

**Government of Andhra Pradesh Commissionerate of Collegiate Education**  
**Academic & Administrative Audit of Degree Colleges (2024-25)**  
**Format - III A (To be Filled by Faculty and handed over to Academic Advisor)**

Zone: II District: Krishna

Name of the College and Address: Govt. Degree College, Avanigadda - 521121

Name of the Lecturer: Dr. P. B. Sandhya Sri

Name of the Subject: Physics

Date of Joining in Degree College/Date: 05.07.2000 Date of Retirement: 31.07.2033

S.No	Key Indicator	List of files/ documents to be kept ready as a proof of Key Indicator	Information in support of the key indicator	Key Aspect Scores	Predetermined Weightage (Wi) for Key Indicator	Key Indicator Grade Points (KIGP) (A =3; B=2; C=1; D=0)	Key Indicator Wise Weighted Grade Points (KIWWGP) = KIGP X Wi	KIWWGP as per Academic Advisor's grading	Guidelines
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**I-CURRICULAR ASPECTS**

1	Curricular Planing and Implementation (for Autonomous Colleges - Efforts for Curriculum Desing and Development to be considered)	Preperation and Implementaion of 1. Annual Academic Curriculum Plan 2.Course Objectives & Outcomes	Course wise/Sem wise Records for the Academic Year	2x5= 10	30	A	90		1)All five key indicators =3 Grade points/A 2)Any four key indicators =2 Grade points/B 3)Any two key indicators =1 Grade points/C 4)No Indicator=0/D
		3. Teaching Diary 4. Lesson Plans	Course wise/Sem wise Records for the Academic Year	2x5= 10					
		5. Active Participation in BOS	Invitaion Letter & Attendance	10					
2	Curriculum Flexibility/Enrichment	1. Additional inputs related to Curriculum of the courses taught	a) Course wise/Sem wise additional inputs Reports	10	20	A	60		1)All three key indicators =3 Grade points/A 2)Any two key indicators =2 Grade points/B 3)Any one key indicator =1 Grade point/C 4)No Indicator=0/D
		2. Value added courses offered & completed a)	b) Report on Certificate/ Diploma c) Any Online courses like MOOCs	2x5=10					
		b) Diploma c) Any Online courses like MOOCs							
3	Feedback system	Feedback on Curriculum by Students a) Collected b) Analyzed c) Action taken	Course wise/Sem wise a) Reports of Feedback b) Analysis Reports c) Action taken Report	10	10	A	30		1)All three key indicators =3 Grade points/A 2)Any two key indicators =2 Grade points/B 3)Any one key indicator =1 Grade point/C 4)No Indicator=0/D

**II-TEACHING, LEARNING & EVALUATION**

4	Catering to Student Diversity	1. Report on grouping of students into Slow, Moderate and Advanced learners 2. Course wise activities designed for Slow, Moderate and Advanced learners	1. Course wise/Sem wise Reports with lists of students (Slow, Moderate and Advanced learners) 2. Course wise/Sem wise Activities designed for Slow, Moderate and Advanced learners	10	20	A	60		1)All three key indicators =3 Grade points/A 2)Any two key indicators =2 Grade points/B 3)Any one key indicator =1 Grade point/C 4)No Indicator=0/D
		1. Report on Course wise Bridge Courses conducted 2. Report on Course wise Remedial coaching conducted	1. Course wise/Sem wise Reports on Bridge Courses conducted 2. Course wise/Sem wise Report on Remedial coaching conducted	2x5=10					

5	Teaching-Learning Process	<ol style="list-style-type: none"> <li>1. Report on student centered methods implemented (Course wise)</li> <li>2. Report on implementation of ICT in teaching and learning (Course wise) or Report on implementation of Computer/Internet assisted learning (Course wise)</li> <li>3. Report on the Use of LMS tools (Course wise)</li> <li>4. Contribution for the development of LMS in the concerned subject</li> <li>5. Report on innovative pedagogical Tools used</li> </ol>	Course wise/ Sem wise Reports	50	50	A	150	<ol style="list-style-type: none"> <li>1) All five key indicators =3 Grade points/A</li> <li>2) Any three key indicators =2 Grade points/B</li> <li>3) Any two key indicator =1 Grade point/C</li> <li>4) Below two=0/D</li> </ol>	
6	Teacher Profile and Quality	<ol style="list-style-type: none"> <li>1. Report on Seminars/Conferences/Workshops/ Guest Lectures organized</li> <li>2. Report on Participation in Seminars/Conferences/Workshops/ Guest Lectures/ Invited talks</li> <li>3. Awards and recognition</li> <li>4. Participation in Short term/ Orientation /Refresher courses/FDPs</li> <li>5. E- Content Development /MOOCs (Massive Open Online Courses)</li> <li>6. Additional Qualifications acquired during the last two years</li> </ol>	Reports and Certificates	30	30	B	60	<ol style="list-style-type: none"> <li>1) Any five key indicators =3 Grade points/A</li> <li>2) Any three key indicators =2 Grade points/B</li> <li>3) Any two key indicator =1 Grade point/C</li> <li>4) Below two=0/D</li> </ol>	
7	Evaluation Process and Reforms	1. Report on Formative Evaluation (CIE)	Department wise reports regarding 1. Mid exams, Seminar Reports, Assignment books, Projects and any other tools of Internal Assessment 2. Departmental Internal Marks Register for CIA verified by the Principal	10	30	A	90	<ol style="list-style-type: none"> <li>1) All four key indicator Metrics =3 Grade points/A</li> <li>2) Metrics 1, 2, 4 =2 Grade points/B 3) Metrics 1, 2, 3 =1 Grade point/C</li> <li>4) Below two=0/D</li> </ol>	
		2. Assignments-Critical, Innovative, text book and Internet based		10					
		3. Involvement in Summative evaluation		5					
		4. Maintaining Marks Register & Result Analysis register.		5					
8	Student Performance and Learning Outcomes	<ol style="list-style-type: none"> <li>1. Announcement and Attainment of Course Outcomes</li> <li>2. Report on Student seminars/ Student demonstrations (Course wise)</li> <li>3. Report on activities like Quiz/ Group discussion/ Poster presentation (Course wise)</li> <li>4. Report on Field trips (Course wise)</li> <li>5. Report on Student Study projects (Course wise)</li> </ol>	Course wise Reports	5x6=30	30	A	150	<ol style="list-style-type: none"> <li>1) All five key indicators =3 Grade points/A</li> <li>2) First KI Metric and any three other =2 Grade points/B</li> <li>3) First KI Metric and any two other =1 Grade point/C</li> <li>4) Below two=0/D</li> </ol>	
<b>III-RESEARCH, INNOVATIONS AND EXTENSION</b>									
9	Funding obtained for Research (Govt./Non-Governmental Bodies)	1. Minor Research Projects	Letter of intimation and award letters (For Current Year only Either Ongoing OR Completed )	5	20	D	0	<ol style="list-style-type: none"> <li>1) All three key indicators =3 Grade points/A</li> <li>2) Any two key indicators =2 Grade points/B</li> <li>3) Any one key indicator =1 Grade point/C</li> <li>4) No Indicator=0/D</li> </ol>	
		2. Major Research Projects		10					
		3. Consultancy Projects		5					

10	Research Publications and Awards	1. Papers Published in Journals / Chapters published in edited volumes 2. Books published as single author 3. Books published as Co-Author 4. Papers/Chapters published as Co-Author (Note: A maximum of 3 publications in Scopus/Web of Science/ICI or UGC -CARE Listed journals/Any book with ISBN shall be considered) 5. Research Guideship 6. Awards in recognition of research work		10 15 10 5	60		A	180		1) Any three key indicators = 3 Grade points/A 2) Any two key indicators = 2 Grade points/B 3) Any one key indicator = 1 Grade point/C 4) No Indicator = 0/D
11	Extension Activities	Academic Extension activities through DRC/ Faculty Outreach (Curriculum/ Skill/Domain related)	Reports in the NAAC format	10			A	30		1) All three key indicators = 3 Grade points/A 2) Any two key indicators = 2 Grade points/B 3) Any one key indicator = 1 Grade point/C 4) No Indicator = 0/D
		Involvement in activities related to community service a. Sensitising the students about the value of Community Service b. Organising the activity (A maximum of 5 Programmes resulting in Community Service like ODF/Swachh Bharat/UBA etc)	Reports in the NAAC format	5+5	20		A	30		
12	Functional MoUs / Collaborations with Govt and Non Governmental Organisations	1. Collaboration with University/ Industry/NGO/ Any other Agency 2. Consultancy offered 3. Amount generated through Consultancy.	MoUs - 5 points Consultancy offered - 10 Amount generated through Consultancy - 5 points	20	20		C	20		1) All three key indicators = 3 Grade points/A 2) Any two key indicators = 2 Grade points/B 3) Any one key indicator = 1 Grade point/C 4) No Indicator = 0/D
<b>IV - USE OF INFRASTRUCTURE &amp; LEARNING RESOURCES</b>										
13	Physical facilities	Infrastructural facilities in the Department/Colleges a. Use of Digital Classrooms b. Use of Virtual Classroom c. Use of Labs d. Use of Library e. Nlist usage. f. Maintenance of Departmental Library	Log books related to usage	20	20		A	60		1) Any four key indicators = 3 Grade points/A 2) Any three key indicators = 2 Grade points/B 3) Any two key indicators = 1 Grade point/C 4) Below two Indicators = 0/D
<b>V- ROLE IN STUDENT SUPPORT AND PROGRESSION</b>										
14	Student Support	1. Counseling of students as Mentor/ Class teacher a. Student Profile Collection b. Semester wise updation and maintenance. 2. Any other Study Material /Guidance a) Academic guidance for the advanced learner (offering suggestions/reference books) b) Handholding the slow learners (offering study material/ question banks) 3. Guiding/Monitoring Students for CSP/Internship 4. Organizing/Participation in Parent Teacher Meetings	Reports in the NAAC format	20 10 10 10	50		A	150		1) All Four key indicators = 3 Grade points/A 2) Any Three key indicators = 2 Grade points/B 3) Any Two key indicator = 1 Grade point/C 4) Below two = 0/D
15	Student Progression	Report on Programme/Course wise students' progression to a) Higher Education b) Employment c) Entrepreneurship	Reports in the NAAC format	10 10 10	30		B	60		1) All three key indicators = 3 Grade points/A 2) Any two key indicators = 2 Grade points/B 3) Any one key indicator = 1 Grade point/C 4) No Indicator = 0/D

VI- ROLE IN INSTITUTIONAL GOVERNANCE								
16	Participation in Institutional Governance and Leadership	a) Contribution to Departmental Vision & Mission and Departmental Action Plan b) Participation in different institutional committees and preparation of committee reports c) Participation in different institutional activities that focus on value based education d) Contribution to IQAC/quality initiatives	Reports in the NAAC format	4x10	40	A	120	1)All Four key indicators =3 Grade points/A 2)Any Three key indicators =2 Grade points/B 3)Any Two key indicator =1 Grade point/C 4)Below two=0/D
VII - BEST PRACTICES								
17	Best Practices	Identification and Contribution to a)The Departmental Best practices b)Institutional Best practices	Reports in the NAAC format	20	20	A	60	1)All Two key indicators =3 Grade points/A 2)Any one key indicator =2 Grade points/B 3)No Indicator=0/D
<b>Total Grade points</b>					500		<b>1380</b>	

Name & Signature of the Principal

**PRINCIPAL**  
**GOVT. DEGREE COLLEGE**  
**AVANIGADDA, Krishna Dist.**

Name & Signatures of the Academic advisors

- 1)
- 2)
- 3)

# Optimizing Wind Power in the Global Renewable Energy System

Dr.P.V. Ramana<sup>1</sup>, Dr.B.Lakashmana Rao<sup>2</sup>, Ch.Ch.Srinivas<sup>2</sup>,Dr.P.B.Sandhya Sri<sup>3</sup>,  
Dr.Y.N.Ch.Ravi Babu<sup>3</sup> and Dr.Somarouthu V.G.V.A.Prasad <sup>4\*</sup>

<sup>1</sup> Department of Physics, Sri D.N.R. Government Degree College for Women, Palakollu - 534260, West Godavari District, A.P.,India.

<sup>2</sup> Department of Physics, Government College Autonomous, Rajahmohendravaram-533105, A.P.,India.

<sup>3</sup> Department of Physics, Government Degree College, Avanigadda- 521121, A.P.,India.

<sup>4\*</sup> Department of Physics and Electronics, Pithapur Rajah's Government College (A), Kakinada-533001, A.P.,India.

## Abstract

Wind power has emerged as a cornerstone of the global renewable energy landscape, offering a sustainable and environmentally friendly alternative to fossil fuels. This review examines the optimization strategies for wind power integration into the global energy system. It explores advancements in turbine technology, site selection, grid integration, and energy storage solutions, as well as the economic and policy frameworks supporting wind energy expansion. The article draws on contemporary research and case studies to highlight best practices and future directions for maximizing the potential of wind power.

**Keywords:** Wind Power, Renewable Energy, Turbine Technology, Grid Integration, Energy Storage, Site Selection, Policy Frameworks.

## 1. Introduction

The global transition towards renewable energy sources has accelerated in response to climate change concerns and the need for sustainable energy. Wind power, characterized by its low environmental impact and abundant availability, plays a pivotal role in this shift. However, optimizing wind power requires addressing technical, economic, and policy challenges. This review aims to provide a comprehensive overview of strategies to enhance wind power's contribution to the global energy mix.

## 2. Advancements in Wind Turbine Technology

Modern wind turbine technology has significantly improved in efficiency, reliability, and cost-effectiveness. Innovations such as larger rotor diameters, taller towers, and advanced materials have increased the energy capture and reduced the cost per megawatt-hour (MWh).

## The Role of Applied Mathematics in the Mechanics of Human Life

Gunnam Prasada Rao<sup>1</sup>, Dr.N.S.V. Kumar<sup>2</sup>, K.Chitti Babu<sup>3</sup>, Mutyala Venkateswara Rao<sup>4</sup>,  
Dr.Y.N.Ch.Ravi Babu<sup>5</sup> and Dr. Somarouthu V.G.V.A.Prasad<sup>6\*</sup>

<sup>1</sup>Department of Mathematics, Pithapur Rajah's Government College (A), Kakinada-533001, A.P.,India.

<sup>2</sup>Department of Mathematics, Government Degree College, Mandapeta-533308, A.P.,India.

<sup>3</sup>Department of Mathematics, Government Degree College, Mummidivaram-533216, A.P., India.

<sup>4</sup>Department of Mathematics, Government Degree College, Avanigadda- 521121, A.P., India.

<sup>5</sup>Department of Physics, Government Degree College, Avanigadda- 521121, A.P., India.

<sup>6\*</sup>Department of Physics and Electronics, Pithapuram Rajah's Government College(A), Kakinada-533001, A.P., India.

### Abstract

Applied mathematics plays a vital role in understanding and improving various aspects of human life by providing robust tools for modelling, analysing, and optimizing biological systems. This review explores the intersection of applied mathematics and the mechanics of human life, focusing on key areas such as biomechanics, cardiovascular mechanics, neuroscience, and pharmacokinetics/pharmacodynamics. In biomechanics, mathematical models aid in gait analysis and injury prevention. In cardiovascular mechanics, fluid dynamics and differential equations enhance our understanding of blood flow and heart valve functions. Neuroscience leverages mathematical models for neural activity simulation and the development of brain-computer interfaces. Pharmacokinetics and pharmacodynamics utilize mathematical modelling for drug dosage optimization and predictive modelling. The continuous advancement of mathematical methods promises significant improvements in diagnosing, treating, and preventing various health conditions, ultimately enhancing human health and quality of life.

**Keywords:** Biomechanics, Cardiovascular Mechanics, Neuroscience, Pharmacokinetics, Mathematical Modelling.

### Introduction

Applied mathematics is integral to numerous fields that directly impact human health and well-being, offering essential tools and methodologies to model, analyse, and optimize biological systems. By leveraging mathematical principles, researchers and practitioners can gain deeper insights into the mechanics of human life, leading to significant advancements in medical science and healthcare. This review delves into several critical areas where applied mathematics is indispensable, showcasing its pivotal role in biomechanics, cardiovascular mechanics, neuroscience, and pharmacokinetics/pharmacodynamics.

## Smart Classrooms in Education: A Global Perspective on Impact, Implementation, and Challenges

Dr.Somarouthu V G V A Prasad

Department of Physics and Electronics

Pithapur Rajah's Government College (A): Kakinada-533001, A.P, India

### Abstract:

Smart classrooms have emerged as transformative tools in education, revolutionizing teaching and learning experiences across the globe. This review article provides a comprehensive analysis of the effect of smart classrooms in schools and colleges on a global scale. By synthesizing empirical research, case studies, and policy documents from various countries, we examine the impact of smart classrooms on student engagement, academic performance, and educational outcomes. Furthermore, we explore the implementation strategies, technological innovations, and challenges associated with the adoption of smart classrooms in diverse educational contexts. Through this review, we aim to provide insights into the global landscape of smart classroom integration and inform future directions for research, policy, and practice in educational technology.

**Keywords:** Smart classrooms, education technology, global perspective, student engagement, academic performance, implementation strategies, challenges, educational outcomes.

### 1. Introduction

The integration of technology into education has become increasingly prevalent in recent years, with smart classrooms emerging as a prominent example of innovative educational practices. Smart classrooms, equipped with interactive whiteboards, digital content, and collaborative tools, offer opportunities for personalized learning, active engagement, and enhanced pedagogical practices. In this section, we provide an overview of smart classrooms in the global context, highlighting their potential to transform education and improve learning outcomes for students worldwide.

### 2. Impact of Smart Classrooms on Student Engagement and Academic Performance

Empirical studies conducted across different countries have explored the impact of smart classrooms on student engagement, academic performance, and educational outcomes. By employing various research methodologies, including surveys, interviews, and standardized assessments, researchers have sought to measure the effectiveness of smart classrooms in enhancing student learning experiences and achievement levels. In this section, we synthesize the findings of these studies and examine the factors influencing the impact of smart classrooms on student engagement and academic performance.

### 3. Implementation Strategies and Technological Innovations

Countries around the world have adopted diverse approaches to implementing smart classrooms in schools and colleges, reflecting differences in educational policies, infrastructure, and resources. In this section, we review the implementation strategies and technological innovations employed in various countries, including initiatives to provide access to digital content, training for educators, and support for technology integration.

# Chapter-24

## India's Glitches in Competence with USA & China in Patenting

Dr. P. B. Sandhya Sri<sup>1</sup>, G. Jeevana Monika<sup>2</sup>, R. Uday Kumar<sup>3</sup>

<sup>1</sup>Department of Physics, Govt. Degree College, Avanigadda – 521121, Krishna Dt. A.P., India

<sup>2</sup>Department of Physics, Govt. Degree College, Chintalapudi – 534460, Eluru Dt. A.P., India

<sup>3</sup>Department of Physics & Electronics, K.B.N. College, Vijayawada-520001, NTR Dt. A.P., India

### Abstract

Organizations and individuals worldwide, particularly those from the USA and China, are attempting to capitalize on the benefits of product patenting as the number of patents grows. A company can gain international advantages and investments with the use of a patent. International investors now understand that there is a good enough market for new items and plenty of room for patents. International innovators who apply for patents in many sectors contribute to the nation's economic development and job creation. This article presents the status of India in patents in comparison with USA & China and also discussed the reasons for its glitches.

### I. INTRODUCTION

Any intellectual property protection regime has two primary economic goals. The first is to grant exclusive rights to use and market newly created products, services, and technology in order to encourage investments in knowledge development and commercial innovation. If these rights weren't granted, competing rivals may steal the economically important information without paying for it, which would make organizations and people hesitant to spend money and time on research and commercialization. The second objective is to encourage or mandate that owners of intellectual property put their creations on the market in order to facilitate the broad distribution of new information. The establishment of a knowledge economy, as well as the promotion of scientific research, technological innovation, and start-up ecosystems, depend on the intellectual property regime.

#### Current Status of India in Patenting

India has seen a steady rise in the number of patent applications and approvals. The quantity of the number of Indian patent applications increased from 39,400 in 2010–11 to 45,444 in 2016–17 to 66,440 in between 2021 and 2022, the number of patents granted in India increased from 7,509 to 9,847 to 30,074 (Table 1). Additionally, the quantity of patent applications is rising. From Indian citizens as opposed to MNCs. Over the past ten years, the percentage of applications from Indian residents has more than doubled. From 20 percent in 2010–11 to about 30 percent in 2016–17 and 44 percent in 2021–22, the percentage of residents in patent applications rose.

**Table 1: Patent applications in India**

Year	No of Patent Applications		Total	% of Increase
	Indian	Non - Indian		
2016-17	13174	32270	45444	-----
2017-18	15377	32477	47854	5.04
2018-19	16968	33691	50659	5.53
2019-20	20838	35429	56267	9.96
2020-21	24279	34224	58503	3.82
2021-22	29514	36926	66440	11.94

In the most recent quarter of 2021–2022, the number of domestic patent filings at the Indian Patent Office exceeded the number of patents submitted by non-Indians for the first time in the previous 11 years. It is crucial to remember that the process reforms implemented over the previous five years are primarily to blame for the advancements shown in recent years. As a result, India moved up 35 spots in the Global Innovation Index, from 81<sup>st</sup> in 2015–16 to 46<sup>th</sup> in 2021.

#### Current Status of India in Patenting at Global Level

**Table 2: Patent applications and grants in India, China and US**

Year	China			USA			INDIA		
	Filed	Granted	% of grant	Filed	Granted	% of grant	Filed	Granted	% of grant
2016-17	13,38,503	4,04,208	30.2	6,05,571	3,03,049	50.04	45,444	9,847	21.7
2017-18	13,81,594	4,20,144	30.4	6,06,956	3,19,829	52.69	47,854	13,045	27.3
2018-19	15,42,002	4,32,147	28.0	5,97,141	3,07,759	51.54	50,659	15,283	30.2

## Volumetric Studies in the Binary Mixtures of O – Chlorophenol with Amides at different Temperatures

D.V.M.Krishna Reddy<sup>1</sup> P.B.Sandhya Sri<sup>2</sup>, S.V.G.V.A.Prasad<sup>3</sup> K.A.K.Raj Kumar<sup>4</sup> L.Vykuntha Rao<sup>5\*</sup>

<sup>1</sup>Department of Physics, Government Degree College, Avanigadda – 521121, Andhra Pradesh, India.

<sup>2</sup>Department of Physics and Electronics, Pithapuram Rajah's Government College (A), Kaklnada – 533001, Andhra Pradesh, India.

<sup>4</sup>Dr. L.B.College, Vishakhapatnam-530013, Andhra Pradesh, India

<sup>5\*</sup> Department of Chemistry, Gitam University

### Abstract

Excess thermodynamic parameters like excess molar volume ( $V^E$ ), excess intermolecular free length ( $L_f^E$ ), deviation in adiabatic compressibility ( $\Delta\beta_{ad}$ ) and deviation in viscosity were computed to understand molecular interactions in the binary mixtures of O – chlorophenol with Formamide, N,N – Di Methyl Formamide- (DMF), N, N – Di Methyl Acetamide at different temperatures by using the experimental values of ultrasonic velocity ( $U$ ), density ( $\rho$ ) and viscosity ( $\eta$ ) at entire mole fraction range. The excess Values are fitted. The values of  $V^E$ ,  $\Delta\beta_{ad}$  and  $L_f^E$  have been fitted to Redlich – Kister polynomial equation to estimate binary coefficients and standard deviation ( $\sigma$ ) between the experimental and computed values.

**Key Words:** Ultrasonic velocity, density and viscosity, molar volume, adiabatic compressibility, inter molecular free length.

### 1.Introduction

In the research of chemistry, Binary liquid intermixture often seen. Non ideal and peculiar behaviour can be observed in these mixtures. In past few decades a significant number of contributions were made in interpreting the non ideality behaviour<sup>1-5</sup>. The use of extra properties derived from experimental data on thermodynamic parameters is a great way to learn more about how homo- and hetero-molecules interact with each other.

The volumetric studies on binary mixture solutions studies provide important information about the molecular interactions. The experimentally measured values of ultrasonic velocity, density and viscosity of binary liquid mixture solutions have been utilized to evaluate their excess properties to understand the nature of molecular interactions.

To learn more about the physical, structural, and packing phenomena<sup>6</sup> that control mixing, one can use the analytical examination of excess properties of thermodynamic

## The Role of Educational Philosophy in Shaping Ethics and Values in Higher Education Institutions

B. Lakshanna Rao<sup>1</sup>, Ch. Chiranjeevi Srinivas<sup>1</sup>, P. B. Sandhya Sri<sup>2</sup>, Y. N. Ch. Ravi Babu<sup>2</sup>, Somarouthu V G V A Prasad<sup>3\*</sup>

<sup>1</sup>Department of Physics, Government College (A), Rajahmundry, Andhra Pradesh, India

<sup>2</sup>Department of Physics, Government Degree College, Avanigadda, Andhra Pradesh, India

<sup>3</sup>Department of Physics and Electronics, Pithapuram Rajah's Government College(A), Kakinada- 533001, A.P., India.

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### ABSTRACT

In modern higher education institutions (HEIs), ethics and values play a fundamental role in shaping both the academic and social environment. Educational philosophy, which serves as the foundation of institutional goals, curriculum design, and teaching methodologies, is pivotal in integrating these ethics and values into the learning experience. This article explores the influence of educational philosophy on ethics and values in HEIs, examining how philosophical frameworks, such as pragmatism, constructivism, and perennialism, shape policies, governance, student behavior, and the overall ethical climate of academic institutions. By reviewing theoretical perspectives, practical applications, and case studies, the article aims to provide insights into how educational philosophy serves as a guiding force in cultivating ethical leadership and responsible citizenship among students.

**Keywords:** Educational philosophy, ethics, values, higher education institutions, curriculum design, ethical leadership, moral education, student behavior.

### 1. INTRODUCTION

Educational institutions play a central role in fostering moral and ethical development. In higher education, where students are prepared for leadership roles in society, the importance of teaching ethics and values cannot be understated. This review focuses on how educational philosophy—an organized body of thought concerning the aims, content, and methods of education—affects the integration and development of ethics and values in higher education. The overarching question this review seeks to answer is: **How does educational philosophy shape ethics and values in HEIs?**

### 2. Theoretical Foundations of Educational Philosophy

#### 2.1 Pragmatism and Ethical Education

Pragmatism emphasizes action, experience, and practicality in education. Founded by John Dewey, pragmatism encourages education that is democratic and centered on real-world problem-solving. The ethical implications of this philosophy emphasize responsibility, social justice, and participatory decision-making.

Pragmatism's application in ethics leads to an education that encourages students to engage in critical thinking and problem-solving concerning moral dilemmas, fostering ethical leadership. Dewey's belief in democracy and moral action highlights how ethical behavior is nurtured through practical engagement with societal issues.

#### 2.2 Constructivism and Moral Development

Constructivism posits that learners construct knowledge through their experiences and interactions. Philosophers like Piaget and Vygotsky emphasized the role of social interaction and reflection in moral and cognitive development. In higher education, constructivism fosters an environment where students engage in ethical debates and collaborative projects that promote social responsibility.

The constructivist model encourages educators to design curricula that allow students to question, reflect, and build their ethical frameworks, thereby promoting autonomy in moral decision-making.



Intellectual  
Property  
Office

## Certificate of Registration for a UK Design

Design number: 6381065

Grant date: 05 August 2024

Registration date: 28 July 2024

### This is to certify that,

in pursuance of and subject to the provision of Registered Designs Act 1949, the design of which a representation or specimen is attached, had been registered as of the date of registration shown above in the name of

Gollapudi Pavan, Dr.Somarouthu Venkata Govardhana Veera Anjaneya Prasad,

Seetha Ramanjaneyulu Korada, Dr.Manasi Vyankatesh Ghamande,

Dr.Irissappane Dhanusu Soubache, Dr.Suresh Babu Balakrishnan, Dr.Ram

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Savio Herminio da Piedade Fernandes

in respect of the application of such design to:

**SOLAR AND WIND ENERGY BASED VEHICLE CHARGING STATION**

International Design Classification:

Version: 14-2023

Class: 13 EQUIPMENT FOR PRODUCTION, DISTRIBUTION OR  
TRANSFORMATION OF ELECTRICITY

Subclass: 02 POWER TRANSFORMERS, RECTIFIERS, BATTERIES AND  
ACCUMULATORS



*Adam Williams*

**Adam Williams**

Comptroller-General of Patents, Designs and Trade Marks  
Intellectual Property Office

The attention of the Proprietor(s) is drawn to the important notes overleaf.

Intellectual Property Office is an operating name of the Patent Office

[www.gov.uk/ipa](http://www.gov.uk/ipa)





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## Certificate of Registration for a UK Design

Design number: 6380403

Grant date: 31 July 2024

Registration date: 24 July 2024

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International Design Classification:

Version: 14-2023

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## Acoustic Studies in the Binary Mixtures of Dimethyl Carbonate with Salicylates at Different Temperatures

G.Jyothirmal<sup>1</sup>, P.B.Sandhya Sri<sup>2</sup>, S.V.G.V.A.Prasad<sup>3</sup>, Ch.Anjaneyulu<sup>4\*</sup>

<sup>1,2</sup>Department of Physics, Govt. Degree College, Avanigadda - 521121, Andhra Pradesh, India

<sup>3</sup>Department of Physics and Electronics, Pithapur Rajah's Government College (A), Kakinada-533001, A.P., India

<sup>4\*</sup>Department of Physics, Bapatla Engineering College, Bapatla - 522101, Andhra Pradesh, India

### Abstract

For the binary mixtures of Di Methyl Carbonate (DMC)+Methyl Salicylate (MS), + Ethyl Salicylate (ES) and +Benzyl Salicylate (BS), ultrasonic velocity( $U$ ), density( $\rho$ ) and viscosity ( $\eta$ ) were measured over the entire composition range at four different temperatures 303.15, 308.15, 313.15 and 318.15K. From the experimental data, excess values of molar volume and inter molecular free length and deviation in adiabatic compressibility and viscosity were computed. The values of  $V^E$ ,  $\Delta\beta_{ad}$  and  $L_f^E$  have been fitted to Redlich – Kister polynomial equation to estimate binary coefficients and standard deviation between the experimental and computed values.

**Keywords:** Di methyl carbonate, densities, speed of sound, viscosity, adiabatic compressibilities, molar volumes, inter molecular free lengths.

### 1.Introduction

The molecular interactions and physico-chemical behavior of mixes of binary liquids are best understood through an appreciation of their acoustic properties. The study of molecular structure requires knowledge of how molecules interact in solutions. The form and internal structure of molecules can be altered by their interactions with one another. A variety of size-dependent connections, molecule packing, mobility, physicochemical behavior, and the types and intensities of intermolecular interactions can be gleaned from measurements of acoustical parameters<sup>1-5</sup>.

Ubangara Mary and P. Neeraja<sup>6</sup> examined and studied the ultrasonic speed ( $U$ ), density ( $\rho$ ), and viscosity ( $\eta$ ) of binary liquid solutions of isobutyl methyl ketone, cyclohexanone, and methyl salicylate.

## The Role of Educational Philosophy in Shaping Ethics and Values in Higher Education Institutions

B. Lakshmana Rao<sup>1</sup>, Ch. Chiranjeevi Srinivas<sup>1</sup>, P. B. Sandhya Sri<sup>2</sup>, Y. N. Ch. Ravi Babu<sup>2</sup>, Somarouthu V G V A Prasad<sup>3\*</sup>

<sup>1</sup>Department of Physics, Government College (A), Rajahmundry, Andhra Pradesh, India

<sup>2</sup>Department of Physics, Government Degree College, Avanigadda, Andhra Pradesh, India

<sup>3</sup>Department of Physics and Electronics, Pithapuram Rajah's Government College(A), Kakinada- 533001, A.P., India.

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### ABSTRACT

In modern higher education institutions (HEIs), ethics and values play a fundamental role in shaping both the academic and social environment. Educational philosophy, which serves as the foundation of institutional goals, curriculum design, and teaching methodologies, is pivotal in integrating these ethics and values into the learning experience. This article explores the influence of educational philosophy on ethics and values in HEIs, examining how philosophical frameworks, such as pragmatism, constructivism, and perennialism, shape policies, governance, student behavior, and the overall ethical climate of academic institutions. By reviewing theoretical perspectives, practical applications, and case studies, the article aims to provide insights into how educational philosophy serves as a guiding force in cultivating ethical leadership and responsible citizenship among students.

**Keywords:** Educational philosophy, ethics, values, higher education institutions, curriculum design, ethical leadership, moral education, student behavior.

### 1. INTRODUCTION

Educational institutions play a central role in fostering moral and ethical development. In higher education, where students are prepared for leadership roles in society, the importance of teaching ethics and values cannot be understated. This review focuses on how educational philosophy—an organized body of thought concerning the aims, content, and methods of education—affects the integration and development of ethics and values in higher education. The overarching question this review seeks to answer is: **How does educational philosophy shape ethics and values in HEIs?**

### 2. Theoretical Foundations of Educational Philosophy

#### 2.1 Pragmatism and Ethical Education

Pragmatism emphasizes action, experience, and practicality in education. Founded by John Dewey, pragmatism encourages education that is democratic and centered on real-world problem-solving. The ethical implications of this philosophy emphasize responsibility, social justice, and participatory decision-making.

Pragmatism's application in ethics leads to an education that encourages students to engage in critical thinking and problem-solving concerning moral dilemmas, fostering ethical leadership. Dewey's belief in democracy and moral action highlights how ethical behavior is nurtured through practical engagement with societal issues.

#### 2.2 Constructivism and Moral Development

Constructivism posits that learners construct knowledge through their experiences and interactions. Philosophers like Piaget and Vygotsky emphasized the role of social interaction and reflection in moral and cognitive development. In higher education, constructivism fosters an environment where students engage in ethical debates and collaborative projects that promote social responsibility.

The constructivist model encourages educators to design curricula that allow students to question, reflect, and build their ethical frameworks, thereby promoting autonomy in moral decision-making.