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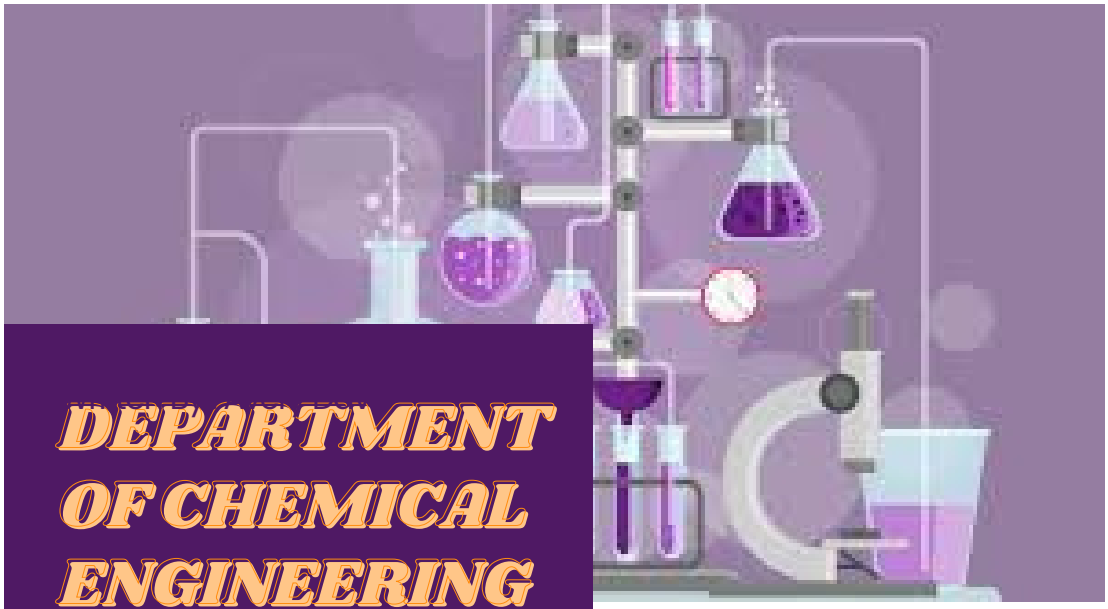
V.S.B ENGINEERING COLLEGE (AUTONOMOUS)



DEPARTMENT OF CHEMICAL ENGINEERING

The Department of Chemical Engineering was started in the academic year 2018-19 with an aim of promoting high quality education in the field of Chemical Engineering. The department has well equipped laboratory facilities and highly qualified faculty members having rich experience in teaching and industrial background. The department is aiming to transform itself into a center of excellence both in academic and research. The department provides a right kind of environment for the students to groom themselves for innovative and challenging near future

The Chemical Engineering program prepares graduates with strong leadership qualities. These leadership qualities and the high technical standards of our program generate strong interest in the industries and employers across the region. To enhance the technical knowledge gained, department is arranging value added courses training related to Chemical Engineering for every student

- **DEPARTMENT VISION AND MISSION**

To be a centre of excellence for development and dissemination of knowledge in Chemical Engineering for the Nation and beyond. Department of Chemical Engineering is committed to: Impart knowledge to students at all levels through a vibrant, dynamic and state of the art intellectual delivery to ensure the creation of a complete Chemical Engineer with a high sense of social responsibility and professional ethics. Synergize the efforts of the students and faculty to evolve innovative engineering practices and teaching methodologies Generate an environment of continuous learning and research.

CHAIRMAN'S MESSAGE

Mr. V.S.Balsamy, B.Sc., L.L.B., a leading luminary, has 31 years of bright standing in the field of law. He is the recipient of "Indira Gandhi Sadhbavana Award" from Global Economic Council, New Delhi. He was also honored with "The Best Humanitarian Award" in 2005. VSB Educational Trust was founded by him as the Founder-Trustee in the year 2000. He started V.S.B. Engineering College in Karur in the year 2002 and V.S.B. College of Engineering Technical Campus in Coimbatore in the year of 2012. He, the Correspondent of VSB Group of Institutions, lays emphasis on "Hardwork". As he strongly believes that "HARD WORK IS THE KEY TO SUCCESS", it is conceived as the motto of the Institutions

PROGRAM EDUCATIONAL OUTCOMES(PEO)

Graduate of Chemical Engineering program will: Exhibit professional competency in design and development of chemical products, Processes and equipment in chemical and allied industries. 2.Perform research and development work by utilizing the experimental skills. Mathematical tools and applied software and simulation practices. 3.Demonstrate interpersonal skills and leadership qualities and contribute to solution of multidisciplinary problems 4.Contribute to national and global economic growth through continuous education and by following socially responsible practice

HOD'S MESSAGE

On behalf of our faculty, staff, and students, I extend a warm welcome to the Department of Chemical Engineering at V.S.B. Engineering College, Karur. Chemical engineering is concerned with the economic design and operation of chemical industries. The discipline is broadening and new science and engineering encourages to develop more efficient, environmentally technologies. Chemical safer and sustainable engineers combine mathematics, chemistry, physics, biology, and economics to tackle large-scale industrial problems by developing theories, advanced simulations, and experiments. In terms of products and processes, chemical engineers have played a major role in society over the years. In the future, many new opportunities for chemical engineers will be opened up. Chemical industries now cover a wide range of applications

PATENTS

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :10/06/2024

(21) Application No.202441044599 A
(43) Publication Date : 21/06/2024

(54) Title of the invention : PRODUCTION OF BIO PLASTIC FROM ARROW ROOT

(51) International classification :C08L0003020000, C08K0003260000, C08L0067040000, C08L0097020000, H04L0067109500
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
Plastics are commonly used and useful almost in every industry today, including containers, packing, computers, mobile phones and the medical and automotive companies. Since their composition can be chemically processed with some force and structure to achieve low reactivity, long-lasting substance, and higher molecular weight, plastic is available choice. They are both long-lasting and cheap. However, the decreasing availability of petroleum, including the contamination caused by petroleum-based plastic non biodegradability, has sparked growing curiosity in the sector of bioplastics.This report aims to prepare a bio plastic film from different starch and comparing which bio plastic film performs better. The report also discusses about plastic, the history of plastic and also the demerits types of bio-plastic, advantage of bio plastic over plastic, the market share of bio plastic, and also their application. Keywords: Plastic, Bio plastic, Starch

No. of Pages : 13 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/05/2024

(21) Application No.202441040761 A
(43) Publication Date : 31/05/2024

(54) Title of the invention : DETERMINATION OF ACTIVATED CARBON USING TERMINILIA CATAPPA

(51) International classification :C02F0101300000, C02F0001280000, A61K0036185000, A61K0008978900, B01J0020200000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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7)R. Gowrishankar
Name of Applicant : NA
Address of Applicant : NA
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Address of Applicant :V.S.B. Engineering College, Karur ---------- ----------

(57) Abstract :
Activated carbon prepared from Terminalia Catappa Seed and seed coat has been utilized as the adsorbent for the removal of Methylene Blue Dye and indigo carmine from an aqueous solution. Terminalia Catappaseed and seed coat was used to prepare activated carbon by pyrolysis using HNO3activation. 100g of dried Terminalia catappa seed and seedcoat were taken to prepare activated carbon. Terminalia catappa treated at a temperature of 400 degree Celsius for 3 hours. After removing the moisture content, 100g Terminalia catappa was coverted into 72g. The activated carbon was tested for dye removal of methylene blue and indigo carmine and the results were recorded. The FTIR and Sem analysis were used to characterize the activated carbon. Terminalia catappa based activated carbon could be employed as a low cost alternative to commercial activated carbon in the removal of methylene blue and indigo carmine dye from wastewater. Based on the SEM analysis pore size distribution of TC activated carbon is 5-30µm, porosity is 70% and specific surface area is 1000m3 /g. Result of FTIR defines the range of peak from 3413-1400 cm-1(O-H to C-H stretch). Keywords;-Chemical Activation, Adsorbent, Dye Removal, Methyleneblue, Indigo carmine.

No. of Pages : 7 No. of Claims : 5

WORKSHOP


V.S.B. ENGINEERING COLLEGE, KARUR
(AN AUTONOMOUS INSTITUTION)
Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai
NBA Accredited Courses, Accredited by NAAC
Anna University Recognized Research Institute
23 YEARS OF EXCELLENCE
VSB EDUCATIONAL TRUST
INSTITUTION'S INNOVATION COUNCIL
(Ministry of Education Initiative)
DEPARTMENT OF CHEMICAL ENGINEERING
Organizes
Webinar
on
FUNDAMENTALS OF PROCESS ENGINEERING: KEY PRINCIPLES AND CALCULATIONS
RESOURCE PERSON
HARISH VAITHIYANATHAN
(ALUMNI 2024 BATCH)
GRADUATE ENGINEER TRAINEE
CHEMPLAST SANMAR LIMITED
Date : 21.09.2024
Time : 02.00 pm
Venue :
Seminar Hall
SHRI. V.S.BALSAMY
CHAIRMAN
SHRI. B. SATHEESH KUMAR
VICE CHAIRMAN
SHRI. B. VIJAY
SECRETARY
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STUDENTS' COCURRICULAR ACTIVITIES

PARTICIPATIONS IN WORKSHOPS IN VARIOUS INSTITUTIONS

S.NO	Date	Event	Name of the Student(s)	Organized by	Awards/Prizes
1.	17/10/24 & 18/10/24	Technical Quiz	Karthikeyan.V	Adhiyamaan College Of Engineering,Hosur	III
2.	17/10/24 & 18/10/24	Simuling Solving	Karthikeyan.V	Adhiyamaan College Of Engineering,Hosur	-
3.	17/10/24 & 18/10/24	Paper Presentation	Karthikeyan.V	Adhiyamaan College Of Engineering,Hosur	III
5.	17/10/24 & 18/10/24	Simuling Solving	Jaivant.S.B	Adhiyamaan College Of Engineering,Hosur	-
6.	17/10/24 & 18/10/24	Paper Presentation	Jaivant.S.B	Adhiyamaan College Of Engineering,Hosur	III
7.	17/10/24 & 18/10/24	Simuling Solving	Rukesh.M	Adhiyamaan College Of Engineering,Hosur	-
8.	17/10/24 & 18/10/24	Simuling Solving	A.Raghunath	Adhiyamaan College Of Engineering,Hosur	-
9.	17/10/24 & 18/10/24	Paper Presentation	A.Raghunath	Adhiyamaan College Of Engineering,Hosur	III
10.	17/10/24 & 18/10/24	Technical Quiz	A.Raghunath	Adhiyamaan College Of Engineering,Hosur	-
11.	17/10/24 & 18/10/24	Technical Quiz	K.Rahul	Adhiyamaan College Of Engineering,Hosur	-
12.	17/10/24 & 18/10/24	Paper Presentation	K.Rahul	Adhiyamaan College Of Engineering,Hosur	III
13.	17/10/24 & 18/10/24	Simuling Solving	K.Rahul	Adhiyamaan College Of Engineering,Hosur	-
14.	17/10/24 & 18/10/24	Mind Matrix	Ashok Kumar.K	Adhiyamaan College Of Engineering,Hosur	-

15.	17/10/24 & 18/10/24	Mind Matrix	K.Anto Frickson	Adhiyamaan College Of Engineering,Hosur	-
16.	17/10/24 & 18/10/24	Paper Presentation	K.Anto Frickson	Adhiyamaan College Of Engineering,Hosur	-
17.	17/10/24 & 18/10/24	Paper Presentation	K.Ashok kumar	Adhiyamaan College Of Engineering,Hosur	-
18.	17/10/24 & 18/10/24	Mind Matrix	Sivasakthivel.S	Adhiyamaan College Of Engineering,Hosur	-
19.	17/10/24 & 18/10/24	Mind Matrix	M.Harish	Adhiyamaan College Of Engineering,Hosur	-
20.	17/10/24 & 18/10/24	Mind Matrix	M.R.Ruban	Adhiyamaan College Of Engineering,Hosur	-
21.	17/10/24 & 18/10/24	Paper Presentation	Sivasakthivel.S	Adhiyamaan College Of Engineering,Hosur	-
22.	17/10/24 & 18/10/24	Paper Presentation	M.Harish	Adhiyamaan College Of Engineering,Hosur	-
23.	17/10/24 & 18/10/24	Paper Presentation	M.R.Ruban	Adhiyamaan College Of Engineering,Hosur	-

INDUSTRIAL VISIT

CHETTINAD CEMENT CORPORATION PVT LIMITED

1.Students of 3rd year gone through an internship to Chettinad cement corporation pvt. limited located in karikkali.
2. They learned about the production of cement and various types of cements in the detailed way.

SPORTS ACHIEVEMENTS

Our department 3 rd year student Harikrishna have participated in the zone level championship of hockey organised by ANNA UNIVERSITY held at SETHU INSTITUTE of technology,KARRIYAPATTI and won the match.

ANNUAL DAY AND SPORTS DAY

Dr. V. Irai Anbu IAS was invited as a chief guest for the annual day and sports day event on 23 rd march 2024. Chief guests speech inspired many of the students.

CULTURAL FEST 2K24

VAAGAI 2K24

Rio Raj(actor) was as invited chief guest for the grand cultural fest, ”VAAGAI 2K24" on 23 march 2024.

ACADEMIC RESULTS

V.S.B. ENGINEERING COLLEGE, KARUR

Department of Chemical Engineering

Academic Year 2023-2024 (ODD Semester)

Overall Result Analysis for NOV- DEC 2023 End Semester Examinations BEFORE REVALUATION

DEPARTMENT RESULT

Class/ Semester	Total No. of Students	Total No. of Students Appeared	Total No. of Students Passed	Total No. of Students Failed	Overall Pass Percentage (%)
I / I 2022-2026 Batch	22	22	12	10	54.55%
II / III 2021-2025 Batch	20	20	15	5	75.00%
III / V 2020-2024 Batch	38	38	30	8	78.95%
IV / VII 2019-2023 Batch	58	57	50	8	87.72%
TOTAL	**138**	**137**	**107**	**31**	**78.10%**

DEPARTMENT RESULT-AFTER REVALUATION

Class/ Semester	Total No. of Students	Total No. of Students Appeared	Total No. of Students Passed	Total No. of Students Failed	Overall Pass Percentage (%)
I / I 2022-2026 Batch	22	22	12	10	54.55%
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IV / VII 2019-2023 Batch	58	57	50	8	87.72%
TOTAL	**138**	**137**	**107**	**31**	**78.10%**

TOPPER’S LIST

HARISH V
CGPA - 9.07
BATCH : 2020-2024

SRIDEVI P
CGPA - 9.086
BATCH : 2021-2025

SARANI R P
CGPA - 9.27
BATCH : 2022-2026

ANTO FRICKSON X
CGPA - 8.6
BATCH : 2023-2027

2024 placed students details

S.No.	Name of the Student	Photo	Company Name	Monthly salary (Rs.)	CGPA	School of Study
1	K.Kavinkumar		Accenture	37500	8.994	Star Matriculation Higher Secondary School, Karur
			Digital EPCS	34000-37500		
2	K.Sabitha		Accenture	37500	8.404	St.Theresas Girls Higher Secondary School, Gandhigramam, Karur.
			Quest Global	27000		
3	R.Narmatha		Accenture	37500	8.602	Brindhavan Matriculation Higher Secondary School, Kodaikanal
			Capgemini	37500		
4	V.Harish		Sanmar	28000	9.099	Mount Giris Matriculation Higher Secondary School, Ayyarmalai, Karur
			Quest Global	27000		
5	P.Nandhakumar		Sanmar	28000	8.515	Rasammal Matriculation Higher Secondary School, Vettamangalam
			Quest Global	27000		
6	M.Vimalda Mariya Esther		Accenture	37500	8.661	Tagore Matriculation Higher Secondary School, Deviyakurichi
7	A.N.Sivaganesh		Accenture	37500	8.181	Alagappa Matriculation Higher Secondary School, Karaikudi

8	T.Ragul		Accenture	37500	8.345	St. Gabriel Matriculation Higher Secondary School, Kulithalai
9	S. Yogesh		Capgemini	37500	8.345	Sowdambiga Matriculation Higher Secondary School, Thottiyam
10	P. Vinoth Kumar		Capgemini	37500	8.544	Sri Vani Matriculation Higher Secondary School, Rasipuram
11	M. Gnana Sekar		Capgemini	37500	8.316	Thenmalar Higher Secondary School, Dharapuram
12	S. Varsha		Capgemini	37500	8.287	Government Girls Higher Secondary School, Vangal
13	S. Vignesh		Capgemini	37500	8.393	TNPL Matriculation Higher Secondary School, Karur
14	D. Venkatraj		Capgemini	37500	8.731	Kandhaswamy Kander Boys Higher Secondary School, Paramathi velur

15	D. Deepak		Capgemini	37500	7.976	Aruthraa Matriculation Higher Secondary School, Perambalur
16	B. Meenal		Capgemini	37500	8.357	Sankar Ponnar Higher Secondar School, Palani
17	V. Dayana		Capgemini	37500	8.023	Cheran Matriculation Higher Secondary School, Vennamalai
18	P. S. Mohamed Darvesh		Capgemini	37500	7.743	Government Higher Secondary School, Pallapatty
19	R.Nandhakumar		Digital EPCS (4 - 4.5L)	34000-37500	8.561	PKP Swamy Matriculation Higher Secondary School, Kalyanipuram
20	A.Saranya		Quest Global	27000	7.889	St.Theresas girls higher secondary school, Gandhigramam, karur.

STUDENT'S ARTICLES

RECENT DEVELOPMENTS IN CHEMICAL ENGINEERING:

The field of chemical engineering is experiencing rapid evolution, driven by innovative technologies and methodologies that are reshaping industries worldwide. For students aspiring to enter this dynamic field, understanding these recent advancements is crucial for both academic excellence and future career prospects. Here are some key innovations that are currently influencing chemical engineering:

1. Nanotechnology Advancements:

Nanotechnology continues to revolutionize chemical engineering by offering precise control over materials at the molecular scale. Applications range from improved drug delivery systems to more efficient catalytic processes and advanced materials with unique properties.

2. Bioprocessing and Biotechnology:

Advances in bioprocessing and biotechnology are enabling the production of renewable fuels, biodegradable plastics, and personalized medicines. Techniques like genetic engineering are enhancing the efficiency and sustainability of biochemical processes.

3. Artificial Intelligence and Machine Learning:

AI and machine learning are being integrated into chemical engineering to optimize processes, predict material properties, and accelerate drug discovery. Students are learning to leverage these technologies for process control and decision-making.

4. Advanced Materials Development:

The development of advanced materials such as graphene and carbon nanotubes is transforming industries like electronics, aerospace, and healthcare. Chemical engineering students are exploring these materials for their unique properties and applications.

SRIDEVI P
IV CHEMICAL

DIGITALIZATION AND AI IN CHEMICAL ENIGINEERING

In recent years, the field of chemical engineering has experienced a transformative shift due to advancements in digitalization and artificial intelligence (AI). These technologies have not only revolutionized traditional practices but have also opened up exciting new opportunities for innovation and sustainability.

Digitalization has streamlined various processes within chemical engineering by integrating digital tools into research, development, and manufacturing phases. Through advanced data analytics and real-time monitoring, engineers can optimize production efficiency, reduce costs, and minimize environmental impact. This capability not only enhances operational efficiency but also promotes sustainability by maximizing resource utilization.

AI, on the other hand, has emerged as a powerful tool for predictive modeling and decision-making in chemical engineering. Machine learning algorithms analyze large datasets to identify patterns, predict outcomes, and optimize processes. In research and development, AI accelerates material discovery and process optimization, significantly shortening development timelines. In manufacturing, AI-driven systems ensure consistent product quality and enable adaptive manufacturing processes, improving reliability and efficiency.

Furthermore, the concept of digital twins has revolutionized how chemical plants are designed, operated, and maintained. These virtual replicas allow engineers to simulate real-world scenarios, predict potential issues, and optimize performance. This proactive approach reduces downtime, enhances safety, and improves overall productivity.

However, the adoption of digitalization and AI in chemical engineering comes with challenges. Ensuring data security, addressing algorithm transparency, and upskilling the workforce are critical considerations. Ethical concerns around AI decision-making also necessitate careful governance and responsible implementation.

Looking forward, the future of chemical engineering promises continued innovation and integration of digital technologies. As AI capabilities advance and technology evolves, chemical engineers will play a pivotal role in driving sustainable development and global competitiveness. Embracing digitalization and AI not only enhances efficiency and productivity but also positions the industry at the forefront of technological advancement and environmental stewardship.

KHANISHKHA.A.V
IV CHEMICAL

BIOPROCESS AND BIOTECHNOLOGY

In the dynamic realm of chemical engineering, bioprocessing and biotechnology have emerged as transformative forces, reshaping industries and driving innovations with profound implications for sustainability and healthcare.

Bioprocessing involves harnessing biological systems—such as microorganisms, enzymes, and cells—to produce valuable products, ranging from pharmaceuticals and biofuels to biodegradable plastics. This approach not only utilizes renewable resources but also minimizes environmental impact compared to traditional chemical synthesis methods. Biotechnological advancements have unlocked novel pathways for producing complex molecules and materials, revolutionizing sectors like healthcare with personalized medicine and advanced therapies.

The integration of bioprocessing techniques in chemical engineering has enabled the development of sustainable solutions that align with global efforts towards environmental conservation. By leveraging biological catalysts, engineers can achieve higher yields with lower energy consumption and reduced waste generation, paving the way for greener manufacturing practices.

Moreover, biotechnology plays a crucial role in addressing pressing global challenges, including food security and climate change. Genetic engineering and bioremediation technologies exemplify how bioprocessing can be applied to improve crop yields, develop drought-resistant plants, and remediate environmental pollutants effectively.

In the field of pharmaceuticals, biotechnological innovations have led to the production of therapeutic proteins, vaccines, and monoclonal antibodies, revolutionizing disease treatment and prevention. Bioprocessing techniques ensure the scalability and cost-effectiveness of these life-saving medications, making them more accessible globally.

However, the adoption of bioprocessing and biotechnology in chemical engineering is not without challenges.

Looking ahead, the future of bioprocessing and biotechnology in chemical engineering holds immense promise. Continued research and technological advancements will drive further innovations, expanding the scope of biotechnological applications and enhancing the sustainability of industrial processes. As students and future professionals in chemical engineering, understanding and mastering these transformative technologies will be key to shaping a more sustainable and health-conscious future for generations to come.

POOJA S
III CHEMICAL

NANOTECHNOLOGY ADVANCEMENTS

Nanotechnology has emerged as a transformative force in chemical engineering, leveraging the unique properties of materials at the nanoscale to revolutionize various industries. In chemical processes, nanomaterials offer superior catalytic properties due to their high surface area and unique surface chemistry, enabling more efficient and sustainable production methods. These advancements contribute to reducing energy consumption, minimizing waste generation, and enhancing the selectivity of chemical reactions.

In environmental applications, nanotechnology plays a crucial role in remediation and monitoring. Nanomaterial-based sensors provide highly sensitive detection of pollutants in water and air, while nanomaterials themselves can be employed for efficient adsorption and degradation of contaminants. These technologies offer promising solutions to address global environmental challenges, improving resource management and sustainability.

Moreover, nanotechnology has revolutionized healthcare through innovations in drug delivery systems and diagnostics. Nanoparticles allow targeted delivery of drugs to specific cells or tissues, improving therapeutic efficacy while minimizing side effects. In diagnostics, nanomaterial-based biosensors enable rapid and sensitive detection of diseases, facilitating early diagnosis and treatment.

Despite these advancements, challenges such as safety concerns, regulatory frameworks, and scalability of manufacturing processes remain significant. Addressing these challenges will be crucial for realizing the full potential of nanotechnology in chemical engineering and ensuring its responsible and sustainable integration across industries.

Looking ahead, the future of nanotechnology in chemical engineering holds immense promise. Continued research and development efforts are expected to unlock new capabilities and applications, further driving innovation and sustainability in manufacturing, healthcare, and environmental protection. As students and professionals in chemical engineering, understanding and harnessing the potential of nanotechnology will be key to shaping a more efficient, sustainable, and technologically advanced future.

RAGUNATH
III CHEMICAL

ADVANCED MATERIAL DEVELOPMENT

In the realm of chemical engineering, advanced materials represent a frontier of innovation with vast potential across industries. Engineered at the molecular level, these materials offer unique properties that surpass traditional alternatives, paving the way for significant advancements in electronics, healthcare, and renewable energy.

Nanomaterials, for instance, with their high surface area and quantum effects, are pivotal in catalysis, sensing, and biomedical applications. Graphene, a standout example, boasts unparalleled strength and conductivity, promising breakthroughs in aerospace composites and energy storage technologies.

In healthcare, biomaterials like biodegradable polymers are tailored for applications such as tissue engineering and drug delivery systems, improving treatment efficacy and patient outcomes. Meanwhile, advancements in sustainable technologies leverage materials designed for efficient energy conversion and storage, such as perovskite solar cells.

However, challenges like scalable production and environmental impact must be addressed to realize the full potential of these materials. As the field continues to evolve, interdisciplinary collaboration and innovative manufacturing techniques will be crucial in harnessing the transformative power of advanced materials for a sustainable future

PANDIDURAI M P
IV CHEMICAL

EDITORIAL BOARD

STUDENT AUTHOR

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DEPARTMENT OF
CHEMICAL ENGINEERING
V.S.B ENGINEERING COLLEGE

FACULTY MEMBER

Mr. R. GOWRISHANKAR
HEAD OF THE DEPARTMENT
DEPARTMENT OF
CHEMICAL ENGINEERING
V.S.B ENGINEERING COLLEGE