



# **International Conference on Multidisciplinary Approaches in Technology and Social Development (ICMATSD)**

**Virtual Conference**

**16<sup>th</sup> - 17<sup>th</sup> December, 2021**

**Philippines**



**Organized By**

**Carlos Hilado Memorial State College, Philippines**

**In association with**

**Institute For Engineering Research and Publication (IFERP), India**

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# **ICMATSD-21**

**International Conference on  
Multidisciplinary Approaches in Technology and  
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India**





## Rudra Bhanu Satpathy

Chief Executive Officer

Institute For Engineering Research and Publication.

On behalf of *Institute For Engineering Research and Publications (IFERP)* and in association with *Carlos Hilado Memorial State College, Philippines*. I am delighted to welcome all the delegates and participants around the globe to *Carlos Hilado Memorial State College, Philippines* for the “*International Conference on Multidisciplinary Approaches in Technology and Social Development*”(ICMATSD-21)” Which will take place from *16<sup>th</sup> – 17<sup>th</sup> December 2021*

It will be a great pleasure to join with Engineers, Research Scholars, academicians and students all around the globe. You are invited to be stimulated and enriched by the latest in engineering research and development while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the reviewing committee, coordinator (**IFERP & CHMSC**) and all the people involved for their efforts in organizing the event and successfully conducting the International Conference and wish all the delegates and participants for their virtual presence.

Sincerely,

**Rudra Bhanu Satpathy**



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## Preface

The *International Conference on Multidisciplinary Approaches in Technology and Social Development (ICMATSD-21)* is being organized by *Carlos Hilado Memorial State College, Philippines* in Association with *IFERP-Institute for Engineering Research and Publications* on the 16<sup>th</sup> – 17<sup>th</sup> December, 2021.

The “*International Conference on Multidisciplinary Approaches in Technology and Social Development*” was a notable event which brings Academia, Researchers, Engineers, Industry experts and Students together.

The purpose of this conference is to discuss applications and development in area of “*Science, Engineering and Management*” which were given International values by *Institute for Engineering Research and Publication (IFERP)*.

The International Conference attracted over 180 submissions. Through rigorous peer reviews 91 high quality papers were recommended by the Committee. The Conference aptly focuses on the tools and techniques for the developments on current technology.

We are indebted to the efforts of all the reviewers who undoubtedly have raised the quality of the proceedings. We are earnestly thankful to all the authors who have contributed their research works to the conference. We thank our Management for their wholehearted support and encouragement. We thank our Principal for his continuous guidance. We are also thankful for the cooperative advice from our advisory Chairs and Co-Chairs. We thank all the members of our local organizing Committee, National and International Advisory Committees.





**Dr. Norberto P. Mangulabnan**

SUC President III

Carlos Hilado Memorial State College

Talisay City, Negros Occidental, Philippines

Greetings!

It is an honor to welcome you to this milestone international conference. It brings a huge distinction to host this significant gathering. The greater global connectivity has made this plan into a reality. The collaboration between CHMSC and IFERP is one step towards greater endeavors at facilitating exchange of ideas for more development-oriented initiatives. This institution is all in at providing the support needed in achieving the goals of this conference.

I wish you all the best. It is my best desire that this conference will excite your mind to answer present-day issues that is globally relevant, responsive, and environmentally sound.

Cheers!





**Dr. Andrew Eusebio S. Tan**

Vice President for Research, Extension and IP

Allow me to wish all participants the best of this endeavor.

Holding an international conference catering to different institutions, disciplines and nationality is indeed a big task. We will consider multifaceted concerns and addressing them requires varied approaches. Our capability as an institution will be tested in this undertaking.

This 1<sup>st</sup> ICMATSD our institution and IFERP will collaborate provides fresh approaches of research dissemination amid global disruption. It will afford researchers across discipline uplift the lives and welfare of our respective peoples using technologies to make a needed involvement. By sharing our best and proven practices, the new knowledge generated and appropriately applied and utilized redounds to the best interest of our stakeholders. Higher educational institutions all over the world must come up and unite to continue exploring and search for these new knowledges for the common good.

Again, my warmest greetings and hoping for a fruitful and successful conference.



**Dr. Joevelle B. Vergara**

Executive Director

College of Fisheries

CHMSC, Binalbagan

Connecting professionals and researchers is vital to development. Sharing of expertise expands our understanding of the world. This conference is vital at bringing about a holistic view of the multidisciplinary approaches to development. The Carlos Hilado Memorial State College and the Institute for Engineering Research and Publication has collaborated to realize this conference. Hosting this event excites me to facilitate a huge exchange of knowledge and information. May this be a start of a more fruitful collaborative endeavors to come. I consider this conference highly significant in bringing about fresh inputs deemed seeds of development. It is my best desire that all the participants can be invigorated by this conference.

It is a great honor to welcome you all. May this conference bring in fresh perspectives, a wider world view and openness to emerging trends.

Be safe and God bless, everyone.



**Dr. Joe Marie Dormido**

Dean, College of Computer Studies

CHMSC Alijis Campus

The first International Conference on Multidisciplinary Approaches for Technology and Social Development (ICMATSD) happening at CHMSC is a breakthrough among researchers, authors, intellectuals and participants in the fields of Science, Engineering, Technology and Administration. It is an opportunity for us to convene and create a platform for transmitting investigative results, remarkable strategies and formative practical applications that emphasizes both modern and innovative approaches.

CHMSC takes pride in organizing this fruitful event with highlights on collaborations on technical innovations. Let us take this chance to showcase our research outputs and talents as well as to learn new skills and ideas from experts and experienced professionals. May this conference mark the beginning of partnerships among professionals with common interests and ideas.

In behalf of the faculty and students of College of Computer Studies in Alijis Campus, my warmest welcome to all the participants of this conference!



**Dr. Imee R. Perante**

Dean,

College of Fisheries

Enclaro, Binalbagan, Negros Occidental, Philippines

It is my great honor to welcome you and wish you professional success at the conference. In the new global economy, it is a challenge to discover innovative technologies and find new directions through cutting-edge researches. I am confident that this conference will provide a great forum for researchers and practitioners in the field of technology and social science as technology shapes social and human development. This forum will allow the researchers to present their results, exchange new ideas, and find new directions in doing more robust researches.

I would like to thank an international team of reviewers, who did an outstanding job in reviewing and selecting high-quality papers, which will be presented at the conference. Hope to see more researchers and practitioners during the next CHMSC-IFERP partnership.

God Bless everyone.



**ICMATSD-21**

**International Conference on  
Multidisciplinary Approaches in  
Technology and Social Development**

**Keynote Speakers**





**Dr. Marc Moser**

Professor and International Visiting Faculty,  
Saas-Fee, Valais, Switzerland

I am honored to be part of the **International Conference on Multidisciplinary Approaches in Technology and Social Development (ICMATSD)** in collaboration with the **Carlos Hilado Memorial State College, Philippines**.

In today's complexity-driven world, both the Knightian ambiguity and Keynesian uncertainty models address scenarios in which individuals prefer risks with known probabilities to risks with unknown probabilities. Ambiguous events have higher degrees of uncertainty than risky events because not only is the outcome uncertain, but also the likelihood of the realization of that outcome.

Agents working under conditions of risk may, in theory, enjoy the freedom to rationally select and enact a strategically 'optimal' choice; note the caveat 'in theory', because even well-informed agents are subject to an array of cognitive limitations. Some of these cognitive restrictions are bounded rationality, the phenomena of selective search, satisficing and so on.

Building upon the aforementioned, I will address facilitators and inhibitors to human innovation. To this avail, my approach is grounded in practical and academic pragmatism as an alternative to limitations, associated with the strategic choice theory.

To make this event as interactive as possible, I am more than pleased to pick-up questions and suggestions during my keynote address (on the fly). Thank you in advance for engaging during my address.

I would like to extend my thanks to all participants who will join the **International Conference on Multidisciplinary Approaches in Technology and Social Development (ICMATSD)** in collaboration with the **Carlos Hilado Memorial State College, Philippines**.

Thanks and Regards

A handwritten signature in black ink, appearing to be 'M. Moser', written in a cursive style.

Dr. Marc Moser





**Prof. Dr. Dileep Kumar M**

(PhD -OB, DBA-HRM, M.Phill, MSW-HR, MA, PGDBA, PGDHRM, DHA, DLL - UGC-NET)

Pro. Vice Chancellor and Director Strategy, Research and Innovation,

GNS University (GNSU), Jamuhar, Bihar, India

Keynote address: **Interdisciplinary Research: Challenges and Prospects**

Research across various disciplines is changing. Researchers from various disciplines are aware about the challenges of monomethod, mono discipline and mono tool errors in arriving at proper observations and findings and realizing the importance of multi-disciplinary and interdisciplinary research. Interdisciplinary research is a way of investigation by groups or individuals that join in data, procedures, tools, viewpoints, perceptions, and/or models from two or more disciplines having specialized knowledge to improve basic insight or to resolve challenges whose results are outside the possibility of a single discipline. The current keynote address explains the nature, concepts, purpose, challenges, and scope of interdisciplinary research, discovering the value of integrating the study of various academic disciplines to develop new perspectives or discover something new. The current paper also looks at the possibilities of role technology in interdisciplinary research.



### **UNESCO Laureate Prof Sir Bashiru Aremu**

The Vice Chancellor and World Acclaimed Distinguished Professor Emeritus at Crown University Intl Chartered Inc. in USA, official partners constituent campuses at government regulated universities worldwide and online operation

I am really honored to be part of international conference as a **Honorable Keynote Speaker and Special Guest of Honor** for our International Conference on multidisciplinary Approaches in Technology and social Development (ICMATSD) organized by Institute for Engineering Research and Publication (**IFERP**).

**IFERP's** marvelous **International Conference on Multidisciplinary Approaches in Technology and Social Development (ICMATSD)**

These events will provide a tremendous opportunity for authors, participants, and intellectuals to communicate effectively with one another and express their skills and understanding of technical innovations.

Today we can not imagine life without multidisciplinary Approaches in Technology and social Development and it has become integral part of our life. Such conference gives opportunity to bring those hided ideas on the table. I really appreciate your effort on publishing papers.

As Potential Attendees at **ICMATSD** will have a great opportunity to speak with experienced professionals about recent challenges in scientific research and related fields.

My message to all participants is to carry out more research and development in the area of

**Multidisciplinary Approaches in Technology and Social Development (ICMATSD)**

I would like to extend my thanks to all participants who have joined **ICMATSD conferece** to make our future better with great innovative ideas.

**I thank you with Best Regard Yours sincerely,**



### **UNESCO Laureate, Prof Sir Bashiru Aremu**

The Vice Chancellor, Crown University International and World Acclaimed Distinguished Professor Emeritus of Computer Science, Information and Communication Technology The World Grand President, International Chartered World Learned Society, World Grand President, World Accreditation Commission, Chairman/Pro Chancellor, Board of Trustees, Chartered Intl. Da Vinci University, *Vice President for International Affairs , Chairman Board of Trustees of West Coast Intl. University of Science, Technology, Management and Arts; Vice President International Affairs (Vice Chairman International Affairs of Board of Trustees) Sastra Angkor University Kingdom of Cambodia; Deputy Director General for Africa and Research Professor at International Biographical Centre in Cambridge, UK. I also held positions as a World Grand Chancellor at the Chartered World Order of the Knights of Justice of Peace ; World Grand President ,The Chartered World Institute of Encyclopedia of Books, World Grand President at Africa International Institute for Professional Training and Research, ; Vice President, International Centre for Eye Research and Education, Argentina, South America , World Acclaimed Distinguished Research Professor and Fellow Editorial International Advisory Board at Cambridge Scholars Publishing, United Kingdom and several other institutions that have declared me as a World Acclaimed Distinguished Professor by various higher institutions and organizations world-wide.*

# ICMATSD -2021

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*Philippines, 16<sup>th</sup> – 17<sup>th</sup> December, 2021*

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**ABSTRACTS**

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## Relative Efficiency of Linear Probability Model on Paired Multivariate Data

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***Abstract:--***

The investigation advanced the comparative efficiency of Linear Probability Model on paired multivariate data. On the basis of simulation, vector of means having common variance-covariance matrix were taken into account as data sets subjected to analyses. The linear probability model exhibited a more powerful tool to detect the presence of significant difference among variables compared to the multivariate paired (Hotelling's-T<sup>2</sup>) t-test. The Linear probability model is 31.33% and 44.67%, more efficient than the usual counterpart containing two and three predictor variables, respectively. It pays further, that under the regression analysis, individual variable is directly identified in relation to its significant contribution to the dependent variable. This observation is tantamount to determining that such vector of mean disparity is not significantly different from zero against the usual hypothesis. This procedure gains added advantage such that a sweeping generalization of whether vector of means are significantly or insignificantly different is avoided.

***Keywords:***

efficiency, simulation, vector of means, variance-covariance matrix

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## Reverse Supply Chain: A Triple Waste Management Approach

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***Abstract:--***

As the national economy is moving towards the recovery stage brought about by the unprecedented Covid-19 Pandemic, robust intervention affecting our society, the environment, and our economy is at hand. The role that each of the members of the community plays amid uncertainty and ambiguity is urgently called for. The present study investigated the practices, policies, and measures surrounding the impact of supply chain management along reverse logistics or otherwise known as reverse supply chain (RSC) or close-loop supply chain. Whether the local government implements strict ordinances coherent with the household and business sectors. Three local government units were tapped, one from a center of commerce and two adjacent municipalities. The number of household respondents from the 3 LGUs were determined using the Raosoft sample size calculator totaling to 1,132 clustered from among the different income classes. Eight (8) business establishments from the manufacturing and merchandising industry within Metro Naga, Region V, Philippines were also invited to participate on the said key informant interview. With the use of a descriptive research utilizing both quantitative and qualitative approach, it was found out that the location of the business establishment and household population implies compliant to LGU's ordinance on solid waste management. However, data shows no concrete collaboration among the three sectors along disposal and retrieval of wastes though the business sector manifested own programs and initiatives on RSC. Furthermore, these RSC practices have not yet been introduced to households as a method of eliminating wastes. The study further envisions its utilization in establishing coherent framework towards sustainable communities.

***Keywords***

corporate social responsibility, reverse supply chain, solid waste management

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## Covid 19: Impacts and Challenges in the Construction Industry

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### ***Abstract:--***

This study was conducted to determine the impacts of Covid 19 and how profound challenges are being managed in the construction industry. A management program was also proposed for safe work practices. A quantitative research method was employed in this study. The respondents of this study were employees from different construction industries, whether private or government agencies. They were selected through the convenience sampling technique.

More respondents were in the younger age bracket, more males, more respondents were employed in government agencies, almost engineers, and mostly new in the agency. Telework became common with a very high-level contribution regarding the impacts of Covid-19 in the construction industry. Activities required or recommended to maintain a healthy work environment have a very high level of contribution regarding challenges the construction industries face in times of Covid 19.

According to age, gender, and type of agency, the respondents have the same assessment that there is a significant difference in the impact of Covid-19 in construction industries. Age, gender, type of agency, and position in the agency also have a significant difference in the challenges of Covid-19 in construction industries. All the proposed management programs in terms of engineering controls and administrative controls were highly recommended.

### ***Keywords***

Construction industry, Covid-19 Impacts and Challenges, Health and Safety Management



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## Optimal Demand Side Management of Power Distribution Loads

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### ***Abstract***

In this paper the authors propose an optimal approach to demand side management of power distribution loads. The objective is to minimize the peak load of the system by shifting the power demand during the peak periods to the off-peak periods. The objective load curve is taken in such a way that its variation is inversely proportional to the cost of energy at each hour. An algorithm is developed for demand side management, which takes into consideration different types of loads and their schedules based on the demand of the users. By optimally selecting, the number of controllable loads that can be shifted to off-peak periods, the reduction in energy cost, increase in the load factor of the system and reduced peak load have been achieved. Also, the authors have studied the effect of demand side management with the combination/mixture of residential and commercial, commercial and industrial, Industrial and residential in terms of the peak load, load factor and cost of energy. Finally, the effect on the simultaneous combination of the three-different types of loads has been presented. To achieve the optimal values of the peak demand, load factor and reduced energy cost, the objective function has been optimized using the Modern PSO Heuristic Optimization Technique.

### ***Index Terms***

Demand side management (DSM), Particle swarm optimization (PSO).

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## Sustainable Stakeholders' Participation in the Class D Communities in Camarines Sur

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### ***Abstract:--***

Sustainable Anti-Poverty Program in Camarines Sur is a collaborative extension efforts of the four State Universities and Colleges (SUCs) in Camarines Sur funded by CHED-NAFES intended to alleviate poverty by creating sustainable livelihood and employment opportunities among the four (4) priority municipalities (Buhi, Presentacion, Balatan, and Sipocot) in Camarines Sur. Specifically, at least 25% of the beneficiaries were able to: acquire and adopt the knowledge and skills in livelihood training and income-generating opportunities; produce skilled workers in their localities; engage in small viable enterprise among communities; and establish climate-smart, resilient, productive, gender-sensitive and responsible communities.

The project implemented with some significant activities: coordination meetings with the target LGUs, DSWD, and other stakeholders in the setting up of venues and recruitment of beneficiaries; procurement of supplies and materials; conduct of the technology and capability enhancement training in the adopted communities were given emphasis. Monitoring and evaluating the project and post-training assistance for technology adoption also were considered.

Although the procurement of materials and climate change were found to be a major setback in completing the project in the targeted time, the team had taken necessary remedial measures and actions to address the problems meet. Hence the project had achieved its objectives.

There were 28 techno-transfer courses and 13 capability buildings conducted in four (4) marginalized sector of Camarines Sur. SAPP Project produced 1,040 trained individuals (503 for technology transfer and 537 for capability enhancement). Five hundred three (503) of 540 or 93.15% beneficiaries acquired/adopted the Knowledge Skills and Attitudes (KSA) of the trainings conducted. Nevertheless, out of 503 trained individuals, 175 or 34.79 %, of beneficiaries engaged employment/entrepreneurial undertakings. While, a total of 67.13% (537/800) beneficiaries enhanced the skills in entrepreneurship, climate-smart, gender-sensitive and responsible communities.

### ***Index Terms***

Sustainable development, anti-poverty, livelihood, and entrepreneurial development project, Camarines Sur

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## Knowledge and Utilization of Traditional Medicine among the Communities of Bucas Grande Island

**Mauricio S. Adlaon**, Surigao State College of Technology

**Melecia P. Elandag**, Taft National High School

***Abstract:--***

This study assessed the level of knowledge and utilization of traditional medicine among the communities of Bucas Grande Island, Siargao Island, Surigao del Norte, Philippines. It employed a quantitative-qualitative research design. Data gathered from the eleven (11) different affiliations existing in Bucas Grande Island using a researcher-made questionnaire were analyzed using frequency count and percent computation, mean and standard deviation, ANOVA with Scheffe's Post Hoc comparison test, and Pearson Product Moment correlation.

It revealed that the majority of the residents are affiliated to Maharlika Ecumenical Catholic Apostolic (MECA), females, 48 to 57 years old, married and elementary graduates, unemployed with a family monthly income of less than ₱5000, and a family size of three to four members. Furthermore, results showed their high level of knowledge of traditional medicine and a moderate level of utilization. Leaves from herbs are the most utilized part for the treatment of ailments and were commonly prepared through decoction. Remedies are mostly administered orally and the rest are applied topically.

The high level of knowledge on traditional medicine among the populace of Bucas Grande Island is not influenced by sex, religion, and family size. However, their moderate level of utilization is greatly influenced by their educational attainment, religion, affiliation and family income.

A high diversity of local medicinal plants (113 species corresponding to 51 families and 102 genera) reveals the prevalence on traditional health medicine even in this modern times. Hence, there is a need for conservation of these medicinal plants along with preservation of the locale's indigenous knowledge.

***Keywords***

Traditional knowledge and utilization; Traditional medicine; Bucas Grande Island

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## Learners' Attitude Towards Science on the Use of Modular Learning

**Mauricio S. Adlaon**, Surigao State College of Technology

**Jean Lucille F. Espejon**, General Luna National High School

***Abstract:--***

The study determined the Senior High School (SHS) learners' attitude towards Science on the use of modular learning. It also looked into the profile of the respondents and the significant difference in their attitude towards Science in terms of age, sex, track, parents' educational attainment, and parents' monthly income based on engagement, learning gains, motivation, self-efficacy, and views about Science. Descriptive-survey design was utilized and data were gathered online and in-person from 347 Senior High School students of Siargao Island Division, Surigao del Norte, Philippines. They were treated statistically using weighted mean, standard deviation, and ANOVA. Findings revealed that most of the learners are 16-17 years old coming from parents who earned Php 15,001-20,000 a month had a more positive attitude towards science as compared to other age groups and income levels, and students' attitude towards Science on the use of modular learning was influenced by engagement, learning gains, motivation, self-efficacy, and views about Science wherein students' age and parents' monthly income were depicted as significant predictors. In conclusion, SHS students' attitude on the use of modular learning was generally positive wherein younger ones coming from high-earning parents' manifest attitude towards Science positively. Further, enhancing the students' sense of self-efficacy and motivation consequently results in the development of a more positive attitude towards Science. The findings suggested developing an intervention for integration into the Homeroom Guidance Program for successful implementation.

***Index Terms***

Attitude towards science; modular learning; engagement; learning gains; motivation; self-efficacy

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## Top Technological Trends in Fintech and Their Impact on the Financial Sector

**Prof. Dr. Yoser Gadhoom**, Full Professor, Institute of Strategic Studies on Governance, Former Dean of Research and Graduate Studies1, Prince Mohamad Bin Fahd University (PMU), KSA

***Abstract:--***

Fintech describes the technologies that seek to enhance and automate the delivery of financial services in the finance industry. At its core, fintech is used to help the financial sector better manage its financial procedures and operations by leveraging the specialized algorithms and software used in smartphones and computers. With the constant rise in technological innovations every year, the fintech industry has become the fastest-growing industry in the world. During the coronavirus in 2020, the digital transformation went to new heights as people shifted towards easier options that meet their financial needs. Fintech apps have helped improve customers' access to financial services at their comfort, but their demand is not yet over and continues to increase, further welcoming new technology trends that help to shape the industry. With many people moving towards digital solutions to manage their financial needs, stiff competition among financial institutions is expected to increase. Furthermore, banks and other financial institutions are adopting new ways to improve their banking experience. As a result, they have had to jump on the latest fintech trend to help them sustain a competitive advantage. The paper addresses major fintech trends, including Artificial Intelligence, blockchain, and partnerships, their benefits, and their impact on the finance industry.

***Index Terms***

Fintech, Artificial Intelligence, Blockchain, Biometrics, Crypto market, Voice Banking

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## Motives and Incentives in Community-Based Mangrove Rehabilitation Project in Southern Negros Occidental, Philippines

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### ***Abstract:--***

In this descriptive study, the peoples' motives and incentives were found as driving forces towards participating in a community-based mangrove rehabilitation project. A survey was gathered from a group of 70 active PO members partnering in community-based mangrove rehabilitation project. The use of descriptive statistics summarized the data and the use of Kendall's W Coefficient of Concordance determined the significant agreement of the respondents. Results revealed that the participants had attended trainings and seminars related to CBCRM and they were members of fisheries-related organization. The participants rated "agree" to all the achievement motive factors why they participate in the Community-based mangrove rehabilitation program implemented in their locality. They also "agreed" to all affiliation motives they identified rewarding such as "enjoyed the skill they perform well, enjoyed learning new things related to mangrove rehabilitation and they want to improve their community and think the activity is a constructive use of their leisure time". Further they express care and concern for others and for their environment and they want somehow to spend time with people who have the same concerns like them. When asked what incentives they find rewarding why they continue participating with the mangrove rehabilitation program implemented for them, they unanimously identified and find the purposive, solidarity, and tangibility incentives rewarding. Purposively, they noted that the opportunity of participating in the program was rewarding and that they made a significant contribution and made a difference in their community and in environment. Other benefits were skill, knowledge, and attitude development

### ***Keywords:***

motives, incentives, community-based mangrove rehabilitation project, peoples' organization, management

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## Community Structure of the Intertidal Seagrass in Linaon, Cauayan, Negros Occidental, Philippines: A Rapid Assessment

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### **Abstract:--**

Using simple and non-destructive technique, species composition, bed conditions, density, diversity, and natural and man-induced influences for seagrass community in the intertidal zone of Brgy. Linaon, Cauayan, Negros Occidental was assessed and described. The rapid assessment was done using line 9 transect and 10 1m x 1m quadrat laid out during low tide. In a total of 90 quadrats, seven seagrass species belonging to two families were identified: *H. uninervis*, *S. isoetifolium*, *C. rotundata*, *H. pinifolia*, *C. serrulata*, *H. ovalis*, and *E. acoroides*. The percent seagrass coverage is rather described in good conditions. The canopy height was influenced by the type of seagrass species occurring in the area which were mostly *E. acoroides*. The diverse seagrass bed in Linaon is dominated mainly by 2 species with *H. uninervis* and *C. rotundata* found occupying the area at a relatively high density. This suggests that *H. uninervis* and *C. rotundata* has high adaptability and can grow well in a wide range of environmental conditions present in the area. The structurally complex seagrass habitat in Linaon, further supports the higher diversity of mobile organisms like larvae and juveniles of many finfishes and gastropods - also it serves as foraging ground for Dugong. It also recruits some sessile organisms – sponges, algae, and corals in particular. This biodiversity within seagrass ecosystem in Linaon may contribute to food security and improved nutrition for human dependents. Somehow, both natural and man-induced influences may affect biodiversity if conservation and management is not specifically planned for seagrass in Linaon.

### **Keywords:**

Seagrass communities, intertidal zones, diversity, status, conservation

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## Biometric Relationship for Lamshell, *Lingula anatina* (Lamarck, 1801) Gleaned from Isla Nabuswang and Some Notes on Its Fishery

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### ***Abstract:--***

A three-month study beginning October until December, was conducted on length- weight relationship (LWR) and fishery of *Lingula anatina* from an ecotone at the confluence of small island Nabuswang in the municipality of Binalbagan, Negros Occidental Philippines. The specimen collection was done by laying the transect line 100m long at the identified gathering area. The 1m x 1m quadrats were placed every 10 meters along the transect lines. Ten percent of the total collected *L. anatina* individuals from the 30 quadrats were processed for shell length, shell thickness, shell width, and body weight to determine the allometry of the shell. A not significant result indicated that the growth of the inarticulate *L. anatine* collected during the three months period showed almost similar growth pattern throughout the three months gleaning activity suggesting that the shell dimensions and growth patterns of *L. anatine* did not significantly vary between gathering periods. When the TL is considered to describe the allometry of the *L. anatina*, the  $b = 1.18$  calculated value suggests that the *L. anatina* in Nabuswang followed a negative allometry – a similar results on the study conducted in some parts of the Indo-Pacific region. The pedicle of *L. anatine* which is about 4 to 6 times longer than the shell length is a factor leading to negative allometric growth pattern for inarticulate *L. anatina*. All shell dimensions are not a good estimator to predict the shell weight. The biometric data presented here suggests that gathering of *L. anatina* could be done whole-year-round.

### ***Keywords:***

biometric relationships, *L. anatina*, size values, size relationships, fishery



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## Local Seafood Tourism Image and Visitors' Motivation to Return or Recommend Talabahan Sa Bocana

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### ***Abstract:--***

In the case of Bocana, Ilog - a coastal rural community, oyster restaurants are becoming a buzzword for tourists and visitors and had been respected for years to support rural tourism industry in the province. The seafood tourism in Bocana, Ilog has been regarded as a means of economic and social development in the community. Word of mouth primarily regards oysters in "Talabahan Sa Bocana" as succulent, bigger in sizes, and are good-tasting. This descriptive research surveyed the dining guests of the various restaurants in Bocana, Ilog and ascertained the cognitive image of Bocana Talabahan, the motivations of the dining guests for visiting and recommending the place, and the likelihood that the place be recommended or be visited again. The findings indicated too that aside from the famed oysters and other seafood commodities in the studied locale, seeking adventure and excitement is in one way or another a form of local tourism. It is to be remembered that the role of food and the gastronomic experience by the tourists are vital to the adventure and excitement offered by rural tourism. Patrons of the seafood tourism industry as revealed in this report were the younger and adventurous individuals with capacity and willingness to travel and pay for their gastronomic encounter with seafood commodities offered by the rural community. Other motivations – to experience rural hospitality and relaxation. This paper recommends sustainable seafood tourism planning and development to be crafted and examined carefully by the local government units and research and Extension institutions.

### ***Keywords***

local seafood, rural tourism, visitor's motivation, cognitive image, Talabahan Sa Bocana

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## Socioeconomic Benefits and Constraints for Mussel Farming Industry in Southern Negros Occidental Philippines

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### ***Abstract:--***

This study aims at understanding the socio-economic benefits accrued to mussel farmers and the constraints that hindrance the development of mussel farming in southern Negros Occidental province Philippines. Using a semi-structured open-ended one-on-one questionnaire, primary data were collected from a sample of 23 randomly selected mussel farming households in three farming areas in southern Negros Occidental province. The farmers considered mussel farming as alternative/supplemental livelihood to fishing. Currently, the investment for mussel farming is categorized as small-scale and family-based. Mussel farming helped augment family's income. From the income they derive from mussel farming, they can now buy the basic needs of their families and they can even pay promptly their accounts from local credits. They further noted they can afford now to buy electronic gadgets and other appliances as well as spend some of their earnings for house repairs. Although, the benefits derived from mussel farming is positive, somehow, the farmers were impeded by constraints that hindrance the development of mussel farming industry. They had in mind that the lack of knowledge and Extension support probably hindrance the development of the mussel farming. If they are organized as community, they might as well can participate to any Extension activities designed for them. The lack of conflict management strategies was ranked lowest by the respondents. Such constraints must be address in a science-based policy which will focused on socio-economic empowerment. Consequently, the form of interventions should be from holistic perspectives and mussel farmers should play an important role to these undertakings.

### ***Keywords:***

mussel farming, socioeconomics, benefits, constraints, sustainability

## Length-Weight Relationship and Condition Factor of Finfishes Caught along Enclaro Estuary with Reference to Annotation

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### **Abstract:--**

In finfishes, the length-weight relationship determination is becoming an important fishery management tool. Its importance is pronounced in estimating the average weight at a given length group. Somehow, Condition Factor determination compares the wellbeing of a fish in a particular aquatic space. A study to estimate the length-weight relationships and condition factors of finfishes from Enclaro Estuary had been conducted. Collections were done for 5 days using hook and line, cast net, gill net, filter net and beach seine. In Enclaro Estuary, the calculated 'b' values for *Stolephorus indicus*, *Ambassis gymnocephalus*, *Siganus guttatus*, *Gerres filamentosus*, and *Epinephelus coioides* indicated positive allometric growth pattern while 'b' values for *Glossogobius aureus*, *Leiognathus equulus*, *Zenarchopterus dispar* and *Scatophagus argus* showed negative allometric growth pattern. The calculated condition factor showed that the finfishes from Enclaro Estuary were in good condition except for *Zenarchopterus dispar* and *Sphyraena jello* that showed a condition factor less than 0.05. This simply suggests that the *Zenarchopterus dispar* and *Sphyraena jello* growing in poor condition. It is noted in this report that the finfishes from Enclaro Estuary follows an allometric growth pattern and mostly were in good condition. As there are no any available information exploring length-weight relationship and condition factor of the finfishes caught from Enclaro Estuary, the basic biological information will be helpful in conducting similar studies in the future and in managing the estuary. Data obtained from this study will be used by fishery biologist and managers to plan regulations for the sustainable fishery in Enclaro Estuary.

### **Index Terms**

Length-weight relationships, condition factor, finfish species, management tools, estuary

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## Synthesis and Characterization of Nanochar (Nanosilica) and its Application in the Removal and Reduction of Lead Accumulation in Water and in Nile Tilapia (*Oreochromis Niloticus* L.)

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### ***Abstract:--***

Heavy metal removal from aquatic environment is a challenge to many aquarists. This study evaluated the ability of nanochar (nanosilica) in the removal and reduction of lead accumulation in water and tissues of Nile tilapia. The synthesized nanochar from rice hulls were characterized using XRD, FTIR and SEM. The nanochar (nanosilica) were tested in vitro in aquaria with Nile tilapia using five treatment (T1-Control; T2- 5 ppm Pb; T3-100 ppm nanochar; T4- 25 ppm nanochar + 5 ppm Pb; and T5-50 ppm nanochar + 5 ppm Pb). The fish were exposed to Pb (5ppm) prior to the addition of nanochar. Water and Tilapia tissue samples were examined for Pb level. Results showed that the synthesized nanochar were amorphous, has silica mean particle size of 6.77nm. Despite no significant differences in lead in the water, highest adsorption rate observed in T4 with 25 ppm nanochar + 5 ppm Pb. Moreover, significant difference was not observed in the body muscles, while Pb levels in the liver of fish in T2 ( $2.78 \pm 0.00\text{ppm}$ ), T5 ( $1.96 \pm 0.06\text{ppm}$ ) and T4 ( $0.77 \pm 0.04\text{ppm}$ ) were significantly higher compared to T1 ( $0.10 \pm 0.01\text{ppm}$ ) and T3 ( $0.07 \pm 0.00\text{ppm}$ ). The findings showed that the application of nanochar in the removal and reduction of lead accumulation in water and Nile tilapia has a potential in Pb reduction in the water and fish. Full development and optimization of the technology in the future is needed which can be useful in reducing heavy metal pollutants in our aquatic environments.

### ***Keywords***

Tilapia, lead concentration, nanochar, nanosilica, nanoparticle

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## Effect of Stocking Density on the Reproductive Performance of Black Molly (*Poecilia Sphenops*) in Glass Aquaria

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### ***Abstract:--***

Black Molly, *Poecilia sphenops*, is a common aquarium fish that displays dimorphism. The fish produce broods 10-140 live young depending on the maturity and size of the female. Its gestation periods may vary between 3-4 weeks, depending on water temperature. Guppies are known for their intense male sexual coercion and sexual coercion is often costly to females and might have important consequences that affect both female fitness and evolution. The study was conducted to investigate the most productive sex ratio for Black molly, reproduction as affected by sex ratio. The experimental was conducted using three different treatments in the aquaria. Results of the study revealed that black molly (*Pocellia sphenops*) indicate that the length and weight is more increasing the number of female guppies in the breeding aquaria can increase the production of progenies. Treatments with the higher number of females (T2 and T3) produced significantly number of progenies than the treatment with only three females (T1). Furthermore, male guppy mated with small number of females ( $\leq 3$ ) was costly and caused mortality to the females. The highest number of progenies produced was found in T3 having an average total number of 101.33 progenies followed by the T2 with an average total number of 73.67 progenies and the lowest was found in T1, with only 21.33 average total number of progenies. Since increasing the number of females was observed to enable better production of progenies, the use of higher sex ratios is highly recommended for black molly to increase the aquaculture production.

### ***Keywords***

black molly, sex ratio, reproduction, progenies

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## Performance of Red Tilapia (*Oreochromis Sp.*) Fingerlings to Different Levels of Vermi Meal

**Aniceto D. Olmedo**, Program Chair, COF, Faculty of the College of Fisheries, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

**Abstract:--**

Aquaculture is too reliant on commercial feeds. In this feeding experiment, vermin meal (VM) with different levels was given as replacement to fish meal (FM). The feeding treatment tested were: T1 as control utilized commercial feeds; T2, 25%(VM) + 75% Rice bran (RB) was offered to Red Tilapia; T3, 50% (VM) + 50% Rice bran (RB); T4, 75% (VM) + 25% Rice bran (RB), and in T5, the fish was offered 100% vermin meal. The feeding trials were conducted for 60 days culture period in glass aquaria. The effect of each replacement level on feed utilization, body composition and survival of the experimental fish was assessed. All the experimental diets were well accepted by the fish. No mortality was observed during the experimental period. Treatments 3, 4 and 5 resulted in the highest weight gain and SGR values of  $8.74 \pm 0.18$  and  $2.43 \pm 0.04\%$  respectively. Feed Conversion Ratio values analyzed in Treatment 5 and in the control groups showed better performance by the Red Tilapia compared with the rest of the prepared diets offered to the fish. The Protein Efficiency Ratio in all treatments showed no significant difference from each other. The result of the analysis simply suggests that vermin meal promises good performance of the Red Tilapia when offered simply with commercial diet readily available in the market. Vermin meal with up to 50% replacement can be the minimum level for utilization as feed ingredient for organic feed in red tilapia without causing adverse effects on growth and feed utilization parameters

**Keywords-**

Red tilapia, growth performance, protein efficiency ratio, tanks, feed utilization

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## Assessment of Lead Contamination by Sediment, Water, Finfish, and Crustacean Species in Enclaro Estuary, Binalbagan, Negros Occidental

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### ***Abstract:--***

As an active economic coastal community of the municipality of Binalbagan, Negros Occidental, Philippines, the Enclaro Esuray has experienced years of rapid expansion and activities by increasing households and industries. But this impressive social and economic growth fails to hide the realities of environmental quality degradation, of which heavy metal particularly lead contamination has been recognized by many researchers and policy makers as a risk to human and ecological health. In Enclaro Estuary, an assessment on the total lead (Pb) concentrations in tilapia (*Oreochromis niloticus*), rabbit fish or “samalar” (*Siganus guttatus*), tiger shrimp or lukon (*Penaeus monodon*), mangrove crab “alimango” (*Scylla serrata*), sediments and water was done using Flame Atomic Absorption Spectrophotometer. This descriptive research revealed a significant difference result in Pb concentration in soil. The samples taken from the upper section of the estuary recorded  $7.390 \pm 3.79$  on the spectrophotometer scale and was found lowest level in the lower section of the estuary recorded at  $3.883 \pm 3.88$  in the photometer scale. The water samples recorded a lead contamination higher from the acceptable standards of ranges prescribed by WHO and DENR on the guidelines for toxicity level. Pb concentration in *O. niloticus*, *S. guttatus*, *P. monodon* and *S. serrata* from lower, mid and upper stream stations are within the non-critical level published by FAO/WHO which is at 0.3 ppm allowable limit. The result suggests that an alarm should be noticed that fish and crustaceans from Enclaro Estuary are contaminated with Pb. Periodic monitoring of heavy metals in Enclaro Estuary is highly recommended.

### ***Index Terms***

lead concentration, Enclaro estuary, water quality, finfishes, crustaceans

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## Potentials and Challenges of Seafood Tourism Industry in Negros Occidental

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***Abstract:--***

The seafood tourism industry has been regarded for decades as a means of socio-economic development in the many coastal districts of Negros Occidental. However, dimensions on what supports and hinders the industry is less understood. This descriptive study described the potentials to support and challenges that hinders the sustainability of seafood tourism industry in Negros Occidental. Using a structured one-on-one survey format, primary data were collected from 87 seafood restaurant operators and the crew members purposefully selected from the three localities. Government support in the promotion of fisheries management insures the availability of seafood resources. The challenges for seafood restaurants discuss primarily training, marketing, and safety and environmental issues. Alongside economic development promise, safety and environmental issues needs discussion as the continued consumer demand for seafood may result to overfishing and overharvesting of seafood resource. The analysis of the gathered data for this study attempted understanding of the link between potentials and challenges dimensions of seafood tourism industry in the province. While marketing programs endeavored by the industry becomes the centerpiece of the analysis. It is to be understood as well that environmental and ecological pressures is important to contribute to local economies. Seafood preparation strategy is an important element to gauge the readiness of seafood restaurants for value- added strategy. These relationships may bring about sustainability to the growing yet evolving seafood tourism industry in the province. This paper recommends sustainable seafood tourism through participatory planning and development to be crafted and examined carefully by the local government units and research and Extension institutions.

***Key Words:***

challenges, current situation, potentials, seafood industry, Negros Occidental



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## Fish Sausage Enriched with Dietary Fibers

**Rosebella L. Malo**, Assistant Professor I, Faculty of the College of Fisheries, Carlos Hilado Memorial State College-Binalbagan Campus, College of Fisheries, Enclaro Binalbagan Negros Occidental

### ***Abstract:--***

The study was conducted to develop fish sausage enriched with dietary fibers. Unwashed minced fish from lizard fish and three selected dietary fibers from root crops was used the study. The dietary fibers were taro, sweet potato and cassava. The experiment is conducted in completely randomized design. The sensory quality of sausages was assessed in folding test, descriptive test using 1-8 intensity scale and acceptability test using 9-point hedonic scales. The sausages were tested by 20 semi trained panelist for descriptive testing and 100 panelists for consumer acceptability. The mean of the samples was compared using Duncan Multiple Range Test. The addition of cassava and sweet potato had a mean score of 4.0 and 4.3 thus improving the gel strength, textural characteristic, odor, flavor and general acceptability. The addition of cassava has a significance difference in the folding test, juiciness and flavor at  $p < 0.05$  level of confidence. The descriptive mean of sausage with the addition of cassava has mean sore of 5.1 to 5.5 indicating that it falls to moderate intensity level. The acceptability of fish sausages with cassava obtain a highest mean score of 7.55 interpreted as like very much of the panellist. The study suggested that the addition of dietary fibers can be a valuable to the modification of sausage formulation particularly in quality, functionality as well as consumer acceptability.

### ***Index Terms***

fish sausage, enriched, dietary fibers, sensory quality, lizard fish

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## Practices and Implementation of Policies on Waste Disposal of Solid Waste Management in Coastal Purok of Enclaro

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**Daisy G. Cari-an**, Associate Professor 5, Faculty of the College of Fisheries, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

The management of solid waste has been a worldwide issue which most countries are finding the best ways of dealing with. In most communities around the world managing of waste improperly poses threat to the health of people and the environment. The study was conducted to obtain baseline information on the practices and implementation of policies in solid waste disposal among the residents of the 4 coastal purok of Enclaro in the municipality of Binalbagan. The study is a descriptive cross-sectional survey in which 208 households residing along Alo creek were interviewed. The data obtained was tabulated and expressed into percentage for analysis. The result shows that majority of the residents or 88% of the households stored mixed waste in sack and 12% throw their waste anywhere. Majority of the residents or 62% of them disposed their waste along the bank of the creek and 38% burned their waste. The most common problems of the residents were the disposal of their waste which constitute 93%. The residents were aware on the law on RA 9003 but no cases of violation were reported making the situation of the creek very critical. The practices in waste disposal and policies implementation were lacking and there is an urgent need to rectify this gap in knowledge and practice.

### ***Index Terms***

practices, policies implementation, solid waste management, coastal purok, waste disposal

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## Extent of People's Organization Participation in Negros Occidental Coastal Wetlands Conservation Area, 7th Ramsar Site, Negros Occidental, Philippines

**Roger Ray S. Manzano**, Associate Professor 3, Faculty of the College of Fisheries, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

This study assessed the people's organization participation in Negros Occidental Coastal Wetlands Conservation Areas, 7th Ramsar Site, Negros Occidental, Philippines with 147 participants, year 2017. A descriptive research design was used in the study. The percentile, the mean, the t-test of independent samples and the one-way analysis of variance were utilized to treat the data. The activities that the participants wanted to engage in as part of the conservation team were preventing people from cutting mangroves, conducting mangrove rehabilitation, and identifying mangroves found in the areas. The extent of participation of the participants in establishing the 7th Ramsar conservation areas as a whole and in terms of project management, habitat rehabilitation, and monitoring and evaluation, is moderate. The extent of participation of the participants in establishing the 7th Ramsar Conservation areas as a whole and in terms of project management, habitat rehabilitation, and monitoring and evaluation, when grouped as to age, sex, educational attainment, monthly family income, occupation, and people's organization affiliation, is moderate. There is a significant difference in the extent of participation of the participants in establishing the 7th Ramsar Conservation areas in terms of habitat rehabilitation when grouped according to age. Likewise, a significant difference was also noted in terms of monitoring and evaluation when grouped according to people's organization affiliation. The greatest number of mangrove species found in the conservation areas are *Avicennia marina*, *Avicennia rumphiana*, and *Sonneratia alba*. The number of waterbirds species found in the conservation areas are Egret (*Egretta* spp), Philippine duck (*Anas luzonica*), and curlew sandpiper (*Calidris tinuirostris*). The number of waterbirds found in the conservation areas is 12,208 as of 2016. The species diversity of the migratory waterbirds is 6.26 while the non-migratory waterbirds is 9.68. The province of Negros Occidental and the Department of Environment and Natural Resources provided the highest amount for the protection and conservation of the wetlands. Finally, helping to protect the conservation areas, planting mangroves, cleaning the coastal areas and information dissemination are among the ways that the participants wanted to do to promote tourism.

### ***Index Terms***

7<sup>th</sup> Ramsar conservation areas, mangrove, waterbirds, wetlands, people's organization

## Sensory Properties, Proximate Composition, and Economics of Lamp Shell *Lingula* Spp. Nugget With Seaweed *Kappaphycus* Spp. and Horse Radish *Moringa Oleifera* Leaves

**Daisy G. Cari-an**, Associate Professor 5, Faculty of the College of Fisheries, Carlos Hilado Memorial State College  
Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

Functional foods for health benefits are now trending. This study generally aimed to develop functional lamp shell (*Lingula* spp.) nugget enriched with seaweed and horse radish leaves. Specifically, it aimed to determine nugget's sensory attributes, acceptability, proximate and microbiological profiles and economics. Completely Randomized Design, Hedonic Scale, statistical tools like frequency, percentile, mean and Analysis of Variance were used. Five experimental treatments were developed and the appearance of T3 had the highest rating of 8.56 which meant extremely like. For odor, both T3 and control group scored 8.60, meaning extremely like. In texture, the control group had the highest rating of 8.79 followed by T3 with 8.65 and both were extremely liked. For flavor, T3 topped with 8.71, which meant extremely like. Consumers aged 10-14 years old extremely liked the nugget by giving 9.00 and female consumers gave higher rating of 8.94 over the male's 8.86, both were interpreted as extremely like. Nugget's appearance with computed p-value of 0.056 had no significant difference at  $p < 0.05$ . The computed p-values of odor, texture and flavor were 0.002, 0.004 and 0.001 respectively which implied that all were lower than the critical p-value and had significant differences. Proximate composition of T3 is 38.42% carbohydrate, 3.12% ash, 2.16% fiber, 1.13% protein and 0.64% fat and microbiological content is  $1 \times 10^3$  which is within acceptable limit. It also had the highest ROI of 76%. Thus, lamp shell nugget is acceptable, feasible for commercialization, recommended for replication using other resources and its technology transfer to the community.

### ***Keywords***

sensory properties, proximate composition, economics, Lamp Shell, nugget

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## Post-Harvest Practices and Losses of Blue Swimming Crab (*Portunus pelagicus*) in Negros Occidental

**Kervin B. Mahinay**, Instructor, Faculty of the College of Fisheries, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

Crabmeat of blue swimming crab is one of the exported commodities with high economic value. To determine the post-harvest practices and post-harvest losses in the crabmeat distribution route this study used descriptive research and administered 365 respondents' interview. Results showed that most respondents spent more than ten trips per week using used crab entangling net, used motorized boats, placed crabs in net, and sorted crabs by size. In handling practices, most respondents put the crabs in plastic trays, bought the crabs from fishers, had no leftovers, all were clean boats and gears, and the crabs were transport without delay. In transporting crabs, placed the crabs in plastic trays and strongboxes during transport, used delivery van, of processed crab meats, have delays during distributions, re-icing upon arrival to processing stations was practice, and all of the processors cleaned the area and equipment regularly. As to post-harvest losses, most respondents strongly agreed that delay in hauling nets result in chemicals in fishing, exposure of catch too high temperature, discarded the catch at sea, poor handling practices during unloading, and lack of covering facility caused losses. Failure to ice the crabs resulted in inferior quality products. The insect infestation and animal prejudice, lousy odor, lack of storage facilities, and suitable means of transportation led to losses. The demand and supply affected the price, and inadequate market information led to lower costs, respectively. Thus, the blue swimming crab gatherers of Negros Occidental need pieces of training to update their knowledge on post-harvest losses.

### ***Index Terms***

post-harvest, practices, losses, blue swimming crab

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## Laughed in Public but Anguished in Private: The Challenges and Ways of Coping of the Male Adolescent Homosexuals

**Dyan Tiñasan-Gapulan**, Assistant Professor 4, Faculty of the College of Education, Carlos Hilado Memorial State College  
Enclaro, Binalbagan, Negros Occidental, Philippines

***Abstract:--***

This research on the challenges and ways of coping of male adolescent homosexuals utilized the phenomenological approach to research. Seven (7) participants, who are all enrolled students in the 1st semester of 2020-2021 gave their insights about their experiences. The narratives of the participants revealed themes surrounding their challenges and their ways of coping. As for their challenges, two major themes emerged: Internal struggle, which concern about the internal experiences of the male adolescent homosexuals, whereas the external battles concern the experiences of these adolescent homosexuals involving other people in their immediate environment. Their internal struggles involve their own struggle against themselves and their attraction towards the same sex. Their external battles include their desire for acceptance from their family and from other people, their experiences of bullying and discrimination and their desire for acceptance from their church. As for their ways of coping, three (3) major themes emerged: active coping, passive coping and self-acceptance. Their active coping involves an action for change, direction towards a modification of something in their lives, will to change other people's mindset about them. The next theme for coping is passive coping, kind of nonchalance, indifference to other people and their reactions to them. The last kind of coping is self-acceptance, a final embracing of oneself as adequate despite the social disapproval or an internal condemnation. These results could give substantial information to CHMSC as a whole for policy-making, and to the Guidance Services office to address the needs of the male adolescent homosexuals.

***Index Terms***

adolescent, homosexuality, challenges, coping

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## Fermented Rock Oyster (*Saccostrea* Spp.) Enhanced with Langkawas (*Alpinia Galangal*)

**Cindy M. Cañon**, Instructor, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

***Abstract:--***

This study generally aimed to develop enhanced fermented rock oyster with langkawas (*Alpinia galangal*) as the main additive through fermentation. The experiment was conducted at CHMSC- College of Fisheries, Binalbagan, Negros Occidental and the finished product was arranged in Complete Random Design with five treatments replicated three times. Total bacterial count and pH value data were used to determine the shelf life and spoilage of the product. The product was subjected to sensory analysis using 9-point Hedonic with thirty individuals as taste testers. The data taken were analyzed using the Analysis of Variance. The result showed that there is a significant difference among treatments for microbial count of fermented rock oyster enhanced with langkawas and the treatment without langkawas. The thirty panelists gave almost the same ratings on the sensory parameters such as Color, Odor, Texture, Appearance, Flavor, and General Acceptability. The consistency of the panelists' response towards the fermented rock oyster enhanced with langkawas showed a high degree of general acceptability of the product. For the taste panelist valuing the product as evidenced by within standard likings and acceptance of the fermented product, the fermented rock oyster with langkawas as the main additive is one novel way to promote healthy foods accessible to all Filipinos.

***Keywords:***

fermentation, Product Development, Rock Oyster, Galangal

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## Assessing Community Literacy on Indigenous Knowledge of Product Development: A Focus Group Study

**Cindy M. Cañon**, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

**Vicente C. Malo Jr.**, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

This study generally aimed to assess the community literacy on traditional practices extracted from the indigenous knowledge of gatherers and processors of fermented rock oyster of Sitio Malusay, Brgy. Caradio-an, Himamaylan City on product development such as fermented rock oyster. This research identified the different processes and methods employed by the local gatherers and processors which were mostly women. The data were obtained through Focus Group Discussion (FGD) consisting of 5-8 women gatherers and processors of fermented rock oyster. Participants were selected based on their thorough knowledge on traditional fermented rock oyster making. Location of gleaning, tools used in gleaning, fermentation process, price of the product, marketing channels, sustainable raw materials and environmental consciousness were discussed. Results showed that the indigenous knowledge of women gatherers and processors on product development and environmental awareness is necessitating an educational progression to develop and augment the socio-economic status of the community as a whole. Thus, future seminars and trainings must be carefully planned out to achieve the goal of enhancing the socio-economic status of the women gatherer and processors in the community.

### ***Index Terms***

Indigenous knowledge, product development, women empowerment



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## Gender and Development Information System with Decision Support

**Rose F. Regala**, Assistant Professor 1, Chair, Gender and Development, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

**Joevelle B. Vergara**, Assistant Professor 4, Executive Director, Faculty of the College of Business and Accountancy, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

Creating an electronic database of Gender and Development (GAD) records is to develop an information technology infrastructure to ensure that appropriate information is easily available to Carlos Hilado Memorial State College (CHMSC) stakeholders anytime the need arises especially in this new normal situation. The general objective of the study was to develop a GAD Information System with Decision Support. The objectives of the study are to evaluate the system's quality based on the evaluation of 10 Information Technology (IT) experts using the ISO/IEC 9126 Questionnaire and to evaluate the system's usability based on the evaluation of 147 end-users using the CSU Questionnaire. Developmental research was used and evaluated by two (2) groups of participants; Ten experts to determine the system quality and 147 end-users to determine the usability of the system. These end-users include Director, Coordinators, and staff of GAD office, faculty and students. Results showed that the system meets the minimum requirements of the system's quality model and metrics based on ISO 9126 and the minimum requirements of the system's usability parameters based on CSUQ. Hence, the quality of the system's framework and model is excellent and is fit for utilization by the Office of Gender and Development of CHMSC.

### ***Keywords***

decision support system, GAD database, gender and development, Information System.

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## Implementation of Ecological Solid Waste Management Act (RA.9003) in the Municipality of Binalbagan

**Alberto D. De la Cruz**, Instructor, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

This descriptive research study focuses on the implementation of the Ecological Solid Waste Management Act in the Municipality of Binalbagan. It utilizes a self-made questionnaire with the use of google form to determine the extent implementation of the act, frequency of common practices on waste generation, segregation and disposal and their association. It also aims to identify possible extension programs to bridge the gap in ecological waste management implementation. This study was conducted to 9 urban Barangay in the Municipality of Binalbagan utilizing 272 respondents selected using non-parametric convenient sampling. The statistical tools used were mean and standard deviation, frequency and percentages, and Chi-square test using cross tabulation. The results revealed that Ecological Solid Waste Management is partially implemented in the Municipality of Binalbagan in all identified variables such as information dissemination, law enforcement, and sustainability. Majority of the respondents perform waste generation only for sometimes, while activities related to segregation and disposal was always performed. Finally, data showed that there is a significant association between implementation of ecological solid waste management act and the respondents' frequency practices application on generation, segregation and disposal of waste. Despite the partial implementation of the ecological solid waste management in the locality, respondents develop initiative to do the common practices related to waste management with little or no intervention from the local government.

### ***Index Terms***

ecological solid waste, implementation, waste management, information dissemination, initiative

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## School Principals' Dimensions of Instructional Leadership and School-Based Outcomes

**Mary Luna N. Mabasa**, Instructor, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

**Maria Hyde G. Cabarles**, Instructor 3, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

**Donato Y. Sisles, Jr**, Instructor, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

The role of educational leadership in educational organization raises many questions related to instructional leadership and school-based outcomes. This study used inferential analyses with the following objectives; the significant differences in the components of Instructional Leadership, OPCRf and School-Based Outcomes when grouped according to respondents, school and educational attainment. The significant correlations among the components of the School Principals' Instructional Leadership, OPCRf and School-Based Outcomes. Investigated further, is the significant components contributory to School Principal's instructional leadership. Results showed highly significant mean differences in Instructional leadership components in instructional motivation, learning environment and community partnership and curriculum when grouped according to stakeholders, teachers and principals. These inferred that the teachers took the lead with their high-level evaluation with the principals followed by the stakeholders and the principals themselves to these components. There was also highly significant difference in the mean percentage score (MPS) results in National Achievement Tests (NAT) when grouped according to elementary and high schools to conclude that the elementary schools performed better at the mastery level of 75.47% compared to high school to have only a near mastery performance of 61.72%. There were eight significant extracted as contributory components for the principals' instructional leadership in motivation with eight for both intrinsic and extrinsic motivations. Three significant components contributory to School Principal's leadership in both the learning environment and parents' involvement and community partnership. And five significant components contributory to instructional leadership in curriculum. This paper recommends training teachers and School Principals to enhance school leadership and school-based outcomes.

### ***Keywords***

School Principal, instructional motivation, leadership, curriculum, school-based outcomes

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## Micro - Analysis of Student Engagement Strategies in Teaching English Classes

**Arlyn Agudo – Abeto**, Associate Professor 1, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

This study on the Micro-Analysis of Student Engagement Practices in Teaching English Classes analyzed the student engagement strategies; discourse markers; and non-verbal techniques employed by English teachers from ten SUCs and HEIs. Video-recorded classroom observations---only the portions where the teachers directly engaged the students---were transcribed, analyzed, and tallied in coding sheets. The student engagement strategies employed were interactive discussion (47%) and cues, questions, and advanced organizers (42%) among others. Textual Discourse Markers (85%) were more evident compared to Interpersonal Discourse Markers (15%). Paralanguage (59%) and Kinesics (40%) were non-verbal techniques often employed by teachers. In conclusion, inappropriate choice of instructional strategies may imperil student engagement and failure to maximize non-verbal techniques could possibly affect the possibility of motivation that the students need to get them engaged. This study identified a strategy requiring the administration to support the teachers in acquiring necessary skills and background needed to foster a communicative or conversational classroom for learners.

### ***Index Terms***

student engagement strategies, discourse markers, paralanguage, kinesics

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## Student Engagement Practices Employed in Teaching English Classes in Western Visayas

**Arlyn Agudo – Abeto**, Associate Professor 1, Faculty of the College of Education, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

***Abstract:--***

This study on student engagement practices employed in teaching English classes in ten SUCs and HEIs in Western Visayas analyzed the patterns of discourse and their moves. Video-recorded classroom observations were transcribed, analyzed, and tallied in coding sheets. Data were presented using tables (Quantitative Method) and extracted for exhibits (Qualitative Method). Normal Classroom Discourse Pattern (68%) was pervasively employed than High-Quality Classroom (32%). A move called ‘uptake’ (9%) - incorporating student’s response, recasting, negotiating answer, rephrasing, and contextualizing manifested High-Quality Classroom Discourse. In conclusion, Normal Classroom Discourse failed to promote critical thinking; limited higher order of thinking; prevented deep learning; and curtailed the development of classroom discourse. Students were engaged procedurally, rather than substantively. Implications: poor critical and analytical thinking would be defeating to an attempt of a more engaging classroom which could possibly turn students to become passive. This study recommends using Pattern of High-Quality Classroom Discourse comparably with or even more than the Pattern of Normal Classroom Discourse through classroom activities or authentic performance tasks. And finally, to foster a communicative or conversational classroom for learners’ trainings on this strategy are recommended.

***Keywords***

Student Engagement, Practices, Patterns of Discourse, Moves, and Conversational Classroom

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## Premarital Sex Experiences among Anonymous Female College Students

**Elenuel T. Genova**, Assistant Professor 3, Faculty of the College of Criminal Justice, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental Philippines

**Andrew D. Ordonio**, Associate Professor 4, Faculty of the College of Fisheries, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

**Mac Edmund G. Gimotea**, Research Assistant – College of Fisheries, Research and Development Unit, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

The objectives of this study are to determine the concordance to identified reasons and consequences of having involved to premarital sex. Descriptive research was carried out and data were gathered through purposive convenience sampling. Only female college students from CHMSC Binalbagan Campus were the target clientele of this study. Results shows that female college students mostly disagree to the statements on identified reasons for having involved in premarital sex except for love and peer influence reasons. On the other hand, mostly of their responses to identified consequences were either agree or disagree which implies they were not sure on the statement asked. Their doubts also imply of their lack of awareness and knowledge on the possibility of suffering adverse consequences of having involved in premarital sex in the future. The study concludes that, there is an occurrence of premarital sex among female college students from CHMSC Binalbagan campus, love and peer influence reasons were the compelling and normative social factors that lead female college students to engage in pre-marital sex, and they were not sure that they will possibly suffer biological, physiological, social, and emotional consequences for having involved in premarital sex in the future. Recommendations were provided at the end of the study.

### ***Index Terms—***

Premarital sex, experiences, female students,

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## Police Officers' Attitudes of Body-Worn Camera

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### ***Abstract:--***

Police officers wearing body-worn cameras are less likely confrontational. A study that quantified the perceptions and attitudes of Himamaylan Police Officers regarding the use of Body Worn Cameras during operation was conducted and described. The 24 police officers on duty were asked to give their honest concordance on the Ease-of-use scale and Usefulness scale and their concordance on policy issues that needs to be addressed when police officers will be equipped with body-worn camera. Purposive convenience sampling techniques was used to gather data. Somehow, descriptive statistics was used to interpret the data. Overall, the officers' attitude toward the body-worn camera was positive, despite their reservations about some of the specific items in some of the sub-scales. The Himamaylan City Police Officers indicated that the use of the cameras was good, wise, beneficial, positive, and favorable and that the body worn cameras has the "ease of use" feature. They can learn the features and the correct use of BWC. The positive attitude of the police officers to body worn cameras was further influenced by the fact that there were at least five of them have purchased and tried using the camera. Also, their colleagues. This finding confirms the results and concerns from other researchers. For example, there were questions about individual differences in officers' acceptance of the camera in relationship to their roles and previous experiences. Law enforcement administrations should focus on changing the attitudes of officers with more experience who are older, set in their ways, and not technically savvy.

### ***Keywords***

police officer, perceptions, body-worn camera, ease of use, usefulness

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## Pro-Environmental Attitude of Criminology Students of CHMSC

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**Richard R. Domingo**, Instructor, Faculty of the College of Criminal Justice, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

Currently, the College of Criminology of CHMSC is at the forefront of planning and implementing environmental and conservation programs. However, baseline data focus largely on socio-economic profile. It lacks research on the psychological factors necessary for implementing the programs. For this study, the environmental attitude as a cognitive judgment towards the value of environmental protection is explored to describe the pro-environmental attitude of Criminology students of CHMSC. The importance of understanding environmental attitude and behavior concepts is recognized and emphasized as one of the most effective ways, if not the only way, to meet the complicated problems of the environment. This descriptive study employed purposive convenience sampling techniques to gather data from the Criminology students belonging to Class 11 who by the time of the survey had finished taking the subjects related to nature and environment. Descriptive statistics like mean and percentile distribution was used to analyze the data. Criminology students in their senior year level status whose age were between 19 and 21, mostly males, and mostly coming from public schools, “highly agreed” to all pro-environmental knowledge and values statements presented to them. They noted a “highly agree” rating on the pro-environmental attitude indicated in the survey. The result of the present study has implication when planning to implement any environmental program. It is recommended that the next pro-environmental attitude study will be done to all Criminology students across demographics. When planning to partner with the community, the pro-environmental attitude study will also be done at the community level.

### ***Index Terms***

Pro-environmental attitude, environmental knowledge and values, new ecological paradigm, environmental program, conservation



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## Characteristics of Drug Dependent Surrenderers in Binalbagan, Negros Occidental

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**Arnold D. Talorong**, Instructor, Chair, Extension and Community Services – CCJ, Faculty of the College of Criminal Justice, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

This study characterized the drug dependents of Binalbagan, Negros Occidental, Philippines and why they used prohibited drugs, why they surrender, and how severe their drug dependence. There were nine drug surrenderers participated in the survey. Twenty-three factors were identified why they associated with prohibited drug used and 11 factors why they choose to surrender. A drug severity survey was adopted to determine their drug dependence. Based on the findings, the ecstasy effect of drugs based on drug surrender arrangement is the main factor why they associated with prohibited drug used. The street language “Duterte effect” is somehow the key factor why drug dependents choose to surrender. A significant difference between educational attainment, residency, employment status to factors associated with prohibited drug used, factors why they surrender, severity to drugs used and readiness to change had been seen. Hence, the null hypothesis was rejected. Logically, there are still factors that need to be identified which were not been included in the present study. Drug’s issue is a complex issue; hence, more studies and investigations should be conducted for us to fully understand this reality. However, result of this study can be a starting point for future researches to be conducted and for the conduct of community education program in relation to crime prevention as a whole.

### ***Keyword***

Characteristics, Drug Dependents, Surrenderers, Binalbagan, Negros Occidental

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## Barangay Enclaro Community Profiling System

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**Gracel N. Geroy**, Instructor, Faculty of the College of Computer Studies, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

**Rodolfo A. Javier Jr.**, Instructor, Faculty of the College of Computer Studies, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

Barangay is the lowest administrative division in the Philippines. Barangay is where the preliminary planning and implementation of projects for the community is, but it has the slightest accessible information that serves as a benchmark for preparing plans and policy implementation. The Barangay Enclaro Community Profiling System was developed to support the staff to maximize service to the community. The system aims to modernize the manual administrative processes regarding requesting documents, filing complaints, and producing local statistics that can run offline and online. The study used a descriptive-developmental design. The data was gathered through observations, interviews, and questionnaires. The researchers used McCall's Software Evaluation for the expert and adopted Computer System Usability Questionnaire (CSUQ) for respondents that used (19) questions and utilized a four-point Likert scale. A Rapid Agile Development was used in developing the system. The participants were identified using purposive sampling. As a result, both Experts and respondents agreed that the system was operational and responsive. For the expert gathering, the mean of 4.73 interpreted as "Very High." The results of the evaluation of the system got a System Quality of 4.00, Information Quality of 4.00, Interface Quality of 4.00, and Overall Satisfaction of 4.00, which were all interpreted as Strongly Agree. All barangay Chairman of Binalbagan tested the system during the LIGA session. Various software development tools were used, such as JAVASCRIPT, PHP, HTML, LARAVEL, Visual Studio Code, MySQL Database, Apache Web Server, and Photoshop. In findings, the system was fully functional and operational, and the study's objectives were met. The system was utilized in its actual environment.

### ***Keywords***

Enclaro, Barangay, Profiling System, Community works, Extension

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## Lifeblood with GIS

**Engr. Mary Ann P. Goroy**, Instructor, Faculty of the College of Computer Studies, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

### ***Abstract:--***

The blood donor searching system was adequate during the emergency and complex need for blood. The proponent developed the Lifeblood with GIS to view registered blood donors' names, blood groups, addresses, phone numbers, email addresses, and pictures. This mobile application plays a significant role in saving people who live in Himamaylan City and can be helpful in the area nearby. It has a login form where the user can register after the agreed terms and conditions of the mobile application. By then, the users can view all possible blood donors with their tag addresses and communicate donors through phone calls. This application requires internet access. The main aim of developing this application is to reduce the time in searching for a suitable donor. This study used a descriptive and developmental design. The proponent gathered through interviews and questionnaires. The proponent utilized two standard questionnaires, McCall's Software Evaluation for the expert and ISO/IEC25010 Software Characteristics for the respondents. The Rapid Agile Development was applied in the Software Development Life Cycle, and SPSS version 20 was used as statistical software to solve the Mean. As a result, both Experts and respondents agreed that the system was operational, always available, accessible, and responsive anytime by giving the mean grand Mean equal to 4.73 and 4.75, respectively. Various software development tools were used, such as Php5, Java, and Basic4Android (B4A). Proponent gave the final software product to residents of Himamaylan City.

### ***Index Terms***

blood, blood donation, blood donor, mobile application, GIS

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## The Development of a Disruption Responsive Smart Room Technology

**Jennifer P. Juaneza**, Instructor, Program Chair, CS Department, Faculty of the College of Computer Studies, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

***Abstract:--***

Technology has been one of the most significant breakthroughs in the twenty-first century, having had a significant impact on civilization around the world. Innovations have become so pervasive that they have enhanced people's lives, particularly when it comes to interacting with technology. One of these technological innovations is the disruptive responsive system, which promotes and builds technology that improves people's quality of life and their ability to engage with and adapt to advances in devices, systems, and applications. The disruptive responsive technology has transformed the traditional processes and industrial practices combined with the latest smart technology that evolved locally and globally. The proponent of this study created the Development of a Disruption Responsive Smart Room Technology, which will allow modern technologies to be used to generate a substantial difference from the traditional one. The objective of this research is to create an RFID-based registration and identification system for faculty and students, which will aid in the accuracy of attendance management. In line with this, it also includes an electrical supply relay socket, which will enable the function of a smart room technology wherein the faculty have the authority to control the devices connected and networked through the use of a mobile console. Another feature of the disruptive responsive system is the automatic temperature change that based on the humidity inside the room using the humidity sensor. To fulfill its functions, the technology should be connected to a network and the internet. In this study, the proponent applied Developmental Research. Its purpose is to assess the efficiency and effectiveness of the Development of Disruption Responsive Smart Room Technology by utilizing technological innovation and advancement. This research is beneficial since it will improve processes and the technology.

***Keywords***

disruptive responsive, RFID, technological innovations, Smart room, development

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## A Design Architecture for Covid-19 Pandemic Decision Support Predictive Model Using Clustering Analysis

**Jennifer P. Juaneza**, Instructor , Program Chair, CS Department, Faculty of the College of Computer Studies, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

**Edward S. Gumban**, Faculty of the Information and Communications Technology, Aklan State University, Philippines

### ***Abstract:--***

The year 2020 will go down in history as one of the most significant for everyone because it marked the start of a global crisis, crises, and pandemic, with the Philippines as one of the most affected countries. When COVID-19 was discovered, the crisis began, and it resulted in a profound upheaval in society because thousands of people died as a result of the disease. To reduce the risk of transmission of COVID-19, the Philippine government implemented a number of strategies. The IATF has issued a statement that will apply to local areas around the country, including the issuance of community quarantines such as enhanced community quarantine, modified enhanced community quarantine, general community quarantine, and modified general community quarantine. The Philippine government must assess each municipality to determine whether community quarantines are absolutely required. As a result, the researcher identified an opportunity to develop a COVID-19 predictive clustering model that can be utilized for decision support in determining which sort of community quarantine is appropriate for each region of the country. Clustering analysis of the datasets retrieved from the Philippine Department of Health was used to determine the rate of recovered cases and mortality cases, as well as the community quarantine to be imposed, which substantiated the government's decision. The researchers used Python scripts and Jupyter Notebook to cluster datasets, which resulted in the predictive clustering model. During the study of the datasets configured in the Jupyter notebook, the model's accuracy was tested. The clustering findings demonstrated that the model was able to accurately forecast and provide decision support in the issuance of community quarantines.

### ***Index Terms***

COVID-19, Predictive Analytics, clustering model, decision support, community quarantine

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## Central Philippines State University Document Repository System

**Siari Ann R. Iligan**, Instructor, Faculty of the College of Computer Studies, Carlos Hilado Memorial State College, Enclaro, Binalbagan, Negros Occidental, Philippines

***Abstract:--***

An online document repository system aims to eliminate the conventional paperwork-based process management methodology, which wastes time and energy from being highly disorganized (Manoj G. et al., 2017). Central Philippines State University produced, disseminated, organized, stored, and utilized many documents in several types. The department, particularly in the Records Office of the institution, deals with these documents. It is a mere fact that the institution is experiencing difficulties in storing, retrieving, and searching records. In response to this study, the researcher developed a CPSU Document Repository System that can benefit Central Philippines State University because it sorts out business documents, records, or files electronically, whether they started in paper structure or were generated by software applications. The researcher used the purposive sampling method because respondents of the study were selected based on the researcher's judgment. The researcher used the self-made questionnaire for the end-users and ISO/IEC 25010 standardized questionnaire for the IT Experts in evaluating the system. With the developed CPSU Document Repository System, those physical files can be stored securely in digital format, freeing up that cramped filing room for other office or leisure space. It makes that whole process seamless, allowing the users to search and retrieve files, check them out digitally, share among institution employees, and then get back to whatever it is needed to do. The overall results of the evaluation and testing are concluded that the developed system is ready to deploy. CPSU Document Repository is recommended to be implemented at Central Philippines State University to reduce paper documents, document storage costs and minimize document storage space. The administration must conduct a training session for its department/office heads and campus directors to ensure the system's success.

***Keywords***

document repository, electronic document, document archiving

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## Decision Management Support System for Research and Extension Services

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### ***Abstract:--***

Research information is one of the essential tools of an organization but is often split between various systems in differing formats. Hence, it is inconsistent, and sometimes incomplete information arises. This study aimed to design and develop a Decision Management Support System for Research and Extension Services of Carlos Hilado Memorial State College with the following features: Collaborative Resource Management System, Multiple Dataset Reporting, and Researcher, Extensionist, and Coordinator Profiling; to evaluate the usability of the system in terms of the following parameters: System Usefulness, Information Quality, Interface Quality, and Overall Usability; and to develop a User's Manual. The developmental-descriptive method was used as the research design, while the Rapid Application Development (RAD) life cycle model was utilized to develop the system. The features of the system were evaluated using test cases. The system's usability was evaluated by 20 Information Technology experts from Carlos Hilado Memorial State College. For the functionality test, a set of Test Cases was developed to test the functionalities and features of the system. The results revealed that the Decision Management Support System for Research and Extension Services passed the Functionality Test. For Usability Testing, the study utilized version 3.0 of the Post-Study System Usability Questionnaire, or PSSUQ, a standardized instrument used to measure the users' perceived satisfaction of a website, software, system, or product at the end of a study. The mean was used to interpret the data. The results of usability testing were satisfactory, which implies that the system is working properly. Therefore, the system is recommended for utilization.

### ***Index Terms***

Decision Support System, Decision Management, Research and Extension, Monitoring and Evaluation, Resource Management

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## Sustainable Livelihood Program: Practices, Challenges and Opportunities

**Teresita B. Lopez**, Project Development Officer II, Department of Social Welfare and Development, Bacolod City, Negros Occidental Philippines

**Ma. Teresa B. Ballados**, Associate Professor 5, Chairperson, Graduate Studies, College of Business Management and Accountancy Carlos Hilado Memorial State College, Fortune Towne, Bacolod City, Negros Occidental, Philippines

***Abstract:--***

The study aims to assess the Sustainable Livelihood Program (SLP) practices and examine the challenges encountered and opportunities perceived by the associations' members and officers. This study employs a descriptive research design. Stratified-random methods are used to select the 100 participants who answered the researcher-made questionnaire, and a 5 point- Likert scale is applied to record the responses. The employed statistical tools are frequency, mean, standard deviation, Mann Whitney, and Kruskal-Wallis. The findings of the study revealed that SLP requirements on fund utilization and manpower were always practiced while SLP requirements for infrastructure and system implementation were sometimes practiced. The opportunities available in SLP as associations were the financial assistance provided by other government agencies and non-government organizations and the opportunity to accredit the associations as legal entities. Moreover, the result of the study showed that the SLP associations encountered financial challenges. Hence, the requirements outlined in the SLP were not fully satisfied, and appropriate interventions might be introduced to improve the practices, overcome the identified challenges, and take advantage of opportunities.

***Keywords:***

sustainable livelihood, practices, challenges, opportunities, descriptive research



## Students' Experiences in Learning English using Online Platforms in Pandemic: A Case in a State College

**Vanessa Joy Z. Judith**, Faculty of the College of Education, Carlos Hilado Memorial State College, Talisay City, Negros Occidental – Philippines

### ***Abstract:--***

This study was conducted to determine the experiences encountered by the students in their English classes using online platforms for the first semester, 2019-2020. This qualitative narrative inquiry research gathered data through an in-depth interview. An open-ended interview guide was used to gather data, and this was validated by the experts in this field of study. The participants of the study were selected using purposive sampling. In dealing with qualitative questions, themes across data sets were identified and analyzed to provide a clearer description of the experiences shared by the participants. The analysis observed the explication process introduced by Braun and Clarke. It covers familiarization with data, coding, searching for themes, reviewing themes, defining and naming themes, and writing up. The study's findings revealed that in the course of learning English online, the students encountered different experiences. These include the financial concerns, ability to manage the time with flexible learning autonomy, teacher factors, accessibility to the technology and connectivity, self-motivation, learning styles, coping mechanism strategies, and the recommendation to improve online learning.

### ***Keywords***

Experiences in Learning English, Online Platforms, Time of Pandemic

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## Tax Awareness and Compliance of Micro and Small Enterprises

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**Quezon, Marissa S**, Dean, College of Business, Management and Accountancy, Carlos Hilado Memorial state College, Fortune Towne, Bacolod City, Negros Occidental, Philippines

### ***Abstract:--***

The study determined the predictors of the extent of tax compliance of micro and small enterprises (MSEs). A descriptive-correlational research design was applied and a researcher-made questionnaire with Lawshe Content Validity Ratio (CVR) of 0.88 and Cronbach's alpha = 0.99 was employed to gather data from 400 MSEs using Cochran formula. Results showed that MSEs were very aware of the BIR requirements but were only fully aware and moderately aware of VAT and other percentage taxes, respectively. Findings also showed that MSEs are complying with BIR requirements to a large extent. Furthermore, when a regression analysis was conducted, highest educational attainment, penalties and the level of tax awareness statistically significantly predict the extent of tax compliance max,  $F(2,117) = 61.472$ ,  $p < .05$ ,  $R^2 = .667$ . A tax awareness campaign to increase awareness and improve compliance was suggested.

### ***Index Terms***

tax awareness, tax compliance, micro and small enterprises, factors affecting tax compliance, Bacolod City

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## Environmental Sanitation Conditions, Challenges, and Opportunities in Public Markets

**Sharon S. Benitado**

**Ma. Teresa B. Ballados**, Associate Professor, Chairperson, Graduate Studies, College of Business Management and Accountancy  
Carlos Hilado Memorial State College, Fortune Towne, Bacolod City, Negros Occidental, Philippines

***Abstract:--***

This paper examines the environmental sanitation conditions, environmental sanitation challenges, and environmental sanitation opportunities in Bacolod City public markets. It utilizes a descriptive research design and a researcher-made questionnaire. Quota and convenience sampling techniques are used in determining the 362 participants in two (2) public markets in Bacolod City. In the treatment of the data, the statistical tools used are the frequency, percentage, mean, standard deviation, Mann-Whitney, and Kruskal Wallis. Findings from the survey reveal that the environmental sanitation conditions as a whole, and in terms of water supply, air ventilation, waste disposal, food contaminants, and building structure, are all poor in two public markets based on actual survey gathered. Furthermore, the environmental sanitation challenges are high, and the environmental sanitation opportunities are low. When comparing the environmental sanitation conditions and environmental sanitation opportunities between two (2) public markets, a significant difference occurred. Hence, the need for responsive and effective mechanisms to alleviate and improve environmental sanitation and address the public markets' environmental challenges is deemed necessary.

***Keywords:***

environmental sanitation, sanitation challenges, opportunities, descriptive research, Philippines

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## Smart Power Outlet Management System

**Mark Gerald L. Nallos**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Richard M. Pabilona**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

***Abstract:--***

The study focused on the design and development of Smart Power Outlet Management System for commercial establishment and households. The system is composed of a network-based application and a module. Descriptive and developmental methods of research were used in this study. Thirty technical experts were used as respondents of the study. The module is comprised of a microcontroller with Wi-Fi module powered by a 9v power supply, circuit relay, current transformer sensor, and outlet installed inside the module casing. The network application connects to the module wirelessly and act as the control panel of the system. This study was anchored in a developmental type of research and followed the Software Development Life Cycle's modified water fall model for system development. The system was evaluated using the standard ISO/IEC 25022 Systems and Software Engineering - Systems and Software Quality Requirements and Evaluation (SQuaRE) – Measurement of Quality, by technical experts in all parameters. The system was evaluated by experts and was rated excellent in all aspects. Therefore, the system is suitable for implementation to households and commercial businesses.

***Keywords***

power outlet, management system, design, development, quality

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## Light Diffusing Fiber-Cement Board

**Marvin A. Margarito**, Carlos Hilado Memorial State College, Alijis, Negros Occidental, Philippines

***Abstract:--***

The study focused on the design and development of Light Diffusing Fiber-Cement Board. The board was made of recyclable materials and capable to diffuse light either of its sides through embedded plastic optical fibers. The researcher developed the board in determining accurate proportion of materials and tested its performance quality concerning the compressive strength. Descriptive and developmental methods of research were used in this study. The researcher used a researcher-made questionnaire to evaluate the level of acceptability of Light Diffusing Fiber-Cement Board regarding the design, construction, and effectiveness. The findings of the study presented that the Light Diffusing Fiber-Cement Board utilized cement, rice hull ash, waste paper pulp and foaming agent with a ratio of 1:1: ½: ½ respectively, and embedded with plastic optical fibers. The board was developed using a .30m x .30m x .0127m thick molder through vibrating method. The performance quality of the product was 17.50 Kn for maximum load and 984 psi for maximum strength. The acceptability of Light Diffusing Fiber-Cement Board in terms of its design, construction and effectiveness was Very Highly Acceptable. Therefore, the board is recommended to be use as decorative material that utilized either natural or artificial lights for building and housing projects.

***Keywords***

fiber-cement board, design, development, construction, effectiveness

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## Brownies Enriched with Aratilis

**Annielou V. Mana-ay**, Faculty of the College of Hospitality Management, College of Industrial Technology, Carlos Hilado Memorial State College, Talisay City, Negros Occidental

***Abstract:--***

The main objective of the study is to produce brownies enriched with Aratilis as one of the ingredients. This study aims to develop the best ratio of ingredients for brownies enriched with aratilis and to find out the acceptability and the sensory properties of brownies enriched with aratilis in terms of appearance, taste, and texture. This is a developmental type of research that was replicated three times and evaluated by experts. To determine the quality and acceptability of the product the researcher identified the respondents as follows; 20 for sensory properties evaluation (5 BSHM Faculty members and 15 BSHM students) and 10 individuals which were not connected to the institution but had food-related experience for the 9 point Hedonic Scale. The researcher utilized a 5-point sensory evaluation card which aims to critic the brownies enriched with aratilis in terms of appearance, taste and texture. Likewise, the 9 point hedonic scale to test the acceptability of the product. Based on the results, the 3rd replication receives the highest mean scores in appearance 4.05, taste and texture at 4.15 all are interpreted as very good. Moreover, in the level of acceptability replication no. 3 receive the highest mean score of 8.50 interpreted as like extremely by the respondents. Based on the results and discussions the researcher had drawn the following recommendations, replace the quantity of sugar as one of the ingredients in making aratilis brownies, by increasing the quantity of aratilis juice and further research on the different ways to Aratilis as one of the ingredients in making a brownie.

## Development of Online Management System for Institutional Sustainability Assessment

**Cristine V. Redoblo**, Carlos Hilado Memorial State College, Mabini Street, Talisay City, Negros Occidental, Philippines

***Abstract:--***

The study focuses on developing a Management System for Institutional Sustainability and its evaluation of the quality in use. The system was capable of the document classification, loading, assessment, security, assessment rating reports, and system audit logs. ISA system was an online communication platform for flexibility in the evaluation and organization of documents; it includes user credentials and access rights, upload and download documents, view assessment results, and print documents and summary results. The outcome of the assessment determines the Higher Education Institution's Sustainability. The study used a developmental research approach and a Rapid Application Development (RAD) System Life Cycle to design and develop the system. RAD includes requirements planning, user design, construction, and cutover. A descriptive approach was used to evaluate the system's quality and adopted a standardized questionnaire from ISO/IEC 25010:2011 Software Product Quality Model. The thirty (30) respondents of the study were purposely selected using the purposive sampling technique. Mean was used in the overall rating. The system was rated 4.68 or interpreted as very high by respondents: Quality Assurance Director, Deputy Quality Management Representatives, KRA Chairpersons, KRA Committee Members, ISA Assessors, and System Experts. The system was easy to use and reliable in handling documents to support academic quality assurance. The system may contribute to the assessment and management of documents in the higher institution in the Philippines that entails heavy documentations such as, minimize the use of papers, speed up communications, save time, and increase the productivity of work in the preparation and actual assessment.

***Keywords***

Development, institutional sustainability assessment, online management system, quality assurance, Philippines

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## Online Multi-function HEIs Tracking System

**Jose Leo G. Redoblo**, Carlos Hilado Memorial State College, Mabini Street, Talisay City, Negros, Occidental, Philippines

***Abstract:--***

The study aimed to develop the Online Multi-function HEIs Tracking System for Carlos Hilado Memorial State College CHMSC) four (4) campuses. The system is an online campus-wide document tracking dissemination that covers storing, viewing, retrieving, archiving, and maintaining the security of information. The technical features include in the system are document management, document protection, sender-receiver notification, user's credential management, system audit logs, and automatic data backup. A developmental research approach using Rapid Application Development (RAD) was applied in the design and creation of the system. A sender-receiver email notification was applied using the MUA and MTA secured connection. The system has user's credential management for usernames and passwords, system audit logs for the system's credibility, and an automatic data backup to protect data loss and future recovery. The usability of the system was rated very high by thirty (30) respondents composed of the document controllers, faculty, ICT personnel, and the Record office staff of CHMSC. The questionnaire used is based on the standard evaluation instrument from ISO/IEC 25010:2011, Systems and software Quality Requirements and Evaluation (SQuaRE). The study contributes to the management of documents in the four campuses of CHMSC with secured electronic data storage through the VPN method. It hastens the transactions and services and improves the operational efficiency of CHMSC Recorder's Office. The other neighboring institution may opt to adopt the developed software to enhance transactions and services of their records management office. The Online Multi-Function HEIs Tracking System is the next logical step for the institution looking to improve efficiency in records management.

***Keywords***

Online Multi-Function HEIs Tracking System, systems and software quality requirements and evaluation, rapid application development, Philippines



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## Abundance and Diversity of Seagrass Species in Select Coastal Zones in Sagay City, Negros Occidental, Philippines

**Leah L. Fernandez**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Iril Ian B. Rollo**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

### **Abstract:--**

Southeast Asia is a biodiversity hotspot when it comes to seagrass species, and the Philippines has a total seagrass area of 27,262.2 km<sup>2</sup>. The study employed a descriptive-correlational research design to determine the different seagrass species, their abundance and diversity index in three coastal communities in Sagay City, Negros Occidental. It also determined the physico-chemical properties of the seawater and established a correlation with diversity index and species richness. A total of ten (10) species were identified in all three sites, namely *E. acoroides*, *Cymodocea* spp (*C. rotundata* and *C. serrulata*), *T. hemprichii*, *Halodule* spp (composed of *H. pinofolia* and *H. uninervis*) and *S. isoetifolium*. Those identified outside the quadrats were *T. ciliatum*, *R. maritima* and *H. spinulosa*. In general, *Cymodocea* spp are the most abundant seagrass species in all sites, while *E. acoroides* in Vito, *Cymodocea* spp for Bulanon and *T. hemprichii* for Taba-ao. The level of abundance in terms of species richness is relatively high while the biodiversity index is categorized as low. There is no significant difference in diversity index and TDS but significantly differ in terms of species richness, temperature, salinity, and pH. However, species richness and temperature established a negatively moderate correlation. In conclusion, there is a wide variation of seagrass species in Sagay City with acceptable seawater quality.

Keywords: abundance, diversity, seagrass, physico-chemical properties, Sagay

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## Physico-Chemical and Microbial Characterization of Talisay City Coastal Water Systems

**Lydia F. Gorriceta**, Talisay City, Negros Occidental, Philippines

**Eng'r Marlyn G. Jover**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Arlene E. Visitacion**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

### ***Abstract:--***

Water quality monitoring provides basis as to how and for what water can be used and the species and ecosystem processes it can support. Measurement of water quality provides important information about the integrity of a body of water.

This study focused on the coastal water systems of Talisay City, Negros Occidental to come up with their classification along the identified stations of samples collection. The first-hand data derived from this study could be utilized for the evaluation or basis for the formation of policy towards sustainable coastal waters management beneficial to sustain aquatic life and diverse resources of livelihood for the people of Talisay City and the entire province as well. The total of nine (9) parameters were analyzed from water samples namely: pH, temperature, dissolved oxygen, turbidity, conductivity, salinity, total dissolved solids, phosphates, and total coliform. Result analysis showed all three collecting stations, Nakab, Catabla and Binalayan exhibited almost similar average pH and phosphate levels ranging within the allowable water quality standard for coastal waters. All three stations belong to SA/SB categories which means that they can be suitable for ecotourism use as local marine parks or fish and wildlife preserves and thus, preferable to the majority of aquatic creatures. Of the three stations, Nakab gave the highest coliform count with an average reading of 200 MPN/100 ml which although within tolerable limit as to the safety of shellfish consumption but may contribute to health problems in the community. This value is twice higher than those in Catabla and Binalayan indicating that these two stations may have a potential for shellfish and marine propagation but considering high tides and low tides that throws the sea water in all directions, it is most likely that the coliform incidence will affect the other two stations as well.

### ***Index Terms***

Physico-Chemistry, Microbial Quality, Coastal Water Systems, water management, sustainability

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## Mussel Sausage

**Leonila V. Dela Cruz**, Industrial Technology Department, College of Industrial Technology, Carlos Hilado Memorial State College, Talisay City, Negros Occidental Philippines

### ***Abstract:--***

The research study aimed to develop a mussel (*Perna Viridis*) sausage as an innovative product. Specifically, it aimed to formulate a mussel sausage recipe, determine its moisture content, microbial analysis, and proximate analysis. The evaluation of acceptability and the development of flyers was also determined. Hedonic Scale of likes and dislikes by Peryam (1957) was the standard questionnaire used to rate appearance, smell, taste, and texture. There were fifteen (15) food experts used as respondents of the study and they were composed of 5 (five) Food Trades Graduates, 5 (five) Food Trades Instructors & 5 (five) selected Chefs, Chemist and BSHM Instructors. Developmental type of research was used for mussel sausage was considered an innovated Food. The method of research used was quantitative method using the Descriptive type in evaluating the level of acceptability and for laboratory test Gravimetric Method. Oven-dried was another method used to retain the moisture content of the meat of the mussel. Findings revealed that the mussel sausage recipe was like very much and in terms of acceptability was very much acceptable by the expert respondents. The laboratory test of moisture content, microbial analysis, proximate analysis was good for there were no harmful bacteria detected such as an E.coli or salmonella. Based on the findings the formulated recipe of mussel sausage was palatable and good when eaten. Further study of its nutritive content recommended prior its full introduction to the market.

### ***Index Terms***

Mussel, Recipe, Sausage, Laboratory Testing, Philippines

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## Wireless Monitoring Devices for Regulation of Vehicular Events with Internet-Of-Things (IOT)

**Russel M. Dela Torre**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

***Abstract:--***

The desire of men to conveniently commute and travel is evident in the staggering increase in the production and sale of automobiles. However, this pronounced rise in the usage of vehicles also brought a proportional increase in road accidents. Reports from local and international safety agencies show a surprising number of vehicle accidents and ranked it amongst the top cause of global deaths. During vehicular accidents, a minute difference in the delivery of emergency response would mean the preservation or loss of life. This study outlines the means to provide an immediate response to car drivers during vehicular accidents. The paper provides a technical model for monitoring and tracking mobile vehicles in a large area outdoor environment based using Global Positioning System (GPS), Global System for Mobile communication (GSM), and Internet-of-Things (IoT). The developed device is mounted on a vehicle and continuously monitors activities. Gathered and collected data can be viewed through a graphical user interfaced (GUI)-based web application integrated with the system. Geo-fencing and drive-permission functions were also implemented to provide security and antitheft features. Functionality and standard usability testing were conducted to test that the system performs its functions and evaluate user acceptance. The system achieved a System Usability Scale (SUS) score of 81 and a Post-Study System Usability Questionnaire (PSSUQ ver 3) mean of 1.78, corresponding to high level functionality and usability and a great degree of end-user satisfaction based on testing and evaluation results. Index Terms— Global Positioning System (GPS), geofencing, microcontroller, vehicle monitoring and tracking

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## Research Capability and Managerial Competence of Public School Administrators

**Daniel B. Dum Dumaya**, E. B. Magalona Elementary School, E. B. Magalona, Negros Occidental

**Elvie S. Samson**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental Philippines

***Abstract:--***

This descriptive study ascertained the capabilities of the school administrators of the District of Enrique B. Magalona in the province of Negros Occidental Philippines in doing research alongside competence in managing a public school. The gathered data were processed using descriptive statistics. Of the 25, 60% of them were females, 66% were holding School Principal positions, and at least 84% of them earned units in a Graduate Studies Program. Across demographic variables, the school administrators of E.B. Magalona District are highly capable of doing research and are highly capable school managers. It is not surprising to note that school administrators are involving themselves in doing research works after all, their highly capable ratings is a manifestation that they do research works. They were able to come up with quality output when it comes to research. In addition, school administrators observed properly the ethical standards set for them by the authority in handling and supervising their school and subordinates. It can be surmised from the results that school administrators can do well in research if given the opportunity. This conclusion opens more room for improvement to enhance their full potentials in doing research work if they are given more trainings and activities designed for this purpose. Generally, they were competent and can manage well, although they still have to continuously enhance their managerial competence.

***Keywords –***

Research skills, management competence, performance, administrators

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## Sketchup Plumbing Kit

**Angelie P. Lopez**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental

***Abstract:--***

In the construction industry, all pipe fittings merged together with the ducts of electrical and venting system. Problems of pipes clash creates problems in structural preparation. Thus, plan presented in 2D (two dimensional) as a traditional way of plan preparation becomes insufficient. Plumbing problems can affect structural, architectural design and construction time frame. Making plumbing plans and pictorial illustrations at proportional scale in 3D (three dimensional) presentation can help anticipate these problems before installation. This could save time and money but as much as it is very effective to make 3D (three dimensional) presentation, the process of 3D modeling is very time consuming. The study aimed to design a SketchUp Plumbing Kit with the following features; compliant with Philippine standard plumbing materials, organize plumbing fittings and fixtures for easy retrieval, and latest version. A modified research instrument based on existing software standard evaluation was developed, validated, and administered to twentyfive industry practitioners as respondents. The research instrument was aimed at evaluating the acceptability of the SketchUp Plumbing Kit in terms of functionality, reliability, and efficiency. The findings of the study revealed a high level of acceptability rated by the respondents. A user manual for SketchUp Plumbing Kit was developed as guide in using the kit efficiently.

***Keywords:***

sketchup, plumbing kit, technology, 3D modelling plumbing fittings and fixtures

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## Executive Decision Support Management Information System with SMS (Edsmis) towards E-Governance

**Norberto L. Mondero**, Information Systems Program, College of Industrial Technoogy, Carlos Hilado Memorial State College, Talisay City, Negros Occidenta

### ***Abstract:--***

The study aimed to develop an Executive Decision Support Management Information System with SMS for Northern Negros State College of Science and Technology. Specifically, this study sought to determine the usability of the proposed features, verify the speed of transactions and security of data of the proposed Executive Decision Support Management Information System with SMS. Likewise, it aimed to design a system that has adaptable and user-friendly graphical user interfaces for the executives of Northern Negros State College of Science and Technology. Developmental method of the research was employed by the researcher and waterfall software model was used to design the Executive Decision Support Management Information System with SMS. The researcher used the Mean to determine the level of user's experience and performance of the system. The findings revealed that Executive Decision Support Management Information System with SMS is greatly needed in the daily transactions such as report monitoring, updates of travel and cash advances, liquidation notification and retrieval of information basis for decision making. The users believed that through the features of the system, the executives of the school can be able to perform their tasks faster while keeping safe the information for security reasons and future use. It revealed that managing, generating, and summarizing reports, managing school funds in any educational institution becomes faster, easy, secure and comfortable with the intervention of any computerization.

### ***Index Terms***

development, decision support, management, information system, E-governance

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## Pressurized Lubricant Refilling Device

**Ramonito M. Sumanting**, College of Industrial Technology, Carlos Hilado Memorial State College, Talisay City, Negros Occidental Philippines

### ***Abstract:--***

The primary purpose of this study was to develop a pressurized lubricant refilling device and to evaluate the functional dimensions of the project in terms of bleeding operation, oil refilling, and removing air obstruction. Also, this study determines the level of acceptability of the device in terms of design, functionality, portability, durability, and safety. This study used the developmental-descriptive method of research. The modified instrument was administered to thirty (30) respondents comprising of Automotive Teacher/Instructor, Automotive Students, Mechanical Engineers/Industrial Practitioners. The mean and standard deviations was used to treat the data of the. Based on the findings, the three mentioned dimensions got a high level of functionality. The pressurized lubricant refilling device concluded to be functional and operational in terms of bleeding operation, oil refilling and removing air obstruction. The pressurized lubricant refilling device was well accepted, having an excellent and positive response from the respondents highlighting the project's design, functionality, portability, durability, and safety.

### ***Index Terms***

lubricant refilling, oil refilling device, automotive, pressurized



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## Socio-Demographic Assessment of Coastal Communities of Talisay City, Negros Occidental, Philippine

**Mary Grace B. Nacionales**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

***Abstract:--***

The human dimension must play an important role in any coastal resource rehabilitation effort. This makes a socio-demographic assessment necessary as basis for any planned intervention for mangrove rehabilitation/protection. A survey, employing a multi-stage probability sampling method, covered 150 households from puroks/sitios adjacent to the coastline of Talisay City. Results of the study showed that households in the coastal communities are relatively bigger than the average in the country and therefore may pose greater pressures on the coastal environment in terms of degrading effects of human activity. With a relatively young population, the youth is an important sector to consider in planning of activities/interventions. Primary occupation in the area was heterogeneous and only around 11% were directly involved in fishing. A third of the households were below the poverty threshold. Many of them have no security of land tenure in their residential area and are vulnerable to water and fire disasters. Access to basic necessities especially access to clean drinking water was a prevailing problem. Television, followed by radio, is the primary source of news of the households. Based on the results, livelihood should be an important component of the program for mangrove rehabilitation/protection.

***Index Terms***

socio-demographic assessment, mangrove rehabilitation/protection, coastal communities

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## Student Information and Communication Capability and Preference and the Challenges of Online Learning During the Quarantine

**Jose Rabbi B. Malaga**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Mary Gee A. Salbibia**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Abstract:--**

The crisis-induced delivery of online learning did not at all reap the associated educational benefits for students belonging to low-income families and do not have access to ICT and Internet connection. On this ground, the paper determined the ICT capability of students and further explored into the challenges they encountered in adapting to online learning. Using the convergent parallel design, numerical and descriptive data were gathered from 185 students enrolled in Educational Technology 1 during the first semester of the academic year 2020-2021. A validated and reliability-tested instrument was used to gather data. Rigors of findings were ensured using peer briefing and triangulation, code-recode strategy, stepwise replication, thick description, and data checking. The frequency count, percentage, and index score formula was adopted for quantitative analysis. Qualitative data were thematically analyzed. The findings revealed that the students' ICT capability was low. They had a very low level of utilization of the course website and did not have sufficient ownership of and access to ICT. Conversely, the majority of the students were still able to comply with the assigned activities and assignments before and on the deadline. Amid the inadequate ICT and poor connectivity, students living far from school preferred to stay in their hometown and access the instructional materials online or delivered in printed form. The challenges in online learning were associated with the students' lack of skill and access to ICT, unfavorable home environment, and inappropriate delivery of online classes. The college needs to devise interventions to narrow this gap.

**Key Words:**

online learning, ICT capability, Internet access, descriptive, state college

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## Housing Facility and Accommodation of College Students: Inputs for Policy Development

**Jose Rabbi B. Malaga**, Carlos Hilado Memorial State College, Talisay, Negros Occidental, Philippines.

***Abstract:--***

Home circumstances set conditions that influence the educational experience of students. In this light, the current paper looked into the profile and compliance index of the on- and off-campus student housing facility and accommodation (SHFA) for students in a state college. Anchored on the Student Residential Satisfaction (SRS) framework, it adopted a descriptive survey design using 404 student-residents of the college dormitory and boarding houses in the surrounding premises. Data that addressed the research questions were gathered using a validated and reliability-tested survey questionnaire. Index formula, frequency, and percentage were used for the quantitative analyses of data. The findings revealed that the majority of students were renting a housing facility outside the college. Mostly were bed spacers staying in boarding houses that charged 1000 pesos or less as monthly rentals. The housing facilities they occupied were either made of concrete materials or mixed materials. The compliance index of SHFA for students was generally low. The specific item parameters in the areas of location and accessibility, facilities, treatment of boarders, and sanitation earned a moderately high index. Conversely, a low index was obtained in the areas of sanitation and cleanliness, and safety and security. On this ground, the college in cooperation with the local government may instigate responsive efforts that will lead to the improvement of the living condition and the full satisfaction of the residential experience of students availing of SHFA.

***Keywords***

housing accessibility, facilities, sanitation, safety, and security, descriptive, state college

## Self-Esteem and Weight Status of Selected Psychology Students

**Roxanne M. Rivera**, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

### ***Abstract:--***

This study aimed to determine students' weight status and self-esteem of selected Carlos Hilado Memorial State College (CHMSC) psychology students as the basis for a proposed personality development during the school year, 2018-2019. The descriptive correlational research design was utilized in this study. The study was conducted in CHMSC-Talisay Campus. The respondents of this study were 87 Psychology students. The Self-made Self-Esteem Questionnaire was divided into two parts: Part 1 dealt with the personal profile of a respondent's course, year level, age, height, and weight, and Part 2 dealt with self-esteem. The computed mean rating of the jury of experts was 4.24, which was very good and valid. The result for the reliability of the questionnaire is equal to 0.98, which is highly reliable. The statistical tools used in the analysis of data were the mean, T-test, and Pearson R. This research found out that when taken as a whole, the respondents both on higher and lower weight status got a 3.2 mean score which indicates an average level of self-esteem. Also, there is no significant relationship that exists between weight status and self-esteem. This result showed that weight status does not affect the self-esteem of the respondents.

### ***Index Terms***

Self-esteem, Weight Status, Psychology

## Proximate Analysis, Total Phenolic Content, Flavonoid Content, and Antioxidant Potential of *Schizophyllum commune* Ethanolic Crude Extract

**Ricky B. Acanto**, College of Arts and Sciences, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

### ***Abstract:--***

Mushrooms are vital components of the forest ecosystems that play an important ecological role, economic advantage, and provide nutritious food to humans. The study was designed to determine the proximate analysis of a wild and edible mushroom, *Schizophyllum commune*, using the standard protocol. The ethanolic crude extract was analyzed for the total phenolic content (TPC) using the Folin-Ciocalteu method and the total flavonoid content (TFC) using the aluminum chloride. The antioxidant potential was evaluated using the 2, 2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity. Proximate analysis of the sample revealed that apart from moisture content (60.60±0.122%), it has a high amount of bioactive carbohydrates (25.15±0.005%), crude protein content (7.63±0.325%), ash content (6.17±0.001%), crude fiber (0.18±0.032%), and fat content (0.27±0.263%) which worth it to be nutritious food. The final concentration for TPC is 1.27±006 mgGAE/g and TFC is 17.18±0.054 mgRE/g. The extract exhibited a potential antioxidant activity with an IC<sub>50</sub> = 1.39±0.005 mg/mL. The results suggest that the ethanolic crude extract of *S. commune* contains a natural antioxidant potential, which could be used for future applications in food, dietary supplements, and pharmaceutical industries.

### ***Index Terms***

antioxidant, DPPH, flavonoid, phenolic, proximate analysis, *S. commune* s

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## Ice Block Maker Machine

**Mark Dave M. Baylosis**, College of Industrial Technology, Carlos Hilado Memorial State College, Talisay City, Negros Occidental  
Philippines

***Abstract:--***

The study aimed to develop an ice block maker machine. Specifically, the research study aimed to design and construct an ice block maker machine; evaluate the acceptability of an ice block maker machine in terms of performance, efficiency, and safety; and develop a user's guide. This research makes use of the adopted questionnaire. Respondents were chosen based on their field of specialization which compose of 10 industrial practitioners and thirty users. When subjected to evaluation of acceptability, the research study was adjudged to be very satisfactory in terms of the variables' mentioned. It was recommended that a further study will be conducted to assess the performance of the ice block maker machine, its efficiency and safety.

***Keywords***

Ice block, Machine, Performance, Efficiency, Philippines

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## Graded Sewing Pattern Template

**Lylanie H. Rivera**, Industrial Technology Department, College of Industrial Technology, Carlos Hilado Memorial State College, Talisay City, Negros Occidental Philippines

### ***Abstract:--***

The study aimed to design and construct Graded Sewing Pattern Template with the following technical features: accurate marking, exact measuring, precise grading and scaling. The acceptability of the project in terms of usefulness, ease of use, relative advantage, effectiveness, design was also evaluated. The study used the developmental-descriptive method of research. A researcher-made instrument was formulated and administered to sixteen (15) respondents from (5) dressmaking teachers, (5) industry workers, and (5) dress shop personnel. The instrument aimed to evaluate the project's quality dimensions in terms of performance, feature, and durability. Likewise, the instrument was used to determine the technology acceptability of the graded sewing pattern template in terms of usefulness, ease of use, relative advantage, effectiveness, and design. The study results revealed that the graded sewing pattern template was very high in terms of performance. Meanwhile, quality dimension in terms of durability, the respondents rated the graded sewing pattern template as high. The acceptability evaluation of the graded sewing pattern template among 15 respondents in the field if garments sector effectiveness is the highest, followed by design, usefulness, and relative advantage and it implies that the respondents strongly accepted the graded sewing pattern template. Furthermore, exploring other potential materials in its fabrication should be looked into to further improve the project.

### ***Index Terms***

Sewing pattern, template, development, evaluation, functionality

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## Student Credentials Management System

**Ruby Mae J. Morante**, Faculty of the Information Systems Department, College of Industrial Technology, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Judy M. Astodillo**, Information Systems Department, College of Industrial Technology, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

***Abstract:--***

The study aimed to design and develop a Student Credentials Management System focused on improving the manual filing of student credentials through an electronic record-keeping, faster retrieval of credentials for reference and printing, and secure files through electronic back-up. It has the following technical features: student management of documents which include the following process: uploading, saving, downloading, and updating student records, student demographic profile, automatic Short Message Service (SMS) notification for lacking requirements, printing of documents, database backup. This study adopts the developmental-descriptive research method. The respondents of the study were composed of 4 Registrar, 16 Registrar's Staff and 10 IT Experts. The processes involved in the development of the Student Credentials Management system were based on Rapid Application Development (RAD) SDLC Method which consists of four phases such as requirements planning, user design, construction, and cutover. The questionnaire used was based on International Standards for Evaluation of Software Quality (ISO/IEC 25010:2011) to test the level of acceptability of the system in terms of functional suitability; performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. To determine the acceptability of the system, the mean and standard deviation were used. The findings of the study revealed a very high level of acceptability rated by the respondents. A user manual for Student Credentials Management System was developed to provide assistance and guide related to the usage of the software system. It is recommended that the system security will be strengthened such as, inclusion of compatibility, integrating the current enrolment system in the Registrar's Office is recommended.

***Keywords:***

student credentials, credentials management, SMS, RAD, registrar



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## Doing Action Research: The Case of Public-School Teachers

**Herminio P. Remada Jr.**, College of Education, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Analyn S. Misajon**, College of Education, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Fatima S. Eleccion**, College of Education, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

**Ronora S. Malaga**, College of Education, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

### ***Abstract:--***

The Department of Education strives to promote the culture of research to public school teachers as an essential tool for the continuous improvement in the delivery of quality basic education in the Philippines and as a means for professional development. This case study explored the public-school teachers' understanding of action research (AR) and perception of their role as a researcher. It further sought to discover the challenges they encountered in doing AR and their coping methods. Twelve purposively selected public elementary school teachers who met the inclusion criteria were involved as the study participants. In-depth, unstructured interviews were used to gather the data pertinent to address the research questions advanced in the study. The results revealed that the teachers understood action research as an interactive process and a problem-solving strategy. As researchers, they perceived their role as evaluators of learning and reflective problem-solvers. Lack of skill and insufficient resources obstructed them from doing action research. To cope with these challenges, they needed to have focus and become creative.

### ***Index Terms***

action research, public elementary school teachers, challenges, coping, case study

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## Digital Workspace: An Instructional Demonstration Table

**Maricel T. Daradar**, Industrial Technology Department, College of Industrial Technology, Carlos Hilado Memorial State College, Talisay City, Negros Occidental, Philippines

***Abstract:--***

The study aimed to design and construct Digital Workspace: An Instructional Demonstration Table with the following features real-time image projection, accuracy of device integration, and ergonomics and to determine the acceptability of the product in terms of design, functionality accuracy effectiveness and maintainability. The study used the developmental-descriptive method of research. A researcher-made instrument was formulated and administered to sixteen (25) respondents from ICT, Drafting Teachers and Technical Experts. The instrument was used to determine the technology acceptability of the constructed Digital Workspace: An Instructional Demonstration Table in terms of design, functionality accuracy effectiveness and maintainability. The results of the study revealed that the Digital Workspace: An Instructional Demonstration Table was very high in terms of performance. The acceptability of the constructed Digital Workspace: An Instructional Demonstration Table garnered a highly acceptable rating by the respondents in all areas. The item on functionality of the Digital Workspace: An Instructional Demonstration Table garnered the highest mean score followed by design, maintainability, effectiveness, and accuracy. It is recommended by the respondent that accuracy between digital device and mechanical drawing tools should be looked into due to its digital pen thick pointer by searching other digital pen for an accurate drawing output. Mouse and keyboard should be added as features to serve alternative when digital pen failed to function. It is also recommended that Digital Workspace: An Instructional Demonstration Table will not only be used exclusively in Drawing and Drafting subjects but also in other technology specialization, academic subjects and students. Self -installed CPU with high specification should also be provided so that the product will work independently without integration of laptop or tablet. Furthermore, exploring other potential materials in its construction should be looked into and provisions for additional attachments specific to other trades and additional safety features should be undertaken to further improve the product.

***Keywords:***

Digital workforce, design, construct, evaluation, demonstration table

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## Activated Carbon from Organic Waste as Adsorptive Reinforcement Cement Material

**Charlene Jumawan**, Salac Greenworld Architects

**Asst Prof. Jean Marie Juanga**, University of the Philippines, Mindanao

**Abstract:--**

The growing concern of odor problems in developing urban areas in the country has contributed to the development of different techniques to improve the odor quality of the environment especially in building spaces for quality living. The study addresses the idea of integrating organic waste materials, specifically Coconut Shell Activated Carbon (CSAC) into building materials as solution to improve indoor odor quality.

The study identified the integration of Coconut Shell Activated Carbon (CSAC) as an admixture to produce an odor-adsorptive concrete. Throughout the research, the properties of the material such as odor-adsorptive, compressive, and water absorption, of the output material were thoroughly explored through different tests.

Odor Adsorption Test, Compressive Strength Test, and Water Absorption Test was conducted to measure the odor-adsorption rate, maximum compressive strength and structural capacity, and water absorption rate of CSAC concrete, respectively.

Results showed that among the treatments, CSAC Concrete Treatment 3, Class C--with ratio of 1:2:3 (cement: sand: gravel) having 10 kg, 20 kg, 30 kg, respectively with 16 kg CSAC--exhibits the fastest odor adsorption capacity of 5 hours and Treatment 1, Class AA—with ratio of 1:2:4 (cement: sand: gravel) with only 2 kg CSAC as the least odor-adsorptive capacity of 24 hours. With these results, CSAC Concrete is suitable as a solution to minimize odor and improve indoor odor quality in spaces with poor air quality.

## A Feasibility Study on Doctor of Philosophy Majors in Science, Technology, Engineering, and Mathematics (STEM) in a State College in Bicol

**Ronald B. Chavez**, Bicol State College of Applied Sciences and Technology

**Orbel S. Cepeda**, Bicol State College of Applied Sciences and Technology

**Ronnie B. Rubi**, Bicol State College of Applied Sciences and Technology

### ***Abstract:--***

This study aimed to determine the feasibility of offering Doctor of Philosophy major in Science, Technology, Engineering and Mathematics in a state college in Bicol region. It utilised the descriptive research design which involved 103 respondents broken as follows: 45 employees of the College, 26 Master of Arts in Teaching, and 32 graduate-employees from other institutions. A focus group discussion was also employed in the validation and additional insights on the data generated. The data were generated out of a survey questionnaire which was crafted by the researchers which was also subjected for validation. The survey questionnaire employed a 4-point Likert scale with corresponding descriptive ratings of very low to very high. The study showed that offering of the program is feasible based on the 4 parameters/indicators such as, market demand, financial viability, management viability, and operational capability. All of these indicators were found to be the strength of the College, thus, the feasibility of offering the program. Offering of the proposed program greatly supports the institutional mandate of “primarily providing advanced education, higher technological, professional and vocational instruction and training in the sciences, arts, education, entrepreneurship, engineering and other related courses”. Out of the results, it was recommended also to continue the enhancement of its faculty, facilities, and a regular conduct of tracer studies.

### ***Keywords***

PhD-STEM, feasibility study, institutional mandate

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## FEM Simulation of Microcombustor based Thermoelectric Generator by using CFD fluent

**Nikhil R. Wagh**, P.G. Student of final year M.E. Mechanical Engineering, R. H. Sapat College of Engineering, Management Studies and Research, Nashik, India

**Dr. P. B. Nehe**, Associate Professor, Mechanical Engineering, R. H. Sapat College of Engineering, Management Studies and Research, Nashik, India

### ***Abstract:--***

Electricity generation in present comprises shortage of fossil fuels, Oils, gas etc. burning of these fuel causes harmful effect on environment like pollution, global warming etc. Also portable electrical and mechanical devices demand increasing amount of energy. Thermoelectric generator can be good alternative in such case to generate power without pollution with less moving parts and useful for remote areas. The paper represents various aspects in FEM simulation of the Microcombustor based TEG system. Spreader effect is also included in this study. Steady state thermal and nonlinear behavior is analyzed for heat transfer and electric. The Voltage and various other parameter distribution are presented with the help of computational details. Electrically vital parameters are analyzed and presented with the values. The computational details gives total elaboration of Heat transfer process within the system.

### ***Keywords***

CFD, Heat transfer, Microcombustor, Spreader, Thermoelectric

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## Agile Marketing Approaches: Imperatives for Marketing Policy Development

**Priya Sachdeva**, Associate Professor and School Coordinator, Sharda University, Greater Noida, India

**Dileep Kumar M**, Professor, Faculty of Management Studies, Gopal Narayan Singh University, Jamuhar, India

### ***Abstract:--***

Agility has become a central principle of marketing. Serious global events such as the COVID-19 pandemic increase the need for teams to move, evaluate, and adapt quickly. Marketers need a boost as economic conditions change dramatically, people work remotely, and many companies sell only online. Nowadays, one must gain the ability to quickly monitor and identify changes in their market and customer base to respond quickly, change direction, retrain and attract new talent, and constantly measure their impact in real time. The aim of this study is to understand the change in marketing perception brought about by agile marketing and the future implications that it may have on the marketing strategies of firms. The study followed qualitative research with content analysis and systematic literature review to conceptualize the concepts under study and detail the models, theories, benefits, and strategies. This research has shown that agile marketing has brought about positive changes in organisations due to which they are able to get into better collaboration with other firms, better focus, and at the same time, foster long-term innovation. This research has also established the fact that even though Agile marketing is the future of marketing, it cannot work well until and unless the organisations are equipped to handle the changes brought about by it. That is why firms and managers have to step-up and adapt to the changes that are being brought about in the marketing environment. This research would be a basis for researchers, academicians, and brand owners to understand the importance of agile marketing and would help brands and businesses take agile marketing into consideration for effective marketing.

### ***Key words***

Agile marketing, digital technologies, marketing, innovative opportunities



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