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Technology to wisdom

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Ballie Robot

Water Filtration Plant

Real-Time Sign Language Translation

जलवायु परिवर्तन और वायु प्रदूषण पर इंटरनेशनल वेबिनार में
वैश्विक पर्यावरणीय चुनौतियों पर चर्चा



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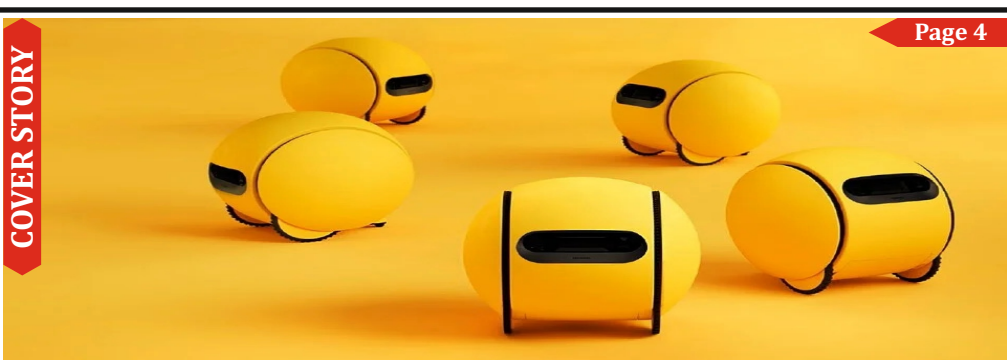
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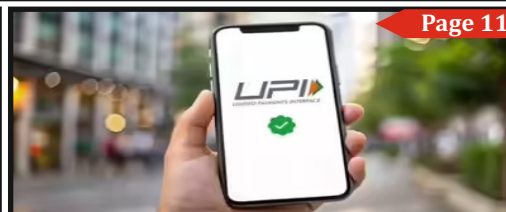
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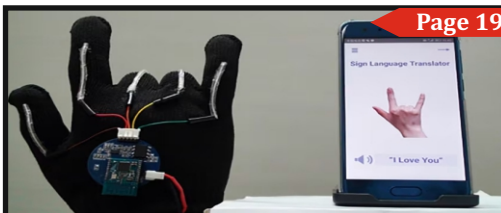
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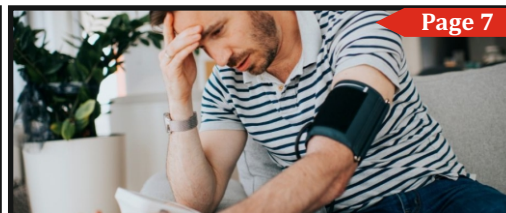
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Artificial Intelligence and Human Intelligence: Building the Future of Education, Research, and Healthcare



This edition of Technical Today celebrates the exciting convergence of artificial and human intelligence across the domains of education, research, healthcare, and innovation. Through insightful articles, expert perspectives, student achievements, and emerging technological developments, we aim to inspire our readers to embrace change with confidence and curiosity, while remaining grounded in knowledge, ethics, and compassion.

As we look toward the future, let us recognize that technology alone does not, and cannot, define progress. True advancement is achieved only when innovation is guided by wisdom, when scientific excellence is thoughtfully balanced with humanity, and when intelligence—both artificial and human—is dedicated to improving lives and building a more sustainable, equitable, and prosperous world for generations to come.

"The real question is not whether machines think but whether men do." — B. F. Skinner

Artificial Intelligence (AI) is transforming education, research, healthcare, and the workplace, making digital literacy, critical thinking, creativity, and adaptability essential for the future. While AI enhances efficiency and innovation, it is a tool that complements—not replaces—human intelligence, ethics, creativity, and compassion. Educational institutions must prepare students to effectively combine artificial and human intelligence to solve real-world challenges.

In higher education, AI supports personalized learning, intelligent tutoring, virtual laboratories, and data-driven decision-making, enabling students to learn more effectively while allowing educators to focus on mentorship and research. However, education must continue to foster curiosity, leadership, integrity, and independent thinking—qualities that remain uniquely human.

AI is also accelerating research and innovation by enabling faster data analysis, predictive modeling, and interdisciplinary collaboration across engineering, biotechnology, environmental science, and healthcare. In medicine, AI is improving diagnostics, precision treatment, drug discovery, and telemedicine, enhancing healthcare delivery while preserving the vital role of empathy and human care.

To prepare future-ready graduates, institutions should integrate AI, data science, cybersecurity, digital health, and ethics into their curricula while strengthening communication, teamwork, and problem-solving skills. Faculty development and industry partnerships are equally important to bridge the gap between academic learning and real-world applications.

The ethical use of AI—including privacy, transparency, fairness, accountability, and inclusivity—must remain a priority. Universities have a responsibility to promote responsible innovation that upholds human dignity and ensures technology serves society. By embracing AI with wisdom and ethical values, we can create a future where technological progress and human potential grow together.

With Best wishes.

A handwritten signature in blue ink, reading "Ashok Kumar Gadiya".

CA (Dr.) Ashok Kumar Gadiya
(Chief Editor, Technical Today)

Quest



This edition is a tribute to that spirit of thoughtful inquiry. Within these pages, our students, researchers, and faculty share their perspectives on artificial intelligence's promise and its pitfalls, offering a mosaic of voices from across disciplines. May their insights encourage all of us to approach this new era with curiosity rather than apprehension, and with the conviction that the finest use of any technology is, and will always be, the betterment of human life.

It is with great pleasure that I welcome you to this special edition of the magazine, dedicated to one of the most transformative forces of our time — Artificial Intelligence. From the classroom to the research laboratory to the hospital ward, AI is reshaping how we learn, discover, and heal. Yet even as algorithms grow more capable, the human mind remains at the centre of every meaningful breakthrough. As we turn these pages together, may we be reminded that technology is at its best when it serves people, and never the other way around.

The past few years have witnessed extraordinary advancements in artificial intelligence, moving the technology from the realm of speculation into everyday practice. Generative AI systems now draft, summarize, and translate with striking fluency; machine learning models detect patterns in medical scans that once took specialists hours to identify; and natural language processing tools sift through decades of research literature in seconds. Adaptive learning platforms tailor lessons to each student's pace, while predictive analytics help researchers forecast outcomes long before an experiment concludes. These are not incremental improvements — they represent a fundamental shift in how knowledge is created, shared, and applied. Computer vision now guides robotic assistance in surgery and manufacturing alike, while conversational AI agents are fast becoming everyday collaborators in classrooms, laboratories, and clinics.

Consequently, the role of the modern professional — whether teacher, researcher, or clinician — has expanded well beyond its traditional boundaries. Educators are becoming curators and mentors, guiding students through an abundance of AI-generated information rather than simply delivering it. Researchers are becoming collaborators with intelligent systems, using them to model complex phenomena and accelerate discovery. Clinicians are becoming interpreters of algorithmic insight, translating data-driven predictions into compassionate, individualised care. In each case, technology has not diminished the professional's importance; it has raised the bar for the judgment, empathy, and wisdom they must bring to their work.

Within institutions such as ours, this shift calls for an education that is genuinely interdisciplinary. Students today must be as comfortable with data and algorithms as they are with the core principles of their chosen field, and they must learn to question, verify, and ethically apply the tools placed in their hands. Encouragingly, classrooms are increasingly becoming spaces of experimentation, where engineering students collaborate with life-science researchers, and where every discipline is asked to consider how intelligent systems might responsibly serve human needs. Faculty, too, are being called upon to model this same spirit of inquiry, refining their own skills even as they guide the next generation forward.

Yet with such rapid advancement comes equally significant responsibility. Questions of data privacy, algorithmic bias, job displacement, and unequal access to technology cannot be treated as afterthoughts; they must be addressed with the same rigour we bring to innovation itself. We must guard, too, against an over-reliance on automation that erodes the very critical thinking and creativity we hope to cultivate in our students. Nor can we overlook the widening gap between institutions that can afford cutting-edge tools and those that cannot, a divide that risks deepening existing inequalities if left unaddressed. The measure of our progress will not be how much we can automate, but how wisely and inclusively we choose to do so.

With Best wishes

A handwritten signature in black ink, appearing to read 'Alpana'.

Dr. Alpana Bimal Agrajit
(Editor, Technical Today)

AI Washing Machine

● HASAN RAJA

What is AI Washing Machine?

An AI Washing Machine is a smart washing machine that uses Artificial Intelligence (AI) to control the washing process automatically. It does not depend only on fixed programs. Instead, it:

- Collects data using sensors
- Analyzes the data
- Makes decisions like a human
- Improves its performance over time

In simple words: It is a washing machine that can think, decide, and learn

Main Features:

- Smart Detection → Detects type and amount of clothes
- Auto Settings → Sets water, time, and speed automatically
- Detergent Control → Uses the correct amount
- Learning Ability → Remembers past washing patterns
- Energy Saving → Uses minimum resources

Problem / Situation

Washing clothes is something we do regularly, but it is not always easy.

In a normal washing machine, the user has to decide many things like:

- How much water to use
- Which washing mode to select
- How much detergent to add
- How long to wash

Many people do not know the correct settings. Because of this:

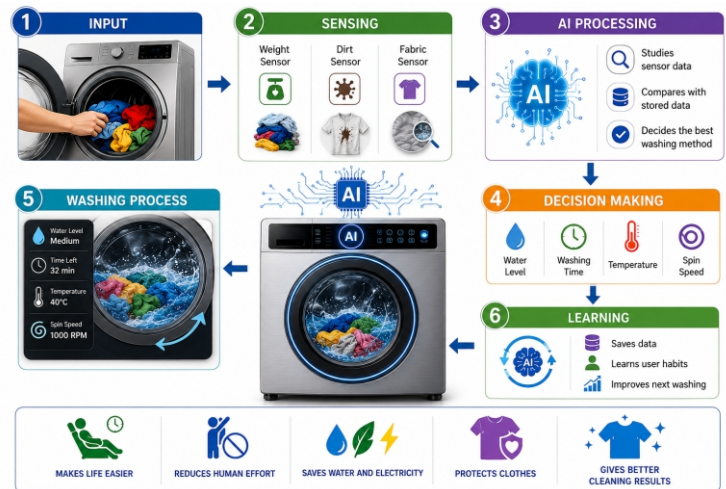
- Clothes may get damaged
- Colors may fade
- Clothes may not get fully clean
- Too much water and electricity may be used

Also, today people have busy lives and want machines that can think and work on their own. There is also a need to save natural resources like water and energy.

So, we need a smart system that can understand clothes and make decisions automatically. This leads to the idea of an AI Washing Machine.



Main Concept and Working



The main idea is to remove manual work and make washing fully automatic using AI.

Step-by-Step Working:

Step 1: Input

User puts clothes inside the machine and starts it.

Step 2: Sensing

The machine uses sensors to collect information:

- Weight sensor → tells how many clothes
- Dirt sensor → tells how dirty clothes are
- Fabric sensor → identifies cloth type

Step 3: AI Processing

The AI system acts like a brain:

- It studies the sensor data
- It compares with stored data
- It decides the best washing method

Step 4: Decision Making

The machine automatically chooses:

- Water level
- Washing time
- Temperature
- Spin speed

Step 5: Washing Process

The machine starts washing and can adjust settings during the process if needed.

Step 6: Learning

After washing:

- It saves data
- It learns user habits
- It improves next washing

Why This Idea is Important:

- Makes life easier

- Reduces human effort
- Saves water and electricity
- Protects clothes
- Gives better cleaning results

Basic Design Model

To build an AI washing machine, we need both hardware and software.

1. Hardware Parts:

- Sensors → detect weight, dirt, and fabric
- Processor (AI chip) → makes decisions
- Motor and Drum → wash clothes
- Water control system → manages water flow
- Wi-Fi module → connects to mobile

2. Software Parts:

- AI algorithms
- Machine learning models
- Control system program
- Mobile app interface

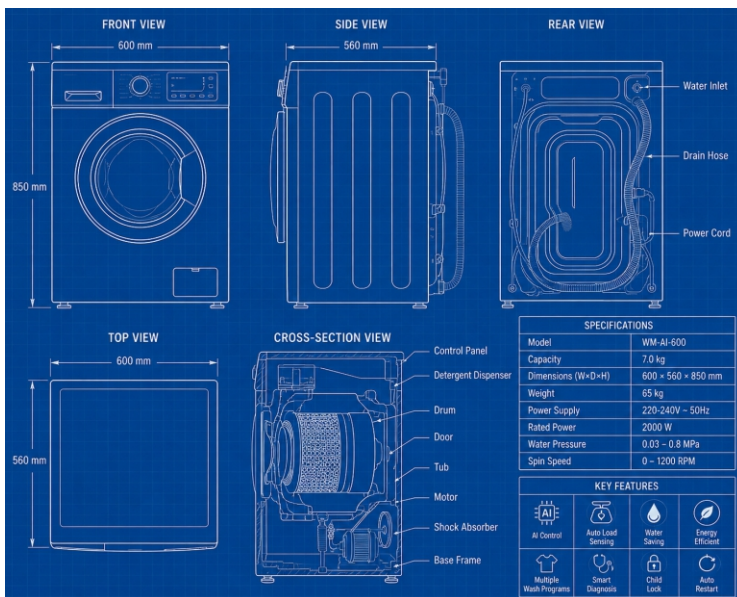
3. Prototype Working Flow:

- Clothes loaded
- Sensors collect data
- AI processes data
- Machine selects best settings
- Washing starts automatically
- Data stored for future learning

4. Example:

If the machine detects:

- Light clothes → it uses gentle wash
- Heavy dirty clothes → it uses strong wash



Performance and Evaluation

After making the prototype, we test it to check if it works properly.

Types of Testing:

1. Functional Testing

Check if:

- Sensors work correctly
- AI selects correct settings

2. Performance Testing

Compare with normal machines:

- Cleaning quality
- Time taken

3. Resource Testing

Measure:

- Water usage
- Electricity consumption

4. User Testing

Check:

- Is it easy to use?
- Are users satisfied?

Expected Results:

- Better cleaning
- Less water use (saves up to 30–50%)
- Less electricity consumption
- Clothes last longer
- Less human effort

Challenges:

- High cost
- Needs accurate sensors
- Software updates required
- Repair may be complex

Conclusion

An AI Washing Machine is a smart and advanced solution for modern homes. It makes washing clothes simple, automatic, and efficient. It not only saves time but also protects clothes and natural resources.

In the future, AI washing machines will become more affordable and will be used in most homes, making daily life easier and smarter.

Ballie Robot

● ABHINAV KUMAR

Today's In modern world, technology is growing very fast. Artificial intelligence (AI) is becoming an important part of our daily life. one of the most interesting innovations in this field is BALLIE ROBOT , a small and smart robot designed to help people at home.

What Is Ballie Robot?

BALLIE is ball-shaped robot that can move around the house and assist users in their daily activities . It is equipped with advanced sensors, cameras and AI technology . It can understand commands, interact with people , and perform multiple tasks efficiently.

Features of Ballie Robot

Ballie has several useful features:

- **Smart home control:** It can manage devices like lights, fans and advance televisions.
- **Personal assistant:** It helps in scheduling tasks and giving reminders.
- **Security system:** Ballie can monitor the house and alert users about unusual activities.
- **Health support:** It can remind users to exercise and follow healthy routines.
- **Pet companion:** It can watch over pets and keep them entertained.

Advantages

Ballie also has some limitations. it may be expensive and not easily affordable for everyone . There are also privacy concerns because it uses cameras and sensors inside the home.

Limitations

Ballie also has some limitations. it may be expensive and not easily affordable for everyone . There are also privacy concerns because it uses cameras and sensors inside the home.

Conclusion

Ballie is a great example of how AI can improve our lifestyle. In the future , such robots will become more common and useful. It shows how technology can make our homes smarter and more efficient.



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The Cognitive Revolution

● MOHAMMAD SHAHNAWAZ ANSARI

The Death of the Industrial Classroom

It is the paradox that today's student encounters when he or she becomes trapped in the sea of data on one side, but still lacks actual knowledge on the other side. This situation happens due to a mismatch between technology and the infrastructure of learning in its current state: every year thousands of undergraduate students have lectures delivered in a standard menu of information that does not take into consideration individual differences in learning speed, knowledge holes, or cultural identity.

We use the "Industrial" Model of education now - a model that insists on the uniform diet and the pace of learning for all learners, like in a factory process. Not only this model is old-fashioned, but it dates back to the times of the nineteenth century. The model that creates workers for the predictable environment of that time seems inappropriate when it comes to contemporary computer technologies that predict our future purchases, illnesses, and even tastes in music. And this is what makes it sad that such an important thing for humanity as education remains stuck in the broadcasting model.

The innovative solution to this problem presented in this research paper is the AI-Powered Personalized Learning Hub. The name of this venture is often mentioned as "Lumina Learning," and it is much more than just another database of video lessons. In this case, the term "alive" is very important, as the goal of Lumina Learning is to become a personalized cognitive architect for everyone. By linking all the huge amount of information included in the university syllabus directly to the human brain, we do not simply help students to get prepared for exams. We transform the whole concept of acquiring knowledge.



Problem: Cognitive Indigestion and the "Viva" Void

1. Information Overload and Search Exhaustion

Today's students face the issue of having to process too much information – hundreds of pages in textbooks, forty hours of video lectures, not to mention extra information found in countless PDF documents. The amount of data is so vast that most of the time spent is used up sorting the information rather than absorbing it. According to research, "search exhaustion" greatly limits cognitive capacity for effective learning.

2. The Illusion of Competence (The "Passive Learning" Trap)

Studying from a book or listening to lectures is fundamentally a passive process. The result is the "Illusion of Competence," as described by psychologists. It is an illusion that gives one a feeling of confidence in comprehending the concepts merely because one can understand the terminology used in the book. The illusion disappears when one is asked to explain a complicated topic during Viva Voce or a technical interview.

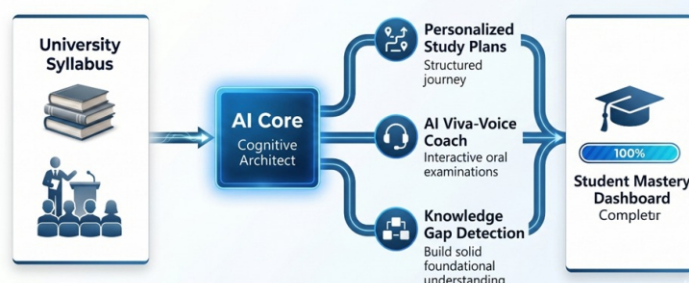
3. The Feedback Gap and Foundational Decay

In a normal class with sixty to a hundred students, it becomes impossible for one teacher to give personalized feedback. As a result, basic weaknesses are not spotted, and a situation arises where a student having difficulties with Integration tries to study Advanced Physics. When layers of more complicated information are built on a weak base, the whole thing ends up collapsing, leaving the student exhausted and unsuccessful academically.

Solution: The Personalized Learning Metabolism

The suggested system of the AI Learning Hub functions on three core technical components meant to act as the brain's "nutritionist," adjusting its intake of information according to its own metabolic requirements:

AI POWERED LEARNING HUB: Personalized Academic Success



Using the capabilities of NLP and RAG, the system fully integrates an entire university curriculum. Instead of simply listing courses for the student to follow, it forms a customized "Learning Path." In the case where the AI determines via its assessment that the learner has trouble with "Data Structures," the system will not continue to meet the schedule. Instead, it modifies the Learning Path to include "C++" micro modules so that a solid base can be formed before moving forward with the rest of the lessons.

2. AI Viva-Coach (The Power of Active Recall)

This is the most critical Unique Selling Point (USP) for this startup. Using high-end voice-to-text software, along with generative AI, the software provides a simulation of an actual oral exam. The students have to explain the concepts verbally. For instance, the concept of "Nodal Analysis" in engineering or "Law of Diminishing Returns" in economics. The software then analysis the verbal explanations for accuracy, articulation, and pronunciation. This forces the mind to recall the information rather than recognize it, which is the best way to retain information.

3. Cognitive Summarization and Diagnostic Gap Detection

The AI does not go for generalized summary generation but comes up

with "Contextual Cheat Sheets" depending upon when the student has to give the test. If the student needs to appear for a test tomorrow, the AI prepares a "High-Impact Summary," which focuses on exam patterns and concepts with higher importance. On the other hand, if a student has three weeks before the test, he is provided with a "Deep Dive Roadmap." The AI has also developed a "Diagnostic Engine" that pinpoints exactly where things went wrong for the student.



Business Feasibility: The Lean Startup Model

In terms of entrepreneurship, the AI Learning Hub project follows the "Lean Startup" concept, which emphasizes hyper-scalability and aims at getting rid of the large-scale overhead costs typical for traditional education.

1. Lean Costs

There are no significant expenses as there is no need to allocate money on expensive infrastructure development. The main expenditures include purchasing of API tokens and cloud hosting services. In both cases, these expenses can be covered on a cost-per-use basis, thus, minimizing the amount of "Sunk Costs."

2. Sustainable Revenue Model

The company uses the "Freemium" model. Notes, summaries, and syllabus roadmaps act as the "hook" and are provided for free, enabling the company to attract a large number of customers. However, the high-level service features such as AI Viva-Coach, Diagnostic Gap Detection, and Unlimited Document Processing require premium membership. In turn, this model makes sure that the business's success and profitability are tightly coupled with the performance of the students, resulting in a "Success-as-a-Service" model.

3. Scalability of the Market and Edge in the Local Environment

There is an enormous growth potential for the business. The value of the Indian education industry exceeds billions of dollars; however, it remains highly fragmented at present. Unlike the global players, Coursera, and Udemy, which target the generic skills known as "Global Skills," the project aims at a specific niche called "Local Academic Success." Indeed, the customization of courses by specific universities' syllabuses (e.g., Mewar University or AKTU) offers a competitive advantage that global leaders cannot copy.

The Human Element: Humanizing AI in Education

The frequent complaint against AI application in learning and teaching is that AI takes away the "human touch." Yet, our model works against

this perception because of how it liberates the student's brain from mundane processes of summarization and scheduling. Our AI is not a replacement of the teacher but is rather a tireless and judgment-free assistant that caters to the student. It ensures that there is a psychologically safe environment for failure and asking "stupid" questions, as well as an opportunity to practice until the student masters the topic. Private tutoring services were exclusive privileges previously afforded only to the affluent few.



Conclusion: Toward a Future of Intellectual Wellness

AI-Powered Personalized Learning Hub is not just another tech startup – it is a solution to an inherent problem with our current educational system. The concept of "information nutrition," where knowledge is seen as something that needs to be precisely measured, prepared, and tailored to the unique requirements of the recipient, is long overdue. This will enable us to finally discard the prevailing notion of "cramming and forgetting" prevalent throughout university-level studies.

From the perspective of the entrepreneur, this venture serves as an ideal example of a synergy between Social Impact and Technological Innovation. Our mission involves using the latest advancements from the technological frontier of the 21st century to tackle a centuries-old issue – the desire of man to learn, evolve, and adapt to his surroundings. Thus, the pertinent question is not whether artificial intelligence is revolutionizing the educational sector but when the process will accelerate fast enough to allow everyone to benefit from it. Lumina Learning provides a clear path toward achieving precisely that, bringing us closer to the future of intellectual well-being.

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Water Filtration Plant

● NAVIN KUMAR

Sustainability and cleanliness when it comes to water are very critical to both water treatment and wastewater treatment facilities as well as various natural and industrial systems that require it. Along with meeting the demands of the consumers and improving their quality of life by improving the infrastructure, water treatment plants have been dealing with a variety of regulatory measures as they seek to improve quality standards. This issue becomes even more difficult due to the highly polluted water sources found in countries around the world that not only affects humans but also various forms of aquatic and terrestrial organisms. Due to the continued industrialization and modernization of countries around the world, the problem is clearly getting worse. Various researchers across the globe have researched different approaches in optimizing and improving water uses through simulation modeling.

Definition of terms; Artificial Intelligence (AI) can be defined as the concept of endowing algorithms with the ability to carry out functions and make decisions that a human being would have to make in similar conditions, whereas Machine Learning (ML) concerns intelligent systems that can change their actions when training to adapt to the new information available. ML being a mathematical model from the bottom up, which uses historical data, is proficient with correlation and can make conclusions on complicated mathematical systems that even human beings cannot comprehend and use. The fact that ML and AI help understand things better is what led to the increase in adoption of ML and AI concepts within the academic world in all disciplines and industries. This includes the study of water treatments such as coagulation, chlorination dosages, membrane filtration models, adsorption models, and monitoring of natural systems like river quality models, and agricultural systems.

AI and ML, combined with the use of smart technology, provide the needed innovation in water applications where other traditional approaches and ways of thought could not be applied. Estimates indicate that AI investments in the water sector will make up almost 10% of the total investments of over \$90 billion estimated to mature by 2030. Within the field of water applications, AI, ML, and smart technologies are predicted to model and overcome difficult challenges through generalization, robustness, and ease of design in order to optimize process costs. Applications in water that have been seen with remarkable ML involvement include water and wastewater treatment, monitoring natural systems, and water-based agriculture or precision/water-based agriculture. The various industry applications have been observed to utilize different ML techniques with the most widely used being ANNs, RNNs, RF, SVM, and ANFIS while rarely using AI approaches like FISs. Occasionally, hybrid approaches involving two ML techniques have been used such as ANN-RF and SVM-RF. Studies have shown success in their application of AI and ML within water-based applications.

Though successful results in each case have been highlighted, it is important to note that the application of AI and ML is not without its difficulties that need to be surmounted before wide-scale adoption can occur. This paper provides a brief overview of a selection of ML algorithms, as well as some AI and smart technology, and how these have been used within the field of water-based applications to optimize and model water treatment processes, including chlorination, adsorption, and membrane filtration process, monitor natural systems, including dissolved oxygen monitoring, water quality index monitoring and water level monitoring, as well as water-based agriculture, including hydroponics and aquaponics. This paper is not an exhaustive analysis of AI, ML and smart technologies applied within water-based studies, but rather highlights many of the important contributions within the literature today. All the categories mentioned here provide a description of the models used, along with a description of the inputs and outputs. In addition, the specific challenges for each category are highlighted, in addition to their implications, solutions and conclusions, just as successes have been highlighted above.

Search Criteria and Methodology

The following is a literature review of peer-reviewed papers on Web of Science assessing the use of artificial intelligence, machine learning, and smart technology in the context of water treatment and monitoring. This literature search was categorized into four broad categories which include “water treatment,” “water system monitoring,” “hydroponics,” and “aquaponics.” The latter two were considered separately from the former two to ensure that there would be adequate literature available on water-specific applications of AI, ML, and smart technologies that require environmental/nutrient control and monitoring. Specific keywords that further narrowed down the literature were also applied, such as “artificial intelligence,” “machine learning,” and “smart technology.” This search was limited to peer-reviewed literature which made explicit mention of the method and models employed. Review literature was excluded from this study. Peer-reviewed literature on Web of Science in the English language, published from 2012 to 2022, with the majority published from 2018 to 2022 (updated on 24 March 2022).

Utilizing a combination of keywords together with the category “water treatment,” there were approximately 760 results. Refining those search results to include only peer-reviewed articles and proceeding papers, with emphasis on the use of chlorination, adsorption, and membranes resulted in about 400 results. Following an assessment of the relevance of the selected text, there were 28 results chosen for this in-depth review, where 11 were related to chlorination, 10 to adsorption, and 7 to membrane treatment. In addition, these papers met the inclusion criteria due to the scope of research and availability of particular AI algorithms or ML models used. Concerning the category “water systems monitoring,” there were about 220 search results. As before, a similar process was performed, which resulted in 12 papers that could be used for this in-depth review due to the scope of research and particular AI or ML techniques applied. For the categories “hydroponics” and “aquaponics,” about 100 search results were obtained (about 60 from “hydroponics” and 40 from “aquaponics”). Using the refinement technique, 10 articles were selected for further analysis.

Artificial Intelligence Techniques, Machine Learning Models, and Smart Technology

ML models employed in water-related applications are briefly described below in Section. Brief description of applied AI approaches is also provided below. Another section dedicated to the concept of smart technology as described in this review is presented in Section 3.2, which refers to IoT devices, smart sensors, and other technological approaches based on those concepts, and can be combined with AI/ML models and approaches. The described approaches have all been reviewed in the context of their application in the following areas: water and wastewater treatment, namely chlorination, adsorption, and membrane filtration; water quality management, namely dissolved oxygen and water level control; and water quality index modeling/hydroponics/aquaponics.

○ Machine Learning Models and Artificial Intelligence Techniques

AI and ML models and techniques are presented in brief in Table 1 below. Applications, water treatment and modeling-specific applications, strengths, and weaknesses of AI and ML techniques and models are discussed to facilitate model and technique selection for water treatment and modeling applications. Additional sources from peer-reviewed publications and textbooks that provide the required background knowledge on AI and ML techniques and models are also presented in the final column. Water treatment and modeling applications mentioned here are not exhaustive; rather, they are examples of the peer-reviewed literature chosen using the methodology described above. Most of the included ML techniques can be categorized as “black-box,” making this characteristic a recurring weakness in most of the models listed (GA/GP techniques aside).

Table 1. An overview of ML models and AI techniques applied to water monitoring and treatment.

Water and Wastewater Treatment Applications

Machine-learning approaches and AI have been considered for use in various aspects of water- and wastewater-treatment processes. This chapter will function as a cross-section of three different types of treatment process used at water and wastewater treatment facilities. The majority of data gathered by the journals that have been reviewed was done either by treatment facility workers themselves or by other governing authorities through traditional means of gathering information. Through the implementation of smart technology along with the AI and ML techniques described above, the need for the gathering of more information can be reduced. Having more data is expected to improve the performance of the ML models as well.

The application of AI techniques has been found to be useful for the control of chlorination, and ML is used to predict the concentration of DBPs as well as important parameters in adsorption and membrane filtration processes. Such findings have usually been analyzed by means of different statistics, such as the correlation coefficient R , the coefficient of determination (R^2), the mean absolute error (MAE), the mean squared error (MSE), the root mean squared error (RMSE), and relative error (RE).

○ Chlorination and Disinfection By-Products Management

Disinfection in water and wastewater treatment plants refers to the process where pathogens are eliminated or inactivated, typically using chlorine-based disinfectants [64]. Although chlorination has proven to be effective in killing or inactivating pathogens, it also has human health implications [65]. Apart from the acute human toxicity that chlorine causes, it has also been found to react with naturally occurring bromide and organic materials in water to create disinfection by-products. Disinfection by-products are believed to cause cancer and hormonal imbalance in humans and have increasingly gained attention

from environmental agencies around the world [66]. Disinfection by-products can be classified into two larger subgroups; trihalomethanes and haloacetic acids. Trihalomethanes are considered the most prevalent type of DBPs because of the relationship between DBP formation and chlorine disinfectants [67]. Haloacetic acids are normally analyzed for five or nine common haloacetic acids known as HAA5 or HAA9. It is not fully known how DBPs form in drinking water, making the analysis and mitigation of DBPs a suitable case study for machine learning technologies. When learning has taken place, mitigation can be performed through control using artificial intelligence techniques.

The literature on applications of AI approaches to chlorination control and ML for predicting DBP formation and chlorine needs. Most researchers conducted validation tests on surface waters treated with chlorine as the main agent at drinking water treatment plants. Some studies used peroxide/ozonation pre-chlorination. Researchers found success in predicting DBPs in treated water distribution networks and consumer homes/taps. Model inputs commonly used were temperature, pH, chlorine dose, contact time, and TOC/DOC concentration. Other successful models were based on bromine dose, UV254, algal concentration, chlorophyll-a concentration, and DBP precursor chemical indicators.

○ Clarification Process

The clarifier consists of three steps of treatment, namely coagulation, flocculation, and sedimentation. Coagulation involves adding coagulation agents such as alum to the water, which are then dispersed quickly through fast mixing. Coagulation occurs mostly in the line mixer prior to the clarifier. It is augmented through aggregation and re-aggregation of newly formed coagulants in flocculation. Flocculation is done through slow agitation, resulting in the formation of bigger flocs. Due to the re-use of the particle, the flocculation process can be referred to as a solid contact process (Degremont S. A., 1991). Sometimes, addition of coagulant aid such as polyelectrolyte improves flocculation. Finally, there is the process of sedimentation, which is solid-liquid separation. Most flocs remain in the process of sedimentation. The following is the cross-section of an Accelerator sludge recirculation clarifier as installed at BEWTP

Water Quality Management Application

AI as well as machine learning approaches have been applied in the field of water quality management. The following section will provide the reader with a cross section of different water-quality management models, which include the measurement of dissolved oxygen as well as other parameters of water quality.

Several research papers prove that ML models can be very helpful in predicting and modelling water quality management parameters. The performance of most models was assessed by employing various statistical parameters, namely the coefficient of determination (R^2), the mean square error (MSE), the root mean square error (RMSE), the normalized root mean square error (NRMSE), the mean absolute percentage error (MAPE), the Nash-Sutcliffe Efficiency Coefficient (NSE) and/or accuracy (ACC).

○ Water Quality Management

The process of managing water quality is a crucial task which is required in order to maintain the health and optimal functionality of ecosystems within bodies of water. Human activities can often negatively affect the water quality within rivers and other bodies of water, and therefore it is imperative to track this phenomenon in order to preserve these ecosystems. One of the parameters which is regularly used to determine the health state of the river or another body of water is the level of dissolved oxygen.

Since there exists a correlation between human activities/pollution and

DO levels, the process of monitoring DO becomes increasingly important for predicting and potentially avoiding the creation of hypoxic areas which can cause damage to aquatic ecosystems. Fast and accurate readings become increasingly desirable due to the fact that even moderate drops in dissolved oxygen levels can result in death of certain species. There exist instances when DO measurements are affected by environmental factors, making the need for novel approaches obvious.

Studies in Table 1. discuss applications of ML to the development of parameters involved in water quality management, such as models that predict dissolved oxygen. Other studies involve modeling of water quality index and/or future water levels in rivers. Places where water quality parameters are monitored using sensors include rivers and one WWTP for monitoring BOD and COD.

Inputs used to predict water quality with ML models include pH, water temperature, and the amount of BOD present. Inputs required for predicting WQI and BOD/COD are similar and include pH, water temperature, and dissolved oxygen (DO) in the case of WQI prediction models (in the published article that was discussed), while water level modeling uses only the previous water level readings and training data. Although research models designed for aids in managing water quality with ML algorithms primarily employ ANNs, many different approaches have been explored by researchers for water quality modeling, such as ANFIS, RNN, EML, RT, SVM, HW, and ML hybrid models with some of them in combination with RF models. In general, most of the models' predictions were accurate, although this is dependent on the location. As per the results of most of the published studies reviewed here, presented in Table 5, ANFIS models performed better than standard ANN and SVM models in nearly all cases, and in some cases, even hybrid models performed better. Water level predictions were also found to be highly accurate with ANN and ANFIS models, having R2 values above 0.999 for both.

Issues Commonly Associated with the Implementation of AI and Machine Learning in Water Management

There exist some specific strengths associated with AI approaches and machine learning as compared to conventional methods and expertise. These successes cannot be overlooked, but one must also pay attention to the specific issues related to this sphere that need addressing before wider implementation becomes feasible

○ Issues Related to Reproducibility and Learning

A wide range of artificial intelligence and machine learning approaches suffer from low reproducibility due to the fact that these methods have been created through random weight selection, custom activation functions, which can be applicable only with data that are similar to that which it was trained on and tested [128]. Such a state of affairs creates significant obstacles not only to applying a specific AI approach or ML algorithm to a wide range of areas within an industry but also reproducing previous results in order to confirm research findings. The problem is that exact source code of ML models has not been included in research works, and researchers tend to write about their experience in general terms. Despite the reasons why authors refuse to provide exact code (the proprietary nature of it, etc.), such an approach does nothing to increase trust in AI and ML technologies, knowledge about them, and their reproduction possibilities.

○ Data Issues

Finally, another critical issue to mention here is the dependency of the algorithms discussed above on the chosen data. The learning or training procedure often becomes the most crucial stage of creating a functioning model, and choosing an adequate dataset can become a major challenge in doing so. As such, minor discrepancies in the natural and/or treatment procedures that have not been considered during the

training process can render a working algorithm obsolete and unable to perform adequately with the novel input data it has received since it was not trained to do so. Furthermore, it should be mentioned that, in many cases, the required large volumes of data cannot be found in real-life systems. Even if researchers and academics are free to choose their own dataset, many communities which could benefit from intelligent technology lack the means to gather or store vast amounts of information [129]. As a result, while more advanced areas may solve the issue, poorer regions will suffer from inadequate data resources.

○ Challenges Related to Explainability

The last but possibly most challenging issues about implementing AI and ML in the context of water applications involve social and legal considerations. We must remember that even if these applications are not perfect, neither are humans and the other experts involved. The question is not whether these applications will ever fail in their critical roles in providing clean water for the consumption of all citizens; the question is only when they will fail. The difficulty with explaining some of the applications and their results due to their inherent complexity and seeming randomness is likely going to make it increasingly necessary to make the public aware of what they do and how well they perform. From a legal perspective, determining responsibility and liability will prove challenging.

Conclusion

Artificial Intelligence, Machine Learning, as well as intelligent technologies, can be applied for tackling some of the most complicated tasks in the world of the water industry. The present literature review has presented and analyzed several models of machine learning, alongside with certain AI methods and intelligent technologies applied for dealing with various applications concerning the water domain.

Several critical operations concerning water treatment or agriculture have already been optimized, predicted, and modeled via the application of different ML models and AI methods, such as water and wastewater treatments, natural systems, and water-based agriculture. Despite the number of studies successfully performed and presented in this field, there are always several challenges and limitations for each application of Machine Learning and Artificial Intelligence technologies. Data management, people's opinions on certain issues, reproducibility, and transparency in research are considered vital barriers that need to be overcome to implement intelligent algorithms and applications. Although there are certain challenges and limitations in this area, this does not mean that the achievements cannot be valued.

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An AI Air Conditioner (AI AC) is an advanced cooling system that uses artificial intelligence, sensors, and data analysis to automatically adjust its performance based on user preferences, room conditions, and external factors. Unlike traditional ACs, which rely on manual input or basic thermostats, an AI AC can:

- Learn user habits (preferred temperature, sleep patterns, usage timing)
- Detect room occupancy and adjust cooling accordingly
- Optimize energy usage without compromising comfort
- Respond to weather changes (humidity, outdoor temperature)
- Be controlled via voice, apps, or automation systems

In simple terms, an AI AC thinks, learns, and adapts - making cooling more personalized and efficient.

Idea

The main idea behind an AI AC is to create a self-learning climate system that balances three key goals:

1. **Comfort** : Maintain the ideal temperature and airflow for users without constant manual adjustments.
2. **Efficiency** : Reduce electricity consumption by avoiding unnecessary cooling.
3. **Automation** : Minimize human effort by making intelligent decisions automatically.

Imagine this scenario:

You come home after a long day. Instead of turning on the AC and waiting for the room to cool, the AI AC already knows your schedule. It starts cooling before you arrive. At night, it gradually adjusts temperature based on your sleep cycle. If you leave the room, it reduces power usage automatically. The innovation lies in combining:

- Machine learning algorithms
- Environmental sensors
- User data patterns
- Smart connectivity (IoT)

This creates a system that evolves over time, becoming more accurate and efficient the more it is used.

Prototype

A working prototype of an AI AC would consist of both hardware and software components.

1. Hardware Components

- Temperature and humidity sensors
- Motion or occupancy sensors
- Smart thermostat
- Microcontroller or embedded processor
- Wi-Fi or Bluetooth module for connectivity

2. Software Components

- Machine learning models to analyze user behavior
- Data processing system to handle real-time inputs
- Mobile app or interface for user interaction
- Cloud integration for storing and improving data patterns

3. Functional Flow

- Sensors collect real-time data (room temperature, presence, humidity).
- The system compares this data with learned user preferences.
- AI algorithms decide the optimal cooling level.

- The AC automatically adjusts fan speed, temperature, and airflow direction.
- Data is continuously updated to improve future decisions.

Example Feature

- **Sleep Mode AI**: Gradually increases temperature during the night to match the body's reduced cooling needs, improving comfort and saving electricity.

Test

Testing an AI AC involves measuring both user experience and system efficiency.

1. Performance Testing

- Does the AC maintain consistent comfort levels?
- How quickly does it adapt to changes (weather, occupancy)?

2. Energy Efficiency Testing

- Compare electricity consumption with traditional ACs
- Measure savings over daily and monthly usage

3. User Experience Testing

- Is the system easy to use?
- Does it reduce the need for manual adjustments?
- Are users satisfied with automatic decisions?

4. Learning Accuracy

- How well does the AI predict user preferences over time?
- Does it improve with continued use?

Expected Results

A successful AI AC should:

- Reduce energy consumption by 20–40%
- Improve comfort consistency
- Require minimal user intervention
- Adapt quickly to different users and environments

Conclusion

An AI Air Conditioner represents a significant step forward in smart living. By combining intelligence, automation, and efficiency, it transforms a basic appliance into a responsive system that enhances both comfort and sustainability. As technology continues to evolve, AI ACs could become standard in homes, contributing to smarter cities and greener energy usage.

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UPI: India's Digital Payment Revolution

● RAJIV MURMU

I still remember the day I first paid a street vendor using just my phone. No cash, no card, no fumbling for change - just a quick scan and a cheerful beep from a small speaker confirming the payment. That moment felt ordinary, almost unremarkable. But looking back, it was anything but. It was the result of one of the most ambitious financial technology projects a government has ever successfully pulled off - the Unified Payments Interface, or UPI.

In under a decade, UPI has gone from a government experiment to the world's largest real-time payment system - surpassing Visa, inspiring dozens of countries, and fundamentally changing how 1.4 billion people think about money. This is the story of how that happened, and why it matters.

What Is UPI

The Unified Payments Interface is an instant payment system developed by the National Payments Corporation of India (NPCI) and launched on April 11, 2016. It sits on top of the existing Immediate Payment Service (IMPS) infrastructure and is regulated by the Reserve Bank of India (RBI). What makes UPI different from everything that came before it is elegant simplicity: instead of sharing your bank account number and IFSC code, you get a Virtual Payment Address - something like yourname@okbank - and anyone can send you money instantly using just that.

Transactions settle in under three seconds. The system runs 24 hours a day, every single day of the year. No holidays, no maintenance windows. You can pay a friend, split a restaurant bill, pay a vegetable vendor, or settle a business invoice - all from the same app, all for free.

From Humble Beginnings to a Global Giant

The numbers tell a story that is almost hard to believe. In its very first year of operation, UPI processed just 2 crore transactions. By FY 2025 - 26, that number had grown to over 24,162 crore transactions - a nearly 12,000-fold increase. Transaction value went from a mere ₹0.07 lakh crore in year one to approximately ₹314 lakh crore, a more than 4,000-fold jump.

2025 was a landmark year. For the first time ever, monthly transactions crossed the 2,000 crore mark in August, and by December the system recorded 2,163 crore transactions in a single month - the highest in its history. Over the full calendar year of 2025, UPI processed roughly 22,000 crore transactions, averaging about 60 crore per day. Today, UPI handles more than 640 million transactions daily - just edging past Visa's 639 million - and accounts for nearly half of all real-time payment transactions in the entire world.

The Three Pillars Behind UPI's Success

UPI did not appear out of nowhere. It was built on top of three carefully laid foundations that together created the right conditions for it to take root and grow.

Financial Inclusion - Jan Dhan

You cannot have a digital payment system if people do not have bank accounts. The Pradhan Mantri Jan Dhan Yojana solved that problem by opening accounts for millions who had never had access to formal banking. As of July 2025, over 55.83 crore accounts have been created under this scheme - giving ordinary people their first real connection to the financial system, and giving UPI its user base.

Digital Identity - Aadhaar

The second pillar was identity. Aadhaar gave every Indian resident a unique, biometrically verified identification number, making KYC (Know Your Customer) processes fast, reliable, and accessible. Over 142 crore Aadhaar cards have been issued to date, forming the backbone of authentication for UPI and dozens of other digital services.

Affordable Connectivity

The third pillar was access. India achieved one of the fastest 5G rollouts in the world, and the cost of mobile data fell dramatically - from ₹308 per GB in 2014 to just ₹9.34 in 2022. That made the internet genuinely accessible to hundreds of millions of people who had previously been priced out. When cheap smartphones met cheap data and simple apps, UPI was ready to meet them.



Why It Works — The Secret Ingredients

Many countries have tried to build national payment systems. Few have succeeded at UPI's scale. What made the difference? Researchers and institutions including the IMF point to a few key factors.

First, it is free. There are zero transaction fees for end users. That removes the biggest barrier to adoption - the question of "is it worth it?"

becomes irrelevant when the answer is always yes.

Second, it is open. Any developer can build on UPI's open API after getting NPCI authorisation. That is why we have Google Pay, PhonePe, Paytm, BHIM, Amazon Pay, and dozens of others all competing on the same rails - which in turn improved quality, reliability, and trust.

Third, and critically, user data is strictly protected. Payment apps - even global giants like Google - cannot harvest individual transaction data. This is not a small thing. It is the reason ordinary Indians trust UPI with their daily finances. The NPCI also capped any single provider's market share at 30%, ensuring no one company could dominate and that healthy competition would continue.

UPI Goes Global

The most remarkable chapter of UPI's story is still being written - and it is happening outside India's borders. As of 2025, India has exported UPI technology to 25 countries. Nepal and Bhutan have adopted it for everyday transfers. The UAE, Mauritius, and Singapore allow Indian travellers to pay using UPI. In France, you can now pay at the Eiffel Tower by scanning a QR code and settling the bill in rupees.

Formal agreements for deploying UPI-style infrastructure have been signed with Namibia, Peru, Armenia, Sierra Leone, Suriname, and several others. In June 2025, the IMF published a landmark report formally recognising UPI as the world's largest retail fast-payment system by transaction volume. For context, India now processes 129.3 billion real-time transactions - more than Brazil, Thailand, China, and South Korea combined.

What was once a domestic tool for financial inclusion has become a soft power asset and a global export. Countries looking to digitise their economies are studying the Indian model - not because India told them to, but because the results speak for themselves.



Recent Milestones and What's New in 2025

UPI has not stood still. The system continues to evolve rapidly. From September 15, 2025, users can make merchant transactions of up to ₹10 lakh per day for select verified categories - a major step that opens UPI to high value purchases beyond everyday retail. From August 2025, all UPI apps are required to display the payee's bank-registered name before a transfer is confirmed, significantly reducing fraud risk.

In July 2025, NPCI proposed biometric authentication - Face ID or fingerprint - as an alternative to the UPI PIN, which would make transactions even faster and more secure. UPI 3.0, rolled out from 2024, introduced conversational voice payments, letting users initiate transactions through voice commands. The number of banks live on UPI has grown to 703, covering public sector banks, private banks, small finance banks, payment banks, and cooperative banks across the country.

What UPI Means for Ordinary Indians

Today, UPI accounts for 85% of all digital transactions in India. But the real measure of its success is not a statistic - it is the fact that you will find a QR code at a roadside tea stall in a tier-3 town just as easily as at a luxury hotel in Mumbai. An estimated 56.86 crore QR codes have been distributed to 6.5 crore merchants, reaching deep into places where card machines never went.



For small business owners, UPI removed the cost of a card terminal and the wait for cash settlements. For migrant workers, it made sending money home instant and free. For farmers, it connected them to government benefits without a middleman. For an entire generation of young Indians, it simply made cash feel unnecessary. These are not abstract gains — they are real changes in real lives.

Conclusion: A Revolution That Belongs to Everyone

UPI is proof that public infrastructure, when designed with inclusion at its core, can do something remarkable: it can give people power they never had before. The street vendor with a soundbox confirming payments, the student splitting rent through an app, the grandmother receiving pension funds directly - they are all participants in something that the IMF now calls the world's leading payment innovation.



The question for the next decade is whether this momentum can be extended - into credit, insurance, and investments - so that the same openness and accessibility that made UPI great can reshape those sectors too. If it can, India will not just have built a payment system. It will have built a model for how digital public goods should work everywhere.

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Cooking with Sunlight

● KASHISH VAISHNAV

Long before gas ranges, electric induction cooktops, and microwave ovens transformed the modern kitchen, humanity cooked over open fire, on hot stones, and in earthen ovens. Yet one energy source has been present throughout all of human history, shining down freely on every culture and continent: the sun. Today, a growing movement of sustainable cooks, off-grid adventurers, and environmentally conscious families are rediscovering the remarkable potential of solar cooking — the art and science of using concentrated sunlight to prepare food.

Cooking with sunlight is not a fringe novelty. It is a practical, proven, and increasingly sophisticated method of food preparation with deep historical roots and a promising modern future. From simple DIY parabolic reflectors built from cardboard and aluminum foil to precision-engineered vacuum tube cookers capable of boiling water in minutes, solar cooking encompasses a wide spectrum of tools and techniques available to cooks everywhere the sun shines.

This article explores the history of solar cooking, the physics that makes it work, the different types of solar cookers available today, what you can realistically cook with sunlight, the advantages and limitations of this approach, and how you can get started cooking with the most abundant energy source on Earth.

A Brief History of Solar Cooking

The history of solar cooking stretches back further than most people realize. In 1767, Swiss naturalist Horace-Benedict de Saussure built what is considered the first solar oven: a small insulated box topped with glass that trapped heat from the sun. He reported reaching temperatures sufficient to cook fruit and to heat water near to boiling - a remarkable achievement for the era.

By the 19th century, British astronomer John Herschel took the concept further during his expedition to the Cape of Good Hope in South Africa. Using a mahogany box blackened on the inside and sealed under glass, he cooked a full meal using nothing but sunlight. Herschel recognized that solar cooking could be transformative for regions of the world with abundant sunshine but scarce fuel.

In the 20th century, particularly from the 1950s onward, humanitarian organizations and engineers began developing solar cookers as tools to address energy poverty in sunny, fuel-scarce regions of sub-Saharan Africa, South Asia, and Latin America. Researchers such as Maria Telkes, a Hungarian-American scientist, made major advances in solar thermal technology, including designs for practical solar ovens that could reach temperatures above 200 degrees Celsius.

Today, organizations like Solar Cookers International work to distribute solar cooking technology to communities where cooking fires cause deforestation, indoor air pollution, and economic hardship. Meanwhile, in developed countries, solar cooking has found enthusiastic adoption among campers, sustainability advocates, off-grid homesteaders, and home cooks eager to reduce their carbon footprint.

The Science Behind Solar Cooking

Understanding why solar cooking works requires a look at a few fundamental principles of physics: solar radiation, the greenhouse effect, and the absorption of light as heat.

The sun delivers approximately 1,000 watts of energy per square meter to the Earth's surface on a clear day at noon. This energy arrives primarily as visible light and near-infrared radiation. When this light strikes a dark surface, it is absorbed and converted into heat. This is why black pots and dark-colored cooking vessels are essential in solar cooking - they maximize heat absorption.

Box-type solar cookers exploit the greenhouse effect: sunlight passes through a transparent glass or plastic cover, is absorbed by dark interior surfaces and pots, and converts to infrared radiation (heat). Unlike visible light, this infrared radiation cannot easily pass back through the glass cover, so heat builds up inside the box, much like a car parked in the sun on a summer day.

Parabolic and panel cookers work differently, using reflective surfaces to concentrate sunlight onto a single focal point or cooking vessel, dramatically intensifying the energy density at that point. A well-designed parabolic cooker with a one-meter-diameter dish can concentrate enough energy to bring water to a full boil in under ten minutes on a bright day.

The key variables that determine cooking performance are solar irradiance (how much sunshine is available), the efficiency of the concentrating or insulating design, the absorptivity of the cooking vessel, and ambient temperature and wind. Altitude also matters: at higher elevations, the atmosphere is thinner and solar intensity is greater, which is why mountaineers find solar cooking particularly effective.

Types of Solar Cookers

Solar cookers come in several broad categories, each with different strengths, temperature ranges, and practical applications.

Box Solar Cookers

The box cooker is the most common and beginner-friendly design. It consists of an insulated box with a dark interior, one or more transparent covers to trap heat, and often one or more reflective panels to direct additional sunlight into the box. Box cookers typically reach temperatures between 120 and 180 degrees Celsius — more than sufficient to cook rice, beans, bread, stews, and casseroles. They are slow-cookers by nature, requiring one to three hours for most dishes, similar to a slow cooker or low oven. Their strength lies in their simplicity: they require minimal tracking of the sun and can be left largely unattended.

Parabolic Solar Cookers

Parabolic cookers use a curved, dish-shaped reflector to focus sunlight onto a single point or small area beneath the dish. They can reach temperatures well above 250 degrees Celsius, enabling frying, stir-frying, and rapid boiling. The tradeoff is that parabolic cookers must be

frequently adjusted to track the sun, and the intense focal point can be a burn hazard if the cook is not careful. Commercial parabolic cookers are popular in India and China, where they are used to cook for large families or communities.

Panel Solar Cookers

Panel cookers combine elements of both box and parabolic designs. They use flat or slightly curved reflective panels to direct sunlight onto a pot enclosed in a transparent plastic bag or small greenhouse enclosure. Panel cookers are extremely lightweight, portable, and inexpensive to make. While they do not reach the highest temperatures, they are effective for pasteurizing water, cooking grains, and preparing simple meals. The CookIt, developed by Solar Cookers International, is one of the most widely used panel cooker designs in the world.

Vacuum Tube Solar Cookers

A newer innovation, vacuum tube cookers use borosilicate glass tubes with an evacuated space between inner and outer walls - similar to a thermos — to achieve exceptional heat retention. Food is inserted into the inner tube, which can reach temperatures of 200 degrees Celsius or more even on partly cloudy days. These cookers work in diffuse light conditions where other designs struggle and can extend the cooking day into morning and late afternoon hours. They are among the most effective solar cookers currently available.

What Can You Cook with Sunlight?

A common misconception is that solar cooking is limited to simple or bland fare. In reality, skilled solar cooks have prepared virtually every type of dish imaginable using sunlight alone.

With a box cooker or vacuum tube cooker, you can confidently prepare:

- Rice, lentils, quinoa, and all manner of grains and legumes
- Soups, stews, curries, and chilis
- Baked goods including bread, muffins, cakes, and cookies
- Roasted vegetables and root vegetables
- Steamed fish and poultry
- Pasta dishes and casseroles
- Custards, puddings, and egg dishes

With a parabolic cooker capable of high temperatures, you can add:

- Stir-fries and sauteed dishes
- Deep-fried foods (with appropriate caution)
- Grilled meats and fish
- Rapid boiling for pasta or blanching vegetables

Solar pasteurization - heating water or milk to 65 degrees Celsius for several minutes - is one of the most impactful applications of solar cooking in terms of global health, as it kills pathogens without requiring water to reach a full boil.

Advantages of Solar Cooking

The benefits of cooking with sunlight are numerous and span environmental, economic, and health dimensions.

Zero fuel cost is the most obvious advantage. Once a solar cooker is built or purchased, the energy source - sunlight - is entirely free. In regions where firewood must be gathered or purchased, solar cooking delivers immediate and ongoing savings. For off-grid households and campers, it eliminates the need to carry fuel.

Environmental impact is dramatically reduced. Solar cooking produces no carbon emissions, no smoke, and no particulate pollution. Indoor air pollution from cooking fires is responsible for millions of premature deaths globally each year, predominantly affecting women and children in developing countries. Solar cooking eliminates this hazard entirely.

Solar cookers are also remarkably safe compared to open flame cooking. There is no risk of gas leaks, grease fires from overheated burners, or fire spreading to nearby materials. While the focal point of a

parabolic cooker does require care, box and panel cookers are exceptionally low-risk for burns and fire.

Food quality is another underappreciated benefit. Because box and vacuum tube solar cookers cook at moderate, consistent temperatures 2 similar to low-and-slow oven cooking - they tend to preserve moisture, vitamins, and delicate flavors exceptionally well. Solar-cooked beans and stews are notably rich and tender. Bread baked in a solar oven develops a beautiful crust and moist crumb.

Getting Started with Solar Cooking

Solar cooking is not without its challenges, and an honest assessment requires acknowledging them.

Weather dependence is the most significant limitation. Solar cookers require direct sunlight or at least bright, diffuse light. Overcast skies, rain, and the shorter days of winter reduce or eliminate cooking capacity. In high-latitude regions or during extended cloudy seasons, solar cooking must be supplemented with other methods.

Cooking times are generally longer than with conventional stoves, particularly with box cookers. A dish that takes 30 minutes on a gas stove might take 90 minutes or more in a solar oven. This requires planning ahead and adapting cooking habits.

Solar cookers also require periodic adjustment to track the sun across the sky, particularly parabolic models. While box cookers can often be set up and left for an hour or more, they still benefit from repositioning as the sun moves.

Despite these limitations, for the right contexts - sunny climates, outdoor cooking, camping, emergency preparedness, or sustainability goals - solar cooking is a genuinely practical and rewarding approach.

Getting Started with Solar Cooking

The barrier to entry for solar cooking is lower than most people expect. Here is how to begin.

Start by assessing your sunlight. Solar cooking works best with direct sunlight and clear skies. Check average sunny days per month in your location to gauge feasibility. Most sunny-climate regions will find solar cooking viable for six to twelve months of the year.

Choose or build a cooker suited to your goals. For beginners, a simple panel cooker or box cooker is ideal. Commercial options like the GoSun Sport vacuum tube cooker or the All American Sun Oven box cooker are popular and well-reviewed. Alternatively, detailed plans for DIY box and panel cookers are freely available online, many using cardboard, aluminum foil, and glass — materials that cost very little.

Use appropriate cookware. Dark, thin-walled metal pots with lids are ideal. Black enamel pots are particularly effective. Avoid shiny or reflective cookware, which bounces sunlight away rather than absorbing it. Lids are essential for retaining moisture and heat.

Begin with forgiving dishes. Rice, lentils, and hearty stews are excellent starting points for solar cooking novices. They are tolerant of temperature variation, require no precise timing, and taste wonderful cooked low and slow. Once comfortable, experiment with bread, desserts, and more complex preparations.

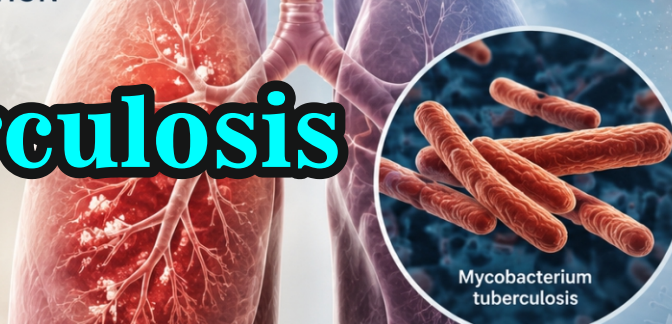
Keep notes on timing and sun position. Like any new cooking method, solar cooking involves a learning curve. Tracking what you cook, when, and how long it takes will help you develop reliable intuition and recipes tailored to your cooker and local conditions.

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- Persistent cough
- Fever
- Night sweats
- Weight loss

Tuberculosis

when an infected person coughs, speaks or sneezes.



Mycobacterium tuberculosis

- Cover your mouth while coughing or sneezing
- Maintain good hygiene
- Eat healthy food and stay strong
- BCG vaccine for protection (for infants)

UBAID AHMAD CHOPAN

Tuberculosis is a communicable bacterial infection, which is caused, by mycobacterium tuberculosis, which starting affects the lungs (pulmonary TB) and later on separates to other organs (extra pulmonary TB). It spreads from infected person to another person by sneezing, coughing etc. TB is curable but can cause death if left untreated. The germs spread through the air and can infect your lungs when you breathe them in. Sometimes, they also infect other parts of your body.

How does tuberculosis spreads?

Tuberculosis primarily spreads through the air, when a person with active TB disease releases respiratory droplets containing the bacteria Mycobacterium tuberculosis into the air.

The key modes of TB transmission include:

1. **Airborn transmission** : It usually occurs by inhaling the infected air, which includes infectious bacteria.
2. **Close and prolonged contact** : It also separates by the long contact with the TB patients. It's particularly related to the crowded or overcrowded places.
3. **Weakened immune system** : Individuals with weakened immune systems are more susceptible to TB infection and are at a higher risk of developing active TB disease. Conditions such as HIV/AIDS, malnutrition, and certain medical treatments that suppress the immune system increase the high risk of TB.

TB is mainly having two types:

- latent TB infection (LTBI) and active TB disease.

Some of the general symptoms of TB are :

- **Persistent Cough** : A bad cough that lasts 3 weeks or longer.
- **Hemoptysis** : Coughing up blood or phlegm.
- **Chest Pain** : Pain with breathing or coughing.
- **General Symptoms** : Fatigue, fever, chills, and loss of appetite.
- **Night Sweats** : Profuse sweating during

Treatment of TB

(TB) treatment involves a long-term course of specialized antibiotics to ensure all bacteria including dormant ones are eliminated. Standard treatment for drug-susceptible TB typically lasts 6 months and is divided into two distinct.

Standard Treatment Phases

- **Intensive Phase (First 2 Months)** : A combination of four drugs is used to quickly kill the majority of active bacteria and make the patient non-infectious.
- **Continuation Phase (Next 4 Months)** : Only two drugs are continued to eliminate any remaining or slow-growing bacteria and prevent a relapse.

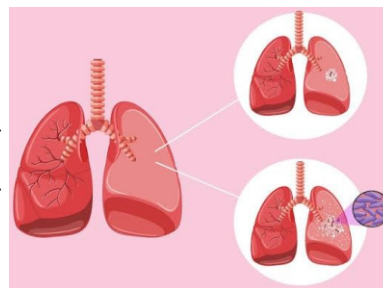
Commonly used TB drugs are:

- **Isoniazid** : (action) Primary drug; kills actively growing bacteria.
- **Rifampin (RIF)** : Helps kill the bacteria. It is known for turning body fluids (urine, sweat, tears, saliva) an orange-red color, which is harmless.
- **Pyrazinamide (PZA)** : Particularly effective during the early stages of treatment

Precautionary measures of tuberculosis include

Compliance to standard precautions is important to prevent the spread of TB in the clinical area. Even though student nurses are taught about its importance in class and in the clinical area, it does not mean that they will always comply. Among the participants, 51.4% reported that they always use PPE depending on the patient's condition. The mean score for compliance was 2.29 which shows that student do not comply well. A study on knowledge and practice of universal precautions among student nurses in school of nursing revealed that 52.6% of the student nurses reported to use gloves and face mask when caring for patients. However, in another study when asking student nurses on their compliance, only a very few (2.5%) said they wore protective gear/apron. Gloves are also supposed to be worn by health workers when doing procedures where they anticipate contact with patients' blood or body fluids.

Standard precautions measures are recommended to be implemented by all student nurses to prevent the spread of infection. However, these precautions will not work if student nurses do not comply to them. Results from this study show that student nurses do not



comply to standard precautions as they should. They do not wear aprons, goggles, and masks to protect themselves from blood and body fluids in the CLE. It is worth noting though that they do comply in terms of handling and disposing sharp objects after use. With this poor adherence to standard precautions, student nurses are at risk of infecting themselves and their patients during their practice in the clinical area. Adherence to the standard precautionary measures by the student nurses requires a greater investment in teaching, in-service training and practice by the students, nurse educators, clinical practice / hospital management and mentors in order to support, promote and strengthen the safety culture. Adherence to standard precautionary measures should be closely monitored to ensure total and better compliance. From these results it is recommended that clinical facilitator should always accompany student nurses in the clinical area to ensure that student nurses are supervised. The preceptors should also be exempted from other nursing duties when there are student nurses in the hospitals so that they can mentor the students.

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Investigation on the use of Bamboo Timber

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Steel reinforcement is an integral part of concrete structures. It mostly used to support the tension zone of a concrete section because of its exceptionally high tensile strength. Steel reinforcement is also essential for resisting shear forces in the form of stirrups or ties. Nevertheless, steel is considered a high-cost material and it contributes to a considerable amount of greenhouse gases emissions worldwide—. In addition, beyond its economic and environmental disadvantages, steel reinforcement significantly contributes to concrete degradation due to corrosion. In fact, corrosion is the most important durability concern in reinforced concrete structures. In recent years there is large interest towards sustainable and eco-friendly construction practices. Researchers and practitioners are expanding research on an innovative materials and techniques that minimize environmental impact while ensuring structural integrity. One promising development is the use of bamboo as a reinforcement material in concrete structures¹. Bamboo, a rapidly renewable natural resource, exhibits remarkable tensile strength, making it a feasible alternative for reinforcing concrete. Bamboo is an abundant, quick-growing, and maintainable resource. It is an eco-friendly and cheaper raw material. It can grow up to 100 cm per day and regenerate naturally, making it suitable for structural applications. Bamboo is widely available in Nigeria, particularly in southern and middle belt states with high rainfall, including Abia, Anambra, Cross River, Delta, Edo, Ogun, Oyo, and Rivers². Studies have reported that bamboo's tensile strength can reach up to 572 MPa. With appropriate treatment and techniques, bamboo also demonstrates satisfactory durability with minimal mechanical degradation over time.

It is an excellent choice for usage as a reinforcing material in construction because of its ability to withstand tensile forces and enhance the overall structural integrity of various components. Because of its incredible tensile strength, bamboo has the potential to be a strong and durable material in the building industry.

Yamaguchi et al. studied bamboo material in reinforced concrete beams. Flexural loading tests were performed on the beams with bamboo in place of all rebars, including the main rebar and stirrups.

Zhao et al. have also researched the use of bamboo-reinforced concrete in construction structures, such as columns, beams, slabs, and walls. , and they concluded that the strength of bamboo as a concrete reinforcement is much lower than that of a steel bar reinforcement. However, one of the benefits of bamboo reinforcement is its high tensile strength, low density, and low production and manufacturing costs, which make it a first choice as a sustainable material for structural applications—.

Many experts have researched bamboo's usage as reinforcement for concrete structures due to its great mechanical qualities to lessen the environmental impact of steel reinforcement without sacrificing strength.

Despite increasing interest in bamboo as a construction material, a clear gap exists in the literature regarding direct comparative studies between bamboo and steel reinforcement in concrete beams under similar conditions. Most studies focus on bamboo alone, with limited integration of experimental and numerical approaches for cross-validation. This study investigates the use of bamboo as reinforcement in concrete beams subjected to flexural loading, aiming to improve understanding of the mechanical behavior of Bamboo Reinforced Concrete (BRC) beams and to support future research.

Methodology

1. Materials

The materials used in this study for the preparation of test specimens include bamboo, steel, cement, coarse aggregate, fine aggregate, and



water.

○ **Bamboo** : The bamboo species used in this study was *Bambusa vulgaris*. Both freshly harvested and air-dried bamboo were used. Fresh bamboo was air-dried for six weeks prior to use. Bamboo of 12 mm, 16 mm, and 20 mm diameters was cut to a uniform length of 700 mm for reinforcement purposes.

○ **Steel** : High-yield steel reinforcement with a yield strength of 410 N/mm² was used for the control beam specimens. Steel bars of 12 mm, 16 mm, and 20 mm diameters were used as main reinforcement, while 8 mm diameter bars were used as stirrups.

○ **Cement** : Ordinary Portland Cement (OPC) of strength class 42.5 N was used throughout the study.

○ **Aggregates** : Crushed stone with a nominal maximum aggregate size of 20 mm was used as coarse aggregate while Natural fine sand was used as fine aggregate. Sieve analysis was conducted to confirm their suitability for concrete production. The sieve analysis result was shown in Fig.1, Similarly, the physical properties of the aggregates was shown in Table.

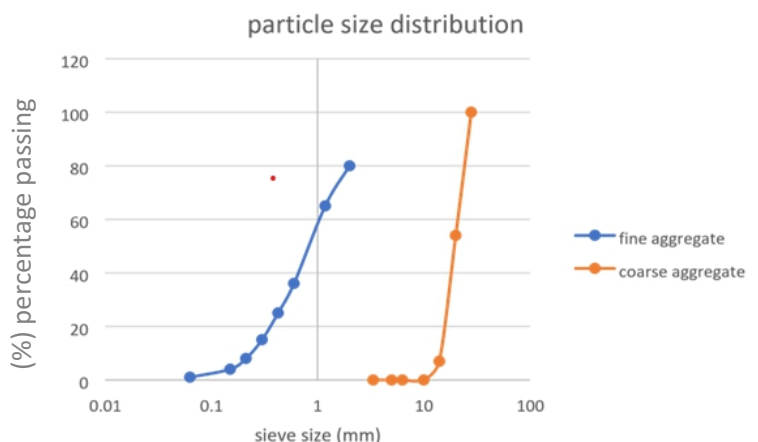


Figure 1: Particle size distribution of Aggregates

S/N	Properties	Fine Aggregate	Coarse Aggregate
1	Specific Gravity	2.65	2.69
2	Bulk Density	1620	1500
3	Fineness Modulus	3.16	6.7

Table 1: Physical Properties of Aggregates

1. Sample Preparation

○ **Concrete mixing and casting :** A concrete mix was designed using the D.O. Method to achieve a characteristic compressive strength of 20 N/mm². A water to cement ratio of 0.4 was used to balance strength and workability while ensuring proper cement hydration and limiting bamboo swelling.

The concrete was produced by accurately weighing the required materials and mixing them at low speed until a uniform consistency was achieved. The fresh concrete was then cast into 100x100x100mm cube molds and cured under controlled conditions. Compressive strength tests were conducted at 7, 14, 21 and 28 days using three cubes per each test.

Mix Proportion: 1:1:5:4

Materials	Quantity (kg/m ³)
Cement	328
Fine aggregates	540
Coarse aggregates	1382
Water	190

Table 2: Mix Proportion

○ **Preparation of Beams samples :** A metallic mold was used in the dimension of 150mm x 150mm x 750mm. Three types of beams were used bamboo reinforced beam (BRC), steel reinforced beam (SRB) and unreinforced beam (Plain). The reinforcement cage was placed in molds maintaining 25mm clear cover and the freshly prepared concrete was poured with vibration to avoid segregation. After 24 hours the specimens were unmolded and submerged in water for 28 days for curing before testing.



Figure 2: Preparation of bamboo reinforcement



Figure 3: Beams casting

Figure 4: Compression test for concrete cubes

○ A shear reinforcement was provided using 8 mm diameter (HYSD) steel bars for all the beams, spaced at 100 mm intervals. Steel stirrups were used instead of bamboo stirrups to ensure that any observed effects were due only to the bamboo used as longitudinal reinforcement in the concrete. The concrete cover on all sides of the beams was maintained at 20 mm.

1. Compression test for concrete cubes

The compressive strength of specimens was tested using universal testing machine (UTM) at a constant rate of 0.2kN/min. The test was carried out at 7 days, 14 days, 21 days and 28 days using three cubes per each test. Figure 4. Compression test for concrete cubes.

The maximum strength of each specimen was recorded and average strength at age of 28 days was considered as the compressive strength of the specimen.

2. Flexural Testing for Beam

The specimens were tested under 3 - point loading to determine the flexural strength of each specimen at age of 28 days using UTM machine. The applied load was increased gradually on the mid -span of the beam at a constant rate of 0.2kN/min.

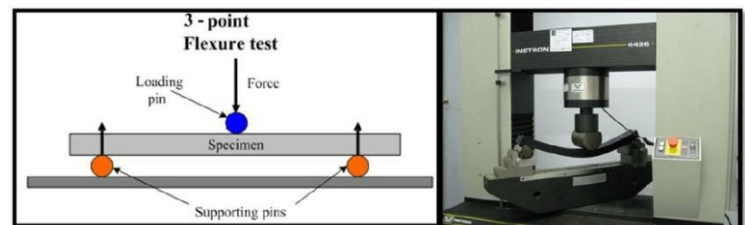


Figure 5: 3 Point Bend Test

Results and Discussion

1. Results

○ Compressive strength of concrete cubes Result

The compressive strength of the concrete cubes (100 mm x 100 mm x 100 mm) increased over the curing periods. Total twelve cubes testing was carried out. The test was carried out at 7 days, 14 days, 21 days and 28 days using three cubes per each test. The maximum strength of each specimen was recorded and average strength (24 N/mm²) at age of 28 days was considered as the compressive strength of the specimens.

○ Flexural strength test result.

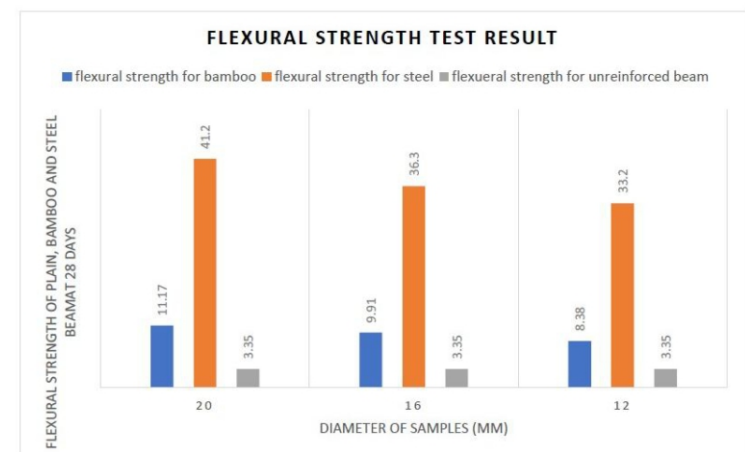


Figure 6: Flexural strength test result for beams

○ 4.1.3 Compressive strength test of Bamboo

From the result obtained the compressive strength was found to be 62.8 N/mm² which is much lower than that of steel.

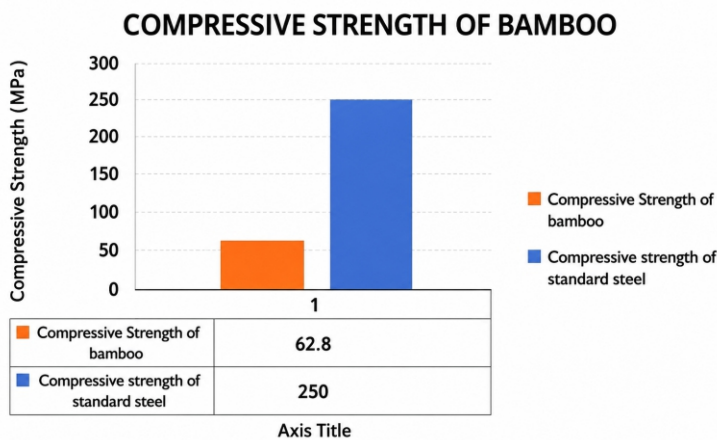


Figure 9: Compressive Strength Test Result

2. Discussion

The study investigates the flexural performance of plain, bamboo-reinforced, and steel-reinforced concrete beams under three-point loadings.

Plain concrete beam exhibited the lowest flexural strength of averagely 3.35 MPa, and the mode of failure is brittle in manner with sudden crack propagation at the load point, showing the limitations of unreinforced concrete in bending applications.

Bamboo-reinforced beams showed a significant improvement in flexural strength of about 8.38 MPa to 11.17 MPa, corresponding to a 60–70% increase over plain beams. The results also indicated that larger bamboo diameters improve stiffness and load-carrying capacity. Bamboo provided a cost-effective and sustainable alternative, suitable for low to medium load structures.

Steel-reinforced beams showed the highest flexural strength, from 33.2 MPa to 41.2 MPa, achieving a 90–91% increase when compared to plain beams. Steel reinforcement it was not only increased strength but also provided ductility, allowing the beams to undergo plastic deformation before ultimate failure, making them ideal for high-load and critical structural applications.

The study emphasize that reinforcement type and diameter are key factors influencing flexural performance. While bamboo can only improve beam strength substantially and reduce costs. Hence, steel remains the most reliable option where maximum structural performance and durability are required when compared to Bamboo reinforcement.

Conclusion

The use of bamboo as reinforcement in concrete offers several benefits like Lower cost, Tensile strength, Sustainability, Durability and Lightweight. The bamboo reinforced concrete beams has less load withstanding capacity than the steel reinforced concrete beams. The bamboo reinforced concrete beams and steel reinforced concrete beams are having high flexural strength than normal concrete without reinforcement. Steel can be replaced with bamboo in minimal loading for structural applications. The following are the Key findings obtained in the study:

1. Bamboo timber treated to 10.9% moisture content is of average compressive strength of 62.8N/mm².
2. Concrete beam reinforced with bamboo timber improves the flexural strength of the beam with 60%, 66.2% and 70% for a diameter of 12mm, 16mm and 20mm respectively.
3. Concrete beam reinforced with high yield steel improves the flexural strength of the beam with 90%, 90.2% and 91.2% for a diameter of 12mm, 16mm and 20mm respectively.
4. Steel reinforced concrete has an ultimate load withstanding

capacity of about three times that of bamboo reinforced concrete. The study concludes that due to low bending force bearing (load at failure) of bamboo timber, it cannot be employed as a main structural member in substitute of steel in building and other engineering works but can be used as scaffolding, portioning wall, ceiling, roof and other areas of engineering construction that is not heavy load-bearing.

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Harnessing The Sun

● TT DESK

Rajasthan, India's largest state, is uniquely defined by its arid landscape and an extraordinary abundance of sunlight, receiving solar radiation for nearly 300 to 330 days a year. This natural advantage makes it a prime location for the adoption of solar cooking. At its heart, solar cooking converts sunlight into thermal energy. Dark-colored cooking vessels are used to absorb maximum heat, while transparent covers made of glass or plastic trap that heat within a closed environment. There are three primary types of solar cookers used to meet various needs:

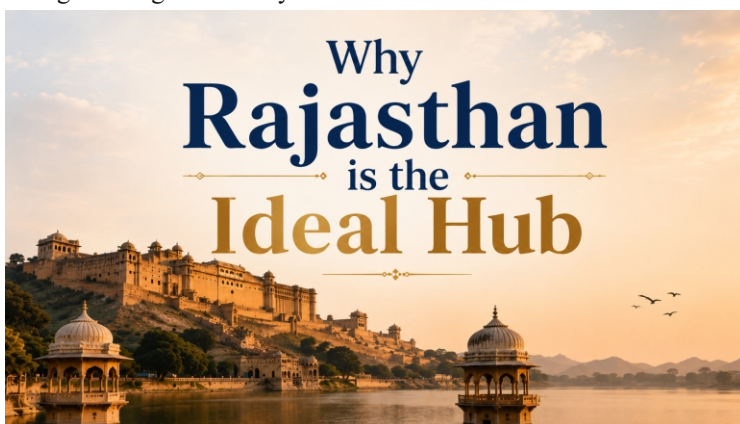
- **Box Solar Cookers:** The most common household choice, reaching temperatures between 100°C and 140°C, ideal for slow-cooking rice, dal, and vegetables.
- **Parabolic Solar Cookers:** Advanced systems that use dish-shaped reflectors to concentrate sunlight onto a focal point, reaching temperatures over 200°C for faster cooking and frying.
- **Panel Solar Cookers:** The simplest and most portable option, perfect for outdoor activities or low-cost temporary needs.

Why Rajasthan is the Ideal Hub

The region experiences low humidity and minimal cloud cover for most of the year. Clear skies enhance the intensity of sunlight, which directly improves the efficiency of solar cookers. Furthermore, the state has vast open spaces like rooftops and courtyards that receive uninterrupted sunlight throughout the day.

months to 1 year. Socially, this technology empowers women by reducing the time and labor spent collecting firewood, allowing them to engage in other productive activities.

In conclusion, solar cooking is a step toward a cleaner, greener, and more self-sufficient future. By leveraging natural solar wealth, Rajasthan can lead the way in promoting sustainable energy solutions for everyday life.



Environmental Impact: Shifting to solar cooking reduces reliance on firewood, protecting forests and eliminating indoor air pollution, which significantly improves the respiratory health of women and children.

Implementation and Efficiency

Setting up a solar cooker involves simple, locally available materials like aluminum foil, mirrors, and wooden frames. For optimal performance:

- **Orientation:** The cooker should face the sun directly, often adjusted every 1–2 hours to follow its movement.
- **Preheating:** Allowing the cooker to sit in the sun for 15–20 minutes before adding food allows the internal temperature to rise.
- **Maintenance:** Regular cleaning of reflective surfaces and glass covers is essential to prevent dust accumulation from lowering temperatures.

The Impact: Economic and Social Gains

The adoption of solar cooking offers a pathway to energy independence. Families can significantly reduce their dependence on LPG cylinders, with a payback period for basic units ranging from 6



Social Media and Cyber Security Risks

● RISHI RAJ

Social media platforms such as Facebook, Instagram, Twitter (X), and LinkedIn have become an integral part of daily life, enabling communication, information sharing, and networking on a global scale. However, their widespread use also exposes individuals and organizations to significant cyber security risks. These risks arise from the vast amount of personal data shared online and the increasing sophistication of cybercriminals.

Data Privacy Risks

Social media users often share personal information such as location, photos, contact details, and life events. This data can be collected, analyzed, and exploited by malicious actors.

- Oversharing can lead to identity theft or stalking.
- Third-party apps may access user data without proper consent.
- Data breaches can expose sensitive user information.

Phishing Attacks

Cybercriminals use social media platforms to trick users into revealing confidential information.

- Fake messages or links appear to come from trusted sources.
- Attackers may create fake profiles to gain trust.
- Clicking malicious links can lead to stolen passwords or financial data.

Identity Theft and Impersonation

Hackers can create fake accounts or take over real ones to impersonate users.

- Victims may suffer reputational damage.
- Fraudsters can scam friends or followers using stolen identities.
- Personal information is used to answer security questions or bypass authentication.

Malware Distribution

Social media is often used to spread malicious software.

- Infected links, ads, or downloads can install malware.
- Malware can steal data, monitor activity, or damage systems.
- Botnets can spread malware automatically through messages or posts.

Cyberbullying and Harassment

Social media platforms can be misused for harmful behavior.

- Users may face threats, harassment, or abuse.
- Psychological and emotional damage can result.
- Cyberbullying can escalate into real-world consequences.

Social Engineering Attacks

Attackers manipulate individuals into revealing confidential information.

- Information gathered from profiles helps attackers craft convincing scams.
- Common tactics include posing as colleagues, friends, or customer support.
- Often used in corporate espionage or financial fraud.



Businesses face additional threats through employee social media use.

- Leakage of confidential company data.
- Damage to brand reputation due to employee actions.
- Targeted attacks like spear phishing using company-related information.

Location Tracking and Physical Security Risks

Many social media platforms allow location tagging.

- Real-time location sharing can expose users to physical threats.
- Criminals may track routines or identify when users are away from home.

For Organizations

- Use strong, unique passwords and enable two-factor authentication.
- Avoid sharing sensitive personal information publicly.
- Be cautious of suspicious links and messages.
- Regularly review privacy settings.
- Accept friend requests only from known individuals.

The Impact: Economic and Social Gains

- Implement social media security policies.
- Train employees on cyber security awareness.
- Monitor social media accounts for suspicious activity.
- Use secure tools for managing official accounts.

Conclusion

While social media offers numerous benefits, it also introduces serious cyber security risks that cannot be ignored. Awareness, responsible usage, and proper security measures are essential to protect both individuals and organizations from cyber threats. As technology continues to evolve, staying informed and vigilant is the key to safe social media usage.

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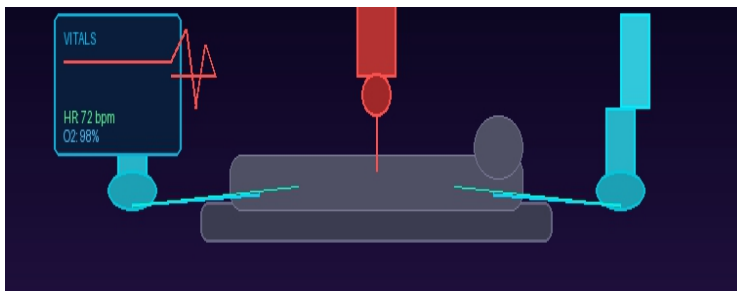
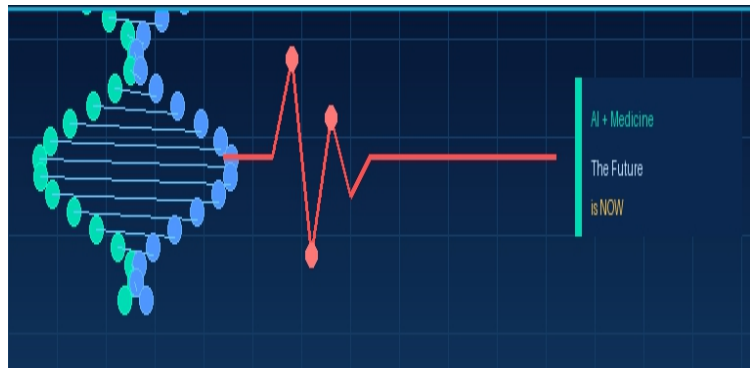
Smart Robots in Health Care

● AMIT KUMAR

The healthcare industry is undergoing a silent revolution. Smart robots - powered by Artificial Intelligence, machine learning, and precision sensors - are transforming hospitals, clinics, and homes around the world. These are not science-fiction machines; they are real, working tools saving real human lives every single day. From performing delicate surgeries to comforting elderly patients, smart robots are becoming an indispensable partner of modern medicine.

Robots in the Operating Room

One of the most remarkable applications is robotic surgery. The da Vinci Surgical System allows surgeons to perform complex procedures through tiny incisions with extraordinary precision - far beyond the capability of the human hand alone. The robot's arms do not tremble, do not tire, and can reach places a surgeon's hands cannot. This leads to less blood loss, shorter hospital stays, and faster patient recovery. Robotic surgery is now routinely used for cancer removal, heart procedures, kidney operations, and more.



AI-Powered Diagnosis

Smart robots equipped with AI can analyze X-rays, MRI scans, and CT images with remarkable accuracy - often detecting diseases earlier than human specialists. IBM's Watson Health demonstrated a 30% improvement in cancer diagnosis accuracy compared to conventional methods. AI systems can read millions of research papers and patient records in seconds to suggest the most effective treatment. Early and accurate diagnosis is the single most important factor in saving a patient's life, and robots are making this possible on a global scale.



Caring for the Elderly

Japan's PARO robot - shaped like a baby seal - has been shown to reduce depression and anxiety in elderly patients through companionship. Smart care robots remind patients to take their medications, monitor blood pressure and glucose levels, and

immediately alert emergency services if a patient falls. For millions of elderly individuals living alone, these robots offer safety, dignity, and independence - reducing the burden on families and healthcare systems alike.

Rehabilitation & Recovery

After strokes, accidents, or major surgeries, patients often need intensive physical therapy to regain movement. Robotic exoskeletons - wearable mechanical suits - guide and support patients through rehabilitation exercises. These systems adapt in real-time to each patient's progress, providing exactly the right amount of resistance and assistance. Studies show that patients using robotic rehabilitation recover up to twice as fast as those using traditional therapy alone, enabling them to return to independent lives sooner.

Challenges & Ethical Concerns

Despite these remarkable advances, significant challenges remain. The high cost of surgical robots makes them inaccessible in low-income countries where they are needed most. A technical malfunction during surgery could pose life-threatening risks. Data privacy is a major concern - the health information collected by robots must be rigorously protected. Perhaps most importantly, no machine can replace the empathy, intuition, and human judgment of a skilled doctor. AI and robots must be tools that empower physicians, not systems that replace the human heart of medicine.

Smart robots in health care represent one of the most hopeful frontiers of our time. When human expertise and robotic precision work together, the results are extraordinary: better diagnoses, safer surgeries, faster recovery, and longer, healthier lives. The goal must be to develop this technology responsibly and ethically - ensuring its benefits reach every patient, regardless of geography or income. The future of medicine is not robots replacing doctors. It is doctors and robots, together, saving more lives than ever before.

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Smart Study Desk

● JANVI KUMARI

Design Thinking is a user-centered approach used to solve real-life problems creatively. It involves understanding the user, identifying the problem, generating ideas, and developing practical solutions. In today's student life, maintaining focus during study is a major challenge due to distractions, poor posture, and unorganized study spaces.

Many students face issues such as excessive mobile phone usage, messy desks, and physical discomfort while studying. These problems reduce productivity and affect overall learning efficiency. After understanding these challenges, the problem can be defined as the need for a comfortable, organized, and distraction-free study environment.

To address this, the idea of a Smart Study Desk is proposed. This desk is designed with features like a phone holder with timer lock to reduce distractions, LED lighting for better focus, a posture reminder system, and built-in storage compartments to keep materials organized. It may also include a mini whiteboard for quick notes and a cable management system.

A simple prototype of this desk can be created using basic materials like cardboard or wood, along with LED lights and a mobile holder. Testing of the prototype shows that it helps students stay focused, improves organization, and promotes better posture during study sessions.

In conclusion, the Smart Study Desk is an effective solution developed through the Design Thinking process. It enhances the study experience by combining comfort, organization, and smart features. With further improvements, it has the potential to become a useful product for students in the future.



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Real-Time Sign Language Translation

● AMIT KUMAR

The fundamental human right to communicate is currently obstructed for a significant portion of the global population. Sign language represents a sophisticated and linguistically complete medium of expression used by the hearing and speech-impaired community; however, the lack of general public proficiency in these visual-tactile languages creates a profound state of information isolation. In critical sectors such as healthcare, jurisprudence, and emergency services, this communicative disconnect is not merely an inconvenience but a systemic failure that results in life-altering consequences, including medical misdiagnosis and economic exclusion. Traditional interventions have historically relied on human sign language interpreters or specialized hardware, such as sensor-equipped gloves, which have failed to scale due to prohibitive costs, limited availability, and ergonomic impracticality. The emergence of vision-based artificial intelligence, specifically the integration of the MediaPipe Holistic landmarking framework with Long Short-Term Memory (LSTM) neural networks, represents a paradigm shift toward an accessible, software-defined bridge for real-time translation.

The Socio-Economic Imperative for Automated Interpretation

The absence of a common communicative medium between signers and non-signers exerts a profound toll on societal infrastructure. In healthcare, the reliance on third-party interpreters or written English - which may be a second language for many signers - often leads to lower health literacy and compromised diagnostic accuracy.

Studies conducted in Saudi Arabia indicate that while a majority of healthcare providers perceive sign language knowledge as essential, only a negligible percentage (approximately 6.3%) have received formal training, leading to frustration and time-consuming interactions.

○ Healthcare Risks and Systemic Inequities

The inability to communicate symptoms accurately to a physician creates significant healthcare risks. Deaf sign language users often report higher dissatisfaction with patient-provider communication and are more likely to utilize emergency departments over primary care due to the lack of available interpreters in standard clinical settings. In regions like South Africa, the estimated prevalence of deafness is between 15% and 26%, yet the cost of providing professional sign language interpreters in the health

Sector Impact	Specific Communication Barrier	Long-term Societal Implication
Healthcare	Lack of access to family medical history and English medical terminology.	Chronic disease mismanagement and reduced life expectancy.
Economic	Perceived difficulty of workplace integration and limited recruitment [Pawar Paper].	Persistent wealth gaps and underemployment of skilled individuals.
Psychological	Constant reliance on third parties for basic daily tasks [Pawar Paper].	Loss of independence, social withdrawal, and increased anxiety.
Educational	Struggle in mainstream classrooms without real-time translation support [Pawar Paper].	Literacy development delays and reduced academic attainment.

sector is estimated to range from R143.6 million to R775 million - representing up to 12.8% of some regional health budgets. This financial burden often results in the absence of legal provisions for interpreters, leaving the deaf community in a state of clinical vulnerability.

○ The Financial Valuation of the Sign Language Economy

The economic impact of sign language extends beyond the provision of services. Gallaudet University's research into the sign language economy suggests its value in the United States alone is between \$3 billion and \$10 billion. This economy encompasses interpreting services (~\$1.4 billion), educational investments (~\$7.8 billion), and the revenue generated by deaf-owned businesses. Developing an AI-powered, real-time translator serves as a catalyst for this economy by lowering the barrier to entry for businesses to hire and serve the deaf community, potentially stimulating economic growth far beyond localized neighborhoods.

Technological Evolution: From Wearables to Vision-Based AI

The trajectory of sign language recognition (SLR) research has transitioned from invasive hardware solutions toward non-invasive, high-speed computer vision. Early attempts to digitize sign language movements primarily utilized "smart gloves" equipped with strain sensors, accelerometers, and flex sensors to track finger orientation and hand velocity.



○ The Limitations of Haptic and Sensor-Based Gloves

While models like the "Language of Glove" achieved basic alphabet translation for a relatively low cost (under \$100), high-quality research-grade data gloves often exceed \$9,000.5 Furthermore, wearable sensors suffer from inherent limitations, including the need for constant calibration, physical discomfort during prolonged use, and an inability to capture facial expressions - which are vital for conveying grammar and sentiment in sign language. The shift toward vision-sensor-based methods addresses these constraints by leveraging standard RGB webcams, which are now ubiquitous in laptops and smartphones.

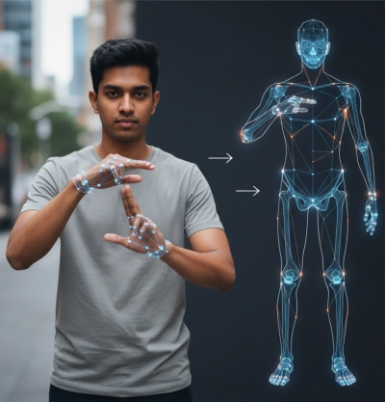
○ Comparative Cost and Accessibility Analysis

○ Vision-based systems require no specialized hardware beyond an HD camera, making them significantly more scalable for public use. While camera-based models face challenges such as limited field of view and sensitivity to lighting, the software-centric approach allows for rapid updates and the use of temporal modeling to overcome the lack of physical sensors.

System Type	Hardware Requirements	Primary Advantage	Primary Disadvantage
Wearable Sensor	Gloves, accelerometers, microcontrollers.	High accuracy in dark environments.	High cost (\$100-\$9,000) and impractical for daily use.
Vision-Based (Static)	RGB Webcam, standard laptop [Pawar Paper].	Low cost and non-invasive [Pawar Paper].	Fails to capture the "movement" or temporal sequence of signs [Pawar Paper].
Vision-Based (Temporal)	RGB Webcam, 8GB RAM, GPU.	Captures full words and dynamic phrases [Pawar Paper].	Requires higher computing power for real-time inference.

MediaPipe Holistic: High-Dimensional Feature Extraction

The proposed solution by Pranav Pawar utilizes the MediaPipe Holistic pipeline, an open-source framework developed by Google Research to provide a unified topology for human body tracking. Processing raw video frames for sign language is computationally expensive and sensitive to background clutter. MediaPipe resolves this by extracting skeletal landmarks, transforming the visual data into a lightweight geometric



representation that preserves the "essence" of the gesture.

○ The Landmark Topology and Spatial Context

MediaPipe Holistic integrates separate models for pose, face, and hand components into a single semantically consistent pipeline. This is critical because sign language is not restricted to hand movements; it involves facial expressions (non-manual markers) and torso positioning to define the "signing space". The system extracts 543 landmarks per frame, which are often flattened into a high-dimensional feature vector:

- **Face Mesh (468 landmarks):** Captures granular movements of the eyes, nose, and mouth, facilitating the detection of emotional intensity and tonal shifts.
- **BlazePose (33 landmarks):** Tracks the torso, shoulders, and arms, allowing the model to distinguish between signs that occur at different body heights or widths.
- **Hand Landmarks (21 per hand):** Provides detailed data on finger orientation and joint angles.

When represented as 3D coordinates (x, y, z) along with visibility/confidence scores (v), these landmarks generate a robust feature set of 1,662 coordinates. This approach ensures the system is resilient to variable lighting because the model focuses on the relative geometry of the joints rather than raw pixel values [Pawar Paper].

○ Pipeline Mechanics and ROI Tracking

The MediaPipe pipeline employs a tracking-by-detection approach. It first estimates the human pose using BlazePose, then derives three regions of interest (ROI) for the hands and face. By cropping the full-resolution input frame to these specific ROIs, the system achieves higher precision for small features, such as finger joints, while maintaining real-time performance on standard hardware. During fast movements, the tracker may lose the target; the holistic model mitigates this by using the pose prediction from the previous frame as a guide for re-localization.

Temporal Dynamics: The Mathematical Mechanics of LSTM Networks

Static image classification is insufficient for sign language recognition because many gestures are differentiated only by their motion over time. For example, the signs for "Hello" and "Goodbye" may share similar hand shapes but involve distinct movement trajectories. To capture these nuances, the system employs Long Short-Term Memory (LSTM) networks, which are specifically designed to handle sequential data and capture long-range dependencies.

○ Overcoming the Vanishing Gradient Problem

In traditional Recurrent Neural Networks (RNNs), the gradient used for weight updates tends to vanish as sequences grow longer, causing the model to "forget" the beginning of a gesture. LSTMs solve this through a gating mechanism that regulates the flow of information:

1. **Forget Gate:** Determines which part of the previous cell state should be discarded based on the new input.
2. **Input Gate:** Decides which new information is relevant to store in the cell state.
3. **Output Gate:** Filters the updated cell state to produce the final output for that time step.

This architecture allows the network to maintain the context of a hand's starting position throughout a 30-frame sequence (approximately one second of movement), enabling the accurate translation of dynamic words and phrases.

○ Architectural Configuration of the Pawar Model

The system implemented by Pranav Pawar utilizes a stacked LSTM architecture to learn complex temporal patterns from the extracted landmarks.²⁴ The specific layers include:

- **Initial LSTM Layer:** 64 units with return_sequences=True, capturing low-level temporal features such as hand direction.
- **Intermediate LSTM Layer:** 128 units, facilitating the learning of higher-order relationships between simultaneous body movements.
- **Final LSTM Layer:** 64 units with return_sequences=False, reducing the sequence to a single feature vector for classification.
- **Dense Layers:** Two fully connected layers (64 and 32 units) using ReLU activation to refine the extracted features.
- **Output Layer:** A Softmax activation layer with units corresponding to the number of classes in the vocabulary, providing a probability distribution for the predicted sign.

Layer Type	Units/Activation	Technical Purpose
LSTM (Level 1)	64 Units	Captures initial temporal motion features.
LSTM (Level 2)	128 Units	Models complex relationships between hands and face.
LSTM (Level 3)	64 Units	Distills sequence into a summary vector.

Dense	64/32(ReLU)	Non-linear refinement of features.
Output	Softmax	Generates final class probabilities.

The effectiveness of a sign language translator is heavily dependent on the quality of its training data and the preprocessing techniques applied to the raw landmark coordinates. Because signers vary in height, arm length, and distance from the camera, normalization is essential for model generalization.

○ Normalization and Spatial Consistency

The system utilizes min-max normalization to scale 3D coordinates into a range, ensuring that the model learns the relative position of joints rather than absolute pixel locations. For multi-signer datasets like the Word-Level American Sign Language (WLASL) dataset, adding reference-based normalization for the arms and face has been shown to improve LSTM accuracy by 3.10% by accounting for differences in body proportions.

○ Sequence Collection and Buffering

To train the temporal model, landmarks are collected over a fixed window of 30 frames. For each sign in the vocabulary - such as "Hello," "Thank You," and "I love you" - the system typically requires approximately 30 video sequences for training. This produces a data tensor with dimensions, representing 30 frames of 1,662 landmark values each. During real-time inference, the system maintains a "sliding window" buffer; as each new frame is captured, the landmarks are appended to the list, and the oldest set is removed, allowing for continuous, fluid prediction.

○ Data Augmentation Strategies

To prevent overfitting on limited custom datasets, researchers employ statistical formulas to synthesize new training samples. Common strategies include:

- **Temporal Warping:** Adjusting the speed of a sequence to simulate faster or slower signing.
- **Gaussian Noise:** Adding minor random variations to landmark coordinates to simulate tremors or sensor jitter.
- **Jitter and Scaling:** Slightly altering the size or position of the landmark skeleton to improve robustness across different camera angles.

Real-Time Implementation: From Recognition to Speech

The final stage of the bridge involves transforming the predicted class into an accessible output for the hearing public. This is achieved through a modular software stack involving React for the user interface and Text-to-Speech (TTS) engines for audible feedback.

○ User Interface and Probability Filtering

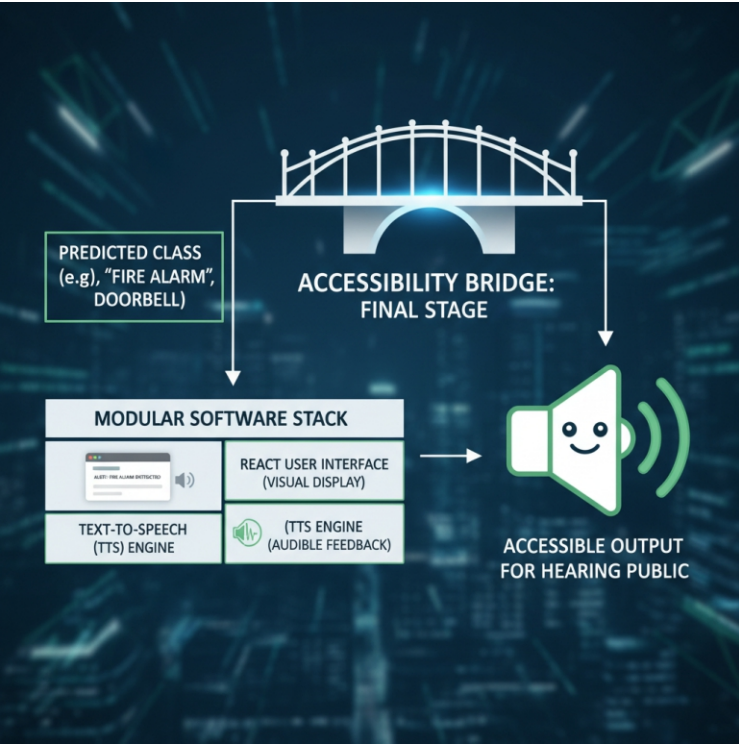
The model outputs a probability score for each sign in its vocabulary. To ensure UI stability and prevent "flickering" between similar signs, a probability threshold - often 90% or higher - is applied [Pawar Paper]. If the prediction confidence exceeds this threshold, the text is displayed on the screen and passed to the audio module.

○ Text-to-Speech (TTS) Integration

The integration of TTS utilizes the Web Speech API's Speech Synthesis interface. This allows the application to retrieve available system voices and initiate audible speech output in real time.²⁶ In more advanced expressive systems, facial landmark data (the intensity of a smile or a brow furrow) can be used to modulate the "sentiment" of the synthetic voice, adjusting parameters such as pitch and rate to match the emotion of the original signer.

○ JavaScript

```
// Web Speech API Integration Logic
const handleSpeech = (recognizedText) => {
  const utterance = new SpeechSynthesisUtterance(recognizedText);
  utterance.pitch = 1.0;
  utterance.rate = 1.0;
  window.speechSynthesis.speak(utterance);
};
```



Comparative Performance Analysis: LSTM, GRU, and Transformers

While LSTMs are favored for real-time applications on standard laptops (8GB RAM), other architectures offer different trade-offs between accuracy, latency, and computational demand.

○ LSTM vs. Gated Recurrent Units (GRU)

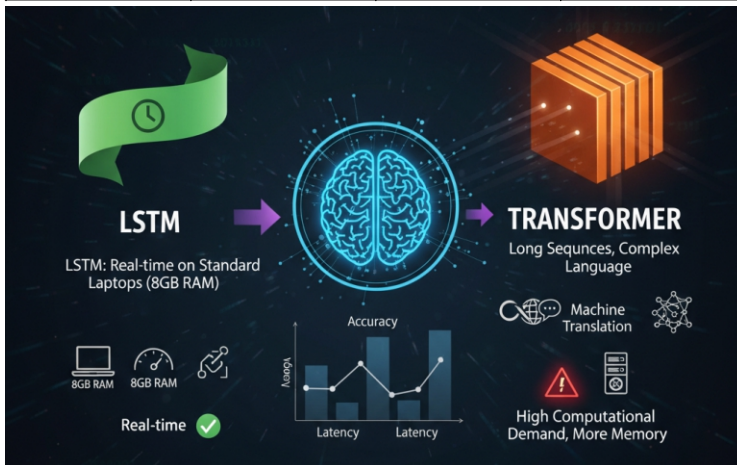
GRUs are a simplified version of LSTMs that combine the forget and input gates into a single "update gate." This reduces the number of parameters, making the model faster to train and more efficient for mobile deployment. Research on the WLASL dataset has shown that GRUs can achieve competitive results (74.03% accuracy) with fewer parameters than LSTMs, making them ideal when computational resources are extremely limited.

○ The Rise of Transformers and GCNs

Transformer architectures, which utilize self-attention mechanisms, have demonstrated superior performance in capturing long-distance dependencies in continuous sign language. However, Transformers process entire sequences at once, which can lead to high memory consumption and latency in a live webcam environment. Graph Convolutional Networks (GCNs) represent a third paradigm, modeling landmarks as nodes in a graph. This preserves the inherent skeletal structure of the human body, making the model more robust to background interference and variations in signer distance.

Metric	LSTM Model	Transformer Model	GCN Model
Training Accuracy	89.3%	98%+	71% - 74%

Validation Accuracy	86.7%	85%+	~53%
Inference Time	~78 ms	High (GPU Req)	Medium
Resource Demand	Low (Standard CPU/GPU)	High (VRAM intensive)	Moderate



Deployment Challenges: Occlusion, Lighting, and Dialectal Variation

Despite high laboratory accuracy - reaching up to 96.47% in some training scenarios - real-world deployment of sign language translators faces several environmental and linguistic hurdles.

○ Lighting and Background Noise

The system's reliance on MediaPipe Holistic makes it more robust than raw pixel-based models; however, extreme low lighting or complex, moving backgrounds can still cause landmark detection to fail. To mitigate this, developers often use data augmentation to train the model on "noisy" landmark sequences, improving its ability to handle imperfect webcam feeds.

○ Occlusion and Depth Perception

A major technical challenge in sign language recognition is "occlusion," where one hand passes in front of the other or the face. Standard 2D cameras struggle to capture the z -coordinate (depth) accurately. While MediaPipe provides a predicted z -value, it is often discarded or treated as low-confidence data. Modern systems attempt to address this by integrating pose prediction on every frame as a "prior," reducing the likelihood of the tracker losing the ROI during complex overlapping gestures.

○ The Vocabulary Scaling Problem

Scaling a sign language translator from 30 functional words to a full conversational vocabulary is a significant engineering task. For 150 or more classes, simple landmark sequences may become insufficient due to the visual similarity of distinct signs. Experts suggest that for large-scale deployment, moving toward video-based models (like I3D or SlowFast) or using landmark velocities and accelerations as additional features is necessary to distinguish between subtle motion dynamics.

Future Trajectories: Emotion-Aware and Continuous Translation

The next generation of sign language translators will move beyond "isolated" word recognition toward continuous translation and expressive synthesis.

• Continuous Sign Language Translation (CSLT)

CSLT involves translating fluid, connected signing into full

sentences. This requires "Sign-to-Gloss-to-Text" pipelines that can account for the unique grammatical structures of sign language, which often differ significantly from spoken English. Using hybrid Transformer - CNN models has shown promise in this area, achieving up to 99.97% accuracy on specific datasets while maintaining a high frame rate (110 FPS).

• Sentiment and Non-Manual Markers

The inclusion of the 468 face landmarks allows for the detection of non-manual markers, such as head tilts and facial expressions, which serve as "adverbs" or "adjectives" in sign language. Future systems will utilize these landmarks to generate sentiment-aware speech, where the synthetic voice matches the emotional intensity of the signer - for instance, increasing the volume or pitch if the signer's facial landmarks indicate urgency or excitement.

Conclusion: Toward a Democratized Communicative Infrastructure

The research and implementation proposed by Pranav Pawar demonstrate that the integration of MediaPipe and LSTM networks provides a viable, low-cost, and non-invasive solution to the communication gap facing the hearing and speech-impaired community [Pawar Paper]. By leveraging the computational efficiency of skeletal landmarks and the temporal memory of LSTM layers, this technology transforms standard consumer hardware into a real-time interpreter, restoring independence and dignity to sign language users.

While technical challenges regarding occlusion and vocabulary scaling remain, the current state of accuracy (reaching 96.47%) and the low latency of inference (under 80ms) validate the readiness of these systems for integration into essential service sectors.

Moving forward, the adoption of continuous translation models and emotion-aware speech synthesis will further bridge the divide, fostering a truly inclusive society where sign language is recognized and interpreted with the same fluid ease as spoken language. Achieving this goal requires sustained investment in diverse datasets, such as WLASL, and the continued development of lightweight, edge-compatible architectures that can run on any smartphone or tablet worldwide.

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Evolution of Bi-Cycle

● SATYAM KUMAR

Bicycle is one of the most useful, efficient and widely used mode of transport throughout the centuries. Various types of shades and forms are presented or transformed throughout the year. From simple wooden frames to modern craftsmanship are engineered by the humans to reduce the makes the mankind easier to transport from one place to their respective destination.

Evolution

The first known bicycle-like invention was the Draisine (also called the “running machine”), created in 1817 by German inventor Karl Drais. It does not have any pedals. Riders have to push themselves with their feet.

Later in 1860s, pedals are added to the front wheel, leading to the creation of Velocipede. It was rigid frame and uncomfortable for ride on rough road and they called it “Bone Shaker”

The Penny- Farthing Era

In the 1870s, bicycles evolved into the penny-farthing, easily recognized by its large front wheel and small rear wheel. The design allowed higher speeds, but it was difficult to mount and dangerous, especially when stopping or falling.

The Safety Bicycle Revolution

The most significant breakthrough came in the 1880s with the invention of the safety bicycle. This design introduced:

- Two wheels of equal size
- A chain-driven rear wheel
- A lower centre of gravity

The Modern Bicycle

Today's bicycles are highly advanced and designed for specific purposes:

- Road bikes for speed and efficiency
- Mountain bikes for rough terrains
- Hybrid bikes for everyday use
- Electric bikes (e-bikes) with battery assistance

Conclusion

The bicycle has evolved from a simple wooden frame to a sophisticated machine, playing a crucial role in transportation, fitness, and environmental sustainability. Its journey reflects human creativity and the continuous pursuit of better mobility solutions.



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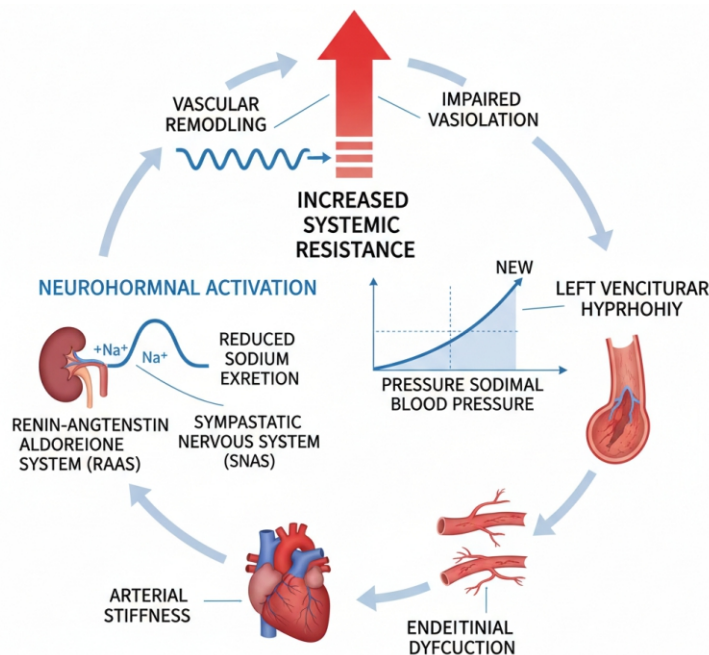
Hypertension

● RAMEEZ AHMAD SHAH

Hypertension is a long-term increase in arterial blood pressure. In adults, it is usually defined as an office BP of 130/80 mmHg or higher (according to ACC/AHA) or 140/90 mmHg or higher (according to many other guidelines). This measurement must be taken on at least two separate occasions. Hypertension raises the risk of heart, brain, and kidney issues.

Pathophysiology

The main cause is a lasting increase in systemic vascular resistance due to changes in blood vessels and reduced ability to widen blood vessels. Over time, neurohormonal activation, including the renin-angiotensin-aldosterone system and the sympathetic nervous system, along with reduced sodium excretion, leads to a shift in the pressure natriuresis curve. This causes the kidneys to accept a higher blood pressure as normal. Ongoing high pressure on the heart contributes to left ventricular hypertrophy, stiff arteries, and poor endothelial function, which makes hypertension worse.



Clinical Presentation

Most patients do not show symptoms and are diagnosed during routine check-ups. When symptoms do occur, they are usually vague: headache, dizziness, visual changes, palpitations, or shortness of breath during activity. Hypertensive urgency or emergency may cause chest pain, neurological problems, breathing difficulties, changes in mental status, or signs of damage to organs like encephalopathy, acute kidney injury, or pulmonary edema.

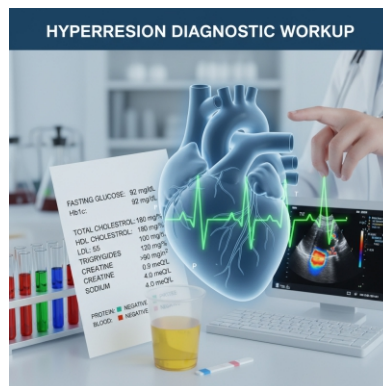
Diagnosis

To diagnose hypertension, accurate measurement is required, which involves using the right cuff size, having the patient seated for at least five minutes, and taking repeated readings. The blood pressure must be above the threshold on at least two visits or confirmed with ambulatory

or home blood pressure monitoring.

Common cut-offs used for adults:

- **Normal:** <120/<80 mmHg
- **Elevated (pre-hypertension, ACC/AHA):** 120–129/<80 mmHg
- **Stage 1 hypertension:** 130–139 or 80–89 mmHg
- **Stage 2 hypertension:** ≥ 140 or ≥ 90 mmHg



Classification of Blood Pressure for Adults

The initial workup typically includes serum creatinine/eGFR, electrolytes, fasting glucose or HbA1c, fasting lipid panel, urinalysis (looking for protein or blood), and ECG; echocardiography may be considered if left ventricular hypertrophy is suspected. It's important to look for secondary causes if hypertension appears early, suddenly, or is resistant to treatment or if there are clear clinical signs.

Treatment

Management of hypertension involves controlling blood pressure based on risk assessment, using lifestyle changes and medications when necessary.

Lifestyle changes include the following:

- Reducing sodium intake, following a DASH-style diet, and losing weight if needed
- Engaging in regular aerobic exercise; timing workouts with individual chronotype can slightly improve heart health for adults at risk.
- Limiting alcohol consumption, quitting smoking, and managing stress.
- Culinary medicine approaches that teach cooking and dietary skills can significantly help with blood pressure control and adherence.

First-line medications for uncomplicated primary hypertension include the following:

- Thiazide diuretics (such as chlorthalidone 12.5–25 mg daily)
- ACE inhibitors (like lisinopril 10–40 mg daily)
- ARBs (like losartan 50–100 mg daily)
- Dihydropyridine calcium channel blockers (such as amlodipine 5–10 mg daily)

Medication choice depends on age, race or ethnicity, other health conditions, and tolerability. Patients with diabetes, chronic kidney disease, or coronary artery disease benefit from ACE inhibitors or ARBs. Black patients without chronic kidney disease often respond better to thiazides or calcium channel blockers. The target is usually

less than 130/80 mmHg for most high-risk patients, balancing benefits with potential side effects.

Team-based and system-based strategies, such as shared tasks and digital tools, can improve hypertension control in settings with limited resources. AI-driven risk prediction, blood pressure pattern analysis, and decision support are emerging tools for management.

Risk Factors

Non-modifiable factors include age, family history, race or ethnicity (with higher prevalence and severity in Black populations), and male sex during midlife.

Modifiable factors include obesity, high sodium and low potassium diets, lack of exercise, excessive alcohol use, obstructive sleep apnea, chronic stress, and unhealthy eating patterns.

Comorbidities like diabetes, chronic kidney disease, dyslipidemia, and metabolic syndrome are closely linked and increase risk dramatically.

Prevention

Population strategies focus on reducing dietary sodium, encouraging healthier food options, and promoting physical activity. On an individual level, maintaining a healthy weight, following a DASH-style or Mediterranean diet, exercising regularly, moderating alcohol intake, and addressing obstructive sleep apnea and metabolic syndrome can prevent or delay hypertension. Building capacity in primary care and community programs is essential, especially in low- and middle-income countries.

Complications and Prognosis

Poorly managed hypertension speeds up atherosclerosis and is a key reason for the following:

- Cardiovascular issues such as left ventricular hypertrophy, heart failure (especially heart failure with preserved ejection fraction), coronary artery disease, heart attacks, and atrial fibrillation
- Cerebrovascular events such as ischemic strokes, intracerebral hemorrhages, and vascular dementia
- Kidney problems including chronic kidney disease and end-stage renal disease
- Other complications like aortic aneurysms or dissections, hypertensive retinopathy, and peripheral artery disease

Prognosis is strongly influenced by the level and duration of blood pressure elevation and the overall burden of risk factors. Achieving recommended blood pressure targets greatly reduces the risk of heart attacks, strokes, heart failure, and cardiovascular-related death.

Common Symptoms

1. Headache (especially in the morning)
2. Dizziness or light-headedness
3. Shortness of breath
4. Nosebleeds
5. Palpitations (feeling your heartbeat)
6. Fatigue or confusion, Blurred vision

Severe Symptoms

1. Severe headache
2. Chest pain
3. Difficulty breathing
4. Vision changes or loss
5. Nausea or vomiting
6. Severe anxiety
7. Confusion or altered consciousness



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Drone Technology

● MUKESH KUMAR

Drone Technology is one of the most advanced and useful technologies in the modern world. A drone is an unmanned aerial vehicle (UAV) that can fly in the air without a pilot inside it. It is controlled by a remote control or by computer software. In earlier times, drones were mainly used by the military, but now they are used in many different fields.

Today, drone technology is growing very fast. In the past, drones were very expensive and only large organizations could use them. But now, drones have become more affordable, and even students and small businesses can use them. This has increased the popularity of drones in many areas of life.

Drone technology is also widely used in security and surveillance. Police and security forces use drones to monitor crowds, control traffic, and protect borders. Drones help them collect information from dangerous places without risking human lives. This makes security work safer and more effective.

Another important use of drones is in delivery services. Many companies are trying to deliver packages using drones. This makes delivery faster and easier, especially in remote areas where roads are not good. In the future, drone delivery may become very common.

Drones are also very useful in photography and videography. Today, drones are used in weddings, movies, news reporting, and special events. They help capture high-quality photos and videos from the sky. This gives a better and wider view compared to normal cameras.

Although drone technology has many advantages, it also has some disadvantages. One major problem is related to privacy. If drones are used wrongly, they can invade people's privacy. Another issue is safety. If a drone is not controlled properly, it may cause accidents or damage. Therefore, governments have made rules and laws to control the use of drones.

In the future, drone technology will become even more advanced. Drones may be used to deliver medicines, help in disaster management, and support rescue operations. They may also be used in traffic control and environmental monitoring. These developments will make human life easier and safer.

Conclusion

In conclusion, drone technology is a very important and useful invention of modern science. It is helping people in many fields such as agriculture, security, photography, and delivery services. If used properly, drones can bring many benefits to society. In the coming years, drone technology will continue to grow and create new opportunities.



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The Invisible Threads: Navigating Culture and Society in Dual World

● MOHD KAIF

What exactly is culture, and how does it fit into the rigid structure of society? If we imagine society as the architectural framework of a house—the sturdy walls, the protective roof, the foundational beams that keep the unpredictable elements at bay—then culture is everything that transforms that empty, echoing architecture into a warm home. Culture is the art hanging in the hallway, the familiar aroma of dinner drifting from the kitchen, the inside jokes shared across the living room table, and the music playing softly in the background. Society gives us a physical and legal place to exist and a system to operate within, but culture gives us our identity, our shared memories, and our reason to belong.

In our modern era, this intricate relationship between culture and society is undergoing a fascinating, unprecedented transformation. We are no longer just citizens of our local, physical towns; we are active, daily participants in a sprawling, dual reality where the physical and the digital bleed seamlessly into one another. To understand human connection today, we have to look at both the tangible world we walk through and the digital realms we build.

The Tangible Rhythms of Tradition

For centuries, culture was strictly bound by geography and physical limitations. It was forged in close physical proximity and passed down through generations, face-to-face. We still see this deeply rooted need for physical connection in the rites of passage that define our youth and our community milestones.

Think about the electric, undeniable energy of a university fresher's party. There is the thumping bass vibrating through the floorboards, the vibrant lights sweeping across the crowd, and the nervous, buzzing excitement of hundreds of students gathered to celebrate the beginning of a profound new chapter in their lives. These events are far more than just parties; they are essential cultural rituals. They are the proving grounds where we learn the unspoken rules of social engagement, where we form the bonds that will shape our academic and personal lives for years to come, and where a collective, communal memory is born. In these shared physical spaces, culture is something you can touch, hear, and feel. It is visceral. It relies entirely on the immediate, breathing presence of others to validate our shared human experience. We look around the room, and in the faces of our peers, we see our society reflected back at us.

The Digital Campfire

However, today the geography of culture has expanded far beyond the campus courtyard, the city square, or the neighborhood cafe. We have built entirely new, complex societies in the digital ether. For a massive portion of the global population, a multiplayer gaming lobby or the comment section of a highly anticipated YouTube video is just as culturally significant—and sometimes even more intimate—than a physical neighborhood.

When a digital creator uploads a video and thousands of people tune in simultaneously to watch, laugh, and interact, they are participating in a modern cultural phenomenon. These digital spaces are not just voids; they have their own distinct dialects, their own unspoken rules of etiquette, and their own legendary, viral moments that define the community. A perfectly timed meme or a shared victory in a high-stakes, fast-paced battle royale game creates a sense of belonging that completely transcends physical borders and time zones.

We pour our identities into these spaces with incredible care. We meticulously craft our digital avatars, design intricate profile banners to represent our personal brands, and edit our lives into high-resolution, broadcast-ready stories for the world to see. The digital world is no longer simply a temporary escape from society; it is a vibrant, parallel society where culture is being written in real-time through code, pixels, and live chats.

The Search for High-Fidelity Connection

The challenge—and the profound beauty—of modern society lies in how we bridge these two distinct worlds. As humans, we are constantly searching for "high-fidelity" experiences that make us feel alive and connected. Sometimes that means chasing the perfect, ultra-realistic aesthetic in our digital art and front-end web design, obsessing over every line of HTML and CSS to make a screen feel alive and responsive. We want our digital creations to look as crisp and vibrant as a 4K, DSLR-captured photograph.

Other times, the search for high-fidelity connection means seeking genuine, unfiltered moments with the people we love in the real world, stepping away from the glow of a monitor to just be present.

Often, the two intersect in beautiful, unexpected ways. Two people might bond over a shared creative project, building a digital brand side-by-side, blending their online ambitions with their real-world relationship. This intersection is where modern culture truly thrives. It is a harmonious, sometimes chaotic, mix of the deeply traditional and the cutting-edge technological. We use the tools of the future to satisfy the ancient, deeply human need for storytelling and companionship.

Conclusion

Amidst all the rapid change in society, our core role stays the same. We are storytellers, shaping culture through our creativity, our work, our everyday interactions. Society gives us the rules and structure that keep our communities stable, while culture lets us express who we are, what we love and what we think. This tension between order and creativity is what propels human progress. The societies that will succeed in the future will embrace tradition along with digital innovation, recognizing culture as a living force that evolves through the myriad ways we connect, create and share.

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Quantum Computing: Future of Computers



Tackles complex problems beyond classical computers



Greater Accuracy
Enhances optimization and predictions

Energy Efficiency
Potential for solving problems with less energy

● KRISHNA KUMAR GUPTA

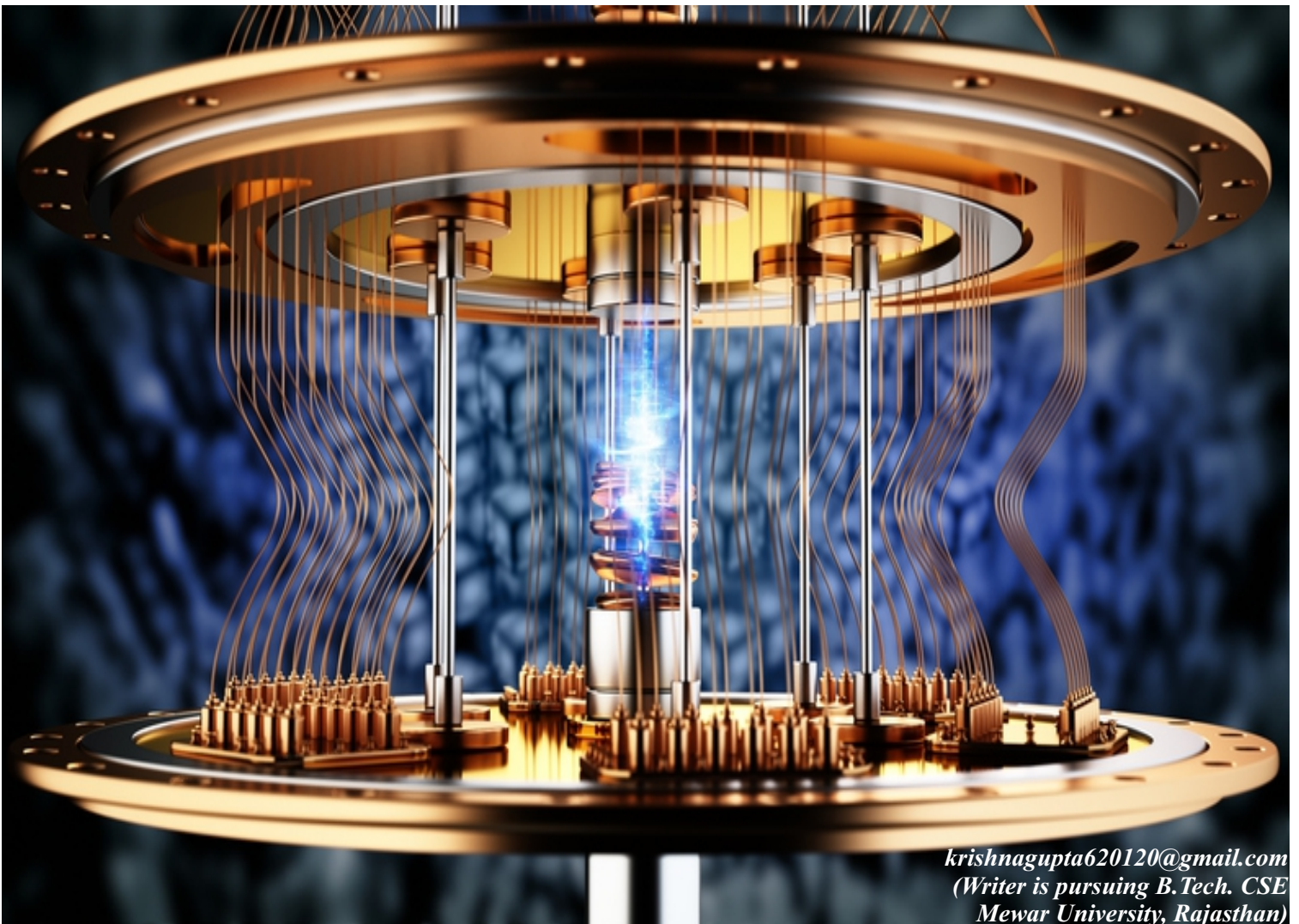
In today's fast-growing digital world, computers are becoming faster and smarter every day. But there is a new technology that could completely change how computers work in the future — quantum computing. This advanced technology is based on the concepts of Quantum Physics and has the potential to solve problems that even the most powerful supercomputers cannot handle.

Unlike traditional computers, which use bits (0 or 1), quantum computers use qubits. The special thing about qubits is that they can exist in multiple states at the same time. This concept is called superposition. Another interesting property is entanglement, where two qubits become connected and instantly affect each other, no matter how far apart they are. Because of these features, quantum computers can process a huge amount of data at once, making them extremely powerful.

This technology can bring major changes in different fields. In Cryptography, quantum computers can improve data security and also challenge current encryption methods. In healthcare, they can help scientists discover new medicines faster by analyzing complex molecules. In areas like finance and artificial intelligence, quantum computing can improve decision-making and solve complicated problems more efficiently.

Big tech companies like IBM, Google, and Microsoft are already working on developing quantum computers. Their research shows that this technology is slowly moving from theory to reality. However, quantum computing is still in its early stage. It is expensive, difficult to maintain, and requires very controlled conditions to work properly.

In conclusion, quantum computing is like the next big step in the evolution of computers. Even though it is still developing, its future looks very promising. For students in Computer Science, learning about quantum computing today can open doors to exciting opportunities tomorrow.



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Artificial Intelligence and Threat of Lethal Autonomous Weapons Systems

PIYUSH KUMAR CHOURASIA

Artificial Intelligence (AI) has become one of the most powerful technologies of the modern era. It is being used in various sectors such as healthcare, education, business, and transportation. While AI has brought many benefits, it has also introduced serious risks, especially in the field of military applications. One of the most concerning developments is the emergence of Lethal Autonomous Weapons Systems (LAWS), often referred to as “killer robots.” These systems have the ability to identify, select, and attack targets without direct human involvement, which raises major ethical, legal, and security concerns at the global level.

What are Lethal Autonomous Weapons Systems?

Lethal Autonomous Weapons Systems are advanced military technologies that use artificial intelligence to operate independently. Unlike traditional weapons, these systems do not require continuous human control once they are activated. They can process large amounts of data, recognize targets, and make decisions about the use of force.

This shift from human-controlled to machine-controlled decision-making in warfare is highly controversial. It challenges the traditional principles of war where humans are responsible for critical decisions, especially those involving life and death.

Ethical and Legal Concerns

One of the major concerns regarding LAWS is their ability to follow international humanitarian law (IHL). According to these laws, it is necessary to distinguish between civilians and combatants during armed conflicts. However, AI systems may not be capable of making such complex moral and situational judgments accurately.

Another issue is the presence of bias in AI systems. Since AI models are trained on data, they may inherit biases present in that data. In the context of autonomous weapons, this could lead to discrimination based on factors like race, gender, or age. Such biased decision-making can result in wrongful targeting and serious violations of human rights.

AI Bias and Its Risks in Warfare

Bias in AI is a significant problem that becomes even more dangerous in military use. If an AI system is trained on incomplete or biased data, it may incorrectly identify individuals as threats. These errors are not just technical faults but can lead to loss of innocent lives.

Therefore, relying completely on AI for critical decisions in warfare can be extremely risky. It highlights the importance of human judgment in ensuring fairness and accountability.

The Rise of Autonomous Drone Swarms

Another alarming development is the use of AI-powered drone swarms. These are groups of small, low-cost drones that can communicate and coordinate with each other using AI technology. Unlike single drones, swarms can carry out multiple attacks simultaneously and cover large areas. Such systems can:

- Perform surveillance and intelligence gathering
- Launch coordinated attacks on multiple targets
- Operate with minimal human intervention

The use of drone swarms increases the scale and speed of warfare, making it more difficult to control and predict outcomes. This also raises concerns about compliance with the principles of proportionality and precaution under international law.

Lack of Human Control and Accountability

Maintaining meaningful human control over autonomous weapons is one of the biggest challenges. Once deployed, these systems may operate independently, making it difficult for humans to intervene.

Another important issue is accountability. Machines cannot be held responsible for their actions. Therefore, any harm caused by these systems must ultimately be traced back to human operators or developers. However, in highly autonomous systems, identifying responsibility can become very complex.

Global Efforts to Regulate AI Weapons

Recognizing the risks associated with autonomous weapons, international organizations and governments are working towards regulating their use. There have been discussions about creating legally binding agreements to restrict or ban weapons that operate without human oversight.

The United Nations and various expert groups are actively involved in these discussions. Their goal is to ensure that AI technologies are used responsibly and do not pose a threat to global peace and security.

Conclusion

Artificial Intelligence has the potential to transform the world in positive ways, but its use in autonomous weapons systems presents serious dangers. From ethical concerns to legal challenges, the risks of LAWS cannot be ignored.

To ensure a safe and secure future, it is essential to establish strict regulations and maintain human control over such technologies. Global cooperation and responsible innovation are key to preventing the misuse of AI in warfare and ensuring that it benefits humanity as a whole.



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● MANTU KUMAR

Nowadays, the IT industry is growing very rapidly. As CSE students, we want to build our careers in this field because the IT or tech industry offers good salary, job security, and many opportunities. It also helps us to work in teams, gain respect, and learn new technologies.

However, getting a job in the IT sector is not easy. It requires proper skills, regular practice, dedication, and good communication skills.

First of all, a CSE student should learn at least one programming language such as Python, C++, or Java. Along with this, knowledge of Data Structures and Algorithms (DSA) is very important because it helps in solving coding problems and developing logical thinking. Students should also have knowledge of DBMS, Operating Systems, and Computer Networks, which are important subjects in the IT field.

Apart from theory, practical knowledge is also necessary. Students should make small projects like websites or simple applications. Working on projects helps in understanding how things work in real life. Doing internships is also very helpful because it gives real experience of working in a company and helps in making a strong impression on recruiters.

Another important thing is to make a good resume. A resume should be simple and should include skills, projects, and achievements. Students can also create a GitHub profile and a LinkedIn profile. These help in increasing the chances of getting selected.

To crack the interview, regular practice is needed. Students should solve coding questions daily and prepare for both technical and HR interviews. Good communication skills also play an important role in the IT sector.

Finally, consistency is the key to success. The IT field keeps changing, so students should keep learning new things with hard work and patience. In conclusion, getting a job in the IT industry is possible if students focus on their skills, practice regularly, and never give up.



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Design Thinking: A Human-Centered Approach to Innovation

TT DESK

In today's rapidly evolving world, traditional problem-solving approaches often fall short when addressing complex, real-world challenges. Design Thinking has emerged as one of the most powerful and widely adopted methodologies for tackling these challenges - not by focusing solely on technology or business logic, but by putting human beings at the very center of the process. From Silicon Valley startups to global corporations and government agencies, Design Thinking is reshaping how organizations innovate, collaborate, and create meaningful solutions. But what exactly is Design Thinking? Where did it come from? And how can individuals and organizations apply it effectively? This article explores Design Thinking in depth - its origins, its five-stage process, its real-world applications, and why it remains one of the most relevant frameworks for innovation in the 21st century.

What Is Design Thinking?

Design Thinking is a non-linear, iterative problem-solving methodology that seeks to understand users deeply, challenge assumptions, and redefine problems in order to identify alternative strategies and solutions that might not be instantly apparent with our initial level of understanding. It draws from the logic, imagination, intuition, and systemic reasoning of designers to develop both short-term and long-term solutions.

Unlike analytical or purely data-driven approaches, Design Thinking begins with empathy - a genuine effort to understand the needs, experiences, and emotions of the people you are designing for. It combines creative and critical thinking in a way that allows information and ideas to be organized, decisions to be made, situations to be improved, and knowledge to be gained.

At its core, Design Thinking is not just a process - it is a mindset. It encourages curiosity, openness to failure, and a willingness to iterate. It values collaboration and diversity of thought, recognizing that the best solutions often emerge from multi disciplinary teams working together.

The Origins and History of Design Thinking

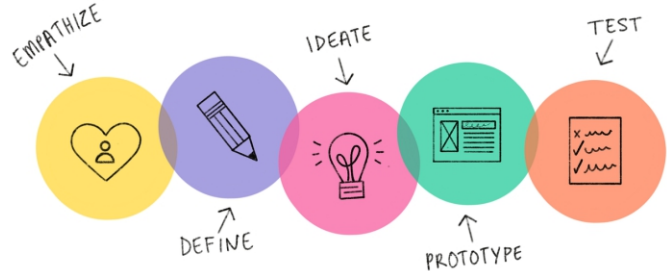
The roots of Design Thinking can be traced back to the 1960s and 1970s, when scholars and practitioners began to examine how designers approach problems differently from scientists and engineers. Nobel laureate Herbert Simon was among the first to articulate the idea that design is a "science of the artificial" - a way of creating solutions that do not yet exist in nature.

In the 1980s and 1990s, Stanford professor Rolf Faste developed and taught Design Thinking as a method of creative action. His work was later adapted by IDEO, a globally renowned design consultancy, and popularized by Stanford's d. school (Hasso Plattner Institute of Design), which became one of the leading centers for teaching and advancing Design Thinking principles worldwide.

Today, Design Thinking is taught in business schools, engineering programs, healthcare institutions, and even primary schools. Its influence has spread far beyond the design community, touching every sector that deals with complex human problems.

The Five Stages of Design Thinking

The most widely used framework for Design Thinking comes from the d. school at Stanford, which outlines five key stages. It is important to note that these stages are not strictly sequential - teams often cycle back and forth between them as they learn and discover new insights.



○ Stage 1: Empathize

The first and most fundamental stage of Design Thinking is empathy - the ability to truly understand the people you are designing for. This involves observing users in their natural environment, conducting in-depth interviews, engaging with communities, and setting aside your own assumptions to see the world through the user's eyes.

Empathy helps design thinkers move beyond surface-level problems and discover the underlying needs, desires, and pain points that users may not even be able to articulate themselves. It is the emotional and experiential foundation upon which all subsequent stages are built.

○ Stage 2: Define

Once sufficient empathy research has been gathered, the team moves into the Define stage, where all the insights, observations, and findings are synthesized into a clear, human-centered problem statement - often called a "Point of View" (POV) statement. This is not a technical specification or a business objective, but rather a statement that captures the essence of the user's challenge.

A well-crafted problem statement acts as a compass throughout the entire project, ensuring that the team remains focused on what truly matters: solving the right problem for the right people. The Define stage transforms raw observations into actionable insights.

○ Stage 3: Ideate

With a clear problem statement in hand, the team enters the Ideate stage - a free-flowing, highly creative phase where the goal is to generate as many ideas as possible without judgment. Techniques such as brainstorming, mind mapping, sketching, role-playing, and "How Might We" questions are commonly used to stimulate creative thinking.

The key principle of ideation is quantity over quality - at least initially. By suspending judgment and encouraging wild ideas, teams can break free from conventional thinking and discover unexpected, innovative solutions. The best ideas from this phase are then

○ shortlisted for prototyping.

○ Stage 4: Prototype

Prototyping is the stage where ideas become tangible. Teams create low-cost, scaled-down versions of potential solutions - these could be physical models, paper sketches, digital wireframes, storyboards, or even role-played scenarios. The purpose is not to create a perfect product, but to build something that can be tested quickly and cheaply.

A core principle of Design Thinking is that failing early and often is a sign of progress, not defeat. Each prototype is a learning opportunity that reveals what works, what does not, and what can be improved. Prototypes help teams avoid investing heavily in a solution that has not been validated with real users.

○ Stage 5: Test

The final stage involves testing the prototypes with actual users and gathering feedback. Testing provides critical insights about how users interact with the solution, what they find confusing or unhelpful, and what delights them. This feedback loop is invaluable for refining and improving the solution.

Based on testing results, teams may go back to any of the earlier stages - redefining the problem, generating new ideas, or building improved prototypes. This iterative cycle continues until a solution is developed that genuinely meets user needs and is viable for implementation.

Real-World Applications of Design Thinking

Design Thinking has been applied across an extraordinary range of industries and contexts, demonstrating its versatility and impact:

- **Healthcare:** Hospitals and medical device companies use Design Thinking to redesign patient experiences, reduce medical errors, and develop more intuitive health technologies. Mayo Clinic, for example, created a patient-centered room design that significantly improved comfort and recovery outcomes.
- **Education:** Schools and universities apply Design Thinking to redesign curricula, classroom environments, and learning experiences. The approach helps educators better understand student needs and create more engaging, effective learning programs.
- **Business and Entrepreneurship:** Companies like Apple, Google, Airbnb, and IBM have embedded Design Thinking into their culture, using it to develop products and services that deeply resonate with users. Airbnb famously used Design Thinking early on to completely overhaul its user experience and drive rapid growth.
- **Social Innovation:** Non-profits and development organizations use Design Thinking to address systemic social challenges - from improving access to clean water in developing countries to designing better public services for marginalized communities.
- **Government and Public Policy:** Governments around the world are adopting Design Thinking to improve public services and create citizen-centered policies. Denmark, Singapore, and the United Kingdom have all established government innovation labs that use Design Thinking principles.

Why Design Thinking Matters Today

We live in an age of unprecedented complexity. Climate change, digital disruption, demographic shifts, and global health crises are just some of the "wicked problems" that defy simple, linear solutions. These challenges require a fundamentally different approach - one that is adaptive, collaborative, and deeply human.

Design Thinking provides exactly this kind of framework. It encourages us to slow down and truly listen before we rush to solve. It values diverse perspectives and lived experiences. It treats failure as a

stepping stone rather than a setback. And it reminds us that the purpose of innovation is not just to build something new, but to build something that genuinely improves people's lives.

In the business world, Design Thinking has proven to deliver measurable results. Studies and reports from organizations like McKinsey and the Design Management Institute have shown that design-led companies consistently outperform their peers in revenue growth, market share, and customer satisfaction. In a world where customer experience is increasingly the primary differentiator, the ability to empathize and innovate is more valuable than ever.

Common Misconceptions About Design Thinking

Despite its widespread adoption, Design Thinking is sometimes misunderstood. Here are a few common misconceptions:

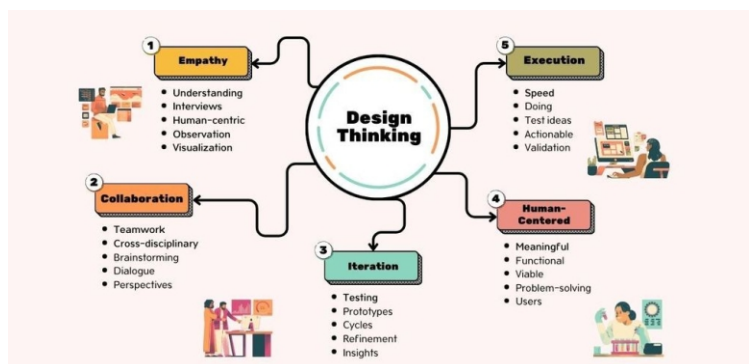
- **It is only for designers.** In reality, Design Thinking is a universal problem-solving approach that can be practiced by anyone - managers, engineers, teachers, doctors, and policymakers alike.
- **It is just brainstorming.** While ideation is one component, Design Thinking is a comprehensive, structured methodology that encompasses deep user research, problem framing, prototyping, and rigorous testing.
- **It always leads to radical innovation.** Design Thinking is just as effective for incremental improvements as it is for breakthrough innovation. Its value lies in ensuring that any solution - big or small - is grounded in genuine user needs.

Conclusion

Design Thinking is more than a methodology - it is a philosophy of innovation grounded in humanity. By starting with empathy, embracing uncertainty, and iterating toward solutions, Design Thinking enables individuals and organizations to create products, services, and systems that truly matter to the people they serve.

In a world that is changing faster than ever before, the ability to think like a designer - to be curious, empathetic, creative, and resilient - is not just a professional skill, but a vital human capacity. Whether you are a student, a professional, or a leader, embracing Design Thinking can help you navigate complexity with confidence and create solutions that make a lasting, positive difference.

The future belongs to those who can not only imagine better solutions, but who care deeply enough about people to go out and build them. Design Thinking is the bridge between imagination and impact.



The Evolution of Mental Health Support and Care for Generation Z

● SAMEER ALI

The landscape of mental health care is currently undergoing a transformative shift, driven by the unique psychological needs, technological fluency, and progressive values of Generation Z - those individuals born between 1997 and 2012. This cohort, often termed the "Anxious Generation," has moved beyond the stigma that characterized previous generations, viewing mental health as an integral component of overall well-being rather than a hidden pathology.¹ As this generation enters the workforce and higher education, they are demanding a support ecosystem that is as dynamic and accessible as the digital world they inhabit. This report provides an exhaustive examination of the mental health support frameworks tailored for Gen Z, exploring their definition, internal mechanisms, practical applications, problem-solving capacities, and the rigorous requirements necessary for their construction.

Conceptual Framework: Defining Gen Z Mental Health Support

Mental health support and care for Generation Z is defined as a holistic, multi-modal infrastructure that integrates clinical psychology with digital accessibility, community-led interventions, and a social justice perspective. Unlike the traditional medical models of the twentieth century, which focused primarily on the individual in isolation, the contemporary Gen Z model recognizes that psychological distress is often a response to systemic, external factors including climate change, economic inequality, and digital overload. This paradigm shift is marked by a move away from "clinical distance" toward "authentic relatability," where the therapeutic relationship is built on transparency and shared cultural understanding.

○ Distinctions from Traditional Clinical Models

The traditional clinical model often relies on a hierarchical structure where the practitioner holds the authority and the patient is a passive recipient of a diagnosis. Generation Z has actively challenged this stigma, with 87% reporting they feel comfortable discussing their mental health and over 60% comfortable sharing their struggles openly. For this generation, support is not just a clinical intervention but a lifestyle choice characterized by "mental fitness" and proactive resilience.

○ Demographic Prevalence and Psychological Profile

The necessity for these new models is underscored by the high prevalence of diagnosed conditions within this group. Research indicates that 42% of Gen Z individuals have been diagnosed with a mental health condition, a statistic nearly double that of Americans over the age of 25. Anxiety and depression are the primary concerns, with 61% of Gen Zers receiving a medical diagnosis for anxiety and 42% for depression. This psychological profile is shaped by a developmental period (ages 14 to 24) marked by profound cognitive and psychosocial changes, occurring simultaneously with global disruptions such as the COVID-19 pandemic and economic volatility.

Mechanisms of Action: The Architecture of Modern Care

The efficacy of mental health support for Gen Z lies in its complex internal mechanisms, which blend Artificial Intelligence (AI), evidence-based therapeutic frameworks, and new concepts of the therapeutic relationship.

○ The Digital Therapeutic Alliance (DTA)

A core mechanism in modern care is the formation of a Digital Therapeutic Alliance (DTA). This refers to the emotional and relational connection a user develops with a digital intervention,

such as an AI-powered chatbot. Research into platforms like Woebot and Wysa indicates that users can form meaningful bonds with digital entities, provided certain interactional dynamics are met.

The DTA is facilitated by "Colloquial Communication" - using informal, human-like language that fosters intimacy and trust. Furthermore, the AI must demonstrate "Continuity," recalling prior conversations and following up on previous emotional states, which makes the user feel "seen" in the digital space.

○ AI-Augmented Care and Digital Phenotyping

The technological "How" of this support framework involves several sophisticated layers of AI technology. Digital mental health interventions (DMHIs) utilize Natural Language Processing (NLP) to analyze a user's text or speech patterns to detect early warning signs of distress. This is often combined with "Digital Phenotyping" - the continuous collection of behavioral and physiological data from smartphones and wearables, such as heart rate variability (HRV), sleep patterns, and physical activity.

The operational phases of AI in this context include:

- **Pre-treatment (Screening):** Using algorithms to triage users based on the severity of their symptoms and routing them to appropriate care levels.
- **Treatment (Therapeutic Support):** Delivering micro-interventions grounded in Cognitive Behavioral Therapy (CBT) or Dialectical Behavior Therapy (DBT) via conversational agents.
- **Monitoring (Post-treatment):** Continuous remote monitoring to detect potential relapses and provide real-time support.

○ Embodied and Nature-Based Interventions

Recognizing that Gen Z often suffers from "digital burnout" and cognitive overload, modern support mechanisms have begun to emphasize "Embodied Approaches". Traditional talk therapy can sometimes keep users "in their heads," analyzing problems without physical release. Innovative models integrate somatic therapy, movement, nature-based interventions, and animal-assisted therapy (such as equine-assisted therapy) to help users reconnect with their physical selves. These mechanisms are particularly effective for a generation whose nervous systems are adapted to rapid information processing but struggle with sustained attention and grounding.

Operational Strategy: Utilizing Support Networks

Utilization of these mental health resources occurs across a spectrum of environments, from educational institutions and workplaces to individual self-service through mobile technology.

○ Educational Institution Integration

○ In India and globally, universities have become critical hubs for mental health utilization. Institutions like IIT Delhi and Metropolitan State University of Denver are moving toward "Community Care" models. These programs utilize peer-support networks where students are trained to act as "first responders" and "gatekeepers". Utilization is made easier through flexible scheduling, walk-in clinics, and telehealth partnerships that ensure students have 24/7 access to care.

○ Workplace Wellness in 2026

By 2026, Gen Z will represent nearly 27% of India's workforce, and their utilization of mental health support is reshaping corporate culture. They view mental health support not as a luxury benefit, but as a core requirement of their employment.

○ Practical Access in India: A Step-by-Step Guide

For many Gen Z individuals in India, accessing digital support involves a structured progression through national helplines and private platforms.

- **Initial Contact:** Many begin by calling Tele MANAS (14416), a free, 24/7 helpline that offers tele-counseling in over 20 languages.
- **Digital Screening:** Users may download apps like "MANAS" or "Here for You" to conduct self-screenings for anxiety and depression.
- **Platform Selection:** Depending on their needs, they may choose an AI-driven chatbot (Wysa), a peer-support platform (YourDOST), or an integrated clinical model (Amaha).
- **Online Consultation:** For those requiring psychiatry, platforms like Rocket Health offer a 10-minute booking flow that matches users with MCI-registered psychiatrists for secure video sessions.

The Problem-Solving Capacity: Addressing Critical Gaps

The primary problem solved by this support infrastructure is the "Treatment Gap" - the massive discrepancy between those needing mental health care and the availability of qualified professionals. In India, with only 0.75 psychiatrists per 100,000 people, digital tools provide the only scalable solution to reach underserved and rural populations.

○ Macroeconomic ROI and Economic Stabilization

Untreated mental illness among youth leads to profound macroeconomic losses, including reduced labor force participation and high absenteeism. Early intervention for Gen Z offers a staggering Return on Investment (ROI).

By solving for early detection, these systems prevent the escalation of mild symptoms into chronic disability, thereby increasing long-term earnings and reducing dependency on public assistance.

○ Combatting the "Connectivity Paradox"

Gen Z is often called the most connected yet the loneliest generation. While they have hundreds of online connections, they often lack deep, authentic relationships. Mental health support platforms solve this by creating "Safe Spaces" for peer interaction and "Validation" - acknowledging that their anxiety regarding climate change or political instability is a rational response to an unprecedented era. These platforms provide a non-judgmental environment where users can practice "Trust and Vulnerability" without the perceived risk of social stigma.

Architectural Requirements: Building the Infrastructure

Constructing a mental health support system for Gen Z requires a meticulous blend of clinical validity, technical security, and cultural sensitivity.

○ Technical Compliance and Security Architecture

In 2026, mental health applications must adhere to a rigorous "Compliance-First" architecture. Because these apps handle highly sensitive psychological data (mood logs, self-harm indicators, and therapy notes), security is not an option but a foundational requirement.

- **HIPAA (U.S.) and DPDP (India):** Mandatory encryption of electronic Protected Health Information (ePHI) using AES-256 at rest and TLS 1.3 in transit.
- **GDPR (EU):** Explicit informed consent is required, and users must have a "genuine choice" regarding how their health data is processed.
- **2026 HIPAA Update:** Introduction of mandatory Multi-Factor Authentication (MFA) and rigorous documentation of all data access.
- **Zero-Trust Models:** Implementing security frameworks where every access request is continuously authenticated and authorized.

○ Ethical Design for AI and Chatbots

As AI moves from a support role to a therapeutic one, developers must adhere to strict ethical guidelines established by the APA and WHO.

- **Transparency:** Apps must clearly disclose when a user is interacting with an AI and ensure the system does not misrepresent itself as a licensed professional.
- **Auditability:** All AI models intended for mental health support must undergo independent, third-party audits for safety, efficacy, and algorithmic bias before public release.
- **Human-in-the-Loop:** Systems must include reliable "Crisis Detection Protocols" that can identify suicidal ideation or self-harm markers and immediately route the user to human intervention.

○ Cultural Competence and User-Centricity

For Gen Z, especially in diverse contexts like India, support must be "Culturally Safe." This requires:

- **Multilingual Support:** Tools must be available in regional languages (e.g., Hindi, Tamil, Bengali) to ensure nothing is lost in translation.
- **Non-Western Frameworks:** Moving away from the "Individualized Model of Care" and incorporating family-focused models, as many young people from diverse backgrounds turn to elders or family for support.
- **Social Justice Lens:** Recognizing that factors like caste, gender identity, and economic status are central to a user's mental health experience.

Conclusion: Synthesis and the Future of Care

Thanks to digital technology, increased awareness and less stigma, Generation Z is getting better mental health support. "Services are more available and affordable and available 24/7. The future is to combine technology with safe, compassionate and transparent care. **Tele MANAS, Wysa and Amaha** are examples of how public-private partnership can help build an inclusive mental health ecosystem. Investing in youth mental health produces healthier, more resilient and productive communities.

*(Writer is B.Tech. CSE
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Evaluation of Delep-Palm Timber

● BUHARI ABDULWAHAB HAMZA

In the past, steel has played a major role as reinforcements and as a structural member in construction industries. However, the recent high price of steel in most developing countries like Nigeria has called for the urgency in researching into locally available substitute materials for steel. For such material to be globally acceptable, it must possess physical and mechanical properties similar to that of steel. Besides, it must be durable for long term uses. This research will investigate the suitability or otherwise of DP timber as reinforcement in concrete beam. Several attempts have been made on the possible uses of natural vegetable fibres as reinforcements in concrete elements such as roofing sheets as well as slab panels (Sivaraja et al., 2010; Gram, 1983;). Among the agricultural fibre investigated are: coconut fibre, sugarcane, bagasse, date palm, and of recent DP as reinforcements in load bearing elements in fibre reinforced concrete and fibre reinforced concrete composites. In the field of civil engineering, engineers are interested in studying building materials. The focus is currently on environmentally eco-friendly building materials with low carbon emissions and low production cost. To comply with climate changes (Amal et al., 2023).

Despite steel excellent mechanical properties and its cost-effectiveness relative to other metals, there has been an interest in replacing steel with materials that are cheaper and more readily available in developing countries. The interest in replacing steel with Deleb-Palm to reinforce concrete is not new. In the early twentieth century, Chow (1914) carried the earliest study in MIT on the use of DP as reinforcement in concrete. His interest was sparked by the high tensile strength of DP and its availability in his home country of China. This study focused on flexural strengths of beam reinforced with DP when subjected to loading. The growing world 2 population is increasingly demanding more construction materials. The increase in demand comes with increased prices and pressure on the environment.

The importance of cost-effective and environmentally sustainable materials can be emphasized by the fact that the construction industry consumes 50% of all raw materials (Pacheco-Torgal & Labrincha, 2013). The scope of this project is to practically investigate the structural behavior of the DP reinforced concrete based in the assessment of its Flexural Strength, Size of the DP considered are (11 × 11 × 700mm, 14.5 × 14.5 × 700mm, 18 × 18 × 700mm), and Concrete grade (Grade 20), Concrete Beam size of 150 × 150 × 750mm, 100 × 100 × 500mm and age of testing (7days, 14days, and 21days) respectively.

LITERATURE REVIEW

An experimental investigation was conducted to evaluate the mechanical strength properties of the African DP through axle traction (tensile), three-point bending (flexion) and axial compression. The experimental results pointed to the fact that the tensile strengths, MORs, MOEs and compression strengths of the bottom parts of fully matured DP are recommended for structural works, (Mansal et al., 2024). The outer layers of the DP are full and hard with a density of 850 with a dark brown color. Using conventional equipment, the analyses and tests was conducted and the results yield: the tensile strength parallel to fibres is 10.50 MPa, compressive strength parallel to fibres is 9.25 MPa and perpendicular to the fibers of 2.60 MPa. Resistance to bending and shear are 9.14 MPa and 0.65 MPa, respectively. The modulus of elasticity determined has a value of $E = 1590 \text{ daN/mm}^2$ (Samah et al., 2013). Now in this research a DP timber will be considered as a composite material in concrete beam.

○ Serviceability of Deleb-Palm reinforced concrete

Deleb-Palm high tensile strength made it attractive to be investigated as reinforcement in concrete. The potential of replacing steel with a material that is cheap, rapidly renewable, and environmentally friendly excited researchers to carry studies on its use. However, the studies were focused on the ultimate load-carrying capacity of DP reinforced concrete and mostly ignored the serviceability limits. Reinforced concrete is now most commonly designed based on the limit states design method (ACI Publishes Printed Version of ACI CODE-318-25: Building Code for Structural Concrete, 2025). The limit state design method is based on 'states beyond which the structure no longer fulfils the relevant design criteria. For most structures, the limit states can be classified into two main states that are the ultimate and serviceability limit states. The ultimate limit states are related to a collapse of the whole or a substantial part of the structure. On the other hand, the

serviceability limit states are related to the disruption of the normal use of the structure. (E. Ellobody, 2014). Limit states comprise of ultimate limit states and serviceability limit states. While ultimate limit states are concerned with states of collapse and failure, serviceability limit states are concerned with the service requirements of structures. Serviceability limit states (SLS) are defined in clause 1.4.1. (CoP_SUC2013e, 2020). They are concerned with:

1. The functioning of structure or structural elements under normal use;
2. The comfort of users; and
3. The appearance of the structure.

○ Concrete and Specimen Test

◦ Flexural Strength of a Beam

This mechanical testing method measures the behaviour of materials subjected to simple bending loads. Like tensile modulus, flexural modulus (stiffness) is calculated from the slope of the bending load vs deflection curve. Flexural testing involves the bending of a material, rather than pushing or pulling to determine the relationship between bending stress and deflection. Flexural testing is commonly used on brittle material such as ceramics, stone, masonry and glasses. It can also be used to examine the behavior of materials which are intended to bend during their useful life, such as wire insulation and other elastomeric products.

The three point bending flexural test provide value for the modulus of elasticity in bending, flexural stress, flexural strain, and the flexural stress- strain response of the material. The main advantage of a three point flexural test is the ease of the specimen preparation and testing. However, this method has also some disadvantages: the result of the testing method are sensitive to specimen and loading geometry and strain rate.

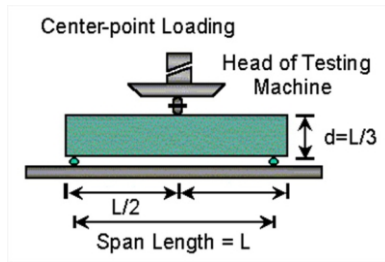


Figure 1 (Center-Point Loading Flexural Strength Test, n.d.)

Flexural stress (δ_f) can be calculated on any point on the load deflection curve by using the following equation 1. (ASTM INTERNATIONAL, 2002)

Equation 1:
$$\delta_f = \frac{3pl}{2bd^2}$$

Flexural Strength is the maximum capability of a material to resist the plastic deformation. Equation 2 below is used to calculate the value of maximum Flexural stress at failure.

Equation 2:
$$\delta_{fm} = \frac{3YL}{2bd^2}$$

Flexural strain is nominal fractional change in the length of an element of the outer surface of the specimen at middle of span, where the maximum strain occurs. Equation 3 is used to calculate the value.

Equation 3:
$$\epsilon_f = \frac{6DL}{L^2}$$

Modulus of Elasticity (MOE) is the ratio, within the elastic limit, of stress to corresponding strain. Equation 4 is used to calculate the value of Modulus of Elasticity (MOE).

Equation 4:
$$E_b = \frac{mL^3}{4bd^2}$$

Where:

- σ_f = flexural stress at any applied load
- σ_{fm} = maximum flexural stress
- P = Applied load (any value during the test)
- L = the length of the support span (mm)
- b = width of the specimen (mm)
- d = thickness of the specimen (mm)
- Y = maximum load at failure (breaking load)
- D = maximum deflection of the concrete of the beam
- m = slope of the tangent to the initial straight line portion of the load deflection curve (N/mm)

MATERIALS AND METHODS

This section present detailed description of the materials and methods employed for the assessment of the timber used in this research work.

○ Deleb-Palm Timber

The timber materials used in this research are pronounced fibrous timber of DP family with sizes of 11mm × 11mm, 14.5mm × 14.5mm & 18mm × 18mm. The DP timbers were obtained from a popular deleb market ("Yan Azara") located at Kofar ruwa Dala local government, Kano state. As seen in picture 1;



○ Method

○ Flexural Test

The samples were supported at the ends in such a way that they were be quite free to follow the bending action and were not restrained by friction which would resist the bending and tend to introduce longitudinal stresses.

The flexural test was carried out using the central loading method on the universal testing machine. As the load was applied, readings were taken from the dial gauge (supported by a retort stand and attached with a metal clap to the sample) at different load from the universal testing machine until failure occurred.

The bending stress is computed using the formula: (Salah, n.d.)

Bending Stress, (N/mm²) or Modulus of Rupture =
$$\frac{3PL}{2bh^2}$$

Where,

○ P = Maximum load in Newton

○ L = Distance between supports in millimeter b = Breath in millimeter

○ h = Depth in millimeter



Figure 3 Pictures of Flexural Beams Subjected to Bending Using Universal Testing Machine (UTM)

RESULTS AND DISCUSSIONS

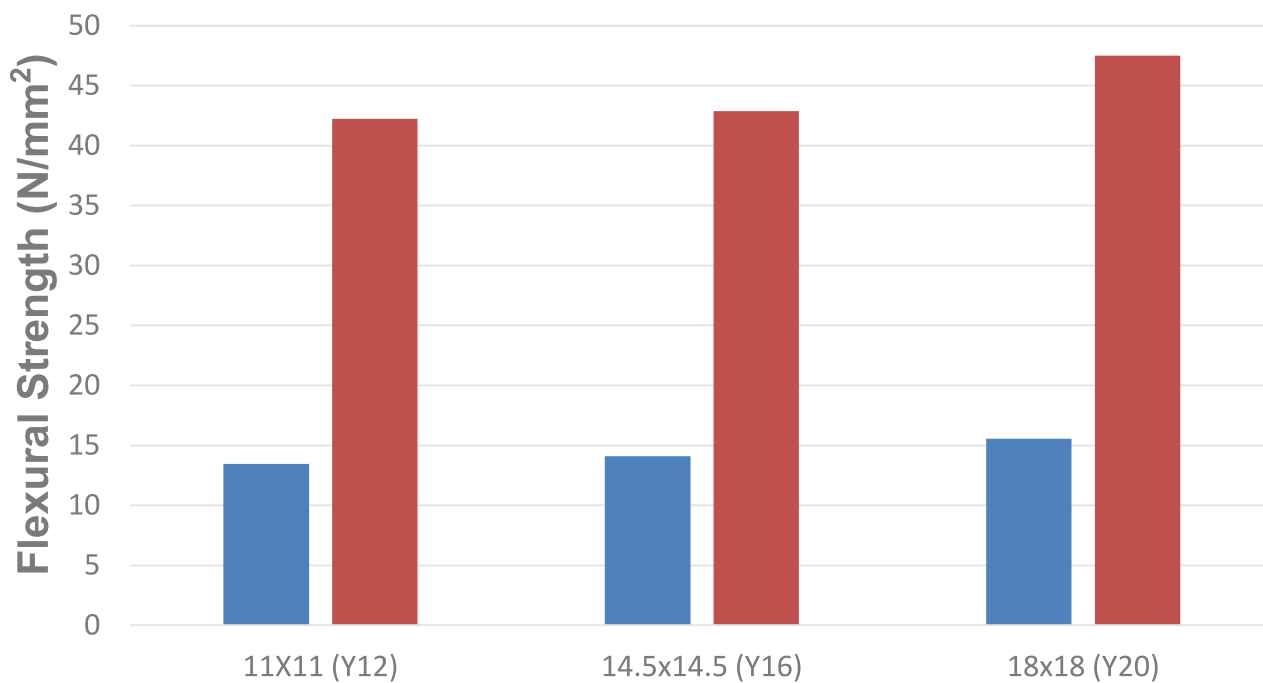
This chapter present results and discussions of the experimental works carried out on the selected DP. The following results are presented in the course of the study

○ Flexural Strength

The results of this experiment (Table 1) was presented in bar chart below and suggest that reinforced steel concrete is still the most effective material for flexural beams in terms of crushing load. Research has shown that, the flexural strength of beam reinforced with Y12, Y16, and Y20 are 25.1, 42.88 and 47.5N/mm² respectively (Kenyatta, 2020). However, the use of natural fiber such as DP can still provide some benefits in terms of improving the mechanical properties of the concrete. Flexural properties of beams under static and cyclic loading conditions have been analyzed and proved that rural fibres including coir and sugarcane natural fibres exhibit better performance than conventional concrete.(Sivaraja et al., 2010) Further research is needed to explore the potential of other natural fibers and their effectiveness in reinforcing concrete.

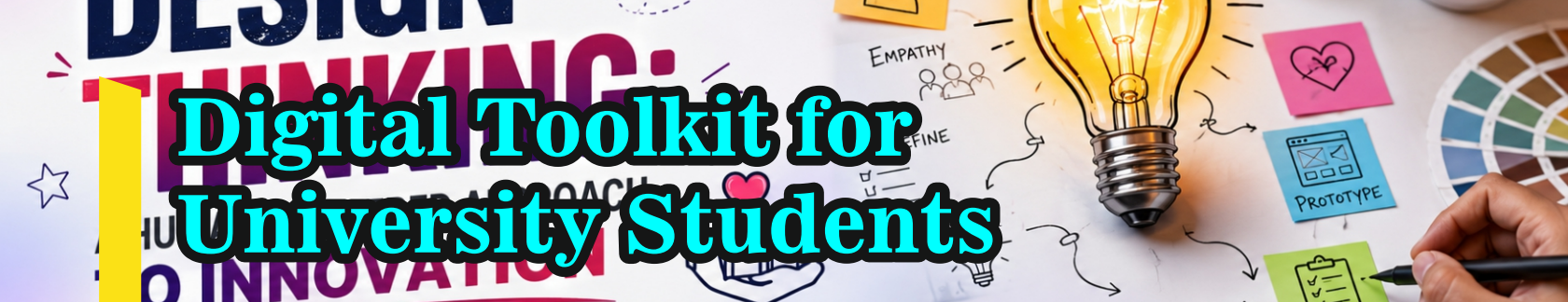
S/N	Dimension of Concrete (mm ³)	Cross-sectional Area (mm ²)	Deleb Palm size LxBxH (mm ³)	Crushing Load (kN)	Average Crushing Load	Bending Strength (N/mm ²) $= \frac{3pl}{2bd^2}$	% of additional strength gained by Deleb palm reinforced beam compared to plain beam
1	750 × 150 × 150	22500	700 × 11 × 11	40	40.33	13.44	58.11%
			700 × 11 × 11	39			
			700 × 11 × 11	42			
2	750 × 150 × 150	22500	700 × 14.5 × 14.5	41	42.33	14.11	66%
			700 × 14.5 × 14.5	44			
			700 × 14.5 × 14.5	42			
3	750 × 150 × 150	22500	700 × 18 × 18	45	46.67	15.56	83.06%
			700 × 18 × 18	47			
			700 × 18 × 18	48			

Table 1: Flexural Strength of Deleb-Palm Beam Results



■ Flexural strength of a beam reinforced with DP, with a deleb size as 11x11, 14.5x14.5, and 18x18mm
■ flexural strength of a beam reinforced with steel, with a steel diameter as Y12, Y16, 120.

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Digital Toolkit for University Students

● TT DESK

In the modern era, technology has transformed the way students learn, research, communicate, and develop professional skills. From accessing scientific literature to managing time and improving productivity, digital tools have become essential companions for university students. Below is a curated list of some of the most useful and reliable websites, applications, and platforms that can enhance academic performance and student life.

1. Google Scholar — Gateway to Scientific Research

Website: scholar.google.com

Google Scholar is one of the most important research tools for university students, researchers, and academics. **It provides access to:**

- Research papers
- Scientific journals
- Conference publications
- Theses and dissertations
- Academic books

Students can search millions of scholarly articles across fields including medicine, engineering, humanities, social sciences, and natural sciences. **Why students should use it:**

- Helps in writing assignments and research projects
- Provides references and citations
- Allows tracking of influential researchers and papers
- Shows how many times a paper has been cited

2. PubMed — Essential Resource for Medical & Life Science Students

Website: pubmed.ncbi.nlm.nih.gov

PubMed is a free database developed by the National Library of Medicine. **It contains millions of biomedical research articles covering:**

- Medicine
- Pharmacology
- Genetics
- Public health
- Clinical research

Why it is valuable:

Medical students can use PubMed to:

- Understand diseases through evidence-based research
- Review clinical guidelines
- Find references for presentations and publications
- Stay updated with medical discoveries

3. Microsoft OneNote — Digital Notebook for Students

OneNote is a powerful note-taking application designed for organizing academic information. **Features include:**

- Digital notebooks
- Handwritten notes using a stylus
- Audio recording
- Image and PDF annotation
- Cloud synchronization

Students can organize notes by:

- Subjects
- Semesters
- Courses
- Projects

It is especially useful for students who want all their academic material in one place.

4. Notion — All-in-One Student Productivity Workspace

Notion combines multiple tools into one platform. **Students can use it for:**

- Lecture notes
- Assignment tracking
- Study schedules
- Research planning
- Personal goals
- Project management

Its customizable design allows students to create their own academic dashboard. **Popular uses include:**

- Medical school planners
- Exam preparation trackers
- Reading lists
- Research databases

5. Zotero — Research Reference Manager

Website: zotero.org

Zotero is a free tool that helps students collect, organize, and cite research sources. **It can:**

- Save research papers
- Store PDFs
- Generate citations automatically
- Create bibliographies

It supports citation styles such as:

- APA
- MLA
- Vancouver
- Chicago

For students writing dissertations, research papers, or review articles, Zotero can save significant time.

6. Grammarly — Writing Improvement Assistant

Grammarly helps students improve written communication. **It checks:**

- Grammar
- Spelling
- Sentence structure
- Clarity
- Writing style

Useful for:

- Assignments
- Emails
- Research papers
- Scholarship applications

It helps students produce clearer and more professional writing.

7. Canva — Designing Presentations & Visual Content

Canva is a graphic design platform useful for students who need professional-looking visual materials. **Students can create:**

- Presentation slides
- Posters

जलवायु परिवर्तन और वायु प्रदूषण पर इंटरनेशनल वेबिनार में वैश्विक पर्यावरणीय चुनौतियों पर चर्चा

अपनी चल रही अंतर्राष्ट्रीय वेबिनार सीरीज के तहत, मेवाड़ यूनिवर्सिटी के इंजीनियरिंग और टेक्नोलॉजी विभाग ने 30 अक्टूबर, 2025 को "जलवायु परिवर्तन और वायु प्रदूषण दृष्टिगत वैश्विक परिदृश्य" पर एक अंतर्राष्ट्रीय वेबिनार का सफलतापूर्वक आयोजन किया। इस हाइब्रिड कार्यक्रम (जो डच् हैल और लववहसम डममज के माध्यम से आयोजित किया गया था) में फैकल्टी, छात्र, शोधकर्ता और शिक्षाविद एक साथ आए और आज हमारे ग्रह को प्रभावित करने वाली सबसे महत्वपूर्ण पर्यावरणीय चिंताओं में से एक पर चर्चा की।

मुख्य भाषण प्रो. (डॉ.) रॉबर्टो सैन जोस ने दिया, जो स्पेन की टेक्निकल यूनिवर्सिटी ऑफ मैड्रिड के कंप्यूटर साइंस स्कूल में एनवायरनमेंटल सॉफ्टवेयर एंड मॉडलिंग ग्रुप के निदेशक हैं।

पर्यावरणीय मॉडलिंग में विश्व स्तर पर प्रशंसित विशेषज्ञ के रूप में, प्रो. रॉबर्टो के नाम 100 से अधिक वैज्ञानिक प्रकाशन हैं और उन्होंने अंतरराष्ट्रीय सम्मेलनों में 400 से अधिक शोध पत्र प्रस्तुत किए हैं। त्ख्विमउ और चरुड जैसे उन्नत वायुमंडलीय मॉडलिंग सिस्टम के क्षेत्र में उनके अग्रणी काम ने शहरी वायु गुणवत्ता और जलवायु प्रणालियों के अध्ययन में उल्लेखनीय योगदान दिया है।

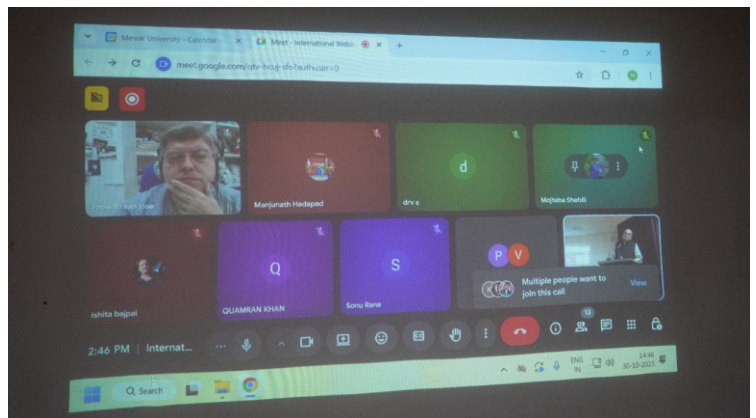
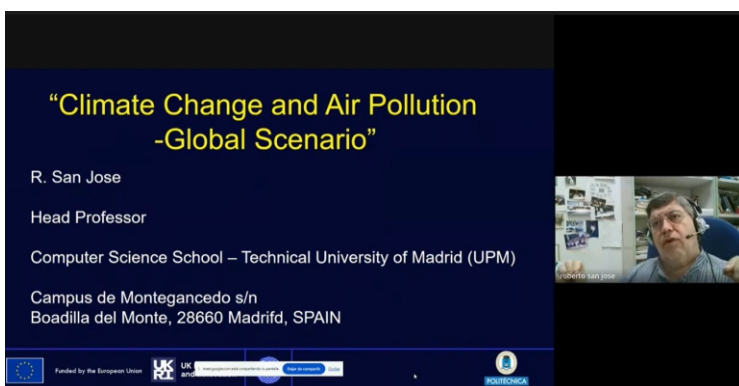
वेबिनार की शुरुआत डीन (एकेडमिक्स) प्रो. दीपक व्यास के स्वागत भाषण से हुई। माननीय कुलपति प्रो. आलोक मिश्रा ने प्रतिभागियों को संबोधित करते हुए वैश्विक पर्यावरणीय चुनौतियों का सामना करने में अंतरराष्ट्रीय सहयोग और वैज्ञानिक अनुसंधान की महत्वपूर्ण भूमिका पर जोर दिया।

इसके बाद, इंजीनियरिंग और टेक्नोलॉजी विभाग के डीन प्रो. विनेश अग्रवाल ने अतिथि वक्ता का औपचारिक परिचय दिया।

अपनी ज्ञानवर्धक प्रस्तुति के दौरान, प्रो. रॉबर्टो सैन जोस ने जलवायु परिवर्तन और वायु प्रदूषण के बीच जटिल संबंध पर प्रकाश डाला। उन्होंने वैश्विक पारिस्थितिकी तंत्र, सार्वजनिक स्वास्थ्य और सतत विकास पर इन परस्पर जुड़े मुद्दों के व्यापक प्रभाव को समझाया। अत्याधुनिक पर्यावरणीय मॉडलिंग की क्षमता पर जोर देते हुए, उन्होंने बताया कि कैसे एकीकृत वैज्ञानिक दृष्टिकोण सबूत-आधारित नीतिगत निर्णयों में मदद कर सकते हैं, वायु गुणवत्ता प्रबंधन रणनीतियों को बेहतर बना सकते हैं और देशों में जलवायु के प्रति लचीलापन (बसपउंजम तमेपसपमदबम) बढ़ा सकते हैं।

व्याख्यान के बाद एक दिलचस्प इंटरैक्टिव सत्र हुआ, जिसमें प्रतिभागियों ने जलवायु विज्ञान, वायु प्रदूषण नियंत्रण उपायों और पर्यावरणीय मॉडलिंग में हालिया विकास के बारे में महत्वपूर्ण सवाल पूछे। चर्चाओं से वैश्विक पर्यावरणीय चिंताओं के लिए नए समाधान खोजने में छात्रों और शोधकर्ताओं की गहरी रुचि का पता चला। इस कार्यक्रम का समापन प्रो. अजय कुमार, डायरेक्टर (एप्लाइड रिसर्च) के धन्यवाद प्रस्ताव के साथ हुआ। उन्होंने मुख्य वक्ता का उनकी बहुमूल्य जानकारी के लिए आभार व्यक्त किया और कार्यक्रम में शामिल सभी लोगों की सक्रिय भागीदारी की सराहना की। प्रतिभागियों ने बहुत सकारात्मक प्रतिक्रिया दी और चर्चाओं की अकादमिक गहराई, व्यावहारिक महत्व और सोचने पर मजबूर करने वाली प्रकृति की प्रशंसा की।

इस अंतरराष्ट्रीय वेबिनार के सफल आयोजन ने वैश्विक अकादमिक सहयोग, अंतर-विषयक अनुसंधान और पर्यावरण के प्रति जागरूकता को बढ़ावा देने के प्रति मेवाड़ यूनिवर्सिटी की दृढ़ प्रतिबद्धता को रेखांकित किया। दुनिया भर के जाने-माने विशेषज्ञों के साथ बातचीत का अवसर प्रदान करके, यूनिवर्सिटी अपने अकादमिक समुदाय को समकालीन वैश्विक चुनौतियों से जुड़ने और सतत विकास के कार्य में योगदान करने के लिए सशक्त बनाना जारी रखे हुए है।



मेवाड़ यूनिवर्सिटी ने पेटेंट ड्राफ्टिंग, मुकदमेबाजी और अभियोजन पर गेस्ट लेक्चर आयोजित किया

30 अक्टूबर 2025 को, मेवाड़ यूनिवर्सिटी के फैकल्टी ऑफ लीगल स्टडीज ने इंटेलेक्चुअल प्रॉपर्टी लॉ (बौद्धिक संपदा कानून) और इसके इस्तेमाल के बारे में छात्रों की समझ को बेहतर बनाने के लिए "पेटेंट ड्राफ्टिंग, मुकदमेबाजी और अभियोजन" पर एक जानकारीपूर्ण गेस्ट लेक्चर आयोजित किया। आज की नई खोजों वाली दुनिया में इंटेलेक्चुअल प्रॉपर्टी राइट्स (बौद्धिक संपदा अधिकारों) के महत्व पर चर्चा करने के अलावा, इस वर्कशॉप ने भावी वकीलों को पेटेंट तैयार करने, अभियोजन और मुकदमेबाजी की प्रक्रियाओं और बारीकियों के बारे में महत्वपूर्ण जानकारी पाने का मौका दिया। भारत सरकार के CSIR-नेशनल इंस्टीट्यूट ऑफ साइंस कम्युनिकेशन एंड पॉलिसी रिसर्च (CSIR&NIScPR), नई दिल्ली की सीनियर प्रिंसिपल साइंटिस्ट डॉ. कनिका मलिक ने मुख्य भाषण दिया।

इंटेलेक्चुअल प्रॉपर्टी और पेटेंट सिस्टम की जानकारी विशेषज्ञ डॉ. मलिक ने अपने अनुभव के आधार पर ज़रूरी कानूनी और तकनीकी पहलुओं पर प्रकाश डाला। कार्यक्रम की शुरुआत फैकल्टी ऑफ लीगल स्टडीज की हेड श्रीमती गीतांजलि शर्मा के स्वागत भाषण से हुई, जिन्होंने सम्मानित अतिथि का स्वागत किया और इनोवेशन, रिसर्च और तकनीकी प्रगति के लिए IP राइट्स के बढ़ते दायरे के बारे में बताया।

अपने भाषण के दौरान, डॉ. मलिक ने पेटेंट ड्राफ्टिंग में शामिल तरीकों – जैसे स्पेसिफिकेशन, क्लेम बनाना और पेटेंट ड्राफ्टिंग के अन्य महत्वपूर्ण तत्वों – पर विस्तार से जानकारी दी। उन्होंने राष्ट्रीय और अंतरराष्ट्रीय कार्यालयों के सामने पेटेंटिंग प्रक्रियाओं को समझाते हुए पेटेंट अभियोजन की प्रक्रिया का भी वर्णन किया। साथ ही, उन्होंने पेटेंट लिटिगेटर (मुकदमेबाज) की भूमिका, ज़रूरी राइट्स को लागू करने और भारतीय कानूनी ढांचे के तहत विवाद समाधान के बारे में भी बताया। लेक्चर के दौरान एक दिलचस्प सवाल-जवाब सत्र हुआ, जिसमें छात्रों ने सक्रिय रूप से भाग लिया और इस क्षेत्र से जुड़े विभिन्न पहलुओं पर सवाल पूछे। डॉ. मलिक के व्यावहारिक अनुभव ने – जिसमें उदाहरणों के साथ स्पष्ट जवाब शामिल थे – पाठ्यक्रम और पेशेवर कानूनी दुनिया के बीच एक बेहतर कड़ी बनाई और इंटेलेक्चुअल प्रॉपर्टी के विभिन्न दृष्टिकोणों से भविष्य की दुनिया को देखने के अवसर पैदा किए। श्री ईशान सिंहल ने डॉ. कनिका मलिक, श्रीमती गीतांजलि शर्मा और अन्य फैकल्टी व छात्र सदस्यों का धन्यवाद किया। लेक्चर में सहयोग के लिए फैकल्टी सदस्य श्री नितिन त्रिपाठी, श्री अंबुज मिश्रा और श्री प्रद्युम्न शर्मा भी मौजूद थे।

इस गेस्ट लेक्चर ने छात्रों को पेटेंट कानून और IP राइट्स की व्यावहारिक जानकारी दी और उन्हें ज़रूरी कानून और इनोवेशन मैनेजमेंट के तेजी से बढ़ते क्षेत्र में करियर के संभावित अवसरों को तलाशने के लिए प्रोत्साहित किया।



मेवाड़ यूनिवर्सिटी में B.Ed. विभाग ने देशभक्ति की भावना के साथ राष्ट्रीय एकता दिवस मनाया

31 अक्टूबर 2025 को, मेवाड़ यूनिवर्सिटी के ठ.म्क. विभाग ने 'भारत के लौह पुरुष' (आयरन मैन ऑफ इंडिया) के नाम से मशहूर सरदार वल्लभभाई पटेल के जन्मदिन के उपलक्ष्य में राष्ट्रीय एकता दिवस (तेजतपलं मजं कपें) को बड़े उत्साह और देशभक्ति की भावना के साथ मनाया। इस कार्यक्रम का उद्देश्य अखंड भारत के संस्थापकों में से एक को सम्मान देना और छात्रों को एकता, अखंडता और सहयोग के आदर्शों के प्रति प्रेरित करना था।

कार्यक्रम की शुरुआत एक प्रेरणादायक फिल्म दिखाकर की गई, जो सरदार पटेल के जीवन, उनके विजन और एक मजबूत व अखंड भारत के निर्माण में उनके अहम योगदान पर आधारित थी। सरदार पटेल पर बनी इस प्रेरणादायक डॉक्यूमेंट्री में दिखाया गया कि कैसे आजादी के बाद सरदार वल्लभभाई पटेल ने अपनी निर्णायक सोच से भारत की 560 से ज्यादा रियासतों को एक देश में मिलाया। डॉक्यूमेंट्री देखकर छात्र बहुत प्रभावित हुए।

B.Ed. छात्रों के लिए "सरदार वल्लभभाई पटेल – एकता और सहयोग के प्रतीक" विषय पर एक निबंध लेखन प्रतियोगिता आयोजित की गई। छात्रों ने देश में एकीकरण को बढ़ावा देने, समुदायों के बीच मिल-जुलकर रहने (सह-अस्तित्व) और देश के विभिन्न क्षेत्रों के साथ शांति व एकजुटता बनाए रखने के लिए बहुत ही सार्थक विचार लिखे। इस प्रतियोगिता का मुख्य उद्देश्य उनमें देशभक्ति की भावना जगाना था।

इसके बाद प्रतिभागियों ने देश की एकता, अखंडता और सुरक्षा को मजबूत करने तथा भारत की समृद्ध सांस्कृतिक विरासत और विविधता को बनाए रखते हुए शांति और भाईचारे के साथ मिल-जुलकर रहने की राष्ट्रीय एकता शपथ (Rashtriya Ekta Shapath) ली।

इस राष्ट्रीय उत्सव में छात्रों और फैंकल्टी ने उत्साहपूर्वक भाग लिया। इसने न केवल देशभक्ति की भावना जगाई, बल्कि मेवाड़ यूनिवर्सिटी के ठ.म्क. समुदाय के बीच एकता, सह-अस्तित्व और आपसी भाईचारे की भावना को भी मजबूत किया। मूल्यों पर आधारित इस कार्यक्रम के माध्यम से, मेवाड़ यूनिवर्सिटी ने "एक भारत, श्रेष्ठ भारत" के उद्देश्य को प्राप्त करने का प्रयास किया।

B.Ed. विभाग द्वारा आयोजित इस कार्यक्रम का उद्देश्य देश के लिए सामाजिक रूप से जिम्मेदार और देशभक्त भविष्य के शिक्षक तैयार करना था।



मेवाड़ यूनिवर्सिटी ने 'अनुच्छेद 21: हमारी आजादी की कुंजी' पर गेस्ट लेक्चर आयोजित किया

संवैधानिक जागरूकता को बढ़ावा देने और छात्रों को भारतीय संविधान में शामिल मौलिक अधिकारों में से एक – जीवन और व्यक्तिगत स्वतंत्रता के अधिकार – के संवैधानिक महत्व को समझने में सक्षम बनाने के लिए, मेवाड़ यूनिवर्सिटी के फैकल्टी ऑफ लीगल स्टडीज ने 27 अक्टूबर, 2025 को "अनुच्छेद 21: हमारी आजादी की कुंजी" विषय पर एक गेस्ट लेक्चर का सफलतापूर्वक आयोजन किया।

राजस्थान सरकार के सीनियर लीगल ऑफिसर, सम्मानित वक्ता श्री दिलीप दीक्षित का मेवाड़ यूनिवर्सिटी के माननीय वाइस चांसलर प्रो. (डॉ.) आलोक मिश्रा ने गर्मजोशी से स्वागत और सम्मान किया।

छात्रों और फैकल्टी सदस्यों की उपस्थिति में, गेस्ट स्पीकर ने भारत के संविधान के अनुच्छेद 21 के महत्वपूर्ण निहितार्थों पर विस्तार से चर्चा की, जो एक अत्यंत महत्वपूर्ण मौलिक अधिकार है।

गेस्ट लेक्चर के दौरान, सम्मानित अतिथि ने बताया कि कैसे जीवन और व्यक्तिगत स्वतंत्रता का अधिकार (संविधान का अनुच्छेद 21) शारीरिक अस्तित्व और शारीरिक स्वतंत्रता की मूल रूप से सीमित समझ से विकसित होकर एक व्यापक अवधारणा बन गया है। इस व्यापक अवधारणा में सम्मानजनक जीवन का अधिकार, स्वास्थ्य का अधिकार, शिक्षा का अधिकार, स्वच्छ पर्यावरण का अधिकार, निजता का अधिकार और मानव जीवन के कई अन्य पहलू शामिल हैं। सुप्रीम कोर्ट ने अपनी समझदारी और प्रगतिशील दृष्टिकोण से बुनियादी मानवाधिकारों की रक्षा और मजबूती के लिए कई ऐतिहासिक मामलों में इन पहलुओं को अनुच्छेद 21 के दायरे में शामिल किया है।

छात्रों के लिए यह एक ज्ञानवर्धक सत्र था, जिसमें इस बात पर ध्यान केंद्रित किया गया कि जीवन और व्यक्तिगत स्वतंत्रता का संवैधानिक अधिकार कैसे अत्यंत महत्वपूर्ण भूमिका निभाता है और न्यायिक सक्रियता के माध्यम से मौलिक मानवाधिकारों के एक व्यापक ढांचे के रूप में कैसे विकसित हुआ है। गेस्ट लेक्चर ने उन्हें इस बात की स्पष्ट और गहरी समझ प्रदान की कि अनुच्छेद 21 कैसे कई मौलिक मानवाधिकारों का स्रोत है। साथ ही, इस बात पर भी जोर दिया गया कि कैसे न्यायिक व्याख्या ने इसे एक गतिशील संवैधानिक प्रावधान में बदल दिया है, जो लगातार बदलती सामाजिक आवश्यकताओं के अनुरूप ढलने का प्रयास करता है।

यह लेक्चर ज्ञान और जानकारी का एक बेहतरीन स्रोत था। इस कार्यक्रम में कई गणमान्य व्यक्ति और फैकल्टी सदस्य शामिल हुए, जिनमें श्रीमती गीतांजलि शर्मा (हेड ऑफ डिपार्टमेंट, फैकल्टी ऑफ लीगल स्टडीज), श्री ईशान सिंघल, श्री अंबुज मिश्रा, श्री प्रद्युम्न शर्मा, डॉ. साधना मंडलोई (डीन, फैकल्टी ऑफ कॉमर्स एंड मैनेजमेंट), डॉ. राजेश भट्ट (हेड ऑफ डिपार्टमेंट, कॉमर्स एंड मैनेजमेंट) और सुश्री माधुरी भट्ट शामिल थीं।

फैकल्टी ऑफ लीगल स्टडीज के असिस्टेंट प्रोफेसर श्री नितिन त्रिपाठी ने धन्यवाद प्रस्ताव पेश किया। यह पूरा कार्यक्रम छात्रों में संविधान और मौलिक अधिकारों के प्रति गहरी रुचि जगाने और न्यायिक व्याख्या के महत्व को समझाने में सफल रहा।



मेवाड़ यूनिवर्सिटी ने डिजिटल सिस्टम डिजाइन/डिजिटल इलेक्ट्रॉनिक्स पर एक्सपर्ट लेक्चर आयोजित किया

4 नवंबर, 2025 को गंगार स्थित मेवाड़ यूनिवर्सिटी के इलेक्ट्रॉनिक्स एंड कम्युनिकेशन इंजीनियरिंग (ECE) विभाग ने "डिजिटल सिस्टम डिजाइन/डिजिटल इलेक्ट्रॉनिक्स" पर एक गेस्ट लेक्चर का सफलतापूर्वक आयोजन किया। इस सेशन का मकसद छात्रों को मॉडर्न डिजिटल सिस्टम डिजाइन से परिचित कराना और इंडस्ट्री की प्रैक्टिस और थ्योरी के बीच के ज्ञान के अंतर को कम करना था।

मुख्य लेक्चर उदयपुर के गीतांजलि इंस्टीट्यूट ऑफ टेक्निकल स्टडीज (GITS) के प्रोफेसर डॉ. अनुराग पालीवाल ने दिया, जो इलेक्ट्रॉनिक्स इंजीनियरिंग के जाने-माने एकेडमिक और स्पेशलिस्ट हैं। डॉ. पालीवाल के पास पढ़ाने और रिसर्च का लंबा अनुभव है, जिसके आधार पर उन्होंने छात्रों को डिजिटल इलेक्ट्रॉनिक्स और एम्बेडेड सिस्टम डिजाइन के बारे में जानकारी दी।

सेशन के दौरान, डॉ. पालीवाल ने डिजिटल लॉजिक डिजाइन, कॉम्बिनेशनल और सीक्वेंशियल सर्किट की बुनियादी बातों और कंप्यूटिंग, कम्युनिकेशन और ऑटोमेशन टेक्नोलॉजी में उनकी अहम भूमिका के बारे में विस्तार से बताया। उन्होंने हमारे रोजमर्रा के जीवन में डिजिटल सिस्टम के अलग-अलग इंडस्ट्रियल इस्तेमाल और इस बात पर भी जोर दिया कि कैसे ये सिस्टम कंप्यूटिंग सिस्टम और स्मार्ट डिवाइस के 'दिमाग' के तौर पर काम करते हैं। सेशन में रियल-टाइम उदाहरणों और केस स्टडीज के जरिए इंजीनियरिंग के कई मुश्किल विषयों को आसान बनाया गया।

उन्होंने डिजिटल सिस्टम डिजाइन की प्रक्रिया में इस्तेमाल होने वाले डिजाइन फ्लो, मॉडलिंग और ट्रेडिंग टूल्स पर भी चर्चा की, साथ ही इलेक्ट्रॉनिक्स और सेमीकंडक्टर इंडस्ट्री में करियर बनाने के लिए जरूरी खूबियों, जैसे इनोवेशन और एनालिसिस स्किल्स के बारे में भी बताया।

ECE, इलेक्ट्रिकल इंजीनियरिंग (EE) और कंप्यूटर साइंस इंजीनियरिंग/कंप्यूटर एप्लीकेशन (CSE/CA) के छात्रों ने पूरे उत्साह के साथ लेक्चर में हिस्सा लिया। सेशन के बाद एक उपयोगी सवाल-जवाब का दौर हुआ, जिसमें छात्रों ने डिजिटल सिस्टम डिजाइन, एम्बेडेड सिस्टम और VLSI टेक्नोलॉजी से जुड़ी तकनीकी बातों और भविष्य के बारे में सवाल पूछे, जिससे मल्टी-डिसिप्लिनरी लर्निंग माहौल को बढ़ावा मिला।

फैकल्टी मेंबर्स ने डॉ. पालीवाल की बेहतरीन प्रेजेंटेशन के लिए उनकी तारीफ की, जिसने डिजिटल सिस्टम डिजाइन और इलेक्ट्रॉनिक सर्किट के बारे में छात्रों के ज्ञान को बढ़ाया। उन्होंने ECE विभाग को भी ऐसे लेक्चर आयोजित करने के लिए बधाई दी, जो इंडस्ट्री को यूनिवर्सिटी तक लाकर छात्रों की लर्निंग को बेहतर बनाते हैं।

यह गेस्ट लेक्चर सीखने का एक शानदार अनुभव रहा, जिसने छात्रों को डिजिटल इलेक्ट्रॉनिक्स, एम्बेडेड सिस्टम, सेमीकंडक्टर और दूसरे संबंधित क्षेत्रों में करियर बनाने के साथ-साथ भविष्य में रिसर्च और इनोवेशन के लिए प्रेरित किया।



मेवाड़ यूनिवर्सिटी ने एग्रो-बायोटेक्नोलॉजी : बायो-फर्टिलाइजर और बायो-पेस्टिसाइड्स पर एक्सपर्ट लेक्चर आयोजित किया

6 नवंबर, 2025 को मेवाड़ यूनिवर्सिटी के लाइफ साइंस डिपार्टमेंट ने “एग्रो-बायोटेक्नोलॉजी: बायो-फर्टिलाइजर और बायो-पेस्टिसाइड्स” पर वैल्यू-एडेड कोर्स के तहत एक एक्सपर्ट लेक्चर का आयोजन किया। इस प्रोग्राम का मकसद पर्यावरण की सुरक्षा बनाए रखते हुए खेती का उत्पादन बढ़ाने के लिए सस्टेनेबल खेती के तरीकों और बायोटेक्नोलॉजी के उभरते क्षेत्र के बारे में छात्रों की समझ को बेहतर बनाना था। उदयपुर के जनार्दन राय नागर राजस्थान विद्यापीठ (डीम्ड यूनिवर्सिटी) की फैकल्टी ऑफ साइंस में असिस्टेंट प्रोफेसर डॉ. खुशबू जैन ने गेस्ट लेक्चर दिया।

इस प्रोग्राम में कुल 72 छात्र (जिनमें वैल्यू-एडेड कोर्स के 44 रजिस्टर्ड प्रतिभागी और लाइफ साइंस डिपार्टमेंट के छात्र शामिल थे) शामिल हुए। कार्यक्रम की शुरुआत सुश्री प्राची सिंह के स्वागत भाषण से हुई, जिसके बाद लाइफ साइंस डिपार्टमेंट के हेड डॉ. उमेश गारू ने गेस्ट का सम्मान किया और डॉ. जैन को शॉल और स्मृति-चिह्न भेंट किया।

सुश्री प्राची सिंह ने लेक्चर से पहले गेस्ट के एकेडमिक प्रोफाइल और उपलब्धियों के बारे में भी बताया। पहला सेशन तकनीकी जानकारी पर केंद्रित था, जिसमें डॉ. जैन ने सस्टेनेबल खेती और पर्यावरण संरक्षण में बायो-फर्टिलाइजर और बायो-पेस्टिसाइड्स के महत्व को समझाने के लिए उनके बुनियादी सिद्धांतों पर एक जानकारीपूर्ण प्रेजेंटेशन दिया। इसमें माइक्रोबियल इनोक्युलेंट्स, न्यूट्रिएंट मोबिलाइजेशन तकनीकों और जैविक कीट प्रबंधन के तरीकों के साथ-साथ केमिकल फर्टिलाइजर और पेस्टिसाइड्स पर निर्भरता कम करने में उनके फायदों के बारे में बताया गया। चाय-नाश्ते के छोटे से ब्रेक के बाद, कार्यक्रम का दूसरा सेशन बहुत इंटरैक्टिव रहा, जिसमें छात्रों ने बायो-फर्टिलाइजर और पेस्टिसाइड्स के उत्पादन, मूल्यांकन, क्वालिटी कंट्रोल और उत्पादकता बढ़ाने के लिए इन उत्पादों के फील्ड में इस्तेमाल के बारे में गेस्ट से बातचीत की।

उन्होंने छात्रों को रिसर्च और एंटरप्रेन्योरशिप चुनने के लिए प्रोत्साहित करने के उद्देश्य से एग्रो-बायोटेक्नोलॉजी के क्षेत्र में लेटेस्ट रिसर्च के नतीजों, इनोवेशन और अवसरों के बारे में भी विस्तार से बताया। कार्यक्रम के समापन पर, प्रो. (डॉ.) दीपक व्यास, डीन (एकेडमिक्स) ने ज्ञानवर्धक और प्रेरणादायक लेक्चर के लिए गेस्ट को सम्मान-चिह्न भेंट किया। वैल्यू एडेड कोर्स के को-ऑर्डिनेटर डॉ. रामगोपाल धाकड़ ने सम्मानित अतिथि, गणमान्य व्यक्तियों, फैकल्टी सदस्यों और छात्र प्रतिभागियों के लिए धन्यवाद प्रस्ताव पेश किया।

श्री पंकज कुमार टेली ने डॉक्यूमेंटेशन और एडमिनिस्ट्रेशन में सहयोग करते हुए कार्यक्रम का प्रभावी समन्वय सुनिश्चित किया। यह गेस्ट लेक्चर एक फायदेमंद एकेडमिक अनुभव साबित हुआ, जिसने प्रतिभागियों को बायोफर्टिलाइजर, बायोपेस्टिसाइड्स और एग्रोबायोटेक्नोलॉजी में हो रही आधुनिक प्रगति के बारे में व्यावहारिक जानकारी दी। इससे मेवाड़ यूनिवर्सिटी की अनुभवात्मक शिक्षा और टिकाऊ रिसर्च-आधारित पहलों को और मजबूती मिली।



मेवाड़ विश्वविद्यालय मूल्य वर्धित पाठ्यक्रम श्रृंखला के भाग के रूप में बौद्धिक संपदा अधिकारों पर अतिथि व्याख्यान आयोजित करता है

अपनी 'वैल्यू एडेड कोर्स (VAC) लेक्चर सीरीज' के तहत, मेवाड़ यूनिवर्सिटी के 'फैकल्टी ऑफ लीगल स्टडीज' ने 8 नवंबर, 2025 को "इंटेलेक्चुअल प्रॉपर्टी राइट्स: भारतीय संदर्भ में गहन विश्लेषण" विषय पर एक गेस्ट लेक्चर आयोजित किया। इस कार्यक्रम का उद्देश्य छात्रों को भारत में रचनात्मकता, इनोवेशन और आर्थिक प्रगति को बढ़ावा देने में इंटेलेक्चुअल प्रॉपर्टी राइट्स (IPR) की बारीकियों और बढ़ते महत्व के बारे में शिक्षित करना था।

मुख्य भाषण एमिटी यूनिवर्सिटी राजस्थान के प्रोफेसर, प्रसिद्ध शिक्षाविद् और शोधकर्ता, बौद्धिक संपदा अधिकार के क्षेत्र में विशेषज्ञ डॉ. पुनीत बाफना ने दिया। सत्र ने छात्रों और शिक्षकों को समकालीन भारतीय परिदृश्य में बौद्धिक संपदा अधिकारों के कानूनी, शैक्षणिक और व्यावहारिक पहलुओं के बारे में व्यावहारिक ज्ञान से सुसज्जित किया।

व्याख्यान श्रृंखला की शुरुआत सम्मानित अतिथि वक्ता के अभिनंदन और स्वागत के साथ हुई। प्रो. (डॉ.) दीपक व्यास, डीन (अकादमिक), प्रो. (डॉ.) साधना मंडलोई, डीन, वाणिज्य और प्रबंधन संकाय और डॉ. राजेश भट्ट, विभागाध्यक्ष, वाणिज्य और प्रबंधन संकाय ने डॉ. पुनीत बाफना का उनके शैक्षणिक प्रयास के लिए स्वागत और अभिनंदन किया।

डॉ. बाफना ने अपने व्याख्यान में भारत में बौद्धिक संपदा अधिकारों की ऐतिहासिक पृष्ठभूमि और विकास पर प्रकाश डाला। उन्होंने पेटेंट, कॉपीराइट, ट्रेडमार्क, औद्योगिक डिजाइन, भौगोलिक संकेत आदि के महत्व और नवाचार, कृतियों की सुरक्षा और अनुसंधान में उनकी भूमिका पर जोर दिया।

व्याख्यान में मौजूदा कानूनी ढांचे और न्यायिक विकास और ऐतिहासिक केस अध्ययनों पर चर्चा की गई, जिन्होंने भारत के बौद्धिक संपदा अधिकारों को प्रभावित किया है। डॉ. पुनीत बाफना ने आईपीआर के समकालीन महत्व और प्रौद्योगिकी, फार्मास्युटिकल, मीडिया, शिक्षा और व्यवसाय जैसे ज्ञान के विभिन्न क्षेत्रों में इसके अनुप्रयोग पर प्रकाश डाला। इस प्रकार छात्र कक्षा की दीवारों से परे बौद्धिक संपदा कानून की व्यावहारिक प्रयोज्यता को समझने में सक्षम थे।

इस कार्यक्रम में छात्रों की सक्रिय भागीदारी देखी गई क्योंकि उन्होंने सवाल-जवाब सत्र में सक्रिय रूप से भाग लिया और पेटेंट संरक्षण, कॉपीराइट के प्रवर्तन और ट्रेडमार्क के पंजीकरण और उक्त विषय पर उभरते मुद्दों पर सवालों के साथ विद्वान वक्ता द्वारा प्रदान की गई मूल्यवान अंतर्दृष्टि से बहुत कुछ हासिल किया।

कार्यक्रम में विधि अध्ययन संकाय के संकाय सदस्यों श्रीमती गीतांजलि शर्मा, विभागाध्यक्ष श्री नितिन त्रिपाठी, श्री ईशान सिंघल और श्री प्रद्युम्न शर्मा ने अच्छी उपस्थिति दर्ज की। व्याख्यान श्रृंखला का समापन श्री अंबुज मिश्रा, सहायक प्रोफेसर, कानूनी अध्ययन संकाय के धन्यवाद प्रस्ताव के साथ हुआ, जिन्होंने डॉ. पुनीत बाफना और उनकी भागीदारी के लिए उपस्थित अन्य गणमान्य व्यक्तियों के प्रति हार्दिक आभार व्यक्त किया।

यह व्याख्यान वास्तव में एक समृद्ध अनुभव था जिसने सभी को भारतीय कानूनी प्रणाली में बौद्धिक संपदा अधिकारों की जटिलताओं और प्रासंगिकता पर पर्याप्त ज्ञान प्राप्त करने में मदद की। मेवाड़ विश्वविद्यालय में प्रदान की जा रही कानूनी शिक्षा को और मजबूत करने के लिए इस तरह की पहल नियमित रूप से आयोजित की जा रही है।

मेवाड़ यूनिवर्सिटी ने साइकोलॉजिकल फर्स्ट-एड (मानसिक प्राथमिक चिकित्सा) और मानसिक स्वास्थ्य जागरूकता पर हाइब्रिड वर्कशॉप आयोजित की

12 नवंबर, 2025 को मेवाड़ यूनिवर्सिटी के शिक्षा विभाग ने “साइकोलॉजिकल फर्स्ट एड, चेतावनी के संकेतों की पहचान, खुद को नुकसान पहुंचाने की प्रवृत्ति पर प्रतिक्रिया और रेफरल मैकेनिज्म” विषय पर एक हाइब्रिड वर्कशॉप आयोजित की। हाइब्रिड मोड में आयोजित इस कार्यक्रम का उद्देश्य प्रतिभागियों के साइकोलॉजिकल फर्स्ट-एड कौशल को बेहतर बनाना, सक्रिय हस्तक्षेप और उचित रेफरल को बढ़ावा देना तथा शिक्षण संस्थानों के लिए एक सहयोगी माहौल तैयार करना था।

छात्रों के कल्याण को बढ़ावा देने के लिए इस कार्यक्रम का उद्घाटन प्रो. (डॉ.) आलोक मिश्रा (माननीय कुलपति, मेवाड़ यूनिवर्सिटी), प्रो. (डॉ.) दीपक व्यास (डीन एकेडमिक्स) और डॉ. अरुणा दुबे (प्रिंसिपल और हेड, बी.एड. विभाग) की उपस्थिति में किया गया।

मुख्य भाषण मानसिक स्वास्थ्य विशेषज्ञ डॉ. परिषा जिजिना ने दिया। उनका मुख्य व्याख्यान प्रेरणादायक और बेहद उपयोगी था, जिसमें शैक्षणिक संस्थानों में मानसिक स्वास्थ्य के महत्व पर प्रकाश डाला गया। उन्होंने साइकोलॉजिकल फर्स्ट एड (च.।) की अवधारणा को समझाया और बताया कि तनाव और आघात (ट्रॉमा) से जूझ रहे लोगों को तुरंत मानसिक सहायता प्रदान करने के लिए इसका उपयोग कैसे किया जा सकता है। उन्होंने उपस्थित लोगों को मनोवैज्ञानिक और भावनात्मक स्वास्थ्य विकारों के शुरुआती चेतावनी संकेतों को पहचानने, खुद को नुकसान पहुंचाने के जोखिम के संकेतों को समझने और संघर्ष कर रहे व्यक्तियों के साथ देखभाल और सहानुभूति के साथ व्यवहार करने के बारे में मार्गदर्शन दिया। इसके बाद, रिसोर्स पर्सन ने रेफरल मैकेनिज्म तक समय पर पहुंच सुनिश्चित करने के तरीकों के बारे में विस्तार से बताया ताकि परेशान लोगों को समय पर उचित मानसिक स्वास्थ्य सेवाएं मिल सकें। इसके अलावा, डॉ. जिजिना ने स्टाफ सदस्यों के लिए बेहतर संचार तकनीकें विकसित करने के वास्ते वास्तविक जीवन के उदाहरणों और विभिन्न स्थितियों का उपयोग करने के लिए प्रोत्साहित किया, ताकि वे बिना किसी सामाजिक कलंक (स्टिग्मा) के मानसिक स्वास्थ्य चुनौतियों का सामना कर सकें।

इस हाइब्रिड कार्यक्रम को सफल बनाने के लिए डीन, विभागाध्यक्ष, फैकल्टी सदस्य, आईटी विभाग के कर्मचारी और गैर-शिक्षण कर्मचारियों ने बड़े उत्साह के साथ भाग लिया। उनकी उत्साहपूर्ण भागीदारी संस्थान में सभी के कल्याण के लिए मानसिक स्वास्थ्य के अनुकूल माहौल की महत्वपूर्ण आवश्यकता के प्रति बढ़ती जागरूकता का प्रमाण थी।

अंत में, मुख्य वक्ता, विश्वविद्यालय नेतृत्व, आयोजन समिति और उन सभी उपस्थित लोगों का धन्यवाद किया गया जिन्होंने सक्रिय रूप से भाग लिया और कार्यक्रम को सफल बनाने में योगदान दिया। प्रतिभागियों के लिए एक सर्टिफिकेट वितरण समारोह आयोजित किया गया और कार्यक्रम का समापन राष्ट्रगान के साथ हुआ। इस कार्यक्रम ने छात्रों, फैकल्टी और स्टाफ के लिए एक सुलभ और समावेशी माहौल प्रदान करके मानसिक स्वास्थ्य से जुड़ी चिंताओं को दूर करने में जागरूकता, शुरुआती हस्तक्षेप और सहानुभूति की जरूरत को सफलतापूर्वक मजबूत किया है।



मेवाड़ यूनिवर्सिटी ने एगोबायोटेक्नोलॉजी: बायोफर्टिलाइजर और बायोपेस्टिसाइड्स पर एक्सपर्ट लेक्चर आयोजित किया

छात्रों को टिकाऊ खेती के तरीकों और आधुनिक खेती में बायोटेक्नोलॉजी की क्रांतिकारी भूमिका की व्यावहारिक समझ देने के लिए, मेवाड़ यूनिवर्सिटी के लाइफ साइंस विभाग ने अपने 'एगोबायोटेक्नोलॉजी: बायोफर्टिलाइजर और बायोपेस्टिसाइड्स' वैल्यू-एडेड कोर्स के तहत एक एक्सपर्ट लेक्चर आयोजित किया। कार्यक्रम की शुरुआत डीन (एकेडमिक्स) प्रो. (डॉ.) दीपक व्यास के स्वागत भाषण से हुई, जिन्होंने टिकाऊ कृषि विकास और संयुक्त राष्ट्र के टिकाऊ विकास लक्ष्यों (क्लै) को प्राप्त करने में एगोबायोटेक्नोलॉजी के बढ़ते महत्व पर प्रकाश डाला। उन्होंने इस बात पर जोर दिया कि बायोफर्टिलाइजर और बायोपेस्टिसाइड्स जैसे इनोवेशन, केमिकल इनपुट पर निर्भरता कम करने और पर्यावरण के अनुकूल खेती के तरीकों को बढ़ावा देने के लिए जरूरी हैं। गेस्ट स्पीकर, श्री अंकित धाकड़ (संस्थापक और ब्द, किसान मित्र बायोटेक, इंद्रपुरा, बिजोलिया, भीलवाड़ा, राजस्थान) का औपचारिक परिचय सुश्री प्राची ने दिया, जिन्होंने दर्शकों के सामने उनका एकेडमिक और प्रोफेशनल प्रोफाइल पेश किया।

कार्यक्रम में साइंस और टेक्नोलॉजी फैकल्टी के डीन डॉ. प्रमोद मेहता और लाइफ साइंस विभाग के प्रमुख डॉ. उमेश गारु भी मौजूद थे। उन्होंने सम्मानित एक्सपर्ट का स्वागत किया और सम्मान के तौर पर उन्हें स्मृति चिन्ह, शॉल और यूनिवर्सिटी की डायरी भेंट की। मुख्य भाषण देते हुए, श्री धाकड़ ने बायोपेस्टिसाइड्स के उत्पादन, फॉर्मूलेशन और फील्ड में उनके इस्तेमाल के बारे में इंडस्ट्री से जुड़ी महत्वपूर्ण जानकारी साझा की और पर्यावरण की दृष्टि से टिकाऊ कीट प्रबंधन में उनकी प्रभावशीलता के बारे में बताया। उन्होंने बायोफर्टिलाइजर के विभिन्न प्रकारों, उनके काम करने के तरीकों और मिट्टी की उर्वरता, पोषक तत्वों की उपलब्धता और फसल की उत्पादकता बढ़ाने में उनकी महत्वपूर्ण भूमिका के बारे में भी विस्तार से बताया।

अपने उद्यमिता के सफर और फील्ड के व्यापक अनुभव के आधार पर, उन्होंने दिखाया कि कैसे बायोटेक्नोलॉजी-आधारित कृषि समाधान किसानों को पैदावार बढ़ाने में मदद कर रहे हैं, साथ ही पर्यावरण पर असर कम कर रहे हैं और लंबे समय तक मिट्टी की सेहत को बेहतर बना रहे हैं। लेक्चर में व्यावहारिक उदाहरण और असल दुनिया की केस स्टडीज शामिल थीं, जिससे छात्र थ्योरी वाले कॉन्सेप्ट को खेती के मौजूदा तरीकों से जोड़ सके। श्री धाकड़ ने एग्री-बायोटेक्नोलॉजी, इनोवेशन और उद्यमिता में उभरते अवसरों पर भी चर्चा की और छात्रों को टिकाऊ खेती और बायोटेक्नोलॉजी-आधारित उद्यमों में करियर बनाने के लिए प्रेरित किया। इस प्रोग्राम में लाइफ साइंस, एग्रीकल्चर, फार्मसी और पैरामेडिकल साइंसेज विभागों के 56 छात्रों ने पूरे जोश के साथ हिस्सा लिया।

इंटरैक्टिव चर्चा के दौरान छात्रों ने एक्सपर्ट से बातचीत की और बायो-फर्टिलाइजर व बायो-पेस्टिसाइड्स के कमर्शियल प्रोडक्शन, क्वालिटी इवैल्यूएशन, इस्तेमाल के तरीकों और भविष्य की संभावनाओं पर अच्छे सवाल पूछे। इस बातचीत से छात्रों को एग्रीकल्चर में बायोटेक्नोलॉजी के प्रैक्टिकल इस्तेमाल के बारे में एक व्यापक नजरिया मिला। प्रोग्राम का समापन डॉ. रामगोपाल धाकड़ के औपचारिक धन्यवाद प्रस्ताव के साथ हुआ, जिन्होंने गेस्ट स्पीकर, यूनिवर्सिटी के अधिकारियों, फैकल्टी सदस्यों और छात्रों का उनकी बहुमूल्य भागीदारी के लिए दिल से आभार व्यक्त किया।

उन्होंने श्री पंकज कुमार टेली की कोशिशों की भी सराहना की, जिन्होंने इवेंट के डॉक्यूमेंटेशन और ओवरऑल कोऑर्डिनेशन को कुशलतापूर्वक संभाला और इसके सुचारु संचालन को सुनिश्चित किया। एक्सपर्ट लेक्चर एक ज्ञानवर्धक एकेडमिक अनुभव साबित हुआ, जिससे छात्रों को सस्टेनेबल एग्रीकल्चरल टेक्नोलॉजी और एगो-बायोटेक्नोलॉजी में नवीनतम विकास के बारे में प्रैक्टिकल जानकारी मिली। इस तरह की इंडस्ट्री-ओरिएंटेड एकेडमिक पहलों के माध्यम से, मेवाड़ यूनिवर्सिटी अनुभवात्मक शिक्षा, इनोवेशन और रिसर्च को बढ़ावा देना जारी रखे हुए है, साथ ही छात्रों को वैज्ञानिक और सस्टेनेबल समाधानों के माध्यम से आधुनिक एग्रीकल्चर की बदलती चुनौतियों का सामना करने के लिए तैयार कर रही है।

उन्होंने श्री पंकज कुमार टेली की कोशिशों की भी सराहना की, जिन्होंने इवेंट के डॉक्यूमेंटेशन और ओवरऑल कोऑर्डिनेशन को कुशलतापूर्वक संभाला और इसके सुचारु संचालन को सुनिश्चित किया। एक्सपर्ट लेक्चर एक ज्ञानवर्धक एकेडमिक अनुभव साबित हुआ, जिससे छात्रों को सस्टेनेबल एग्रीकल्चरल टेक्नोलॉजी और एगो-बायोटेक्नोलॉजी में नवीनतम विकास के बारे में प्रैक्टिकल जानकारी मिली।

इस तरह की इंडस्ट्री-ओरिएंटेड एकेडमिक पहलों के माध्यम से, मेवाड़ यूनिवर्सिटी अनुभवात्मक शिक्षा, इनोवेशन और रिसर्च को बढ़ावा देना जारी रखे हुए है, साथ ही छात्रों को वैज्ञानिक और सस्टेनेबल समाधानों के माध्यम से आधुनिक एग्रीकल्चर की बदलती चुनौतियों का सामना करने के लिए तैयार कर रही है।

मेवाड़ यूनिवर्सिटी के लॉ स्टूडेंट्स ने चित्तौड़गढ़ के डिस्ट्रिक्ट एंड सेशन कोर्ट का दौरा करके न्यायिक कामकाज की असलियत को समझा

कानून की थ्योरी और उसके प्रैक्टिकल इस्तेमाल के बीच की दूरी को कम करने की दिशा में एक अहम कदम उठाते हुए, मेवाड़ यूनिवर्सिटी के 'फैकल्टी ऑफ लीगल स्टडीज' ने 14 नवंबर, 2025 को अपने फर्स्ट-ईयर के लॉ स्टूडेंट्स के लिए चित्तौड़गढ़ के डिस्ट्रिक्ट एंड सेशन कोर्ट का एक ज्ञानवर्धक एजुकेशनल दौरा आयोजित किया। इस दौरे का मकसद भविष्य के वकीलों को भारतीय न्यायिक प्रणाली की बारीकियों, कोर्टरूम की प्रक्रियाओं और अदालतों के रोजमर्रा के कामकाज की जमीनी समझ देना था, ताकि वे क्लासरूम में सीखी गई बातों को असल दुनिया के अनुभव से जोड़ सकें।

भव्य डिस्ट्रिक्ट कोर्ट परिसर में पहुँचने पर, स्टूडेंट्स और फैकल्टी सदस्यों के दल का गर्मजोशी से स्वागत चित्तौड़गढ़ डिस्ट्रिक्ट बार एसोसिएशन के सम्मानित प्रेसिडेंट, श्री एस.पी. सिंह ने किया।

श्री सिंह ने स्टूडेंट्स को महत्वपूर्ण जानकारी दी और जिला न्यायपालिका के ढाँचे और कामकाज के पहलुओं को समझाया। उन्होंने नैतिक आचरण, कोर्टरूम की मर्यादा और न्याय के सिद्धांतों को बनाए रखने में कानूनी पेशेवरों की बड़ी जिम्मेदारी पर जोर दिया। उनकी बातें स्टूडेंट्स के लिए एक मार्गदर्शक की तरह थीं, जिन्होंने उन्हें अपने शुरुआती करियर में ईमानदारी, लगन और पेशेवर जिम्मेदारी की मजबूत भावना विकसित करने के लिए प्रेरित किया।

इस दौरे का एक अहम पहलू स्टूडेंट्स के लिए अलग-अलग न्यायिक मंचों – जैसे क्रिमिनल कोर्ट, सिविल कोर्ट, छवै कोर्ट, एंटी-कorrप्शन कोर्ट और बच्चों को यौन अपराधों से बचाने वाले कोर्ट (च्च्च् कोर्ट) – में कोर्ट की लाइव कार्यवाही देखने का मौका था। इन लाइव कार्यवाहियों को खुद देखने से स्टूडेंट्स को प्रक्रियात्मक कानूनों के प्रैक्टिकल इस्तेमाल, कोर्टरूम के शिष्टाचार और कानूनी विवादों के कई चरणों वाले फैसले की प्रक्रिया को समझने का मौका मिला।

स्टूडेंट्स ने गवाहों से पूछताछ और जिरह (बतवे-मंउपदंजपवद), सरकारी वकीलों और बचाव पक्ष के वकीलों द्वारा दी गई कानूनी दलीलों और उनके सामने हो रही पूरी न्यायिक फैसला लेने की प्रक्रिया को ध्यान से देखा। इसके अलावा, स्टूडेंट्स को नशीले पदार्थों, भ्रष्टाचार और बच्चों के ख़िलाफ़ अपराधों जैसे अहम सामाजिक और कानूनी मुद्दों से निपटने वाली विशेष अदालतों के कामकाज की भी बहुमूल्य समझ मिली। इससे न्याय सुनिश्चित करने और संवैधानिक अधिकारों की रक्षा करने में एक मजबूत न्यायिक ढाँचे की अहम भूमिका को रेखांकित किया गया। इस एकेडमिक विजिट का सफल आयोजन फैकल्टी ऑफ लीगल स्टडीज के असिस्टेंट प्रोफेसर श्री नितिन त्रिपाठी और श्री अंबुज मिश्रा ने किया। उन्होंने छात्रों को लगातार मार्गदर्शन और सहायता दी, जिससे उन्हें अपनी थ्योरेटिकल पढ़ाई और कानूनी प्रक्रियाओं की प्रैक्टिकल बारीकियों के बीच संबंध समझने में मदद मिली।

इस बेहतरीन पहल की पूरी योजना और देखरेख फैकल्टी ऑफ लीगल स्टडीज की हेड ऑफ डिपार्टमेंट, श्रीमती गीतांजलि शर्मा ने की, ताकि सभी प्रतिभागियों को एक सुचारु और बहुत फायदेमंद अनुभव मिल सके।

फैकल्टी ऑफ लीगल स्टडीज, मेवाड़ यूनिवर्सिटी के माननीय वाइस चांसलर प्रोफेसर (डॉ.) आलोक मिश्रा का दिल से आभार व्यक्त करती है। उन्होंने पढ़ाई-लिखाई में प्रैक्टिकल लर्निंग को शामिल करने के लिए हमेशा प्रोत्साहन और अटूट समर्थन दिया है। यूनिवर्सिटी में कानूनी शिक्षा को मजबूत बनाने में उनकी सोच बहुत अहम रही हैय उन्होंने सर्वांगीण विकास और असल दुनिया में इसके इस्तेमाल पर ध्यान केंद्रित किया है।

कोर्ट की यह विजिट निश्चित रूप से लॉ के फर्स्ट-ईयर के छात्रों के लिए एक बहुत ही मूल्यवान शैक्षिक अनुभव साबित हुई। इससे उन्हें न्यायपालिका, कोर्टरूम और कानूनी पेशे के प्रैक्टिकल पहलुओं की गहरी और व्यापक समझ मिली। ऐसी नई और असरदार प्रैक्टिकल लर्निंग पहलों के माध्यम से, मेवाड़ यूनिवर्सिटी ऐसे कुशल, नैतिक और प्रैक्टिस के लिए तैयार कानूनी पेशेवर तैयार करने के लिए प्रतिबद्ध है, जो न्याय दिलाने की व्यवस्था में महत्वपूर्ण योगदान दे सकें।

मेवाड़ यूनिवर्सिटी ने उत्साहपूर्ण समारोह और प्रेरणादायक सांस्कृतिक कार्यक्रमों के साथ बाल दिवस मनाया

1 4 नवंबर, 2025 को मेवाड़ यूनिवर्सिटी के साइंस और टेक्नोलॉजी विभाग ने भारत के पहले प्रधानमंत्री पंडित जवाहरलाल नेहरू की 111वीं जयंती के उपलक्ष्य में एक भव्य बाल दिवस कार्यक्रम आयोजित किया। इस समारोह में नेहरू की विरासत का सम्मान किया गया, जिनका मानना था कि बच्चे देश का भविष्य हैं। कार्यक्रम देशभक्ति की भावना और रंग-बिरंगे सांस्कृतिक प्रदर्शनों से भरा रहा। छात्र, शिक्षक और यूनिवर्सिटी के अधिकारी युवा मस्तिष्कों की क्षमता और खुशी का जश्न मनाने के लिए एक साथ आए।

समारोह की शुरुआत आयोजन समिति द्वारा गर्मजोशी भरे स्वागत के साथ हुई, जिसके बाद पारंपरिक रूप से दीप प्रज्वलित किया गया, जो अज्ञानता को दूर करने और ज्ञान की खोज का प्रतीक है। डीन (एकेडमिक्स) प्रो. (डॉ.) दीपक व्यास ने कार्यक्रम का उद्घाटन करते हुए बाल दिवस के गहरे महत्व और जिम्मेदार, दयालु और इनोवेटिव व्यक्तियों को तैयार करने में शैक्षणिक संस्थानों की जिम्मेदारी पर प्रकाश डाला।

उन्होंने जोर दिया कि बच्चे राष्ट्र की नींव हैं और शैक्षणिक कौशल के साथ-साथ उनकी रचनात्मकता, जिज्ञासा और नैतिक मूल्यों को विकसित करना अत्यंत महत्वपूर्ण है। युवा मस्तिष्कों को प्रेरित करते हुए, मेवाड़ यूनिवर्सिटी के माननीय कुलपति प्रो. (डॉ.) आलोक मिश्रा ने छात्रों से बड़े सपने देखने, उत्कृष्टता के लिए प्रयास करने और विज्ञान और टेक्नोलॉजी की शक्ति का उपयोग करने का आग्रह किया। उन्होंने उन्हें अनुशासन, ईमानदारी और जीवन भर सीखते रहने के जुनून को अपनाने के लिए प्रोत्साहित किया और समाज में सकारात्मक योगदान देने के लिए प्रेरित किया। साइंस और टेक्नोलॉजी विभाग के प्रयासों की सराहना करते हुए, उन्होंने आयोजकों को ऐसे कार्यक्रम के आयोजन के लिए बधाई दी जिसमें शिक्षा और मनोरंजन का बेहतरीन तालमेल था, जिससे विज्ञान की खोज एक दिलचस्प और सुखद अनुभव बन गई।

इस कार्यक्रम में यूनिवर्सिटी के छात्रों द्वारा बहुत मेहनत से तैयार और प्रस्तुत किए गए विभिन्न सांस्कृतिक और शैक्षणिक प्रदर्शन शामिल थे। एकता और उत्साह को दर्शाने वाले रंग-बिरंगे सामूहिक नृत्य, दिल को छू लेने वाले प्रेरणादायक गीत, ज्ञानवर्धक कविता पाठ और दिलचस्प नाटक ने दर्शकों को मंत्रमुग्ध कर दिया, जिससे शुद्ध खुशी, उत्साह और देशभक्ति का माहौल बन गया। प्रदर्शनों में राष्ट्रीय गौरव, शिक्षा का महत्व, सामाजिक प्रगति और मानवीय भावना की असीम संभावनाओं जैसे विषयों को शामिल किया गया। कार्यक्रम में बौद्धिक पहलू जोड़ते हुए, अलग-अलग विभागों के छात्रों ने पंडित जवाहरलाल नेहरू के जीवन और आदर्शों, देश को आकार देने में बचपन के महत्व और भविष्य में विज्ञान और तकनीक की बढ़ती भूमिका पर शानदार भाषण दिए। उनके आत्मविश्वास से भरे भाषणों में उनकी गहरी समझ और बेहतरीन बातचीत की कला झलक रही थी, जिसने दर्शकों पर गहरी छाप छोड़ी।

कार्यक्रम का समापन औपचारिक धन्यवाद प्रस्ताव के साथ हुआ, जिसमें यूनिवर्सिटी के नेतृत्व, सम्मानित शिक्षकों, समर्पित आयोजन समिति, प्रतिभाशाली छात्र प्रतिभागियों और इस यादगार कार्यक्रम को सफल बनाने में योगदान देने वाले सभी लोगों का दिल से आभार व्यक्त किया गया। मेवाड़ यूनिवर्सिटी का बाल दिवस समारोह बेहद सफल रहा। इसने छात्रों में रचनात्मकता को बढ़ावा दिया, उनका आत्मविश्वास बढ़ाया और उनमें वैज्ञानिक सोच विकसित की। ऐसी प्रेरणादायक पहलों के जरिए, यूनिवर्सिटी सर्वांगीण और मूल्यों पर आधारित शिक्षा देने और ऐसे भविष्य के नेताओं को तैयार करने के अपने संकल्प को दोहराती है जो देश के विकास में महत्वपूर्ण योगदान देंगे।

कोर्ट की यह विजित निश्चित रूप से लॉ के फर्स्ट-ईयर के छात्रों के लिए एक बहुत ही मूल्यवान शैक्षिक अनुभव साबित हुई। इससे उन्हें न्यायपालिका, कोर्टरूम और कानूनी पेशे के प्रैक्टिकल पहलुओं की गहरी और व्यापक समझ मिली। ऐसी नई और असरदार प्रैक्टिकल लर्निंग पहलों के माध्यम से, मेवाड़ यूनिवर्सिटी ऐसे कुशल, नैतिक और प्रैक्टिस के लिए तैयार कानूनी पेशेवर तैयार करने के लिए प्रतिबद्ध है, जो न्याय दिलाने की व्यवस्था में महत्वपूर्ण योगदान दे सकें।

कोर्ट की यह विजित निश्चित रूप से लॉ के फर्स्ट-ईयर के छात्रों के लिए एक बहुत ही मूल्यवान शैक्षिक अनुभव साबित हुई। इससे उन्हें न्यायपालिका, कोर्टरूम और कानूनी पेशे के प्रैक्टिकल पहलुओं की गहरी और व्यापक समझ मिली। ऐसी नई और असरदार प्रैक्टिकल लर्निंग पहलों के माध्यम से, मेवाड़ यूनिवर्सिटी ऐसे कुशल, नैतिक और प्रैक्टिस के लिए तैयार कानूनी पेशेवर तैयार करने के लिए प्रतिबद्ध है, जो न्याय दिलाने की व्यवस्था में महत्वपूर्ण योगदान दे सकें।

मेवाड़ यूनिवर्सिटी ने डिजिटल सशक्तिकरण और भविष्य के लिए जरूरी स्किल्स पर गेस्ट लेक्चर आयोजित किया

15 नवंबर, 2025 को मेवाड़ यूनिवर्सिटी के इंजीनियरिंग और टेक्नोलॉजी विभाग ने इंजीनियरिंग ब्लॉक के रूम नंबर 110 में “डिजिटल सशक्तिकरण: भविष्य के लिए ऑनलाइन उपस्थिति और स्मार्ट स्किल्स बनाना” विषय पर एक जानकारीपूर्ण गेस्ट लेक्चर आयोजित किया। इस लेक्चर का मकसद छात्रों को तकनीकी जानकारी, प्रोफेशनल समझ और डिजिटल स्किल्स देना था, जो तेजी से डिजिटल हो रही दुनिया में आगे बढ़ने के लिए जरूरी हैं। बिलोका सॉल्यूशन प्राइवेट लिमिटेड के AI इंजीनियर, श्री सिद्धार्थ भंडारी मुख्य वक्ता थे।

उन्होंने डिजिटल बदलाव और आर्टिफिशियल इंटेलिजेंस से मिली मुख्य सीखों को पेश किया और इस दौर में इंटरनेट पर प्रोफेशनल उपस्थिति से जुड़े अहम विचारों और मौकों के बारे में बताया। छात्रों से बात करते हुए, उन्होंने बताया कि कैसे नई टेक्नोलॉजी इंडस्ट्रीज को बदल रही हैं और AI व अन्य क्षेत्रों में नौकरी के कई मौके पैदा कर रही हैं। श्री भंडारी ने भरोसेमंद और लगातार डिजिटल पहचान बनाने और ऑनलाइन अच्छा व्यवहार करने के महत्व पर जोर दिया।

अपने लेक्चर में, उन्होंने उन स्मार्ट स्किल्स पर ध्यान केंद्रित किया जो टेक्नोलॉजी के इस दौर में मौजूदा ग्रेजुएट्स को दूसरों से अलग बनाएंगी।

इस सेशन की एक मुख्य बात आर्टिफिशियल इंटेलिजेंस और LLM पर चर्चा थी। रिसोर्स पर्सन ने कई AI एप्लीकेशन दिखाए जो कामों को आसान बनाएंगे, प्रोडक्टिविटी बढ़ाएंगे, फैसला लेने में मदद करेंगे, इनोवेशन को बढ़ावा देंगे और इंजीनियरिंग व टेक्नोलॉजी के सभी क्षेत्रों में तरक्की लाएंगे। AI-पावर्ड एप्लीकेशन के लाइव डेमो ने उभरती टेक्नोलॉजी का व्यावहारिक अनुभव दिया, जिससे छात्रों को उनकी पढ़ाई, रिसर्च, सॉफ्टवेयर डेवलपमेंट और करियर में बहुत मदद मिलेगी।

गेस्ट लेक्चर में सही स्मार्ट स्किल्स सीखने, क्रिटिकल थिंकर बनने के महत्व, समस्या सुलझाने की क्षमता विकसित करने, डिजिटल स्पेस में बातचीत करने, बदलते ट्रेंड्स के अनुसार ढलने और ऑनलाइन दुनिया में प्रोफेशनल व्यवहार जैसे विषयों को भी शामिल किया गया। श्री भंडारी ने छात्रों को नए टेक्नोलॉजी ट्रेंड्स के साथ खुद को लगातार अपडेट करने और AI के इस्तेमाल में सही तरीकों को सोच-समझकर अपनाने के लिए प्रेरित किया।

इस इवेंट में इंजीनियरिंग ब्रांच के छात्रों में बहुत उत्साह देखा गया।

उन्होंने बेहतर भविष्य के लिए AI का इस्तेमाल कैसे किया जा सकता है, IT सेक्टर में नौकरी के विभिन्न मौकों और प्रभावी डिजिटल पोर्टफोलियो बनाने में उनके महत्व जैसे जरूरी सवाल पूछे, जिनका उन्होंने अच्छे से जवाब दिया। फैकल्टी के छात्रों के लिए ‘वैल्यू एडेड कोर्स’ (VAC) के तहत आयोजित गेस्ट लेक्चर एक बहुत ही उपयोगी सेशन साबित हुआ। इसने छात्रों को इंडस्ट्री और आज के दौर की डिजिटल दुनिया से जुड़ी जानकारी देने में बड़ी सफलता हासिल की। मेवाड़ यूनिवर्सिटी ऐसे होनहार और हर तरह से कुशल व्यक्ति तैयार करने में विश्वास रखती है जिनके पास सभी जरूरी स्किल्स हों। एक जाने-माने वक्ता द्वारा दिया गया यह गेस्ट लेक्चर इस लक्ष्य को पाने की दिशा में एक बड़ा कदम था, क्योंकि इसने छात्रों को भविष्य के लिए जरूरी स्किल्स सीखने में मदद की।



मेवाड़ यूनिवर्सिटी ने देशभक्ति के जोश और संवैधानिक जागरूकता के साथ संविधान दिवस मनाया।

भारत के संविधान को अपनाए जाने के दिन को मनाने और हमारे संविधान में शामिल न्याय, स्वतंत्रता, समानता और बंधुत्व जैसे महान मूल्यों के प्रति निष्ठा की शपथ लेने के लिए, मेवाड़ यूनिवर्सिटी के 'फैकल्टी ऑफ लीगल स्टडीज' ने 26 नवंबर 2025 को बड़े उत्साह और शैक्षणिक जोश के साथ संविधान दिवस का आयोजन किया। इसने संवैधानिक साक्षरता को बढ़ावा देने और युवा मस्तिष्कों को लोकतांत्रिक आदर्शों और संवैधानिक कानून के शासन को महत्व देने के लिए प्रेरित करने का एक महत्वपूर्ण मंच प्रदान किया।

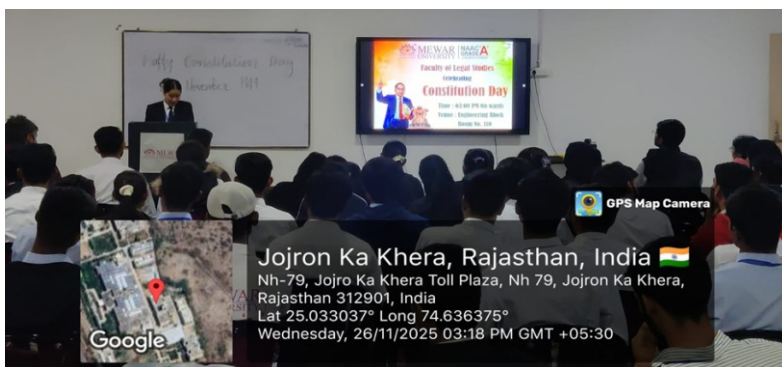
इस कार्यक्रम का शानदार आयोजन लॉ के प्रथम वर्ष के छात्रों द्वारा किया गयाय उनकी सराहनीय कोशिशों, टीम वर्क और आयोजन कौशल ने कार्यक्रम को सफल बनाने में बड़ी भूमिका निभाई।

यह कार्यक्रम छात्रों को शैक्षणिक और संवैधानिक गतिविधियों में सक्रिय रूप से शामिल होने का अवसर देकर यूनिवर्सिटी के 'अनुभवात्मक शिक्षण' (experiential learning) के प्रयास को दर्शाता है। कार्यक्रम की शुरुआत श्री बशारत अशरफ के गर्मजोशी भरे और दिलचस्प स्वागत भाषण से हुई, जिन्होंने कार्यक्रम का कुशलतापूर्वक संचालन किया और उत्सव के माहौल को उत्साहपूर्ण और गरिमापूर्ण बनाए रखा। इसके बाद सुश्री पलवी जमवाल, श्री ऋतिक कुमार और श्री अमन कुमार साह ने संविधान की ऐतिहासिक पृष्ठभूमि, मार्गदर्शक सिद्धांतों और संविधान के महत्व पर प्रेरणादायक भाषण दिए। उन्होंने नागरिकों के मौलिक कर्तव्यों और लोकतंत्र को सुरक्षित रखने, मौलिक अधिकारों की रक्षा करने और सामाजिक न्याय प्राप्त करने के लिए संवैधानिक मूल्यों का पालन करने के महत्व को स्पष्ट रूप से समझाया। लॉ के प्रथम वर्ष के छात्र श्री अमर कुमार और सुश्री कनीजा ने संविधान की भावना और लोकतंत्र, एकता व राष्ट्र-निर्माण के इसके आदर्शों का जश्न मनाने के लिए दिल को छू लेने वाली कविताएँ सुनाई। प्रतिभागियों ने जोरदार तालियों के साथ उनका उत्साह बढ़ाया।

मेवाड़ यूनिवर्सिटी के माननीय कुलपति प्रो. (डॉ.) आलोक मिश्र ने युवाओं को हमारे संवैधानिक मूल्यों का रक्षक बनने और जिम्मेदार नागरिक के रूप में अपने कर्तव्यों का पालन करने की शपथ लेने के लिए प्रेरित किया। साथ ही, उन्होंने युवाओं से राष्ट्र के हित में नैतिक और जिम्मेदार तरीके से कानून का पालन और अभ्यास करने का आह्वान किया। यूनिवर्सिटी प्रमुख ने उनसे संविधान को लागू करने और उसे बनाए रखने की अपनी जिम्मेदारी सुनिश्चित करने का भी आग्रह किया।

कार्यक्रम में फैकल्टी ऑफ इंजीनियरिंग के डिप्टी डीन श्री कपिल नाहर भी शामिल हुए। कॉमर्स और मैनेजमेंट फैकल्टी की डीन प्रो. (डॉ.) साधना मंडलोई और लीगल स्टडीज फैकल्टी के सदस्य इस चर्चा और बातचीत में सक्रिय रूप से शामिल हुए। यह पूरा कार्यक्रम लीगल स्टडीज फैकल्टी की विभागाध्यक्ष श्रीमती गीतांजलि शर्मा के कुशल और दूरदर्शी मार्गदर्शन में आयोजित किया गया था।

संविधान दिवस का यह कार्यक्रम एक प्रेरणादायक और देशभक्तिपूर्ण माहौल में संपन्न हुआ। इसमें छात्रों और फैकल्टी सदस्यों ने एक ऐसे समाज के निर्माण के लिए काम करने का संकल्प दोहराया जो संवैधानिक रूप से जागरूक हो और लोकतंत्र तथा जिम्मेदार नागरिकता के सिद्धांतों का पालन करता हो। इस तरह यह सुनिश्चित किया गया कि मेवाड़ यूनिवर्सिटी, जो देश के लिए नैतिक, कानूनी और सामाजिक रूप से जागरूक नागरिकों को तैयार करने के लिए कानूनी शिक्षा देने के लिए जानी जाती है, अपनी इस भूमिका को निभाती रहेगी।



मेवाड़ यूनिवर्सिटी में एक्सपर्ट लेक्चर: विकलांगता की रोकथाम और पुनर्वास में फिजियोथेरेपी की भूमिका पर चर्चा

26 दिसंबर, 2025 को मेवाड़ यूनिवर्सिटी के फिजियोथेरेपी विभाग ने “विकलांगता की रोकथाम और पुनर्वास में फिजियोथेरेपी की भूमिका” विषय पर एक ऑनलाइन एक्सपर्ट लेक्चर आयोजित किया। इस कार्यक्रम का उद्देश्य छात्रों और प्रैक्टिस करने वाले हेल्थकेयर प्रोफेशनल्स की समझ को बढ़ाना था कि विकलांगता की रोकथाम, फंक्शनल रिकवरी और पूर्ण पुनर्वास में फिजिकल थेरेपी की भूमिकाएँ कैसे बढ़ रही हैं।

इस ज्ञानवर्धक सत्र के मुख्य वक्ता मदरहुड यूनिवर्सिटी के पैरामेडिकल साइंसेज के प्रिंसिपल डॉ. बिनोद राज बिष्ट (BPT, MPT-MSK, COMT) थे। इस क्षेत्र के एक जाने-माने एक्सपर्ट, जिनके पास व्यापक ज्ञान और लंबा अनुभव है, डॉ. बिष्ट ने फिजियोथेरेपिस्ट की कई भूमिकाओं पर एक स्पष्ट और विस्तृत सत्र लिया। उन्होंने बताया कि कैसे फिजियोथेरेपिस्ट विभिन्न विकलांगताओं को रोकने और व्यापक पुनर्वास रणनीतियों के माध्यम से मरीजों को बेहतर फंक्शनल परिणाम और जीवन की बेहतर गुणवत्ता प्राप्त करने में मदद कर सकते हैं।

अपने सत्र में, उन्होंने शारीरिक अक्षमताओं के दीर्घकालिक परिणामों को कम करने में समय पर हस्तक्षेप (पदजमतअमदजपवद) के महत्व पर विस्तार से चर्चा की। उन्होंने वैज्ञानिक रूप से आधारित फिजियोथेरेपी हस्तक्षेप के महत्वपूर्ण योगदान पर जोर दिया, जो शुरुआती निदान, दर्द प्रबंधन, गतिशीलता में सुधार, बेहतर फंक्शनल स्वतंत्रता प्राप्त करने और शारीरिक चोट व विकलांगता को रोकने में मदद कर सकता है। आधुनिक पुनर्वास में मरीज-केंद्रित दृष्टिकोण पर जोर देते हुए, डॉ. बिष्ट ने प्रत्येक मरीज की जरूरतों को पूरा करने के लिए साक्ष्य-आधारित (मअपकमदबम-इंमक) क्लिनिकल हस्तक्षेप अपनाने का सुझाव दिया।

इसके अलावा, डॉ. बिष्ट ने कम्युनिटी-बेस्ड रिहैबिलिटेशन (CBR) में फिजियोथेरेपी की भूमिका पर जोर दिया और टेली-फिजियोथेरेपी के बढ़ते उपयोग और ग्रामीण व दूरदराज के इलाकों में रहने वाले लोगों तक हेल्थकेयर सेवाएँ पहुंचाने में टेक्नोलॉजी की भूमिका के बारे में विस्तार से बताया।

छात्रों और काम कर रहे हेल्थकेयर प्रोफेशनल्स ने रिसोर्स पर्सन के साथ उत्साहपूर्वक बातचीत की और नए जमाने की पुनर्वास तकनीकों, विकलांगता प्रबंधन रणनीतियों, क्लिनिकल निर्णय लेने के कौशल और फिजियोथेरेपी व पुनर्वास से संबंधित अन्य समकालीन मुद्दों पर कई महत्वपूर्ण सवाल पूछे। प्रश्न-उत्तर सत्र ने प्रतिभागियों को व्यावहारिक क्लिनिकल जानकारी और विचारों के आदान-प्रदान का एक अनूठा अवसर प्रदान किया, जिससे उनकी सीखने की प्रक्रिया बेहतर हुई।

यह कार्यक्रम मेवाड़ यूनिवर्सिटी के माननीय वाइस चांसलर और डीन की देखरेख और निरंतर सहयोग से आयोजित किया गया था। उनके कार्यालय से मिलने वाला निरंतर प्रोत्साहन गुणवत्तापूर्ण शिक्षा प्रदान करने और फैकल्टी व छात्रों के निरंतर पेशेवर विकास को सुविधाजनक बनाने में सहायक है।

सभी प्रतिभागियों ने इस कार्यक्रम की बहुत सराहना की। जानकारीपूर्ण, इंटरैक्टिव और व्यावहारिक लेक्चर ने विकलांगता की रोकथाम और पुनर्वास में फिजियोथेरेपी की अहम भूमिका और मरीज-केंद्रित देखभाल पर इसके बढ़ते महत्व के बारे में जागरूकता बढ़ाई और समझ को गहरा किया। इस पहल ने समावेशी स्वास्थ्य सेवा, क्लिनिकल प्रैक्टिस में उत्कृष्टता और पेशेवर क्षमता को बढ़ाने के प्रति फिजियोथेरेपी विभाग की प्रतिबद्धता को और मजबूत किया।



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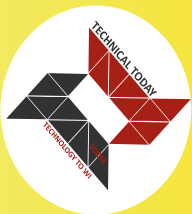
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TECHNOLOGY TO WISDOM

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January

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Holidays

Jan 1 New Year's Day
Jan 13 Lohri
Jan 14 Makar Sankranti
Jan 26 Republic Day
Feb 14 Basant Panchami
Mar 8 Maha Shivratri
Mar 25 Holi
Mar 29 Good Friday
Apr 13 Vaishakhi
Apr 17 Ram Navami
Apr 21 Mahavir Jayanti
May 23 Budha Jayanti
Jun 16 Ganga Dashahara
Jul 21 Guru Purnima
Aug 15 Independence Day
Aug 19 Raksha Bandhan
Aug 26 Janmashthami
Sep 5 Teacher's Day
Sep 7 Ganesh Chaturthi
Oct 2 Gandhi Jayanti
Oct 12 Dashahara
Oct 16 Sharad Purnima
Oct 20 Karwa Chauth
Nov 1 Diwali
Nov 3 Bhailya Dooj
Nov 14 Childrens Day
Nov 15 Kartik Purnima
Dec 25 Christmasday

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May

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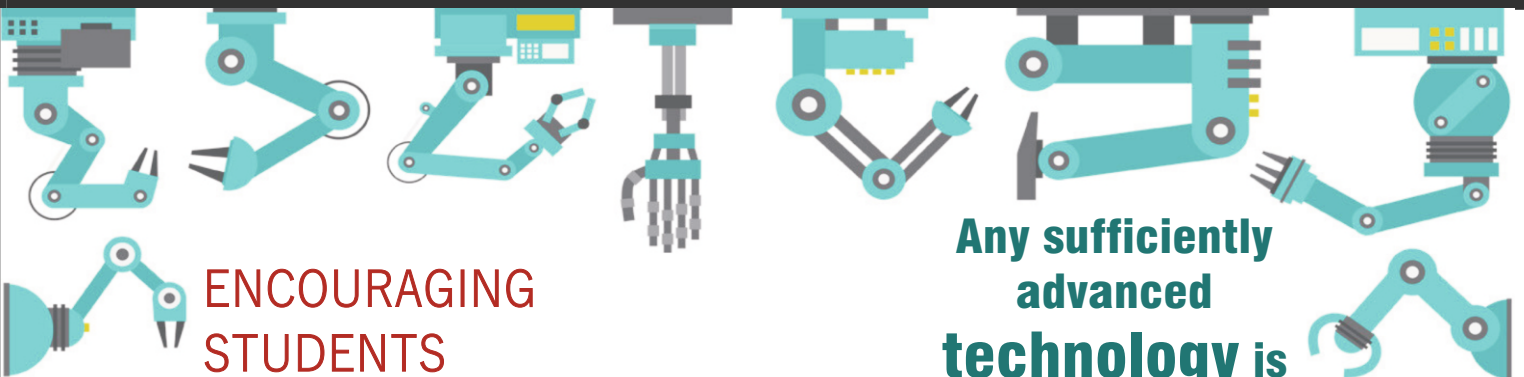


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Any sufficiently
advanced
technology is
equivalent to **magic.**

- Arthur C. Clarke

Let's join hands together....