K K Wagh Education Society's
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TECHNICAL NEWS LETTER

Visit of Mukund Kulkarni (UK)

On 23rd December 2024, Shri Mukund Kulkarni along with his family members visited the AICTE IDEA Lab. Shri Kulkarni is an accomplished UDCT graduate and IIT Kanpur postgraduate. Currently, he is serving as a Practice Director at Guide wire Software, UK. He appreciated the innovative facilities and the work being done at the AICTE IDEA Lab, which was truly encouraging for our team.

Sixth Academic Council Meeting

The sixth meeting of Academic Council (A.C.) of K.K. Wagh Institute of Engineering education and Research ,Nashik (Autonomous) was held under the chairmanship of Director, Dr.K.N. Nandurkar on December 7, 2024 at 2pm in blended mode (offline and online mode). Dr. K.N. Nandurkar felicitated and welcomed all members present for the meeting. Prof. Sunil Kute, Member Secretary, briefed the points of Agenda and presented the report on each point for further discussions. Dr. K. N. Nandurkar, Director provided the Current updates of achievements of the Institute. Academic Council approved the modified Vision and Mission of the Institute .The structure of Honors and Minors of UG Programme and Curriculum of same was approved in the meeting. Shri. Nilesh Salgaonkar, Director and Co-Founder, TAACT, Nasik presented the course structure of the subject 'Industrial Automation' for the Honours Degree. Prof. Dr. D. N. Singh, Prof. Dr. V. B. Gaikwad, Prof. B. S. Jagdale and Prof. Dr. G. K. Kharate appreciated the Industry supported Courses of B.Tech. (Honors / Minors) degree. All external AC members provided positive suggestions on the agenda points for future actions. The meeting was concluded with the Vote of Thanks by Dr. Sunil Kute, Member Secretary , Academic Council.

Academic Council Meeting

Felicitation of Jalmitra Team

On 4thDecember 2024, Team Jalmitra, comprising second-year students from the Department of Electronics and Telecommunication-Vaishnavi Pawar, Vaidehi Shriras, Achal Dheringe, and Pranitee Pabale-received financial support of ₹10,000 from the OKI NOVA Foundation of Dr. Shantam Shukla. The cheque was handed over by Dr. K.N. Nandurkar to support the continuation of their project under the subject "Engineering Exploration," which has been successfully running for the past two years.

The Jalmitra Team

Governing Body Meeting

On 7thDecember 2024, a Governing Body meeting under affiliated system was held at the central office, featuring interactions with industrial and academic experts to plan activities. Shri Ajinkya Wagh, Dr. G. V. Garje (Jt. Director, Technical Education, Regional Office, Nashik), Mr. Shrikant Karode, and Principal Dr. K. N. Nandurkar were present at the meeting.

Congratulations!
Engineering Talent Search Competition

KKWIEER teams got first and second prize in Engineering Talent Search competition organized by Laghu Udyog Bharati at the hands of Shri. Hanumantrao Gaikwad, CEO of BVG Group. Total 87 projects from various colleges and Polytechnics in Nashik Region have participated in the said competition.

Induction Training for faculty

Induction training for newly appointed teachers was arranged by IQAC during 21-26 December 2024. Around 45 teachers were trained. Teachers were guided on innovative teaching methods, research, use of LMS, autonomy implementation etc. Following table shows induction training details:

Date	Title	Speaker
21/12/24	Teaching can be fun!	Prof. M. B. Murugkar
	About Institute	Prof. Dr. K. N. Nandurkar
23/12/24	Quality Teaching	Prof. N. M. Shahane
	Use of LMS for T-L	Prof. Dr. P. D. Bhamre
24/12/24	My experiments with teaching	Prof. Dr. P. D. Bhamre
	Autonomy Implementation	Prof. Dr. S. Y. Kute
26/12/24	Outcome Based Education	Prof. Dr. P. J. Pawar
	Research Initiatives	Prof. Dr. R. K. Munje

Mini Marathon 2024

K. K. Wagh Universal School, Saraswati Nagar, Nashik, hosted an event at the Engineering College campus on December 1, 2024. The event saw enthusiastic participation from over 150 school children, who showcased their energy and love for fitness. The marathon, which was part of the school's fitness week celebration, concluded with winners across different age groups being awarded attractive prizes. Dr. K.N. Nandurkar was invited as chief guest for the function.

Bharatiya Bhasha Utsav

Kusumagraj Central Library celebrated 'Bharatiya Bhasha Utsav' on December 11, 2024, to mark the birth anniversary of the respected Subramania Bharathi, a Tamil poet, writer, journalist, and prominent freedom fighter in the Indian independence movement. On this occasion, the library organized an expert lecture by Mr. Sanjiv Aher, Public Relations Officer at K. K. Wagh Education Society, Nashik, on the topic 'Desh Ki Samprabhuta Mein Bhartiya Bhasha Ka Yogdan.' The function was inaugurated by Prof. Dr. K. N. Nandurkar, Principal of K. K. Wagh Institute of Engineering Education & Research, Nashik. During the event, he provided information about the dialects of various regions of India and the state languages. He also shared insights on literature, as well as well-known writers and poets in Hindi, with examples. Principal Dr. Keshav Nandurkar, Head of the Department of Science Prof. Dr. Anuradha Pawar, teaching and non-teaching staff, and a total of 82 students were present for the program.

Celebration of Bhartiya Bhasha Utsav

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Interzone Cricket Men Competition

The Nashik Zone cricket team clinched 1st place in the Interzone Cricket Men Competition held in Pune after 8 years. Two students from our institute, Mr. Ippar Om Satish (1st Year B.Tech. Electrical) and Mr. Pawar Om Kailas (3rd Year B.Tech. Civil), contributed significantly to this historic victory through their exceptional performances.

Interzone Netball Women Competition

The Nashik Zone netball team secured 2nd place in the Interzone Netball Women Competition held in Pune. Ms. Shelke Shravani Rajesh (2nd Year B.Tech. Electrical) from our institute played a vital role in achieving this success for the team.

Powerlifting Men & Women

Our powerlifting team achieved outstanding success in the Intercollegiate Powerlifting Competition held at Sinnar, bagging 3 Gold and 1 Silver medals :

Women's Category :

- Dhikale Kanchan Ashok (T.Y. B.Tech. Chem.) – Gold
- Ghuge Vaishnavi Shashikant (T.Y. B.Tech. Chem.) – Gold
- Borgude Arati Gorakh (T.Y. B.Tech. Electrical) – Silver

Men's Category :

Gaikwad Dnyanesh Chandrashekhar (Final Year B.Tech. Chem.) – Gold

In the Interzonal Powerlifting Competition at Ahmednagar, Ms. Kanchan Dhikale and Mr.Dnyanesh Gaikwad secured top-three positions, bringing pride to the institute.

Rollball Men & Women

Our students excelled in rollball, representing Nashik Zone at the Interzonal Rollball Competition in Pune :

Women's Category:

Ms. Singvi Riddhi Rajendra (T.Y. B.Tech. AIDS) and Ms. Pawar Aastha Shekhar (F.Y. B.Tech. IT) were both selected to participate in the Interzonal Rollball Competition.

Men's Category :

Mr. Kale Kanhaiya Vilas (S.Y. B.Tech. CSD) and Mr. Deo Aditya Ganesh (Final Year B.Tech. R&A) displayed outstanding performance in the semi-finals and earned their spots in the Nashik Zone team. Mr. Chaudhari Kaustubh Pravin (F.Y. B.Tech. Computer) and Mr. Ganmote Shivam Somesh (Final Year B.Tech. R&A) were selected as standby players.

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Handball Men & Women

For the third consecutive year, Nashik Zone women's handball team secured 1st place in the Interzonal Handball Women Competition. Ms. Dhondage Sadhana Krushna (2nd Year B.Tech. E&TC) played a pivotal role and was selected for the prestigious West Zone Inter-University Handball Competition to be held in Jaipur in January 2025.In the men's category, Mr. Darade Aditya Kailas (B.Tech. CSD) reached the semi-finals of the Intercollegiate Handball Men Competition and earned selection for the Interzonal Handball Men Competition.

Training program for SMT Leaders at Mahindra and Mahindra Ltd. Nashik

Training program for 'Self-Managed Team' (SMT) leaders of Mahindra and Mahindra Ltd. Nashik was organised by K. K. Wagh Institute of Engineering Education and Research, Nashik during Dec. 2023 to July 2024. Total 42 SMT Leaders attended this training program. This training program covers 14 courses such as Automobile Engineering, Robotics, PLC, Mechatronics, Production technology, Production Management, World class manufacturing, Leadership Excellence etc. with 150 Hrs Theory sessions and 42 Hrs. of practical sessions. Total 22 faculty members from Robotics and Automation, Mechanical Engineering, MBA, and Computer Engineer taught various subjects. Valedictory ceremony and certificate distribution of this training program was held on 23rd Dec. 2024. On this occasion, the prizes and certificates were given to the participants by the hands of Principal Dr. K. N. Nandurkar, Plant Head Shri. Chandrakant Dhande and Head of Robotics and Automation Dr. P. J. Pawar.

Valedictory function of Training program of Mahindra and Mahindra Ltd. Nashik

Robotics Awareness Workshop

Robotics is one of the emerging technologies and Robotic science has a tremendous scope as a career option. Hence, to create awareness among students about Robotics and its applications, Department of Robotics and Automation conducted three awareness programs in the month of December 2024 (23rd , 24th&31th Dec. 2024) for 11th& 12thstudents of various Institutes run by K. K. Wagh Education Society. So far this program is attended by around 330 students. These programs include a theory session on Robotics followed by practical demonstrations on industrial robots and robotic kits available in labs of Robotics and Automation department.

Awareness session forK. K. Wagh Jr. College, Saraswati Nagar

Expert Lecture/Seminar/Courses/Workshop Organized

- The Electrical Engineering Department in Association with EFFECT Students Body Organized Expert Lecture on "Importance of Energy Conservation" for FY (N and O division students) and staff of the department on 14/12/2024.
- Mechanical Engineering Department organized Expert Lecture on "Gateway to Germany: Exploring Educational and Career

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Prospects" by Mr. Yadnyesh Bhor on 28/12/2024.

- The Chemical Engineering Department organized following expert lectures and career guidance sessions in December 2024:
  - ▶ Expert sessionon "Guidance to BE students for placement in Galaxy Surfactants Ltd., Mumbai" by Mr. Sumedh Devi (Alumna)on 07/12/2024.
  - ▶ Expert session on "Scope of Chemical Engineering in Reliance Industries and How to Face an Interview" by A. Vijaya Sai on 16/12/2024.

Expert Lecture / Seminar / Courses/ Workshop Attended: -

- Computer Department faculty Prof. Dr. S. M. Kamalapur, P. P. Vaidya, J. R. Mankar, M. P. Mahajan, N. M. Pagare attended One-week online FDP on "Artificial Intelligence and Generative Models" from 2nd to 6th December 2024 organized by VIT, Pune. Prof. Dr. Y. D. Bhise attended AICTE Training and Learning (ATAL) Academy FDP on Leveraging Cutting Edge Technologies for Sustainable Agriculture Practices from 2nd to 7th December 2024 organized by CSMSS'S. Shahu College Of Engineering, Aurangabad.
- Mechanical Engineering Department Faculty, Prof. Mohansing Pardeshi successfully completed AICTE-QIP-PG-Certification Program at IIIT Trichy from July to December 2024.
- Electronics and Telecommunication Engineering Department faculty Ms. Kaithi Nirmalakumari has actively participated in Six days FDP on "Semiconductor Fabrication Technology" organized by Department of Semiconductor Engineering, D Y Patil International University, Akurdi, Pune from 09thDecember to 14thDecember 2024
- Chemical Engineering Department Faculty, Dr. Prashant Kumar successfully completed 5 days Short Term Training Program on "Green Technologies for Sustainable Development" from 2nd to 6th December 2024 organized by National Technical Teachers Training and Research Bhopal at Pune Extension Centre, Pune.
- Information Technology Faculty Prof. Shaikh Tahareem has participated in Faculty Development Program on "Innovative Teaching Pedagogy and Skills Component of NEP" on 5th Dec. 2024 organized by K.V.N. Naik Institute of Engineering Education & Research, Nashik. Prof. Dr. Preeti Bhamre, Dr. Darshan Medhane and Prof. Pagar Prajakta successfully completed One Week Online Faculty Development Program on "Generative AI and its Multi-domain Use Cases" organized by Department of Information Technology, Vishwakarma Institute of Technology, Pune from 15th Dec. 2024 to 19thDec. 2024.

Training & Placement :

Name of Company	Department Name	Placed Students
IBM	E & TC	01
	AIDS	01
NEML	AIDS	04
Galaxy Surfactants Ltd., Mumbai	Chemical Engineering	01
NCDEX e Markets Ltd.	Information Technology	01
Winjit, Nashik	Information Technology	07
	Computer Engineering	01
	Computer Science and Design	01
Stantec	MBA	03
Decimal Point	MBA	04
VN Software	MBA	09
Skill Intern	MBA	22
Career Mantra	MBA	01

Industrial Visit

Sr. No.	Company Name	Department	Class	Date
1	Teknocrat's Control Systems (I) Private Limited, Nashik,	Information Technology	FY IT H & Q division	30th & 31 December 2024

Abstract of Papers presented by Staff

Adsorptive Separation of Acid Red 33 by Groundnut Shell Based Activated Carbon

Authors: Dr. S. N. Jain, Dr. G. B. Daware and Dr. N. B. Gautam (Published in Biomass Conversion and Biorefinery (Springer) journal on 16/12/2024)

Abstract: The adsorptive separation of Acid Red 33 (AR33) dye by groundnut shell-based adsorbent obtained using phosphoric acid as an activating agent was investigated. The adsorbent characteristics were determined by Breuner-Emett-Teller (BET), Scanning Electron Micrograph (SEM), and Fourier Transformed Infrared Spectroscopy (FTIR) analysis. Thermochemical activation yielded a significant enhancement in surface area from 1.971 to 1150.252 m 2 /g. The effects of pH (2–10), adsorbent loading (1–5 g/L), concentration (50–200 mg/L), temperature (288–318 K), and

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time (15–270 min) were investigated on the extent of adsorption. Isotherm and kinetic analysis of adsorption trials revealed best fitting of experimental data by Langmuir isotherm and pseudo-second-order models. Maximum Acid Red 33 uptake by modified adsorbent was obtained as 107.53 ± 0.91 mg/g at dose of 3.5 g/L and pH of 2 in 180 min. Thermodynamic characteristics demonstrated spontaneous and endothermic adsorption. The reusability study implied the drop in the removal efficiency from 98.26 ± 0.97% at first cycle to 79.57 ± 1.04% to the third cycle. These results demonstrated the reusability potential up to three cycles. The presented research demonstrated that physio chemically activated groundnut shell powder is a promising sorbent for adsorptive separation of Acid Red 33.

- **Design of Microbial Fuel Cell for Power Generation Using Milk and Lactobacillus Bacteria**

Authors: Dr. S. N. Jain and Dr. Yennam Rajesh (Published in Indian Journal of Chemical Technology, on 17/12/2024)

Abstract: This study investigates the use of milk as a substrate in a Microbial Fuel Cell (MFC) for power generation with Lactobacillus bacteria. In place of a semipermeable membrane separating the anodic and cathodic chamber in MFC, salt bridge made from agar-agar gel was used as a conducting medium. KMnO4 was used as an oxidizer in the cathodic chamber in MFC and open circuit voltage (OCV) was observed for various systems by changing anodic and cathodic chamber volume, bacterial concentration. Maximum OCV of 2.01 V was obtained with 300 million Lactobacillus sporogenes added to anode of 600 ml working volume containing 100 ml milk and 500 ml water mixture. Novel approach was used to design a new structure of salt bridge which can act as conducting medium and also as a cathode. This system achieved a maximum OCV of 1.13 V. Sodium hypochlorite (0.6 w/v%) was evaluated as an alternative oxidant to potassium permanganate, achieving a maximum OCV of 1.66 V. The obtained results depicted that the milk as a substrate in MFC along with Lactobacillus has considerable power generation scope which can be further improvised.

- **Multi-Fault Detection in Bearings Using Voting Classifier: A Machine Learning Approach.**

Authors : R. V. Bhandare, P. B. Surwade, Sharvari Ghorpade (Conference on Advances in Thermal Systems, Materials & Design Engineering (ATSMDE-2024) dated 27-28 December, 2024)

Abstract: Bearings are crucial components in machinery, providing support to rolling elements and transmitting torque. An accurate diagnosis of bearing faults not only enhances equipment reliability and efficiency but also reduces maintenance costs and improves productivity. This study focuses on classifying inner raceway and outer raceway bearing faults using advanced vibration analysis techniques, which are proven to be effective in identifying multiple faults in antifriction bearings. By combining sophisticated signal processing with machine learning (ML) algorithms, we aim to improve fault detection accuracy in bearing systems. Various ML algorithms, including ensemble learning methods, were applied and compared to determine their classification accuracy for distinguishing healthy and faulty FFT signals. Among these, voting classifier demonstrated thehighest performance, achieving an accuracy of up to 99%, indicating its effectiveness in handling complex data with numerous attributes. Voting classifier combination of (Support vector Machine (SVM), K-Nearest Neighbors (KNN), and Naive Bayes (NB)) three classifiers show robustness in fault classification.

- **Mechanical and wear analysis of AA6061-T6-SiC-TiC-graphite metal matrixcomposite. Journal**

Authors: Pankaj Beldar and Ms. Snehal Kadbhane(Published in Materials Letters on 10/12/2024)

Abstract: The creation of hybrid composites made of metal matrix (MMCs) has been driven by the demand for lightweight materials with exceptional mechanical and tribological qualities. This study examines whether the mechanical and tribological characteristics of the aluminum alloy AA6061 are affected by several hybrid reinforcement compositions, specifically graphite, titanium carbide (TiC), and silicon carbide (SiC). Five composite formulations were developed with a fixed 2 wt% graphite and increasing w.t % (2, 4, 6, 8, and 10) of both TiC and SiC. The findings demonstrated significant improvements in material performance, including a 41.65% increase in tensile strength, a 48.76% improvement in hardness, and a 67.53% boost in impact strength, with a 29.17% reduction in elongation, indicating a trade-off in ductility. Innovation is in reaching an ideal

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combining mechanical and tribological qualities through the exact setting of reinforcements, as confirmed by SEM research. These advancements establish the potential of the developed composites for high-performance engineering applications.

- **Development & Validation of a Bioanalytical Method forMeasuring Free Fatty Acids in Plasma.**

Author: Pankaj Beldar(Published in Journal of Applied BioanalysisVo. No. 10, Issue 3, ISSN-2405-710Xon 30/11/2024)

Abstract: Therefore, results obtained from the employed analytical method revealed good linearity, precision, accuracy, recovery and sensitivity in the determination of oleic acid, palmitic acid and linoleic acid standards at a concentration range of 0.1-50 µg/mL. As shown in the figures, the calibration curves were highly linear with a coefficient of determination (R2) ranging between 0.997 to 0.999 for the three fatty acids studied. The method also showed acceptable run-to-run and batch-to-batch precision, which were in terms of relative standard deviation varying between 2.5- 5.6%. The accuracy was also 95.2 to 104.8% with the percentage recovery for the concentration range that was tested. Recoveries of the fatty acids from spiked samples did not differ significantly at low and high, spike concentrations and were at 96.8-98.4%. Furthermore, the method was found to have low limits of detection of 0.03-0.05µg/mL and a range of lower limits of quantification of 0.10-0.15µg/mL which shows that the method was sensitive. All in all, it was established that the analytical method used was highly reliable and precise in the determination of these fatty acids. It can potentially be used for regular quality control checks of the concentration of these fatty acids in infant formula, food, pharmaceuticals, cosmetics, or other related products within the validated concentration range.

- **Pedestrian Safety Device in Automobiles**

Authors: P. Usha Rani, P.K. Devan, S. Saravanan, R. Hariharan and J.C.Vinitha (Published in International Journal of Vehicle Structures and Systems on 26/12/2024)

Abstract: Usually in designing a car, focus is specifically on the safety of the passengers in the car as a vital part, but the safety of the pedestrians on the road is also equally important. In this paper, we throw light on the safety of pedestrians on the road. The objective is achieved by analysis of the safety system employed to avoid the collision of vehicles and with pedestrians using warning signals and automatic braking of the vehicle is done in the worst-case scenario. The safety system employed here uses image processing for pedestrian identification and automatic braking. Initially by using an image processing algorithm the camera fixed in the vehicle monitors the obstacles in front of the automobiles. If a human is at a vulnerable distance the vehicle is stopped by using automatic braking. In case of emergency, if pedestrians approach the vehicle suddenly, then with the help of a servo motor the controller pulls out the airbag from the designed surface of the automobile hood. By using this technique, we assure the safety of pedestrians by reducing the number of accidents without affecting the structure and the design of the automobiles. The proposed work has been implemented into a prototype.

- **Sensor based Identification of Driver Behaviour**

Authors: P. Usha Rani, P.K. Devan, S. Saravanan , R. Hariharan and S. Karkuzhali (Published in International Journal of Vehicle Structures and Systems (Scopus Journal) on 28/12/2024).

Abstract: In today's contemporary, fast-paced and dangerous world, knowing safety precautions is a fundamental necessity when operating a motor vehicle. Furthermore, there is proof of a concerning rise in the quantity of traffic accidents. Many data points to driver fatigue or intoxication as the primary cause of most accidents. When developing the system, the most crucial things to consider are the locations of the cars, the actions of the drivers and the real-time monitoring of every event. In essence, a driver monitoring system uses sensors and cameras to keep an eye on the driver and notify users of any suspicious behaviour, like speeding too much, drinking, staying alert when it's not needed, etc. This is an important way to determine the driver's driving habits so that decisions can be made later. Heartbeat, temperature and eye blink sensors are used in the construction of this system, which monitors the driver's condition and sounds an alert when the monitored values rise above the preset threshold value while the DC motor is set to slowly cease. Developing this system with all available sensors and analytical capabilities is essential to accurately monitor the driving behavior of the driver.

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Gerbera Flower Counting System using Images Captured by Drone

Authors : Prof. Rupali M. Bora, Mitali Bafna, Anjali Bhawari, Rujul Modi (BEIT) (Published in The Indian Journal of Technical Education, Volume 47, No 3, July-September 2024, ISSN 0971-3034).

Abstract: Traditional agriculture and floriculture practices have long relied on manual labor for task like estimating flower quantities, classification, etc. Manual estimation had several disadvantages like inaccuracy, time-consuming, labor-intensive and costly. As the demand for gerbera flowers continue to grow for various industries including ornamental, pharmaceutical and decorative-purpose, the need for accurate and efficient flower quantity estimation has become more pronounced. The primary objective of this project is to create an integrated system capable of capturing aerial images of flower farms using drone and processing these images using Machine Learning algorithms. This will leverage advanced technologies to address the challenges and limitations associated with manual counting of flowers. For this purpose, we will be using Drone Footage of Greenhouse-grown Gerbera Flowers as the input dataset. Then, it will be used to train and test the YOLO, an object detection algorithm and output will be displayed on an UI to the user. With the help of this automated system, the flowers will be counted systematically from the greenhouse environment.

Other Activities :

- Dr. D. M. Chandwadkar received Dr. Srinath Award 2023-24 for outstanding contribution in the field of Innovation Technology for Heavy Duty Vehicle on 11th December 2024.

- Ms. Snehal Kadbhane (Mechanical Faculty) is selected for Post Doctorate by University of Zielona Gora, Poland for a period of 3 months. She will visit Poland from March 2025 & carry out her research at centre of excellence at Zielona Gora.
- Dr. K. N. Nandurkar and Dr. P. J. Pawar visited Mahindra & Mahindra training centre, Nashik on 5th Dec 2024 to explore possibility of course on "Lean Management" for students.
- Mr. Chetan Prabhu and Mr. Manas Dhage, alumni of the institute, inaugurated a stall at the NIMA Index on 6th December 2024. Our stall was visited by CEO of HAL Nashik & NIMA Officials.

Participation in NIMA Index


Expert Lecture by Mr. Yadnesh Bhor (Currently working in Germany)

Expert Lecture on Importance of Energy Conservation

Prof. Dr. K. N. Nandurkar
PRINCIPAL