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KVIT RAIPUR

The official newsletter of Krishna Vikash HEI Raipur

VISION

TO CONTRIBUTE TO THE PROGRESS OF THE STATE, NATION AND HUMANITY AS A WHOLE PROVIDING EDUCATION THROUGH RESEARCH AND INNOVATION TO THE FUTURE CITIZENS AND CREATING A NEW ORDER OF PEACE AND PROSPERITY.

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MEET THE TEAM

EDITORIAL DESK

Dear Students, Faculty, and Alumni,

Krishna's Vikash Institute of Technology (KVIT), Raipur recently celebrated a series of memorable events, reflecting it's commitment to learning, growth, and togetherness.

An Educational Tour enrichedthe experiences of B.Tech CSE students and Diploma Electrical students as they explored Delhi, Manali, Kullu and Kasol, combining academic learning with cultural exploration.

International Women's Day saw enthusiastic participation from female faculty members of Krishna Vikash Group of Institutions in friendly matches of cricket and basketball, promoting camaraderie and team spirit.

The campus also came alive with the joyful celebration of Holi Milan, fostering unity and happiness among students and staff. Demonstrating academic excellence, KVIT faculty and students contributed research papers to reputed journals, alongside hosting workshops that encouraged learning and innovation.

These events highlight KVIT's dedication to holistic development, embracing both academic growth and cultural celebration.

WARM REGARDS,
DR. PRAGYA AWADHIYA,
HOD OF FIRST YEAR DEPARTMENT ,
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EDUCATIONAL TOUR

The educational tour organized by Krishna's Vikas Institute of Technology, Raipur, was an enriching experience. From February 27 to March 6, 23 students and two faculty members explored Delhi, Manali, Kullu & Kasol enjoying sightseeing, adventure, and cultural activities. Highlights included visits to Hadimba Temple, Mall Road, river rafting in Kullu, and an overnight camp in Kasol. We extend our sincere gratitude to the institute's management, dignitaries,for their dedicated efforts in making this tour possible. Special thanks to Principal Dr. D.N. Dewangan and CSE Department Head Dr. Gargishankar Verma for their invaluable guidance and support.

एजुकेशन टूर 2025 पर रिपोर्ट : दिल्ली, मनाली, कसोल

रायपुर (विश्व परिवार)। कृष्णा विकास इंस्टीट्यूट ऑफ टेक्नोलॉजी, रायपुर कोइस शैक्षणिक दौरे के आयोजन के लिए हार्दिक धन्यवाद करना चाहते हैं। यह शैक्षणिक दौरा संस्थान के प्रबंधक, प्राचार्य और विभागाध्यक्ष के समर्पित प्रयासों के बिना संभव नहीं हो पाता।

हमारे आदरणीय प्राचार्य डॉ. डी.एन. देवांगन को उनके दूरदर्शी नेतृत्व के लिए तथा कंप्यूटरसाइंसइंजीनियरिंग विभाग के प्रमुख डॉ. गार्गीशंकर वर्मा को उनके अमूल्य मार्गदर्शन और

दिल्ली पहुंचा और होटल में कुछ समय आराम किया।। पूरे दिन में दिल्ली में दर्शनीय स्थलों की सैर की गई, उसके बाद शाम को खरीदारी की गई। बाद में, समूह ने मनाली के लिए रात भर यात्रा की।

1 मार्च को मनाली पहुंचने पर समूह ने अपने होटल में चेक-इन किया। अगले दिन, 2 मार्च को, उन्होंने मॉल रोड और हडिम्बा मंदिर जैसे स्थानीय आकर्षणों का दौरा किया। शाम को संगीत के साथ एक शानदार अलाव का आयोजन किया गया, जिसने अनुभव को और भी बेहतर बना दिया। 3 मार्च की शुरुआत कुल्लू की यात्रा से हुई, जहाँ समूह ने शानदार कुल्लू घाटी का भ्रमण किया और रिवर राफ्टिंग जैसी साहसिक गतिविधियों का आनंद लिया। इसके बाद, वे कसोल और मणिकरण की ओर बढ़े, और दिन का अंत कसोल में शिविरों में रात भर रुकने के

कृष्णा विकास इंस्टीट्यूट ऑफटेक्नोलॉजी राय
छात्रछात्राओं ने मनाली का शैक्षणिक भ्रमण वि

रायपुर,प्रतिदिन राजधानी

कृष्णा विकास इंस्टीट्यूट ऑफ टेक्नोलॉजी, रायपुर
ोइस शैक्षणिक दौरे के आयोजन के लिए यह शैक्षणिक
रा संस्थान के प्रबंधक, प्राचार्य और विभागाध्यक्ष के
र्गदर्शन में पूर्ण हुआ है। डॉ. डी.एन. देवांगन को उनके
दर्शी नेतृत्व के लिए तथा कंप्यूटरसाइंसइंजीनियरिंग
भाग के प्रमुख डॉ. गार्गीशंकर वर्मा को उनके अमूल्य
र्गदर्शन किया ! ज्ञानवर्धक और यादगार यात्रा प्रदान
रने के लिए आपकी प्रतिबद्धता वास्तव में सराहनीय
शैक्षिक दौरे का समग्र अनुभव उल्लेखनीय था ।यात्रा
शुरुआत 27 फरवरी को रायपुर से दिल्ली तक ट्रेन की
ारी से हुई। कंप्यूटरसाइंसइंजीनियरिंग विभाग और

5:00 बजे दिल्ली पहुंचा और होटल में कुछ
किया। । पूरे दिन में दिल्ली में दर्शनीय स्थल
गई, उसके बाद शाम को खरीदारी की
समूह ने मनाली के लिए रात भर यात्रा की
मार्च को मनाली पहुंचने पर समूह ने अ
चेक-इन किया । अगले दिन, 2 मार्च को,
रोड और हडिम्बा मंदिर जैसे स्थानीय आक
किया। शाम को संगीत के साथ एक शानदा
आयोजन किया गया, जिसनें अनुभव को अ
बना दिया। 3 मार्च की शुरुआत कुल्लू की
जहाँ समूह ने शानदार कुल्लू घाटी का भ्रमण
रिवर राफ्टिंग जैसी साहसिक गतिविधियो

WOMEN'S DAY CELEBRATION

Krishna Vikash Group of Institutions (KVGI), Raipur, celebrated International Women's Day on March 8, 2025, with great enthusiasm. The event highlighted women's achievements and promoted gender equality through sports , indoor games and recreational activities.

The inauguration was led by KVGI principals, who emphasized women's empowerment and active participation in sports. The celebrations featured a friendly cricket match, where Krishna Dewas triumphed over KV Science Queens, and an intense basketball match, with KVGS School defeating the Marketing Team. Winners were honored with medals and certificates, making the event a memorable and inspiring experience for all.

कृष्णा विकास समूह संस्थान, अंतर्राष्ट्रीय महिला दिवस मनाया

स्वदेश रायपुर।

कृष्णा विकास समूह संस्थान , रायपुर में अंतर्राष्ट्रीय महिला दिवस बड़े उत्साह के साथ मनाया गया। इस कार्यक्रम का उद्देश्य महिलाओं की उपलब्धियों को पहचानना और खेल तथा मनोरंजन गतिविधियों के क्षेत्र में लैंगिक समानता को बढ़ावा देना था।

डॉ. डी.एन. देवांगन, प्राचार्य, कृष्णा विकास प्रौद्योगिकी संस्थान, रायपुर डॉ. सीमा अग्रवाल, प्राचार्य, कृष्णा विकास उच्च शिक्षा संस्थान, रायपुरडॉ. चंचल दीप कौर, प्राचार्य, कृष्णा विकास औषधीय विज्ञान एवं अनुसंधान संस्थान डॉ. सुकन्या घोष, प्राचार्य, कृष्णा विकास ग्लोबल स्कूल, रायपुर, सभी प्राचार्यों ने

HOLI MILAN

Krishna Vikash Group of Institutions (KVGI), Raipur, celebrated Holi with joy and enthusiasm on March 13, 2025. The festival of colors brought together faculty members, staff, and administration, creating an atmosphere of unity and festivity. Various departments of the institution actively participated, making the celebration memorable.

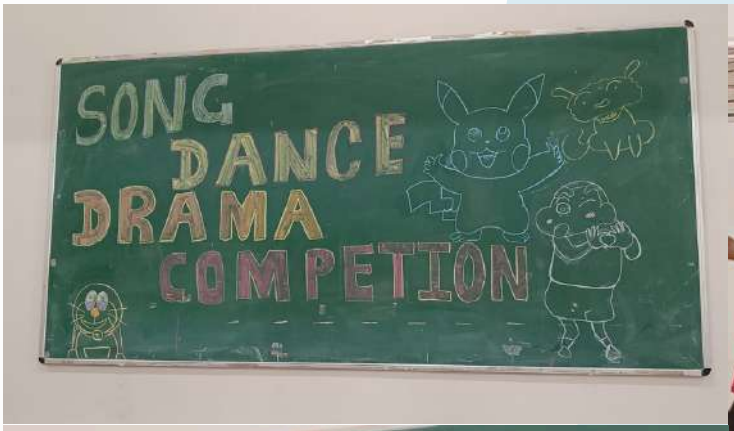
The event was graced by Founder Chairman Dasari Murli Krishna, Managing Director Vivek Dasari, Director Dr S.n Panda, Executive Director Dr. Jawahar Suri Setti, Dr. D.N. Dewangan, Principal of Krishna Vikash Institute of Technology, Dr Seema Agarwal, and Principal of Krishna Vikash Institute of Higher Education, Dr. Chanchal Deep Kaur, Principal of Krishna Vikash Institute of Pharmaceutical Science and Research, Raipur.

Faculty members celebrated the occasion by applying gulal, sharing festive sweets and thandai, and enjoying the beats of lively music. The joyous atmosphere was further enhanced as everyone came together to dance, embracing the spirit of Holi.

.

ECS ACTIVITY

The "Song, Dance & Drama Competition" under the ECS Activity (Cultural Club) for the students (B.Tech and Diploma) took place on 22nd March 2025 at KVIT building. This is an excellent chance to display your artistic skills.



ALUMNI TALK

Krishna's Vikash Institute of Technology (KVIT) proudly hosted an inspiring seminar on the theme "Let Your Skills Speak," featuring Mr. Ajendra Singh, a distinguished alumnus from the Batch of 2022. As a graphic designer and event curator, Mr. Singh shared his journey of transforming passion into profession, emphasizing the importance of honing skills beyond academics. The seminar brought together engineering and diploma students, along with faculty members, creating an interactive platform for learning and motivation.

KVIT Principal Dr. D. N. Dewangan graced the occasion and presented a memento to Mr. Ajendra Singh as a token of appreciation for his inspiring journey. The event was successfully coordinated by Dr. Pratibha Shrivastava, Ms. Nisha Sahu, and Ms. Chetna Chandrakar, who ensured smooth execution and engaging discussions. Attendees gained valuable insights into creative design, event management, and career opportunities, reinforcing the idea that skills and dedication pave the way for success. The session encouraged students to focus on their talents, adapt to industry trends, and let their work speak for itself in the professional world.

KVIT में "Let Your Skills Speak" विषय पर प्रेरणादायक सेमिनार आयोजित

रायपुर (अमन पथ न्यूज)। कृष्णा विकास इंस्टीट्यूट ऑफ टेक्नोलॉजी में "Let Your Skills Speak" विषय पर एक

केवल शिक्षा ही नहीं, बल्कि अपने कौशल को पहचानना और निखारना भी सफलता के लिए जरूरी है। इस अवसर पर KVIT

RESEARCH & INNOVATION

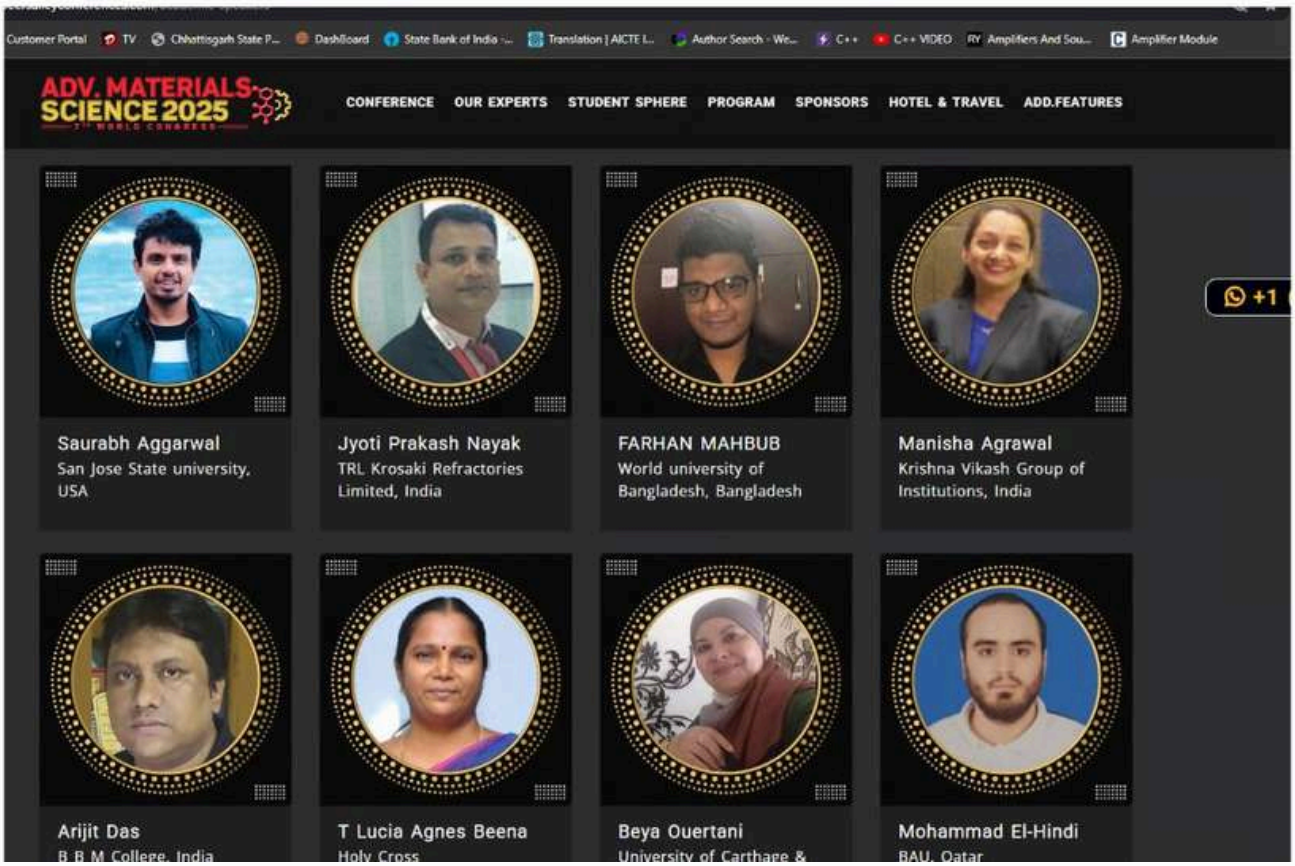
Krishna Vikash Group of Institutions, Raipur, organized an awareness session on 'SWAYAM' for professors and students under the Central Research and Innovation Cell.

Led by Dr. Manisha Agrawal, Professor and Dean (R&D), KVGI Raipur, the session highlighted the importance of online education, research opportunities and skill development through SWAYAM.

The initiative aims to integrate digital learning into higher education to enhance academic and professional growth.

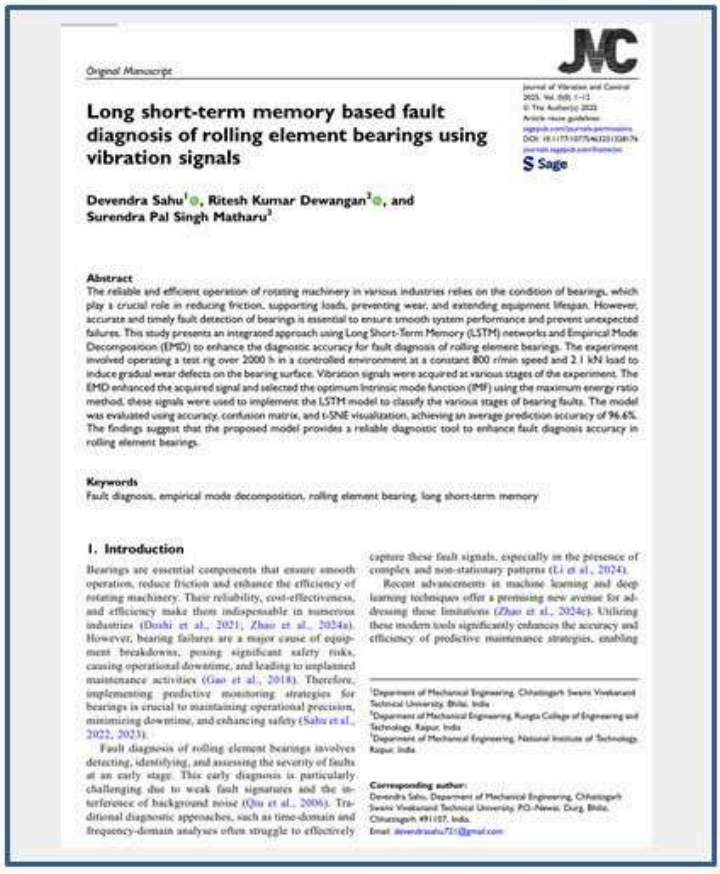
RESEARCH & INNOVATION

Dr. Manisha Agrawal delivered Invited talk on Advance Material Science World Congress organized at Vancouver BC, Canada during March 24-26, 2025. on the Topic 'Synthesis, Characterization and Application of Metal Nanoparticles from Plant Based Terpenoids'.



RESEARCH & INNOVATION

Krishna Vikash Group of Institutions



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S Sage

Long short-term memory based fault diagnosis of rolling element bearings using vibration signals

Devendra Sahu[1], Ritesh Kumar Dewangan[2], and Surendra Pal Singh Matharu[3]

Abstract

The reliable and efficient operation of rotating machinery in various industries relies on the condition of bearings, which play a crucial role in reducing friction, supporting loads, preventing wear, and extending equipment lifespan. However, accurate and timely fault detection of bearings is essential to ensure smooth system performance and prevent unexpected failures. This study presents an integrated approach using Long Short-Term Memory (LSTM) networks and Empirical Mode Decomposition (EMD) to enhance the diagnostic accuracy for fault diagnosis of rolling element bearings. The experiment involved operating a test rig over 2000 h in a controlled environment at a constant 800 r/min speed and 2.1 kN load to induce gradual wear defects on the bearing surface. Vibration signals were acquired at various stages of the experiment. The EMD enhanced the acquired signal and selected the optimum Intrinsic mode function (IMF) using the maximum energy ratio method, these signals were used to implement the LSTM model to classify the various stages of bearing faults. The model was evaluated using accuracy, confusion matrix, and t-SNE visualization, achieving an average prediction accuracy of 96.6%. The findings suggest that the proposed model provides a reliable diagnostic tool to enhance fault diagnosis accuracy in rolling element bearings.

Keywords

Fault diagnosis, empirical mode decomposition, rolling element bearing, long short-term memory

1. Introduction

Bearings are essential components that ensure smooth operation, reduce friction and enhance the efficiency of rotating machinery. Their reliability, cost-effectiveness, and efficiency make them indispensable in numerous industries (Doshi et al., 2021; Zhao et al., 2024a). However, bearing failures are a major cause of equipment breakdowns, posing significant safety risks, causing operational downtime, and leading to unplanned maintenance activities (Gao et al., 2018). Therefore, implementing predictive monitoring strategies for bearings is crucial to maintaining operational precision, minimizing downtime, and enhancing safety (Sahu et al., 2022, 2023).

Fault diagnosis of rolling element bearings involves detecting, identifying, and assessing the severity of faults at an early stage. This early diagnosis is particularly challenging due to weak fault signatures and the interference of background noise (Qiu et al., 2006). Traditional diagnostic approaches, such as time-domain and frequency-domain analyses often struggle to effectively capture these fault signals, especially in the presence of complex and non-stationary patterns (Li et al., 2024).

Recent advancements in machine learning and deep learning techniques offer a promising new avenue for addressing these limitations (Zhao et al., 2024c). Utilizing these modern tools significantly enhances the accuracy and efficiency of predictive maintenance strategies, enabling

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Congratulations

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Professor, Mechanical Engineering
Academic Coordinator
Krishna's Vikash Institute of Technology, Raipur
For publication of Research Paper in
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Topic : "Long short-term memory based fault diagnosis of rolling element bearings using vibration signals"
DOI/Link: : 10.1177/10775463251328176

Krishna Vikash Group of Institutions, Raipur Campus

RESEARCH & INNOVATION

Krishna Vikash Group of Institutions hosted a seminar on "Construction & Standardization of Tests" on March 29, 2025, led by Dr. Seema Agrawal, Principal of KDRCST.

Dr. Agrawal discussed research methodologies, test development, and reliability. Principal Dr. D. N. Dewangan, R&D Dean Dr. Manisha Agrawal, and faculty members participated in discussions. The seminar concluded with an interactive session.

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