wireless strain sensing as reported in the literature. This method has gained lot of attraction in recent years due to their passive, low-cost, cost-efficient solution for NDT, pervasive monitoring and wireless characteristic. A basic RFID system consisting of three major components namely, transponder (RFID tag) on item, reader and reading system (computer). The transponder is an electronic tag which consists of an antenna and RFID chip. The tag scavenges its operating power from the reader interrogation signal. The backscatter signal from the tag includes a tag electronic product code and some measurable parameters such as received signal strength indicator (RSSI) and phase. Evolution of low cost RFID based sensors enables wireless monitoring of mechanical damages and crack propagation for continuous health monitoring of structural components. Besides condition monitoring of structures, RFID sensor finds potential applications in positioning and tracking, bio-monitoring, human activity recognition and food quality and safety



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