

■ **Felicitation of Hon. Balasaheb Wagh at Parshuram Saikhedkar Natya Mandir, Nashik**



Felicitation of Hon. Shri. Balasaheb D. Wagh

Patrakar Din Sohola was celebrated by Maharashtra Rajya Patrakar Sangh (Nashik branch) on 4th January 2014. On this occasion Hon. Shri. Balasaheb Wagh, President K. K. Wagh Education Society was awarded with "Samaj Ratna Puraskar" for his valuable contribution in the field of Education, Jalashinchan Ayog, Cooperatives and Social Work. Mr. Bharatkumar Raut, MP, was the Chief guest on this occasion. The programme was organized at Parsuram Saikhedkar Natya Mandir, Nashik.

■ **Visit by Mr. Kumar Ketkar, Chief Editor, Divya Marathi**



Mr. Kumar Ketkar, Chief Editor, Divya Marathi visited our Institute.

Mr. Kumar Ketkar, Chief Editor, Divya Marathi visited our Institute on 16th January 2014. He visited the Central library and various departments of Engineering College.

Hon. Chairman of K. K. Wagh Education Society, Shri. Balasaheb Wagh, Secretary Prof. K. S. Bandi and Principal Dr. K. N. Nandurkar were present on the occasion.

■ **Lecture by Padmashri Kumar Ketkar at Shankaracharya Nyas on topic "Challenges Before India in 2014"**



Lecture by Padmashree Kumar Ketkar

To commemorate the 115th birth anniversary of Padmashree Late Deoram Sayaji alias Kakasaheb Wagh, a lecture of eminent Journalist Padmashree Kumar Ketkar on the topic "Challenges before India in 2014" was arranged on 17th January 2014 at Kurtakuti Shankaracharya Nyas, Nashik. In his lecture Mr. Ketkar took a review of the political scenario in India and said that the election in 2014 is most important election to be held after the year 1952.

■ **Visit by Dr. Madhavrao Chitale and meeting at Central office**



Meeting with Dr. Madhavrao Chitale at Central office

On 18th January 2014, Dr. Madhavrao Chitale visited our Institute. The meeting was held at Central office. He was felicitated at the hands of Chairman of K. K. Wagh Education Society

Shri. Balasaheb Wagh. For this meeting Secretary Prof. K. S. Bandi, Principal Dr. K. N. Nandurkar, All Principals of various Institutes of K. K. Wagh Education Society and Heads of Department of Engineering and Polytechnic were present.

Visit by Mr. B. G. Bhandarkar, Advisor, Dr. D. Y. Patil University, Pune

Mr. B. G. Bhandarkar, Advisor, Dr. D. Y. Patil University, Pune gave lecture on "Strategic Planning for development of Institute" on 21st January 2014. On this occasion Hon. Chairman Shri. Balasaheb Wagh felicitated the guest. Secretary Prof. K. S. Bandi, Principal Dr. K. N. Nandurkar, All Principals of various Institutes of K. K. Wagh Education Society and Heads of Department of Engineering and Polytechnic were present for the lecture.



Speech by Mr. B. G. Bhandarkar, Advisor, Dr. D. Y. Patil University, Pune

Motivational speech for students of First Year



Prof. Dr. C. K. Rao delivering a speech

An expert Seminar for FE students titled "Be a Successful Student and Responsible Citizen." by Dr. C. K. Rao, Principal of Srivenkateswara Engineering College, Andhra Pradesh was organized in Dr. P. C. Ray Hall on 31st January 2014. The students were made aware about research and innovation skills, how to get Good

Knowledge and also good marks, simultaneously how to improve personality.

Cricket T20 Competition won by College

T20 Cricket team of Institute wins consecutively second time Inter Engineering T20 Cricket Tournament. The tournament held at Gokhale Education Society's R. H. Sapat College of Engineering, Nashik during 17th - 20th Jan., 2014. In this tournament student of our institute won three individual prizes i.e. Man of the Series - Mr. Ajinkya Padhe, Best Batsman Mr. Sachin Lone and Best Bowler - Mr. Prashant Deore.



Institute won the T20 Championship (Team members along with Principal Dr. K. N. Nandurkar and Prof. T. K. Kandekar, Physical Education Director)

Lecture By Mr. Parag Mandale

On 3rd Jan. 2014 NSS Unit of our Institute had organized expert Talk on "Challenges in the Changing Life style" by Mr. Parag Mandale, (Jeevanshailee Mission, Nashik). In his talk Mr. Mandale highlighted the thoughts of Mahatma Gandhiji.



Lecture by Mr. Parag Mandale organized by NSS for students

NSS Programme - Jivanshailee Interview

On 27th Jan. 2014 NSS had organized Open interview and Discussion by Jeevansadhak: Mr. Subrato Rai and Mrs. Jayanti Rai; and Haritsadhak: Shri. Gautam Bhatwra. The main theme of this event is to know the simple lifestyle and interact with such great special personalities. Principal Dr. K. N. Nandurkar felicitated the guests. Staff members and students were present in large numbers of this occasion.



Interview of Subarto Rai, Mrs. Jayanti Rai and Mr. Gautam Bhatwra

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■ Blood Donation Camp

On 11th January 2014, NSS and Saibaba Heart Institute, Nashik jointly organized "Blood Donation Camp" in which 189 bags blood was donated to Civil Hospital and MVP Hospital Blood banks. This camp was organized on the occasion of celebration of Swami Vivekanand Jayanti as a National Youth Day. The Chief Guest was Dr. Anirudhha Dharmadhikari (Famous Cardiologist from Saibaba Heart Institute and Research Centre, Nashik). He was felicitated at the hands of Trustee Shri. D. S. Shinde.



Blood donation camp organized by NSS

■ Inauguration of Poster Competition on 'Save Godavari'

K. K. Wagh Institute of Engineering Education & Research, Nashik had organized Poster and model competition on the theme SAVE GODAVARI on 11th January 2014. Dr. Aniruddha Dharmadhikari, Trustee Mr. Sameer Wagh, Principal Dr. K. N. Nandurkar inaugurated the Exhibition. Around 150 Students from Engineering and polytechnic has participated in the event. Prizes to the winners were given at the hands of Prof. Rajendra Singh at Ganga Ghat, Nashik. Prof. V. K. Patil and Prof. Nagarkar judged the Event.



Poster Competition on 'Save Godavari'

■ Prize distribution of Poster Competition

On 12th Jan. 2014 NSS volunteers participated in Godavari Prikrama at Trambakeshwar organised by Godavari Gatarikaran Virodhi Manch, Nashik. In this activity NSS volunteers collected water from Gangadwar and participated in Rally via

Kushawart to Shivaji Chawk followed by special talk of Dr. Rajendra Singh. On this occasion prizes given to the students of Poster Competition on 'Save Godavari'.



Prof. Rajendra Singh with prize winners

■ Workshop on "Object Oriented Analysis & Design using IBM Rational Software Architect"

A 4 days' workshop on "Object Oriented Analysis & Design Using IBM Rational Software Architect" was conducted in Computer Engineering Department from 2 to 5th January 2014. The workshop was organized by IBM; Mr. Amit Dharwal was the resource person. Around 10 faculties from Computer Engineering Department and 50 students from TE Computer attended the workshop. This workshop helped the participants to understand project documentation and importance of Iterative Approach in software development. In this intensive, hands-on workshop, participants also learned to apply UML to fundamental OOAD concepts, including architecture, objects, classes, components, stereotypes, relationships, and all supporting diagrams.



Participants of workshop

■ "EXCEL" Workshop

A one day "Excel" Workshop was organized by Student branch of CSI, Computer Engineering Department on 18th January 2014. Mr. Ashok Sindkar from "Advanced Excel Academy" was the resource person. Staff members from K. K. Wagh Institute attended the workshop.

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Excel Workshop on 18th January 2014

■ Republic Day Celebration

The Republic day was celebrated with full honour on 26th January 2014. The flag was hoisted at the hands of Prof. D. D. Barve (Ex. Principal). Dr. V. D. Barve gave message to all present. The family members of Mr. Ashok Merchant, Trustee of K. K. Wagh Education Society attended the programme. All staff members from all the Institutes of this campus and students from hostels were present.

■ Expert Lecture/Seminar/Courses/Worshop Organized:

- The training session for non-teaching staff on "Soft skill" was organized on 11th January 2014 in the Institute. The resource person for the same was Mr. Srikant Karode.
- Applied Science & Maths department organized a Parents-Teacher meet for parents of F. E. students from all divisions on 11th January 2014 in the College.
- Electronics & Telecommunication department organized an Expert Lecture of Mr. Krunal Dhakate on "Career opportunities after graduation" on 9th January 2014 and an Aptitude Test conducted by GATE Forum on 6th January 2014. Same department organized an Expert Lecture of Shri. Mohikar on "Industrial Process Control Systems" on 11th January 2014 and an Expert Lecture of Mr. Mukesh Jahangid, Academic Head at GATE academy on "Strategy adopted for GATE preparation" on 25th January 2014.
- Mechanical Engineering department organized an expert lecture of Mr. Krunal Dhakate on "Opportunities after graduation" on 11th January 2014 and workshop by Access Cad Nashik on "CATIA" for TE Mechanical students during 15 to 18th January 2014 & on "ANSYS" for B. E. Mechanical students on 25th January 2014.
- Electrical Engineering department (First Shift) organized an expert talk of Dr. O. G. Kulkarni on 'Entrepreneurship Development' on 3rd January 2014 and expert talk of Dr. M. R.

Rathi on 'Renewable Energy' on 10th January 2014. Same department organized an expert talk of Mr. John Yesuraj on 'Art of thinking' on 17th January 2014 and an expert talk of Prof. Dr. B. E. Kushare on "Basics of Electrostatics" on 24th January 2014.

- Electrical Engineering department (Second Shift) organized an expert talk of Dr. O. G. Kulkarni on Entrepreneurship Development on 7th January 2014 and an expert talk of Dr. M. R. Rathi on Solar PV Sizing on 21st January 2014.
- Chemical Engineering department organized an expert talk of Mr. Krishnadhan Das on "Orienting lifestyle towards Success" on 16th January 2014 and an expert talk of Dr. A. V. Borade on "Nano-Catalysis & Characterization Techniques" on 24th January 2014.
- The Department of Information Technology in association with T & P had organized an interactive session with the KPIT team on 11th Jan., 2014 with TE(IT), TE(Comp A & B Div.) and MCA (Second Year) students. Mr. Rajendra Kango, Mr. Narayan Aher, Mr. Sachin Jadhav from KPIT were present for the same. In this session the team discussed about expectations of the company from the fresher's, work environment, culture, services, company products. Opportunities for PG and MS at KPIT were also covered during the session.
- The Department of Information Technology had organized a contest on "Test your Memory with Tag Lines of IT Companies" on 18th Jan., 2014. The contest was organized to create awareness about tag lines of IT companies. Same department also organized a seminar on "Opportunities for IT Engineering" by Mr. Krunal Dhakate, Director of T.I.M.E Academy, Nashik on 21st Jan., 2014 and a workshop on "Oracle Forms and Reports" by Mr. Abhinandan Chivate, Global Talent Track, Pune during 29 to 31st Jan., 2014.
- MCA department organized an expert lecture on "Introduction to Android" was delivered by Mr. Shyam Borse on 17th January 2014.
- The MBA department organized an expert lecture of Mr. Vishwanathan, The School of Continuous Improvement, on "Green Belt -Six Sigma Orientation" on 31st January 2014.
- Speech by Mr. Ratnaparkhi, Manager, Bank of India, Nashik on 'New Investment and Loan Schemes' for staff on 30th January 2014. Also the lecture by Dr. Preetam Kalos on 'Outcome based Assessment' was arranged for staff in same programme.

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- Training and Placement Cell conducted an "Awareness program on Skill development on 9th January 2014 by Mr. Patil and Mr. Gune, CEO of NEC (Nashik Engineers Cluster) for TE students. T & P Cell also organized an expert Seminar on "Be a smart Entrepreneur" by Mr. Rajendra Chaudhary and Mr. Manoj Deslay, Directors, Sumart Excellency on 29th January 2014.
- The Maharashtra Times Carnival vehicle visited College campus. Students displayed their talents inform of dance and songs and enjoyed the event.

■ Seminars / Workshop / Training Attended By Staff:

- Computer Engineering departmental staff Ms. Rutuja Harish Jadhav attended Workshop on "NBA Accreditation – Mapping of PEO's, PO's and CO's" at Government Polytechnic, Samangaon, Nashik during 20th to 24th January 2014.
- Prof. D. M. Chandwadkar, Head of E & TC attended Two day National workshop on "Software defined radio" organized by MES COE, Pune during 20 to 21th January 2014. Same departmental staff Prof. D. M. Chandwadkar & Prof. Ms. S. V. Shelke attended an industrial training at ADCC Info CAD Pvt., Ltd., on 15th January 2014.
- Mechanical Engineering departmental staff Prof. N. R. Kadam & Prof. R. V. Bhaskar attended one day workshop on "Material Science & Metallurgy" at S.R.E.S., C.O.E., Kopargaon on 27th January 2014.
- Electrical Engineering departmental staff Prof. Mrs. Tanuja N. Date attended Syllabus Revision Workshop conducted by University of Pune on 3rd January 2014. Same department staff Prof. Mrs. S. M. Akolkar attended workshop on "Matlab for Engineers" conducted by Math works Ltd., on 15th January 2014.
- MBA departmental staff Prof. Ms. Bhakti Joshi & Prof. Ms. Keki Kashyap attended workshop at Nashik Engineering Cluster on 16th January 2014.
- Training & Placement Officer Mr. P. K. Shahabdar attended National seminar titled "Academic Excellence through Quality - Opportunities and Challenges" on 23rd January-2014 organized by Thakur College of Engineering & Technology, Mumbai.

■ Books Purchased in Central Library : January 2014

Sr.No.	Name of Dept.	Total No.of Books purchased
01.	MBA	75

■ Industrial Visits Organized For Students:

Date	Class	Name of Company
09/01/2014	SYMCA	ESDS Software Solution Pvt., Ltd., Nashik
15/01/2014	B.E.(Electronics)	Doordarshan Relay Station, Gangapur Road, Nashik
18/01/2014	T.E. Electrical (Second Shift)	400 kV Substation, Babhaleswer
21/01/2014	S. E. (E&TC)	All India Radio Station, Gangapur Road, Nashik
22/01/2014	T. E. Electrical (First Shift)	POH, Bhusawal
22/01/2014	T. E. Chemical	Sanjeevani Sakar Karkhana, Kopargaon
23/01/2014	B. E. (Electronics)	SONY Center, Canada Comer, Nashik
25/01/2014	B. E. Chemical	Catapharma Pvt., Ltd., Sinner
27/01/2014	T. E. (E&TC) and (Electronics)	Electromagnetic Devices, Hyderabad
28/01/2014	T. E. (Electronics)	Ratnparkhi Electronics Pvt., Ltd., Satpur, Nashik

■ Training & Placement :

Name of the Dept.	Name of Company	No.of students selected
E&TC	IBM	2
Computer	GS Lab-Pune	1
Computer	Arcons Software Solutions Pvt. Ltd, Nashik	2
Information Technology	Arcons Software Solutions Pvt. Ltd, Nashik	3
MBA	E-Clerx	2

■ Papers presented by Students:

In the month of January 2014, 11 student of Institute participated in various competitions like paper presentation, Model Making, Quiz Competition, Web Designing, Poster presentations Competitions at National and state levels. Out of which following student secured prizes

- Computer Engineering departmental student Niragi Shah secured 2nd rank & Mitali Nimse secured 3rd rank in National Level Android Application development Competition during 25-26th January 2014.

■ Other Achievements

- Principal Dr. K. N. Nandurkar was invited as Chief Guest for inauguration of one week programme on Lab Management for Lab Assistants, organized by Sandip Polytechnic, Nashik on 5th January 2014. He was also invited to deliver expert lectures on the topic 'Production Technology' for third year diploma students of Polytechnic through VLC scheme of MSBTE. It was organized at the studio of Yashwantrao Chavan Open University, Nashik.

- Institute received the 'Best Participating Institute Award' for intercollegiate aptitude test competition APIT-BODH 2013 conducted by Institute for GATE Coaching (IGC) Nashik. The first three toppers among all colleges were from our Institute.
- Head of Computer Engineering department Prof. Dr. S. S. Sane elected as CSI Regional Vice President (Region VI). Same departmental staff Prof. Ms. M. J. Metkar and Prof. Mrs. C. R. Patil was invited to scrutinize Projects for Pro Utsav - 14 at K. K. Wagh Polytechnic Nashik.
- Prof. Dr. B. E. Kushare, Head of Electrical Engineering department delivered an expert talk on "Energy management & open access" for two days for Times of India at Calcutta on 28 & 29th January 2014. He also conducted two days training program for R&D Engineer of TDK (EPCOS), Nashik on 18, 19th January 2014. He delivered expert talk at Coimbatore on "New Product Validation of Atlas Copco". He offered Electrical Consultancy services to BOSCH, Nasik, Times of India, Airoli. & Times of India, Kandivali, Mahindra Sona, Dr. Vijian Hospital and Dr. Dhadiwal Hospital. He visited "ELECRAMA 2014" at Bangalore on 8 and 9th January 2014.
- Prof. J. P. Shah, staff of Electrical Engineering department delivered a lecture at Matoshree Engineering College on "Role of E & TC Engineering for Space Exploration" on 1st January 2014. He also delivered a lecture at Guru Gobind Singh Polytechnic on same topic on 29th January 2014.

■ Abstracts of papers presented during January 2014:

Soft Skill Training Through Cooperative Learning: A Case Study

Prof. P. K. Shahabaddkar, Prof. Mrs. P. S. Vispute & Prof. Dr. K. N. Nandurkar

(Presented at the International Conference on "Transformations in Engineering Education", (ICTIEE), organized by B.V.B College of Engineering & Technology, Hubli during January 16-18th, 2014)

Abstract: In this competitive world, teamwork, learning ability and soft skills along with academic excellence are prerequisites for the career growth of a student. In the global work culture, engineering students have to work in groups. It is responsibility of the institute to restructure the learning situations in the

changing scenario. A few changes in college teaching are required for bringing in the desired change in which students learn in groups. This paper is about structuring the appropriate Teaching - Learning environment for learning the soft skills. Herein, we describe the experiment conducted at K. K. Wagh Institute of Engineering Education & Research, Nashik-India for teaching the characteristics of master student and developing soft skills through Cooperative Learning. In cooperative learning students work in groups to maximize their own and each other's learning. An attempt has been done in this study to demonstrate the application of cooperative learning for developing the soft skills through the Master student programme.

■ Application Of Curriculum Innovation For Production Management Subject

Prof. Dr. K. N. Nandurkar & Prof. A. S. Kamble

(Presented at the International Conference on "Transformations in Engineering Education", (ICTIEE), organized by B.V.B College of Engineering & Technology, Hubli during January 16-18th, 2014)

Abstract:- In the affiliated system of higher education, implementing the curriculum decided by the University becomes a challenging task for an individual faculty member. It becomes essential to apply the curriculum innovation in response to stake holder needs. One such attempt done in one of the unaided engineering colleges in Maharashtra is presented in this paper. The syllabus for Production Management subject at final year Production Engineering course was developed by the University of Pune. However the faculty members developed a plan for curriculum innovation based on the inputs received during the IUCEE FLI programme. Some of the active learning techniques adopted provided an opportunity for the students to work in teams, collect information, visit industries, prepare reports and present their findings. This has resulted not only in better understanding of the subject as reflected in University results but also in developing institute- industry partnerships. This exercise has been carried out for last six years and over 400 students have been benefitted. The feedback received clearly indicates that if the curriculum innovation is applied properly, it is possible to transform the traditional course syllabus into competency based syllabus resulting in overall improvement in quality of technical education.

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■ Fabrication and Characterization of Ultra long Period Reversible Fiber Gratings

Prof. S. P. Ugale

(Published in International Journal of Optics by Springer)

Abstract:- We report here for the first time the characterization of mechanically induced ultra long period fiber reversible gratings (MULPFG) with period size up to several millimeters. In these gratings the coupling of the fundamental guided core mode takes place with cladding modes of high diffraction orders. The transmission characteristic of grating with different periods and different external applied pressure has been experimentally verified.

■ Face Recognition Technique Using PCA, Wavelet and SVM

Prof. Mrs. M. P. Satone

(Published in international Journal, IJCSE, Volume 6, issue 1)

Abstract:- The face reorganization system is very important for security and surveillance purposes. In this study we present a method of face recognition in which features are extracted by applying Principal component analysis on wavelet subband. Support vector machine and nearest distance methods are used for classification. Classification accuracy is examined by changing number of training images and kernel function. Results are tested on ORL database which is standard face database and contains 400 images of 40 persons. We obtained highest classification accuracy of 97.5% with 6 images per person in the training set using polynomial linear kernel.

■ Centrifugal pumps (Agriculture) unbalance and shaft Dynamic analysis from the experimental data in a rotor system

Prof. Vilas K. Patil

(Presented in International Conference on Advances in Mechanical Sciences (ICAMS) 2014, during January 9-11, 2014 organized Vardhaman College of Engineering, Shamshabad - 501218, Hyderabad, India, Secured first Prize in the Conference)

Abstract:- The study of torsional vibration of rotor system is very important especially in application of high speed rotor. In the present work is extending the analysis of simple rotor to torsional vibration. The analysis of torsional vibration of the three rotor system of Agricultural pump with the conversional Newton's second of

motion or energy method. The analysis is extended to the system having different disc/rotor dimension and different material. Where system natural frequencies of torsional vibration may be close to, or within, the source frequency range during normal operation, torsional vibrations constitute a potential design problem area. In such case designers should ensure the accurate prediction of design a rotor system based on torsional vibrations.

Keywords: Three rotor system, Torsional natural frequency, Node, Eigen vector

■ Engine Based Trigeration with thermal storage

Prof. Vilas K. Patil & Prof. Mahesh Shelar

(Presented in International Conference on Advances in Mechanical Sciences (ICAMS) 2014, during January 9-11, 2014 organized Vardhaman College of Engineering, Shamshabad -501218, Hyderabad, India)

Abstract:- Diesel Generators are widely used in India in applications like hospitals and hotels where reliable power supply is important. Anecdotal evidence suggests that diesel generators are selected to meet the peak essential loads of the users without consideration of waste heat recovery. Diesel generators utilized with heat energy driven vapour absorption machines and waste heat recovery hot water generator (Trigeration) can meet electricity, cooling and heating demand. Different configurations of engine based trigeration are possible. The paper discusses a configuration of engine based trigeration system with thermal storage that could be applied to places where simultaneous electricity, cooling and power demand exists. The physical model, mathematical model and operating strategy based on storage tank temperature for the proposed trigeration system are presented.

Keywords: heat recovery, cogeneration, Trigeration.

■ Saw dust as best available adsorbent for treatment of dye bearing water

Prof. Dr. Venkat S. Mane & Prof. S. N. Jain

(Presented at National Conference on "Environmental Pollution and Protection", EPP-2014, organized by NIT Durgapur, West Bengal during 30 January-1st Feb. 2014)

Abstract:- The total dye consumption of the textile industry worldwide is in excess of 10^7 kg

per year. Approximately 1 million kg/yr of dyes are discharged into water streams by the textile industry. Unless properly treated, the dyes present in wastewaters can affect photosynthetic activity due to reduced light penetration and may also be toxic to certain forms of aquatic life. Activated carbon (AC) is the most popular adsorbent but it becomes more problematic for developing countries to afford the cost and demand of activated carbon. However, due to high cost of AC and about 10-15 % loss during its regeneration, alternate adsorbents are being explored. Many researchers have studied the feasibility of using low cost material such as saw dust. The by-products from the forestry and agricultural industries could be assumed to be low-cost adsorbents since they are abundant in nature, inexpensive, require little processing and are effective materials. Saw dust is an abundant by-product of the wood industry that is either used as cooking fuel or as packing material. Various researchers have utilized Beech sawdust, Neem sawdust (*Azadirachta indica*) Teakwood saw dust, sagan (*Tectona grandis*) wood saw dust, Raw saw dust (RSD), Meranti tree sawdust and Pine wood saw dust for removal of dyes. Sawdust has proven to be a promising effective material for the removal of various dyes. The present paper deals with the various types of saw dust utilized for treating the dye bearing wastewater and their comparisons.

Keywords: Saw dust; adsorption; dyes

■ Recent treatment techniques for removal of heavy metals from wastewaters: A review

Prof. Dr. Venkat S. Mane & Prof. V. N. Mawal

(Presented at National Conference on "Environmental Pollution and Protection", EPP-2014, organized by NIT Durgapur, West Bengal during 30 January-1st Feb. 2014)

Abstract: With the rapid development of industries such as metal plating facilities, mining operations, fertilizer industries, tanneries, batteries, paper industries and pesticides, etc., heavy metals wastewaters are directly or indirectly discharged into the environment increasingly, especially in developing countries. Unlike organic contaminants, heavy metals are not biodegradable and tend to accumulate in living organisms and many heavy metal ions are known to be toxic or carcinogenic. In larger amounts causes acute and chronic toxicity. They linked to learning disabilities, cancers and even death. Toxic heavy metals of particular concern in treatment of industrial wastewaters include zinc, copper, nickel, mercury, cadmium, lead and

chromium. Faced with more and more stringent regulations, nowadays heavy metals are the environmental priority pollutants and are becoming one of the most serious environmental problems. So these toxic heavy metals should be removed from the wastewater to protect the people and the environment. Many methods that are being used to remove heavy metal ions include chemical precipitation, ion-exchange, adsorption, membrane filtration, electrochemical treatment technologies, etc. The present review paper deals with the current techniques for the removal of heavy metal ions from wastewater. Their advantages and limitations in application are also evaluated. It is important to note that the overall treatment cost of metal-contaminated water varies, depending on the process employed and the local conditions. In general, the technical applicability, plant simplicity and cost-effectiveness are the key factors in selecting the most suitable treatment for inorganic effluent.

Keywords: Heavy metals wastewater; Treatment technology; Review

■ Hydrogenation of levulinic acid and γ -valerolactone : steps towards biofuels

Prof. Derle S. N.

(Published in International Journal, Biomass conversion & Biorefinery, Springer, Verlag Berlin Heidelberg, during January 2014)

Abstract:- Several bifunctional catalysts (Pt, Au, Ni supported on ZSM-5, zeolite Beta, silica and alumina) were evaluated for hydrogenation of levulinic acid (LA) and γ -valerolactone (GVL). Among these, Pt supported on parent- and desilicatedzeolite Beta showed better catalytic activity for hydrogenation of gamma valerolactone to valeric acid (VA) with >98 % selectivity. Noteworthy catalytic activity of Au supported on desilicated zeolite Beta in GVL to VA hydrogenation was observed. Other catalysts such as Pt/ γ -alumina, Ni/ desilicated zeolite Beta and Ni/SiO₂, did not exhibit significant catalytic activity in GVL hydrogenation. Pt and Au-supported zeolite catalysts were also tested for hydrogenation of LA to GVL. Pt supported on zeolites decomposed formic acid (FA) to CO₂ and H₂ and in situ produced H₂ hydrogenated LA to GVL. Pt impregnated desilicated zeolite Beta was found to retain its integrity even after prolonged exposure to hot VA solution and neither Pt nor Al leached into solution.

Keywords: Biofuels Hydrogenation. Levulinic acid. Γ -Valerolactone. Zeolite

Prof. Dr. K. N. Nandurkar
PRINCIPAL

