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# Proceedings of the 6<sup>th</sup> International Conference on

Management, Engineering, Science, Social Science and Humanities (*i*Con-MESSSH'21)

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# **Editors**

Rajendra Kumar, Rohit Khokher, R. C. Singh

## November 09-10, 2021

Penang, Malaysia

# The Proceedings of the 6<sup>th</sup> International Conference

on

### Management, Engineering, Science, Social Science

and

Humanities

(*i*Con-MESSSH'21)

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Penang | Online

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Rajendra Kumar Sharda University, Greater Noida, India Rohit Khokher Vidya Prakashan Mandir (P) Ltd., Meerut, India R. C. Singh Sharda University, Greater Noida, India

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#### The Society for Research Development (SRD)

With the formation of Society for Research Development (SRD), the first event of the Society was organized in Bangkok, Thailand on 29-30 July 2016 as International Conference on Science, Technology, Humanities and Business Management (ICSTHBM-16). The Proceedings of this Conference was published with McGraw Hill Education, India. The Society organized its second international conference on the topic International Conference on Recent Developments in Science, Technology, Humanities and Management (ICRDSTHM-17) on 28-29 April 2017 in Kuala Lumpur, Malaysia. The third international conference organized by society was on the topic International Conference on Recent Trends in Science, Technology, Management and Social Development (ICRTSTMSD-18) in Bali, Indonesia on 04-05 August 2018. The fourth international conference organized by society was on the topic 4<sup>th</sup> International Conference on Management, Engineering, Science, Social Science and Humanities (*i*Con-MESSSH'19) in Phuket, Thailand on 26-27 July 2019. The fifth international conference organized by society was on the topic 5<sup>th</sup> International Conference on Management, Engineering, Science, Social Science and Humanities (*i*Con-MESSSH'20) online on 14-15 August 2020.

With great success and huge response from the participants, this year the Society is organizing the sixth International Conference on Management, Engineering, Science, Social Science and Humanities (*i*Con-MESSSH'21) online on 09-10 November 2021 in association with 9<sup>th</sup> International Conference on Science and Mathematics Education (CoSMEd-21 by SEAMEO, RECSAM, Malaysia).

The objective of the Society is Scientific, Technical, Managerial, Literary, and Educational in nature. The Society strives to advance the theory, practice, and application of Science, Technology, Social Sciences, Humanities, Education and Management and maintains a high professional standing among its members. The basic purpose of the Society is to bring together academicians and experts from different parts of the country and abroad to exchange the knowledge and ideas at a common platform by organizing National and International Conferences, Seminars and Workshops that unite the Science, Social Sciences, Language, Emerging Technologies, Management, Financial Engineering, Humanities, Literary, Cultural, Education and topics which are not mentioned here for the empowerment of research and development. The Society promotes the original, innovative ideas for betterment of the world and seeks to propagate the results of the interdisciplinary field across research communities and to the general public.

To know more about the activities and forthcoming events of the Society, the readers are advised to visit the official home page of the Society (http://socrd.org).

Prof. R. C. Singh President

#### PREFACE

We are very pleased to introduce the proceedings of the 6<sup>th</sup> International Conference on Management, Engineering, Science, Social Science and Humanities (*i*Con-MESSSH'21), held online during 14-15 August 2020 in association with CoSMEd-21 (by SEAMEO, RECSAM, Malaysia). This volume of proceedings from the conference provides an opportunity for readers to engage with a selection of refereed abstracts along with invited talks that were presented during *i*Con-MESSSH'21.

Out of 95 papers submitted for publication, 34 have been selected in this proceeding after twotier peer review. The conference received a huge response and the researchers from USA, Philippines, Nigeria, Uzbekistan, India, Indonesia, Malaysia, Taiwan, China, Uzbekistan, Korea, Thailand, Australia, Japan, etc. who submitted and presented their papers in the conference. Based on the subject matter of the selected papers,

Keynote address was delivered by *Subuh Anggoro*, Universitas Muhammadiyah Purwokerto, Indonesia on topic "*Publishing High Impact Journals to Sustain Quality Education*" in the inaugural session of the conference. Best paper awards were given in each and every session judged by concerned Co-Chair and session chairs. The selected presented papers will be published in edited book entitled "The Future: Multidisciplinary Research for Achieving Sustainable Development Goals" to be published by Cambridge Scholars Publishing, UK.

One of the unique and valuable dimensions to the *i*Con-MESSSH'21 was the way the conference brought educators together from around the around the globe to discuss to discuss ways to serve learners better. All in all, the *i*Con-MESSSH'21 was very successful on digital platform. The deliberations provided a better understanding of the development in science, technology, management and humanities, making it possible for non-experts in a given area to gain insight into new areas. Also, included among the speakers were several young scientists, namely, postdocs and students, who brought new perspectives to their fields. Society for Research Development is continuously striving to join hands with different organizations and universities for academic collaborations. In 2020, SRD society signed Memorandum of Agreement with SEAMEO, RECSAM, Pennag, Malaysia for joint organizing of events for next five years. So, the 2021 conference was organized in association with CoSMEd-21 (SEAMEO, RECSAM). Prof. R. C. Singh delivered keynote address in CoSMEd-21.

The SRD society would like to thank all participants for their contributions to the Conference and for their contributions to this proceeding. We take this opportunity to thank the efforts of all the reviewers whose efforts enabled us to achieve a high scientific standard in this proceeding. We also thank the members of the Technical Committee for extending their help and co-operation from time to time in organizing this conference. The success of this conference means that planning can now proceed with confidence for the next event. We would also like to thank all the Co-Chairs and invited speakers for their support and hard work to make this conference a huge success.

Editors

# **Abstracts**

#### **Publishing High Impact Journals to Sustain Quality Education**

Subuh Anggoro Universitas Muhammadiyah Purwokerto: Purwokerto, Jawa Tengah, Indonesia Email: subuhanggoro@ump.ac.id

**Abstract** - The United Nations adopted the Sustainable Development Goals (SDGs) in 2015 as a universal call to action to end poverty, protect the environment, and ensure that by 2030, all people enjoy peace and prosperity. And the fourth SDG have purposed to Ensure inclusive and equitable quality education and promote opportunities for lifelong learning for all. It means that achieving inclusive and high-quality education for all reaffirms the belief that education is one of the most powerful and proven vehicles for long-term development. So, teachers and educators must be empowered, adequately recruited and compensated, motivated, professionally qualified, and supported within well-resourced, efficient, and effectively governed systems. Everything should have been supported by High Impact Publication.

Keywords: Education, Research, Sustainable Development Goals, Impact Factor, Citation,

#### What Sustains Researchers? How important are citations?

Miranda P. Yeoh Ex. Associate editor of JSMESEA, Malaysia Email: mirandayeoh23@gmail.com

**Abstract** - The purpose of this brief paper is to motivate, support, and sustain researchers. In this paper, the researcher looks back on issues that researchers are subconsciously aware. We know that our research pursuits are worthwhile for our profession and also personally meaningful to us for various reasons. The paper goes on to explore our motivations and supports for research. Are we intrinsically or extrinsically motivated, and what sustains us when the path is rough? The researcher discussed current evaluations of a research paper: Number of Reads, Number of Downloads, and Number of Citations. Curiosity and the need to facilitate the learning of students have compelled the researcher. The researcher discussed several points of the research journey, the collaborations, the concern for ethical publishing, the challenges that led to growth and fulfilment, and even citations that came unsought.

Keywords: Research, Citations, Publishing, Sustainable research

#### Supply Chain Management with Learning and Forgetting – Form of Optimal Policies and Convergence Study

Sunantha Prime Teyarachakul California State University at Fresno, USA Email: steyarachakul@mail.fresnostate.edu

**Abstract** - We considered a two-stage supply chain, consisting of one manufacturer and one retailer, and assumed that worker learning and forgetting occurs in processing units in a batch manufacturing environment. Specifically, we analysed the combined effects of lot sizing, as well as learning and forgetting on a manufacturer-retailer channel. Our analysis is simplified to assume the case of a single product. The retailer is assumed to face a constant demand rate over an infinite time horizon; therefore, the retailer's Forms of Optimal Policy (FOOP) are: (1) to order the same quantity for each purchase; (2) to place an order at regular intervals, and (3) in the periods that orders arrive, inventory is reaching its zero point. FOOP for the manufacturer are to produce the product in batches at a finite production rate and deliver them to the retailer in a number of shipments. In the convergence study, we choose Wright's (1936) learning curve, and Globerson and Levin's (1987) exponential and S-shaped forgetting functions, through the analysis of dynamical system, we found the single-point convergence of learning and forgetting in which the batch production time or experience level converges a single value.

Keywords: Dynamic System, Operations Research, Supply chain management

#### End of Covid-19 Pandemic and Prevent Impact on the Sustainable Development Goals

Peter Chew Biochemist, National University of Malaysia, Malaysia Email: peterchew999@hotmail.my

**Abstract** - Background: The Sustainable Development Goals (SDG) are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. Covid-19 has led to the first rise in extreme poverty in a generation. The deputy UN chief said Covid-19 pandemic has had a "deeply negative impact" on health and well-being; employment, businesses, incomes, education; and human rights, with "a particularly damaging effect on women and girls". Therefore, it is necessary to develop a strategy to end the Covid-19 pandemic and prevent its impact on the Sustainable Development Goals (SDG).

**Method:** Peter Chew's "Tracking Super Spreader Strategy" is to "tracking asymptomatic super-spreaders with high viral load. Super Spreaders are tracked by tracing close contacts of virus carriers with high viral loads (those who brought in dead and severely ill patients). In addition, the Super Spreader can also be tracked through oximeter, anal test and wastewater test.

**Result:** Peter Chew Pandemic to Endemic Strategy will resolve all misunderstandings related to covid-19 through science base or real-world evidence. Do not know the real reason and draw conclusions, usually those conclusions are untrue. One of the main Peter Chew Pandemic to Endemic Strategy are Peter Chew "Tracking Super Spreader Strategy. The goal of Peter Chew's "Tracking Super Spreader Strategy" is to "tracking asymptomatic super-spreaders with high viral load and institutional isolation, reducing high hospitalization, high mortality and high infection rates without using vaccines". Study-1 suggests that heterologous ChAdOx1nCoV-19 and mRNA prime-boost vaccination is an effective alternative to increase population immunity against Covid-19, including against the Delta variant. However, if some countries implement booster doses, it will cause vaccine shortages in poor countries. Therefore, Peter Chew's "Tracking Super Spreader Strategy" without using vaccines can be used for poor countries to prevent the surge of covid-19, especially delta variants.

**Conclusion:** Singapore and Israel send a signal to the world that high vaccination levels cannot ensure that a country faces a surge of high mortality and high infection rates. The current strategy of testing only symptomatic close contacts in most high-infection countries

is wrong. This will lead to persistently high infections and high mortality because super spreaders are usually asymptomatic high viral loads that have not been detected. This strategy will accumulate more asymptomatic super-spreaders and cause persistently high infections and high mortality in the country, especially BID. Peter Chew's "Tracking Super Spreader Strategy aims to reduce super-spreaders in high-infection countries to ensure that the country's super-spreaders are minimized. Therefore, the focus of this strategy is to first reduce hospitalization and mortality. After that, the infection rate will drop sharply. In addition. the practice of this strategy without using vaccine can solve vaccine shortages in poor countries problem.

Keywords: Sustainable Development Goals, SDG, COVID-19, Pandemic, Endemic

#### **Re-Imagine the Future World: Exploring the Covid - 19 Post Pandemic** Issues for Sustainable Quality of Life

Gunjan Jain Westminster International University Tashkent, Tashkent, Uzbekistan Email: gjain@wiut.uz

Abstract - Across the globe, people are aware of sustainability and its implication on human life, e.g., awareness for environmental protection, focusing on economic growth, and social equality that contribute to maintaining the quality of life. Quality of life highlights the perception of individuals towards their culture, value, and expectations in life. According to Andrews (1974) Bowling (1995), quality of life is the extension to which pleasure and satisfaction have been accomplished. The agenda of UN's sustainable development goals: No Poverty [SDGs-1] Eliminate hunger [SDGs-2], Establish good health and well-being [SDGs-3], provide quality education [SDGs-4], and create decent work and economic growth [SDGs-8] for 2030 is left unachievable during the pandemic, which ended while facing worst situation by the people worldwide. The Covid 19 pandemic has had an acute and incomprehensible physical, social, economic, and emotional impact on human life across the globe respective geographical boundaries, class, creed, gender, affecting human well-being in the coming years. The unprecedented measures adapted to extend the safety nets affect the lives of every section and age group of society due to their sedentary lifestyle. They suffer from the feeling of loneliness and disconnection from the community to maintain social distance that ended in the cause of the deterioration of the mental health of all age groups. This article highlights the impact of the pandemic on human life and recommends measures to overcome the issue to lead a contented life in the years to come.

Keywords: Global pandemic, SDGs, Psychology, Agenda

#### Machine Learning – A Multidisciplinary Approach for Solving Real World Problems

Manu Pratap Singh

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Abstract - Machine Learning has gained a lot of prominence in the recent years because of its ability to be applied across scores of industries to solve complex problems effectively and quickly. Contrary to what one might expect, Machine Learning use cases are not that difficult to come across. The most common examples of problems solved by machine learning are image tagging by Facebook and spam detection by email providers. Google recently demonstrated a multi-model machine learning approach, which provides a template for the development of future systems that are more accurate and more broadly applicable to different disciplines, including medicine. Diagnostic imaging may be one of the first medical disciplines subject to the application of machine learning algorithms. other fields such as pathology, cardiology, dermatology, and gastroenterology also have potential use cases. Recent advances and future perspectives of machine learning techniques offer promising applications in medical imaging. Machine learning has the potential to improve different steps of the radiology workflow including order scheduling and triage, clinical decision support systems, detection and interpretation of findings, postprocessing and dose estimation, examination quality control, and radiology reporting. The present research involves combining biology, mechanical engineering and information technology in order to develop the techniques necessary to build a dynamically stable legged vehicle controlled by a neural network.

Keywords: Machine learning, deep learning, supervise and unsupervised learning, CNN

### Online Distance Learning – How do we Catch the Rainbow Amidst the Storm

Nalini Arumugam Akademi Pengajian Bahasa, Universiti Teknologi MARA, Malaysia Email: nalini@uitm.edu.my

Abstract - The current demand of education has changed the teaching and learning processes from traditional face-to-face learning to online distance learning (ODL). This presentation focuses on the prospects students could gain from ODL as the education context moves beyond the new norm. Reflecting the current landscape in the education arena, the presentation will deliberate on the elements and the relevant practical teaching strategies to Catch the Rainbow Amidst the Storm. On the flip side of the coin, however hundreds of research studies since 1920's has revealed that there no significant differences in learning outcomes achieved by students and this is regardless of the technology medium employed. However, beginning 2000, ODL has become the rescuer in the education landscape which caused several reviews to skew towards online learning. Hence, the presentation will suggest innovative approaches to enhance student commitment to be independent learners. Students studying in isolation and without extrinsic motivation from friends or teachers in the usual face-to-face classroom situation can pose a hindrance. However, teachers and educators can employ innovative approaches to make the ODL experience more engaging and rewarding. The article also explains 5E approach; Evolve & change, Expectation factors, Empathy factors, Engagement factors, and Empowerment technique to make the teachers the agent of change to bridge studentsteachers. The presentation concludes with suggestions for teachers to play an inspirational role to enhance the efficacy of ODL.

Keywords: ODL, evolve, expectation, empathy, engagement, empowerment, education

#### The Pretty Butterflies as Potential Bioindicators to Achieve Sustainable City and Community Development

#### R. Indarjani

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Abstract - Environmental concerns are highlighted in areas of sustainable city developments. Bio indicator has often utilized to mitigate environmental changes. The study was aimed to observe community structure pattern of butterflies as bio indicator in Jakarta's urban parks. The research was conducted in the late of rainy season 2018. At each location, three stations were determined based on flowers abundances. In every station, samples were collected along three (3) transect line with 100 meters length using insect net and be repeated three times. A total of 448 individuals of butterfly that belong to 6 families and consist of 28 species has been caught during study. Biological indices revealed a variation among stations which characterized of semi undisturbed community structure. Margalef Species Richness Index (Dm) was ranged from 4.50 to 4.19 while Evenness Index (E) was ranged from 0.89 to 0.93, indicated that organisms have similar opportunity to grow and local environment relatively stable. In addition, abiotic parameter data has also showed variation trends, but it was in range of acceptable level. The result can be illustrated the important of green open space in maintaining the environmental services and the presence of butterflies as attractive creatures can become media to cultivate environmental awareness among children.

**Keywords:** bio-indicator, biological indices, community structure, sustainable city, urban parks

#### **Knowledge Graph Embedding in Industries**

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**Abstract** – In this article a comprehensive introduction to knowledge graphs, which have recently garnered significant attention from both industry and academia in scenarios that require exploiting diverse, dynamic, large-scale collections of data from various sources is presented. After some opening remarks, the graph embedding generation pipeline is discussed which is a transformation of nodes of a graph into a set of vectors. A good embedding should capture the graph topology, node-to-node relationship, and other relevant information about the graph, its subgraphs, and nodes. A few metrics such as KL Divergence to evaluate the quality of the graph embeddings generated at the end of the pipeline is also discussed. If these objectives are achieved, an embedding is a meaningful, understandable, compressed representation of a network that can be used for other machine learning tasks such as node classification, community detection, or link prediction. It is summarized how Knowledge Graph Embeddings are used in the products "Apres.io" to create new cohorts, features, and semantic representations based on community detection. The capabilities of employing nearest neighbor (NN) detection and link prediction (LP) between nodes to leverage previously overlooked data relations, which aids the industry in discovering new relationships in various data silos is also covered. It is concluded off with a high-level discussion of potential applied research directions for knowledge graphs in areas such as fraud and credit.

**Keywords:** knowledge graph, machine learning, artificial intelligence, community detection, link prediction

#### Influence of Anthropogenic Activities and Natural Clamities over Air Quality, Atmosphere and Meteorology of India

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Abstract - Indian sub-continent is one of the most populated and polluted parts of the world. Crop residue burning, vehicular pollution, thermal power plants, dust storms, cyclone, and forest fires are some of the major sources of air pollution. Crop residue burning in north-western parts of India and Pakistan cause large-scale emission of particulate matter and trace gases especially during the post-monsoon season. The particulate matter emission due to crop burning affected the air quality of the Indo-Gangetic plains and also affected significantly the southern parts of India due to westerly winds. They also cause a major impact on the radiative budget of the atmosphere and affect various meteorological parameters by the significant rise in middle tropospheric trace gases. In south-eastern parts of India, tropical cyclones cause large-scale destruction to human life and infrastructure. In recent years, more intense cyclones are hitting the Indian coast and affecting human life. Significant rise in the middle tropospheric Carbonmonoxide and Ozone concentration is a major concern even in the region which are not in the direct part of the cyclones. The changing climatic condition due to the global rise in the earth's temperature also helps in the rise of dust storms. The dust loading in the atmosphere causes various changes in the meteorology of the atmosphere. The long-range transport of dust over northern parts causes major health crises during the pre-monsoon season by the enhancement in the coarse aerosol concentration along with the rise in the relative humidity in the lower to middle troposphere. Hence along with the various anthropogenic activities, natural disasters also cause a major change in atmospheric and meteorological changes and affect human life.

Keywords: Ozone concentration, human life, atmosphere, meteorology

#### Waste Management Industry and Way Forward to Ensure Sustainable Waste Management

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Abstract – This paper discusses current waste management and way forward to ensure waste management. Currently, as per government estimates, about 65 million tons of waste is generated annually in India, and over 62 million tons of it are Municipal Solid Waste (MSW) that includes organic waste, recyclables like paper, plastic, wood, glass, etc. 45-50% of which is biodegradable, 20-25% is recyclable and 30-35% as inert/debris. Only about 75-80% of the municipal waste gets collected and out of this only 22- 28% is processed and treated. The remaining MSW is deposited at dump yards. By 2031, MSW generated is projected to increase to 165 million tons, and further up to 436 million tons by 2050. Though the quantity of waste generated is increasing, waste collection efficiency in India is still catching up. It ranges from 70 to 90% in major metro cities and is below 50% in many smaller cities. It is highly disconcerting to note that Door to Door Collection has reached only up to 82% and source segregation has not moved beyond 48% in the country. Through this municipalities can manage the entire waste cycle from production point to disposal areas, by optimizing and automating every step of cycle. According to the Italian and European case studies the implementation of web-based GIS technology optimized the waste collection and source separation for recycling had become efficient up to 80%. Waste disposal is a process in which waste disposal is disposed of early and soil cover is close at hand, and it has been found to be the most cost-effective way to dispose of waste, especially in developing countries. Mixed waste is compacted and covered with soil and later vegetation. The design of landfill sites includes lower and upper lanes, where leaks of methane and leachate enter groundwater. Landfills emit harmful gases and produce solids in the decomposing process of complex molecules such as methane, carbon dioxide, CO, N<sub>2</sub>, SO<sub>2</sub>, H<sub>2</sub>S gases, alcohol and hydrocarbons and heavy metals.

Keywords: E-Waste, GIS, Sustainability, Pollution, Smart Cities

#### Green Marketing Implementation in Small and Medium Enterprise in the Province Laguna: Sustaining Eco-Friendly Business

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Abstract - The environmental role in business is very important. Green marketing is typically practiced by companies that are committed to sustainable development and corporate social responsibility. More organizations are making an effort to implement sustainable business practices as they recognize that in doing so they can make their products more attractive to consumers and also reduce expenses, including packaging, transportation, energy/water usage, etc. Businesses are increasingly discovering that demonstrating a high level of social responsibility can increase brand loyalty among socially conscious consumers; green marketing can help them do that. Green marketing refers to entire marketing concept wherein the production, marketing, consumption and disposal of products and services happen in a manner that is less damaging to the environment. Over the years, a majority of consumers have realized that their behavior had a direct impact on environment. The objective of this paper is to study the implementation of Green Marketing in Small and Medium Enterprise in the Province of Laguna. The paper also aims to understand the concepts of Green Products and Green Marketing Strategies Implemented to sustain eco-friendly business in town. The present paper studies the theoretical concepts of the green marketing, green marketing management and green products. The paper also studies the theory contributed by researchers in the area of environment marketing which includes green products, green customers and green marketing strategies. The research paper concludes that business firms need to change their mind set from traditional marketing strategies to green marketing strategies in order to survive in the green competitive world and to have a positive impact on the environment through green marketing elements and sustained eco-friendly business environment.

**Keyword:** Eco-friendly Environment, Small and Medium Enterprise, Corporate Social Responsibility, Green Marketing, Green Products, Green Marketing Strategies.

#### Exploratory Research on the Role of Leadership in Green Management

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Abstract – Leadership is significant in achieving green management goals. However, few have descriptively and explanatorily studied the role of leadership in green management. The paper aims to lay a foundation for future research thru providing information for problem definition and hypothesis formulation. The study was exploratory and used secondary research to collect data for deductive research approach analysis to develop a hypothesis. Agreeing results from the literature review communicates that leadership has a role in performance and outcomes. Leadership and green management have been considered two broad concepts, and researchers investigated different aspects and relationships as sources of conceptual framework design. It shall be beneficial in promoting environmental management and sustainability and contribute to alleviating global ecological issues. After analysis of findings, the study concluded: the respondent's description of leadership's role falls under the dimensions of transformational leadership; leadership influences organizational performance, and leadership is related to creativity. It recommends that researchers determine the effects of transformational leadership in the performance of green management practices in organizations and adapt the study's conceptual framework in studying the role of transformational leadership in implementing green management practices and the mediating part of creativity.

**Keywords:** Environmental Sustainability, Exploratory Research, Green Management, Leadership, Leadership's role.

#### Towards an Inclusive and Sustainable Flood-risk Communication Management Framework for Davao City, Southern Philippines

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Abstract - Vulnerable communities of Davao City, Southern Philippines has experienced flooding that leads to catastrophic effects costing damage to properties and loss of lives. Communities need to build its resiliency to respond to flooding and mitigate its negative impacts, while policy makers and leaders need to consciously, regularly review and update its existing policies to address gaps and promote effective community engagement. This paper highlights the development of the framework based on the results from the convergent parallel mixed method merging the results of the quantitative and qualitative approaches which aims to enhance participatory approach towards an inclusive and sustainable risk reduction strategies. Results of the study revealed that Davao City implements a top-down communication system for risk reduction management, however, this approach has little or no room for direct transactional interaction between the source of the message and the local communities. Messages have been found to be unfiltered and interoperability mechanism has been found only at the level of the implementing agencies. In addition, vulnerability is associated with socio-demographic characteristics, experience in flooding and responses to flooding. This paper argues that since the perception of risk varies across contexts and experiences, local communities play a significant role in developing a flood-risk communication system based on their own perceptions, experiences and practices that have been developed through the years in dealing with flooding in their area of residence. Hence, the study concluded that risk reduction strategies can be further enhanced through a risk communication management using a localized and participatory approach in the proper knowledge transfer of flood risk communication among the stakeholders involved, placing the community as the central actor for amplification. The study, therefore, proposed a community-based flood-risk (CBFRCM) communication management framework for the flood-vulnerable communities. This model aims to raise awareness and preparedness towards community's resilience to disasters.

**Keywords:** inclusive disaster resiliency; sustainable disaster resiliency; flood-vulnerable communities: Davao City; disaster resiliency model

#### Green Practices of Selected Hotels in the Province of Cavite, Philippines

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Abstract - Climate change and global environmental issues compel most industries to transform into environment friendly operations. The hotel industry, a resource intensive business and major contributor to waste generation for its part had embarked on implementing activities that will help mitigate the continuous depletion of natural resources. Hotels around the world are now adopting the concept of "hotel greening" wherein green practices like water and energy conservation and waste management are being implemented. However, hotel greening in the Philippines is still in its infancy. Although efforts have been made to change its operations into environmental-friendly manner, still there is a limited engagement of hotels when it comes to environmental conservation initiative, particularly budget hotels where service quality improvements are not a priority. The study dealt with the green practices of hotels in the Province of Cavite, one of the prime tourist destinations in the Philippines. It investigated the existing green practices of hotels in terms of water conservation, energy conservation, and waste management, including activities initiated to sustain hotel's green practices. Hotel managers were the participants of the study. The results show that in terms of Water Conservation, Adjusting the water flow according to the type of cleaning to be done was the most implemented; in terms of Energy Conservation, not leaving television on standby mode, while in terms of Waste Management, checking of expiration dates of the foodstuff was the most implemented practice. Further, creating policies enable the hotels to sustain green practices.

**Keywords:** Implementation, Green Practices Adoption, descriptive design, hotels, Cavite Province.

#### Students Awareness about Climate Change Towards Business Sustainability in Gumaca, Quezon

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**Abstract** - Climate Change impacts are presently observed around the world. The scope of effects possesses an environmental threat not only in the livelihood but in business community as well. The challenge of the business today is about sustainability, to balance the short- and long-term existence regardless of the different factors affecting the environment. Business in the community is vulnerable in the effect of climate change. Business interruption, property damages and delay in the services provided because of extreme weather disturbances are factors to consider in business continuity and existence. This study determined the level of awareness of business students about climate change in connection to business sustainability in the community. The research employed the use of descriptive survey research to selected participants. It is recommended the need to establish climate change awareness to the students who are future business owner, managers and employees on the importance of preparedness and risk management.

**Keywords:** Sustainability, Climate change, Risk management, Awareness, environmental threat

#### **Teaching Innovation - Competency-Based Learning Materials for Accountancy, Business and Management (ABM) Students**

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Abstract - The study is focused on the level of knowledge of Grade 12 ABM students in terms of bank transactions in Dolores Macasaet National High School. It also aims to determine the effectiveness of "Competency-Based Learning Materials" in increasing the knowledge of the respondents when it comes to banking transactions. The subjects of this action research are senior high school Accountancy, Business and Management (ABM) students. Twenty-six Grade 12 ABM students underwent pre-test prior to the use of learning materials and post-test after using the materials to assess the effectiveness of the teacher-made learning materials. The study focus on the effectiveness of teacher-made competency -based learning materials to Grade 12 ABM students to determine whether the learning materials greatly improve the learners' knowledge in banking transactions as required by Department of Education in their prescribed curriculum guide with the following competencies: 1) identify the types of bank accounts normally maintained by a business; 2) differentiate a savings account from a current or checking account; 3) prepare bank deposit and withdrawal slip; 4) identify and prepare checks; and 5.)identify and understand the contents of a bank statement. The result shows that competency-based learning material is a great help to Grade 12 ABM students, which in turn increase their knowledge in banking transactions, evidenced by the improved mean percentage score.

Keywords: Competency-based Learning Materials, Knowledge, Bank Transactions

#### Measuring and Sustaining Management Effectiveness of a College in Alabang, Philippines

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**Abstract** - Scholars, policy makers and practitioners in education unanimously recognize the dire need for effective and efficient management of educational institutions. Measuring management effectiveness of school is vital in sustaining and developing goals of education. Translating the foregoing goals of education into a reality call for planning at both the policy level and institutional level. The concurrent technology revolution where information is in highway and competitive education institution is at stake, given the foregoing scenario, a need to assess educational management practices of a college in Alabang Philippines is imperative. This study was conducted to measure management effectiveness and sustainability of a college based on its mission. The school mission is: To provide excellent and responsive programs and services, adopt empowering management system and build a learning, caring and praying community guided by the teaching of St. Benedict and the example of St. Bede. Primary and secondary data were used. Primary data were gathered using interview guide to selected academic, nonacademic employees, students and alumni. The result shows "very effective" management and sustainability of its mission to enable them to achieve their vision.

Keywords: Measuring Effectiveness, Sustaining Effectiveness, Management Effectiveness

#### Sustainability of Information System: The Case of Document Processing Division, Bureau of Internal Revenue-RR9B (LaQueMar)

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**Abstract** - The study focused on the assessment of sustainability of the information system in the Document Processing Division. A total of 40 DPD employees acted as respondents of the study. Quantitative and qualitative research designs were used, while data were analyzed using descriptive statistics with frequency counts and mean. In terms of perception, there was no significant differences on the responses of the Chiefs and regular staff. Positive responses on the indicators revealed that the employees generally agreed or strongly agreed that the DPD is socially, environmentally, and economically sustainable. This was further realized when the survey results supported by the key informant interviews were plotted in the Sustainability Indicator Framework for IS. Results of the study show that the DPD is currently sustainable with a few improvements to achieve.

Keywords: information system, sustainability, social, environmental, economic

#### Sustainability of Online Selling Business in the City of San Pablo, Laguna

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Abstract - Setting up an online selling business in the Philippines has been useful and profitable for many individuals who engaged in this type of business. Despite the ongoing health crisis, there are huge increases in supply and demand in the online business market. This study determined the strategies patterned on Attention-Interest-Desire-Trust-Action-Satisfaction (AIDTAS) theory of selling and significant differences between the strategies used by business owners to attain sustainability of online selling business. Forty-eight (48) owners of an online selling business in the City of San Pablo, Laguna were surveyed and interviewed. The researchers treated the data using Descriptive-Correlational research design. Findings disclosed that most business owners were female adults with 2 to 3 years of experience in online selling. Most business owners use the Facebook as online platform to sell food and beverage products across San Pablo, Laguna. Most sellers establish "Trust" domain which includes, offering money-back guarantees and providing cash on delivery as payment term. Lastly, the strategies used by the business owners differ significantly according to their demographic profiles. The results suggest that business owners should use other social networking sites to promote and sell their products and services.

Keywords: Business Sustainability, Online Selling Business, Sustainability, Strategies, Theory of Selling

#### Sustainability of Online Food Delivery in San Pablo City, Laguna

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**Abstract** - The inception of online food delivery services could be attributed to the new normal and changing nature of consumers in most areas in the Philippines. During the COVID-19 outbreak, because of the lockdown, the demand for online food delivery has drastically increased due to the inaccessibility of consumers to food. This research assesses the sustainability of online food delivery in the City of San Pablo by determining its impacts on the three pillars of sustainability and discussing the challenges and opportunities to sustain it. To gather results, twenty-two respondents, primarily managers, and business owners were randomly selected to complete a survey questionnaire. Descriptive statistics using frequency counts and percentages as well as computation of means were used to analyze and interpret data. Results showed that the respondents generally perceived that online food delivery is positively sustainable in terms of its social, environmental, and economic impacts. An increase in sales and job opportunities was also observed and minimal and manageable challenges were experienced. These results suggest that online food delivery in San Pablo City can be seen as a continuing business venture even after residents are used to living under the "new normal".

Keywords: online food delivery, necessities, social, environmental, and economic

### Sustainability of Public Transportation Operation in Lucena City: In the New Normal

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Abstract - The importance of public transportation has been felt by the commuters in the Philippines as the global pandemic brought by the coronavirus disease 2019 (COVID-19) has suspended public transit in the economic and political center of the country. As the pandemic lasted for several months and the need for economic activity increases, the demand for public transport also increases, making the government ease community lockdown. Despite of restrictions, public transportation has been allowed to operate on a limited passenger capacity or up to fifty percent (50%) only, resulting in high passenger density and public health concerns. This study was made to evaluate the sustainability of public transportation operation in Lucena City, Quezon Province, Philippines, amidst the pandemic. This research paper uses descriptive research method and survey questionnaires to gather data. The statistical tools used are frequency, percentage, mean, standard deviation, and relative sufficiency. Participants of this study were commuters from and to Lucena City. Findings reveal that the key factors to sustain public transportation operation are the safety and wellness of the commuter, free rides, and availability of transportation for workers. These results suggest that strict implementation of the safety protocols for public transportation must be ensured to lessen the possibility of Covid-19 transmission, while increasing the confidence of the commuters in using public transportation. In addition, sufficient number of public transportations must be provided by both Local Government and private companies.

Keywords: commuters, pandemic, public transportation operation, sustainability

#### Sustainability of Biogas Production in Laguna

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**Abstract** - As population increases, resource depletion and waste disposal management has become a major concern. Production of biogas using biomass can contribute in addressing these issues. Hence, this research was conducted to determine the sustainability of biogas production in Laguna. This study used quantitative analysis through a survey on 10 owners of biogas plant with digester. SWOT Analysis revealed that biogas production has a highly considerable strength particularly on local accessibility and free-of-charge access to waste. There is a considerable weakness significantly on capital for investment. Biogas production offered highly considerable opportunities like protection of environment and reduction of landfilled waste. The process possessed a considerable threat due to high cost of investment. The study also found that biogas production is highly sustainable with regard to environmental, social and economic aspects. Despite its benefits, there are certain obstacles to the production of biogas. In order for the biogas industry to succeed, cost reductions and financial support are necessary in order to improve affordability.

Keywords: Biogas, Sustainability, Environment, SWOT Analysis, Affordability

## Waste Management Practices of Selected Hospitals – Evidence from the Philippines

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Abstract - Solid waste management remains a major challenge in the Philippines especially in urban areas. Improper wastes disposal, inefficient waste collection and lack of disposal facilities are among the major concerns among Cities. Hospitals on the other hand should be given foremost attention because it produces not only ordinary day-to-day garbage, but toxic and hazardous wastes as well. Improper waste disposal may result health risks for other people. This study aims to determine the current waste management practices of selected hospitals in San Pablo City Laguna. It also intends to establish how the administrators/managers of different hospitals implemented their respective waste management systems. This study is qualitative in nature. A self-made guide questionnaire was used to get the responses of the participants. The qualitative method of research was utilized. The result of the study showed that most of the hospitals plans to modify their waste management implementation to become a Go Green Hospital. It is recommended that creation of Infection Control Committee with members who are dedicated, hardworking, and determined to strictly monitor the implementation of the Hospital Waste Management Policy of their institution, for the safety of healthcare workers and people living around the hospitals.

Keywords: Hospital Waste management, waste management practices, solid waste management

#### Environmental Sustainability Assessment of Drive-Thru Mahogany Manmade Forest

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**Abstract** - This study assessed the environmental sustainability of drive-thru mahogany manmade forest as part of destination attraction of Dolores, Quezon in terms of social, environmental and economic aspects. The paper is guided by the Forest Instrument: A Framework for sustainable forest management which includes 25 National Policies and measures set by Forest Management Bureau or FMB and the Goal number 15 of the United Nations 2030 Agenda for sustainable development which is; Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss. The assessment process was conducted with the help of the tourists visiting the place selected through stratified sampling. Furthermore, observation checklist is crafted to validate the responses. Descriptive statistics is used to interpret the data. The Mahogany Manmade Forest is assessed to be environmentally sustainable. Nevertheless, conservation and preservation plan and guidelines are highly recommended.

Keywords: Environmental sustainability, forest management, sustainability goal

#### Microfinancing Services to Income Steadiness as Perceived by Mini Grocery Stores Owners

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**Abstract** - The new normal set up for everyone due to Covid - 19 has been more challenging in terms of surviving the family living, job security, personal and emotional stress and for businesses, their income steadiness, or its existence itself. Many has changed because of this pandemic. The development of small businesses around the world has been drastically improved with the help of assistance of the government, technology and globalization, additional learning in putting up businesses and most especially the influence of microfinancing. This study distributed 200 questionnaires and retrieved 159 questionnaires from mini grocery stores that has an existing loan, using convenient sampling around Laguna. Researchers found out that 78% of the mini groceries have informal loans compared to 22% formal loans. Moreover, in correlation between the microfinancing in terms of capital assistance and business improvement and income steadiness in terms of profitability and loan repayment of mini groceries, with p-value of .02, it shows the strong relationship of two variables.

Keywords: COVID-19, Microfinancing, Business, Income, Pandemic

#### Awareness on Green Enterprise: An Input to Educating Public Transport Drivers in San Pablo City Laguna

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**Abstract** - The study aimed to determine the awareness and perception of tricycle drivers in San Pablo City, Laguna on green enterprise. A survey was done involving one hundred fifty (150) public utility vehicle (PUV) drivers. The questionnaire intended to measure awareness on general concepts as well as on air emission control and perception on greening practices. The research also looked into the relationship between variables which are profile of the respondents, awareness and perception on green enterprise. It also examined if there is difference in the awareness and perception of the PUV drivers when they are grouped according to profile factors. The study revealed that the tricycle drivers are highly aware of the meaning, benefits and activities of green enterprise and that they agreed on the green practices applicable to their work. It was also determined that there is significant positive relationship between awareness and perception on green enterprise and significant negative relationship between civil status and perception on green enterprise. Moreover, it was determined that there is no significant difference among the awareness of the respondents on green enterprise but there is significant difference among the perception on green enterprise when grouped according to civil status.

Keywords: Awareness, tricycle drivers, green enterprise

#### Enhancing Chemistry Undergraduate Students Creative Reasoning with Collaborative Learning via Adaptive Digital Game-Based Learning

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Abstract - Technology agrees that it contributes to effective teaching and learning. This is an undeniable contribution to STEAM education and has been proven to improve students' creative reasoning skills. This will be improved with the help of adaptive digital gamebased learning (ADGBL) to strengthen students' positive attitudes towards STEAM education. However, collaborative learning can help students complete ADGBL activities faster and more effectively. Therefore, this study is aims to analyse the effect of collaborative learning when completing the ADGBL module. This study uses the technology integrated learning module namely GamBot used in ADGBL. Nine first-year chemistry undergraduate students from a national public university were deliberately selected to participate in this qualitative study. Three of them participated in this study as the only participants whereas another six students were divided into two groups with three participants in each group. Have the same time and module to complete all activities in the module, they were asked to individually participate in a qualitative online questionnaire in order to evaluate the collaborative learning strategy upon completion of the module. The result show that, compared with the students who participated individually, the students in groups can complete the module earlier and more effectively. Therefore, collaborative learning is an additional benefit when carrying out ADGBL related activities.

Keywords: Collaborative Learning, STEAM education, Game-based Learning, chemistry

#### Interface among Nanotechnology, Chemical Composition and Biological System: The Need for Updating Schools Chemistry Curriculum

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**Abstract** - Research has shown the significance of nanotechnology in modern medicine over the past three decades. Nanotechnology has been developed to improve health, which is referred to as nanomedicine. The application of nanomedicine has been extensively applied in drug delivery, cancer treatment, the diagnostic process and the latest one is for nucleic-acid based vaccine delivery which is rapidly undergoing development in the current COVID-19 pandemic era. Due to the importance of nanomedicine for current and future health, this field has been introduced to the secondary level of chemistry education. However, there is still a lack of exposure and knowledge levels of the teachers and students about nanotechnology. Having this in mind, this paper discussed the interface among nano system, chemical composition and biological system of human, nanomedicine and the development of vaccine for pandemic and nanotechnology and the teaching and learning of chemistry in schools and colleges. The paper further analyses some literature regarding nanotechnology in chemistry teaching and learning and the need for the development of MyNanoria.

Keywords: Nanotechnology, Mobile Application, STEM, Chemistry

## Solving Coastal Pollution to Achieve Sustainable Development Goal: A plastic Debris Case

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Abstract - The introduction of new methods in teaching and learning on how coastal pollution is managed and controlled, could influence the advancement of science and technology. It also shows how much progress we have made in achieving Sustainable Development Goals. By updating the education system, the follow-up results will produce the evolution needed to affect the level of achievement of the Sustainable Development Goals. Having this in mind, this study proposes some chemistry teaching and learning strategies that may help teach coastal pollution, especially the sources and control measures of plastic debris. The paper identified coastal pollution as one of the major causes of environmental degradation and distortion of the efforts to achieve sustainable development goals. In addition, the paper also analyses how the Sustainable Development Goals can reduce coastal pollution by reducing mortality and diseases which may be caused by chemical, plastic, water, and soil pollution as the consequences of unnecessary plastic disposal in the area. Inconsideration of the discussion, the study proposes control measures to improve coastal pollution management and control, improve the realization of sustainable development goals, and ensure the importance of education for sustainable development.

Keywords: Coastal Pollution, Plastic Debris, Sustainable development, Chemistry Education

#### Module Development to Manage Noise Exposure: Analysis on Exemplary OSHEMT through Andragogical Approach

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**Abstract** - The presented research mainly deals with Occupational Safety and Health (OSH) management, describing and discussing the process. Semi-structured interviews and respondent administered questionnaires (RAQ) surveys are considered for this research. Three RAQ surveys are highlighted in the discussion in four parts: (i) planning, (ii) organizing, (iii) directing, and (iv) controlling, based on the theory of management practices developed by Mark A. Friend and James P. Kohn (2018). The primary data have been composed of numerous semi-structured interviews, as well as a total of interviews with 10 participants, the 10 respondents from 5 different companies had a dissimilar group of interests. The RAQ survey involved 42 Participants from Melaka including 21 from S&M manufacturing company: 21 participants of the level of assistant managers and another 21 participants above the level of assistant managers. The goal of this management strategy is to have consequences which include the RAQ analysis with 21 participants from the level of assistant manager below and a semi-structured interview with 10 participants. Most important to the Occupational Safety Health Act (OSHA's) success is top management's commitment.

Keywords: OSH management, RAQ, participants, survey. semi-structured interviews

#### Artificial Intelligence in Post COVID-19 Analysis

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**Abstract** — COVID-19 has emerged as pandemic outbreak all over the world by mid-2020. World's leading countries were worst hit by this pandemic, and it became a major setback for them economically and socially. Some of the countries were able to find a cure for this pandemic and they started vaccinating their citizens after getting the successful trials of their vaccines. Russia, China, US, India, UK and some more countries were the major contributors in developing vaccines for the world. In this work, a predictive model for the seasonal autoregressive integrated moving average (SARIMA or seasonal ARIMA) is proposed to predict the full vaccination, partial vaccination, total number of confirmed, recovered, and deceased cases due to the COVID-19 virus in India within the next 30 days. The SARIMA model uses the Box-Jenkins model, a forecasting method using regression studies. Data for this study has been taken from crowdsourcing websites. Using the Tkinter library in Python 3.8, a graphical user interface (GUI) is also developed to make this prediction model user- friendly. The accuracy in predicting full vaccination and partial vaccination in this study is 99.7%, and 99.08%.

**Keywords:** COVID-19, Vaccination, Time Series Analysis, Forecasting SARIMA model, Machine Learning

#### **Application of Operations Research to the Travelling Salesman Problem**

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**Abstract** - This paper explores the application of operations research to optimize the Travelling Salesman Problem (TSP). Beside operations research, the TSP can also be analysed in exponential time by applying dynamic programming and branch & bound algorithms. The Travelling Salesman Problem is the challenge of finding the shortest and most efficient path for a salesman to take given a list of specific locations. It is well known algorithm-based problem in the fields of theoretical computer science and operations research. The general concept of operations research has many applications in different area like supply chain management, agricultural, networking, bioinformatics, electronic data analysis, resource distribution, call centres, and many emerging areas of engineering.

Keywords: Optimization, operations research, algorithm, shortest path, networking

#### A Study of Data Mining Techniques for Improving Security of Banking Sector

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**Abstract** – With the rapidly growing banking industry in India, frauds in banks are also increasing very fast, and fraudsters have started using innovative methods. In the technological systems, fraudulent activities have occurred in many areas of daily life such as telecommunication networks, mobile communications, online banking, and E-commerce. However, the advancement in technology and communication has created new opportunities for committing fraudulent acts. These acts impose serious threat to organizations on the financial, operational and psychological levels but very frequently new ways of security threats are arising. This paper investigates the issues in banking securities towards improving Quality of Service (QoS).

Keywords: Security, banking sector, QoS, E-Commerce

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Dr. Rohit Khokher is a Professor of Computer Science and Engineering and working as Chief Technology Officer (CTO) in Vidya Prakashan Mandir (P) Ltd., India. He obtained his Master Degree in Computer Systems Engineering from University of South Australia, Australia and Ph.D. from Sharda University, India. Dr. Khokher has a rich experience of industry, academics and administration.

He has made significant contribution in area of his research at national and international level through research publications, attending and organized national and international seminars, conferences and delivering talks in more than 1000 Schools, Institutes and Universities around the globe. Dr. Khokher has visited many universities and academic institutions in Australia, Mauritius, Singapore, Dubai, Indonesia, Thailand etc. for delivering talks and academic collaborations. Dr. Khokher is associated with many professional bodies, which include Society for Research Development (Life Member), Computer Society of India (Member), International Association of Computer Science and Information Technology, Singapore (Member), etc. to promote innovative ideas and research through out the globe.

Dr. Khokher is known for his virtues as a: mentor, teacher, leader, manager, an orator and an innovator. He not only professes the values of Indian culture but he himself practices many of the fundamental principles of humanity and society, while dedicating himself to the cause of technical education, meaningful science and research.



Dr. R.C. Singh is Professor of Physics in School of Basic Sciences and Research, Sharda University (India). Dr. Singh obtained his doctorate from Banaras Hindu University (BHU), Varanasi in theoretical Condensed Matter Physics. He obtained his B.Sc. (Hons.) and M.Sc. degrees also in Physics from Banaras Hindu University. Dr. Singh has published more than 20 research papers in peer-reviewed international journals and conference proceedings. He has authored one book and co-edited Five conference proceedings. His area of research interest includes study of phase transitions in molecular liquids using density-functional theory; Time-series analysis using wavelets and Biometrics. Dr. Singh is a reviewer of several international journals and has attended and organized many national and international Conferences, Seminars, Workshops and Short-Term programme. Dr. Singh has successfully completed three Research Projects sponsored by the Department of Science and Technology (Govt. of India), New Delhi.

Dr. Singh has extensively travelled to many countries for delivering talks, research and promoting Indian education abroad. Some notable visits include a short tenure at The Abdus Salam International Centre for Theoretical Physics (ICTP), (Italy); Technical University of Munich (Germany); Fraunhofer Institute (Germany); University of Kaiserslautern (Germany); University of Osnabrueck (Germany); Doppler Institute of Mathematical Physics, Prague (Czech Republic); Instanbul Aydin University (Turkey); University of British Columbia, Vancouver (Canada); Homerton College, Cambridge (UK) and Cambridge University (UK). While on his tours for research and academic discussions, Dr. Singh has also used these opportunities to build collaborative arrangements with Institutions abroad and his University in India. His focus on multi-lateral exchange of ideas and collaboration in research has paid rich dividends in terms of reputed Scientists visiting India and Indian students joining international teams in pioneering areas of basic research.

Dr. Singh has been awarded Research Associateship by Council of Scientific and Industrial Research (CSIR), New Delhi and Short Term Visitor status in The Abdus Salam International Centre for Theoretical Physics (Italy). He was conferred the "Bharat Vidya Shiromani Award" by the International Institute of Education and Management, New Delhi, and the "Pride of International Education Excellence Award" which was presented during Indo-Nepal Friendship Summit in Kathmandu by the Intellectual People and Economic Growth Association, New Delhi. He is also recipient of the "Star of Asia Award" by International Business Council, New Delhi and the Global Achievers Foundation, New Delhi conferred on him "Bharat Vibhushan Samman Puraskar" which was presented by Honb'le Chief Minister of Uttarakhand Shri Harish Rawat at Dehradun. Recently, National & International Compendium, New Delhi presented "Lifetime Achievement Award" to Dr. Singh for his contribution in the field of education.

Administrative experience of Dr. Singh has been diverse. He was the Head of the Department of Applied Sciences, Chief Hostel Warden, Chief Proctor, Dean Students Welfare, Dean Academics, Founder Controller of Examinations of Sharda University, Director Academics and Director of Engineering Institutions during 1997-2015.

Dr. Singh has established himself as a mentor, teacher, leader and an innovator. His responsibilities include providing leadership in research as well as planning for academics at Undergraduate and Postgraduate level. He is known for his exemplary contribution through his dedication, commitment, innovative approach and high integrity. He is a blend of Indian values and international exposure and has dedicated himself to the cause of technical education, meaningful science and research and an astute administrator with interest of students as the foremost priority. Dr. Singh is a strategist, a methodical planner and a composed implementer and has the uncanny ability to create a team of leaders.

