

NCETMEF
2022

National Conference
on
**Emerging Trends in Multi-
Disciplinary Engineering Fields**
(NCETMEF - 2022)

18 February - 2022

Conference Proceedings

Organized by



Sri Bharathi Engineering College for Women

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

Kaikkurichi (PO), Pudukkottai - 622 303

sribharathienggcollege@gmail.com

www.sbec.edu.in



978-81-965236-1-9

ISBN: 978-81-965236-1-9

ISBN: 978-81-965236-1-9


1
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

ABOUT US

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN (SBECW) the first college started one and only for women's higher education in Pudukkottai District, is named after the famous poet and freedom fighter, Bharathiyar, as he fought for women's freedom. This college started by "Sri Bharathi Educational Trust", in the year 2009 in a rural area of Pudukkottai District which is dedicated for the entire development of education, training and to face the society with positive department for women and to serve for the upliftment for the society.

SBECW is located about 6KM away from Pudukkottai. The Mission and Vision of this Institution is to inspire and educate young minds to grow with the principles of Truth, Obedient, Honor, Purity, Integrity and Obedience for their enlightenment.

The Destiny of our Nation lies in the hands of children. They should be molded and shaped by proper education. We take care in educating the children to know their responsibilities towards their elders, poor & down trodden people. Apart from education our motto is to train the children to become good citizens of India in all aspects.

Our Institution offers five under graduate programmes in various disciplines

- ❖ B.E. - CIVIL ENGINEERING
- ❖ B.E. - COMPUTER SCIENCE & ENGINEERING
- ❖ B.E. - ELECTRICAL & ELECTRONICS ENGINEERING
- ❖ B.E. - ELECTRONICS & COMMUNICATION ENGINEERING
- ❖ B.Tech. - INFORMATION TECHNOLOGY

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

KAIKKURICHI,

PUDUKKOTTAI 622 303.

Website: www.sbec.edu.in

e-mail: sribharathienggcollege@sbec.edu.in

ISBN: 978-81-965236-1-9



Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai DL.

NATIONAL CONFERENCE ON EMERGING TRENDS IN MULTI-DISCIPLINARY ENGINEERING FIELDS (NCETMEF-22)

Sri Bharathi Engineering College for Women

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai)

KAIKKURUCHI, PUDUKOTTAI – 622 303.

NATIONAL CONFERENCE ON EMERGING TRENDS IN MULTI-DISCIPLINARY ENGINEERING FIELDS

(NCETMEF-2022)

18th FEBRAURY 2022



CONFERENCE PROCEEDINGS

ACADEMIC YEAR 2021 – 2022

ISBN: 978-81-965236-1-9


Dr. **S. THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

PREFACE

Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai has organized a “National Conference on Emerging Trends in Multi-Disciplinary Engineering Fields (NCETMEF-2022)” and conducted by the Departments of Civil, Computer Science & Information Technology, Electrical and Electronics Engineering, Electronics and Communication Engineering. We feel swollen with pride and fortunate enough to systematize NCETMEF-2022 on 18th February 2022.

The field of Engineering while looking back to the origins of the history, the contributions where astonishing as well as they stand wonders to exhibit for our age. Due to the wide expansion of the knowledge as well as the population growth, the field of engineering has to spread over a wide spectrum. This has resulted in multi various aspects in the field of engineering and requires specialization in each of the field. Now living through the current age, specialization in a particular field alone will not be helpful.

In such a condition integration of multi various activities of engineering will alone fulfill the requirements of the high-tech modern world and in the days to come. As a fore thought and also to bring out the talents of the students of the various fields of engineering into one point of confluence to understand better and this is a joint venture for this Educational Institution also. We hope very much that such an effort will definitely give raise to a modern world through fulfillment of technologies with inter disciplinary applications.

Our conference aims to integrate the various engineering disciplines and we feel our aim is fulfilled and now we are encouraged by more number of research scholars, academicians and industrialists through their proposals in the form of their full research papers going to be presented at this conference. We have received 245 papers from distinguished and multi-disciplinary engineering domains such as Civil, Electrical, Electronics and Information Technology and Computer Science. Our Technical Core committee short listed those papers into 201 in numbers through an optimum quality policy in selection from those 245 papers.

ISBN: 978-81-965236-1-9



Dr. **S.THILAGAVATHI M.E., Ph.D.**,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

All those selected papers are to uplift the objectives of the conference and to interlink the multi-disciplinary engineering domains with a fore thought to achieve a new generation of engineers with an inter-disciplinary understanding.

My sincere thanks to the respected Chairman cum Managing Director, **Thiru. G.Dhanasekaran** Sri Bharathi Educational Institutions who is the main root for the cause of this National Conference and our thanks to the Secretary, **Mr. L. Dawood Gani** and our thanks to the Correspondent **Er. N. Kanagarajan** and also all the Trust members who have shouldered the organizational role.

I feel my immense pleasure to thank our Patron **Dr. S. Thilagavathi, M.E., Ph.D.**, and Principal for giving me this great opportunity for this National Conference NCETMEF-2022.

My sincere thanks to Chief Advisor of this conference **Thiru. A. Krishnamoorthy**, Administrative Officer and Institutional Publisher, SBECW, Pudukkottai.

I feel my jubilant thanks to all committees especially for Advisory committee, Technical committee and Editorial and Printing committee. I am gratified to the members of NCETMEF-2022, judges of various session, participants of multi-disciplinary.

I also feel my triumphant delight to all delegates, faculties and non-teaching faculty members of SBECW, supportive staff of NCETMEF-2022 and finally I am very grateful to the scholars of SBECW.

February 18, 2022,
Kaikkurichi.

Convener: NCETMEF – 2022,
Mrs. B. Priya, Asst. Professor,
Department of Electrical and Electronics Engineering,
Sri Bharathi Engineering College for Women,
Kaikkurichi, Pudukkottai.

ISBN: 978-81-965236-1-9


5
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

ABOUT THE CONFERENCE

This National Conference on Emerging Trends in Multi-Disciplinary Engineering Fields (NCETMEF-2022) plays an imperative role in meeting demands of the society and taking the illumination of acquaintance to the depth of obscurity, uplifting the embarrassed by providing the education to the society. This conference will enable under graduate, post graduate, Research scholar, Faculties and Industrial Participants from the various streams of engineering to interact the people and making them bend with the society and awareness about multi-disciplinary fields.

“A unity in diversity” is the normal slogan that is known to most of the Indian Citizen. The Constitution, Government, Law and the basic human rights are all unified irrespective of its diversified regional, religious, linguistic and cultural habitual of the Indian people, does not stand in the way of the unity of Indians. If the country is so, why not we, the engineers who are the pillars of the monumental structure shall unite and hold the nation’s pride. The diversified fields are only various parts of the body. The function of a human being is only on united action of the various parts of the body. For anything and everything we need a building or structure with all amenities. For that we require invariably the services of engineers of various disciplines all that we know. As a matter of fact, we are supposed to find out a solution by finding a way for inter connecting the activities of various disciplines. As the first step, as the Armstrong set his foot on the moon, a proposal for conducting a national conference of this nature is formulated.

ISBN: 978-81-965236-1-9

Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

**Thiru. G. Dhanasekaran, M.A., M.Com., M.Phil.,
Chairman and Managing Trustee,
Sri Bharathi Group of Institutions,
Kaikkurichi, Pudukkottai – 622 303.**



MESSAGE

It gives me immense pleasure to know that the Departments of CIVIL, ECE, EEE, CSE, and IT of Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai is organizing a “National Conference on Emerging Trends in Multi-Disciplinary Engineering Fields (NCETMEF-2022)” on 18th February 2022.

This conference will sharpen the intellects of the Faculty members and students of this 14 years old Institution and will enlighten the participants with latest trends in Multi-Disciplinary Engineering Domain.

My appreciation and congratulations are due to the faculty members and students for their excellent contribution to the academic growth of this Technical Institution, started exclusively for the benefit of women students of rural areas.

I extend my warm greeting to the Principal, Staff and the participants to this occasion.

**“When aims are high and efforts are superfluous,
Production and outcome will be a great success”**

I wish the conference a great success.

A handwritten signature in black ink, appearing to be 'G. Dhanasekaran'.

Thiru. G. Dhanasekaran,
Chairman & Managing Trustee

ISBN: 978-81-965236-1-9

A handwritten signature in green ink, appearing to be 'S. Thilagavathi'.

Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

Mr. L. Dawood Gani,
Secretary,
Sri Bharathi Group of Institutions,
Kaikkurichi, Pudukkottai – 622 303.



MESSAGE

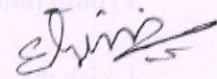
I am happy to note that a “National Conference on Emerging Trends in Multi-Disciplinary Engineering Fields (NCETMEF-2022)” is being organized by various Departments of Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai on 18th February 2022. It is interesting to know that a Souvenir is also being released on this occasion.

This conference will provide an excellent platform for the Faculty members & Research Scholars for exchanging their ideas and experiences for the benefit of the students.

I congratulate the Principal & Faculty members of the Departments of CIVIL, ECE, EEE, CSE & IT for organizing the conference.

“Creativity is a must to shine in this competitive world
Conference is the best way to reach that Paradise”

I wish the conference a great success.



Mr. L. Dawood Gani,
Secretary

ISBN: 978-81-965236-1-9



Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

Er. N. Kanagarajan,
Correspondent,
Sri Bharathi Group of Institutions,
Kaikkurichi, Pudukkottai – 622 303.



MESSAGE

I am very pleasure to inform you that the “National Conference on Emerging Trends in Multi-Disciplinry Engineering Fields (NCETMEF-2022)” is being organized and conducted by the various Departments CIVIL, ECE, EEE, CSE & IT of Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai on 18th February 2022.

This conference will provide an excellent platform for the Faculty members & Research Scholars from various parts of the state and country for exchanging their ideas and experiences for the benefit of the students.

I congratulates the Principal & Faculty members of the Departments of CIVIL, ECE, EEE, CSE for organizing this national conference NCETMEF 2022.

I wish this conference for a great success.

A handwritten signature in black ink, appearing to read 'kanu', with a horizontal line underneath.

Er. N. Kanagarajan,
Correspondent

ISBN: 978-81-965236-1-9

A handwritten signature in green ink, appearing to read 'S. Thilagavathi', with a horizontal line underneath.
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

Dr. S. Thilagavathi, M.E., Ph.D.,
Principal,
Sri Bharathi Engineering College for Women



MESSAGE

It is a great pleasure for me as a dream has been translated into reality in organizing a “National Conference on Emerging Trends in Multi-Disciplinry Engineering Fields (NCETMEF-2022)” in our Fifteen years old college on the most auspicious day of 18th February 2022. I strongly believe that this conference provides a platform for the participants of various disciplines to disseminate, share and exchange their ideas. I promise that Sri Bharathi Engineering College for Women will serve as a grooming ground for new generation of women leaders to exhibit their talents on research through this national conference.

I take this opportunity to sincerely that the management of our college for encourage financially supporting and extending tall the cooperation in organizing this Fifth National Conference on Cutting Edge Technologies in Science and Engineering in our campus. I would like to place on record my whole hearted appreciating for all the members of the various committees for their untiring efforts put in to make this conference a splendid one. It is hoped that the participants will have a pleasant stay in the campus during the conference period and carry the message of the conference for the benefit of large section of students spread over different institutions. The college will be conducting many more programs in the years to come with continued support from the management and with encouragement received from all the participants. I also thank the principals of other colleges for motivating their faculty and students to submit papers.

I wish the conference a grand success.

Dr. S. Thilagavathi
Principal

ISBN: 978-81-965236-1-9

10
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kalkkurchi - 622 303, Pudukkottai Dt.

Table of Contents

Sl.No	Title of the Paper with Authors	Page Number
1	Effect of Rice Husk Ash on the Strength and Durability of Concrete ¹ Mrs.Dennis flora.P, ² Mrs.Kayalvizhi.R, ³ Ms.Muthulakshmi.S	26
2	Experimental Study on Structure Behavior of Castellated Reinforced Cement Concrete Beam ¹ Dr.Thilagavathi.S, ² Mrs.Dr.Guna Selvi.S, ³ Ms.Ragavi.V	26
3	Irrigation System Design and Optimization for Efficient Resource Utilization ¹ Mr.Sivayogaraj.A, ² Ms.Manju.R, ³ Ms.Bhuvani.S	27
4	Incorporating Geosynthetics in Pavement Engineering for Enhanced Performance ¹ Mrs.A.Auxline Suganya, ² Mr. R. Vinoth	27
5	Optimization of Biological Nutrient Removal Processes for Effective Wastewater Treatment ¹ Ms. A. Anitha, ² Mr. A. Ramakrishnan	28
6	Utilization of Copper Slag in Precast Concrete Products ¹ Mrs.Chithirai Selvi.N, ² Ms.Gayathri.G, ³ Ms.Aruljenifar.C	28
7	Effect of Curing Period on Early Strength Development of Concrete ¹ Dr.Thilagavathi.S, ² Mrs.Chithirai Selvi.N, ³ Ms.Srividhya. S	29
8	Experimental Study of Papercrete Brick ¹ Ms.Gayathri.G, ² Ms.Meenachi.K, ³ Ms.Sathya.M, ⁴ Ms.S. Srividhya, ⁵ Ms. K. Umamaheshwari	29
9	Assessment of the Environmental Impact of Paver Block Manufacturing Processes ¹ Mrs.Dr.Guna selvi.S, ² Ms.Manju.R, ³ Ms.Sathya.M	30
10	Prefabricated Modular Housing for Rapid Disaster Response and Affordable Housing ¹ Mrs. K. Nandhini, ² Mr. C. Kanagaraj	30
11	Effect of Aggregate Size on the Compressive Strength of Concrete ¹ Mrs.Kayalvizhi.R, ² Mrs.Chithirai Selvi.N, ³ Ms.Umamaheswari.K	31
12	Investigating the effects of coagulants pH on water treatment process. ¹ Ms.Manju.R, ² Mrs.Kayalvizhi.R, ³ Ms.Praveena.S	31

13	Advances in Membrane Technology for Water and Wastewater Treatment ¹ Mr. A. Vivek Raj, ² Ms. K. Kalpana	32
14	Influence of Superplasticizers on the Compressive Strength and Workability of Concrete. ¹ Mrs.Dennis flora.P, ² Mr.Sivayogaraj.A, ³ Ms. Ajitha.T	32
15	Utilization of Bottom Ash as Fine Aggregate Replacement in Concrete ¹ Ms.Gayathri.G, ² Dr.Thilagavathi.S, ³ Ms.Mangaiyarkarasi.G	33
16	Evaluation of Geopolymer Stabilization for Expansive Clay Soils in Foundation Engineering ¹ Mrs.Dennis flora.P, ² Ms.Manju.R, ³ Ms.Sathya.M	33
17	Incorporation of Waste Tyre Rubber Particles as Aggregate Replacement in Concrete ¹ Dr.Thilagavathi.S, ² Ms.Gayathri.G, ³ Ms.Lilly John.J	34
18	Utilization of Copper Slag in High-Performance Concrete for Sustainable Construction ¹ Ms.Gayathri.G, ² Mrs.Padmarani.R, ³ Ms.Priyadharshini.K	34
19	Development of Ultra-High Performance Concrete with Nano-Silica and Steel Microfibers ¹ Mrs.S.Kanniga, ² Mr.G.Pradeep	35
20	Optimization of Lightweight Concrete Mixtures with Expanded Polystyrene (EPS) Beads ¹ Mr.Sivayogaraj.A, ² Mrs.Dr.Guna selvi.S, ³ Ms.Divya.V	35
21	Performance of Concrete Incorporating Recycled Concrete Aggregate ¹ Mrs.Dr.Guna selvi.S, ² Mrs.Priya.R, ³ Ms.Aruljenifar.C	36
22	Investigation on Compressive Strength of Ultra High Performance Concrete(UHPC) under Autoclave curing ¹ Ms.R.Harshani	36
23	Analysis of Paver Block Deformation under Heavy Traffic Loads ¹ Mrs.Chithirai Selvi.N, ² Mrs.Kayalvizhi.R, ³ Ms.Srividhya.S	37
24	Influence of Curing Methods on Compressive Strength of Cement Mortar ¹ Mrs.Priya.R, ² Mrs.Dennis flora.P, ³ Ms.Umamaheswari.K	37
25	Enhancing the Performance of Natural Coagulants through Pre-Treatment Techniques ¹ Ms.Manju.R, ² Mr.Sivayogaraj.A, ³ Ms.Muthulakshmi.S	38

26	Effect of Copper Slag on the Permeability and Porosity of Concrete ¹ Mrs.Kayalvizhi.R, ² Mrs.Priya.R, ³ Ms.Ajitha.T	38
27	Effect of incorporating fibers in Reactive Powder Concrete ¹ Ms.R.Harshani	39
28	Assessment of Self-Healing Concrete with Encapsulated Polymeric Healing Agents ¹ Mrs.Padmarani.R, ² Mrs.Priya.R, ³ Ms.Mangaiyarkarasi.G	39
29	Assessment of Lime-Stabilized Soil as a Cost-Effective Solution for Road Subgrades ¹ Mrs.Padmarani.R, ² Mrs.Chithirai Selvi.N, ³ Ms.Meenachi.K	40
30	Utilization of Slag-Cement Stabilization for Soft Subgrades in Foundation Engineering ¹ Mrs.Dr.Guna selvi.S, ² Mrs.Dennis flora.P, ³ Ms.Bhuvani.S	40
31	Investigation of Water Absorption and Efflorescence in Paver Blocks ¹ Mrs.Priya.R, ² Mrs.Padmarani.R, ³ Ms.Praveena.S	41
32	Development of Design Guidelines for Cold-Formed Steel Structures in High-Wind Regions ¹ Mr. T. Ragupathi	41
33	Investigation of Lime Stabilization for Controlling Soil Settlement in Embankment Construction ¹ Mrs.Chithirai Selvi.N, ² Mrs.Dr.Guna Selvi.S, ³ Ms.Ajitha.T	42
34	Influence of Copper Slag on the Drying Shrinkage and Cracking Potential of Concrete ¹ Mrs.Priya.R, ² Mr.Sivayogaraj.A, ³ Ms.Muthulakshmi.S	42
35	Influence of Water-to-Cement Ratio on the Compressive Strength of Self-Compacting Concrete ¹ Mrs.Kayalvizhi.R, ² Ms.Manju.R, ³ Ms.Sathya.M	43
36	Evaluation of Noise Reduction Characteristics of Paver Blocks for Urban Road Applications ¹ Mr.Sivayogaraj.A, ² Mrs.Padmarani.R, ³ Ms.Ragavi.V	43
37	Effect of Supplementary Cementitious Materials on the Compressive Strength of High-Performance Concrete ¹ Ms.Manju.R, ² Dr.Thilagavathi.S, ³ Ms.Praveena.S	44
38	Effect of Copper Slag on the Fresh and Hardened Properties of Self-Consolidating Concrete ¹ Mrs.Padmarani.R, ² Ms.Gayathri.G, ³ Umamaheswari.K	44

39	Investigation of Alkali-Activated Concrete with Low-Calcium Fly Ash and Sodium Silicate ¹ Ms.Gayathri. G, ² Mrs.Chithirai Selvi.N, ³ Ms.Meenachi.K	45
40	Incorporation of Copper Slag in Lightweight Concrete for Improved Thermal Insulation ¹ Mrs.Priya.R, ² Ms.Manju.R, ³ Ms.S. Srividhya	45
41	Effect of Elevated Temperatures on the Compressive Strength of High-Strength Concrete ¹ Mrs.Chithirai Selvi.N, ² Mrs. R. Kayalvizhi, ³ Ms.Sathya.M	46
42	Optimizing Lime Content for Sustainable Stabilization of Expansive Soils ¹ Mrs.Padmarani.R, ² Mrs.Dennis flora.P, ³ Ms. Umamaheswari.K	46
43	Low-Power and High-Speed Multiplier Design Using GDI Technique ¹ Ms. R.Yogeswari, ² Mrs Nithyapoorani, ³ Ms Atchaya R, ⁴ Ms Jayapriya T	47
44	Low-Power and Area-Efficient Adder Design Using Emerging Technologies ¹ Mrs. T.K.Mohanapriya, ² Mrs G.vidya, ³ Ms Arthi S, ⁴ Ms. Desika G.	47
45	Exploring Machine Learning Techniques for Test and Verification of VLSI Designs ¹ Ms. V.Sagayamary, ² Mrs M.Suganya, ³ Ms Soniya P, ⁴ Ms Anushya M	48
46	Design and Analysis of Low-Power and High-Speed Arithmetic Logic Units ¹ Ms. R.Yogeshwari, ² Mrs V.sagayamary, ³ Ms Ananthi P, ⁴ Ms Manisha S	48
47	Title: Multisim-Based Design and Analysis of High-Speed Data Converters for VLSI Applications ¹ Ms M.Suganya, ² Mrs T.Suganthi, ³ Mrs Aashima M, ⁴ Ms Jaffarnisha R	49
48	Analysis and Optimization of Power Distribution Networks Using Multisim in VLSI Design ¹ Ms. V.Nithyapoorani, ² Mrs V.Sagayamary, ³ Ms Maheswari K, ⁴ Ms Megavadhana A	49
49	Deep Learning-Based Cell Classification in Histopathology Images for Cancer Diagnosis ¹ Mrs.G.Vidya, ² Mrs T.K.Mohanapriya, ³ Ms Jayasri M, ⁴ Ms Janani.R	50

50	Energy-Efficient Routing Protocol for IoT-Enabled Embedded Systems ¹ Mrs. R.Yogeshwari, ² Mrs. M. Sathya, ³ Ms. P. Ananthi, ⁴ Ms Manisha S	50
51	Secure Communication Protocol for IoT-Enabled Embedded Systems ¹ Mrs. T.K.Mohanapriya, ² Dr.V.Vijayasaro, ³ Ms Asmath Hazeena N, ⁴ MsThaiyal Nayagi K	51
52	Energy Harvesting Techniques for IoT-Embedded Systems ¹ Mrs. V.Nithyapoorani, ² Mrs. Vidya, ³ Ms.Thaiyal Nayagi K, ⁴ Ms.Atchaya R	51
53	Low-Power Design Techniques for IoT-Enabled Embedded Systems ¹ Mr. C.Palaniappan, ² Mrs.R.Yogeshwari, ³ Ms. Arthi S, ⁴ Ms Soniya P	52
54	Intelligent Traffic Management System using IoT-Embedded Devices ¹ Mrs. T.Suganthi, ² Mrs.V.Nithyapoorani, ³ Megavadhana A, ⁴ Ms Aashima M	52
55	Fiber Optics in Computer Networks: Revolutionizing High-Speed Data Transmission ¹ Mr.C.Palaniappan, ² Mrs T.K.Mohanapriya, ³ Ms Sabareeswari S, ⁴ Ms Arthi S	53
56	Fiber Optic Network Security: Safeguarding Data in Computer Networks ¹ Mrs. M.Suganya, ² Mrs.V.Sagayamary, ³ Ms. Rajapraba M, ⁴ Ms Maheswari K	53
57	Fiber Optic Network Upgrades: Transitioning from Legacy Systems to Next-Generation Architectures ¹ Mrs.T.Suganthi, ² Mrs. R.Yogeshwari, ³ Ms Arivarasi A, ⁴ Ms Jayasri M	54
58	Ensuring Continuous Connectivity in Critical Computer Systems ¹ Dr. V. Vijayasaro, ² Mrs T.K.Mohanapriya, ³ Ms Anushaa S, ⁴ Ms Arivarasi A	54
59	Revolutionizing High-Speed Data Processing and Storage Fiber Optics in Data Centers ¹ Mr. C.Palaniappan, ² Mrs.M.Sathya, ³ Janani.R, ⁴ Ms Priyanga R	55

60	Fiber Optic Network Deployment in Rural Areas: Bridging the Digital Divide ¹ Mrs.M.Suganya, ² Mrs Mr. C.Planiappan, ³ Ms Thaiyal Nayagi K, ⁴ Ms Manisha S	55
61	Engaging Consumers in the Era of Smartphone in Dominance Mobile Marketing ¹ Dr.Muthumanickam, ² Mrs. M. Sathya	56
62	Enabling Efficient Data Storage and Retrieval in Fiber Optics in Cloud Computing ¹ Mrs.Akila.P, ² Mrs Sathya.M	56
63	Fiber Optics in Edge Computing: Accelerating Data Processing at the Network Edge ¹ Dr. Vijayasaro, ² Mrs .M.Suganya, ³ Jeyasri K, ⁴ Ms Abitha S	57
64	Ensuring Robust Connectivity in Challenging Environments in Fiber Optics in Data Centers ¹ Mrs. M.Suganya, ² Mrs.T.Suganthi, ³ Ms. Navithra D, ⁴ Ms Jayapriya T	57
65	Fiber Optic Network Training and Skills Development and Bridging the Skills Gap in Fiber Optics ¹ Mrs. M.Malathy, ² Mrs. M. Sathya	58
66	Automated Detection of Brain Tumor Segmentation in MRI Images using Deep Learning ¹ Mrs. G.Vidya, ² Mrs.M.Sathya, ³ Ms.Navithra D, ⁴ Ms Nagalakshmi	58
67	Quantitative Analysis of Cardiac Function using Cardiac Magnetic Resonance Imaging ¹ Dr.V.Vijayasaro, ² Mrs.G.Vidya, ³ Ms.Jaffarnisha R, ⁴ MsManisha S	59
68	Blockchain-Based Secure Data Sharing Framework for Communication Networks ¹ Mrs. G.Vidya, ² Rohini K, ³ Ms Sountharya P	59
69	Towards Seamless Interaction in Augmented Reality: A Gesture Recognition Approach ¹ Ms. P. Keerthana, ² Mrs. T.K.Mohanapriya, ³ Ms Priyanga R, ⁴ Ms Rajapraba M	60
70	Evaluating the Effects of Virtual Reality on Cognitive Skills Training in Education ¹ Mrs. V.Kavitha, ² Mr.M.Arunkumar	60
71	Extracting Insights for Informed Decision-Making in Data Analytics in Digital Marketing ¹ Dr.Muthumanickam, ² Ms.Vinijini.T	61
72	The Power of Influencer Marketing: Leveraging Social Media Influencers for Brand Endorsement	61

	¹ Mrs. M. Sathya, ² Mr.T. Ruben	
73	Design and Analysis of Miniaturized Bandpass Filters for Microwave Applications ¹ Mr.S.Purusothamman, ² Ms T.Kanimozhi	62
74	Novel Waveguide Components for Millimeter-Wave Applications ¹ Mr D.Arivazhagan, ² Ms. P. Keerthana	62
75	Design and Analysis of High-Frequency Transmission Line for Efficient Signal Propagation ¹ Mrs.S.Krishnaveni, ² Mrs. V.Punitha	63
76	Investigation and Optimization of Power Transmission in High-Voltage Transmission Lines ¹ Mrs.M.S.Sathya, ² Mr.Akila.P	63
77	Quantitative Analysis of Cardiac Function using Cardiac Magnetic Resonance Imaging ¹ Mrs. Srija. S, ² .Mrs Muthulakshmi.A	64
78	Novel Waveguide Structures for Enhanced Signal Transmission in Optical Communication Systems ¹ Ms Indhupriya.D, ² Ms. P. Keerthana	64
79	Efficient Data Dissemination Scheme for MANETs using Reinforcement Learning ¹ Mr. B.Dharmaraj. B, ² .Dr.V.Sureshkumar	65
80	Efficient Analysis of Electromagnetic Scattering from Large Structures using the Multilevel Fast Multipole Algorithm ¹ Ms V.Bharathi, ² .G.Vidya	65
81	Performance Evaluation of Direct-on-Line and Rotor Resistance Starting Methods for Synchronous Machines ¹ Mr. A. Abdul Baseeth, ² G. Aarthi	66
82	Fault Detection and Diagnosis in Power System Distribution using Artificial Intelligence ¹ Mrs. B. Priya, ² Ms. S. Raga Brintha, ³ R. Aasha and ⁴ K. Nisha	66
83	Advancing DC Drives with Power Electronics: Enabling High-Precision Applications ¹ Ms. C. Nanthini, ² R.Ramana, ³ S. Agari	67
84	Comparative Analysis and Review of Speed control of DC Machines using Controllers. ¹ Mr. N. Rajamohan, ² Mr. Ahdul Baseeth	67

85	Power Electronics: Enabling Advanced Control Strategies in AC and DC Drives ¹ Ms. R. Akilandeswari, ² Ms. R. Ragadharsini, ³ S. Sneha and ⁴ V. Vinothini	68
86	Enhancing Stability in Generator Systems for Reliable Electrical Power Supply ¹ Ms. K.A. Muthulakshmi, ² Mrs. B. Priya, ³ R. Aasha & ⁴ R. Ramana	68
87	AI-Enabled Smart Grid Management for Efficient Energy Distribution and Demand Response ¹ Ms. S. Raga Brintha, ² Ms. C. Nanthini, ³ G. Aathi, ⁴ K. Nisha	69
88	An Investigative Study on Speed Control of Separately Excited DC Motor using Fuzzy Neural Model based Controller. ¹ Ms. A.Reetta, ² Mrs. M. Umamaheshwari, Mrs. ³ B. Priya	69
89	Design and Optimization of High-Efficiency Brushless DC Motor for Electric Propulsion Systems ¹ Mr. J. Sathyaraj, ² Ms. R. Akilandeswari, ³ S. Sneha and ⁴ G. Aathi	70
90	Design and Optimization of High-Performance Permanent Magnet Synchronous Motor for Electric Vehicle Applications ¹ Ms. M. Abirami, ² Ms. R. Ragadharsini and ³ S. Agari	70
91	Sensorless Control Techniques for Synchronous Motor ¹ Ms. R. Ragadharsini, ² Mr. A. Abdul baseeth and ³ K. Nisha	71
92	Design and Optimization of High-Efficiency Switched Reluctance Motor for Electric Powertrain Applications ¹ Mr. A. Abdul baseeth and ² S. Sneha	71
93	Harmonic Distortion Analysis and Mitigation Techniques for Power Quality Enhancement ¹ Ms. K.A. Muthulakshmi and ² Ms.R. Ramana	72
94	A Literature Review on Speed Control and Direction of Rotation using Android based Controller. ¹ Ms. Indupriya, ² Mrs. Sathyaraj	72
95	Advanced Control Techniques for SCR Controlled Rectifiers in Grid-Connected Applications ¹ Mrs. B. Priya, ² Ms. R. Akilandeswari and ³ V. Vinothini	73

96	Power Electronic Amplifiers for Renewable Energy Integration: Control and Grid Integration Perspectives ¹ Ms. R. Ragadharsini, ² Ms. S. Raga Brintha and ³ Ms. R. Aasha	73
97	Power Electronic Amplifiers for High-Frequency Induction Heating Applications: Design and Control Considerations ¹ Mr. A. Abdul baseeth, ² Ms. C. Nanthini and ³ G. Aathi	74
98	Impedance Relay Applications for Fault Detection in Distribution Systems with Distributed Generation ¹ Ms. K.A. Muthulakshmi, ² Ms. R. Akilandeswari and ³ R. Ramana	74
99	Short Circuit Test of a Single-Phase Transformer: Determination of Equivalent Impedance and Losses Mrs. B. Priya, R.Aasha	75
100	Buchholz Relay for Transformer Health Monitoring and Condition Assessment in Three-Phase Systems ¹ Ms. S. Raga Brintha, ² Ms. M. Abirami, ³ S.Sneha and ⁴ V. Vinothini	75
101	Induction Motor Applications in Industrial Automation: Performance and Control Considerations ¹ Ms. R. Ragadharsini, ² Ms. K.A. Muthulakshmi	76
102	Adaptive Control Strategies for Electric Vehicle Propulsion Systems: Performance and Efficiency Enhancement ¹ Ms. M. Abirami, ² K. Nisha	76
103	Stability Control in Pumped Storage Hydro Power Plants: Operation and Control Strategies ¹ Ms. C. Nanthini, ² Ms. R. Ragadharsini and ³ Aathi	77
104	Solar Pumping Systems for Off-Grid Water Supply: Applications, Challenges, and Innovations ¹ Ms. K.A. Muthulakshmi	77
105	MATLAB Simulation of Cascaded H-Bridge Multilevel Inverters: Design, Control, and Comparative Analysis ¹ Ms. M. Abirami, ² S. Agari	78
106	Stability Control in Multi-Source Microgrids: Challenges, Architectures, and Distributed Control Techniques ¹ Mr. J. Sathyaraj and ² R. Ramana	78

107	A Review Report of thirteen level Inverter based Single Phase to Three Phase Converter. ¹ Ms. C. Nanthini, ² V. Vinothini	79
108	Single Phase Inverter based Harmonic Analyzer using MATLAB Simulink ¹ Ms. S. Raga Brintha and ² S. Sneha	79
109	A Study of Harmonic Characteristics in three phase Sinusoidal Pulse Width Modulation Inverter. ¹ Mr. J. Sathyaraj and ² V.Vinothini	80
110	Analysis and Study of Speed Control of BLDC Motor Drives. ¹ Mrs.Shobana, ² Ms. R. Ragadharsini	80
111	Investigation and Design of Permanent Magnet Synchronous Motor. ¹ Mr.G.Vikneshwaran, ² Mr. L.Rajamohan, ³ Mr. Sathyaraj	81
112	Study of Faults and methods to recover the problems while using Damper winding in Synchronous motor. ¹ Mr. M. Manikandan, ² Mr. Abdul Baseeth	81
113	A Detailed Review of Design, Modeling and Simulation of Switched Reluctance Motor. ¹ Mrs. N. Abirami, ² Ms. K.A. Muthulakshmi	82
114	Implementation of Speed control of DC motor using MATLAB Simulink Ms. M. Abirami, Ms. S. Devaki	82
115	Power Electronics-Based Energy Harvesting Techniques for Sustainable Embedded Systems" Mr. J. Karthikeyan and Mr. T.Sathyaraj	83
116	Comparative Analysis of Thermal Power Generation and Hybrid Energy Systems: A Sustainable Approach to Electricity Production Mr. L. Rajamohan, Ms. M. Abirami	83
117	Buck-Boost Converter: An Analysis of Operation, Control Strategies, and Applications Mr. T.Palanichamy, Mr. Sathyaraj	84
118	Smart Class Room Attendance using Face Recognition ¹ Ms.Bhuvaneshwari G, ² Ms. Kaviyaselvi k, ³ Ms. Lakshmi Prabha M, ⁴ Puviyarasi S	84
119	Intelligent Routing Protocols for Wireless Sensor Networks ¹ Mr.Vijay R, ² Ms. Buvaneshwari S, ³ Ms. Evanjelin S	85

120	Self Monitoring System for vision based application using Deep Learning ¹ Ms.Sugapriya G, ² Ms. Buvaneshwari S, ³ Ms. Evanjelin S, ⁴ Ms. Nivedha.M, Ms. Sivasangavi A	85
121	Cost Optimization and Resource Management in Cloud Computing ¹ Ms.Subha P, ² Ms. Kaviyaselvi K, ³ Ms. Lakshmi N	86
122	Machine Learning for Intelligent Resource Allocation in Cloud Computing ¹ Ms.Sasikala G, ² Ms. Roopina R, ³ Ms. Nivetha G	86
123	Known and Unknown face smart home door lock system using AI and Edge computing ¹ Ms.Priyanka K, ² Ms. S.Abirami, ³ Ms. S.Mala, ⁴ Ms. G.Nivetha	87
124	A Comparative Study of Hashing Techniques for Large-Scale Data Storage ¹ Ms.Yogam V, ² Ms. Lakshmi Prabha M, ³ Ms. Fefina I	87
125	Efficient Implementation of Tries for Text Indexing and Retrieval ¹ Ms.Bhuvaneshwari G, ² Ms. Annapoorani M, ³ Ms. Arnavameena A	88
126	Optimizing Hash Tables for Fast Key-Value Data Retrieval ¹ Ms.Kavipriya B, ² Ms. Jayanthini T, ³ Ms. Niranjanadevi C	88
127	Trust Centric Privacy preserving Block Chain based Digital Certificate Locker ¹ Ms.Jayapratha S, ² Ms. A. Gowsalya, ³ Ms. Rasmi J	89
128	Detecting Fraudulent Transactions Using Anomaly Detection Algorithms ¹ Ms.Kavipriya B, ² Ms. Sandhiya B, ³ Ms. Santhi D	89
129	Agile Software Development An Empirical Study on Team Collaboration and Project Success ¹ Ms.Vijay R, ² Ms. Mamtha G, ³ Ms. Nivedha M	90
130	Model-Driven Software Engineering A Comparative Study of Modeling Approaches ¹ Ms.Subha P, ² Ms. Dayana P, ³ Ms. Dharshini D	90
131	Software Maintenance A Systematic Literature Review and Future Research Directions ¹ Ms.Sugapriya G, ² Ms. Gulnas Fathima S, ³ Ms. Helan J	91
132	Software Metrics for Quality Assessment A Comparative Study ¹ Ms.Jayapratha S, ² Ms. Fahmidha B, ³ Ms.Keerthana R	91

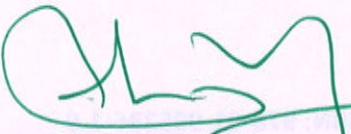
133	Designing Adaptive User Interfaces for People with Disabilities ¹ Ms.Sasikala G, ² Ms. Prasanna Devi P, ³ Ms.Kalpana K	92
134	Designing Persuasive User Interfaces for Behavior Change in Health Applications ¹ Ms.Priyanka K, ² Ms. Muthumeenakshi M, ³ Ms.Saranya C	92
135	Big Data Analytics in High Performance Computing Environments ¹ Ms.Priya. K, ² Ms. Niroshika R, ³ Ms.Ranjani K	93
136	Parallel Processing Techniques for High Performance Computing ¹ Ms.Yogam V, ² Ms. Jone Jenifar P	93
137	Parallel Computing Harnessing the Power of Distributed Systems ¹ Ms.Kavipriya B, ² Ms.Subashini C, ³ Ms.Subashini M	94
138	Intelligent Decision Support System for Medical Diagnosis using Soft Computing Techniques ¹ Ms.Priya. K, ² Ms.Vanathi T, ³ Ms.Swetha D	94
139	Quantum Computing for High Performance Applications Opportunities and Challenges ¹ Ms. Priya. K, ² Ms. Sneha R, ³ Ms.Suriya Jothi S	95
140	Soft Computing Approaches for Credit Risk Assessment in Banking ¹ Ms.Yogam V, ² Ms. Meiyammal M, ³ Ms.Nandhini P	95
141	Advancements in Cyber Security Forensics Investigating and Mitigating Digital Threats ¹ Ms.Priyanka K, ² Ms. Rosammal M, ³ Ms.Roshika K	96
142	Investigating Cyber Security Breaches using Internet of Things (IoT) Forensics ¹ Ms.Vijay R, ² Ms. Parameshwari S, ³ Ms.Roshika K	96
143	Secure Localization in Wireless Networks Challenges and Solutions ¹ Ms.Sugapriya G, ² Ms. Bhuvaneswari G, ³ Ms.Sindhu V	97
144	Forensic Analysis of Mobile Devices in Cyber Security Investigations ¹ Ms.Subha P, ² Ms. Sivagami D, ³ Ms.Sivaharini S	97
145	Investigating the Impact of User Interface Design on User Emotions and Affect ¹ Ms.Jayaprath S, ² Ms. Kowsalya S, ³ Ms.Prishiya E	98

146	Optimizing Resource Allocation in Cloud Computing Using Genetic Algorithms ¹ Ms.Sasikala G, ² Ms. Sabha Aysha S, ³ Ms Sushmeena K	98
147	Dynamic Array Resizing Techniques for Efficient Memory Management ¹ MsBhuvanewari G, ² Ms. Sivasangavi A S, ³ Ms Sindhu V	99
148	Exploring Skip Lists A Versatile Data Structure for Efficient Sorted List Operations ¹ Ms.Kanakavalli C, ² Ms.Vasantha K, ³ Ms.Sindhu G	99
149	Optimizing Resource Allocation in Cloud Computing Using Genetic Algorithms ¹ Ms. Vasantha K, ² Ms. Kanakavalli C, ³ Ms.Vivek G	100
150	Solving the Travelling Salesman Problem Using Ant Colony Optimization ¹ Ms. Ranveer S, ² Ms. Sathyanarayanan.S, ³ Ms.Sivasubramaniyan P	100
151	Machine Learning Algorithm for Sentiment Analysis in Social Media ¹ Ms. Nivethitha G, ² Ms. Anusha A, ³ Ms.Kanimozhi V	101
152	DevOps in Software Engineering Practices, Challenges, and Benefits ¹ Ms. RavinGeoVarghese, ² Ms. Prince	101
153	Software Security an Analysis of Common Vulnerabilities and Countermeasures ¹ Ms. Priya K, ² Ms. Subbulakshmi G	102
154	A Hybrid Soft Computing Approach for Forecasting Stock Market Prices ¹ Ms. Vishwa K, ² Ms. Parthasarathy J	102
155	Efficient Image Compression Using Discrete Cosine Transform Algorithm ¹ Mr.Rakesh S, ² Ms. Jenifar A	103
156	Optimal Tree Traversal Algorithms for Efficient Data Processing ¹ Mr.Priya K, ² Ms. Shanthi T	103
157	Optimization of Energy Management Systems using Soft Computing Approaches ¹ Ms.Saravana Priya G, ² Ms. Hema A ³ Ms. Iswarya P	104
158	Hadoop and Cloud Computing: Leveraging Cloud Services for Scalable Data Processing ¹ Ms.Sakthivelraja R, ² Ms. Rajeswari K ³ Ms. Priyadharshini F	104

159	Promoting English Language Skills through Content-Based Instruction ¹ Mr.S.Ramesh Raja, ² Ms.N.Rafecqa, ³ Ms.S.Sumithra	105
160	Developing English Language Skills: A Comparative Analysis of Formal and Informal Learning Settings ¹ Mr.S.Ramesh Raja, ² Ms.S. Subha Dharshini, ³ Ms.S. Yogeshwari	105
161	A Comprehensive Study on Developing English Language Skills: Strategies and Challenges ¹ Mr.S.Ramesh Raja, ² Ms.K. Priyadharshini, ³ Ms.V.Ragavi	106
162	Improving English Language Skills through Contextualized Learning: A Pedagogical Approach ¹ Mr.S.Ramesh Raja, ² Mrs.S.Ammu	106
163	Enhancing English Writing Skills: Strategies and Techniques for Effective Written Communication ¹ Mr.P.Alagumathi, ² Ms.A.Megavadhana, ³ Ms.R.Priyanka	107
164	The Role of Vocabulary Development in Enhancing English Language Skills ¹ Mr.P.Alagumathi, ² Ms.S.Abinaya, ³ Ms.S.Nisha	107
165	Fostering English Listening Comprehension Skills: Strategies and Techniques ¹ Mr.P.Alagumathi, ² Ms.R.Keerthana, ³ Ms.D.Dharshini	108
166	Reading Strategies for Improving English Language Skills: A Comprehensive Analysis ¹ Mr.P.Alagumathi, ² Mr.M.Hariharan	108
167	Exploring the Properties of Eigenvalues and Eigenvectors: Insights into Matrix Analysis ¹ Mrs.N.Vithya, ² Ms.R.Divya, ³ N.Ameera	109
168	Unveiling the Mysteries of Implicit Differentiation: Techniques and Applications ¹ Dr.R.Dhanalakshmi, ² M.Amrin, ³ A.Gokula praveena	109
169	Homogeneous Functions and Euler's Series: Unraveling the Mathematical Connection ¹ Ms.R.Divya, ² A.Rajeswari, ³ C.Suguna	110
170	Enhanced Accuracy: Investigating the Modified Euler's Method for Numerical ODE Solving ¹ Mrs.P.Nalini, ² M.Veerasri, ³ K.Akarshana	110
171	Optimization with Lagrange's Series of Undetermined Multipliers: Unraveling Constrained Extrema ¹ Dr.R.Dhanalakshmi, ² Mrs.N.Vithya, ³ B.Ashika	111

ISBN: 978-81-965236-1-9

24


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

172	Beyond Bounds: Understanding Improper Integrals and Their Convergence ¹ Mrs.N.Vithya, ² P.Harshitha, ³ A.Sheera banu	111
173	Interpolating Insights: A Comparative Study of Lagrange's and Newton's Divided Difference Interpolations ¹ Mrs.T.Dhanalakshmi, ² P.Pavithra, ³ R.Janai	112
174	Changing the Rules: Exploring the Change of Order of Integration in Multiple Integrals ¹ Mrs.R.Divya, ² Mrs.N.Vithya, ³ R.Rajeshwari	112
175	Unraveling the Mysteries of Sampling Distributions: Insights and Applications ¹ Ms.R.Divya, ² Dr.R.Dhanalakshmi, ³ B.Jayamanohari	113
176	Untangling the Connection: Investigating the Independence of Attributes ¹ Mrs.N.Vithya, ² S.Sivajothika, ³ K.Kaviya	113
177	Unraveling the Science: Exploring the Completely Randomized Design in Experimental Studies ¹ Dr.R.Dhanalakshmi, ² C.Bhuvaneshwari, ³ R.Sasipriya	114
178	Unveiling Eigenvalues: Power Method for Efficiently Computing Eigenvalues of Matrices ¹ Mrs.R.Gowsalya, ² S.Geetha, ³ P.Ramya, ⁴ A.Arundathi	114
179	Dislocations and Grain Boundaries: Mechanisms of Plasticity in Crystalline Materials ¹ Mrs.R.Saratha, ² Mrs.T.Renugadevi, ³ N.Ameera, ⁴ S.Subadharsini.	115
180	Magnetic Materials for Renewable Energy Applications: Harnessing Magnetism for Sustainability ¹ Mrs.R.Saratha, ² Mrs.T.Renugadevi, ³ S.Arundathi, ⁴ S. Lavanya	115
181	Advancements in Energy Storage Devices: Harnessing Power for a Sustainable Future ¹ Mrs.R.Saratha, ² Mrs.T.Renugadevi, ³ S.Visalatchi, ⁴ P.Harshitha	116
182	Beyond Einstein: Nuclear Physics and Relativity ¹ Mrs. T.Renugadevi, ² Mrs.R.Saratha, ³ A.Priyadharshini, ⁴ C.Suguna	116
183	Cosmic Rays: High-Energy Messengers from Space ¹ Mrs. T.Renugadevi, ² Mrs.R.Saratha, ³ S.Sumithra, ⁴ G.Gayathri	117
184	Nuclear Decay: The Nature of Radioactive Elements ¹ Mrs. T.Renugadevi, ² Mrs.R.Saratha, ³ C.Bhuvaneshwari, ⁴ R.Jayabharathi	117

185	Semiconductor Physics: Understanding the Behavior of Charge Carriers ¹ Mrs. P.Uma, ² S.Ragavi, ³ A.Nilavalavan, ⁴ M.Rajkumar	118
186	Cathodoluminescence Applications in Material Science and Photonics ¹ Mr. P.Balasubramanian, ² A.Rajesh, ³ R.Velmurugan, ⁴ S.Chendurbalan	118
187	Magnetic Domain Imaging: Revealing the Structure of Magnetic Materials ¹ Mr. P.Balasubramanian, ² A.Rajesh, ³ R.Velmurugan, ⁴ S.Chendurbalan	119
188	Single Crystal Synthesis: Controlling Crystallographic Orientation ¹ Mr. R.Kanivalan, ² R.Jesintha, ³ W.John Samuvel, ⁴ N.Kumaresan.	119
189	Emerging Trends in Electronics: Nanotechnology and Beyond ¹ Mrs.R.Saratha, ² Mrs.T.Renugadevi, ³ T.Divya, ⁴ S. Risvana Begam	120
190	Advancements in Water Treatment Technologies for Safe and Sustainable Drinking Water ¹ Mrs.T.Annalakshmi, ² Ameera.N, ³ Mahasree.P, ⁴ Subadharsini.S	120
191	Lightweight Alloys: Revolutionizing Transportation and Manufacturing ¹ Mrs.T.Annalakshmi, ² Pavithra.P, ³ Rafeeqa.N, ⁴ Kalaivani.R	121
192	Smart Water Systems: Harnessing Technology for Efficient Water Distribution and Management ¹ Mrs.T.Annalakshmi, ² Shamima.P, ³ Vinitha.K, ⁴ Sheera Banu.A	121
193	Ethical Implications of Nanotechnology: Balancing Risks and Benefits ¹ Mrs.T.Annalakshmi, ² Yogeshwari.S, ³ Subiksha.S, ⁴ Sasipriya.R	122
194	Renewable Energy Sources: A Sustainable Path for the Future ¹ Mrs.T.Annalakshmi, ² Ishwarya.S, ³ Lavanya.S, ⁴ Risvana Begam.S	122
195	Advancements in Polymer Matrix Composites: Manufacturing and Characterization ¹ Mrs.T.Annalakshmi, ² Arundathi.S, ³ Kandalakshmi.A, ⁴ Rajeswari. A	123
196	Phase Rule in Food Science: Controlling Product Stability and Quality ¹ Mrs.P.Bhavani, ² S.Kalavathi, ³ V.Revahi, ⁴ M.Pandiselvi	123

197	Life Cycle Assessment of Synthetic Petrol: Environmental Impacts and Benefits ¹ Mrs.A.Sathya, ² S.Sunmathi, ³ T.Anushya, ⁴ K.Gayathri	124
198	The Role of Combustion in Power Generation and Transportation ¹ Mrs.S.Pothumselvi, ² S.Devipriya, ³ M.Sasikala, ⁴ S. Selvi	124

ISBN: 978-81-965236-1-9

DR. S. THILAGAVATHI
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.


27
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

1. Title: Effect of Rice Husk Ash on the Strength and Durability of Concrete

¹Mrs.Dennis flora.P, ²Mrs.Kayalvizhi.R, ³Ms.Muthulakshmi.S

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This study investigates the effect of rice husk ash (RHA) on the strength and durability of concrete. Rice husk ash, a byproduct of rice milling, has gained attention as a supplementary cementitious material due to its pozzolanic properties. This abstract presents an overview of the research, highlighting the impact of RHA on concrete strength development, resistance to various deteriorating factors, and its potential role in enhancing the durability of concrete. Concrete is a widely used construction material known for its strength and durability. The addition of supplementary cementitious materials, such as rice husk ash (RHA), can significantly affect the properties of concrete. Compressive strength of cylindrical concrete in the 47–66 MPa range was obtained in this study. The results also indicate that up to 20% of ground RHA could be advantageously blended with cement without adversely affecting the strength and durability properties of concrete.

Keywords: Rice husk ash, Strength, durability, Concrete, Supplementary cementitious material, Pozzolanic properties.

2. Title: Experimental Study on Structure Behavior of Castellated Reinforced Cement Concrete Beam

¹Dr.Thilagavathi.S, ²Mrs.Dr.Guna Selvi.S, ³Ms.Ragavi.V

¹Principal, ²Associate Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The most widely used material for engineering structures is reinforced concrete and it is one of the most important building materials also. The properties and behaviour of RCC elements should be known so that we can use it efficiently. To develop advanced design and analysis methods for modern structures, the need for experimental research continues. The numerical simulation of castellated beams provided the best internal reinforcement configuration from the viewpoint of both the ultimate capacity and the developed ductility. A firm basis for design equations is provided by preliminary design stage experiments. The basic information for finite element models is applied by experimental results. Reliable analytical model is developed to reduce the number of required test specimens that provide the solution to a given problem. Finite Element Analysis (FEA) have been performed using ABAQUS for the Castellated RCC Beam. Then, the overall flexural performance of both monolithic and pre-stressed concrete castellated beams has been studied experimentally.

Keywords: Aggregate characteristics, Concrete strength, Compressive strength, Texture, Gradation, Interlocking, Bonding, Particle packing.

ISBN: 978-81-965236-1-9


Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

3. Title: Irrigation System Design and Optimization for Efficient Resource Utilization

¹ Mr.Sivayogaraj.A, ²Ms.Manju.R, ³Ms.Bhuvani.S

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Efficient irrigation system design and optimization are paramount in achieving sustainable and resource-conscious agriculture. This study focuses on exploring advanced methodologies and techniques to improve irrigation system efficiency, water management, and resource utilization in agricultural settings. Various aspects of irrigation system design are investigated, including pipe network layout, pump selection, water application methods (e.g., sprinkler, drip), and automation technologies. The goal is to develop a comprehensive framework that minimizes water losses, reduces energy consumption, and maximizes crop yield. Modern agriculture and the use of new technologies and knowledge in order to increase agricultural productivity has been considered by researchers and participants in the field of agriculture.

Keywords: Irrigation system design, Optimization, Efficient resource utilization, Water management, Sustainable agriculture.

4. Title: Incorporating Geosynthetics in Pavement Engineering for Enhanced Performance

¹Mrs.A.Auxline Suganya, ²Mr. R. Vinoth

^{1,2}Assistant Professor, Department of Civil Engineering,
M N S K College of Engineering, Pudukkottai.

Abstract: Geosynthetics have emerged as a promising solution in pavement engineering to enhance the performance and durability of pavements. This study investigates the incorporation of geosynthetics in pavement design and construction to improve structural integrity and long-term performance. The research begins by examining various types of geosynthetics, such as geotextiles, geogrids, and geocells, and their unique properties and applications in pavement engineering. Geosynthetic inclusion in airfield damage repair or as a crack mitigation technique may be more beneficial than aggregate base reinforcement in new construction. The study explores their roles in reinforcement, stabilization, and separation of pavement layers to mitigate common issues such as rutting, cracking, and reflective cracking.

Keywords: Geosynthetics, Pavement engineering, Enhanced Performance, Reinforcement, Stabilization, Durability.

5. Title: Optimization of Biological Nutrient Removal Processes for Effective Wastewater Treatment

¹Ms. A. Anitha, ²Mr. A. Ramakrishnan

^{1,2}Assistant Professor, Department of Civil Engineering,
Mount Zion College of Engineering and Technology, Pudukkottai.

Abstract: The optimization of biological nutrient removal (BNR) processes is crucial for achieving efficient and cost-effective wastewater treatment. This study aims to explore various strategies and techniques for optimizing BNR processes, with a focus on nitrogen and phosphorus removal. The abstract investigates the factors influencing BNR performance, including influent characteristics, process configuration, and operational parameters. It evaluates the effectiveness of different process modifications, such as alternating anoxic/oxic sequencing, external carbon addition, and innovative reactor designs, in enhancing nutrient removal efficiency. The abstract discusses advanced control and monitoring systems that enable real-time process optimization and adaptive management.

Keywords: Biological nutrient removal, wastewater treatment, optimization, nitrogen removal, phosphorus removal, influent characteristics, process configuration.

6. Title: Utilization of Copper Slag in Precast Concrete Products

¹Mrs.Chithirai Selvi.N, ²Ms.Gayathri.G, ³Ms.Aruljenifar.C

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College For Women, Pudukkottai.

Abstract: The utilization of copper slag in precast concrete products is an innovative approach that promotes sustainability and addresses waste management challenges. This abstract provides an overview of the research, focusing on the effects of incorporating copper slag as a partial replacement for fine aggregate in precast concrete products. The study evaluates the influence of copper slag on the properties and performance of precast concrete, considering factors such as compressive strength, durability, and sustainability aspects. The use of copper slag in cement and concrete provides potential environmental as well as economic benefits for all related industries, particularly in areas where a considerable amount of copper slag is produced. The utilization of copper slag in precast concrete products offers a sustainable solution to waste management challenges and promotes the efficient use of resources.

Keywords: copper slag, precast concrete, fine aggregate replacement, compressive strength, durability, sustainability.

7. Title: Effect of Curing Period on Early Strength Development of Concrete

¹Dr.Thilagavathi.S, ²Mrs.Chithirai Selvi.N, ³Ms.Srividhya. S

¹Principal, ²Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The effect of curing period on the early strength development of concrete is a critical aspect of concrete production and construction practices. Focusing on the influence of curing duration on the early-age compressive strength of concrete. The study examines the relationship between curing period and concrete strength, considering various factors such as hydration, moisture availability, and temperature. The early-age strength development of concrete is influenced by several factors, with the curing period playing a crucial role. For each of these curing methods, the average compressive strength of concrete cubes was determined after 3, 7, 14, 28 and 90 days curing periods. The results obtained discourages the use of curing by air-drying method and also suggests limiting the use of the other curing methods to 28-days period. Generally, the highest compressive strength was obtained for concrete cured by immersion in lime water.

Keywords: curing period, early strength development, concrete, compressive strength, hydration, moisture availability, temperature.

8. Title: Experimental Study of Papercrete Brick

¹Ms.Gayathri.G, ²Ms.Meenachi.K, ³Ms.Sathya.M, ⁴Ms.S. Srividhya, ⁵Ms.Umamaheswari.K

¹Assistant Professor, ^{2,3,4,5}U.G student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The utilization of waste paper sludge ash (WPSA) as a supplementary cementitious material in concrete is an innovative approach that addresses both environmental and waste management challenges. Waste paper sludge ash was used as partial replacement of different proportions of (2.5%, 5% and 7.5 %) to cement in concrete of M25 grade to test and study its durability, compressive strength, splitting tensile strength and flexural strength at 28 days. Using the results as a guide, it was found that waste paper sludge ash can replace cement up to 5% by weight. Test results show that adding waste paper sludge as a partial replacement of cement in concrete improved the performance of concrete in terms of strength.

Keywords: waste paper sludge ash, supplementary cementitious material, concrete, compressive strength, durability, sustainability.

9. Title: Assessment of the Environmental Impact of Paver Block Manufacturing Processes

¹Mrs.Dr.Guna selvi.S, ²Ms.Manju.R, ³Ms.Sathya.M

¹Associate Professor, ²Assistant Professor, ⁴U.G.student, Department of Civil Engineering, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Paver blocks play a crucial role in modern construction due to their durability and aesthetic appeal. However, the manufacturing processes involved in their production can have significant environmental implications. The research begins by identifying and analyzing the key stages of paver block production, including raw material extraction, transportation, mixing, molding, curing, and finishing. Compressive strength of paver blocks with different rates of waste steel aggregates and utilizing elastic cushions shows paver blocks give up to 50% more strength quality than customary paver blocks. In terms of the use of industrial waste materials, as a substitute material by reducing the percentage amount of the weight of the cement with the composition ratio varies based on the comparative volume category of the paving block aggregate such as 0%, 5%, 10%, 15%, 20%, and 25% are more applicable. Energy consumption, greenhouse gas emissions, water usage, and waste generation are among the critical environmental aspects considered during the assessment.

Keywords: Paver block, Manufacturing processes, Environmental impact, Life cycle assessment, Sustainable construction, Eco-friendly materials.

10. Title: Prefabricated Modular Housing for Rapid Disaster Response and Affordable Housing

¹Mrs. K. Nandhini, ²Mr. C. Kanagaraj

^{1,2}Assistant Professor, Department of Civil Engineering,

Mother Terasa College of Engineering and Technology, Pudukkottai.

Abstract: Prefabricated modular housing has emerged as a viable and effective solution for rapid disaster response and affordable housing in various regions. This study investigates the application of prefabricated modular housing as a versatile and timely solution to address housing needs in disaster-stricken areas and economically challenged communities. Benefits of prefabricated modular housing, including its ease of transportation, quick assembly, and cost-effectiveness. Case studies of past disaster response projects and affordable housing initiatives are analyzed to understand the successes and challenges associated with prefabricated modular housing implementation.

Keywords: Prefabricated modular housing, Rapid disaster response, Affordable housing, Disaster relief, Construction efficiency.

11. Title: Effect of Aggregate Size on the Compressive Strength of Concrete

¹Mrs.Kayalvizhi.R, ²Mrs.Chithirai Selvi.N, ³Ms.Umamaheswari.K

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The effect of copper slag on the permeability and porosity of concrete is a significant aspect of concrete research and construction practices. The influence of incorporating copper slag as a partial replacement for fine aggregate on the permeability and porosity characteristics of concrete. The study evaluates the impact of copper slag on reducing the permeability and porosity, thereby improving the durability and longevity of concrete structures. The permeability and porosity of concrete are crucial factors that influence its durability and long-term performance. This study investigates the effect of incorporating copper slag as a partial replacement for fine aggregate on the permeability and porosity characteristics of concrete

Keywords: copper slag, permeability, porosity, concrete, fine aggregate replacement, durability, concrete structures.

12. Title: Investigating the effects of coagulants pH on water treatment process.

¹Ms.Manju.R, ²Mrs.Kayalvizhi.R, ³Ms.Praveena.S

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The pH level plays a critical role in the effectiveness of coagulants during the water treatment process. This study investigates the effects of coagulant pH on water treatment efficiency and water quality. Laboratory experiments are conducted using different coagulants, such as aluminum sulfate (alum) and ferric chloride, at varying pH levels. The coagulation process is evaluated by measuring parameters such as turbidity, color, dissolved organic matter, and microbial content. The results show that coagulant pH significantly influences the coagulation process. Coagulation is a process for combining small particles into larger aggregates (flocs) and for adsorbing dissolved organic matter on to particulate aggregates so that these impurities can be removed in subsequent solid/liquid separation processes. An optimal pH range is identified for each coagulant, where the highest coagulation efficiency is achieved, leading to improved water quality.

Keywords: Coagulants, pH, Water treatment, Coagulation process, Water quality.

13. Title: **Advances in Membrane Technology for Water and Wastewater Treatment**

¹Mr. A. Vivek Raj, ²Ms. K. Kalpana

^{1,2}Assistant Professor, Department of Civil Engineering,

Mahath Amma Institute of Engineering and Technology, Pudukkottai.

Abstract: Membrane technology has emerged as a promising solution for water and wastewater treatment due to its high efficiency, low energy consumption, and ability to remove various contaminants. The recent advances in membrane technology and its applications in water and wastewater treatment processes. It discusses the development of novel membrane materials, including nanocomposite membranes, forward osmosis membranes, and thin film nanocomposite membranes, which offer enhanced selectivity and fouling resistance. Pressure-driven membrane processes like microfiltration (MF), ultrafiltration (UF), nanofiltration (NF), and reverse osmosis (RO) are being widely used for wastewater treatment applications with high effectiveness and efficiency. The abstract also highlights the progress in membrane module designs, such as hollow fiber membranes, spiral wound membranes, and ceramic membranes, which improve the overall performance and reliability of the treatment systems.

Keywords: Membrane technology, water treatment, wastewater treatment, membrane materials, nanocomposite membranes, forward osmosis membranes, thin film nanocomposite membranes, membrane module designs, hollow fiber membranes.

14. Title: **Influence of Superplasticizers on the Compressive Strength and Workability of Concrete.**

¹Mrs. Dennis flora.P, ²Mr. Sivayogaraj.A, ³Ms. Ajitha.T

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,

Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This study investigates the influence of superplasticizers on the compressive strength and workability of concrete. Superplasticizers are chemical admixtures used to improve the flowability and workability of concrete without compromising its strength. The effects of superplasticizers on the compressive strength development and workability of concrete mixtures. Superplasticizers are widely used chemical admixtures in concrete production to enhance its workability and flowability. The research involves the preparation of concrete mixtures with different dosages of superplasticizers. The compressive strength of the concrete specimens is measured at various curing ages to evaluate the impact of superplasticizers on strength development.

Keywords: superplasticizers, compressive strength, workability, concrete, chemical admixtures, flowability.

15. Title: Utilization of Bottom Ash as Fine Aggregate Replacement in Concrete

¹Ms.Gayathri.G, ²Dr.Thilagavathi.S, ³Ms.Mangaiyarkarasi.G

¹Assistant Professor, ²Principal, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The utilization of bottom ash as a fine aggregate replacement in concrete is an innovative approach that addresses waste management and environmental sustainability. The study evaluates the influence of bottom ash as a fine aggregate replacement on compressive strength, workability, and durability. The disposal of bottom ash, a byproduct of coal combustion, poses challenges in waste management and environmental sustainability. Bottom ash is used as concrete aggregate or for several other civil engineering applications where sand, gravel and crushed stone are used. In the present work M20, M25 and M30 grade of concrete is considered for the experimental investigation. Fine aggregate is fully replaced with 100% percentage of bottom ash. Thus the environmental effects due to illegal extraction of sand and cost of conventional fine aggregate can be significantly reduced.

Keywords: bottom ash, fine aggregate replacement, concrete, compressive strength, workability, durability, waste management, environmental sustainability.

16. Title: Evaluation of Geopolymer Stabilization for Expansive Clay Soils in Foundation Engineering

¹Mrs.Dennis flora.P, ²Ms.Manju.R, ³Ms.Sathya.M

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The evaluation of geopolymer stabilization for expansive clay soils in foundation engineering is the focus of this study. Expansive clay soils pose significant challenges to construction projects, particularly in terms of soil stability and foundation performance. Expansive clay soils present challenges in foundation engineering due to their high susceptibility to volume changes, leading to soil instability and foundation failures. This study aims to evaluate the effectiveness of geopolymer stabilization as a technique to improve the engineering properties of expansive clay soils and mitigate the adverse effects on foundation performance. Even after 12 cycles of wetting and drying, the geopolymer-treated soil particles remained stable, as the percentages of weight loss and volume change did not exceed 13% and 3%, respectively.

Keywords: geopolymer stabilization, expansive clay soils, foundation engineering, soil stability, engineering properties.

ISBN: 978-81-965236-1-9


35
Dr. **S. THILAGAVATHI M.E., Ph.D.,**
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

17.Title: Incorporation of Waste Tyre Rubber Particles as Aggregate Replacement in Concrete

¹Dr.Thilagavathi.S, ²Ms.Gayathri.G, ³Ms.Lilly John.J

¹Principal, ²Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The incorporation of waste tyre rubber particles as aggregate replacement in concrete is a sustainable approach that addresses the environmental challenges associated with rubber waste disposal. Performance of concrete mixtures incorporating 5%, 7.5% and 10% of discarded tyre rubber as aggregate and cement replacements. The study evaluates the mechanical properties, durability, and sustainability aspects of concrete mixtures containing waste tyre rubber particles as a partial replacement for traditional aggregates. The disposal of waste tyres poses significant environmental challenges, making their incorporation as aggregate replacement in concrete an attractive solution. This study aims to evaluate the effects of waste tyre rubber particles on the properties and performance of concrete.

Keywords: waste tyre rubber particles, aggregate replacement, concrete, sustainable approach, mechanical properties, durability, sustainability.

18.Title: Utilization of Copper Slag in High-Performance Concrete for Sustainable Construction

¹Ms.Gayathri.G, ²Mrs.Padmarani.R, ³Ms.Priyadharshini.K

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The utilization of copper slag in high-performance concrete (HPC) for sustainable construction is a promising approach that addresses environmental concerns and enhances concrete properties. Six concrete mixtures were prepared with different proportions of copper slag ranging from 0% to 100%. There is a slight increase in the HPC density of nearly 5% with the increase of copper slag content, whereas the workability increased rapidly with increases in copper slag percentage. Addition of up to 50% of copper slag as sand replacement yielded comparable strength with that of the control mix. Additions of copper slag caused reduction in the strength due to an increase of the free water content in the mix. Mixes with 80%, 90% and 100% copper slag replacement gave the lowest compressive strength value of approximately 80 MPa, which is almost 15% lower than the strength of the control mix.

Keywords: copper slag, high-performance concrete, sustainable construction, fine aggregate replacement, mechanical properties, durability, sustainability.

19.Title: Development of Ultra-High Performance Concrete with Nano-Silica and Steel Microfibers

¹Mrs.S.Kanniga, ²Mr.G.Pradeep

^{1,2}Assistant Professor, Department of Civil Engineering,
Mookambigai College of Engineering, Pudukkottai.

Abstract: Ultra-high performance concrete (UHPC) is a remarkable material known for its exceptional strength, durability, and versatility in construction. This study focuses on the development of UHPC by incorporating nano-silica and steel microfibers to enhance its mechanical properties and durability. To design different UHPC mixtures, each containing varying percentages of nano-silica and steel microfibers. The study evaluates the fresh properties, workability, and setting times of the UHPC mixes to optimize the proportions. Comprehensive testing is performed to assess the mechanical properties of the developed UHPC, including compressive strength, flexural strength, and split tensile strength. The study also investigates the impact of nano-silica and steel microfibers on the UHPC's toughness, ductility, and crack resistance.

Keywords: Ultra-high performance concrete, Nano-silica, Steel microfibers, Mechanical properties, Durability.

20.Title: Optimization of Lightweight Concrete Mixtures with Expanded Polystyrene (EPS) Beads

¹Mr.Sivayogaraj.A, ²Mrs.Dr.Guna selvi.S, ³Ms.Divya.V

¹Assistant Professor, ²Associate Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Lightweight concrete with expanded polystyrene (EPS) beads has gained popularity in the construction industry due to its reduced weight and enhanced thermal insulation properties. Optimization of lightweight concrete mixtures incorporating EPS beads to achieve desirable mechanical and thermal performance. The multi-response optimization method (TOPSIS) revealed that superior performance could be achieved using a binder content of 375 kg/m³, a w/b of 0.45, an EPS content of 3 kg/m³, and a SF replacement rate of 8%. The characterization of EPS beads, including their size, shape, and density, to understand their impact on the concrete's properties. Various concrete mixtures are designed by systematically varying the proportions of cement, aggregates, and EPS beads. The optimization process considers factors such as compressive strength, flexural strength, density, thermal conductivity, and workability.

Keywords: Lightweight concrete, Expanded Polystyrene (EPS), Concrete mixtures, Optimization, Mechanical properties, Thermal properties.

21. Title: Performance of Concrete Incorporating Recycled Concrete Aggregate

¹Mrs.Dr.Guna selvi.S, ²Mrs.Priya.R, ³Ms.Aruljenifar.C

¹Associate Professor, ²Assistant Professor, ³U.G.student, Department of Civil Engineering, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The increasing demand for sustainable construction practices has driven the exploration of alternative materials in concrete production. The research aims to evaluate the mechanical properties and durability of the resulting concrete mixtures while considering their environmental impact. Various concrete mixtures are designed with different percentages of RCA, and standard tests are conducted to assess their compressive strength, flexural strength, and tensile strength. The maximum replacement rate of recycled aggregate materials to the natural aggregate materials has been used up to 100%, and the effects have been analyzed. The substitution rate is highly dependent on the conditions and purpose of the engineering projects. Concrete materials perform accordingly as it is related to the substitution rates directly.

Keywords: Recycled concrete aggregate, Concrete performance, Sustainable construction, Mechanical properties, Durability, Environmental impact.

22. Title: Investigation on Compressive Strength of Ultra High Performance Concrete(UHPC) under Autoclave curing

¹Ms.R.Harshani

¹PG Student, Department of Civil Engineering, Mepco Schlenk Engineering College, Sivakasi

Abstract: In this study, the ultimate crushing strength of a novel type of Ultra High Performance Concrete (UHPC) called Reactive Powder Concrete (RPC) is investigated in relation to the quantity of High Range Water Reducing (HRWR) agent used, the water-to-cement ratio, and the cement and silica fume content. The strength of this concrete can be greater than 150MPa, based on the curing method and production method used. The developers of the UHPC believed that eliminating coarse aggregate would greatly improve its microstructure and performance by lowering the level of variability between the cementitious materials and the aggregate. However, the cement ratio of the UHPC considerably greater than 1000 kg/m³ since extremely fine sand is used instead of regular aggregate. The UHPC that has a strength in the region of 150-350 MPa is the primary focus of this investigation. Test results from more than five different mix proportions and curing techniques inform the development of a mix proportion optimised for a density of around 2300 kg/m³ and a compressive strength of more than 150 MPa under accelerated curing condition.

Keywords: UHPC, accelerated curing, compressive strength, SEM analysis.

23. Title: Analysis of Paver Block Deformation under Heavy Traffic Loads

¹Mrs.Chithirai Selvi.N, ²Mrs.Kayalvizhi.R, ³Ms.Srividhya.S

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The analysis of paver block deformation under heavy traffic loads is essential for evaluating the structural performance and durability of paver block pavements. Focusing on the effects of heavy traffic loads on the deformation behavior of paver blocks. The study includes a detailed analysis of the stress distribution, deformation patterns, and factors influencing paver block deformation under heavy traffic loads, considering factors such as block properties, base support, and traffic characteristics. Understanding the deformation behavior of paver blocks under heavy traffic loads is crucial for assessing the structural performance and durability of paver block pavements. The nine pavement sets, because it takes into account three values of subgrade capacity (30, 90, and 150 MPa of resilient modulus). The obtained results provide an inexpensive procedure for the preliminary design of concrete block pavements.

Keywords: paver blocks, deformation, heavy traffic loads, structural performance, stress distribution, deformation patterns, pavement durability.

24. Title: Influence of Curing Methods on Compressive Strength of Cement Mortar

¹Mrs.Priya.R, ²Mrs.Dennis flora.P, ³Ms.Umamaheswari.K

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The influence of curing methods on the compressive strength of cement mortar is a critical aspect of mortar production and construction practices. The study evaluates the relationship between curing methods and mortar strength, considering factors such as hydration, moisture availability, temperature, and curing duration. Effect on strength with the application of different curing compounds and methods of structural grade mortar mixes with cement: sand ratio 1:2.75 and varying water/binder ratio between 0.45 to 0.60, using field sand, ASTM graded sand and OPC, finally comparing the results of compressive strength of different curing mechanisms and are compared with conventional water curing. Results indicate that, using Membrane curing compounds, an efficiency of 80-90% can be achieved as compared to Conventional water Curing. Curing methods play a significant role in determining the compressive strength of cement mortar.

Keywords: curing methods, compressive strength, cement mortar, hydration, moisture availability, temperature, curing duration.

ISBN: 978-81-965236-1-9

 39
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

25. Title: Enhancing the Performance of Natural Coagulants through Pre-Treatment Techniques

¹Ms.Manju.R, ²Mr.Sivayogaraj.A, ³Ms.Muthulakshmi.S

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Natural coagulants derived from plant-based materials offer an eco-friendly and cost-effective alternative for water treatment processes. However, their performance can be limited by factors such as variability in composition and low coagulation efficiency. The modification of natural coagulants for marked improvement in coagulation performance efficiency; the possibility of hybridizing natural coagulants with other types of coagulants; the improvement of extraction and purification approaches for high purity of natural coagulants; and the synthesis of multifunctional natural coagulants. Pre-treatment techniques are then explored to improve the effectiveness of natural coagulants. These techniques include enzymatic pre-treatment, microwave-assisted extraction, and thermal processing. The study examines the impact of pre-treatment on the coagulant's chemical composition, molecular structure, and coagulation performance.

Keywords: Natural coagulants, Pre-treatment techniques, Water treatment, Performance enhancement, Sustainable technology.

26. Title: Effect of Copper Slag on the Permeability and Porosity of Concrete

¹Mrs.Kayalvizhi.R, ²Mrs.Priya.R, ³Ms.Ajitha.T

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The effect of copper slag on the permeability and porosity of concrete is a significant aspect of concrete research and construction practices. This abstract provides an overview of the research, focusing on the influence of incorporating copper slag as a partial replacement for fine aggregate on the permeability and porosity characteristics of concrete. The study evaluates the impact of copper slag on reducing the permeability and porosity, thereby improving the durability and longevity of concrete structures. The permeability and porosity of concrete are crucial factors that influence its durability and long-term performance. A substitution of up to 40–50% copper slag as a sand replacement yielded comparable strength to that of the control mixture. There was more than 70% improvement in the compressive strength of mortars with 50% copper slag substitution in comparison with the control mixture.

Keywords: copper slag, permeability, porosity, concrete, fine aggregate replacement, durability, concrete structures.

27. Title: Effect of incorporating fibers in Reactive Powder Concrete

¹Ms.R.Harshani

¹PG Student, Department of Civil Engineering,
Mepco Schlenk Engineering College, Sivakasi

Abstract: Modified form of High Performance Concrete is a Reactive- Powder Concrete (RPC) which was first found by PierreRichard and Marcel Cheyrezy, they successfully built France laboratory using RPC. High compressive strength of over 200 MPa has been achieved, with flexural strength up to 40 MPa, and in certain cases crushing strength up to 800 MPa with the introduction of hybrid fibre reinforcement. Cement OPC grade, silica fume, quartz sand, crushed quartz flour, water, a superplasticizer, and fibre reinforcement all contribute to making RPC. These materials have high durability characteristics as a result of their extremely low porosity, low permeability, limited shrinkage, and higher corrosion resistance. To increase package density, the powder combination of RPC should have a variety of granular particle classes. By dense packaging theory and grading optimization technique, the absence of coarse aggregate increased compactness. Because of its compactness, it reaches high strength. The rapid hydration of cement and silica fume at a high curing temperature of 100°C as compete to 27°C is something that causes the higher early strength.

Keywords: UHPC, Fibers, elevated temperature, durability, compressive strength.

28. Title: Assessment of Self-Healing Concrete with Encapsulated Polymeric Healing Agents

¹Mrs.Padmarani.R, ²Mrs.Priya.R, ³Ms.Mangaiyarkarasi.G

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Self-healing concrete is a revolutionary technology that has the potential to significantly improve the durability and longevity of concrete structures. To prepare M30 grade concrete utilizing copper slag as a replacement material for fine aggregates in proportions of 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 100% in the concrete. To design self-healing concrete mixtures with different types and percentages of encapsulated healing agents. The microcapsules are incorporated into the concrete matrix during mixing, and their distribution and content are optimized for maximum healing efficiency. After inducing cracks in the concrete specimens, they are subjected to curing and monitored for crack closure and healing over time. The presence of the healing agents enables the concrete to autonomously repair cracks, improving its structural integrity and reducing maintenance requirements.

Keywords: Self-healing concrete, Encapsulated healing agents, Microcapsules, Healing efficiency, Concrete durability.

ISBN: 978-81-965236-1-9



41

Dr. **S. THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

29. Title: Assessment of Lime-Stabilized Soil as a Cost-Effective Solution for Road Subgrades

¹Mrs.Padmarani.R, ²Mrs.Chithirai Selvi.N, ³Ms.Meenachi.K

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The quality and stability of road subgrades play a crucial role in the overall performance and longevity of road infrastructure. Assessing the effectiveness of lime-stabilized soil as a cost-effective solution for road subgrades. The research investigates key parameters such as compaction characteristics, California Bearing Ratio (CBR), shear strength, and permeability. The results demonstrate that lime stabilization significantly improves the engineering properties of the subgrade soil, enhancing its load-bearing capacity and reducing susceptibility to deformations. In the CBR test, soil-lime mixtures compacted at intermediate and modified efforts and cured for 28 days were considered for application as subbase material of flexible road pavements, being a promising alternative for use in layers of forest roads. The study identifies the optimal lime content required to achieve the desired stabilization effect, considering the local soil conditions and construction requirements.

Keywords: Lime-stabilized soil, Road subgrades, Cost-effective solution, Soil stabilization, Sustainable construction.

30. Title: Utilization of Slag-Cement Stabilization for Soft Subgrades in Foundation Engineering

¹Mrs.Dr.Guna selvi.S, ²Mrs.Dennis flora.P, ³Ms.Bhuvani.S

¹Associate Professor, ²Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Soft subgrades pose significant challenges in foundation engineering, often requiring costly and time-consuming mitigation measures. This study investigates the feasibility and efficacy of using slag-cement stabilization as a sustainable and cost-effective solution to improve the engineering properties of soft subgrades. The research focuses on evaluating the mechanical performance and durability of slag-cement-treated soft subgrade soils through a comprehensive laboratory testing program. The experimental investigation involves characterizing the engineering properties of the soft subgrade soil, including its plasticity, compaction, and strength characteristics. Different proportions of slag-cement are introduced into the soft soil samples, and standard tests are performed to assess the variations in key engineering parameters. The mechanical properties, such as compressive strength, shear strength, and resilient modulus, are evaluated to understand the stabilization effect of slag-cement on the soft subgrade.

Keywords: Slag-cement stabilization, Soft subgrades, Foundation engineering, Sustainable solution, Mechanical properties, Durability, Load-bearing capacity, Deformation, Resilience.

ISBN: 978-81-965236-1-9


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

31. Title: Investigation of Water Absorption and Efflorescence in Paver Blocks

¹ Mrs. Priya.R, ² Mrs. Padmarani.R, ³ Ms. Praveena.S

^{1,2} Assistant Professor, ³ U.G. student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The investigation of water absorption and efflorescence in paver blocks is crucial for understanding their performance and durability. This abstract provides an overview of the research, focusing on the effects of water absorption and efflorescence on the properties of paver blocks. The study evaluates the relationship between water absorption, efflorescence, and factors such as block composition, curing methods, and environmental conditions. Water absorption and efflorescence are important factors to consider in the evaluation of paver block performance and durability. The fly ash, cement, silica fumes mixed with 2 molar of alkaline solution with varying cement content from 0% to 15% and heat curing at 100°C for 24 hours. Bricks were tested for compressive strength, flexure strength, water absorption, efflorescence.

Keywords: water absorption, efflorescence, paver blocks, durability, composition, curing methods, environmental conditions.

32. Title: Development of Design Guidelines for Cold-Formed Steel Structures in High-Wind Regions

¹ Mr. T. Ragupathi

^{1,2} Assistant Professor, Department of Civil Engineering,
Sudharsan Engineering College, Pudukkottai.

Abstract: This abstract focuses on the development of design guidelines for cold-formed steel structures in high-wind regions. It highlights the importance of considering the unique challenges posed by high-wind environments in the design of cold-formed steel structures. The abstract discusses the need for comprehensive guidelines that address structural integrity, load resistance, and performance under extreme wind events. It emphasizes the importance of considering factors such as wind loads, material properties, connection details, and design methods specific to cold-formed steel. The abstract also highlights the significance of incorporating advanced technologies and testing methods to ensure the reliability and safety of these structures.

Keywords: design guidelines, cold-formed steel structures, high-wind regions, structural integrity, load resistance, extreme wind events, wind loads, material properties, connection details, design methods, advanced technologies, testing methods.

ISBN: 978-81-965236-1-9


43
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

33.Title: Investigation of Lime Stabilization for Controlling Soil Settlement in Embankment Construction

¹Mrs.Chithirai Selvi.N, ²Mrs.Dr.Guna Selvi.S, ³Ms.Ajitha.T

¹Assistant Professor, ²Associate Professor, ³U.G.student, Department of Civil Engineering, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The investigation of lime stabilization for controlling soil settlement in embankment construction is crucial for ensuring the stability and performance of embankments. The study evaluates the relationship between lime content, soil properties, and settlement reduction, considering factors such as lime-soil interaction, strength improvement, and long-term stability. Controlling soil settlement is essential in embankment construction to ensure the stability and performance of the constructed structure. For poorly graded soil, the lime percentage varied from 0.0% to 6.0% based on the soil's weight, while for well-graded soil, it ranged from 0.0% to 3.0%. All the soil specimens were cured for 24 h and tested using the Hole Erosion Test (HET) to replicate the internal erosion effortlessly.

Keywords: lime stabilization, soil settlement, embankment construction, lime content, soil properties, settlement reduction, strength improvement, long-term stability.

34.Title: Influence of Copper Slag on the Drying Shrinkage and Cracking Potential of Concrete

¹Mrs.Priya.R, ²Mr.Sivayogaraj.A, ³Ms.Muthulakshmi.S

^{1,2}Assistant Professor, ^{3,4}U.G.student, Department of Civil Engineering, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The influence of copper slag on the drying shrinkage and cracking potential of concrete is a significant consideration in concrete mix design and construction practices. The study evaluates the relationship between copper slag content and the drying shrinkage properties of concrete, considering factors such as hydration, particle packing, and the formation of microcracks. Drying shrinkage and the potential for cracking are important factors that affect the performance and durability of concrete. The concrete grade of M40 with fly ash replacing cement by 20% and copper slag substituting fine aggregate by 0%, 15%, 30%, 45% and 60% was employed in this study.

Keywords: copper slag, drying shrinkage, cracking potential, concrete, fine aggregate replacement, hydration, particle packing, microcracks.

35. Title: Influence of Water-to-Cement Ratio on the Compressive Strength of Self-Compacting Concrete

¹Mrs.Kayalvizhi.R, ²Ms.Manju.R, ³Ms.Sathya.M

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The influence of the water-to-cement ratio on the compressive strength of self-compacting concrete (SCC) is a critical factor in SCC mix design and construction practices. The optimum water/cement ratio for producing self-compacting concrete was in the range of 0.84–1.07 and that any value below or above the stated value may harm the property of a good self-compacting concrete. The study evaluates the relationship between water-to-cement ratio and concrete strength, considering factors such as workability, hydration, and particle packing. The water-to-cement ratio plays a vital role in determining the compressive strength of self-compacting concrete (SCC).

Keywords: water-to-cement ratio, compressive strength, self-compacting concrete, mix design, workability, hydration, particle packing.

36. Title: Evaluation of Noise Reduction Characteristics of Paver Blocks for Urban Road Applications

¹Mr.Sivayogaraj.A, ²Mrs.Padmarani.R, ³Ms.Ragavi.V

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Urban roadways experience constant vehicular traffic, leading to high levels of noise pollution. Paver blocks have gained popularity as a sustainable alternative for road pavements due to their environmental benefits and ease of installation. This study aims to evaluate the noise reduction characteristics of paver blocks for urban road applications to address the issue of noise pollution in cities. The research involves a comprehensive investigation of different types of paver blocks and their impact on road noise. Field measurements are conducted on various urban roads using conventional asphalt pavements and paver blocks to quantify the noise levels generated by passing vehicles. The study evaluates the sound absorption and sound transmission properties of different paver block compositions and patterns.

Keywords: Paver blocks, Noise reduction, Urban road applications, Acoustic performance, Sustainable infrastructure.

37. Title: Effect of Supplementary Cementitious Materials on the Compressive Strength of High-Performance Concrete

¹Ms.Manju.R, ²Dr.Thilagavathi.S, ³Ms.Praveena.S

¹Assistant Professor, ²Principal, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract:The use of supplementary cementitious materials (SCMs) has become increasingly prevalent in high-performance concrete (HPC) to enhance its mechanical properties and reduce environmental impact. This study investigates the effect of various SCMs, such as fly ash, slag, and silica fume, on the compressive strength of high-performance concrete. To design different concrete mixtures, each containing varying percentages of SCMs as partial replacements for cement. The mixtures are carefully optimized to achieve the desired high strength and durability characteristics of HPC. Compressive strength tests are performed on cured concrete specimens to evaluate the influence of SCMs on the concrete's mechanical performance at different curing ages. The combination of 10% silica fume, 25% slag, and 15% fly ash produced high strength and high resistance to freeze-thaw and wet-dry exposures as compared to other mixes. The results are compared with a control concrete mixture without any SCMs.

Keywords: Supplementary cementitious materials, High-performance concrete, Compressive strength, Sustainable construction, Concrete mix design.

38. Title: Effect of Copper Slag on the Fresh and Hardened Properties of Self-Consolidating Concrete

¹Mrs.Padmarani.R, ²Ms.Gayathri.G, ³Umamaheswari.K

^{1,2}Assistant Professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Self-consolidating concrete (SCC) is known for its ability to flow and fill intricate forms without the need for vibration, making it a popular choice for complex concrete applications. This study investigates the effect of incorporating copper slag as a partial replacement for fine aggregates on the fresh and hardened properties of self-consolidating concrete. The fresh properties of SCC, including slump flow, passing ability, and segregation resistance, are evaluated using standardized test methods. Compressive strength, flexural strength, and durability of SCC specimens are tested to assess the impact of copper slag on the hardened properties of SCC. Additional tests are conducted to study the microstructure and pore characteristics of SCC with copper slag. Six mixes were prepared by substituting river sand with CSA up to 50%, with a 10% increment.

Keywords: Copper slag, Self-consolidating concrete, Fresh properties, Hardened properties, Sustainable construction, Concrete mix design.

39. Title: Investigation of Alkali-Activated Concrete with Low-Calcium Fly Ash and Sodium Silicate

¹Ms.Gayathri. G, ²Mrs.Chithirai Selvi.N, ³Ms.Meenachi.K, ⁴Ms.Priyadharshini.S

^{1,2}Assistant professor, ^{3,4}U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Alkali-activated concrete (AAC) is gaining prominence as an eco-friendly alternative to traditional Portland cement-based concrete due to its lower carbon footprint and enhanced durability. This study investigates the properties of alkali-activated concrete incorporating low-calcium fly ash and sodium silicate as a binder. The microstructural analysis indicated the formation of a dense and stable gel-like structure, contributing to improved durability.

Keywords: Alkali-activated concrete, low-calcium fly ash, sodium silicate, pozzolanic reactions, compressive strength, microstructure, durability, eco-friendly concrete, sustainable construction, alternative binder.

40. Title: Incorporation of Copper Slag in Lightweight Concrete for Improved Thermal Insulation

¹Mrs.Priya.R, ²Ms.Manju.R, ³Ms.S. Srividhya

^{1,2} Assistant professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Lightweight concrete has gained popularity in construction due to its reduced weight and improved thermal insulation properties. This study explores the incorporation of copper slag, a waste material generated during copper extraction, in lightweight concrete to enhance its thermal insulation performance. Various lightweight concrete mixtures were designed with different proportions of copper slag, and their thermal properties were extensively investigated. Copper slag was processed to meet the required quality standards and used as a partial replacement for lightweight aggregates in concrete. A comprehensive testing program was conducted to evaluate the thermal conductivity and thermal diffusivity of the lightweight concrete, with particular emphasis on its insulating capacity. The effects of different copper slag content and curing conditions on thermal performance were also studied.

Keywords: Copper slag, lightweight concrete, thermal insulation, thermal conductivity, thermal diffusivity, waste utilization, sustainable construction, energy efficiency, thermal properties.

ISBN: 978-81-965236-1-9


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

41. Title: Effect of Elevated Temperatures on the Compressive Strength of High-Strength Concrete

¹Mrs.Chithirai Selvi.N, ²Ms.R. Kayalvizhi, ³Ms.M. Sathya

^{1,2}Assistant professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: High-strength concrete (HSC) is known for its superior mechanical properties, making it suitable for demanding structural applications. However, the performance of HSC may be affected when subjected to elevated temperatures, such as those encountered in fire incidents or hot climatic conditions. This study investigates the effect of elevated temperatures on the compressive strength of high-strength concrete. Various concrete specimens were subjected to controlled heating regimes, and their mechanical properties were extensively evaluated. Optimal mix designs and appropriate measures to enhance the concrete's thermal resistance were identified to mitigate the negative effects of elevated temperatures.

Keywords: High-strength concrete, elevated temperatures, compressive strength, thermal expansion, micro-cracking, fire incidents, post-fire mechanical behavior, thermal resistance, structural safety.

42. Title: Optimizing Lime Content for Sustainable Stabilization of Expansive Soils

¹Mrs.Padmarani.R, ²Mrs.Dennis flora.P, ³Ms. Umamaheswari.K

^{1,2}Assistant professor, ³U.G.student, Department of Civil Engineering,
Sri Bharathi Engineering College for Women

Abstract: Expansive soils pose significant challenges in construction due to their volumetric changes with moisture variations, leading to foundation distress and structural damage. Lime stabilization is a commonly used technique to mitigate the expansive behavior of these soils. This study focuses on optimizing the lime content for sustainable stabilization of expansive soils. Various expansive soil samples were collected, and different lime content levels were tested to assess their effects on soil properties and long-term performance. The stabilized soils were exposed to various environmental conditions to assess their durability and resistance to degradation over time.

Keywords: Expansive soils, lime stabilization, sustainable stabilization, lime content optimization, soil properties, long-term performance, foundation distress, volumetric changes, swell tests, California Bearing Ratio (CBR).

43. Title: Low-Power and High-Speed Multiplier Design Using GDI Technique

¹Ms. R.Yogeshwari, ²Mrs Nithyapoorani, ³Ms Atchaya R, ⁴Ms Jayapriya T

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents a novel approach for designing a low-power and high-speed multiplier using the Gate Diffusion Input (GDI) technique. The proposed design utilizes GDI cells to reduce power consumption and improve speed performance. The GDI cells employ a gate-level sharing technique to optimize the transistor count, resulting in a more compact and efficient multiplier architecture. The experimental results demonstrate significant power reduction and improved performance compared to conventional designs. This research contributes to the advancement of VLSI design techniques for low-power and high-speed applications.

Keywords: VLSI design, multiplier, low power, high speed, gate diffusion input (GDI)

44. Title: Low-Power and Area-Efficient Adder Design Using Emerging Technologies

¹Mrs. T.K.Mohanapriya, ²Mrs G.vidya, ³Ms Arthi S, ⁴Ms. Desika G.

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents a low-power and area-efficient adder design using emerging technologies in VLSI circuits. Adders are fundamental components in digital systems, and optimizing their power and area characteristics is crucial for overall system efficiency. The proposed design explores the utilization of emerging technologies such as carbon nanotube field-effect transistors (CNFETs) and memristors to achieve significant power reduction and area efficiency compared to traditional CMOS-based designs. The experimental results demonstrate the effectiveness of the proposed approach, providing valuable insights for future VLSI design using emerging technologies.

Keywords: VLSI design, adder, low power, area efficiency, emerging technologies

ISBN: 978-81-965236-1-9


Dr. **S. THILAGAVATHI M.E., Ph.D.,**
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

45. Title: Exploring Machine Learning Techniques for Test and Verification of VLSI Designs

¹Ms. V.Sagayamary, ²Mrs M.Suganya, ³Ms Soniya P, ⁴Ms Anushya M

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper explores the application of machine learning techniques for test and verification of VLSI designs. Traditional test and verification methods often face challenges in detecting complex faults and verifying large-scale designs. Machine learning offers promising solutions to improve fault detection accuracy and verification efficiency. The paper investigates various machine learning algorithms and their integration into VLSI test and verification processes. The experimental results demonstrate improved fault detection rates and reduced verification time, showcasing the potential of machine learning in enhancing VLSI design validation.

Keywords: VLSI design, machine learning, test, verification, fault detection

46. Title: Design and Analysis of Low-Power and High-Speed Arithmetic Logic Units

¹Ms. R.Yogeshwari, ²Mrs V.sagayamary, ³Ms Ananthi P, ⁴Ms Manisha S

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents the design and analysis of low-power and high-speed Arithmetic Logic Units (ALUs) in VLSI circuits. ALUs are critical components in digital systems, and optimizing their power and speed characteristics is essential for overall system efficiency. The proposed design utilizes techniques such as dynamic voltage scaling, parallel processing, and optimized datapath architecture to achieve significant power reduction and improved speed performance. The experimental results demonstrate the effectiveness of the proposed design in achieving low-power and high-speed ALUs for various computational tasks.

Keywords: VLSI design, arithmetic logic unit (ALU), low power, high speed, dynamic voltage scaling

ISBN: 978-81-965236-1-9


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

47. Title: Multisim-Based Design and Analysis of High-Speed Data Converters for VLSI Applications

¹Ms M.Suganya, ²Mrs T.Suganthi, ³Mrs Aashima M, ⁴Ms Jaffarnisha R

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents the Multisim-based design and analysis of high-speed data converters for VLSI applications. Data converters, such as analog-to-digital converters (ADCs) and digital-to-analog converters (DACs), are essential components in modern VLSI systems. The paper explores the design considerations and challenges associated with achieving high-speed operation in data converters. Multisim simulations are utilized to analyze the performance of different architectures, including pipeline, flash, and delta-sigma converters. The experimental results provide insights into optimizing the design parameters and achieving high-speed and high-performance data converters

Keywords: VLSI design, data converters, high speed, analysis, Multisim

48. Title: Analysis and Optimization of Power Distribution Networks Using Multisim in VLSI Design

¹Ms. V.Nithyapoorani, ²Mrs V.Sagayamary, ³Ms Maheswari K, ⁴Ms Megavadhana A

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper focuses on the analysis and optimization of power distribution networks (PDNs) using Multisim software in VLSI design. The PDN is responsible for delivering stable and reliable power to the circuitry, and its optimization is crucial for overall system performance. The paper explores techniques such as decoupling capacitor placement, power plane design, and impedance matching for PDN analysis and optimization. Multisim simulations are utilized to evaluate the effectiveness of these techniques in reducing power supply noise and minimizing voltage droops. The experimental results demonstrate improved power integrity in VLSI designs.

Keywords: VLSI design, power distribution network, analysis, optimization, Multisim

ISBN: 978-81-965236-1-9


51
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

49. Title: Deep Learning-Based Cell Classification in Histopathology Images for Cancer Diagnosis

¹Mrs.G.Vidya, ²Mrs T.K.Mohanapriya, ³Ms Jayasri M, ⁴Ms Janani.R

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents a deep learning-based approach for automated cell classification in histopathology images to assist in cancer diagnosis. The proposed method employs a deep convolutional neural network (CNN) architecture to learn discriminative features from cell-level image patches. The trained CNN model can accurately classify cells into different categories, such as normal, benign, and malignant, based on their visual appearance. Experimental results demonstrate the superior performance of the proposed method compared to traditional image analysis techniques, highlighting its potential as a valuable tool in cancer diagnostics.

Keywords: deep learning, cell classification, histopathology images, cancer diagnosis, convolutional neural network.

50. Title: Energy-Efficient Routing Protocol for IoT-Enabled Embedded Systems

¹Ms. R.Yogeshwari, ²Mrs. M. Sathya, ³Ms. P. Ananthi, ⁴Ms Manisha S

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on developing an energy-efficient routing protocol for IoT-enabled embedded systems. The study investigates the challenges posed by resource-constrained environments and proposes a protocol that minimizes energy consumption while ensuring reliable data transmission. The protocol leverages hardware capabilities such as Arduino-based microcontrollers and employs adaptive routing algorithms to optimize energy utilization. The experimental results demonstrate improved network lifetime and reduced energy overhead.

Keywords: Energy-efficient routing, IoT-enabled embedded systems, Arduino, microcontrollers, adaptive algorithms.

ISBN: 978-81-965236-1-9


52
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

51. Title: Secure Communication Protocol for IoT-Enabled Embedded Systems

¹Mrs. T.K.Mohanapriya, ²Dr.V.Vijayasaro, ³Ms Asmath Hazeena N, ⁴MsThaiyal Nayagi K

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on developing a secure communication protocol for IoT-enabled embedded systems. The study addresses the security challenges associated with data transmission in IoT networks and proposes a protocol that ensures confidentiality, integrity, and authentication. The protocol utilizes Arduino-based microcontrollers with cryptographic capabilities, enabling secure communication between embedded devices and the IoT infrastructure. Experimental results demonstrate the effectiveness of the proposed protocol in mitigating common security threats.

Keywords: Secure communication protocol, IoT-enabled embedded systems, Arduino, microcontrollers, cryptography, Authentication.

52. Title: Energy Harvesting Techniques for IoT-Embedded Systems

¹Mrs. V.Nithyapoorani, ²Mrs. Vidya, ³Ms.Thaiyal Nayagi K, ⁴Ms.Atchaya R

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper explores energy harvesting techniques for IoT-embedded systems. The study investigates the feasibility of harvesting energy from ambient sources such as solar, vibration, and thermal gradients. Arduino-based microcontrollers are employed to manage energy storage and utilization. The research evaluates the performance of different energy harvesting methods and proposes optimization techniques to maximize energy efficiency. The findings demonstrate the potential of energy harvesting to extend the lifetime of IoT-embedded systems in remote or inaccessible environments.

Keywords: Energy harvesting, IoT-embedded systems, Arduino, microcontrollers, solar energy, vibration energy, thermal gradients.

53. Title: Low-Power Design Techniques for IoT-Enabled Embedded Systems

¹Mr. C.Palaniappan, ²Mrs.R.Yogeshwari, ³Ms. Arthi S, ⁴Ms Soniya P

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research investigates low-power design techniques for IoT-enabled embedded systems. The study focuses on reducing power consumption in Arduino-based microcontrollers without compromising system performance. The research explores power management strategies, sleep modes, and energy-efficient programming techniques. The proposed techniques are implemented and evaluated in real-world scenarios, demonstrating substantial energy savings. The findings contribute to the development of power-efficient IoT-embedded systems suitable for battery-powered or energy-harvesting applications.

Keywords: Low-power design, IoT-enabled embedded systems, Arduino, microcontrollers, power management, sleep modes, energy-efficient programming.

54. Title: Intelligent Traffic Management System using IoT-Embedded Devices

¹Mrs. T.Suganthi, ² Mrs.V.Nithyapoorani, ³Megavadhana A, ⁴Ms Aashima M

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper presents an intelligent traffic management system using IoT-embedded devices. Arduino-based sensor nodes are deployed at key locations to monitor traffic flow, vehicle density, and environmental conditions. The acquired data is processed in real-time, enabling dynamic traffic signal control and congestion detection. The study explores the integration of IoT principles with embedded systems, focusing on sensor selection, data fusion, and programming methodologies. The proposed system improves traffic efficiency, reduces congestion, and enhances overall transportation management.

Keywords: Intelligent traffic management, IoT-embedded devices, Arduino, sensor nodes, traffic flow monitoring, congestion detection, programming methodologies.

ISBN: 978-81-965236-1-9


54
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

55.Title: Fiber Optics in Computer Networks: Revolutionizing High-Speed Data Transmission

¹Mr.C.Palaniappan, ²Mrs T.K.Mohanapriya, ³Ms Sabareeswari S, ⁴Ms Arthi S

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Fiber optics has emerged as a transformative technology in computer networks, revolutionizing high-speed data transmission. This abstract explores the significance of fiber optics in computer networks, discussing its benefits, applications, and challenges. It emphasizes the key role of fiber optics in enabling faster and more reliable data transfer, enhancing network performance, and accommodating the ever-increasing bandwidth demands of modern computing. The abstract also addresses the challenges associated with fiber optic deployment, including cost considerations and technical limitations. Overall, it highlights the crucial role of fiber optics in shaping the future of computer networks.

Keywords: Fiber optics, computer networks, data transmission, high-speed, reliability, network performance, bandwidth demands, deployment challenges, cost considerations, technical limitations.

56.Title: Fiber Optic Network Security: Safeguarding Data in Computer Networks

¹Mrs. M.Suganya, ²Mrs.V.Sagayamary, ³Ms. Rajapraba M, ⁴Ms Maheswari K

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper investigates the role of fiber optics in ensuring data security in computer networks. The abstract explores the advantages of fiber optic cables in terms of data encryption, electromagnetic interception prevention, and resistance to physical tapping. It discusses the implementation of security measures such as secure key exchange protocols and intrusion detection systems for fiber optic networks. Additionally, the abstract examines the potential vulnerabilities and challenges associated with fiber optic network security, including fiber tapping and distributed denial-of-service (DDoS) attacks. By analyzing these aspects, this paper aims to shed light on the importance of fiber optic network security for protecting sensitive data in computer networks.

Keywords: Fiber optics, network security, data encryption, electromagnetic interception, physical tapping, secure key exchange, intrusion detection systems, fiber optic network vulnerabilities, fiber tapping, DDoS attacks, data protection

57. Title: Fiber Optic Network Upgrades: Transitioning from Legacy Systems to Next-Generation Architectures

¹Mrs. T. Suganthi, ²Mrs. R. Yogeshwari, ³Ms Arivarasi A, ⁴Ms Jayasri M

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper explores the challenges and opportunities associated with upgrading legacy systems to next-generation fiber optic network architectures. The abstract discusses the benefits of transitioning from older copper-based networks to fiber optic networks, such as increased bandwidth and improved network performance. It addresses the considerations involved in planning and executing a network upgrade, including compatibility issues, equipment replacement, and cost analysis. Furthermore, the abstract examines the potential roadblocks and mitigation strategies during the migration process. By analyzing these aspects, this paper aims to guide network administrators in successfully transitioning from legacy systems to advanced fiber optic network architectures.

Keywords: Fiber optic network upgrades, legacy systems, next-generation architectures, network performance, bandwidth, network upgrade planning, equipment replacement, cost analysis, migration process, network administrators.

58. Title: Ensuring Continuous Connectivity in Critical Computer Systems

¹Dr. V. Vijayasaro, ²Mrs T.K. Mohanapriya, ³Ms Anushaa S, ⁴Ms Arivarasi A

¹Prof., Dept. of ECE, ²Asst. Prof., Dept. of ECE,


Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research paper emphasizes the importance of fiber optic network reliability for ensuring continuous connectivity in critical computer systems. The abstract discusses the factors contributing to the reliability of fiber optic networks, including cable durability, redundancy, and fault detection mechanisms. It explores the deployment of redundant fiber paths, backup power systems, and network monitoring tools to enhance reliability. Additionally, the abstract addresses common causes of network downtime and presents strategies for proactive maintenance and rapid troubleshooting. By examining these aspects, this paper aims to highlight the significance of network reliability in critical computer systems and provide guidelines for achieving uninterrupted connectivity.

Keywords: Fiber optic network reliability, continuous connectivity, critical computer systems, cable durability, redundancy, fault detection mechanisms, redundant fiber paths, backup power systems, network monitoring, network downtime, proactive maintenance, troubleshooting.

ISBN: 978-81-965236-1-9


56
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kalkkurchi - 622 303, Pudukkottai Dt.

59. Title: Revolutionizing High-Speed Data Processing and Storage Fiber Optics in Data Centers

¹Mr. C.Palaniappan, ²Mrs.M.Sathya, ³Janani.R, ⁴Ms Priyanga R

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper explores the transformative impact of fiber optics in data centers, revolutionizing high-speed data processing and storage capabilities. The abstract discusses the advantages of using fiber optic cables for interconnecting data center components, such as servers, switches, and storage systems. It examines the role of fiber optics in overcoming bandwidth bottlenecks and reducing latency in data-intensive applications. Moreover, the abstract addresses key considerations in data center fiber optic infrastructure design, including cable management, scalability, and future-proofing. By analyzing these aspects, this paper aims to provide insights into leveraging fiber optics for optimal performance and efficiency in data centers.

Keywords: Fiber optics, data centers, high-speed data processing, storage, interconnecting components, servers, switches, storage systems, bandwidth bottlenecks, latency reduction, data-intensive applications, infrastructure design, cable management, scalability, future-proofing.

60. Title: Fiber Optic Network Deployment in Rural Areas: Bridging the Digital Divide

¹Mrs.M.Suganya, ²Mrs Mr. C.Planappan, ³Ms Thaiyal Nayagi K, ⁴Ms Manisha S

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper explores the deployment of fiber optic networks in rural areas to bridge the digital divide and enhance connectivity. The abstract discusses the challenges faced in providing high-speed internet access in rural communities and the advantages of fiber optics in overcoming these challenges. It explores the implementation strategies for extending fiber optic infrastructure to underserved areas, including public-private partnerships and government initiatives. Moreover, the abstract addresses the socioeconomic impact of fiber optic connectivity on rural communities, such as improved education, healthcare, and economic opportunities. By examining these aspects, this paper aims to shed light on the potential of fiber optics in narrowing the digital divide in rural areas.

Keywords: Fiber optic network deployment, rural areas, digital divide, connectivity, high-speed internet access, challenges, implementation strategies, underserved areas, public-private partnerships, government initiatives, socioeconomic impact, education, healthcare, economic opportunities.

ISBN: 978-81-965236-1-9


Dr. **S. THILAGAVATHI M.E., Ph.D.**,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

61. Title: Engaging Consumers in the Era of Smartphone in Dominance Mobile Marketing

¹Dr.Muthumanickam, ²Mrs. M. Sathya

¹Asst. Prof., Dept. of ECE, Shanmuganathan Engineering College, Pudukkottai.

²Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper focuses on mobile marketing strategies and their relevance in engaging consumers in today's smartphone-dominated landscape. It discusses the unique characteristics and opportunities presented by mobile devices, including location-based targeting, mobile apps, and mobile advertising. The paper explores effective mobile marketing techniques, such as SMS marketing, push notifications, mobile-responsive websites, and mobile apps optimization. It also highlights the importance of a seamless user experience across different mobile devices. By adopting mobile marketing strategies, organizations can effectively reach and engage with their target audience in a personalized and timely manner.

Keywords: Mobile marketing, Smartphone dominance, Location-based targeting, Mobile apps, User experience, SMS marketing.

62. Title: Enabling Efficient Data Storage and Retrieval in Fiber Optics in Cloud Computing

¹Mrs.Akila.P, ²Mrs Sathya.M

^{1,2}Asst. Prof., Dept. of ECE, Renganathan College of Engineering, Coimbatore.

Abstract: This research paper investigates the role of fiber optics in enabling efficient data storage and retrieval in cloud computing environments. The abstract discusses the challenges associated with transmitting large volumes of data between cloud servers and storage systems. It explores the advantages of using fiber optic cables for interconnecting cloud infrastructure components, including higher bandwidth and lower latency. Additionally, the abstract addresses the considerations for implementing fiber optic-based storage area networks (SANs) and network-attached storage (NAS) systems in cloud environments. By examining these aspects, this paper aims to provide insights into leveraging fiber optics for optimal data handling in cloud computing.

Keywords: Fiber optics, cloud computing, data storage, data retrieval, cloud servers, storage systems, large data volumes, interconnecting components, bandwidth, latency, storage area networks, SANs, network-attached storage, NAS, data handling.

ISBN: 978-81-965236-1-9


58
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

63. Title: Fiber Optics in Edge Computing: Accelerating Data Processing at the Network Edge

¹Dr. V. Vijayasaro, ²Mrs .M.Suganya, ³Jeyasri K, ⁴Ms Abitha S

¹Prof ²Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper explores the integration of fiber optics in edge computing environments to accelerate data processing at the network edge. The abstract discusses the advantages of deploying fiber optic networks in proximity to data sources, reducing latency and enhancing real-time data analytics. It explores the concept of fiber optic-based edge data centers and their role in supporting latency-sensitive applications. Moreover, the abstract addresses the considerations for securing and managing fiber optic connectivity in distributed edge computing architectures. By examining these aspects, this paper aims to provide insights into leveraging fiber optics for efficient edge computing and enabling emerging applications such as the Internet of Things (IoT) and 5G.

Keywords: Fiber optics, edge computing, data processing, network edge, latency reduction, real-time data analytics, edge data centers, latency-sensitive applications, fiber optic connectivity, distributed architectures, securing connectivity, managing connectivity, Internet of Things, IoT, 5G.

64. Title: Ensuring Robust Connectivity in Challenging Environments in Fiber Optics in Data Centers

¹Mrs. M.Suganya, ²Mrs.T.Suganthi, ³Ms. Navithra D, ⁴Ms Jayapriya T

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper emphasizes the importance of fiber optic network resilience in ensuring robust connectivity in challenging environments. The abstract discusses the vulnerabilities of fiber optic networks to external factors such as physical damage, natural disasters, and harsh weather conditions. It explores the implementation of redundancy strategies, such as ring topologies and diverse fiber routes, to enhance network resilience. Moreover, the abstract addresses the role of fiber optic network monitoring and proactive maintenance in identifying and mitigating potential issues. By examining these aspects, this paper aims to provide insights into maintaining reliable and resilient fiber optic connectivity in challenging environments.

Keywords: Fiber optic network resilience, robust connectivity, challenging environments, network vulnerabilities, physical damage, natural disasters, weather conditions, redundancy strategies, ring topologies, diverse fiber routes, network monitoring, proactive maintenance, reliable connectivity.

ISBN: 978-81-965236-1-9


59
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

65. Title: Fiber Optic Network Training and Skills Development and Bridging the Skills Gap in Fiber Optics

¹Mrs. M. Sathya, ²Mrs. M. Malathy

¹Asst. Prof. Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

²Asst. Prof., Dept. of ECE, Chenturan Collgee of Engineering and Technology, Pudukkottai.

Abstract: This paper focuses on fiber optic network training and skills development to bridge the skills gap in the field of fiber optics. The abstract discusses the increasing demand for skilled professionals in designing, deploying, and maintaining fiber optic networks. It explores the importance of specialized training programs and certifications in developing expertise in fiber optics. Additionally, the abstract addresses the emerging technologies and trends in fiber optics that require ongoing skills upgrading. By examining these aspects, this paper aims to emphasize the significance of continuous training and skills development in meeting the industry's growing demand for fiber optic network professionals.

Keywords: Fiber optic network training, skills development, skills gap, fiber optics field, skilled professionals, network design, network deployment, network maintenance, specialized training programs, certifications, expertise development, emerging technologies, skills upgrading, industry demand.

66. Title: Automated Detection of Brain Tumor Segmentation in MRI Images using Deep Learning

¹Mrs. G. Vidya, ²Mrs. M. Sathya, ³Ms. Navithra D, ⁴Ms Nagalakshmi P

^{1, 2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3, 4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents a novel approach for automated brain tumor segmentation in magnetic resonance imaging (MRI) images using deep learning techniques. The proposed method utilizes a convolutional neural network (CNN) architecture that incorporates both local and global contextual information to accurately identify tumor regions. The CNN model is trained on a large dataset of annotated MRI images, allowing it to learn complex patterns and features associated with brain tumors. Experimental results demonstrate the effectiveness of the proposed approach, achieving high accuracy and robustness in tumor segmentation.

Keywords: Brain tumor, MRI, deep learning, convolutional neural network, segmentation

ISBN: 978-81-965236-1-9


60
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

67. Title: Quantitative Analysis of Cardiac Function using Cardiac Magnetic Resonance Imaging

¹Dr.V.Vijayasaro, ²Mrs.G.Vidya, ³Ms.Jaffarnisha R, ⁴MsManisha S

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents a quantitative analysis framework for assessing cardiac function using cardiac magnetic resonance imaging (MRI). The proposed method involves image preprocessing, segmentation, and feature extraction techniques to derive relevant parameters that describe various aspects of cardiac function, such as ventricular volume, ejection fraction, and wall motion abnormalities. These parameters can provide valuable insights into cardiac health and aid in the diagnosis and monitoring of cardiovascular diseases. The effectiveness of the proposed framework is demonstrated through experimental evaluations on a dataset of cardiac MRI images, highlighting its potential clinical applications.

Keywords: cardiac function, cardiac MRI, quantitative analysis, image segmentation, feature extraction.

68. Title: Blockchain-Based Secure Data Sharing Framework for Communication Networks

¹Mrs. G.Vidya, ²Rohini K, ³Ms Sountharya P

¹Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: In the era of interconnected communication networks, secure data sharing among multiple parties is of paramount importance. This paper proposes a blockchain-based framework for secure data sharing in communication networks. The framework employs distributed ledger technology and cryptographic techniques to establish trust and ensure the integrity and confidentiality of shared data. Smart contracts are utilized to enforce access control policies, enabling authorized parties to securely share and access data. The framework also incorporates privacy-preserving mechanisms to protect sensitive information during data transactions. Experimental evaluations demonstrate the effectiveness of the proposed framework in terms of security, privacy, and scalability, making it a promising solution for secure data sharing in communication networks.

Keywords: Blockchain, Data Sharing, Communication Networks, Security, Privacy, Smart Contracts.

ISBN: 978-81-965236-1-9


61
Dr. **S.THILAGAVATHI M.B.**, Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

69. Title: Towards Seamless Interaction in Augmented Reality: A Gesture Recognition Approach

¹Ms. P. Keerthana, ²Mrs. T.K.Mohanapriya, ³Ms Priyanga R, ⁴Ms Rajapraba M

^{1,2}Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper presents a novel gesture recognition approach aimed at enabling seamless interaction in augmented reality (AR) environments. The proposed system utilizes computer vision techniques to accurately track and interpret hand gestures in real-time. By mapping these gestures to predefined actions, users can interact with virtual objects and manipulate their surroundings without the need for physical input devices. The effectiveness of the approach is evaluated through extensive user studies, demonstrating its potential for enhancing user experience and interaction in AR applications.

Keywords: Augmented reality, Gesture recognition, Interaction techniques, Computer vision, User experience.

70. Title: Evaluating the Effects of Virtual Reality on Cognitive Skills Training in Education

¹Mrs. V.Kavitha, ²Mr.M.Arunkumar

¹Asst. Prof., Dept. of ECE, Mountzion college of Engineering and Technology, Pudukkottai.

Abstract: This paper presents a research study that explores the effects of virtual reality (VR) on cognitive skills training in educational settings. The study investigates the use of VR simulations to enhance learning outcomes in subjects requiring spatial reasoning, problem-solving, and critical thinking skills. The paper discusses the experimental design, data collection methodologies, and statistical analysis used to evaluate the effectiveness of VR-based cognitive skills training. The findings demonstrate the potential of VR as a valuable tool for improving cognitive skills acquisition and retention in educational contexts.

Keywords: Virtual reality, Cognitive skills training, Education, Spatial reasoning, Learning outcomes

ISBN: 978-81-965236-1-9


62
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

71. Title: Extracting Insights for Informed Decision-Making in Data Analytics in Digital Marketing

¹Dr.Muthumanickam, ²Ms.Vinijini.T

¹Asst. Prof., Dept. of ECE, Shanmuganathan Engineering College, Pudukkottai.

²UG Students, Dept. of ECE, Shanmuganathan Engineering College, Pudukkottai

Abstract: This paper investigates the role of data analytics in digital marketing and its significance in making informed decisions. It explores the various data sources available in digital marketing, including website analytics, social media metrics, and customer behavior data. The paper discusses the application of data analytics techniques, such as segmentation, predictive modeling, and sentiment analysis, in extracting valuable insights from large datasets. By leveraging data analytics, organizations can optimize their marketing strategies, target specific customer segments, and improve campaign performance.

Keywords: Data analytics, Digital marketing, Informed decision-making, Segmentation, Predictive modeling, Sentiment analysis.

72. Title: The Power of Influencer Marketing: Leveraging Social Media Influencers for Brand Endorsement

¹Mrs.M.Sathya, ²Mr. Ruben.T

¹Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

²Asst. Prof., Dept. of ECE, Mnsk College of Engineering, Pudukkottai.

Abstract: This paper examines the power of influencer marketing and its impact on brand endorsement. It discusses the rise of social media influencers as trusted sources of recommendations and their ability to influence consumer purchasing decisions. The paper explores different types of influencers, such as micro-influencers and celebrity influencers, and their effectiveness in reaching specific target audiences. It also delves into influencer marketing strategies, including influencer selection, content collaboration, and measuring ROI. By leveraging influencer marketing, organizations can enhance brand visibility, build credibility, and connect with their target market in authentic and engaging ways.

Keywords: Influencer marketing, Brand endorsement, Social media influencers, Micro-influencers, Celebrity influencers, ROI measurement.

73. Title: Design and Analysis of Miniaturized Bandpass Filters for Microwave Applications

¹Mr.S.Purusothamman, ²Ms T.Kanimozhi

^{1,2}Asst. Prof., Dept. of ECE, J.J.engineering College, Trichy

Abstract: This paper presents a comprehensive study on the design and analysis of miniaturized bandpass filters for microwave engineering applications. The growing demand for compact and high-performance filters in wireless communication systems has led to the need for innovative design techniques. The proposed filters utilize advanced microstrip or coplanar waveguide structures, and various design methodologies are explored, including coupled resonator filters, interdigital filters, and stub-loaded resonators. The design process involves optimization techniques to achieve desired performance parameters such as insertion loss, return loss, and selectivity. The performance of the designed filters is evaluated using electromagnetic simulation tools, and experimental validation is conducted using fabricated prototypes. The presented filters exhibit excellent performance characteristics, making them suitable for various microwave applications.

Keywords: Microwave engineering, Bandpass filters, Miniaturization, Microstrip, Coplanar waveguide, Coupled resonator filters, Interdigital filters, Stub-loaded resonators, Optimization, Electromagnetic simulation, Wireless communication.

74. Title: Novel Waveguide Components for Millimeter-Wave Applications

¹Mr D.Arivazhagan, ²Mr. M.Maruthu

^{1,2}Asst. Prof., Dept. of ECE, AKT Memorial College Engineering and Technology, Kallakuruchi

Abstract: This paper introduces novel waveguide components for millimeter-wave applications in microwave engineering. With the increasing demand for high-speed wireless communication systems, millimeter-wave frequencies have gained significant importance. The paper presents innovative designs for key waveguide components, including power dividers, directional couplers, filters, and transitions. Advanced manufacturing techniques such as additive manufacturing and micromachining are explored for fabricating the proposed components. The design process involves optimization of the component dimensions and geometries to achieve desirable performance characteristics such as insertion loss, return loss, and power handling capability. The performance of the designed components is evaluated using electromagnetic simulation tools and experimental measurements.

Keywords: Microwave engineering, Waveguide components, Millimeter-wave applications, Power dividers, Directional couplers, Filters, Transitions, Additive manufacturing, Micromachining, Optimization, Electromagnetic simulation, Experimental measurements.

ISBN: 978-81-965236-1-9


64
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

75. Title: Design and Analysis of High-Frequency Transmission Line for Efficient Signal Propagation

¹Mrs.S.Krishnaveni, ²Mrs. V.Punitha

^{1,2}Asst. Prof., Dept. of ECE, MAM School of Engineering and Technology, Trichy

Abstract: This paper presents a comprehensive study on the design and analysis of high-frequency transmission lines for efficient signal propagation. The transmission line is a critical component in various electronic systems and is particularly important in high-speed data communication, microwave devices, and RF applications. The proposed design methodology focuses on minimizing signal distortion, reducing losses, and achieving optimal impedance matching. Theoretical analysis, simulation, and experimental validation techniques are employed to investigate the performance of the transmission line. The results demonstrate improved signal integrity and enhanced transmission characteristics, making the proposed design suitable for high-frequency applications.

Keywords: Transmission line, Signal propagation, High-frequency, Signal integrity, Impedance matching

76. Title: Investigation and Optimization of Power Transmission in High-Voltage Transmission Lines

¹Mrs.M.S.Sathya, ²Mr.Akila.P

^{1,2}Asst. Prof., Dept. of ECE, T.S.M Jain Engineering College, Kallakuruchi

Abstract: This paper investigates and optimizes power transmission in high-voltage transmission lines. High-voltage transmission lines are essential for long-distance power transmission, and optimizing their performance is crucial for efficient energy delivery. The study focuses on analyzing the various factors affecting power transmission, such as line losses, impedance matching, and corona effects. Advanced techniques such as power flow analysis, load flow studies, and insulation design are employed to identify areas of improvement. Optimization algorithms are applied to minimize losses, maximize power transfer capability, and ensure system stability. The proposed optimizations lead to enhanced power transmission efficiency and reduced environmental impact.

Keywords: Power transmission, High-voltage, Transmission line, Optimization, Losses, Corona effects.

ISBN: 978-81-965236-1-9


65
Dr. **S. THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

77. Title: Quantitative Analysis of Cardiac Function using Cardiac Magnetic Resonance Imaging

¹Mrs. Srija. S, ²Mrs Muthulakshmi.A

^{1,2}Asst. Prof., Dept. of CSE, Pavendar Barathidasan College of Engineering and Technology Trichy.

Abstract: This paper presents a quantitative analysis framework for assessing cardiac function using cardiac magnetic resonance imaging (MRI). The proposed method involves image preprocessing, segmentation, and feature extraction techniques to derive relevant parameters that describe various aspects of cardiac function, such as ventricular volume, ejection fraction, and wall motion abnormalities. These parameters can provide valuable insights into cardiac health and aid in the diagnosis and monitoring of cardiovascular diseases. The effectiveness of the proposed framework is demonstrated through experimental evaluations on a dataset of cardiac MRI images, highlighting its potential clinical applications.

Keywords: cardiac function, cardiac MRI, quantitative analysis, image segmentation, feature extraction.

78. Title: Novel Waveguide Structures for Enhanced Signal Transmission in Optical Communication Systems

¹Ms. P. Keerthana, ²Ms. D Indhupriya

¹Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

²Asst. Prof., Dept. of ECE, Mookamabigai College of Engineering Trichy.

Abstract: This paper introduces novel waveguide structures aimed at improving signal transmission in optical communication systems. Waveguides play a crucial role in guiding and controlling the propagation of optical signals. The proposed structures utilize advanced materials and innovative geometries to enhance the confinement, reduce losses, and increase the bandwidth of the guided modes. Theoretical analysis, numerical simulations, and experimental evaluations are performed to assess the performance of the proposed waveguides. The results demonstrate significant improvements in terms of signal quality, dispersion management, and reduced crosstalk. These advancements have the potential to enhance the capacity and reliability of optical communication systems.

Keywords: Waveguide, Signal transmission, Optical communication, Confinement, Dispersion management.

ISBN: 978-81-965236-1-9


66
Dr. **S. THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

79. Title: Efficient Data Dissemination Scheme for MANETs using Reinforcement Learning

¹Mr. B.Dharmaraj. B, ²Dr.V.Sureshkumar
^{1,2}Asst. Prof., Dept. of ECE, M.I.E.T, Trichy.

Abstract: In Mobile Ad hoc Networks (MANETs), efficient data dissemination is a critical aspect due to the dynamic nature of network topology and limited network resources. This paper proposes a novel data dissemination scheme based on reinforcement learning techniques. The scheme leverages the inherent properties of MANETs, such as node mobility and distributed nature, to optimize data dissemination. By employing reinforcement learning, the proposed scheme learns optimal strategies for selecting relay nodes and transmission paths, thereby maximizing data delivery while minimizing energy consumption and network congestion. Experimental evaluations demonstrate the effectiveness of the proposed scheme in improving data dissemination performance in MANETs.


Keywords: MANETs, data dissemination, reinforcement learning, node mobility, energy consumption, network congestion.

80. Title: Efficient Analysis of Electromagnetic Scattering from Large Structures using the Multilevel Fast Multipole Algorithm

¹Ms V.Bharathi,².G.Vidya
¹Asst. Prof., Dept. of ECE, Mountzion College of Engineering and Technology, Pudukkottai
²Asst. Prof., Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper presents an efficient approach for analyzing electromagnetic scattering from large structures based on the Multilevel Fast Multipole Algorithm (MLFMA). The MLFMA is a powerful numerical technique that significantly reduces the computational complexity of solving large-scale electromagnetic problems. In this work, we extend the MLFMA to handle complex geometries and propose optimizations to enhance its performance. We demonstrate the effectiveness of our approach through numerical simulations of scattering from various structures, showing accurate results with reduced computational time. The proposed method enables the efficient analysis of electromagnetic scattering from large-scale structures, making it suitable for applications in radar systems, wireless communications, and electromagnetic compatibility (EMC).

Keywords: Electromagnetic scattering, Multilevel Fast Multipole Algorithm, Large-scale structures, Numerical simulations, Radar systems, Wireless communications, Electromagnetic compatibility.



ISBN: 978-81-965236-1-9



67
Dr. **S.THILAGAVATHI M.E., Ph.D.,**
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

81. Title: Performance Evaluation of Direct-on-Line and Rotor Resistance Starting Methods for Synchronous Machines

¹Mr. A. Abdul Baseeth, ²G. Aarthi

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This study evaluates the performance characteristics of two commonly used starting methods, direct-on-line (DOL) starting and rotor resistance starting, for synchronous machines. The research aims to compare the starting torque, current transient, and stability of these methods during the startup phase. The investigation includes mathematical modeling, simulation, and experimental validation of the synchronous machine under different operating conditions. The results demonstrate the impact of the starting method on motor acceleration, synchronization time, and rotor dynamics. Furthermore, the study explores the influence of various parameters, such as rotor resistance values, on the starting performance. The findings provide valuable insights into the selection and optimization of starting methods for synchronous machines in different industrial applications.

Keywords:- Synchronous Machine, DOL Starter, Operating Conditions, Starting Methods.

82. Title: Fault Detection and Diagnosis in Power System Distribution using Artificial Intelligence

¹Mrs. B. Priya, ²Ms. S. Raga Brintha, ³R. Aasha and ⁴K. Nisha

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on the development of an AI-based fault detection and diagnosis system for power system distribution networks. By integrating machine learning algorithms and data analytics techniques, the proposed system can automatically detect and diagnose faults in real-time. The AI model analyzes sensor data, historical fault patterns, and system characteristics to identify potential faults and classify them into specific fault types. The experimental results demonstrate the effectiveness and efficiency of the AI-based approach in improving fault detection and diagnosis accuracy, enabling prompt actions for power system restoration.

Keywords:- Fault Detection, Artificial Intelligence, Distribution System, Model Analysis.

ISBN: 978-81-965236-1-9


68
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

83. Title: Advancing DC Drives with Power Electronics: Enabling High-Precision Applications

¹Ms. C. Nanthini, ²R.Ramana, ³S. Agari

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper focuses on the importance of power electronics in DC drives and its role in enabling high-precision applications. DC drives have long been favored in industries requiring accurate control of motor speed and position, such as robotics, electric vehicles, and renewable energy systems. Power electronics plays a vital role in DC drives by providing efficient and flexible control of DC motors. It discusses the various power electronic devices, such as choppers and converters, used to regulate voltage, current, and speed in DC drives. The paper highlights the advantages of power electronics in terms of improved dynamic response, high torque capability, and regenerative braking. It also explores the impact of power electronics advancements on the integration of DC drives with renewable energy sources, energy storage systems, and smart grid technologies.

Keywords:- DC Drives, Regenerative braking, Quality Control Techniques.

84. Title: Comparative Analysis and Review of Speed control of DC Machines using Controllers.

¹Mr. N. Rajamohan, ²Mr. Ahdul Baseeth

¹Asst. Prof., Dept. of EEE, Chendhuran College of Engg. And Tech., Pudukkottai.

²Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Electrical machines like DC motors, brushless DC motors, permanent magnet DC motors are being controlled with power electronics converters. The control has become precise with invention of Micro Controller and power devices like IGBT, Power MOSFET. In this paper the attempt is made to simulate a speed control of separately excited DC motor with PID and fuzzy controller. The aim of this paper is providing efficient method to control speed of DC motor using analog Controller. With the availability of MATLAB/SIMULINK, Fuzzy Controller for comprehensive study of modeling analysis and speed control design methods has been demonstrated.

Keywords:- BLDC, PMDC, Micro Controllers, Comparative Analysis.

ISBN: 978-81-965236-1-9


69
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

85. Title: Power Electronics: Enabling Advanced Control Strategies in AC and DC Drives

¹Ms. R. Akilandeswari, ²Ms. R. Ragadharsini, ³S. Sneha and ⁴V. Vinothini

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper investigates the significance of power electronics in AC and DC drives by enabling advanced control strategies for enhanced performance and functionality. Power electronics plays a pivotal role in modern drive systems by providing the necessary interface between electrical power sources and motors. It discusses the importance of power electronics in implementing advanced control techniques, such as field-oriented control (FOC), direct torque control (DTC), and model predictive control (MPC), in both AC and DC drives. These control strategies allow for precise motor control, improved energy efficiency, and dynamic response. The paper explores the impact of power electronics on enabling sensorless control, fault detection and diagnosis, and adaptive control algorithms in drives.

Keywords:- Direct Torque Control, Model Predictive Control Converters, Advanced Control Techniques.

86. Title: Enhancing Stability in Generator Systems for Reliable Electrical Power Supply

¹Ms. K.A. Muthulakshmi, ²Mrs. B. Priya, ³R. Aasha and ⁴R. Ramana

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The stability of generators in electrical power systems is crucial for ensuring reliable and uninterrupted power supply to consumers. This paper investigates various strategies and techniques aimed at enhancing the stability of generators, thereby improving the overall stability of the power system. The research focuses on both transient and dynamic stability aspects, considering the impact of disturbances and system parameters on the generator's performance. Different control and protection schemes are explored, including advanced excitation systems, governor controls, and protective relaying techniques. Additionally, the use of modern technologies such as power electronics and adaptive control methods are examined for their potential in enhancing generator stability. The paper also addresses the integration of renewable energy sources and their impact on generator stability.

Keywords:- Governor Control, Optimization, Disturbances, Stability Analysis.

ISBN: 978-81-965236-1-9


70
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

87. Title: AI-Enabled Smart Grid Management for Efficient Energy Distribution and Demand Response

¹Ms. S. Raga Brintha, ²Ms. C. Nanthini, ³G. Aathi, ⁴K. Nisha

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The integration of artificial intelligence (AI) technologies into smart grid systems has revolutionized the way energy is distributed and managed. This paper presents a comprehensive overview of AI-based smart grid systems, focusing on their capabilities in optimizing energy distribution, enhancing grid resilience, and enabling effective demand response mechanisms. The utilization of AI algorithms and machine learning techniques enables smart grids to analyze vast amounts of data collected from various sources, such as sensors, smart meters, and weather forecasting systems. These data-driven insights empower grid operators to make informed decisions in real-time, ensuring efficient energy flow, minimizing transmission losses, and reducing operational costs.

Keywords:- AI Techniques, Predictive Analytics, Grid Systems, Load Forecasting.

88. Title: An Investigative Study on Speed Control of Separately Excited DC Motor using Fuzzy Neural Model based Controller.


¹Ms. A.Reetta, ²Mrs. M. Umamaheshwari, Mrs. ³B. Priya

^{1,2}Asst. Prof., Dept. of EEE, Chendhuran College of Engg. And Tech., Pudukkottai.

³Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Conventional controllers are generally used to control the speed of the separately excited DC motors in various industrial applications. It is found to be simple and high effective if the load disturbances is small. So the drawback of Conventional controllers when high load has been applied to the DC motor. This paper presents the speed control of a separately excited dc motor using Fuzzy Neural Model Reference controller. The system has been implemented using Matlab/Simulink software. The simulation results show that presenting controller give good performance and high robustness in load disturbance.

Keywords:- Conventional controllers, Fuzzy Neural Model, Speed Control, DC Motors.



ISBN: 978-81-965236-1-9



71
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

89. Title: Design and Optimization of High-Efficiency Brushless DC Motor for Electric Propulsion Systems

¹Mr. J. Sathyaraj, ²Ms. R. Akilandeswari, ³S. Sneha and ⁴G. Aathi

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The electrification of transportation has led to an increased demand for high-efficiency electric propulsion systems. Brushless DC motors (BLDC) have emerged as a promising solution due to their efficient operation, compact size, and reliable performance. This study focuses on the design and optimization of a high-efficiency BLDC motor for electric propulsion applications. The paper discusses the selection and integration of key motor components, such as permanent magnets, stator windings, and power electronics, to achieve optimal performance. Various design optimization techniques, including finite element analysis and genetic algorithms, are employed to maximize motor efficiency and minimize losses.

Keywords:- Brushless DC motor, Voltage Control, Permanent Magnets, Genetic Algorithms, Reliability of Operation.

90. Title: Design and Optimization of High-Performance Permanent Magnet Synchronous Motor for Electric Vehicle Applications

¹Ms. M. Abirami, ²Ms. R. Ragadharsini and ³S. Agari

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: With the rapid growth of electric vehicles (EVs), there is a need for high-performance electric propulsion systems. Permanent magnet synchronous motors (PMSM) have emerged as a preferred choice due to their high torque density, efficiency, and compact size. This study focuses on the design and optimization of a high-performance PMSM specifically tailored for electric vehicle applications. The paper discusses the selection and optimization of key motor components, including permanent magnets, stator windings, and rotor configurations, to achieve optimal performance and efficiency. Advanced electromagnetic analysis techniques, such as finite element analysis and optimization algorithms, are employed to maximize torque output and minimize losses. The study also investigates thermal management strategies to ensure reliable operation under demanding conditions.

Keywords:- Electric Vehicles, Optimization Methods, Electromagnetic Analysis, Performance Analysis.

ISBN: 978-81-965236-1-9


Dr. **S. THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

91. Title: Sensorless Control Techniques for Synchronous Motors

¹Ms. R. Ragadharsini, ²Mr. A. Abdul baseeth and ³K. Nisha

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Sensorless control of synchronous motors has garnered significant attention in various applications where the use of physical sensors is impractical or cost-prohibitive. This study presents a comprehensive comparative analysis of different sensorless control techniques for synchronous motors. The paper provides an overview of commonly used sensorless methods, including back electromotive force (EMF) estimation, observer-based approaches, and advanced signal processing algorithms. Each technique's advantages, limitations, and implementation requirements are discussed, enabling a thorough evaluation of their performance in terms of speed and position estimation accuracy, robustness to parameter variations, and low-speed operation.

Keywords:- Synchronous Motor, EMF approaches, Sensorless Control methods.

92. Title: Design and Optimization of High-Efficiency Switched Reluctance Motor for Electric Powertrain Applications

¹Mr. A. Abdul baseeth and ²S. Sneha

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

²UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Switched reluctance motors (SRM) have gained significant interest in electric powertrain applications due to their high torque density, fault tolerance, and cost-effectiveness. This study focuses on the design and optimization of a high-efficiency switched reluctance motor specifically tailored for electric vehicle powertrain applications. The paper discusses the selection and optimization of key motor components, including rotor and stator configurations, winding designs, and magnetic materials, to maximize motor performance and efficiency. Advanced electromagnetic analysis techniques, such as finite element analysis and genetic algorithms, are employed to optimize the motor design, considering various performance parameters, such as torque output, power density, and efficiency. The study also investigates thermal management strategies to ensure reliable operation under demanding conditions.

Keywords:- Sensorless Control Techniques, Performance and Efficiency, Switched Reluctance Motor.

ISBN: 978-81-965236-1-9


73
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

93. Title: Harmonic Distortion Analysis and Mitigation Techniques for Power Quality Enhancement

¹Ms. K.A. Muthulakshmi and ²Ms.R. Ramana

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

²UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Harmonic distortion is a significant power quality problem arising from the proliferation of nonlinear loads in modern power systems. This paper presents a comprehensive analysis of harmonic distortion, including its causes, effects on power systems, and impact on sensitive equipment. It discusses various harmonic mitigation techniques, such as passive filters, active filters, and harmonic cancellation techniques, outlining their working principles and performance characteristics. The paper also addresses advanced control strategies for harmonic mitigation devices, including adaptive algorithms, predictive control, and coordination schemes, to achieve effective harmonic suppression.

Keywords:- Harmonic Distortion, Control Strategies, Active Filters, Cancellation Techniques.

94. Title: A Literature Review on Speed Control and Direction of Rotation using Android based Controller.

¹Ms. Indupriya, ²Mrs. Sathyaraj

¹Asst. Prof., Dept. of EEE, Mookambigai College of Engineering, Pudukkottai.

²Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The technology is a process that never ends and to improve the quality of any product these technologies are required. The Android-is the most popular mobile platform, which is very useful in creating much real time application which is useful in our day to day life. Under this article, the blueprint and execution of a cheap, robust as well as resilient and secure Bluetooth based DC motor speed and direction control has been presented. The speed control was implemented using Bluetooth technology to provide communication access from smart phone. On the other hand we have PIC platform that we can use to quickly prototype electronic systems. IR sensor is used to measure the RPM of DC motor. By using PWM signal we can control the DC motor. Android mobile act as a transmitter and the received by Bluetooth receiver interfaced to PIC which send data to the Bluetooth module and which in-turn run the DC motor and also monitor the speed of DC motor on LCD module.

Keywords:- Speed Control, Android based Controller, Bluetooth Module.

ISBN: 978-81-965236-1-9

74
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

95. Title: Advanced Control Techniques for SCR Controlled Rectifiers in Grid-Connected Applications

¹Mrs. B. Priya, ²Ms. R. Akilandeswari and ³V. Vinothini

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: SCR controlled rectifiers play a crucial role in grid-connected applications, such as renewable energy systems and industrial power supplies. This paper presents advanced control techniques for SCR controlled rectifiers in grid-connected applications to enhance power quality and grid integration. The paper discusses the challenges associated with grid synchronization, harmonic mitigation, and reactive power compensation, and presents control strategies to address these issues. It explores the application of synchronization techniques, such as phase-locked loop (PLL), to ensure accurate and reliable grid connection. The paper also investigates the use of active and passive filters for harmonic mitigation and control algorithms for reactive power compensation. Advanced control techniques, including predictive control and model predictive control (MPC), are discussed to optimize the performance of SCR rectifiers in grid-connected applications.

Keywords:- Silicon Controlled Rectifier, Phase locked Loop, Model predictive Control, Optimization Techniques, Grid System.

96. Title: Power Electronic Amplifiers for Renewable Energy Integration: Control and Grid Integration Perspectives

¹Ms. R. Ragadharsini, ²Ms. S. Raga Brintha and ³Ms. R. Aasha

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Power electronic amplifiers play a crucial role in the integration of renewable energy sources into the electrical grid. This paper focuses on the applications of power electronic amplifiers in renewable energy systems, such as photovoltaic (PV) systems and wind turbines. It discusses the design and control aspects of power electronic amplifiers, including maximum power point tracking (MPPT) algorithms, voltage regulation, and grid synchronization techniques. The paper explores the utilization of power electronic amplifiers for efficient energy conversion, grid stability enhancement, and power quality improvement. It also addresses grid integration challenges, such as islanding detection and anti-islanding protection, and presents control strategies to ensure safe and reliable operation of renewable energy systems.

Keywords: Maximum Power Point Traction, Electrical Grid, Power Electronic Amplifiers, Photovoltaic Systems.

ISBN: 978-81-965236-1-9


75
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

97. Title: Power Electronic Amplifiers for High-Frequency Induction Heating Applications: Design and Control Considerations

¹Mr. A. Abdul baseeth, ²Ms. C. Nanthini and ³G. Aathi

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Power electronic amplifiers are extensively used in high-frequency induction heating applications for various industrial processes, such as metal hardening, brazing, and annealing. This paper focuses on the applications of power electronic amplifiers in high-frequency induction heating systems. It discusses the design considerations for power electronic amplifiers, including resonant tank circuits, power switching devices, and cooling techniques. The paper explores control strategies for power electronic amplifiers in induction heating applications, such as frequency control, power regulation, and load impedance matching. It addresses the challenges associated with power efficiency, harmonic distortion, and electromagnetic interference (EMI), and presents techniques to mitigate these issues.

Keywords:- Amplifiers, Electromagnetic Interference, Adaptive Control Techniques, Predictive Control.

98. Title: Impedance Relay Applications for Fault Detection in Distribution Systems with Distributed Generation

¹Ms. K.A. Muthulakshmi, ²Ms. R. Akilandeswari and ³R. Ramana

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: With the increasing integration of distributed generation (DG) in distribution systems, fault detection and localization become critical for maintaining the reliability and stability of the power network. This paper focuses on the applications of impedance relays for fault detection in distribution systems with distributed generation. It discusses the challenges associated with fault detection in DG-rich environments, such as reverse power flow and fault impedance variability. The paper explores the utilization of impedance relays for detecting faults and distinguishing between faulted and non-faulted sections in distribution systems with DG. It addresses the impact of DG on the impedance relay's performance and presents techniques to enhance fault detection accuracy.

Keywords:- Controlling Techniques, Impedance Relay, Fault Improvemnets, Overcurrent Protection.

ISBN: 978-81-965236-1-9


76
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

99. Title: Short Circuit Test of a Single-Phase Transformer: Determination of Equivalent Impedance and Losses

Mrs. B. Priya, R.Aasha

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

²UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The short circuit test is a critical procedure conducted on a single-phase transformer to determine its equivalent impedance, leakage reactance, and copper losses. This paper focuses on the short circuit test of a single-phase transformer and the determination of its equivalent parameters. It discusses the test setup, including the measurement of primary and secondary currents and the calculation of short circuit impedance. The paper explains the procedure for conducting the test and presents the mathematical equations used to determine the equivalent impedance and losses from the recorded data. It explores the effects of transformer saturation and stray losses on the short circuit test results and discusses techniques to account for these factors. Case studies and practical examples are provided to illustrate the analysis and interpretation of short circuit test results.

Keywords:- Short Circuit Test, Single Phase Transformer, Case Study Observations, Improvement of Efficiency.

100. Title: Buchholz Relay for Transformer Health Monitoring and Condition Assessment in Three-Phase Systems

¹Ms. S. Raga Brintha, ²Ms. M. Abirami, ³S.Sneha and ⁴V. Vinothini

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{3,4}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Buchholz relay is a valuable device for transformer health monitoring and condition assessment in three-phase transformer systems. This paper focuses on the application of Buchholz relay as a diagnostic tool for detecting incipient faults and assessing the condition of three-phase transformers. It discusses the additional functionalities of Buchholz relay beyond fault detection, such as temperature monitoring, gas accumulation analysis, and alarm signaling for critical conditions. The paper explores the integration of Buchholz relay with advanced monitoring systems and communication protocols to enable real-time condition monitoring and remote data analysis. It addresses the interpretation of Buchholz relay alarm signals and the correlation with specific transformer faults or degradation mechanisms.

Keywords:- Three Phase Transformer, Protection Analysis with Buchholz relay, Efficiency Analysis.

ISBN: 978-81-965236-1-9


77
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

101. Title: Induction Motor Applications in Industrial Automation: Performance and Control Considerations

¹Ms. R. Ragadharsini, ²Ms. K.A. Muthulakshmi

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Induction motors are extensively used in various industrial automation applications due to their robustness, reliability, and cost-effectiveness. This paper focuses on the application of induction motors in industrial automation from a performance and control perspective. It discusses the selection criteria for induction motors based on application requirements, such as torque, speed range, and environmental conditions. The paper explores different control strategies, including scalar control, vector control, and sensorless control, to achieve precise speed and torque control in industrial automation processes. It addresses the challenges associated with starting and stopping induction motors and presents techniques to minimize inrush currents and achieve smooth acceleration.

Keywords:- Induction Motors, Industrial Automation Application, Scalar and Vector Control Techniques.

102. Title: Adaptive Control Strategies for Electric Vehicle Propulsion Systems: Performance and Efficiency Enhancement

¹Ms. M. Abirami, ²K. Nisha

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

²UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Adaptive control strategies play a crucial role in optimizing the performance and efficiency of electric vehicle (EV) propulsion systems under varying operating conditions. This paper focuses on the application of adaptive control techniques in EV propulsion systems. It discusses the challenges associated with parameter uncertainties, varying load conditions, and environmental factors in EVs and presents adaptive control strategies to address these challenges. The paper explores adaptive algorithms, such as adaptive gain scheduling, model reference adaptive control (MRAC), and self-tuning control, for real-time adaptation to changing system dynamics and optimal control performance. It addresses the integration of adaptive control with powertrain components, including motor drives, energy management systems, and battery management systems, to achieve efficient energy utilization and extend the driving range of EVs.

Keywords:- Model Reference Adaptive Control, Electric Vehicle, Optimization, Performance Efficiency Improvements.

ISBN: 978-81-965236-1-9



78

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

103. Title: Stability Control in Pumped Storage Hydro Power Plants: Operation and Control Strategies

¹Ms. C. Nanthini, ²Ms. R. Ragadharsini and ³Aathi

^{1,2}Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Pumped storage hydro power plants (PSHPPs) play a critical role in grid stability and energy storage, offering unique stability control challenges and opportunities. This paper focuses on stability control in PSHPPs, addressing their operation and control strategies. It discusses the operation modes of PSHPPs, including generation mode and pumping mode, and their impact on system stability. The paper explores control strategies, such as synchronous condenser operation, variable speed operation, and coordinated control of pumps and turbines, to enhance system stability and grid support. It addresses the utilization of advanced control algorithms, such as model predictive control (MPC), optimal power dispatch, and frequency regulation, to optimize the operation and stability of PSHPPs.

Keywords:- Pumped Storage Systems, System Stability, Variable Speed Operation, Model Predictive Control.

104. Title: Solar Pumping Systems for Off-Grid Water Supply: Applications, Challenges, and Innovations

¹Ms. K.A. Muthulakshmi

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Solar pumping systems play a crucial role in providing off-grid water supply solutions, addressing the challenges of remote locations and limited access to electricity. This paper focuses on solar-powered water pumping systems for off-grid water supply applications. It discusses the diverse range of applications, such as rural communities, livestock watering, and irrigation in remote areas, where solar pumping systems offer a sustainable and reliable water supply solution. The paper explores the challenges associated with off-grid water supply, such as system sizing, energy management, and maintenance. It addresses innovative approaches and technologies, including hybrid solar systems, water storage solutions, and remote monitoring systems, to overcome these challenges and enhance system performance. The paper also discusses the economic and environmental benefits of solar pumping systems for off-grid water supply. Case studies and practical examples are provided to illustrate the application and benefits of solar-powered water pumping systems in off-grid settings.

Keywords:- Off-grid Water Pumping System, Remote Monitoring System, Energy Management.

ISBN: 978-81-965236-1-9


79
Dr. **S. THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

105. Title: MATLAB Simulation of Cascaded H-Bridge Multilevel Inverters: Design, Control, and Comparative Analysis

¹Ms. M. Abirami, ²S. Agari

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

²UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Cascaded H-bridge multilevel inverters have emerged as a popular topology for high-power applications due to their scalability, modularity, and improved output waveform quality. This paper focuses on MATLAB simulation of cascaded H-bridge multilevel inverters, covering their design, control strategies, and comparative analysis. It discusses the design considerations for cascaded H-bridge multilevel inverters, including the selection of H-bridge modules, voltage balancing techniques, and power circuit design. The paper explores various control strategies employed in cascaded H-bridge multilevel inverters, such as level-shifted PWM, selective harmonic elimination (SHE), and hybrid modulation techniques, to achieve high-quality output waveforms with reduced harmonic content.

Keywords:- H-Bridge Multilevel Inverters, Harmonic Distortion, MATLAB Simulink.

106. Title: Stability Control in Multi-Source Microgrids: Challenges, Architectures, and Distributed Control Techniques

¹Mr. J. Sathyaraj and ²R. Ramana

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Multi-source microgrids, which integrate various distributed energy resources and loads, present unique stability control challenges due to the presence of multiple power sources and diverse operating conditions. This paper focuses on stability control in multi-source microgrids, addressing the challenges, architectural considerations, and distributed control techniques employed to ensure stable and resilient operation. It discusses the stability challenges in multi-source microgrids, including voltage and frequency regulation, load sharing, and power quality issues. The paper explores different architectural configurations, such as hierarchical control, droop control, and consensus-based control, for achieving stability and coordination among distributed energy resources. It addresses the utilization of communication networks, intelligent agents, and real-time data analytics for efficient stability control in multi-source microgrids. The paper also discusses advanced control techniques, such as virtual inertia control, active power filtering, and voltage droop control, to enhance stability and improve system performance.

Keywords:- Multisource Systems, Microgrids, Stability Analysis, Droop Control, Advanced Control Techniques.

ISBN: 978-81-965236-1-9


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

107. Title: A Review Report of thirteen level Inverter based Single Phase to Three Phase Converter.

¹Ms. C. Nanthini, ²V. Vinothini

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

²UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: – This paper proposes a five level inverter based single phase supply to three phase supply conversion system. This converter is able to run any three phase equipment from a single phase supply. Lower distortion of the output ensure about better performance and lower ripple in equipments output. Using capacitor based voltage divider system in inverter reduces the number of switches and improves the system efficiency. This converter allows to run three phase equipment at the same frequency of single phase.

Keywords:- Inverters, Performance Characteristics, Capacitor based Voltage Divider system.

108. Title: Single Phase Inverter based Harmonic Analyzer using MATLAB Simulink

¹Ms. S. Raga Brintha and ²S. Sneha

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This paper focus on modelling and simulation of single phase inverter as a frequency changer modulated by Pulse Width Modulation (PWM). An inverter is a circuit that converts DC sources to AC sources. Pulse Width Modulations a technique that use as a way to decrease total harmonic distortion in inverter circuit. The model is implemented using MATLAB/Simulink software with the Sim Power System Block Set based on computer simulation. Computer simulation plays an important role in the design, analysis, and evaluation of power electronic converter and their controller. MATLAB is an effective tool to analyze a PWM inverter. Advantages of using MATLAB are the following: Faster response, availability of various simulation tools and functional blocks and the absence of convergence problems. Safe-commutation strategy want be implemented is to solve switching Transients. So, Insulated Gate Bipolar Transistor (IGBT) is use as switching devices. IGBT is preferable because it is easy to control and low losses. The result from Simulink was verified using matlab simulation prior to Experimental verifications.

Keywords:- Harmonic Analyzer, Inverters, Pulse Width Modulation, Transistors.

ISBN: 978-81-965236-1-9


81
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

109. Title: A Study of Harmonic Characteristics in three phase Sinusoidal Pulse Width Modulation Inverter.

¹Mr. J. Sathyaraj and ²V.Vinothini

¹Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

²UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Through using dual Fourier transform quantitative analysis and harmonic loss calculation on the output voltage of three phase voltage-Sinusoidal Pulse Width Modulation (SPWM) inverter, a valid harmonic inhibition scheme is presented. Carrier frequency is reasonably selected to eliminate low times harmonics, harmonics of carrier frequency times and triple frequency sideband. Analysis of fast Fourier transform is achieved in MATLAB. Simulation results show that harmonics are effectively inhibited, output voltage waveform is improved and voltage distortion factor is decreased level.

Keywords:- Sinusoidal Pulse Width Modulation, Harmonics, Fourier Transform.

110. Title: Analysis and Study of Speed Control of BLDC Motor Drives.

¹Mrs.Shobana, ²Ms. R. Ragadharsini

¹Asst. Prof., Dept. of EEE, Mookambigai College of Engineering, Pudukkottai.

²Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Brushless DC Motor (BLDC) is one of the best electrical drives that have increasing popularity, due to their high efficiency, reliability, good dynamic response and very low maintenance. Due to the increasing demand for compact & reliable motors and the evolution of low cost power semiconductor switches and permanent magnet (PM) materials, brushless DC motors become popular in every application from home appliances to aerospace industry. The conventional techniques for controlling the stator phase current in a brushless DC drive are practically effective in low speed and cannot reduce the commutation torque ripple in high speed range. This paper presents the PI controller for speed control of BLDC motor. The output of the PI controllers is summed and is given as the input to the current controller.

Keywords:- Brushless DC Motor, Permanent Magnet, Speed Control Technique.

111. Title: Investigation and Design of Permanent Magnet Synchronous Motor.

¹Mr.G.Vikneshwaran, ²Mr. L.Rajamohan, ³Mr. Sathyaraj

^{1,2}Asst. Prof., Dept. of EEE, Chendhuran College of Engg. And Tech., Pudukkottai.

³Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: — Permanent magnet synchronous motors (PMSMs) have been widely used in many industrial applications. Due to their compactness and high torque density. The PMSMs are particularly used in high-performance drive systems such as the submarine propulsion. The permanent magnet synchronous motor eliminates the use of slip rings for field excitation, resulting in low maintenance and low losses in the rotor. The PMSMs have the high efficiency and are appropriate for high performance drive systems such as CNC machines, robotic and automatic production systems in the industry. Generally, the design and construction a PMSM must consider both of the stator and rotor structures in order to obtain a high performance motor. However this paper focuses only on the design of the permanent magnet rotor and uses the stator structure from an existing induction motor without changing the windings. That is, the squirrel cage rotor is replaced by a newly designed permanent magnet rotor. This paper discusses design of PMSM. MATLAB tool is used to compute the design parameters for the given PMSM machine.

Keywords:- Permanent Magnet Synchronous Motor, CNC Operation, Matlab Software.

112.Title: Study of Faults and methods to recover the problems while using Damper winding in Synchronous motor.

¹Mr. M. Manikandan, ²Mr. Abdul Baseeth

¹Asst. Prof., Dept. of EEE, Shanmuganathan Engineering College, Pudukkottai.

²Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Permanent magnet synchronous motors (PMSM) have been used in a lot of industrial fields. In this paper, a review of faults and diagnosis methods of PMSM is presented. Firstly, the electrical, mechanical and magnetic faults of the permanent magnet synchronous motor are introduced. Next, common fault diagnosis methods, such as model-based fault diagnosis, different signal processing methods, and data-driven diagnostic algorithms are enumerated. The research summarized in this paper mainly includes fault performance, harmonic characteristics, different time-frequency analysis techniques, intelligent diagnosis algorithms proposed recently and so on.

Keywords:- Synchronous Motor, Damper Winding, Analysis Techniques, Problem Diagnosis.

113. Title: A Detailed Review of Design, Modeling and Simulation of Switched Reluctance Motor.

¹Mrs. N. Abirami, ²Ms. K.A. Muthulakshmi

¹Asst. Prof., Dept. of EEE, Chendhuran College of Engg. And Tech., Pudukkottai.

²Asst. Prof., Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: Switched reluctance machines have emerged as an important technology in industrial automation; they represent a real alternative to conventional variable speed drives in many applications. This paper reviews the technology status and trends in switched reluctance machines. It covers the various aspects of modeling, design, simulation, analysis, and control. Finally, it discusses the impact of switched reluctance machines technology on intelligent motion control.

Keywords:- Switched Reluctance Motor, Intelligent Control Methods, Modeling Aspects.

114. Title: Implementation of Speed control of DC motor using MATLAB Simulink

Ms. M. Abirami, Ms. S. Devaki


^{1,2}Asst. Prof./EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Student, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: In This paper the speed control of separately excited DC motor is described. In this paper we have used a chopper for controlling. By using chopper as a controller the speed of DC motor can be controlled. A controller provides a signal to chopper circuit and then by supplying variable voltage to the armature of the motor the speed chopper is achieved which is desired. Two different types of control loops, current controller and speed controller are used in this project. The controller used is Proportional-Integral (PI) type. The delay is removed by using this controller and fast control is achieved. Separately excited DC motor is designed. The current controller and speed controller are designed in order to get accurate and smooth speed control of DC motor. The simulation of model is done and analysed in MATLAB (Simulink) and speed & current curves are achieved.

Keywords: Separately excited DC motor, PI Controller, MATLAB Simulink.

ISBN: 978-81-965236-1-9


Dr. S. THILAGAVATHI M.E., Ph.D.,⁸⁴
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

115. Title: Power Electronics-Based Energy Harvesting Techniques for Sustainable Embedded Systems

Mr. J. Karthikeyan and Mr. T.Sathyaraj

1Asst.Prof./EEE, University College of Engineering, Anna University, Ramnad Campus.

2Asst.Prof./EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: With the growing demand for sustainable and energy-efficient embedded systems, energy harvesting technologies have garnered significant attention. This paper explores the application of power electronics in energy harvesting systems, aimed at harnessing ambient energy sources to power embedded devices. The review covers various energy harvesting techniques, such as solar, vibration, and RF, and their integration with power electronics converters. The design considerations for energy harvesting circuits, including maximum power point tracking and energy storage elements, are discussed to optimize energy extraction efficiency.

Keywords: Power Electronics, Energy Harvesting, Sustainable Systems, Ambient Energy Sources, Power Converters, Maximum Power Point Tracking, Energy Storage, Power Conditioning, Intermittency, Self-sufficiency.

116. Title: Comparative Analysis of Thermal Power Generation and Hybrid Energy Systems: A Sustainable Approach to Electricity Production

Mr. L. Rajamohan, Ms. M. Abirami

1Asst.Prof./EEE, Chendhuran College of Engineering and Technology, Pudukkottai.

2Asst. Prof./EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: As global energy demand continues to surge, finding sustainable and efficient methods of electricity generation has become paramount. Traditional thermal power generation using fossil fuels has long been the primary source of electricity, but its environmental impact and finite nature of resources have raised concerns about its long-term viability. Hybrid energy systems, on the other hand, offer a promising alternative by combining multiple renewable energy sources to achieve a more stable and reliable power supply. This research aims to conduct a comprehensive comparison between thermal power generation and hybrid energy systems, focusing on their environmental impact, efficiency, cost-effectiveness, and overall sustainability. The study also evaluates the challenges and opportunities associated with transitioning from conventional thermal power plants to integrated hybrid energy systems.

Keywords: Thermal Power Generation, Hybrid Energy Systems, Electricity Production, Renewable Energy, Fossil Fuels, Sustainability, Environmental Impact, Efficiency, Cost-effectiveness.

ISBN: 978-81-965236-1-9


85
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

117. Title: Buck-Boost Converter: An Analysis of Operation, Control Strategies, and Applications

Mr. T.Palanichamy, Mr. Sathyaraj

1Asst.Prof./EEE, Mookambigai College of Engineering, Pudukkottai.

2Asst. Prof./EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: The buck-boost converter is a versatile DC-DC power converter widely used in various electronic applications to efficiently step up or step down the voltage levels. This paper provides a comprehensive analysis of the buck-boost converter, exploring its operation principles, control strategies, and practical applications. The converter's basic working principles are discussed, highlighting its ability to handle non-ideal input and output conditions. Various control techniques, including voltage mode control and current mode control, are examined, emphasizing their benefits and limitations in different scenarios. Real-world applications, ranging from battery charging systems in electric vehicles to renewable energy integration, are explored, demonstrating the converter's adaptability and significance in modern power electronics. Overall, this study aims to offer engineers and researchers a comprehensive understanding of buck-boost converters, enabling them to make informed design decisions and leverage this essential device in their applications.

Keywords: Buck-Boost Converter, DC-DC Power Converter, Step-Up Converter, Step-Down Converter, Voltage Mode Control, Current Mode Control, Efficiency Optimization.

118. Title: Smart Class Room Attendance using Face Recognition

¹Ms.Bhuvaneshwari G, ²Ms. Kaviyaselvi k, ³Ms. Lakshmi Prabha M, ⁴Puviyarasi S

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3,4}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: The proposed system leverages state-of-the-art face recognition algorithms to accurately identify and authenticate students as they enter the classroom. Through the integration of cameras and image processing technologies, the system captures and analyzes facial features in real-time, eliminating the need for manual attendance taking. This not only saves valuable instructional time but also reduces the potential for errors associated with traditional methods.

Keywords: face recognition algorithms, authentication, cameras, image processing technologies, realtime.

ISBN: 978-81-965236-1-9


86
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

119. Title: Intelligent Routing Protocols for Wireless Sensor Networks

¹Mr. Vijay R, ²Ms. Buvaneshwari S, ³Ms. Evanjelin S

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: Wireless sensor networks (WSNs) consist of numerous resource-constrained devices with limited processing power and energy. This study focuses on intelligent routing protocols designed specifically for WSNs to optimize data transmission and energy consumption. The research investigates various routing algorithms, such as hierarchical routing, geographic routing, and energy-aware routing. The findings contribute to the development of efficient and reliable communication in WSNs.

Keywords: wireless sensor networks, routing protocols, intelligent routing, data transmission, energy consumption

120. Title: Self Monitoring System for vision based application using Deep Learning

¹Ms. Sugapriya G, ²Ms. Buvaneshwari S, ³Ms. Evanjelin S, ⁴Ms. Nivedha.M,
Ms. Sivasangavi A

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3,4}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: In recent years, deep learning techniques have exhibited remarkable performance in various computer vision tasks, revolutionizing the way machines interpret visual data. This paper introduces a novel self-monitoring system that harnesses the power of deep learning for vision-based applications. The system's primary objective is to enhance the autonomy and reliability of vision-based processes by integrating real-time self-monitoring capabilities.

Keywords: Deep learning techniques, visual data, self-monitoring system, visual based applications, vision based processes, real-time self monitoring.

ISBN: 978-81-965236-1-9


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

121. Title: Cost Optimization and Resource Management in Cloud Computing

¹Ms.Subha P, ²Ms. Kaviyaselvi K, ³Ms. Lakshmi N

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research focuses on cost optimization and resource management strategies in cloud computing. It explores techniques to optimize resource provisioning, workload scheduling, and energy consumption, aiming to minimize costs while maintaining desired performance levels. The study provides practical guidelines for organizations to effectively manage their cloud resources and reduce operational expenses.

Keywords: Cloud computing, Cost optimization, Resource management, Resource provisioning, Workload scheduling, Energy consumption.

122. Title: Machine Learning for Intelligent Resource Allocation in Cloud Computing

¹Ms.Sasikala G, ²Ms. Roopina R, ³Ms. Nivetha G

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This study focuses on utilizing machine learning techniques for intelligent resource allocation in cloud computing. It explores predictive models, optimization algorithms, and adaptive resource management strategies to dynamically allocate resources based on workload patterns and user demands. The research findings enable organizations to optimize resource utilization, enhance performance, and improve user satisfaction in cloud environments.

Keywords: Cloud computing, Resource allocation, Machine learning, Predictive models, Optimization algorithms, Adaptive resource management.

ISBN: 978-81-965236-1-9


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

123. Title: Known and Unknown face smart home door lock system using AI and Edge computing

¹Ms.Priyanka K, ²Ms. S.Abirami, ³Ms. S.Mala, ⁴Ms. G.Nivetha

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3,4}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: The integration of AI and edge computing into a smart home door lock system marks a significant advancement in the realm of home security and automation. By effectively distinguishing between known and unknown faces, this technology offers enhanced convenience, security, and privacy to homeowners, presenting a promising direction for future developments in the field of smart home technology.

Keywords: AI, edge computing, security, automation, smart home technology

124. Title: A Comparative Study of Hashing Techniques for Large-Scale Data Storage

¹Ms.Yogam V, ²Ms. Lakshmi Prabha M, ³Ms. Fefina I

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This study investigates and compares various hashing techniques for efficient storage and retrieval of large-scale datasets. The research evaluates the performance of popular hash functions, collision resolution strategies, and load balancing techniques to identify the most suitable approach for handling substantial amounts of data. Experimental results and comparative analysis provide insights into the strengths and limitations of different hashing methods.

Keywords: Hashing techniques, data storage, large-scale datasets, hash functions, collision resolution, load balancing, data structures.

ISBN: 978-81-965236-1-9


Dr. **S. THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

125. Title: Efficient Implementation of Tries for Text Indexing and Retrieval

¹Ms.Bhuvaneshwari G, ²Ms. Annapoorani M, ³Ms. Arnavameena A

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research presents an efficient implementation of trie data structures for text indexing and retrieval. The study focuses on optimizing trie construction, compression techniques, and search algorithms to enhance performance in applications such as autocomplete, spell checking, and information retrieval. Experimental results demonstrate the effectiveness of the proposed approach in terms of time and space efficiency.

Keywords: Tries, text indexing, text retrieval, trie construction, compression techniques, search algorithms, autocomplete, spell checking, information retrieval, data structures

126. Title: Optimizing Hash Tables for Fast Key-Value Data Retrieval

¹Ms.Kavipriya B, ²Ms. Jayanthini T, ³Ms. Niranjanadevi C

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper focuses on optimizing hash tables for efficient key-value data retrieval. It explores techniques such as load factor tuning, collision resolution strategies, and hash function selection to enhance performance. The research presents experimental results that demonstrate the impact of different optimization strategies on the time complexity of common operations, such as insertion, deletion, and search.

Keywords: Hash tables, key-value data retrieval, optimization, load factor, collision resolution, hash function, time complexity, data structures

127. Title: Trust Centric Privacy preserving Block Chain based Digital Certificate Locker

¹Ms.Jayapratha S, ²Ms. A. Gowsalya, ³Ms. Rasmi J

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research establishes a significant step towards securing digital identity management through a trust-centric, privacy-preserving blockchain solution. As the digital landscape continues to evolve, the presented system offers a forward-looking approach to overcoming the challenges of identity authentication, privacy breaches, and trust deficits. By seamlessly combining the benefits of blockchain technology with advanced privacy techniques, the Trust-Centric Privacy-Preserving Blockchain-Based Digital Certificate Locker contributes to the realization of a more secure and privacy-respecting digital era.

Keywords: digital identity management, trust-centric, privacy preserving, block chain solution, forward-looking approach authentication, block chain technology, digital certificate locker.

128. Title: Detecting Fraudulent Transactions Using Anomaly Detection Algorithms

¹Ms.Kavipriya B, ²Ms. Sandhiya B, ³Ms. Santhi D

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: Fraudulent transactions pose a significant threat to financial systems and organizations. This research proposes a comprehensive framework for detecting fraudulent transactions using anomaly detection algorithms. By analyzing patterns and identifying deviations from normal behavior, the algorithm effectively flags suspicious activities, allowing timely intervention and prevention of financial losses. Extensive experiments on real-world datasets demonstrate the algorithm's superior performance in fraud detection, providing valuable insights for financial institutions.

Keywords: fraudulent transactions, anomaly detection, financial fraud, fraud detection, pattern analysis, fraud prevention

ISBN: 978-81-965236-1-9


91
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

129. Title: Agile Software Development An Empirical Study on Team Collaboration and Project Success

¹Ms. Vijay R, ²Ms. Māmtha G, ³Ms. Nivedha M

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research paper presents an empirical study conducted to investigate the impact of team collaboration on project success in the context of agile software development. The study analyzed data from multiple software projects and examined various factors affecting collaboration, such as communication methods, tool usage, and team dynamics. The findings highlight the importance of effective collaboration in achieving project success and provide insights for software engineering practitioners and project managers

Keywords: Agile software development, Team collaboration, Project success, Communication methods, Tool usage, Team dynamics

130. Title: Model-Driven Software Engineering A Comparative Study of Modeling Approaches

¹Ms. Subha P, ²Ms. Dayana P, ³Ms. Dharshini D

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research paper presents a comparative study of different modeling approaches in the field of model-driven software engineering (MDSE). The study analyzed and compared various modeling languages, tools, and techniques used in MDSE, considering factors such as expressiveness, usability, and tool support. The findings provide insights into the strengths and limitations of different modeling approaches and assist software engineers in selecting the most suitable approach for their specific development projects.

Keywords: Model-driven software engineering, Modeling approaches, Comparative study, Modeling languages, Tools, Techniques.

131. Title: Software Maintenance A Systematic Literature Review and Future Research Directions

¹Ms.Sugapriya G, ²Ms. Gulnas Fathima S, ³Ms. Helan J

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research paper presents a systematic literature review on software maintenance, aiming to identify current trends, challenges, and future research directions. The study analyzed a wide range of publications to explore topics such as maintenance processes, techniques, tools, and metrics. The findings provide an overview of the current state of software maintenance research and highlight areas that require further investigation, guiding researchers and practitioners in addressing the challenges associated with maintaining software systems.

Keywords: Software maintenance, Literature review, Research directions, Maintenance processes, Techniques, Tools, Metrics.

132. Title: Software Metrics for Quality Assessment A Comparative Study

¹Ms.Jayapratha S, ²Ms. Fahmidha B, ³Ms.Keerthana R

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper presents a comparative study of software metrics used for quality assessment in software engineering. The study analyzes and compares various metrics, such as code complexity, test coverage, and defect density, to evaluate their effectiveness in measuring software quality. The findings provide insights into the strengths and limitations of different metrics and assist software engineers in selecting appropriate metrics for assessing and improving the quality of their software products.

Keywords: Software metrics, Quality assessment, Comparative study, Code complexity, Test coverage, Defect density.

ISBN: 978-81-965236-1-9


Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

133. Title: Designing Adaptive User Interfaces for People with Disabilities

¹Ms.Sasikala G, ²Ms. Prasanna Devi P, ³Ms.Kalpana K

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper focuses on the design of adaptive user interfaces (UIs) to cater to the specific needs of individuals with disabilities. It examines various HCI techniques and technologies that facilitate inclusive and accessible interactions for users with visual, auditory, motor, or cognitive impairments. The research aims to bridge the gap between HCI and accessibility, promoting equal opportunities for all users.

Keywords: Human-computer interaction, adaptive user interfaces, disabilities, accessibility, inclusive design, HCI techniques, visual impairments, auditory impairments, motor impairments, cognitive impairments.

134. Title: Designing Persuasive User Interfaces for Behavior Change in Health Applications

¹Ms.Priyanka K, ²Ms. Muthumeenakshi M, ³Ms.Saranya C

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper explores the design principles and techniques for developing persuasive user interfaces in health applications. It investigates how interface elements, such as feedback mechanisms, goal-setting features, and social interaction, can influence user behavior change and promote healthier lifestyles. The research contributes to the development of effective HCI strategies in the context of health and wellness.

Keywords: Human-computer interaction, persuasive user interfaces, behavior change, health applications, feedback mechanisms, goal-setting, social interaction, user behavior, healthier lifestyles.

135. Title: Big Data Analytics in High Performance Computing Environments

¹Ms. Priya. K, ²Ms. Niroshika R, ³Ms.Ranjani K

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: High Performance Computing (HPC) systems play a crucial role in handling large-scale data analytics tasks. This research explores the integration of big data analytics frameworks with HPC environments to leverage their computational power for processing and analyzing massive datasets. We investigate the performance, scalability, and efficiency of different big data processing techniques in HPC systems. The findings of this study will contribute to the development of optimized solutions for big data analytics in HPC, enabling researchers and organizations to extract valuable insights from vast amounts of data.

Keywords: High Performance Computing, Big Data Analytics, Scalability, Efficiency, Data Processing

136. Title: Parallel Processing Techniques for High Performance Computing

¹Ms.Yogam V, ²Ms. Jone Jenifar P

^{1,2}Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: High Performance Computing (HPC) has become an essential tool for solving complex computational problems in various fields. This study focuses on exploring and comparing different parallel processing techniques employed in HPC systems. We investigate the performance, scalability, and efficiency of these techniques through benchmarking and analysis. The findings of this research will contribute to the understanding and optimization of parallel processing in high performance computing, enabling researchers and practitioners to make informed decisions when designing HPC systems.

Keywords: High Performance Computing, Parallel Processing, Scalability, Efficiency, Benchmarking

ISBN: 978-81-965236-1-9


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

137. Title: Parallel Computing Harnessing the Power of Distributed Systems

¹Ms.Kavipriya B, ²Ms.Subashini C, ³Ms.Subashini M

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: Parallel computing is a field of study that focuses on breaking down complex computational tasks into smaller sub-tasks, which are executed simultaneously on multiple processors or computing resources. This approach allows for efficient utilization of resources and can significantly reduce the time required to solve computationally intensive problems. In this abstract, we explore the fundamentals of parallel computing, including different parallel computing architectures, algorithms, and programming models. We also discuss the benefits and challenges associated with parallel computing, such as load balancing, scalability, and synchronization. Additionally, we highlight some real-world applications where parallel computing has made a significant impact, such as scientific simulations, big data analytics, and artificial intelligence.

Keywords: Parallel computing, Distributed systems, Computational efficiency, Parallel architectures, Parallel algorithms, Load balancing, Scalability.

138. Title: Intelligent Decision Support System for Medical Diagnosis using Soft Computing Techniques

¹Ms. Priya. K, ²Ms.Vanathi T, ³Ms.Swetha D

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This study introduces an intelligent decision support system for medical diagnosis employing soft computing techniques, namely fuzzy logic, neural networks, and expert systems. The objective is to enhance the accuracy and reliability of medical diagnoses by integrating the knowledge and reasoning abilities of these three methodologies. The proposed system incorporates fuzzy logic to handle uncertain and imprecise medical data, neural networks to capture complex patterns and learn from past cases, and expert systems to provide domain-specific knowledge and rules. By combining these approaches, the system can provide accurate and timely diagnoses, reducing the potential for misdiagnosis and improving patient outcomes. Experimental evaluations and comparative studies demonstrate the superiority of the proposed system over conventional methods.

Keywords: Soft computing, intelligent decision support system, medical diagnosis, fuzzy logic, neural networks, expert systems, uncertainty handling, pattern recognition, accuracy improvement, comparative evaluation.

139. Title: Quantum Computing for High Performance Applications Opportunities and Challenges

¹Ms. Priya. K, ²Ms. Sneha R, ³Ms.Suriya Jothi S

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: Quantum computing holds the potential to revolutionize high performance computing (HPC) by offering exponential computational power for certain types of problems. This research explores the opportunities and challenges of integrating quantum computing with HPC applications. We investigate the quantum algorithms, hardware architectures, and programming models that can harness the power of quantum computing in HPC environments. The findings of this study will provide insights into the feasibility and implications of quantum computing for high performance applications, paving the way for future advancements in the field.

Keywords: High Performance Computing, Quantum Computing, Quantum Algorithms, Hardware Architectures, Programming Models

140. Title: Soft Computing Approaches for Credit Risk Assessment in Banking

¹Ms.Yogam V, ²Ms. Meiyammal M, ³Ms.Nandhini P

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research investigates the application of soft computing approaches for credit risk assessment in the banking industry. The objective is to develop robust and accurate models that can effectively evaluate the creditworthiness of borrowers and minimize the risk of default. The proposed approach combines fuzzy logic, neural networks, and genetic algorithms to handle uncertainties, capture non-linear relationships, and optimize the model parameters. Fuzzy logic is used to handle imprecise and uncertain credit data, neural networks are employed to learn from historical patterns and make predictions, and genetic algorithms are utilized to optimize the model's parameters. The effectiveness of the proposed approach is demonstrated through extensive experiments and comparative analysis with traditional credit risk assessment methods. The findings highlight the potential of soft computing techniques in improving the accuracy and reliability of credit risk evaluation in the banking sector.

Keywords: Soft computing, credit risk assessment, banking, fuzzy logic, neural networks, genetic algorithms, uncertainty handling, non-linear relationships, model optimization, comparative analysis.

141. Title: Advancements in Cyber Security Forensics Investigating and Mitigating Digital Threats

¹Ms.Priyanka K, ²Ms. Rosammal M, ³Ms.Roshika K

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research paper explores the rapidly evolving field of cyber security forensics and its role in investigating and countering digital threats. The paper discusses various techniques, methodologies, and tools used in cyber forensic investigations, including network forensics, disk forensics, memory forensics, and mobile forensics. It highlights the importance of preserving digital evidence and maintaining the integrity of the investigative process. Additionally, the paper addresses the challenges faced by cyber security professionals in keeping up with emerging technologies and sophisticated cyber attacks. The findings of this study contribute to enhancing cyber security practices and strengthening the capabilities of forensic experts in tackling cybercrime.

Keywords: cyber security, forensic investigations, digital threats, network forensics, disk forensics, memory forensics, mobile forensics, digital evidence, cyber attacks, cybercrime.

142. Title: Investigating Cyber Security Breaches using Internet of Things (IoT) Forensics

¹Ms.Vijay R, ²Ms. Parameshwari S, ³Ms.Roshika K

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This paper focuses on the forensic investigation of cyber security breaches in the context of the Internet of Things (IoT). As IoT devices continue to proliferate, they pose unique challenges in terms of their heterogeneous nature, resource limitations, and lack of standardized security measures. The paper explores various forensic techniques and methodologies used to identify and analyze security breaches in IoT environments. It also addresses the legal, privacy, and ethical considerations associated with IoT forensic investigations. The insights presented in this paper contribute to improving the resilience of IoT systems against cyber threats.

Keywords: IoT forensics, cyber security breaches, forensic investigation, Internet of Things, heterogeneous devices, resource limitations, standardized security measures, security breaches, IoT environments, legal considerations, privacy considerations.

143. Title: Secure Localization in Wireless Networks Challenges and Solutions

¹Ms.Sugapriya G, ²Ms. Bhuvaneswari G, ³Ms.Sindhu V

^{1,2}Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

³UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: Location information plays a crucial role in many wireless network applications, such as asset tracking and emergency services. However, ensuring the security and accuracy of localization data poses significant challenges. This paper investigates the security threats associated with wireless network localization and presents potential solutions, including encryption techniques, authentication mechanisms, and anomaly detection algorithms. The findings contribute to the development of secure and reliable wireless network localization systems.

Keywords: Wireless networks, localization, security, encryption, authentication, anomaly detection

144. Title: Forensic Analysis of Mobile Devices in Cyber Security Investigations

¹Ms.Subha P, ²Ms. Sivagami D, ³Ms.Sivaharini S

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research paper focuses on the forensic analysis of mobile devices as an essential aspect of cyber security investigations. It examines the unique challenges posed by mobile devices, including their diverse operating systems, applications, and storage mechanisms. The paper explores various forensic techniques and tools used for acquiring, extracting, and analyzing digital evidence from smartphones and tablets. It also discusses the legal considerations and best practices for mobile device forensics. The findings of this study contribute to the advancement of forensic capabilities in the rapidly evolving mobile landscape, aiding cyber security professionals in combating mobile-related cybercrimes.

Keywords: forensic analysis, mobile devices, cyber security investigations, diverse operating systems, applications, storage mechanisms, digital evidence, smartphones, tablets, legal considerations, mobile-related cybercrimes.

ISBN: 978-81-965236-1-9


Dr. **S. THILAGAVATHI M.E., Ph.D.,**
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

145. Title: Investigating the Impact of User Interface Design on User Emotions and Affect

¹Ms.Jayaprath S, ²Ms. Kowsalya S, ³Ms.Prishiya E

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This research explores the influence of user interface design on user emotions and affective experiences. It investigates how visual aesthetics, color schemes, typography, and interaction design elements can evoke specific emotional responses in users. The study contributes to understanding the emotional aspects of HCI and provides guidelines for designing emotionally engaging interfaces. This study explores the factors influencing user trust in intelligent systems, such as artificial intelligence (AI) and machine learning (ML) algorithms. It investigates the role of transparency, explainability, reliability, and user control in building trust and acceptance of intelligent systems.
Keywords: Human-computer interaction, user interface design, user emotions, affective experiences, visual aesthetics, color schemes, typography, interaction design, emotional responses, emotionally engaging interfaces.

146. Title: Optimizing Resource Allocation in Cloud Computing Using Genetic Algorithms

¹Ms.Sasikala G, ²Ms. Sabha Aysha S, ³Ms Sushmeena K

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: Cloud computing has become increasingly popular, leading to a surge in demand for efficient resource allocation strategies. This research investigates the application of genetic algorithms to optimize resource allocation in cloud environments. By iteratively evolving solutions, the algorithm intelligently matches workload requirements with available resources, resulting in improved performance, reduced costs, and enhanced scalability. The experimental results demonstrate the effectiveness and efficiency of the proposed approach, providing valuable insights for cloud service providers and users.

Keywords: cloud computing, resource allocation, genetic algorithms, optimization, workload management, scalability

147. Title: Dynamic Array Resizing Techniques for Efficient Memory Management

¹MsBhuvaneswari G, ²Ms. Sivasangavi A S, ³Ms Sindhu V

¹Asst. Prof., Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai

Abstract: This study investigates dynamic array resizing techniques to optimize memory management in data structures. It explores strategies such as geometric expansion, exponential growth, and amortized resizing to balance memory usage and performance. The research evaluates the trade-offs between space efficiency and time complexity for various resizing approaches, providing insights into their practical applications.

Keywords: Dynamic arrays, resizing techniques, memory management, geometric expansion, exponential growth, amortized resizing, data structures, space efficiency, time complexity

148. Title: Exploring Skip Lists A Versatile Data Structure for Efficient Sorted List Operations

¹Ms.Kanakavalli C, ²Ms.Vasanth K, ³Ms.Sindhu G

^{1,2}Asst. Prof., Dept. of CSE, M.I.E.T Engineering College, Trichy.

³UG Students, Dept. of CSE, M.I.E.T Engineering College, Trichy

Abstract: This paper explores the versatility and efficiency of skip lists as a data structure for sorted list operations. It discusses the structure and properties of skip lists, along with the algorithms for insertion, deletion, and search operations. Comparative evaluations against traditional sorted list data structures highlight the benefits of skip lists for maintaining sorted collections with improved performance.

Keywords: Skip lists, sorted lists, data structures, insertion, deletion, search operations, performance improvement

149. Title: Optimizing Resource Allocation in Cloud Computing Using Genetic Algorithms

¹Ms. Vasantha K, ²Ms. Kanakavalli C, ³Ms. Vivek G

^{1,2}Asst. Prof., Dept. of CSE, M.I.E.T Engineering College, Trichy.

³UG Students, Dept. of CSE, M.I.E.T Engineering College, Trichy

Abstract: Cloud computing has become increasingly popular, leading to a surge in demand for efficient resource allocation strategies. This research investigates the application of genetic algorithms to optimize resource allocation in cloud environments. By iteratively evolving solutions, the algorithm intelligently matches workload requirements with available resources, resulting in improved performance, reduced costs, and enhanced scalability. The experimental results demonstrate the effectiveness and efficiency of the proposed approach, providing valuable insights for cloud service providers and users.

Keywords: cloud computing, resource allocation, genetic algorithms, optimization, workload management, scalability

150. Title: Solving the Travelling Salesman Problem Using Ant Colony Optimization

¹Ms. Ranveer S, ²Ms. Sathyanarayanan.S, ³Ms.Sivasubramaniyan P

^{1,2,3}UG Students, Dept. of CSE, Mookambigai College of Engineering, Trichy.

Abstract: The Travelling Salesman Problem (TSP) is a classic optimization challenge with numerous practical applications. This research presents an innovative solution to TSP using Ant Colony Optimization (ACO) algorithm. By simulating the behavior of ants, the algorithm identifies optimal paths that minimize the total distance traveled. Experimental evaluations on benchmark datasets demonstrate the algorithm's effectiveness in solving large-scale TSP instances, offering promising insights for logistics and transportation industries.

Keywords: Travelling Salesman Problem, optimization, Ant Colony Optimization, path optimization, logistics, transportation

151. Title: Machine Learning Algorithm for Sentiment Analysis in Social Media

¹Ms. Nivethitha G, ²Ms. Anusha A, ³Ms.Kanimozhi V

^{1,2,3}UG Students, Dept. of CSE, Mookambigai College of Engineering, Trichy.

Abstract: Sentiment analysis plays a crucial role in understanding public opinion and sentiment expressed on social media platforms. This study introduces a machine learning algorithm specifically designed for sentiment analysis tasks. By training on large-scale labeled datasets, the algorithm efficiently classifies social media content into positive, negative, or neutral sentiment categories. Experimental results demonstrate the algorithm's high accuracy and robustness, making it a valuable tool for businesses, marketers, and researchers interested in sentiment analysis.

Keywords: sentiment analysis, machine learning, social media, opinion mining, sentiment classification, natural language processing

152. Title: DevOps in Software Engineering Practices, Challenges, and Benefits

¹Ms. RavinGeoVarghese, ²Ms. Prince

^{1,2}UG Students, Dept. of CSE, Bannari Amman Institute of Technology, Sathiyamangalam.

Abstract: This paper explores the practices, challenges, and benefits of adopting DevOps in software engineering. The study examines the integration of development and operations teams, continuous integration and deployment, automation, and monitoring practices. It also investigates the challenges faced during DevOps implementation and the potential benefits, such as increased collaboration, faster time to market, and improved software quality. The findings provide insights into adopting and optimizing DevOps practices in software engineering environments.

Keywords: DevOps, Software engineering, Practices, Challenges, Benefits, Integration, Continuous integration, Continuous deployment, Automation, Monitoring.

ISBN: 978-81-965236-1-9


103
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

153. Title: Software Security an Analysis of Common Vulnerabilities and Countermeasures

¹Ms. Priya K, ²Ms. Subbulakshmi G

^{1,2} Asst. Prof., Dept. of CSE, Dr.Mahalingam College of Engineering and Technology, Pollachi.

Abstract: This research paper conducts an analysis of common vulnerabilities in software systems and explores countermeasures to mitigate security risks. The study examines various types of vulnerabilities, such as code injection, cross-site scripting, and insecure authentication, and investigates techniques and best practices for enhancing software security. The findings help software engineers understand and address security vulnerabilities in their development processes, promoting the development of robust and secure software systems.

Keywords: Software security, Vulnerabilities, Countermeasures, Code injection, Cross-site scripting, Insecure authentication, Best practices.

154. Title: A Hybrid Soft Computing Approach for Forecasting Stock Market Prices

¹Ms. Vishwa K, ²Ms. Parthasarathy J

^{1,2}UG Students, Dept. of CSE, Dr.Mahalingam College of Engineering and Technology, Pollachi.

Abstract: This research presents a hybrid soft computing approach for predicting stock market prices using a combination of fuzzy logic, neural networks, and genetic algorithms. The objective is to overcome the limitations of traditional forecasting models and enhance prediction accuracy. The proposed method involves extracting historical stock market data, applying fuzzy logic to handle uncertainties and linguistic variables, training a neural network to capture complex patterns, and optimizing the network using genetic algorithms. The hybrid approach leverages the complementary strengths of each technique, resulting in improved forecasting accuracy compared to individual models. The effectiveness of the proposed method is demonstrated through extensive experiments and comparative analysis with existing approaches. The findings highlight the potential of soft computing techniques in addressing the challenges of stock market forecasting and provide valuable insights for financial analysts and investors.

Keywords: Soft computing, stock market forecasting, fuzzy logic, neural networks, genetic algorithms, prediction accuracy.

ISBN: 978-81-965236-1-9

104

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

Title: Efficient Image Compression Using Discrete Cosine Transform Algorithm

¹Mr.Rakesh S, ²Ms. Jenifar A

^{1,2} UG Students, Dept. of CSE, Shivani Engineering College, Trichy

Abstract: Image compression is essential for efficient storage and transmission of visual data. This paper presents an efficient image compression technique based on the Discrete Cosine Transform (DCT) algorithm. By converting image data into frequency components, the algorithm removes redundant information, achieving high compression ratios while preserving visual quality. Experimental evaluations on standard image datasets demonstrate the algorithm's superior compression performance, making it suitable for various image processing applications.

Keywords: image compression, Discrete Cosine Transform, DCT, data compression, visual quality, image processing

155. Title: Optimal Tree Traversal Algorithms for Efficient Data Processing

¹Mr.Priya K, ²Ms. Shanthi T

^{1,2} Asst. Prof, Dept. of CSE, Shivani Engineering College, Trichy

Abstract: This research investigates optimal tree traversal algorithms for efficient data processing in various data structures, including binary trees, B-trees, and trie-based structures. It explores strategies such as depth-first traversal, breadth-first traversal, and inorder traversal, along with their applications in tasks like data filtering, aggregation, and pattern matching. Experimental evaluations provide insights into the performance characteristics of different traversal approaches.

Keywords: Tree traversal algorithms, data processing, binary trees, B-trees, trie-based structures, depth-first traversal, breadth-first traversal, inorder traversal, data filtering, aggregation, pattern matching, data structures



156. Title: Optimization of Energy Management Systems using Soft Computing Approaches

¹Ms.Saravana Priya G, ²Ms. Hema A ³Ms. Iswarya P

¹Asst. Prof., Dept. of CSE, Viswam Institute of Engineering & Technology Trichy.

^{2,3}UG Students, Dept. of CSE, Viswam Institute of Engineering & Technology, Trichy

Abstract: This research focuses on the optimization of energy management systems using soft computing approaches, including evolutionary algorithms, swarm intelligence, and fuzzy logic. The aim is to develop efficient and intelligent techniques for optimizing energy generation, distribution, and consumption in diverse settings, such as smart grids, renewable energy systems, and industrial facilities. The proposed approach utilizes evolutionary algorithms to search for optimal solutions, swarm intelligence to mimic collective behaviour and explore the solution space, and fuzzy logic to handle uncertainties and imprecise data. By integrating these techniques, the research aims to achieve energy-efficient operations, reduce costs, and minimize environmental impacts. Extensive simulations and case studies validate the effectiveness of the proposed approach, demonstrating its potential for real-world energy management applications.

Keywords: Soft computing, energy management systems, optimization, evolutionary algorithms, swarm intelligence, fuzzy logic, smart grids, renewable energy, industrial facilities, energy efficiency, cost reduction, environmental impact.

157. Title: Hadoop and Cloud Computing: Leveraging Cloud Services for Scalable Data Processing

¹Ms.Sakthivelraja R, ²Ms. Rajeswari K, ³Ms. Priyadharshini F

¹Asst. Prof., Dept. of CSE, Oxford Engineering College, Trichy.

^{2,3}UG Students, Dept. of CSE, Oxford Engineering College, Trichy

Abstract: This study explores the synergy between Hadoop and cloud computing, enabling organizations to leverage cloud services for scalable and cost-effective data processing. The paper discusses the advantages of deploying Hadoop on cloud platforms, such as Amazon Web Services (AWS) and Microsoft Azure. It also examines the challenges and strategies for optimizing Hadoop performance in cloud-based environments.

Keywords: Hadoop and Cloud Computing, Scalable Data Processing, Cloud Services, Amazon Web Services, AWS, Microsoft Azure, Cost-Effectiveness, Hadoop Performance Optimization, Cloud-Based Environments.

158. Title: Promoting English Language Skills through Content-Based Instruction

¹Mr.S.Ramesh Raja, ²Ms.N.Rafeeqa, ³Ms.S.Sumithra

¹Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research investigates the effectiveness of content-based instruction in promoting English language skills. It explores the integration of language learning with subject content, such as science, history, or literature, to enhance language acquisition. The study examines the role of authentic materials, project-based learning, and language scaffolding in content-based instruction. It also addresses the challenges and benefits of implementing this approach in language classrooms. The findings contribute to the understanding of innovative language teaching methodologies.

Keywords: English language skills, content-based instruction, language learning, subject content, authentic materials, project-based learning, language scaffolding, language classrooms, language teaching methodologies

159. Title: Developing English Language Skills: A Comparative Analysis of Formal and Informal Learning Settings

¹Mr.S.Ramesh Raja, ²Ms.S. Subha Dharshini, ³Ms.S. Yogeshwari

¹Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This study presents a comparative analysis of formal and informal learning settings in developing English language skills. It examines the advantages and limitations of classroom instruction, language schools, and self-directed learning approaches. The research explores the role of informal settings, such as language cafes, language exchanges, and immersive experiences, in language skill development. It also addresses the influence of social interaction, motivation, and individual learning styles on language learning outcomes. The findings contribute to a nuanced understanding of effective language learning environments.

Keywords: English language skills, formal learning settings, informal learning settings, classroom instruction, language schools, self-directed learning, language cafes, language exchanges, immersive experiences, social interaction, motivation, learning styles, language learning environments

ISBN: 978-81-965236-1-9


107
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

160. Title: A Comprehensive Study on Developing English Language Skills: Strategies and Challenges

¹Mr.S.Ramesh Raja, ²Ms.K. Priyadharshini, ³Ms.V.Ragavi.

¹Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CIVIL, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research provides a comprehensive study on the development of English language skills. It explores various strategies and techniques to enhance vocabulary, grammar proficiency, reading comprehension, listening comprehension, and speaking fluency. The study also investigates the challenges faced by learners in acquiring these skills and proposes effective solutions. The findings contribute to the understanding of English language skill development and offer practical recommendations for language learners and educators.

Keywords: English language skills, vocabulary development, grammar proficiency, reading comprehension, listening comprehension, speaking fluency, language learning strategies, challenges, language learners, educators

161. Title: Improving English Language Skills through Contextualized Learning: A Pedagogical Approach

¹Mr.S.Ramesh Raja, ²Mrs.S.Ammu

¹Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.

²Asst. Prof., Dept. of English, Mount Zion College of Engineering and Technology, Pudukkottai.

Abstract: This study focuses on improving English language skills through contextualized learning. It examines the benefits of connecting language learning to real-life situations, authentic texts, and cultural contexts. The research explores the use of task-based learning, project-based learning, and communicative activities to enhance language proficiency. It also discusses the role of technology and multimedia resources in facilitating contextualized language learning. The findings provide insights for educators seeking effective pedagogical approaches in English language instruction.

Keywords: English language skills, contextualized learning, real-life situations, authentic texts, cultural contexts, task-based learning, project-based learning, communicative activities, technology, multimedia resources, pedagogical approaches, language instruction

ISBN: 978-81-965236-1-9


108
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

162. Title: Enhancing English Writing Skills: Strategies and Techniques for Effective Written Communication

¹Mr.P.Alagumathi, ²Ms.A.Megavadhana, ³Ms.R.Priyanka.

¹Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of ECE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research investigates strategies and techniques to enhance English writing skills for effective written communication. It explores the writing process, including pre-writing, drafting, revising, and editing. The study examines the importance of organization, coherence, grammar, and vocabulary in written texts. It also discusses the role of feedback, peer collaboration, and self-editing in improving writing proficiency. The findings offer practical insights for learners and educators aiming to develop strong written communication skills in English.

Keywords: English writing skills, written communication, writing process, organization, coherence, grammar, vocabulary, feedback, peer collaboration, self-editing, writing proficiency, learners, educators

163. Title: The Role of Vocabulary Development in Enhancing English Language Skills

¹Mr.P.Alagumathi, ²Ms.S.Abinaya, ³Ms.S.Nisha.

¹Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of EEE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This study explores the crucial role of vocabulary development in enhancing English language skills. It examines effective vocabulary learning strategies, such as word associations, contextual learning, and spaced repetition. The research investigates the impact of vocabulary size on reading comprehension, writing proficiency, and overall language competency. It also addresses the challenges of vocabulary acquisition and proposes practical solutions. The findings contribute to a deeper understanding of vocabulary development and its influence on English language skills.

Keywords: Vocabulary development, English language skills, vocabulary learning strategies, word associations, contextual learning, spaced repetition, reading comprehension, writing proficiency, language competency, vocabulary acquisition

ISBN: 978-81-965236-1-9


109
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkūrchi - 622 303, Pudukkottai Dt.

164. Title: Fostering English Listening Comprehension Skills: Strategies and Techniques

¹Mr.P.Alagumathi, ² Ms.R.Keerthana, ³Ms.D.Dharshini.

¹Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.

^{2,3}UG Students, Dept. of CSE, Sri Bharathi Engineering College for Women, Pudukkottai.

Abstract: This research focuses on strategies and techniques to foster English listening comprehension skills. It explores the factors affecting listening comprehension, such as accent variation, speech rate, and background noise. The study examines the use of authentic listening materials, note-taking techniques, and active listening strategies to improve listening proficiency. It also discusses the role of technology and multimedia resources in enhancing listening skills. The findings provide practical insights for learners and educators aiming to develop effective listening comprehension abilities.

Keywords: English listening comprehension skills, strategies, techniques, accent variation, speech rate, background noise, authentic listening materials, note-taking, active listening, technology, multimedia resources, learners, educators

165. Title: Reading Strategies for Improving English Language Skills: A Comprehensive Analysis

¹Mr.P.Alagumathi, ²Mr.M.Hariharan


¹Asst. Prof., Dept. of English, Sri Bharathi Engineering College for Women, Pudukkottai.

²Asst. Prof., Dept. of English, MNSK Engineering College, Pudukkottai.

Abstract: This study provides a comprehensive analysis of reading strategies for improving English language skills. It explores the importance of extensive reading, reading comprehension strategies, and critical reading skills in developing language proficiency. The research investigates the impact of different text types, such as fiction, non-fiction, and academic texts, on reading comprehension abilities. It also addresses the role of vocabulary knowledge and meta cognitive strategies in enhancing reading skills. The findings offer practical recommendations for learners and educators seeking to improve English language skills through reading.

Keywords: Reading strategies, English language skills, extensive reading, reading comprehension, critical reading skills, text types, fiction, non-fiction, academic texts, vocabulary knowledge, meta cognitive strategies, learners, educators

ISBN: 978-81-965236-1-9


110
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

166. Title: Exploring the Properties of Eigenvalues and Eigenvectors: Insights into Matrix Analysis

¹Mrs.N.Vithya, ²Ms.R.Divya, ³ N.Ameera

^{1,2} Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

³UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper delves into the fundamental properties of eigenvalues and eigenvectors, shedding light on their significance in matrix analysis. Eigenvalues and eigenvectors play a pivotal role in various disciplines, including linear algebra, physics, engineering, and data science. Through a comprehensive investigation, we uncover the key properties of eigenvalues and eigenvectors, exploring their mathematical characteristics and practical applications. The paper begins with a concise introduction to the concept of eigenvalues and eigenvectors, emphasizing their relationship to square matrices. Subsequently, we delve into the essential properties, such as algebraic and geometric multiplicities, the spectral theorem, and diagonalization. We elucidate how these properties facilitate the analysis and transformation of matrices, providing essential tools for solving numerous real-world problems.

Key words: Eigenvalues, Eigenvectors, Matrix analysis, Spectral theorem, Diagonalization, Geometric interpretation, Numerical methods, Stability analysis, Control theory, Linear algebra.

167. Title: Unveiling the Mysteries of Implicit Differentiation: Techniques and Applications

¹Dr.R.Dhanalakshmi, ² M.Amrin, ³ A.Gokula praveena

¹Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

^{2,3}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper explores the powerful mathematical technique of implicit differentiation, delving into its mysteries and unveiling its applications. Implicit differentiation is a method used to find derivatives of equations where the dependent and independent variables are not explicitly expressed. Through a comprehensive investigation, we uncover the theoretical foundations and step-by-step techniques for performing implicit differentiation. The paper begins with a concise introduction to the concept of implicit differentiation, emphasizing its significance in solving complex equations and implicit functions. Subsequently, we delve into the essential rules and procedures for applying implicit differentiation to various types of equations, including algebraic, trigonometric, exponential, and logarithmic.

Keywords: Implicit differentiation, Derivatives, Chain rule, Implicit functions, Algebraic functions, Trigonometric functions, Exponential functions, Logarithmic functions, Curve sketching, Optimization problems, Mathematical modeling, Computational techniques.

ISBN: 978-81-965236-1-9


111
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai DL

168. Title: Homogeneous Functions and Euler's Series: Unraveling the Mathematical Connection

¹ Ms.R.Divya, ² A.Rajeswari, ³ C.Suguna

¹ Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

^{2,3} UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper delves into the fascinating relationship between homogeneous functions and Euler's series, unraveling the mathematical connection that lies at the heart of these concepts. Homogeneous functions are a fundamental class of functions that exhibit scaling properties, while Euler's series is a powerful mathematical tool used for approximating functions through infinite series. Through a comprehensive investigation, we explore the theoretical foundations and practical implications of the interplay between these two mathematical phenomena. The paper begins with a concise introduction to homogeneous functions, highlighting their defining properties and significance in various fields, including physics, economics, and engineering. We delve into the concept of homogeneity and its applications in understanding the behavior of functions under scaling transformations. Subsequently, we explore Euler's series, also known as the Euler-Maclaurin series, and its relationship with homogeneous functions.

Keywords: Homogeneous functions, Scaling properties, Euler's series, Euler-Maclaurin series, Infinite series, Approximation, Convergence, Special functions, Numerical analysis, Computational mathematics, Physics.

169. Title: Enhanced Accuracy: Investigating the Modified Euler's Method for Numerical ODE Solving

¹ Mrs.P.Nalini, ² M.Veadasri, ³ K.Akarshana

¹ Asst. Prof., Dept of Maths, Shanmuganathan Engineering College, Pudukkottai

^{2,3} UG Student Shanmuganathan Engineering College, Pudukkottai

Abstract: This research paper explores the Modified Euler's method, a numerical technique used for solving ordinary differential equations (ODEs) with enhanced accuracy compared to the traditional Euler's method. Numerical methods for solving ODEs play a crucial role in various scientific and engineering applications, from simulating physical systems to modeling complex phenomena. The Modified Euler's method, also known as the Improved Euler's method or Heun's method, provides a more accurate approximation of the solution by incorporating midpoint evaluations. Through a comprehensive investigation, we delve into the theoretical foundations, computational procedures, and practical implications of the Modified Euler's method for numerical ODE solving. The paper begins with a concise introduction to numerical methods for ODE solving, highlighting the limitations of the standard Euler's method and the motivation behind developing the Modified Euler's method. Subsequently,

Keywords: Modified Euler's method, Numerical ODE solving, Improved Euler's method, Heun's method, Accuracy, Stability, Convergence analysis, Midpoint evaluation, Global truncation error, Numerical simulations, Dynamic systems, Runge-Kutta methods, Computational efficiency.

ISBN: 978-81-965236-1-9


112
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

**170. Title: Optimization with Lagrange's Series of Undetermined Multipliers:
Unraveling Constrained Extrema**

¹ Dr.R.Dhanalakshmi, ²Mrs.N.Vithya, ³B.Ashika

^{1,2}Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

³UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper delves into the powerful method of optimization using Lagrange's series of undetermined multipliers, providing insights into its application for unraveling constrained extrema. Lagrange's method is a crucial tool in solving optimization problems subject to equality constraints, enabling the identification of critical points and extremal values while considering the imposed conditions. Through a comprehensive investigation, we explore the theoretical foundations and practical implications of Lagrange's series in tackling complex optimization challenges. The paper begins with a concise introduction to optimization problems with equality constraints, highlighting the significance of Lagrange's method in handling such scenarios. We delve into the formulation of the Lagrange function, which involves introducing undetermined multipliers to incorporate the constraints into the objective function.

Keywords: Optimization, Lagrange's method, Undetermined multipliers, Constrained extrema, Lagrange function, Equality constraints, Critical points, Partial derivatives, Constrained optimization, Design problems, Cost minimization, Multidimensional optimization.

**171. Title: Beyond Bounds: Understanding Improper Integrals and Their
Convergence**

¹ Mrs.N.Vithya, ²P.Harshitha, ³A.Sheera banu

¹Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

^{2,3}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper delves into the intriguing realm of improper integrals, aiming to provide a comprehensive understanding of their nature and convergence properties. Improper integrals are a class of integrals that involve integrating functions with unbounded intervals or singularities. Through a systematic exploration, we uncover the theoretical foundations and practical implications of improper integrals, shedding light on their convergence behavior and mathematical significance. The paper begins with a concise introduction to improper integrals, highlighting their distinction from standard (definite) integrals and the challenges they present due to their unbounded or singular nature. We explore the fundamental concept of convergence and divergence of improper integrals, emphasizing the conditions for their existence.

Keywords: Improper integrals, Convergence, Divergence, Unbounded intervals, Singularities, Limits of integration, Comparison tests, Abel's theorem, Mathematical modeling, Physics, Engineering, Infinite series, Fourier transforms, Regularization, Analytic continuation.

ISBN: 978-81-965236-1-9



113

Dr. **S. THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

172. Title: Interpolating Insights: A Comparative Study of Lagrange's and Newton's Divided Difference Interpolations

¹Mrs.T.Dhanalakshmi, ²P.Pavithra, ³R.Janai

¹Asst. Prof., Dept of Maths, Mother Theresa college of Engineering and Technology, Pudukkottai

^{2,3}UG Student Mother Theresa college of Engineering and Technology, Pudukkottai

Abstract: This research paper conducts a comprehensive comparative study of Lagrange's and Newton's divided difference interpolations, two widely-used techniques for approximating functions based on a set of data points. Interpolation is a fundamental mathematical concept with applications in various fields, such as engineering, computer graphics, and numerical analysis. Through a systematic investigation, we explore the theoretical foundations, computational procedures, and practical implications of Lagrange's and Newton's divided difference interpolations, shedding light on their similarities, differences, and optimal usage in different scenarios. The paper begins with a concise introduction to interpolation and its significance in approximating functions from discrete data points. We highlight the importance of choosing appropriate interpolation techniques based on the characteristics of the data and the desired level of accuracy.

Keywords: Interpolation, Lagrange's interpolation, Newton's divided difference interpolation, Interpolation polynomial, Computational complexity, Interpolation error, Comparative analysis, Curve fitting, Data smoothing, Numerical integration, Stability, Numerical precision.

173. Title: Changing the Rules: Exploring the Change of Order of Integration in Multiple Integrals

¹Mrs.R.Divya, ²Mrs.N.Vithya, ³R.Rajeshwari

^{1,2}Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

³UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper delves into the fascinating topic of changing the order of integration in multiple integrals, aiming to provide a comprehensive exploration of the rules and implications of this transformative process. Changing the order of integration is a powerful technique used in multivariable calculus to simplify and evaluate double and triple integrals. Through a systematic investigation, we uncover the theoretical foundations and practical applications of this method, shedding light on its mathematical significance and potential challenges. The paper begins with a concise introduction to multiple integrals and the concept of changing the order of integration. We highlight the motivation behind this transformation and its utility in solving complex integration problems. Subsequently, we explore the rules and techniques for changing the order of integration in both double and triple integrals.

Keywords: Change of order of integration, Multiple integrals, Double integrals, Triple integrals, Multivariable calculus, Integration limits, Coordinate systems, Geometric interpretation, Symmetries, Real-world applications, Physics, Engineering, Applied mathematics.

ISBN: 978-81-965236-1-9


114
Dr. **S.THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkūrchī - 622 303, Pudukkottai Dt.

174. Title: Unraveling the Mysteries of Sampling Distributions: Insights and Applications

¹ Ms.R.Divya, ²Dr.R.Dhanalakshmi, ³B.Jayamanohari

^{1,2}Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

³UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper delves into the intriguing world of sampling distributions, seeking to unravel their mysteries and provide comprehensive insights into their properties and practical applications. Sampling distributions play a crucial role in statistics, as they help in understanding the behavior of sample statistics and making inferences about population parameters. Through a systematic investigation, we explore the theoretical foundations, properties, and real-world applications of sampling distributions, shedding light on their significance in statistical analysis. The paper begins with a concise introduction to sampling distributions, highlighting their importance in statistical inference and hypothesis testing. We delve into the concept of sampling and its relevance in collecting data for analysis. Subsequently, we explore the properties of sampling distributions, such as their mean, variance, and shape. Understanding these properties is essential for making accurate statistical inferences and drawing conclusions based on sample data.

Keywords: Sampling distributions, Statistical inference, Hypothesis testing, Sampling methods, Central Limit Theorem, Sample statistics, Population parameters.

175. Title: Untangling the Connection: Investigating the Independence of Attributes

¹Mrs.N.Vithya, ²S.Sivajothika, ³K.Kaviya

¹Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

^{2,3}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper delves into the intriguing concept of independence of attributes, aiming to investigate the relationships between different attributes and the implications of their independence in statistical analysis. Independence of attributes refers to the absence of any association or dependency between two or more variables in a dataset. Through a systematic investigation, we explore the theoretical foundations, statistical measures, and practical implications of assessing and understanding the independence of attributes. The paper begins with a concise introduction to the concept of independence of attributes, highlighting its significance in various fields, including statistics, machine learning, and data analysis. We delve into the distinction between independent and dependent variables and the role of independence assumptions in statistical modeling. Subsequently, we explore statistical measures and methods used to assess the independence of attributes, including correlation coefficients, contingency tables, and hypothesis testing.

Keywords: Independence of attributes, Statistical analysis, Correlation coefficients, Contingency tables, Hypothesis testing, Statistical modeling, Machine learning, Data analysis, Predictive models.

ISBN: 978-81-965236-1-9


115
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

176. Title: Unraveling the Science: Exploring the Completely Randomized Design in Experimental Studies

¹ Dr.R.Dhanalakshmi, ²C.Bhuvaneshwari, ³R.Sasipriya

¹Asst. Prof., Dept of Maths, Sri Bharathi Engineering College, Pudukkottai

^{2,3}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: This research paper delves into the intricacies of the completely randomized design (CRD) in experimental studies, aiming to unravel its scientific foundations and explore its applications. The completely randomized design is a fundamental experimental design that involves randomly assigning treatments to experimental units, allowing researchers to draw unbiased conclusions and make statistical inferences. Through a comprehensive investigation, we explore the theoretical underpinnings, statistical analysis, and practical implications of the completely randomized design in a variety of research contexts. The paper begins with a concise introduction to the completely randomized design, highlighting its importance in experimental research and its ability to control for confounding variables and sources of bias. We delve into the process of randomization and its role in ensuring the validity of study results.

Keywords: Completely randomized design, Experimental studies, Randomization, Control group, Treatment effects, Statistical analysis, Analysis of variance (ANOVA), Post-hoc tests, Research methodology, Experimental control, Sample size determination, Replication, Experimental bias.

177. Title: Unveiling Eigenvalues: Power Method for Efficiently Computing Eigenvalues of Matrices

¹Mrs.R.Gowsalya, ²S.Geetha, ³P.Ramya, ⁴A.Arundathi

^{1,2}Asst. Prof., Dept of Maths, Mount zion college of Engineering and Technology, Pudukkottai

^{3,4}UG Student Mount zion college of Engineering and Technology, Pudukkottai

Abstract: This research paper explores the power method, a widely-used numerical technique, for efficiently computing eigenvalues of matrices. Eigenvalues are essential mathematical properties of matrices, finding applications in various fields, including engineering, physics, and data analysis. The power method provides a simple yet powerful iterative approach to approximate the dominant eigenvalue and its corresponding eigenvector. Through a comprehensive investigation, we unveil the theoretical foundations, convergence properties, and practical applications of the power method for computing eigenvalues of matrices. The paper begins with a concise introduction to eigenvalues and their significance in matrix analysis. We highlight the challenges involved in calculating eigenvalues, especially for large matrices, and the need for efficient numerical methods.

Keywords: Eigenvalues, Power method, Matrix analysis, Convergence properties, Numerical techniques, Principal components, Stability analysis, Complex networks, Data analysis, Iterative algorithms, Deflation, Acceleration strategies.

ISBN: 978-81-965236-1-9


116

Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

178. Title: Dislocations and Grain Boundaries: Mechanisms of Plasticity in Crystalline Materials

¹Mrs.R.Saratha, ²Mrs.T.Renugadevi, ³N.Ameera, ⁴S.Subadharsini.

^{1,2}Asst. Prof., Dept of Phy, Sri Bharathi Engineering College, Pudukkottai

^{3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Dislocations and grain boundaries play crucial roles in the plastic deformation and mechanical behavior of crystalline materials. This paper delves into the mechanisms of plasticity associated with dislocations and grain boundaries, exploring their impact on the mechanical properties and deformation mechanisms of crystalline materials. The study provides an overview of the nature and characteristics of dislocations and grain boundaries, discussing their formation, motion, and interactions within crystals. It examines the influence of these defects on material strength, ductility, and fracture toughness. Additionally, the paper explores the role of dislocations and grain boundaries in various deformation mechanisms, including slip, twinning, and grain boundary sliding.

Keywords: Dislocations, Grain boundaries, Plasticity, Crystalline materials, Mechanical behavior, Deformation mechanisms, Material strength, Ductility, Fracture toughness, Slip, Twinning, Grain boundary sliding, Deformation defects, Crystal plasticity, Mechanical properties, Material design, Advanced materials, Defect motion, Material engineering, Materials science.

179. Title: Magnetic Materials for Renewable Energy Applications: Harnessing Magnetism for Sustainability

¹Mrs.R.Saratha, ²Mrs.T.Renugadevi, ³S.Arundathi, ⁴S. Lavanya.

^{1,2} Asst. Prof., Dept of Phy., Sri Bharathi Engineering College, Pudukkottai

^{3,4} UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Magnetic materials play a significant role in advancing renewable energy technologies and promoting sustainability. This paper explores the applications of magnetic materials in renewable energy systems, focusing on their role in harnessing and enhancing energy conversion and storage processes. The study discusses the fundamental properties of magnetic materials, including ferromagnetic, ferrimagnetic, and antiferromagnetic behaviors, and their influence on renewable energy applications. It delves into the use of magnetic materials in various renewable energy technologies, such as wind turbines, solar energy systems, and magnetic energy storage devices. Additionally, the paper examines the design and optimization of magnetic materials for improved energy efficiency and performance in sustainable energy generation.

Keywords: Magnetic materials, Renewable energy, Sustainability, Energy conversion, Energy storage, Wind turbines, Solar energy systems, Magnetic energy storage, Ferromagnetic materials, Ferrimagnetic materials, Antiferromagnetic materials, Energy efficiency, Performance optimization, Sustainable energy generation, Green energy, Magnetic properties, Energy harvesting, Magnetic devices, Energy technology, Environmental impact.

ISBN: 978-81-965236-1-9


117
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

180. Title: Advancements in Energy Storage Devices: Harnessing Power for a Sustainable Future

¹Mrs.R.Saratha, ²Mrs.T.Renugadevi, ³S.Visalatchi, ⁴P Harshitha.

^{1,2}Asst. Prof., Dept of Phy, Sri Bharathi Engineering College, Pudukkottai

^{3,4} UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Energy storage devices have become integral components of the transition towards a sustainable future, enabling efficient utilization of renewable energy sources and grid stabilization. This paper explores the recent advancements in energy storage technologies, focusing on the development of energy storage devices with improved performance, reliability, and scalability. The study discusses various energy storage technologies, including batteries, supercapacitors, and pumped hydro storage, as well as emerging technologies such as flow batteries and hydrogen storage. It delves into the design and engineering of advanced materials, electrode architectures, and electrolyte systems to enhance energy storage capacity and cycle life.

Keywords: Energy storage devices Advancements, Sustainable future, Renewable energy sources, Grid stabilization Batteries, Super capacitors, Pumped hydro storage, Flow batteries.

181. Title: Beyond Einstein: Nuclear Physics and Relativity

¹Mrs. T.Renugadevi, ²Mrs.R.Saratha, ³A.Priyadharshini, ⁴C.Suguna.

^{1,2} Asst. Prof., Dept of Phy, Sri Bharathi Engineering College, Pudukkottai

^{3,4} UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract:"Beyond Einstein: Nuclear Physics and Relativity" explores the remarkable relationship between nuclear physics and the theory of relativity, two foundational pillars of modern physics. This interdisciplinary study delves into the intricate interplay between atomic nuclei and Einstein's revolutionary theory, shedding light on the profound insights they offer into the nature of matter, energy, and the cosmos. Through a comprehensive examination of nuclear forces, nuclear reactions, and the underlying subatomic structure, this work unearths the profound implications of nuclear physics within the framework of relativity. By elucidating the connections between these realms, we embark on a journey to unravel the mysteries of the universe at both its smallest and grandest scales.

Keywords: Nuclear Physics, Relativity, Atomic Nuclei, Nuclear Forces, Nuclear Reactions, Subatomic Structure, Matter-Energy Relationship, Einstein's Theory of Relativity, Interdisciplinary Physics, Cosmic Insights.

ISBN: 978-81-965236-1-9


118
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

182. Title: Cosmic Rays: High-Energy Messengers from Space

¹Mrs. T.Renugadevi, ²Mrs.R.Saratha, ³S.Sumithra, ⁴G.Gayathri.

^{1,2}Asst. Prof., Dept of Phy, Sri Bharathi Engineering College, Pudukkottai

^{3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: "Cosmic Rays: High-Energy Messengers from Space" explores the fascinating world of cosmic rays, energetic particles that travel through space and impact Earth's atmosphere. This work provides an in-depth investigation into the origins, acceleration mechanisms, and interactions of cosmic rays with their surroundings. By examining observational data and theoretical models, we delve into the complex astrophysical processes that give rise to these high-energy particles. Furthermore, we explore the diverse scientific endeavors aimed at understanding the nature of cosmic rays, their impact on the universe, and their implications for particle physics and astrophysics. Through this study, we unravel the mysteries carried by these celestial messengers, shedding light on the energetic phenomena occurring within our vast cosmic neighborhood

Keywords: Cosmic Rays, High-Energy Particles, Astrophysics, Particle Physics, Galactic Cosmic Rays, Extragalactic Cosmic Rays, Acceleration Mechanisms, Observational Data.

183. Title: Nuclear Decay: The Nature of Radioactive Elements

¹Mrs. T.Renugadevi, ²Mrs.R.Saratha, ³C.Bhuvaneswari, ⁴R.Jayabharathi.

^{1,2}Asst. Prof., Dept of Phy, Sri Bharathi Engineering College, Pudukkottai

^{3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: "Nuclear Decay: The Nature of Radioactive Elements" explores the captivating phenomenon of nuclear decay, shedding light on the intrinsic nature of radioactive elements and their transformative processes. This work delves into the intricate world of unstable atomic nuclei, investigating the mechanisms through which they undergo decay to achieve stability. By examining the different types of radioactive decay, such as alpha, beta, and gamma decay, we gain profound insights into the dynamic behavior and properties of these elements. Through a multidisciplinary approach encompassing experimental data, theoretical models, and practical applications, this study unravels the significance of nuclear decay in various scientific fields, including radiometric dating, medical diagnostics, and nuclear energy production.

Keywords: Nuclear Decay, Radioactive Elements, Alpha Decay, Beta Decay, Gamma Decay, Unstable Nuclei, Nuclear Stability, Radioactivity, Radiometric Dating, Medical Diagnostics,

ISBN: 978-81-965236-1-9


119
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

184. Titles: Semiconductor Physics: Understanding the Behavior of Charge Carriers

¹Mrs. P.Uma, ²S.Ragavi, ³A.Nilavalavan, ⁴M.Rajkumar.

^{1,2}Asst. Prof., Dept of Phy, Chendhuran College of Engineering College, Pudukkottai

^{3,4}UG Student Chendhuran College of Engineering College, Pudukkottai

Abstract: "Semiconductor Physics: Understanding the Behavior of Charge Carriers" delves into the fascinating realm of semiconductor physics, where the behavior of charge carriers governs the performance of electronic devices. This work explores the fundamental principles underlying the movement of electrons and holes within semiconductors and their response to external stimuli such as electric fields and light. Through a comprehensive examination of concepts like band theory, carrier mobility, and recombination processes, we gain insights into the intricate workings of semiconductors. Furthermore, this study explores the implications of carrier behavior on the design and optimization of semiconductor devices, from diodes to transistors. By understanding the physics of semiconductors, we pave the way for innovative technologies that shape the modern world.

Keywords: Semiconductor Physics, Charge Carriers, Electron, Hole, Band Theory, Carrier Mobility, Recombination Processes, Electric Fields, Light.

185. Title: Cathodoluminescence Applications in Material Science and Photonics

¹Mr. P.Balasubramanian, ²A.Rajesh, ³R.Velmurugan, ⁴S.Chendurbalan.

^{1,2} Asst. Prof., Dept of Phy, Motherteresa College of Engineering College, Pudukkottai

^{3,4} UG Student Motherteresa College of Engineering College, Pudukkottai

Abstract: "Cathodoluminescence Applications in Material Science and Photonics" explores the diverse and valuable applications of cathodoluminescence in the fields of material science and photonics. This work delves into the principle of cathodoluminescence, where electron beam excitation induces light emission in materials, enabling nanoscale imaging and optical characterization. Through a multidisciplinary approach, we uncover how cathodoluminescence spectroscopy and imaging techniques contribute to the investigation of material properties, including crystal defects, quantum structures, and photonic devices. Moreover, this study showcases the use of cathodoluminescence as a powerful tool in analyzing semiconductor materials, nanocomposites, and photonic structures.

Keywords: Cathodo luminescence, Material Science, Photonics, Electron Beam Excitation, Light Emission, Nanoscale Imaging.

ISBN: 978-81-965236-1-9


120
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kalkkurchi - 622 303, Pudukkottai Dt.

186. Title: Magnetic Domain Imaging: Revealing the Structure of Magnetic Materials

¹Mr. P.Balasubramanian, ²A.Rajesh, ³R.Velmurugan, ⁴S.Chendurbalan.

^{1,2}Asst. Prof., Dept of Phy, Motherteresa College of Engineering College, Pudukkottai

^{3,4}UG Student Motherteresa College of Engineering College, Pudukkottai

Abstract: "Magnetic Domain Imaging: Revealing the Structure of Magnetic Materials" delves into the captivating world of magnetic domain imaging, an essential technique for understanding the internal structure and behavior of magnetic materials. This work explores the principles and methodologies behind magnetic domain imaging, which allows us to visualize and analyze the arrangement of magnetic domains within materials. By employing various imaging techniques, such as magnetic force microscopy and Kerr microscopy, we gain valuable insights into domain wall dynamics, magnetic domain patterns, and domain interactions.

Keywords: Magnetic Domain Imaging, Magnetic Materials, Magnetic Domain, Magnetic Force Microscopy, Kerr Microscopy, Domain Wall Dynamics, Magnetic Domain Patterns, Domain Interactions, Magnetic Behavior, Magnetic Devices.

187. Title: Single Crystal Synthesis: Controlling Crystallographic Orientation

¹Mr. R.Kanivalan, ²R.Jesintha, ³W.John Samuvel, ⁴N.Kumaresan.

^{1,2}Asst Prof Dept of Phy Mountzion College of Engineering College, Pudukkottai

^{3,4}UG Student Mount zion College of Engineering College, Pudukkottai

Abstract: "Single Crystal Synthesis: Controlling Crystallographic Orientation" explores the critical aspect of controlling crystallographic orientation during the synthesis of single crystals. This work delves into the methodologies and techniques employed to grow single crystals with precise orientation, ensuring the development of materials with uniform properties. Through an in-depth examination of crystal growth methods, including Czochralski, Bridgman, and floating zone techniques, we uncover the mechanisms that enable orientation control. Moreover, this study showcases the significance of single crystals in various fields, such as electronics, optics, and materials science, where their unique properties arise from the controlled alignment of crystallographic planes. By understanding the intricacies of single crystal synthesis and orientation control, we pave the way for advancements in materials with tailored properties and improved performance.

Keywords: Single Crystal Synthesis, Crystallographic Orientation, Crystal Growth, Czochralski Technique, Bridgman Technique, Floating Zone Technique, Crystallographic Planes, Materials Properties, Electronics, Optics, Materials Science, Crystallography.

ISBN: 978-81-965236-1-9


121
Dr. S. THILAGAVATHI M. E., Ph. D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

188. Titles: Emerging Trends in Electronics: Nanotechnology and Beyond

¹Mrs.R.Saratha, ²Mrs.T.Renugadevi, ³T.Divya, ⁴S. Risvana Begam.

^{1,2}Asst. Prof., Dept of Phy, Sri Bharathi Engineering College, Pudukkottai

^{3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: "Emerging Trends in Electronics: Nanotechnology and Beyond" explores the cutting-edge advancements and future prospects of electronics, with a particular focus on the transformative impact of nanotechnology. This work delves into the revolutionary potential of nanoscale materials and devices in reshaping the landscape of electronics. By investigating the unique properties of nanomaterials, such as quantum dots, nanowires, and 2D materials, we uncover their applications in energy-efficient electronics, high-performance computing, and next-generation sensors. Moreover, this study explores emerging concepts like molecular electronics and neuromorphic computing, offering glimpses into the future of electronic devices inspired by biological systems.

Keywords: Emerging Trends, Electronics, Nanotechnology, Nanoscale Materials, Quantum Dots, Nanowires, 2D Materials, Energy-Efficient Electronics, High-Performance Computing.

189. Title: Advancements in Water Treatment Technologies for Safe and Sustainable Drinking Water

¹Mrs.T.Annalakshmi, ²Ameera.N, ³Mahasree.P, ⁴Subadharsini.S

¹Asst. Prof, Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai

^{2,3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Access to safe and sustainable drinking water is crucial for human health and well-being. This study focuses on advancements in water treatment technologies aimed at ensuring the provision of clean and potable drinking water. It reviews the latest innovations and developments in water treatment methods, including physical, chemical, and biological processes. The study examines the effectiveness of these technologies in removing contaminants, such as pathogens, chemicals, and pollutants, from water sources. Additionally, the study explores the integration of sustainable practices, such as energy-efficient processes, membrane filtration, and advanced oxidation, in water treatment systems.

Keywords: Water Treatment, Drinking Water, Advancements, Technology, Safe Water, Sustainable Water, Contaminant Removal, Pathogens, Chemicals.

ISBN: 978-81-965236-1-9


122
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

190. Title: Lightweight Alloys: Revolutionizing Transportation and Manufacturing

¹Mrs.T.Annalakshmi, ²Pavithra.P, ³Rafeeqa.N, ⁴Kalaivani.R

¹Asst. Prof, Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai

^{2,3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: The pursuit of more efficient and sustainable transportation and manufacturing practices has led to significant research and development efforts in the field of lightweight alloys. This paper explores the transformative impact of lightweight alloys on transportation and manufacturing industries. The abstract focuses on the properties and advantages of these materials, including their reduced weight, enhanced strength, and improved corrosion resistance. The application of lightweight alloys in automotive, aerospace, and other sectors is discussed, highlighting their role in achieving fuel efficiency, lowering emissions, and increasing overall performance. Moreover, the challenges associated with the implementation of lightweight alloys are addressed, along with ongoing efforts to overcome these obstacles.

Keywords: Lightweight alloys, Transportation, Manufacturing, Automotive, Aerospace, Fuel efficiency, Sustainability, High-strength materials, Corrosion resistance, Emissions reduction.

191. Title: Smart Water Systems: Harnessing Technology for Efficient Water Distribution and Management

¹Mrs.T.Annalakshmi, ²Shamima.P, ³Vinitha.K, ⁴Sheera Banu.A

¹Asst. Prof, Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai

^{2,3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Smart water systems leverage advanced technologies to optimize water distribution and management, addressing challenges in water scarcity and resource efficiency. This study focuses on exploring the potential of smart water systems in improving water infrastructure, monitoring, and management. It reviews the integration of sensors, data analytics, and Internet of Things (IoT) technologies in water networks to enhance real-time monitoring and control. The study examines the benefits of using smart water meters for accurate consumption tracking and leak detection, leading to water conservation. Additionally, the study analyzes the role of smart water systems in enhancing water quality management, reducing energy consumption, and promoting sustainable practices.

Keywords: Smart Water Systems, Water Distribution, Water Management, Water Scarcity, Resource Efficiency, Water Infrastructure, Real-Time Monitoring, Internet of Things (IoT), Sensors, Data Analytics, Water Conservation, Smart Water Meters, Leak Detection.

192. Title: Ethical Implications of Nanotechnology: Balancing Risks and Benefits

¹Mrs.T.Annalakshmi, ²Yogeshwari.S, ³Subiksha.S, ⁴Sasipriya.R

¹Asst. Prof, Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai

^{2,3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Nanotechnology, with its extraordinary potential for technological advancement, has ushered in a new era of scientific innovation. As the manipulation of materials at the nanoscale becomes increasingly prevalent in various fields, concerns regarding the ethical implications of nanotechnology have arisen. This paper delves into the complex ethical landscape surrounding nanotechnology, exploring the need to strike a delicate balance between its promising benefits and potential risks. The abstract addresses key ethical issues such as environmental impact, health and safety concerns, privacy and security, and equitable access to nanotechnology advancements. Additionally, the role of regulations and responsible research practices in mitigating ethical challenges is discussed.

Keywords: Nanotechnology, Ethical implications, Risks, Benefits, Environmental impact, Health and safety, Privacy, Security, Regulations, Responsible research, Equitable access.

193. Title: Renewable Energy Sources: A Sustainable Path for the Future

¹Mrs.T.Annalakshmi, ²Ishwarya.S, ³Lavanya.S, ⁴Risvana Begam.S

¹Asst. Prof, Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai

^{2,3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: As the world grapples with the challenges of climate change and the depletion of finite fossil fuel reserves, renewable energy sources have emerged as a promising sustainable path for the future. This paper delves into the significance of renewable energy sources in addressing the dual objectives of mitigating greenhouse gas emissions and ensuring a stable and resilient energy supply. The abstract highlights the key attributes of various renewable sources such as solar, wind, hydropower, geothermal, and bioenergy, emphasizing their abundant availability and minimal environmental impact.

Keywords: Renewable energy, Sustainability, Climate change, Solar energy, Wind energy, Hydropower, Geothermal energy, Bioenergy, Greenhouse gas emissions, Energy transition, Policy, Socioeconomic benefits.

ISBN: 978-81-965236-1-9


124
Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

194. Title: Advancements in Polymer Matrix Composites: Manufacturing and Characterization

¹Mrs.T.Annalakshmi, ²Arundathi.S, ³Kandalakshmi.A, ⁴Rajeswari. A

¹Asst. Prof, Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai

^{2,3,4}UG Student Sri Bharathi Engineering College, Pudukkottai

Abstract: Polymer matrix composites (PMCs) have witnessed significant advancements in recent years, transforming the landscape of materials engineering and opening up new possibilities for diverse applications. This paper provides a comprehensive overview of the latest developments in the manufacturing and characterization of polymer matrix composites. The abstract focuses on the novel processing techniques and methodologies employed to fabricate PMCs with enhanced mechanical properties and tailored functionalities. It further delves into the various characterization techniques used to assess the microstructure, mechanical behavior, and performance of these advanced materials.

Keywords: Polymer matrix composites, PMCs, Manufacturing, Characterization, Processing techniques, Mechanical properties, Microstructure, Structure-property relationships, Functionalities, Materials engineering.

195. Title: Phase Rule in Food Science: Controlling Product Stability and Quality

¹Mrs.P.Bhavani, ²S.Kalavathi, ³V.Revahi, ⁴M.Pandiselvi

¹Asst. Prof, Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai

^{2,3,4}UG Student, Chendhuran College of Engineering and Technology, Pudukkottai

Abstract: The Phase Rule, a fundamental principle in thermodynamics, finds significant application in the realm of food science. This paper explores the pivotal role of the Phase Rule in understanding and controlling the stability and quality of food products. The abstract delves into the thermodynamic concepts underpinning the Phase Rule and its relevance in food systems, where numerous phases and interactions can influence product stability, texture, and shelf life. Through the lens of the Phase Rule, the abstract examines the impact of temperature, pressure, and composition on phase equilibria in food matrices, elucidating the critical factors that govern product stability and quality.

Keywords: Phase Rule, Food Science, Phase Equilibria, Product Stability, Quality Control, Phase Diagrams, Food Formulations, Thermodynamics, Food Processing, Shelf Life.

ISBN: 978-81-965236-1-9


125
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

196. Title: Life Cycle Assessment of Synthetic Petrol: Environmental Impacts and Benefits

¹Mrs.A.Sathya, ²S.Sunmathi, ³T.Anushya, ⁴K.Gayathri

¹ Asst Prof Dept of Chemistry Mount Zion Engineering College, Pudukkottai

^{2,3,4}UG Student Mount Zion Engineering College, Pudukkottai

Abstract: The increasing interest in synthetic petrol as an alternative to conventional fossil fuels necessitates a comprehensive assessment of its environmental implications throughout its life cycle. This paper presents a life cycle assessment (LCA) of synthetic petrol, aiming to evaluate its environmental impacts and potential benefits compared to conventional petroleum-derived petrol. The abstract explores the various stages of the synthetic petrol life cycle, including feedstock extraction, synthesis processes, transportation, distribution, and end-use. Through the LCA approach, the abstract analyzes greenhouse gas emissions, energy consumption, water usage, and other environmental indicators associated with synthetic petrol production and utilization.

Keywords: Synthetic petrol, Life Cycle Assessment, Environmental impacts, Greenhouse gas emissions, Energy consumption, Sustainable energy, Alternative fuels, Carbon footprint, Feedstock extraction, Environmental benefits.

197. Title: The Role of Combustion In Power Generation and Transportation

¹Mrs.S.Pothumselvi, ²S.Devipriya, ³M.Sasikala, ⁴S. Selvi

¹ Asst. Prof, Dept of Chemistry, Sri Bharathi Engineering College, Pudukkottai

^{2,3,4}UG Student Shanmuganathan Engineering College, Pudukkottai

Abstract: Combustion serves as a cornerstone in both power generation and transportation industries, powering the modern world with energy and mobility. This paper explores the pivotal role of combustion in these two critical sectors, delving into its diverse applications and challenges. The abstract highlights the significance of combustion in conventional power plants, where fossil fuels are burned to produce electricity, as well as in internal combustion engines, which drive vehicles and propel transportation systems. By examining the efficiency and environmental impact of combustion processes in power generation and transportation, the abstract elucidates the need for cleaner and more sustainable fuel options.

Keywords: Combustion, Power generation, Transportation, Internal combustion engines, Fossil fuels, Energy efficiency, Emissions, Renewable fuels, Environmental impact, Sustainability.

ISBN: 978-81-965236-1-9


126
Dr. **S.THILAGAVATHI** M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

CONFERENCE PHOTOS



ISBN: 978-81-965236-1-9

Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.


127
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

NATIONAL CONFERENCE ON EMERGING TRENDS IN MULTI-DISCIPLINARY ENGINEERING FIELDS (NCETMEF-22)



ISBN: 978-81-965236-1-9

DR. S. THILAGAVATHI M.E. Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.


128
Dr. S. THILAGAVATHI M.E. Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

NATIONAL CONFERENCE ON EMERGING TRENDS IN MULTI-DISCIPLINARY ENGINEERING FIELDS (NCETMEF-22)



ISBN: 978-81-965236-1-9

Dr. S. THILAGAVATHI
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

129
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

NATIONAL CONFERENCE ON EMERGING TRENDS IN MULTI-DISCIPLINARY ENGINEERING FIELDS (NCETMEF-22)



ISBN: 978-81-965236-1-9

DR. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURCHI - 622 303, PUDUKKOTTAI Dt.


130
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KaiKKurchi - 622 303, Pudukkottai Dt.





MAHSA
UNIVERSITY



CERTIFICATE OF PAPER PRESENTATION

PROUDLY AWARDED TO

PALANIAPPAN CHINNAIAH

FOR THE MANUSCRIPT TITLED

MULTI-HOP RELAY BASED FREE SPACE OPTICAL
COMMUNICATION SYSTEM FOR MEDICAL SERVICES

Presented at the MAHSA International Technology
& Engineering Conference (Mi-TEC) 2022
organised by the Faculty of Engineering & Built
Environment, MAHSA University on the
25th of February 2022

**PROF. DR. SRIKUMAR
CHAKRAVARTHI**
Director, Postgraduate Studies,
Research and Innovation,
MAHSA University, Malaysia

DR. IMAN FARSHCHI
Dean, Faculty of Engineering &
Built Environment
MAHSA University, Malaysia

Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai