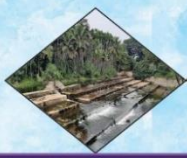


**INTERNATIONAL CONFERENCE ON
SOCIOECONOMIC IMPACTS OF POLLUTION IN THE WATER BODIES AND
REMEDIAL MEASURES (ICPWRM - 2023)**

**VENUE: KONGUNADU ARTS AND SCIENCE COLLEGE, (AUTONOMOUS)
COIMBATORE - 641 029**

DATE: 18th December, 2023

ICPWRM – 2023 BROCHURE

 INTERNATIONAL CONFERENCE ON SOCIOECONOMIC IMPACTS OF POLLUTION IN THE WATER BODIES AND REMEDIAL MEASURES (ICPWRM - 2023) <i>as a part of</i> Scheme for Promotion of Academic and Research Collaboration (SPARC) A Government of India initiative <i>Jointly Organized by</i> Kongunadu Arts and Science College (Autonomous) Coimbatore <i>and</i> Indian Science Congress Association Coimbatore Chapter <i>on</i> 18th December, 2023 Venue KONGUNADU ARTS AND SCIENCE COLLEGE (Autonomous) Re-accredited by NAAC with A+ Grade (4th Cycle) College of Excellence awarded by UGC 29th Rank among Colleges in NIRF 2023 Coimbatore - 641 029, Tamil Nadu, India.   	ABOUT THE COLLEGE Kongunadu Arts and Science College, was established in the year 1973. The college has grown magnificently in academic stature with autonomous status having 13 research departments, 14 PG departments and 28 UG departments. Our college is a highly selective institution that is consistently recognized as one of the top comprehensive Colleges in the Nation. The University Grants Commission, New Delhi, conferred the Autonomous Status to our College in the academic year 2004 - 05. Recognizing the quality of teaching imparted in this college, the University Grants Commission has awarded the prestigious status of College of Excellence. The College has been Re-accredited by NAAC with A+ Grade in 4th Cycle. In the NIRF Rankings 2023, our college has secured 29th Rank. Number of MoU's and Collaborative Research with Eminent Institutions across the globe is increasing every year which stands as proof of our Institution's Research Caliber. The Institution's wide commitment to the development of innovative thinking in a culture of collaboration makes the learners an ideal venue for sharing ideas about futuristic research, which connects academics across disciplines and cultures. ABOUT THE CONFERENCE A set of 5 Thrust Areas (Fundamental Research, Emergent Areas of Impact, Convergence, Action-Oriented Research and Innovation-Driven) and sub-theme areas in each thrust area have been identified for collaboration under SPARC based on emergent relevance and importance for the nation. This Scheme is expected to have a major impact in providing the best international expertise to address major national problems, expose Indian academicians to the best collaborators abroad, enable international faculty to stay in India for a longer duration, provide Indian students an opportunity to work in the world-class laboratories, to develop strong bilateral relationships in research, and improve the international ranking of Indian Institutes. Being ranked 29th in NIRF 2023, our college has been recognized by SPARC by sanctioning a Major Research Project titled 'Socio-economic Analysis of textile effluent pollution impact in Noyyal river and Exploration of Remediation through Algae and Graphene membrane' in collaboration with University of Exeter, United Kingdom.
CALL FOR PAPERS We welcome the submission of original research papers from academicians, research scholars, and industry professionals in the following themes: ✓ Industrial effluent types and composition ✓ Impact of effluent on yield and quality of crop plants	✓ Technological advancement for remedial measures ✓ Bioremediation through traditional knowledge and practices ✓ Culture, heritage and lifestyle changes due to aquatic pollution ✓ Modelling of water bodies to overcome toxicity

- ✓ Influence of effluent over human society
- ✓ Social issues and challenges as influenced by industrial wastes and effluent
- ✓ Scientific input in the Bioremediation process

- ✓ Role of Nanoscience and Bioinformatics in aquatic pollution control
- ✓ Innovative technologies for water recycling and conservation

IMPORTANT DATES

Last date for submitting Abstract along with registration*	10.12.2023
Last date for registration (only participation)	15.12.2023
Conference Date	18.12.2023

Send your abstract to
icpwr2023@kongunaducollege.ac.in

Registration Link: <https://forms.gle/53T16GgJfbW5pYp5>

REGISTRATION FEE

For Indian Delegates		A/C Name	: M/S KASC ICPWRM
Students	: Rs. 200	A/C No.	: 170701000019227
Full Time Research Scholars	: Rs. 300	Bank	: Indian Overseas Bank
Part Time Research Scholars	: Rs. 500	Branch	: Kavundampalayam Kongunadu College
Faculty / Academicians	: Rs. 500	Branch Code	: 001707
For Delegates from Abroad		IFSC Code	: IOBA0001707
Delegates From Abroad	: 50 USD	MICR Code	: 641020030

MODE OF PAYMENT

SPEAKERS



Dr. Senthilarasu Sundaram
Professor of Sustainable Energy Materials, Teesside University, United Kingdom.



Dr. S. Marshal Anthoni
Associate Professor and Head, Department of Mathematics, Anna University, Coimbatore.



Dr. S. Senthil Kumar
Principal Scientist, Central Electrochemical Research Institute, Karaikudi, Tamil Nadu.



Dr. K. Srinivasan
Professor and Head, Department of Physics, Bharathiar University, Coimbatore.



Dr. David Ian Benson
Associate Professor of Politics, University of Exeter, United Kingdom.



Dr. K. Murugesan
Professor and Head, Department of Environmental Science, Periyar University, Salem.



Dr. S.R. Prabakaran
Professor, Department of Biotechnology, Bharathiar University, Coimbatore.



Dr. Prashant R. Nair
Asso.Prof. of Computer Science and Engineering and Head-IQAC, Amrita Vishwa Vidyapeetham, Coimbatore.



ORGANIZING COMMITTEE

Chief Patron	
Dr. C. A. Vasuki, Secretary & Director	
Patron	
Dr. M. Lekshmanaswamy, Principal	
Convenor	
Dr. S. Paulsamy, Dean, R&D, and Convenor ISCA, Coimbatore Chapter	
Organizing Secretary	
Dr. K. Muthukumar, Asst. Prof. of Tamil and Principal Investigator of SPARC Project - P2569	
Coordinators	
Dr. K. Saminathan, Asst. Prof. of Chemistry Dr. M. Venkatachalam, Asst. Prof. of Mathematics Dr. G. Dhandapani, Asst. Prof. of Botany Dr. A. U. Thangavelu, Asst. Prof. and Head(i/c) Department of Biotechnology	
Members	
Dr. M. Vigneshwaran, Asst. Prof. of Mathematics Dr. P. Matheswaran, Asst. Prof. of Physics Dr. S. Raja, Asst. Prof. of Zoology Dr. K. Karthika, Asst. Prof. of Botany Dr. S. Sathishkumar, Asst. Prof. of Tamil Dr. R. T. Narendhirakannan, Asst. Prof. of Biochemistry Dr. M. Vivek Prabhu, Asst. Prof. of Mathematics Dr. K. Kaviyarasu, Asst. Prof. of English Dr. K. Nirubama, Asst. Prof. of Biochemistry Dr. K. Velmurugan, Asst. Prof. of Zoology Dr. B. Gokul, Asst. Prof. of Physics Mr. N. Senthilkumar, Asst. Prof. of Computer Technology Dr. L. Kathirvelkumaran, Asst. Prof. and Head Department of Computer Science with Data Analytics Dr. G. Vadivelan, Asst. Prof. of Chemistry (PG) Dr. R. Sathishkumar, Asst. Prof. of Biotechnology Dr. V. Elakkiya Asst. Prof. of Biotechnology Dr. G. Srinivas, Asst. Prof. of Wildlife Biology	

INTERNATIONAL ADVISORY COMMITTEE

Chief Patron	
Dr. Senthilarasu Sundaram Professor of Sustainable Energy Materials Teesside University, United Kingdom.	
Patron	
Dr. David Ian Benson, Associate Professor of Politics University of Exeter, United Kingdom.	
Convenor	
Dr. Tapas Mallick, Professor of Renewable Energy, University of Exeter, United Kingdom.	
Organizing Secretary	
Dr. Sudhagar Pitchaimuthu, Associate Professor, School of Engineering & Physical Sciences, Institute of Mechanical, Process & Energy Engineering, Heriot-Watt University, United Kingdom.	
Coordinators	
Dr. Shivendra Sahi, Professor, Dept. of Biology, Saint Joseph's University (SJU), USA. Prof. Ismail Naci Cangul, Professor of Mathematics, Bursa Uludag University, Turkey.	
Members	
Dr. D. Dafik, Professor of Mathematics, University of Jember, Indonesia. Prof. R. Ramamurthy, Former Vice-Chancellor Sri Venkateswara University, Andhra Pradesh. Dr. S. Balakumar, Professor National Centre for Nanosciences and Nanotechnology, University of Madras, Chennai. Dr. K. Murugesan, Professor and Head, Department of Environmental Science, Periyar University, Salem. Dr. N. Dharmaraj, Professor of Chemistry Bharathiar University, Coimbatore. Prof. Karthikeyan Subburamu Professor and Head cum Quality Manager, Food Quality Testing Laboratory, Tamil Nadu Agricultural University, Coimbatore. Dr. S. Chandramohan, Associate Professor, Department of Physics and Nanotechnology, SRM Institute of Science and Technology, Chennai.	

FURTHER DETAILS

Dr. K. MUTHUKUMAR
Organizing Secretary, ICPWRM - 2023,
Assistant Professor of Tamil (Aided),
Kongunadu Arts and Science College (Autonomous),
Coimbatore - 641 029, Tamil Nadu, India.
Phone: 0422-2642095 Mobile: (+91)77080 28564 / (+91)95975 10766
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Web URL: <https://sites.google.com/kongunaducollege.ac.in/icpwr2023>

ICPWRM – 2023 PROGRAMME SCHEDULE



International Conference on Socioeconomic Impacts of Pollution in the Water Bodies and Remedial Measures (ICPWRM-2023)

As a part of
Scheme for Promotion of Academic and Research Collaboration (SPARC) - A Government of India initiative

Jointly Organized by
Kongunadu Arts and Science College (Autonomous), Coimbatore
and
Indian Science Congress Association, Coimbatore Chapter

on
18th December, 2023

PROGRAMME SCHEDULE

Registration: 9.00 a.m.	
Date: 18.12.2023	Venue: Dr. Marappa G Aruchami Auditorium
Invocation	: Dr. R. Manimegalai Associate Professor of Tamil
Welcome Address	: Dr. M. Lekshmanaswamy Principal
Presidential Address	: Dr. C. A. Vasuki Secretary & Director
Releasing of the Conference Souvenir	: Dr. C. A. Vasuki, Secretary & Director Receiving by the Guests
Felicitation	: Dr. S. Paulsamy Convenor, ICPWRM-2023
Special Address	: Prof. Sundaram Senthilarasu Teesside University, United Kingdom
Keynote Address	: Prof. David Ian Benson Exeter University, United Kingdom
Vote of Thanks	: Dr. K. Muthukumar Organizing Secretary, ICPWRM 2023
Tea Break	11.15 am to 11.30 am
Technical Sessions Starts	11.35 am to 1.30 pm (Parallel Sessions - Lead lectures & Paper presentation)
Lunch Break	1.30 pm to 2.15 pm
Technical Sessions starts	2.20 pm to 3.30 pm (Parallel Sessions - Lead lectures & Paper presentation)
Tea Break	3.30 pm to 3.40 pm

VALEDICTORY FUNCTION

Venue:	Conference Hall	Time : 3.45 pm
Welcome Address	: Dr. A. U. Thangavelu Coordinator, ICPWRM 2023	
Report and Concluding remarks	: Dr. K. Muthukumar Organizing Secretary, ICPWRM-2023	
Valedictory Address	: Dr. M. Lekshmanaswamy Principal	
Vote of Thanks	: Dr. G. Dhandapani Coordinator, ICPWRM-2023	
National Anthem		

Kongunadu Arts and Science College (Autonomous) and Indian Science Congress Association (ISCA), Coimbatore Chapter jointly organized an **International Conference on Socioeconomic Impacts of Pollution in the Water Bodies and Remedial Measures (ICPWRM - 2023)** on **18th December, 2023**. The workshop commenced with the invocation by Dr. R. Manimegalai, Associate Professor of Tamil (aided) in **Marappa G Aruchami Auditorium**. Followed by that **Dr. M. Lekeshmanaswamy**, Principal welcomed the gathering. **Dr. C. A. Vasuki**, Secretary and Director of Kongunadu Arts and Science College delivered the Presidential address. She started her address by spotlighting the chief guest as one of the best alumni of KASC and his achievements. She recollected industrial pollution in England and how it was revived back with all its beauty and resource, the spiritual significance of water highlighted in Rig Vedha. She also pointed out the conservation missions introduced by Central Government: Jal Sakthi and Namami Ganga. She stated that developing technologies should be global for the welfare of the nations. In her address she mentioned that it is individuals' duty to preserve and clean water bodies. Finally, she ended her address by emphasizing and wishing that definitely the SPARC project will help in cleaning and preserving water bodies.

Followed by presidential address, it was keynote Address delivered by **Prof. David Ian Benson**. He addressed the importance of water resources, water pollution problems, and SPARC conference. He gave lecture on water as planetary resource, ecological resource, socioeconomic resource, and cultural resource. He reasoned out the factors of Noyyal river pollution. He stated that textile industries pollute the river by bleaching and dyeing thus the contamination of surface and ground water reduce in irrigation. At the end of his address, he expressed that to conserve the river it is important to have the contribution of the local people.

After the Keynote Address, Special address was delivered by **Prof. Sundaram Senthilarasu**. His lecture highlighted on water treatment (NET Zero emissions) and Sustainable energy material and technologies. He elaborated on how the technologies like Solar Thermal Energy Application, Solar Water Purification Method, and Solar Desalination help in preserving the water bodies. **Dr. K. Muthukumar**, Principal Investigator of SPARC proposed the vote of thanks for the inaugural session.

INAUGURAL SESSION







Parallel Technical sessions followed the inauguration. The students and research scholars from various institutions presented papers.

TECHNICAL SESSION REPORTS

COMPUTER SCIENCE

In Connection with the ISCA conference, School of Computer Science, Kongunadu Arts and Science College, hosted the conference Paper Presentation technical session on 18.12.2023 at Conference Hall. **Dr. L. Kathirvelkumaran**, Assistant Professor and Head, Department of Computer Science with Data Analytics gave a welcome address to the participants. The Chief Guest, **Dr. Prashant R Nair**, Assistant Professor of Computer Science and Engineering and Head IQAC, Amrita Vishwa Vidyapeetham, Coimbatore, gave a special address on the topic “**Artificial Intelligence in Environment Protection**”. Speaker focused on Generative Artificial Intelligence, which is capable of generating text, images, or other media, using generative models. Major tools used for this are Copilot AI and Lava AI. Next he focused on Explainable AI, which allows human users to comprehend and trust the results and output created by machine learning algorithms. Using Generative AI and Explainable AI techniques we can protect environment in future. Finally, resource person gave some tips for Research scholars such as that they have to follow ethical dimensions, collaboration, networking and multi-skilled for their research perusal. Also, with competitive people and areas, scholars have to follow creativity, talent and navigate in the **VUCA** (Volatile, **U**ncertain, **C**omplex and **A**mbiguous) world.

Totally, 13 papers were received which covered various topics related to Plastic pollution, Leaf disease, Industrial pollution, Dyes in waste water and Water level depletion and 3 papers were presented in this session which covered various topics related to Plastic pollution, Leaf disease, Industrial pollution, Dyes in waste water and



Water level depletion. Also, the above papers were focused on computer fields like Image processing, Machine learning and deep learning. Chief Guest motivated the paper presenter and gave valuable suggestions for their research work,

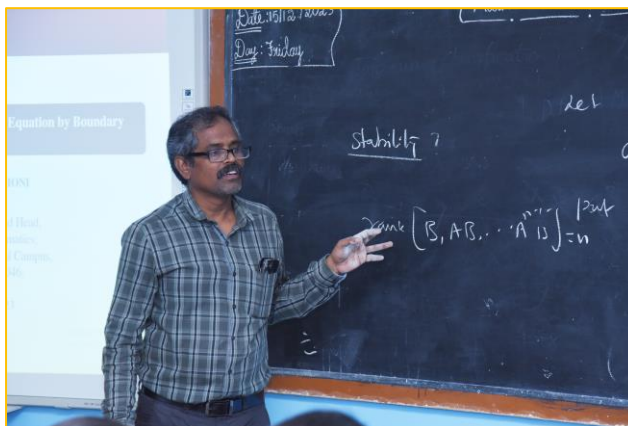
Dr. K. Sumangala, Associate Professor and Head, Department of Computer Applications presented the memento to the Chief Guest. Session end with the Vote of Thanks given by **Dr. A. Nithya**, Assistant Professor, Department of Computer Science.

MATHEMATICS

The invited talk on Mathematical Sciences section was held on 18.12.2023 at 11.30 a.m. in the Department of Mathematics. **Dr. M. Vigneshwaran**, Assistant Professor, PG and Research Department of Mathematics, Kongunadu Arts and Science College welcomed the gathering.

Followed by the welcoming, **Dr. S. Marshal Anthoni**, Associate Professor and Head, Department of Mathematics, Anna University, Coimbatore delivered his lecture on the topic “**How to mathematically convert any real-world problem and on controllability of systems**” in the technical session. The students and research scholars of Mathematics department were benefitted through the session.





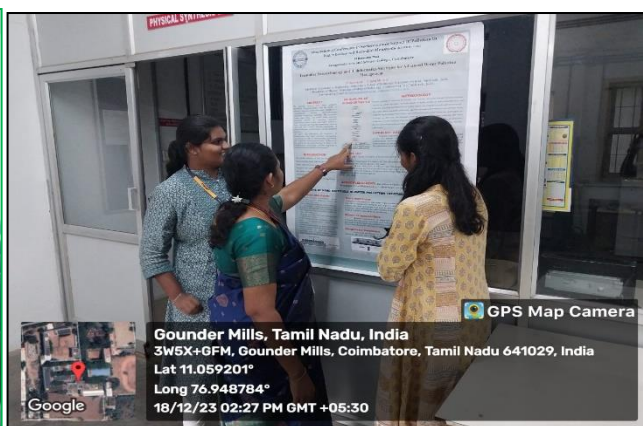
After the Technical session, paper presentation session was held in the Department of Mathematics. Seven participants presented their ideas using mathematical modelling in connection with water pollution. The presentation session was evaluated by **Dr. V. Kokilavani**, Associate Professor and Head and **Dr. D. Vijayalakshmi**, Assistant Professor, Department of Mathematics, Kongunadu Arts and Science College.

Followed by the Paper Presentation session, **Dr. S. P. R. Priyalatha**, Assistant Professor, PG and Research Department of Mathematics, proposed the vote of thanks.

PHYSICAL SCIENCE

The Physical Science Session was started at 12.00 noon with the prayer song by **Mr. Deepak**, II M. Sc., Physics. **Dr. A. Anukaliani**, Associate Professor and HoD of Physics delivered welcome address. **Dr. K. Srinivasan**, Professor and Head, Department of Physics, Bharathiar University, Coimbatore delivered an Invited lecture on “**Crystal Growth: Processing and Applications**”. He gave a brief introduction about crystals such as Gem crystals, Organic crystals and so on. Role of crystals Si single crystals in Electronic Industry and fabrication processes were discussed.





Dr. B. Gokul, Assistant Professor of Physics proposed vote of thanks. After lunch break, the 2nd session of paper presentation started at 2:15 pm, where 5 participants presented their work as oral and poster.

BIOTECHNOLOGY

PG and Research Department of Biotechnology, Kongunadu Arts and Science College hosted the conference Paper Presentation technical session on 18.12.2023 at PG Biotechnology Lab.

Dr. V. Elakkiya, Assistant Professor PG and Research Department of Biotechnology gave a welcome address to the participants. The Chief Guest, Dr. S. R. Prabakaran, Professor, Department of Biotechnology, Bharathiar University, Coimbatore gave a special address on the topic “**Water Bodies Thero Extremophiles**”. The speaker focused on Extremophiles are micro-organisms that inhabit some of Earth's most hostile environments and produce extremozymes useful in industrial production procedures and research applications of their ability to remain active under the severe conditions typically employed in these processes.



A total of 13 papers were received which covered various topics related to Physio chemical characteristics of Microbes, Biodegradation, Sustainable wastewater treatment, Aquatic pollution, etc. Also, the above papers were focused on

environmental water bodies' remedial sources. Chief Guest motivated the paper presenter and gave valuable suggestions for their research work,





Dr. R. Sathishkumar, Assistant Professor, PG and Research Department of Biotechnology presented the memento to the Chief Guest. The session ends with a Vote of Thanks given by **Dr. G. T. Iswariya**, Assistant Professor PG and Research Department of Biotechnology. After the resource person presentation, 13 papers (Oral) were presented by the students in the Biotechnology and Biochemistry fields.

BOTANY

In connection with the International Conference on ICPWRM - 2023, the Department of Botany of our college hosted the paper presentation and technical session on 18th December, 2023. The paper presentation started at 11.30 a.m. in the Room No. A2 (II M.Sc., Botany Class Room). A total of **19 abstracts** were received, and **12 participants** presented their findings, which covered various topics related to biomass production, phytomediation, microalgae cultivation, waste water treatment, assessment of air quality, effect of water on lifestyle and oral health, etc. **Dr. P. Sumathi**, Assistant Professor of Botany, was the chairperson, and **Dr. P. Revathi**, Assistant Professor of Botany, was the rapporteur. They were evaluating the presentation and gave valuable suggestions for their research work.





Then, the technical session was started at 2.30 p.m. in the conference hall. **Dr. K. Thenmozhi**, Assistant Professor and Head, Department of Botany, welcomed the gathering and introduced the chief guest to the participants.



Dr. S. Paulsamy, Dean R & D of our college and Convener, ISCA Coimbatore Chapter were presented the memento to our resource person, **Dr. K. MURUGESAN**, Professor and Head, Department of Environmental Science, Periyar University, Salem. Then he delivered the talk on the topic '**Laccase: A Potential Biocatalytic Tool for Detoxification of Emerging Contaminants**'. In his talk, he explained the role of enzyme-mediated bioremediation technology, which is involved in better pollutant degradation activity.



He also insisted on the uses of the multi-copper-containing oxidase enzyme Laccase and how the enzyme was helpful for a substantial reduction in the toxicity of pollutants. Then, he shared its cost-effective and eco-friendly nature.



The lecture was interesting and informative to enrich the participant's knowledge related to the field of bioremediation. Session ends with the Vote of Thanks proposed by the **Dr. K. Karthika**, Assistant Professor of Botany at our college. **Dr. G. Dhandapani**, Assistant Professor of Botany coordinated the overall session and totally, 92 participants including students, research scholars and faculty members were participated in the session and benefited.

CHEMICAL SCIENCE

In association with the International Conference on ICPWRM - 2023, the Department of Chemistry at our college hosted a dynamic paper presentation and technical session on December 18, 2023. The event commenced at 1:30 p.m. in the cutting-edge Chemistry Smart Classroom. A total of **33 abstracts** flooded in for the chemistry section, with **four participants** subsequently delivering insightful presentations on various topics, including Water Chemistry, Rapid Testing of water, and its impact on human health.



Taking charge as the chairperson was **Dr. P. Sakthivel**, Professor of Nanoscience and Technology at Bharathiar University, Coimbatore. Assisting in the session as the rapporteur was **Dr. G. Vadivelan**, an accomplished Assistant Professor of Chemistry. Their collective expertise played a pivotal role as they meticulously assessed the presentations, offering valuable suggestions to elevate the quality of the participants' research endeavors.



Following the paper presentation, the technical session was commenced at 2:30 p.m. within the confines of the Chemistry Smart Classroom. Dr. V. Sangeetha, the Associate Professor and Head of the Department of Chemistry, extended a warm welcome to the assembled audience and introduced the chief guest to the participants.

The distinguished speaker for the occasion was **Dr. S. Senthilkumar**, a notable Scientist from CSIR-CECRI, Karaikudi. **Dr. S. Senthilkumar** delivered an enlightening talk on the topic “ADVANCED ELECTROCHEMICAL PROCESS FOR REMEDIATION OF POLLUTANT WATER”. His expertise and insights added significant value to the technical session, providing the audience with a deeper understanding of cutting-edge approaches to address water pollution challenges.



The technical session concluded with a Vote of Thanks presented by **Dr. K. Saminathan**, Assistant Professor of Chemistry at our college. In total, 85 students and research scholars actively participated in this enriching session, reaping valuable benefits from the insightful presentations and discussions. The collective engagement and participation underscored the success and significance of the event in fostering knowledge exchange and academic growth within the scientific community.

HUMANITIES AND SOCIAL SCIENCES (PARTICIPANTS ORAL PRESENTATION)

In Humanities and Social Sciences session, totally 12 abstracts were received; out of which 4 were presented. **Dr. S. Sathish Kumar**, Assistant Professor of Tamil, **Dr. B Divya Priya**, Associate Professor and Head of Commerce-IT, and **Dr. S Punitha Devi**, Associate Professor and Head, Department of BBA CA was coordinated the session.





Finally, the valedictory session of the conference commenced at 4:00 P.M in the conference Hall. **Dr. A. U. Thangavelu**, welcomed the guest and participants.



Dr. K. Muthukumar, Principal investigator read the report of the conference. **Dr. M. Lekeshmanaswamy**, Principal, Kongunadu Arts and Science College gave the valedictory address. The programme came to an end with vote of thanks proposed by **Dr. G. Dhandapani**, Coordinator, ICPWRM – 2023.