



BACHELOR OF SCIENCE *in* CIVIL ENGINEERING LEVEL IV

Video Link: [Research Area AVP](#)



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Cagayan State University Research Agenda

The University's mission encompasses more than just instruction; it also encompasses vital services through research, extension and production programs. While it imparts high-quality education to its students, it simultaneously drives innovation and uncovers new knowledge to meet the evolving demands of our dynamic society. This valuable knowledge is not only refined but also effectively disseminated to the wider community and other stakeholders. These four core functions synergize to uplift the lives of individuals, catalyzing CSU's transformation into a truly globally competitive institution.

As the CSU gears up to strengthen its capability in RDE, it needs to embrace and pursue a new RDE paradigm. The Sustainable Development Goals (SDGs) have broadened development outcomes from merely increasing food supply to include poverty reduction, human nutrition, environmental protection and related issues. Similarly, AmBisyon Natin 2040 is the anchor of the country's plans. It envisions Filipinos to enjoy a strongly rooted, comfortable, and secured life. As a consequence, RDE at CSU must be linked with the country's vision and Cagayan's development goals to gain more relevance and have significant impact.

To help achieve the goals of the university, the RDE Office sets all its activities on research and extension using a research for development (R4D) paradigm.

CSU RDE Framework: The Research for Development (R4D)

As seen on the figure below, the CSU RDE Framework is based on the Instruction, Research and Development and Extension Interface. It is propelled by the technology development process from Technology Generation (TG), Technology Verification (TV), Technology Adaptation (TA), Technology Dissemination (TD), Technology Piloting (TP), to Knowledge for Dissemination (KD) and Technology Commercialization (TC). The generators of technology are the researchers, faculty, students, administrators and research collaborators. TV, TA, TD and TP are conducted at the farmers' level through research cooperators while KD and TC are done at local, regional and national level with industries and communities as adopters.



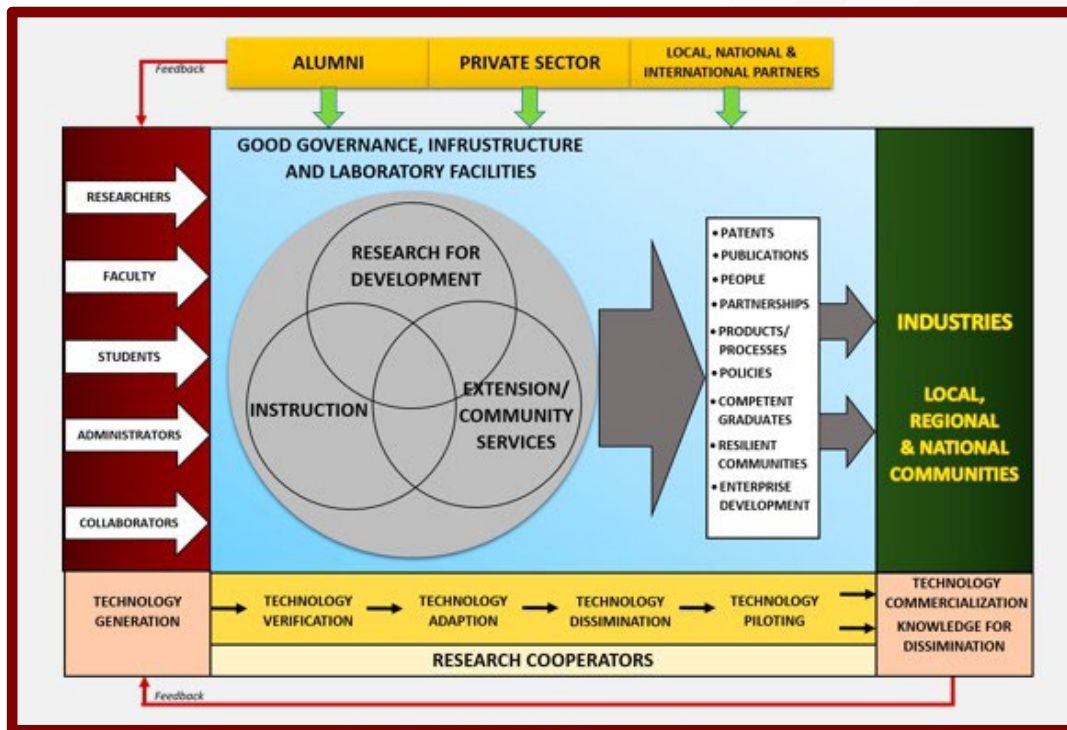


Figure 1. CSU RDE Framework

The Instruction, Research, and Extension mission of the university is equipped with physical infrastructure and laboratory facilities managed by good governance to produce competent graduates, resilient communities, and the 6Ps as deliverables of RDE as well as enterprise development as offshoot of production.

Financial and technical support from alumni, private sector, and from local and international partners would greatly contribute to the intensification of technology development within the university. Likewise, feedbacking is encouraged for the improvement and advancement of technology innovation undertakings in the university.

In the foregoing context, R4D implements RDE programs and projects that has (1) developmental relevance, (2) links RDE with those who can use it; and (3) deploys a variety of approaches and strategies to ensure that the results of its RDE work is used and incorporated into development processes.

R4D links research outputs with development outcomes (e.g., poverty reduction, environmental protection, people empowerment) and priority RDE agenda is formulated with stakeholder engagement. Likewise, RDE thrusts should be based on market demand and inclusive, people-oriented development (IPOD) approaches, and conduct Research for Development (R4D).



RDE Vision, Mission, Goals and Objectives

Vision

CSU as a competitive Center of RDE excellence significantly contributing to the improved quality of life of urban and rural communities in the Cagayan Valley Region.

Mission

To intensively pursue the generation, development, sharing, utilization and application of science-based knowledge, information and innovations for the inclusive agro-industrial development and climate change resiliency of the Cagayan Valley Region.

Goals

Goal 1. To explore science-based and innovative solutions that will result in real impacts to the society.

Goal 2. To address pressing needs of communities for resilience through indigenous and science-based knowledge and technologies.

Goal 3. To engage, capacitate and increase access to appropriate knowledge and technologies for sustainable and secure livelihood and wellbeing of communities; and

Goal 4. To upgrade manpower facilities for resilience.

Objectives

To achieve the above goals, it shall pursue the following objectives:

1. Develop a new RDE agenda, package RDE proposals in line with its banner programs and the priorities of regional, national and international agencies; identify contemporary issues, challenges and opportunities for RDE; and review and assess the outputs, outcomes and impacts of RDE projects in the university.
2. Conduct stakeholders' consultation, need assessment survey, regular multi-sectoral RDE fora and strengthen RDE partnership with regional, national and international agencies.
3. Develop knowledge and technology management information system and intensify technology transfer and commercialization in the university.
4. Intensify applications to intellectual property of technological innovations, creations and inventions in the University.





Road Map

This roadmap sets the direction of University RDE as it commits to fulfilling its purpose and its commitment to Cagayan State University and the community as well.

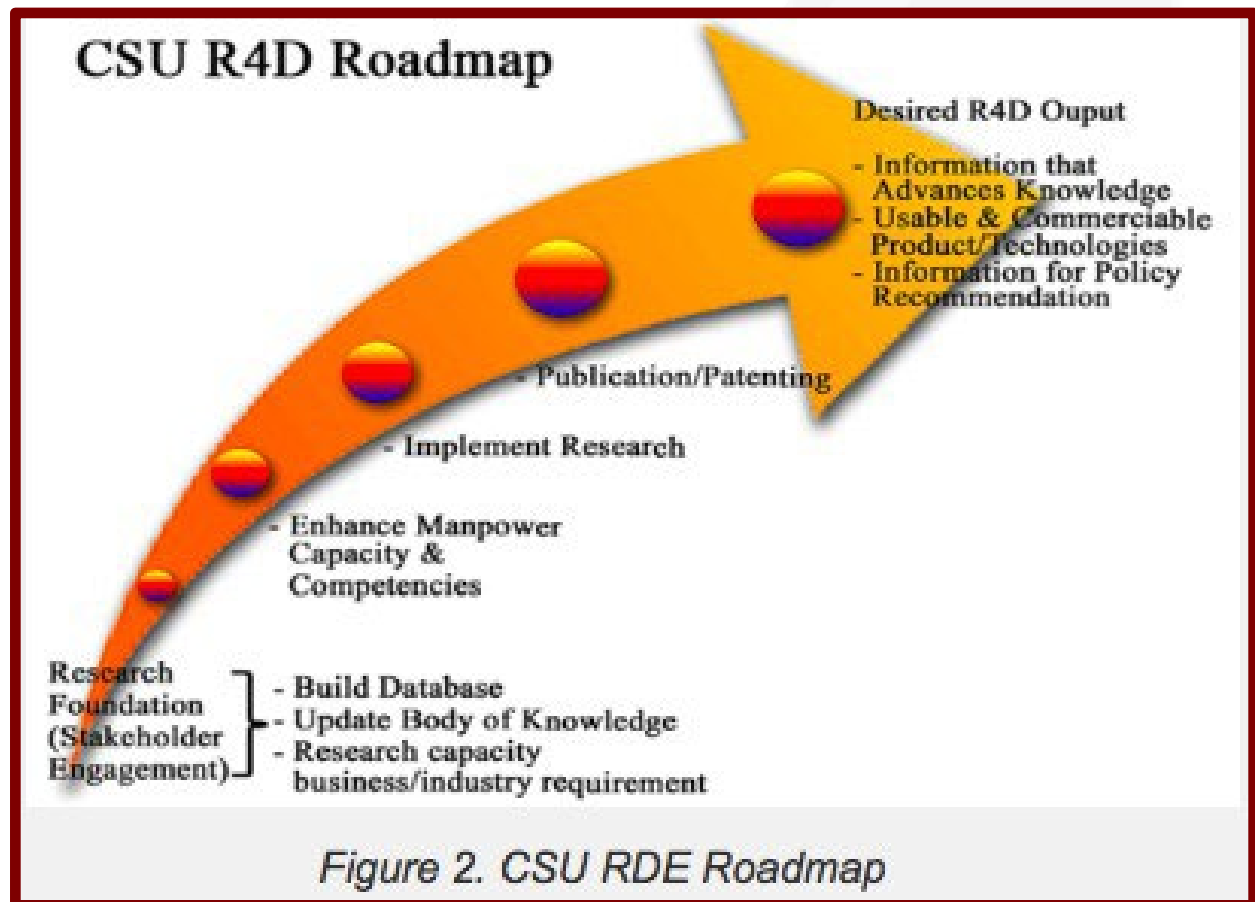


Figure 3. CSU RDE Road Map

RDE Thrust and Priorities

Link: [Resolution no. 161 s. 2024](#)

With the foregoing context, RDE at CSU conducts with strategic local, regional, national and international partners on the following themes:

RDE Thematic Areas

➤ **Food Security, Self-sufficiency and Safety** – This thematic area will respond to the country’s quest for sustainable food security, self-sufficiency and safety. Cagayan being a major food producer and considering the country’s vulnerability to natural calamities and disasters, it is important for people to be assured of available, adequate, affordable and safe food on their table.

➤ **Climate Change** – The Philippines is experiencing warming temperatures brought about by climate change, most especially in the northern and southern regions. These regions (Northern Luzon and Mindanao) have also warmed the most and have dried the most. As climate change significantly affects agriculture and the environment, the National Climate Change Action Plan dealing with mitigation, adaptation, technology exchange and resource sharing will guide CSU’s RDE work on this theme. Considering that climate change



will impact the present and future scenarios, a strategic and holistic RDE approach will be pursued.

- **Environmental Resource Management** – RDE on environmental resource management will ensure that ecosystem services are protected and maintained for equitable use and also maintain ecosystem integrity for future generations.
- **Human Health and Nutrition** – Sound health is fundamental to human life, meeting basic needs and contributing to a productive life. In developing countries like the Philippines, hunger and health risks are aggravated by extreme poverty. Disease and malnutrition are mostly attributable to unsafe water, poor sanitation and hygiene. Many communicable diseases are emerging, so the country has to be prepared with appropriate medication, vaccines and diagnostic kits that are available and affordable to the poor.
- **Disaster Risk Reduction and Management** – This theme will find out ways and means by which communities and local governments can identify, assess and reduce the risks of natural disasters. RDE along this area will help communities reduce socio-economic vulnerabilities to disasters as well as dealing with the environmental and other hazards that trigger them. The shift from prevention and mitigation to preparedness mode in disaster risk management requires a lot of research not only in policy formulation, community development and public awareness but also in hard science (e.g., forecasting, structural engineering).
- **Sustainable Renewable Energy Sources** – Increasing the percentage of indigenous renewable energy source into the national energy mix will not only result in dollar saving and protection of the environment but more importantly, ensuring energy security. The search, development and exploitation of renewable energy sources will involve a multidisciplinary approach.
- **Emerging Technologies** – Emerging technologies are technical innovations on progressive developments within a field for competitive advantage, representing previously distinct fields which are moving towards convergence. These are indispensable in propelling the country to sustainable agro-industrial development. Currently emerging technologies include biotechnology, information technology, nanotechnology, robotics and artificial intelligence.
- **Social Sciences** – Being concerned with society and human nature, the social sciences cut across disciplines and has a pivotal role in societal growth and development. In the context of CSU's RDE programs, the social sciences will cover socio-economics, entrepreneurship, higher education and law and governance.



CSU Carig Campus RDE Goals and Objectives

The CSU Carig Campus RDE has the following goals and objectives:

Goal:

To become a nationally recognized seat of research for development centers as well as research laboratories and service facilities to produce high-value food, energy sources, technical innovations, engineered products, alternative medicines, delivery of laboratory services, address environmental concerns, and address socio-economic and governance issues for global competitiveness.

Figure 4. Campus RDE Goals

Objectives:

1. To develop innovative food and conduct value chain for existing food products to ensure food security.
2. To design, innovate, and fabricate industrial equipment and engineered products for commercialization.
3. To develop cost efficient packaging material for food and non-food products through the Regional Industrial Research and Development Service Centre
4. To introduce Innovative Electronic Vehicle for energy and environmental conservation.
5. To develop natural herb remedies with fewer side effects, well- tolerated by the body and less expensive than synthetic drugs produced by pharmaceutical companies.
6. To be a laboratory service provider in the conduct of biotechnology and animal health researches in the university and other research communities in Region 02.

Figure 5. CSU Carig RDE Objectives



CSU CARIG Campus RDE Agenda

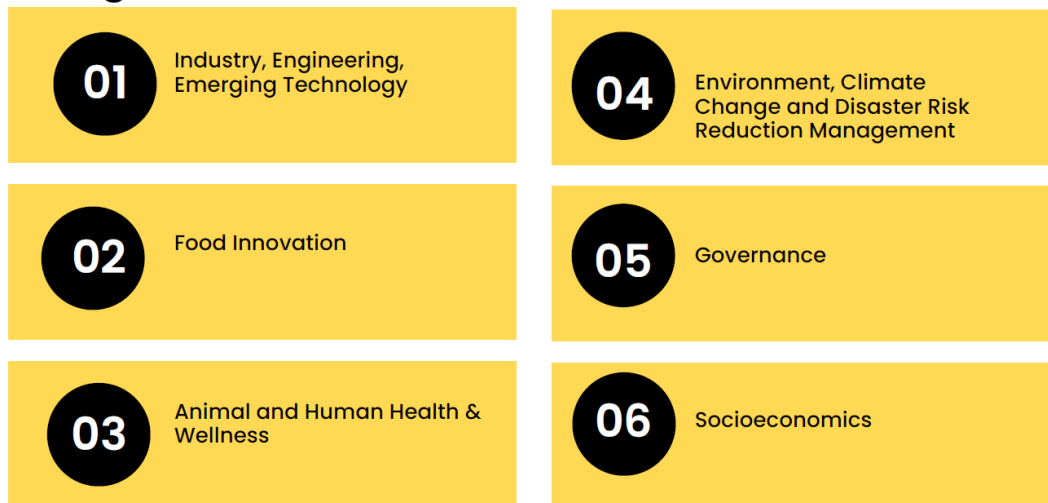


Figure 6. CSU Carig RDE Agenda

Industry, Engineering and Emerging Technology

Industry applies to the activities involved in the collection and processing of raw materials to produce economic goods and services intended for productivity or profit-making enterprise.

Engineering concerns the application of science to the optimum conversion of natural resources for the benefit of humankind and organizations in a safe, efficient, and productive ways.

Emerging Technology involves the continuing development of an existing technology, system, or practice that have significant energy savings potential. Such technology addresses some of society's biggest challenges and help stakeholders to be more innovative, efficient, and productive.

Food Innovation

Food Innovation embraces the developmental process of new food products and production processes to find more nutritious food products. Since innovation is the lifeblood of the food industry, it is essential for ensuring profitability and survival as well as in generating new ideas which meet consumer needs.

Animal and Human Health & Wellness

Human & Animal Health and Wellness cover aspects of maintaining overall health such as physical, mental, and social well-being including wellness which aims to enhance well-being. The active pursuit for holistic health is wellness and it refers to a person's lifestyle choices, such as avoiding risky behaviors, regular exercising, meditating, and having balanced meals. This also applies to animals.



Environment, Climate Change and Disaster Risk Reduction Management

Environment subsume activities to harness nature that influence human life. Protecting our environment is the foundation for sustaining our planet, community, and economy so as not to put the lives of humans, animals, plants more at risk.

Governance

Governance sets the normative standards of development. It fosters participation, ensures transparency, demands accountability, promotes efficiency, and upholds the rule of law in economic, political, and administrative institutions and processes. It is a hallmark of political maturity but also a requisite for growth and poverty reduction.

College of Engineering And Architecture (COEA) RDE Agenda 2023-2028

The CSU-College of Engineering and Architecture (COEA) recognizes its vital role in addressing the pressing challenges facing the Cagayan Valley region and the Philippines as a whole. This Research and Development (R&D) Agenda is anchored on the Sustainable Development Goals (SDGs), the Philippine Development Plan (PDP), and the R&D thrusts and priorities of Cagayan State University (CSU), focusing on Food Security, Climate Change, Environmental Resource Management, Human Health and Nutrition, Disaster Risk Reduction and Management, Sustainable Renewable Energy Sources, and Emerging Technologies. This agenda aims to foster innovation, drive sustainable development, and contribute to the well-being of communities through impactful research and development initiatives:

1. Sustainable and Smart Infrastructure

This theme focuses on designing resilient and modern societal foundations. Research aims to create infrastructure that is both physically robust, drawing from indigenous architecture to withstand disasters, and technologically intelligent, using AI and IoT to make cities more efficient and improve quality of life.

2. Smart and Sustainable Agriculture & Food Security

This theme addresses the challenge of ensuring a stable and nutritious food supply for the region. It applies engineering and technology to the entire agricultural value chain. Research includes precision agriculture systems and innovative post-harvest technologies, like the E-Nutribun, to build a more resilient and efficient food system.

3. Renewable Energy and Electromobility

This theme focuses on transitioning to cleaner energy and sustainable transportation. Research concentrates on harnessing renewable resources like solar power to provide affordable electricity to rural communities. A key focus is developing practical, context-appropriate electromobility solutions, such as the electric tricycle project, to reduce pollution.



4. Materials Innovation and Industrial Development

This forward-looking theme aims to position the College at the forefront of materials science. The research focuses on discovering and applying novel, high-performing, and environmentally sustainable materials. This includes developing eco-friendly construction materials from waste as well as synthesizing advanced materials, like nanomaterials, to support regional industrial growth.

5. Information and Communication Technology for Development

This theme uses modern digital technology to solve pressing societal problems. It involves using AI, machine learning, and mobile systems to create solutions for sectors like healthcare and disaster management. The goal is to develop intelligent systems that improve access to rural services, provide early warnings for disasters, and enhance community safety.

6. Engineering Education and Professional Practice

This theme recognizes graduates as the College's most important product and formalizes research into engineering education itself . It includes critical self-assessment activities like tracer studies and gathering employer feedback to ensure the curricula remain relevant. This research is vital for continuous quality improvement, ensuring graduates are fully equipped for their professional careers.

7. Socio-Technical Systems and Environmental Stewardship

This theme explores the intersection of technology, society, and the environment. It acknowledges that the success of engineering solutions depends on human factors like public perception, cultural values, and social behavior. Research in this area analyzes these social dynamics to ensure projects are not only technically sound but also sustainable and socially responsible.

Table 1. COEA RDE Agenda 2023-2028

University RDE Thematic Areas	Campus RDE Thematic Areas	College RDE Thematic Areas	Researches	Lead Program
Food, sufficiency and Safety	Food Innovations	Smart and Sustainable Agriculture & Food Security	Precision Agriculture Technologies:	ABE, CpE, EcE, ChE, etc.
			Post-Harvest Technology Optimization:	ABE, CpE, EcE, ChE, etc.
			Smart Greenhouse Design:	ABE, CpE, EcE, ChE, etc.
Climate Change, Environmental Resource Management, and Disaster Risk Reduction and Management	Environment, Climate Change and Disaster Risk Reduction Management	Sustainable and Smart Infrastructure	Climate-Resilient Infrastructure Design:	CE, Archi, CpE, GE, ABE, EcE, EE
			Smart City Technologies:	CE, Archi, CpE, GE, ABE, EcE, EE



			Engineering for Disaster Risk:	CE, Archi, CpE, GE, ABE, EcE, EE
Human Health and Nutrition & Sustainable Renewable Energy Sources and Emerging Technologies	Animal and Human Health & Wellness	Information and Communication Technology for Development	AI and Machine Learning Applications:	CpE, EcE, ABE
			ICT for Disaster Risk Reduction:	CpE, EcE, ABE
Sustainable Renewable Energy Sources and Emerging Technologies	Industry, Engineering, Emerging Technology	Renewable Energy and Electro-Mobility	Solar Energy System Optimization:	EE, CpE, EcE, ABE, etc
		Materials Innovation and Industrial Development	Sustainable Building Materials:	EE, CpE, EcE, ABE, etc
			Advanced Materials for Engineering Applications:	EE, CpE, EcE, ABE, etc
Social Sciences	Governance	Engineering Education and Professional Practice		
	Socioeconomics	Socio-Technical Systems and Environmental Stewardship		

College RDE Structure

The College of Engineering and Architecture is led by the Dean, who provides strategic direction and oversight. In order to effectively drive research and extension endeavors, the college appoints two dedicated coordinators. These coordinators play a pivotal role in spearheading projects and activities within the realm of Research, Development, and Extension (RDE). This dynamic team structure ensures that the college's RDE initiatives are efficiently planned, executed, and aligned with its broader academic mission. By leveraging the expertise and leadership of the Dean alongside the coordinators, the college maximizes its potential for meaningful contributions to academia and society at large.



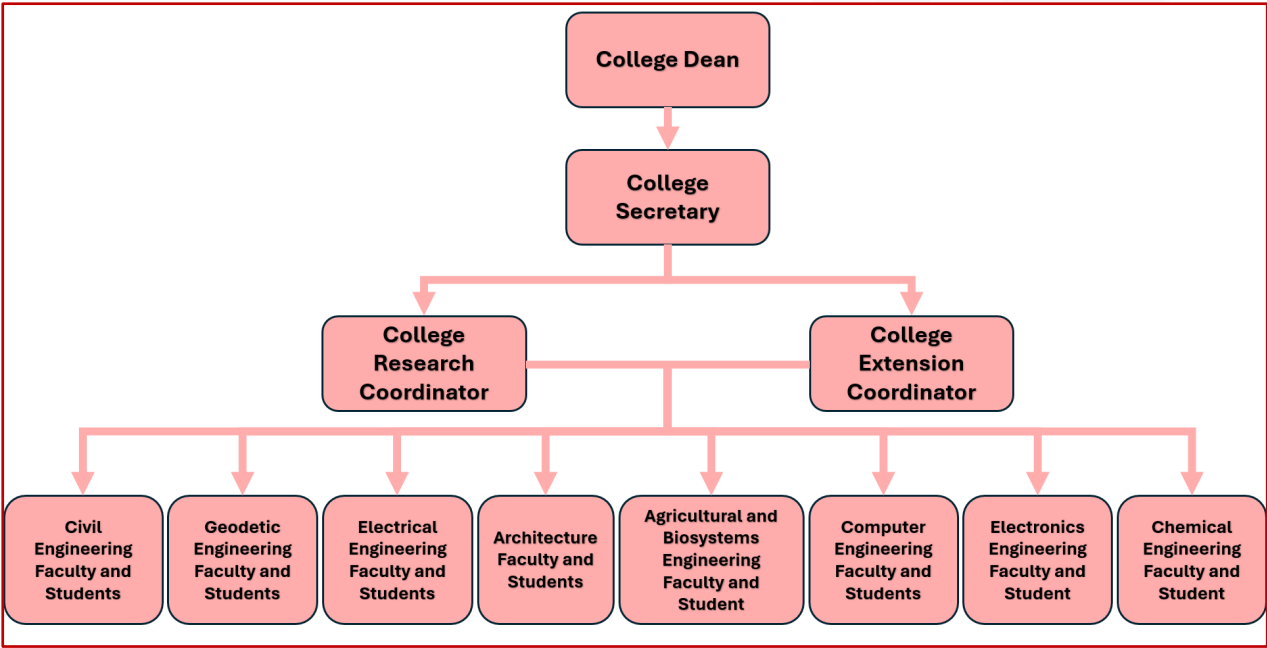


Figure 7. College RDE Structure



College Goals and Program Outcomes

College Goals

Our graduates will be globally competitive leaders in their profession and in the society, radiating the knowledge, skills, wisdom, and values gained for committed service.

Program Outcomes

By the time of graduation, the students of the program shall have the ability to:

1. Apply knowledge of mathematics and science to solve complex civil engineering problems.
2. Design and conduct experiments, as well as to analyze and interpret data.
3. Design a system, component or process to meet desired needs within realistic constraints, in accordance with standards.
4. Function in multidisciplinary and multi-cultural teams
5. Identify, formulate and solve complex civil engineering problems.
6. Understand professional and ethical responsibility.
7. Communicate effectively civil engineering activities with the engineering community and with society at large.
8. Understand the impact of civil engineering solutions in global, economic, environmental and societal context.
9. Recognize the need for and engage in long-life learning
10. Know contemporary issues.
11. Use techniques, skills, and modern engineering tools necessary for civil engineering practice.
12. Know and understand engineering tools necessary for civil engineering practice
13. Understand at least one specialized field of civil engineering project.

Figure 8. COEA Goals and BSCE Program Outcomes



Adequate and Relevant Research Activities to Achieve Objectives

Student Researches

The following tables present a compilation of **124 undergraduate research studies** conducted by students of the College of Engineering and Architecture from 2022 to 2025. These studies represent the direct application of the College's Research, Development, and Extension (RDE) Agenda at the student level, demonstrating a commitment to integrating strategic research priorities into academic and training programs.

A diverse group of **23 faculty advisers** mentored these projects, guiding students in engaging with pressing regional and national challenges. The research is distributed across key engineering specializations, with a significant concentration of studies in the following tracks:

- **Construction Engineering and Management:** This track is the most prominent, with a wide range of studies focusing on project delays, cost management, safety practices, and sustainable construction.
- **Transportation:** This area features numerous studies on traffic flow, public transport satisfaction, road safety, and walkability, particularly within Tuguegarao City.
- **Structural Engineering:** This track includes innovative research on alternative building materials (e.g., sugarcane bagasse ash, PET microflakes), seismic vulnerability, and the design of disaster-resilient structures.

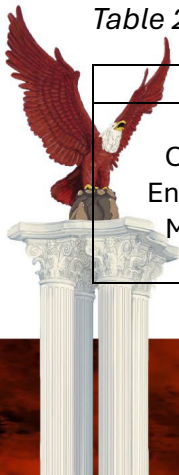
This collection showcases the talent and dedication of our student researchers and serves as a testament to the College's role in cultivating the next generation of engineers and architects capable of developing innovative and practical solutions.

For 2025

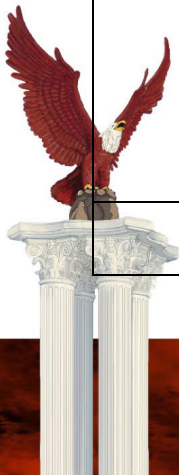
For the academic year 2025, a total of **36 research studies** were conducted by undergraduate students, guided by a dedicated team of **10 faculty advisers**. The research portfolio for this year shows a strong emphasis on addressing contemporary urban and environmental challenges. A significant number of studies are concentrated in the **Transportation** track, investigating topics from passenger satisfaction and bike lane implementation to the optimization of pedestrian facilities and the impact of bypass roads. The **Construction Engineering and Management** and **Structural** tracks also feature prominently, with innovative research on sustainable building materials—such as incorporating sheet moss, sugarcane bagasse ash, and water hyacinth—and advanced project management modeling.

Table 2. Student Research 2025

Track	Title	Researchers	Research Adviser
Construction Engineering and Management	MATHEMATICAL MODEL FOR PRODUCTIVITY OF EXCAVATING OPERATION IN	Frances Angelica J. Domingo, Jericho R. Rosario, Arvin Neil E. Usquisa	Engr. Angelica D. Coballes



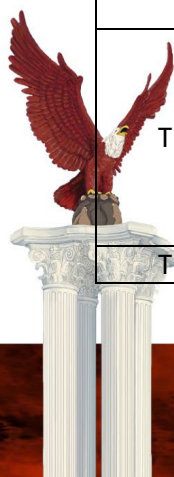
	BUILDING CONSTRUCTION		
Transportation	Factors Affecting Passenger Satisfaction with Tricycle Services in Tuguegarao City	Bryan James T. Tibunsay et.al.	Engr. Emer T. Quezon, Ph.D., M.ASCE
Transportation	Design and Development of Savonius Wind Turbines for Road Lighting Systems: A Sustainable Development Approach for Tuguegarao City	Rovilan A. Palattao et.al.	Engr. Emer T. Quezon, Ph.D., M.ASCE
Transportation	TECHNICAL AND ECONOMIC ASSESSMENT OF BIKE LANE IMPLEMENTATION FOR SUSTAINABLE TRANSPORTATION IN TUGUEGARAO CITY	Joylene D. Dayrit, Kristine D. Garo, Marc P. Pastores	Engr. Emer T. Quezon, Ph. D.
Structural	ASSESSING THE EFFECT OF SHEET MOSS APPLICATION ON THE MECHANICAL PROPERTIES OF LOAD-BEARING CONCRETE HOLLOW BLOCKS	Dexter B. Quintoras, Ilan Aaron Gabriel G. Vidad, Regino M. Viernes	Engr. John Carlo B. Mampusti
Construction Engineering and Management	DECISION-MAKING TRIAL AND EVALUATION LABORATORY (DEMATEL)-BASED SYSTEM DYNAMICS MODELING OF CONSTRUCTION DELAYS IN CAGAYAN STATE UNIVERSITY BUILDING PROJECTS	Ronmark Navarro Angel, Les Paul Zyldian Panelo Lemi, Stephen James Castro Teja	Engr. John Carlo B. Mampusti
Construction Engineering and Management	ASSESSMENT REPORT OF CAGAYAN STATE UNIVERSITY COMPLIANCE WITH ACCESSIBILITY LAW	Shanaia Kate Manuel Asuten, Kimberly Joy Saldivar Maldia, Charlie Lainz Paculguen Jr.	Engr. John Carlo B. Mampusti
Structural	Sugarcane Bagasse Ash as Additives of Ordinary Portland Cement: Its Effects on the Mechanical Properties of Concrete	Michaela D. Arquillo et.al.	Engr. John Michael B. Casibang, CE, MST, SO12
Structural	MECHANICAL PROPERTIES	John Louie B. Bueno, Janmar Christian T.	Engr. Joseph R. Cabalbag



	EVALUATION OF ENGINEERED BAMBOO (Dendrocalamus asper) BEAMS	Aglibao, April Annieka P. Asuncion	
Structural	Proposed Design for a Sustainable Disaster-Resilient Multi-Purpose Evacuation Center in Gadu, Solana, Cagayan	Jessa Marie T. Alabon et.al	Engr. Jowell John B. Talosig
Structural	Performance Assessment of Pet Microflakes in Thermoplastics Road Marking: Specific Gravity, Water Absorption, and Cost Reduction	John Marizz C. Dannug et.al.	Engr. Jowell John B. Talosig
Structural	Seismic Vulnerability Analysis of the Widened Pinacanauan Josefa Bridge, Peñablanca Cagayan Through Fragility Curves	Kristoffer Clores et.al.	Engr. Jowell John B. Talosig
Construction Engineering and Management	Impact of Common Practices on Triple Bottom Line in Construction Among PCAD Contractors in Tuguegarao City	Emma G. Canceran et.al.	Engr. Lemeul Jasper S. Badajos
Construction Engineering and Management	LIFE CYCLE ASSESSMENT OF THE NEW MEDICAL BUILDING IN CAGAYAN STATE UNIVERSITY-CARIG CAMPUS	Charlene Canceran, Vanessa Damaso, Angelina Garania	Engr. Louise Victoria C. Beltran
Structural	DEVELOPMENT OF FIBER BOARD REINFORCED WITH WATER HYACINTH (Eichhornia crassipes) FOR DURABILITY AND THERMAL INSULATION	Francis Joseph Dichoso, Joanna Isabelle Vilorio Pedrajas, Mark Anthony De Vera Sotelo	Engr. Louise Victoria C. Beltran
Structural	PEÑABLANCA LIMESTONE: A PARTIAL REPLACEMENT OF CEMENT IN CONCRETE MIX	Hans David Tindoc Raguirag, Kenneth Bryan Taguibao Abines, Geeno Rabanal Veracion	Engr. Louise Victoria C. Beltran
Transportation	Toward Walkable Cagayan State University, Carig Campus: Evaluation and Design of	Alyssa Marie G. Arellano et.al.	Engr. Ralph Angelo B. Estiller



	Pedestrian Facilities		
Transportation	Impact of Bypass Road on Traffic Flow Characteristic of Existing Road Network: The Case of Amulung Bypass Road	Angelica L. De Castro	Engr. Ralph Angelo B. Estiller
Transportation	Optimizing Parking Availability at CSU Carig Campus using Geographic Information System (GIS) Based Suitability Analysis	Angeline D. Maliwat et.al.	Engr. Ralph Angelo B. Estiller
Transportation	Assessing the Parking Supply and Demand of the Selected Offices in the Regional Government Center	Christine F. Vega et.al.	Engr. Ralph Angelo B. Estiller
Transportation	Walkability Assessment: A Case Study of the Streets Around Mall of the Valley, Tuguegarao City, Cagayan	Diana G. Concepcion et.al.	Engr. Ralph Angelo B. Estiller
Transportation	Modeling Airport Noise Pollution & its Potential Impacts on Public Health: A Case Study of Tuguegarao Domestic Airport	Elaizza Mae Ubina et.al.	Engr. Ralph Angelo B. Estiller
Transportation	Passengers' Satisfaction on the Quality of Service of Tuguegarao City Domestic Airport: A Mixed-Method Assesment	Gilbert John Sabal et.al.	Engr. Ralph Angelo B. Estiller
Transportation	Assessing Public Acceptance of Inland Waterway System as an Alternative Mode of Transport and Its Environmental Impacts	Jejosa Marie B. Lagua et.al.	Engr. Ralph Angelo B. Estiller
Transportation	Effect of Puente de Atulayan Restoration on Traffic Flow: A Simulated Approach using Vissim Software	Jerald T. Bangayan et.al.	Engr. Ralph Angelo B. Estiller
Transportation	Level of Awareness of Road Users on the Use of the Outer Lanes on a Four-Lane Highway: A Basis for Policy Enforcement	Jonathan M. Apolonio et.al.	Engr. Ralph Angelo B. Estiller
Transportation	IMPACTS OF	Justine Lapitan	Engr. Ralph Angelo B.



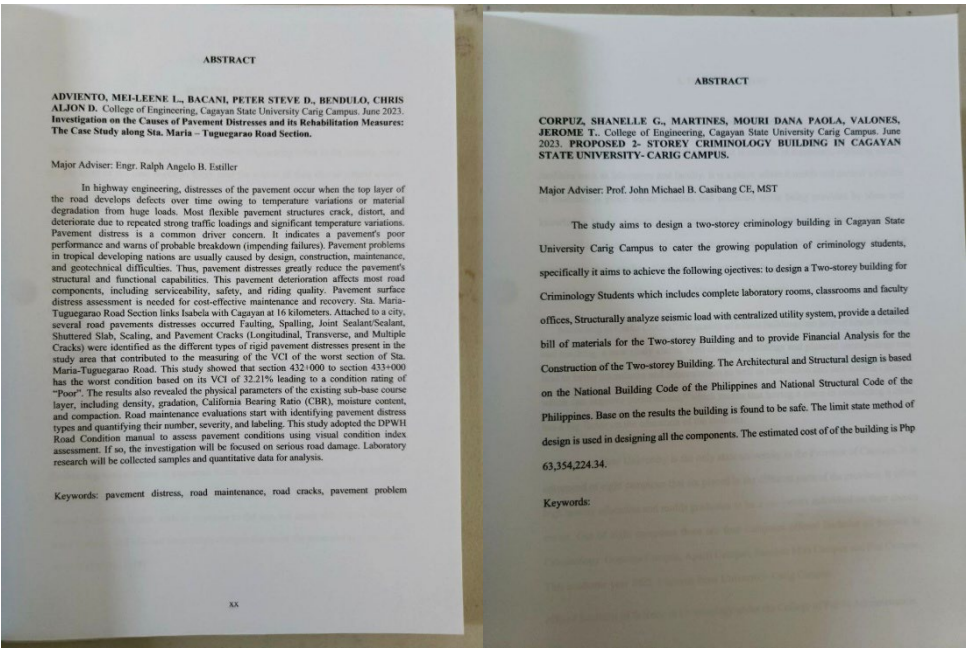
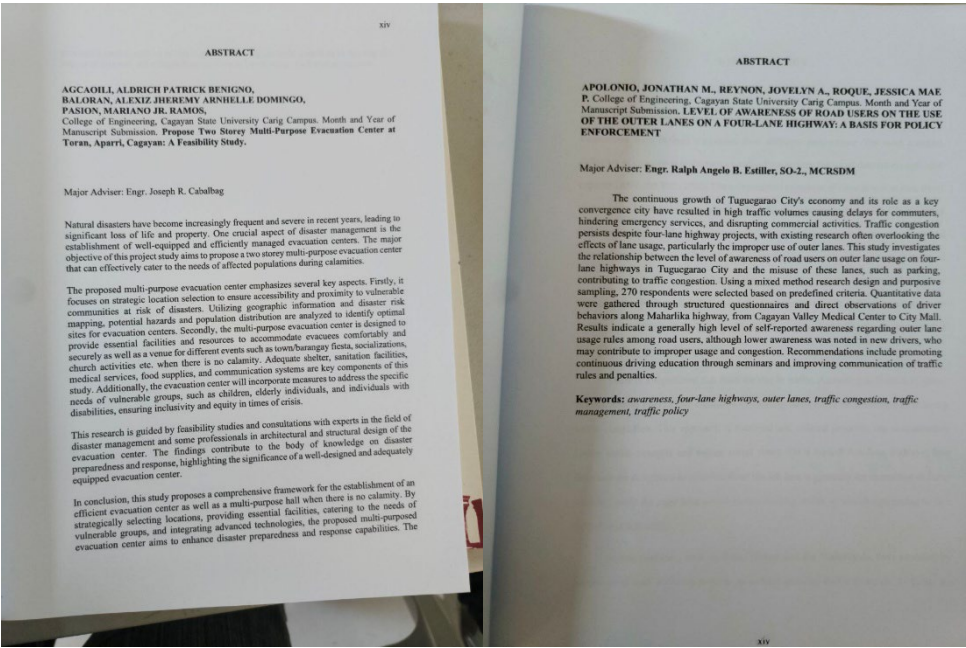
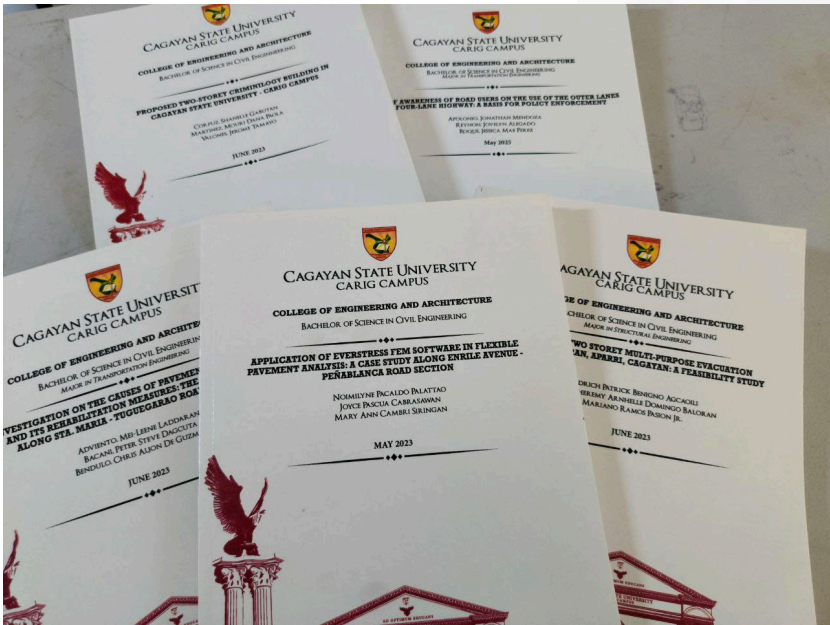
	ROADSIDE TRAFFIC FRICTION ON HIGHWAY EFFICIENCY: A QUATITATIVE STUDY ALONG BONIFACIO STREET, TUGUEGARAO CITY	Ayudan, Justin Bautista Baligod, John Dave Dela Cruz Rivas	Estiller
Transportation	BAMBOO (Bambusa Vulgaris Schrader ex Wendland) ASH AS A MINERAL ADDITIVE FOR HOT MIX ASPHALT TO ENHANCE HOT MIX ASPHALT PORPERTIES	Myco Jay P. Antonio, Jayvee C. Bartolome, Ralph Angel I. Rivera, Renz V. Rodriguez	Engr. Ralph Angelo B. Estiller
Transportation	Effect of Pedestrian Overpasses on Traffic Flow and Pedetrian Movement: A Case Study of Tuguegarao City	Paul Leonard S. Molina et.al	Engr. Ralph Angelo B. Estiller
Structural	Proposed Design of Four-Storey Energy-Efficient Parking Building at Cagayan State University - Carig Campus	Julian Jerald S. Casibang et.al.	Engr. Ralph S. Reyes
Structural	PROPOSED THREE-STOREY SCHOOL BUILDING WITH FOUR CLASSROOMS AND STUDY HALL AT CAGAYAN STATE UNIVERSITY CARIG CAMPUS	Joy Dayag, Jhona Mae Patubo Aguinawang, Irelle Vivien Balansi Bawagan	Engr. Ronie M. Piedad
Structural	A Proposal for a Three-Storey Climate-Resilient Training Center at CSU-Aparri Campus-Buguey Extension	Resty G. Chilagan et.al	Engr. Ronie M. Piedad





BACHELOR OF SCIENCE IN CIVIL ENGINEERING 4TH SURVEY VISIT

Documentation of Hardbound Student Research



Published Faculty Researches of BS in Civil Engineering Faculty and Other Programs in the College of Engineering and Architecture

Table 3. Publication of Faculty Members in Refereed Journals

Authors	Title of Project/Study	Referring Journal	Year	DOI
Arthur G. Ibanez Anderson G. Gonzaler Edmund Dela Cruz Jr. Ralph S. Reyes Audy R. Quebral	Assessment of Traditional Ivatan Houses: The Case of Itbayat, Batanes, Philippines (Addressing Perspective of SDG 11)	Journal of Lifestyle and SDG Reviews	2025	https://doi.org/10.47172/2965-730X.SDGsReview.v5.n01.pe04707
Arthur G. Ibanez Anderson G. Gonzaler Edmund Dela Cruz Jr. Ralph S. Reyes Audy R. Quebral Jeferson Abiva Rafael G. Irorita	Savaxay: An Assessment of a Traditional Ivatan House the Case of Teresita Nobleza House in Brgy: Raele, Itbayat, Batanes (Addressing Perspective of SDG 11)	Journal of Lifestyle and SDG Reviews	2025	https://doi.org/10.47172/2965-730X.SDGsReview.v5.n01.pe04709
Arthur G. Ibañez, Anderson G. Gonzales, Ralph S. Reyes, Audy R. Quebral, Jeferson M. Abiva, Levi John Baclig, Antonio Lubbui, Kelvin John Baldovino, Djovi R. Durante, Florentina S. Dumlao, Eduardo Delfin, Rico-Cresencio Manud	Indigenous Roofing and Re-Roofing Technology of Traditional Ivatan House Practiced in Uyugan, Batanes, Philippines: Addressing Perspective of SDG 11	Journal of Lifestyle and SDG Reviews	2025	https://doi.org/10.47172/2965-730X.SDGsReview.v5.n01.pe04708
Anderson G. Gonzales	Professional learning community and	Journal For Educators, Teachers and	2023	Professional Learning Community And Institutional Organizational Performance Of A Public Higher Education Institution In Region 02



	institutional organizational performance of a public higher education institution in Region 02 Philippines	Trainers		Philippines Journal for Educators, Teachers and Trainers
Anderson G. Gonzales	Organizational Systems Thinking and Professional Learning Community of Faculty Members of a Public Higher Education Institution in Region 02	Journal For Educators, Teachers and Trainers	2023	Organizational Systems Thinking and Professional Learning Community of Faculty Members of a Public Higher Education Institution in Region 02 Journal for Educators, Teachers and Trainers

Paper Presentations of BS in Civil Engineering Faculty (and other programs) in National and International Conferences

Table 4. Papers Presented in International and National Conferences in 2022-2025

Authors	Title	Presented at
Arthur G. Ibanez Anderson G. Gonzalez Edmund Dela Cruz Jr. Ralph S. Reyes Audy R. Quebral	Assessment of Traditional Ivatan Houses: The Case of Itbayat, Batanes, Philippines (Addressing Perspective of SDG 11)	2024 International Conference on Prairie and Indigenous Knowledge in Agriculture, Agriculture, Education, Culture & the Arts and Health (PIKAECAH)
Arthur G. Ibañez Buencamino Martin, Mark Anthony Ibañez	Design, Development and Fabrication of Ergonomic and Lightweight e-trike Chassis and Suspension	2024 WURI Global Conference
Ralph Angelo Estiller	Impacts of Extreme Flooding Event on the Volume-to-Capacity Ratio of Major Road Networks: The Case of Tuguegarao City	2024 The International Conference on UN SDG’s and Social Innovation
Ralph Angelo Estiller	Assessment of Road Infrastructure Facilities, Public Transport Barriers and Challenges for Persons with Disabilities in the Province of Cagayan	2nd International Research and Innovation Conference on Education, Engineering, and Agriculture
Emer T. Quezon	Application of System Dynamics Model in Simulating 'Good' and 'Poor' Case Scenarios of Road Construction Labor Productivity Rate	2nd International Research and Innovation Conference on Education, Engineering, and Agriculture



	and Work Done Over Time	
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2024 International Conference PIKAECAH Paper Presentation by

Engr. Ralph S. Reyes

The award-winning presentation, "Assessment of Traditional Ivatan Houses: The case of Itbayat, Batanes," provided a comprehensive technical analysis of the houses' structural integrity. This study is a key part of the larger CSU-DOST Ivatan Houses Project led by Dr. Arthur G. Ibañez. The research examined components like foundations, stone walls, and roof systems, highlighting the sophisticated and resilient engineering principles of indigenous Ivatan architecture.



Figure 9. Paper Presentation by Engr. Ralph Reyes

CSU Electromobility Project Gains International Recognition at WURI

Global Conference

OIC-President Arthur G. Ibañez presents Cagayan State University's (CSU) Electromobility Research Project at the World University Rankings for Innovation (WURI) Global Conference (WGC 2024) in Seoul, Korea, on September 29, 2024. The DOST-supported project , presented under the "Industrial Application" category, received significant international praise for its innovative use of sustainable and eco-friendly materials. This participation is a strategic step for CSU's internationalization, enhancing global partnerships and leading to Dr. Ibañez's appointment to the Board of Directors for the World University Network for Innovation (WUNI)-Presidents.



Figure 10. Engr. Arthur Ibañez Presenting

Paper Presentation at 2024 ICUNSSI

Engr. Ralph Angelo B. Estiller is awarded a Certificate of Appreciation for presenting his paper, "Impacts of Extreme Flooding Event on the Volume-to-Capacity Ratio of Major Road Networks: The Case of Tuguegarao City," during the 2024 International Conference on UN SDGs and Social Innovation (ICUNSSI) at MSU-Iligan Institute of Technology.



Figure 11. Certificate of Engr. Ralph Angelo Estiller



Paper Presentations at 2nd IRICEEA

Engr. Ralph Angelo B. Estiller, Co-Adviser of the TSSP-CSUC, presents his research paper, "Assessment of Road Infrastructure Facilities, Public Transport Barriers and Challenges for Persons with Disabilities in the Province of Cagayan," at the 2nd International Research and Innovation Conference on Education, Engineering, and Agriculture.

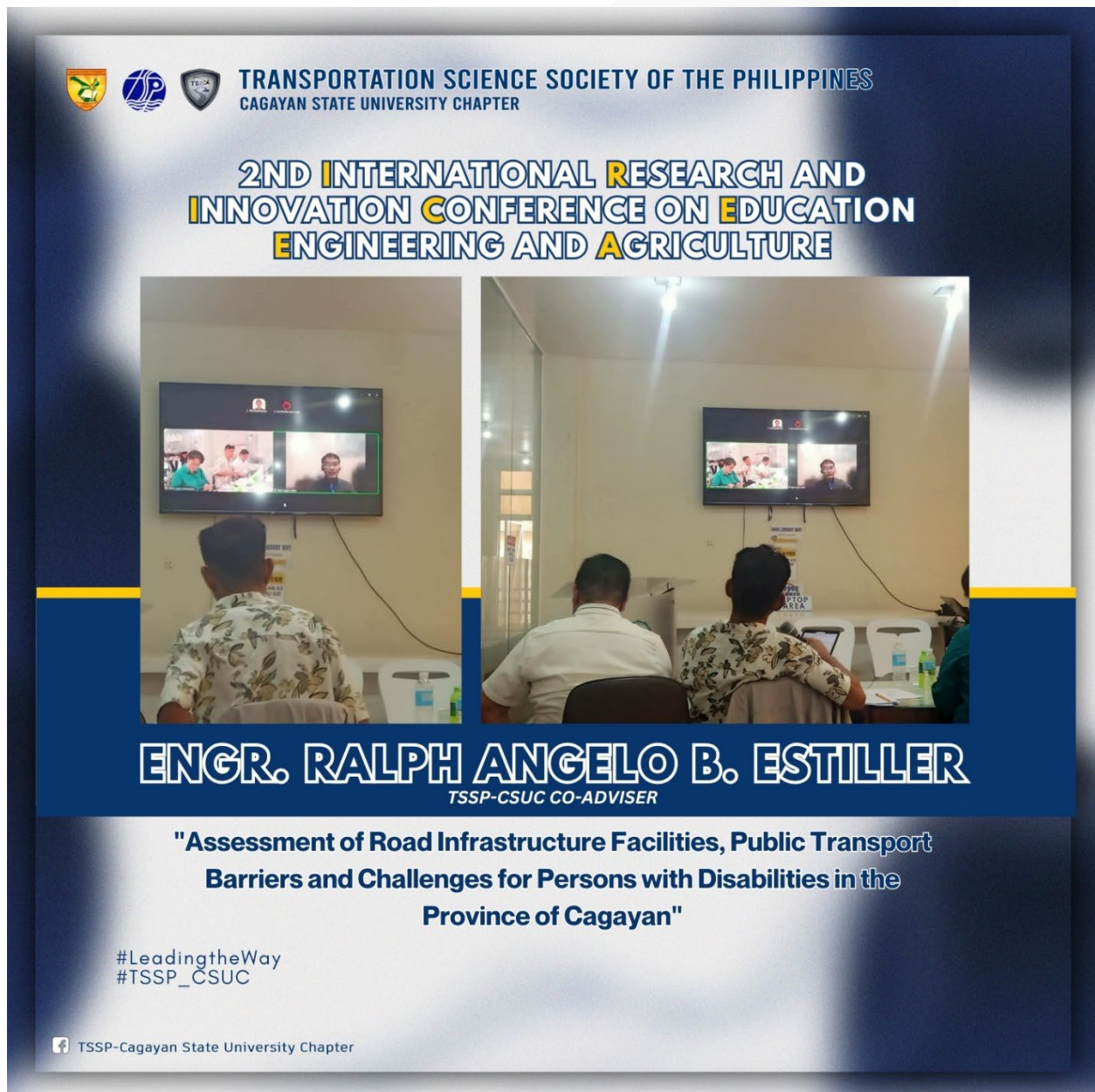


Figure 12. Engr. Ralph Angelo Estiller Presenting his Paper Online

Dr. Emer T. Quezon, TSSP-CSUC Adviser, presents his paper, "Application of System Dynamics Model in Simulating 'Good' and 'Poor' Case Scenarios of Road Construction



Labor Productivity Rate and Work Done Over Time," at the 2nd International Research and Innovation Conference on Education, Engineering, and Agriculture (IRICEEA 2024)



TRANSPORTATION SCIENCE SOCIETY OF THE PHILIPPINES
CAGAYAN STATE UNIVERSITY CHAPTER

2ND INTERNATIONAL RESEARCH AND INNOVATION CONFERENCE ON EDUCATION ENGINEERING AND AGRICULTURE

IRICEEA 2024
INTERNATIONAL RESEARCH AND INNOVATION CONFERENCE
EDUCATION ENGINEERING AGRICULTURE
THE FUTURE OF SUSTAINABLE DEVELOPMENT:
TRENDS IN EDUCATION, ENGINEERING, AND AGRICULTURE
Organized by
DECEMBER 2024
CAGAYAN STATE UNIVERSITY CONVENTION CENTER
San Fernando City, La Union, Philippines

DR. EMER T. QUEZON
TSSP-CSUC ADVISER

"Application of System Dynamics Model in Simulating 'Good' and 'Poor' Case Scenarios of Road Construction Labor Productivity Rate and Work Done Over Time"

#LeadingtheWay
#TSSP_CSUC

TSSP-Cagayan State University Chapter

Figure 13. Engr. Emer T. Quezon Presenting his Paper



Completed Research of BS in Civil Engineering Faculty

Table 5. List of Completed Research of BS in Civil Engineering Faculty

Authors	Title of Program/Project Study	Fund Source	Approved Budget
Arthur G. Ibanez Denis Policar Johnmel Callueng	Development of Food Product from DOST Developed Food Processing Equipment Utilizing Cagayan Valley Local Resources (Development and Evaluation of Shelf-Stable Ready to Eat Carabao Bittew Stew or Papaitan In Pouch	DOST – PCIEERD	500,000.00
Arthur Ibañez, Policarpio L. Mabborang, Jr., Dennis Bacuyag,	Impact Assessment of the different programs and services provided to the 3 managed DSWD-FO2 Center -Based Facilities Impact Assessment on programs and services provided by the Cagayan valley regional rehabilitation center for the youth of DSWD FO2	DSWD	280,000.00
Program Leader: Arthur G. Ibanez, Laura Lintao, Jennilyn Acupan, Florence Querubin	EMRDC Study 5 – Supply Chain Management Manufacturing Process and financial viability of the e-trikes manufacturing industry in region 02 – 1,331,912.00	DOST – PCIEERD	P1- 34,985,280.00
Roger P. Rumpon, Arthur G. Ibanez, Audy Quebral	Upgrading the Greenhouse facilities for high value commercial crops at csu carig campus	DA-ACEF	5,000,000.00
Arthur G. Ibañez Buencamino Martin, Mark Anthony Ibañez	Design, Development and Fabrication of Ergonomic and Lightweight e-Trike Chassis and Suspension Study 1: Design, Development and Fabrication of Ergonomic and Lightweight e-trike Chassis and Suspension	DOST – PCIEERD	34,985,280.00
Roger Rumpon, Bryan Lacambra, Mark Cabaddu, Reynaldo Verbo, Arthur Ibañez, Florichel Mae S. Wanya	Design, Fabrication, and Testing of Essential Oil Extractor for Quality Production of Essential oils from fruit Wastes	Fund 101	90,000.00
Arthur G. Ibañez	Assessment, Development and Preservation for Typhoon and Earthquake -Resilient Ivatan Houses Study 1: Assessment of the Ivatan House Structural Design Covering Foundation, Concrete Wall, Wood Framing, Roof System, Mechanical Fastener, Concrete and Masonry, Shear and Moment Diagrams, and Beam Equation	DOST-PCIEERD	10,316,808.00
Arthur G. Ibanez, Denis Policar, Nora Garcia	Sustainable Use of Squash to Attain Improved Nutrient of E-Nutribun (SUSTAIN E-Nutribun) with HITS equipment at FIC 02	DOST-R02	1,073,260.00
Anderson Gonzales, Cyrus Kelly Macabangon, Dexter Dumayag	Correlates of Students' Beliefs on Environmental Protection	Fund 164	
Mark Anthony Ibanez	Assessment of Electrical Energy	GAA	7,000



	Consumption of CSU Andrews Campus: Input to Energy Policy Formulation		
Emer Quezon, Arthur Ibañez, Frances Lorane Calapini, Ralph Angelo Estiller, John Michael Casibang, Jowell John Talosig, Angelica Coballes, Leomar Juliano	Assessment of Road Infrastructure Facilities, Public Transport Barriers and Challenges for Persons with Disabilities in Cagayan	GAA	50,000.00

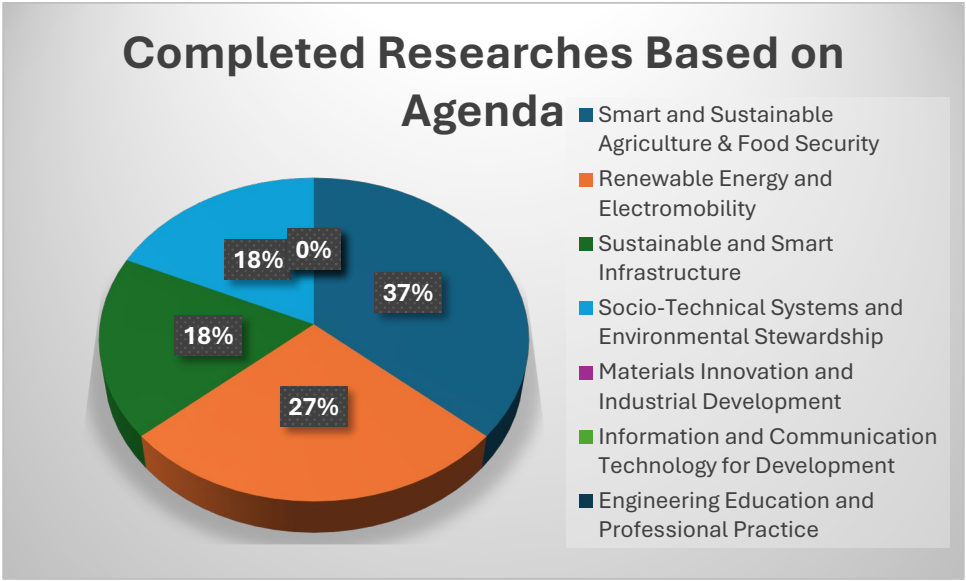


Figure 14. Percentages of Completed Research Based on College RDE Agenda

Copyrighted and Patented Designs of the BS in Civil Engineering Faculty

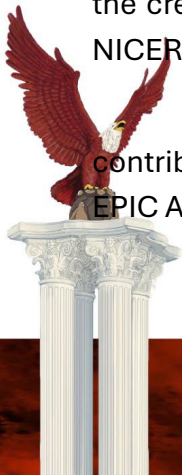
Cagayan State University has achieved a major milestone in its research and development efforts, securing two significant patents from the Intellectual Property Office of the Philippines (IPOPHL). These patents recognize the university's technological breakthroughs in the field of sustainable transportation.

Newly Granted Patents this 2025

The two granted inventions are for a "Lightweight Body Structure for an Electric Three-Wheeled Vehicle" and a "Chassis Frame for Electric-Driven Three-Wheel Vehicle."

These patents are the direct result of years of dedicated research under CSU's flagship electromobility program. This initiative not only led to the design and engineering of core vehicle components, from the motor to the chassis, but also spurred the establishment of the CSU Electromobility R&D Center. The program's success was further demonstrated by the creation of the first locally built 6-passenger e-trike, a project supported by the DOST NICER program.

The university's excellence in project implementation and its significant contributions to the field were ultimately recognized with the prestigious DOST-PCIEERD EPIC Award in 2025.





INVENTION PUBLICATION TITLE:
*Chassis Frame for Electric-Driven
Three-Wheel Vehicle*



Intellectual Property Center, 28 Upper McKinley Rd.
McKinley Hill Town Center, Fort Bonifacio, Taguig City 1634 Philippines
Tel. No. 238-6300 Website: <http://www.ipophil.gov.ph> e-mail: mail@ipophil.gov.ph
Volume 28 Number 5
Date Released: January 13, 2025

[19]	INTELLECTUAL PROPERTY PHILIPPINES		
[12]	INVENTION PUBLICATION		
[21]	Application Number:	1/2023/050402	Document Code: A1
[22]	Date Filed:	06/07/2023	
[54]	Title:	CHASSIS FRAME FOR ELECTRIC-DRIVEN THREE-WHEEL VEHICLE	
[71]	Applicant(s):	Cagayan State University (PH)	
[72]	Inventor(s):	IBANEZ, Arthur G(PH): DUMLAO, Florentina S(PH): MARTIN, Buencamino C(PH): ROJO, Julius T(PH): LACAMBRA, Bryan T(PH): IBANEZ, Mark Anthony S(PH)	
[73]	Assignee(s):	NONE	
[74]	Attorney / Agent:	LASAM, Norman Clarence T	
[30]	Priority Data:	NONE	
[51]	International Class 8:	B60B 11/00; B62D 21/00	

***Inventors:** Arthur G. Ibañez, Florentina S. Dumalo,
Bunecamino C. MARTin, Bryan T. Lacambra,
Mark Anthony S. Ibañez*

CAGAYAN STATE UNIVERSITY

Office of the Knowledge & Technology Management and Publication

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Figure 15. Chasis Frame For Electric-Driven Three-Wheel Vehicle Intellectual Property Invention Publication





INVENTION PUBLICATION TITLE:
Lightweight Body Structure for an Electric Three-Wheeled Vehicle



Intellectual Property Center, 28 Upper McKinley Rd.
McKinley Hill Town Center, Fort Bonifacio, Taguig City 1634 Philippines
Tel. No. 238-6300 Website: <http://www.ipophil.gov.ph> e-mail: mail@ipophil.gov.ph
Volume 28 Number 5
Date Released: January 13, 2025

[19]	INTELLECTUAL PROPERTY PHILIPPINES		
[12]	INVENTION PUBLICATION		
[21]	Application Number:	1/2023/050403	Document Code: A1
[22]	Date Filed:	06/07/2023	
[54]	Title:	LIGHTWEIGHT BODY STRUCTURE FOR AN ELECTRIC THREE-WHEELED VEHICLE	
[71]	Applicant(s):	CAGAYAN STATE UNIVERSITY (PH)	
[72]	Inventor(s):	IBÁÑEZ, Arthur G(PH); DUMLAO, Florentina S(PH); ANCHETA, Je M(PH); BANGAYAN, John Carlo B(PH); IBÁÑEZ, Jennifer B(PH); VERBO, Reynaldo Jr. C(PH); FURIGAY, Lamberto B(PH)	
[73]	Assignee(s):	NONE	
[74]	Attorney / Agent:	LASAM, Norman Clarence T	
[30]	Priority Data:	NONE	
[51]	International Class 8:	B60N 2/00; B61F 1/14	

Inventors: Arthur G. Ibañez, Florentina S. Dumalo, JC M. Ancheta, John Carlo B. Bangayan, Jennifer B. Ibañez, Reynaldo C. Verbo Jr., Lamberto B. Furigay

CAGAYAN STATE UNIVERSITY

Office of the Knowledge & Technology Management and Publication

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Figure 16. Lightweight Body Structure For Electric-Driven Three-Wheel Vehicle Intellectual Property Invention Publication

CSU Engineering Innovation Gains Intellectual Property Protection

Cagayan State University has successfully secured intellectual property rights for an innovative construction technology developed within its College of Engineering. On March 12, 2024, the Intellectual Property Office of the Philippines (IPOPHL) officially accorded a filing date for the invention titled "C-01: 6" CHB MASONRY WALL WITH DOUBLE STONE WALL CLADDING."

This document, an "Acknowledgement and Accordance of Filing Date" from the IPOPHL Bureau of Patents, confirms that the university's patent application for the invention is now formally on record. The filing marks a critical step in protecting the novel design, which was examined and found to have complied with the necessary requirements under the IP Code of the Philippines.

The invention represents a significant output of the university's focused research in disaster-resilient infrastructure, a key theme in its Research and Development Agenda. By securing this filing date, Cagayan State University not only safeguards its intellectual creation but also paves the way for the potential commercialization and widespread adoption of a technology designed to enhance the durability and safety of building



constructions. This achievement underscores the university's commitment to translating engineering research into tangible solutions with practical applications.



INTELLECTUAL PROPERTY
OFFICE OF THE PHILIPPINES
INTELLECTUAL PROPERTY OFFICE OF THE PHILIPPINES
BUREAU OF PATENTS
Intellectual Property Center
No. 28 Upper McKinley Road,
McKinley Hill Town Center,
Fort Bonifacio, Taguig City
Tel. No. +632 7238-6300
Website: <http://www.ipophil.gov.ph>

Mr. LASAM, Norman Clarence T.
CARITAN SUR, 3500,
TUGUEGARAO CITY, Cagayan,
Philippines
csu_ipmo@csu.edu.ph

Digitally Signed by IPO Philippines
22/04/2024
Benjamin S. Eder

FORM NUMBER	IPOPHL-BOP-INV-ACC-04	ED: 01.07.2023
PAPER NO.	3	
IN-SERVICE E-MAIL ADDRESS	csu_ipmo@csu.edu.ph	
MAILING DATE : [mailingdatehere]		

Application Type/No:	Invention 1/2024/050136	Filing Date:	12 March 2024 (12.03.2024)
Applicant:	CAGAYAN STATE UNIVERSITY (PH)		
Title:	C-01: 6" CHB MASONRY WALL WITH DOUBLE STONE WALL CLADDING		
Division:	Inventions (CGEED)	Patent Examiner:	Cresente R. Mascariña, Jr.

ACKNOWLEDGEMENT AND ACCORDANCE OF FILING DATE

Applicant's request for grant of Philippine Patent filed on 12 March 2024 is hereby acknowledged and marked as Paper No. 1. Submission of electronic copies of the (description, abstract, claims, drawings, Appointment of Resident Agent/Proof of Authority) is acknowledged and entered on record.

Applicant's payment of Php 5,332.80 for (filing fee, first publication fee, request for substantive examination, recordal of assignment, and 1% legal research fund) made on 19 March 2024 is also acknowledged.

This application has been examined as to the filing date requirements. The following are the finding/s of the Examiner made in view of R.A. 8293 (IP Code) as amended and its 2022 Revised Implementing Rules and Regulations.

1. FINDINGS

1.1 After due consideration, the present application appears to have complied with the requirements as provided in Rule 600 of the 2022 Revised IRR. Thus, this application is now considered **COMPLETE** under the aforesaid section.

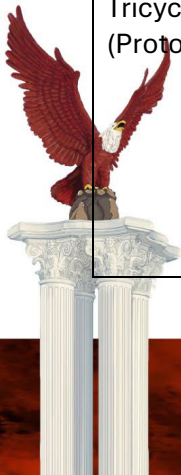
The filing date of this application has been accorded on 12 March 2024 and is the same with the date of receipt of the above-mentioned requirements (Rule 601).

Figure 17. CHB Masonry Wall With Double Stone Wall Cladding (Utility Model Application)

Other Patents and Copyrights

Table 5. Copyrights and Patents for E-trike Project

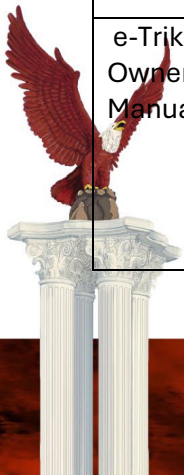
Name of Output/Inven tion Creative Work	Categor y	Researchers/Inve ntors	Date Register ed	Patent Number	Status
Electric Tricycle Body (Prototype 1)	Industri al Design	ARTHUR G. IBAÑEZ FLORENTINA S. Dumlao JC ANCHETA JOHN CARLO B. BANGAYAN ALI C. PILLOS JENNIFER	July 18, 2023	Industrial Design 3/2023/050743	Electric Tricycle Body-ID For amendment



		IBANEZ REYNALDO VERBO LAMBER FURIGAY			
Electric Tricycle Body (Prototype 2)	Industrial Design	ARTHUR G. IBAÑEZ FLORENTINA S. DURLAO JC ANCHETA JOHN CARLO B. BANGAYAN ALI C. PILLOS JENNIFER IBANEZ REYNALDO VERBO LAMBER FURIGAY	July 18, 2023	Industrial Design 3/2023/050744	Proto 2- 3-2023-50744_Formality examination report_B-2023-41403.pdf For amendment
Battery Mounting Structure	Utility Model	Arthur G. Ibañez, Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia- Banguibang	July 07, 2023	U10075M07MP20 23R7	BATTERY MOUNTING STRUCTURE.pdf For Amendment - Update as of 081225
Propulsion System for an Electric Three- wheeled Vehicle	Utility Model	Arthur G. Ibañez, Florentina S. Dumlao Marc Angelo Cabaddu Lemuel B. Purisma Philip V. Madrigo Gerald Telan Goldwyn G. Antonio	July 06, 2023	FR507ZB06BP20 233F8	Acknowledgement .pdf
Assembly and Disassembly Manual of the Electrical and Electronic Components of the Composite Body e-Trike	Copyrig hts	Arthur G. Ibañez, Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia- Banguibang	Novem ber 6, 2023.	Transfer Certificate No. 2023-06056-A- TCCR	2023-06056-A-TCCR signed (1).pdf REGISTERED
Battery	Copyrig	Arthur G. Ibañez,		Transfer	2023-06058-A-



Management System (BMS) Fabrication Manual	hts	Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia-Banguibang	June 1, 2022	Certificate No. 2023-06058-A-TCCR	TCCR_signed(1).pdf REGISTERED
Electrical Wire Harness Fabrication Manual	Copyrig hts	Arthur G. Ibañez, Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia-Banguibang	June 1, 2022	Transfer Certificate No. 2023-06060-A-TCCR	2023-06060-A-TCCR_signed(1).pdf REGISTERED
Service and Maintenance Manual of the Electrical and Electronic Components	Copyrig hts	Arthur G. Ibañez, Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia-Banguibang	June 1, 2022	Transfer Certificate No. 2023-06062-A-TCCR	2023-06062-A-TCCR_signed(1).pdf REGISTERED
Assembly Manual of the Traction Battery of eTrike	Copyrig hts	Arthur G. Ibañez, Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia-Banguibang			2024-06002-A-TCCR_signed.pdf REGISTERED
e-Trike Owner's Manual	Copyrig hts	ARTHUR G. IBAÑEZ FLORENTINA S. DURLAO AUDY R. QUEBRAL BUENCAMINO C.	April 11, 2024	Transfer Certificate No. 2024-01904-A-TCCR	Etrike Owner's Manual_organized.pdf REGISTERED



		MARTIN MARC ANGELO T. CABADDU JC M. ANCHETA JULIUS T. ROJO LEMUEL B. PURISIMA JOHN CARLO B. BANGAYAN CIERRIE JOY C. MANAOIS MARC ANGELO PALATTAO GOLDWYN G. ANTONIO ALI C. PILLOS ALLAN MICHAEL N. MAMUAD			
Assembly and Disassembly Manual of the Electrical and Electronic Components of the Metal Body e-Trike	Copyrig hts	Arthur G. Ibañez, Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia- Banguibang	April 11, 2024	Transfer Certificate No. 2024-01902-A- TCCR	Assembly and Disassembly Manual of the Electrical and Electronic Components of the Metal Body E-Trike Copyright organiz ed.pdf REGISTERED
Power Control Unit Enclosure	Industri al Design	Arthur G. Ibañez, Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia- Banguibang	Decem ber 12, 2024		3-2024-51851 Certificate-of-registration-new-law-new-rules B-2025-45830.pdf REGISTERED
Vehicle Control Unit Enclosure	Industri al Design	Arthur G. Ibañez, Florentina S. Dumlao, Audy R. Quebral, Allan Michael N. Mamuad, Cierrie Joy C. Manois, Denn A. Agatep, and May Anne C. Valencia- Banguibang	Decem ber 12, 2024		3-2024-51853 Certificate-of-registration-new-law-new-rules B-2025-52103.pdf REGISTERED



Systematic and Effective Procedures

The university has institutionalized its procedures in almost all aspects of its operations in pursuit of quality and excellence. These procedures are implemented in the research department which is adhered to by all campuses in all their research endeavors. This is spelled out in its Manual of Operations particularly in Research for Development.

The following pieces of evidence highlight the procedures in the university which are strictly observed by the different colleges in the university.

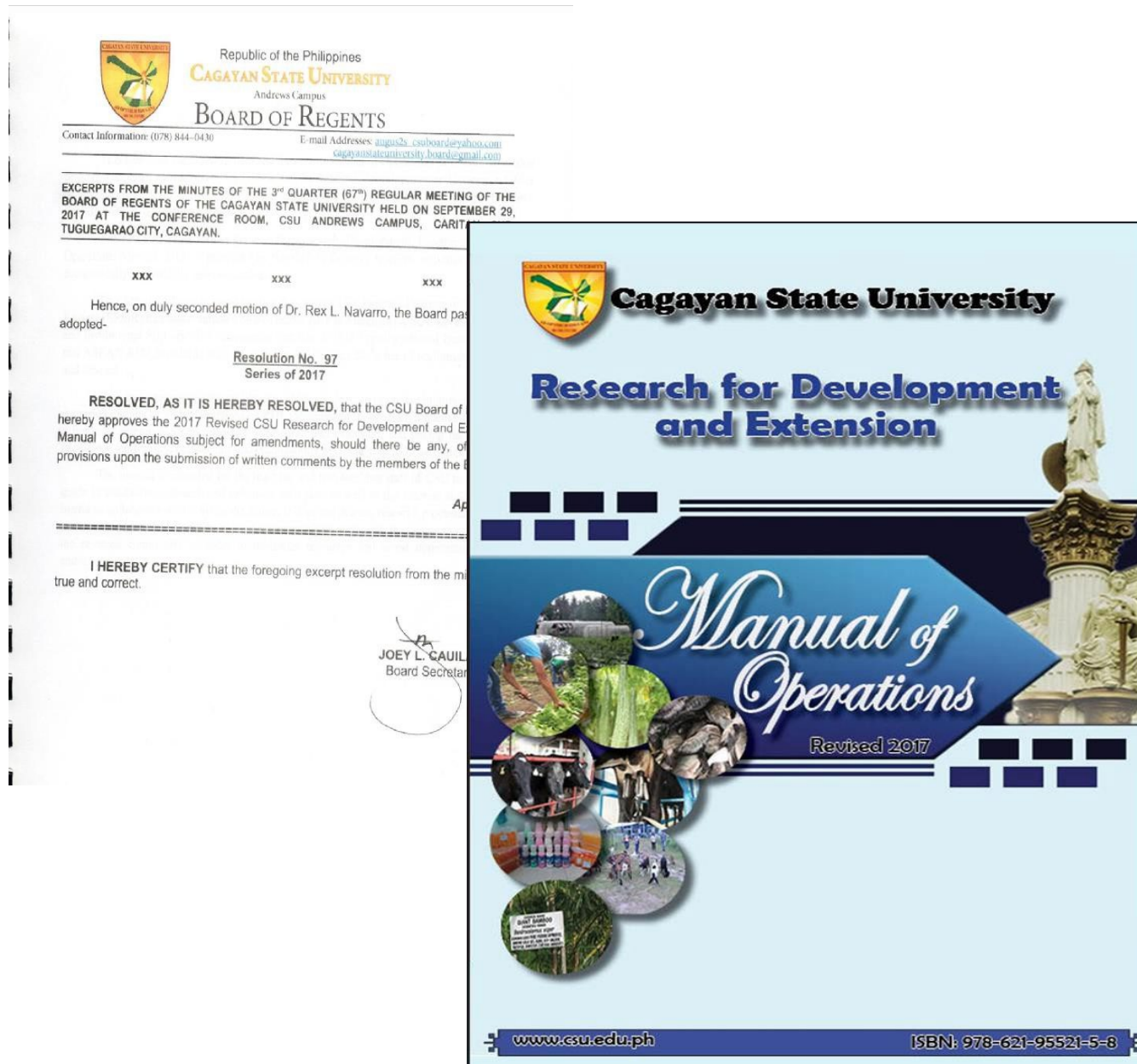
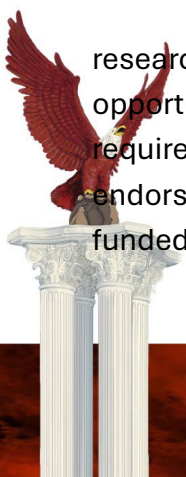


Figure 18. Systematic and Effective Procedures

General Guidelines and Policies in RDE Proposal Development

CSU shall fund the approved research proposal using Fund 101 or Fund 164 but a researcher as a principal proponent can only avail of fund in at most two at a time to give opportunity to other faculty. However, program/project proposals that can meet the requirements of funding agencies or are wide in scope (regional or national) shall be endorsed for external funding. Only approved research/extension project that has not been funded by external/another source are qualified for institutional funding.



Qualifications of Research Proponents Applicants for Research Grants from CSU

1. Must be a permanent faculty member or staff of CSU;
2. The subject/interest of inquiry must be aligned with the researcher's field of specialization;
3. Must have no outstanding obligation or liability in the name of CSU with any funding agency;
4. Must be analytical, objective, creative and capable of implementing research and extension undertakings and working with other people/researcher;
5. Must be ethical in the conduct of research project activities and utilization of project results;
6. Must be prompt in the submission of progress, terminal reports and other required reports
7. Must be self-motivated and full of initiatives in sourcing out funds from outside to initiate and sustain research projects/programs.

Proposal Process Flow

The office of the VPRDE facilitates the development, approval and funding of RDE proposals through an efficient system of processing.

Call for proposals

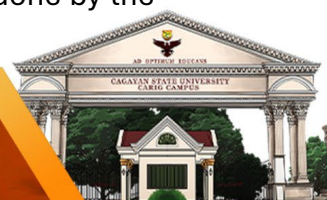
The RDE decides strategic priorities for CSU research and development and extension needs and communicates this through Call for Proposals. The VPRDE calls for the submission of institutionally funded RDE proposals. The research proponents prepare proposals in accordance with the thrusts, directions, and goals and banner programs of the University.

Submission and endorsement of proposals

All proposals (capsule or detailed) prepared by the proponent shall be submitted to the dean and shall be endorsed by the CEO for review by the TWC. The CEO through the dean shall inform the proponent on the feedback arising after the review process. Recording of Proposal All proposals (capsule or detailed) endorsed by the CEO shall be recorded at the RDE office before it shall be routed for review by the TWC. Each shall be numbered and referenced accordingly.

Review of Proposal

Capsule proposals routed for review shall be evaluated on its technical feasibility by the TWC. On the other hand, detailed proposal shall undergo two stages of review. First, for technical feasibility and environmental soundness by the TWC and second, for final review by the URDEC. Review of proposal for externally funded research shall be undertaken by the funding agency. Approval of Proposal for institutionally funded research Proposals (for institutional funding) that passed the review processed shall be endorsed by the URDEC to the VPRDE who shall recommend its approval to the president. Approval of proposal shall be done only by the president. A MOA between and among the proponent, CEO and the president shall be executed. Special Order (SO) shall be issued by the president before the project shall be implemented. Approval of externally funded research shall be done by the



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graph TD
    VPRDE[VPRE] --> CFP[Call for Proposal]
    VPRDE --> EAP1[Endorsement of proposal for Approval (1)]
    VPRDE --> EAP2[Endorsement of Proposal for Approval (1)]
    
    CRD[College Research Coordinator] --> PCP[Prepare Capsule Proposal]
    CRD --> PDP[Preparation of Detailed Proposal]
    
    CDE[Campus DE & TWC] --> CCP[Collate Capsule Proposal]
    CDE --> CDP[Collate Detailed Proposal]
    
    CEO[CEO] --> SCP[Submit Capsule Proposal (.5)]
    CEO --> SDP[Submit Detailed Proposal (.5)]
    
    CEO --> RCP[Review Capsule Proposal (5)]
    CEO --> RDP[Review Detailed Proposal (5)]
    
    CEO --> ECP[Endorse Capsule Proposal (.5)]
    CEO --> EDP[Endorse Detailed Proposal (.5)]
    
    URDE[University of Jordan URDE] --> RMR[Records and Make References (.5)]
    URDE --> RCDP[Route Capsule/Detailed Proposal to TWC for]
    URDE --> RPE[Route Proposal to URDE for Endorsement (.5)]
    
    TWC[TWC] --> TRDCP[Technical Review of Detailed/Capsule Proposal (5)]
    TWC --> SRP[Submit Reviewed Proposal (.5)]
    
    JRDEC[JRDEC] --> FRP[Final Review of Proposal]
    JRDEC --> RER[Recommends Proposal for endorsement to the VPRDE (1)]
    
    President[President] --> AP[Approves Proposal (1)]
    President --> ISMOA[Issue SO MOA signing]
    
    RMR --> ECP
    RMR --> EDP
    RMR --> RCDP
    RMR --> RPE
    
    RCDP --> TRDCP
    RCDP --> ECP
    RCDP --> EDP
    
    RPE --> EAP1
    RPE --> EAP2
    
    SRP --> FRP
    SRP --> RER
    
    FRP --> RER
    
    RER --> AP
    RER --> EAP2
    
    AP --> ISMOA
  
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graph TD
    VPRDE[Call for Proposal] --> Proponent[Preparation of Capsule Proposal]
    Proponent --> CD[Submission of Capsule Proposal]
    CD --> CEO[Endorsement of Capsule Proposal]
    CEO --> URDE[Records and Make References]
    URDE --> RCR[Review the Completeness of Requirements]
    RCR --> ECP[Endorse Capsule Proposal]
    ECP --> President[Endorse Capsule Proposal]
    President --> RA[Review of Capsule Proposal]
    RA --> FC[Feedback Comments]
    FC --> Inform[Inform Proponent]
    Inform --> Proponent
    Inform --> CD
    Inform --> URDE
    Inform --> President
    Inform --> RA
    Inform --> RDP[Review Detailed Proposal]
    Inform --> DDP[Detailed Proposal Presentation for Final Review]
    Inform --> Approves[Approves Proposal]
    Inform --> MOA[MOA signing]
    Inform --> INP[Issue of Notice to Proceed]
    Inform --> ISO[Issue SO]
    Proponent --> CD2[Submission of Detailed Proposal]
    CD2 --> CEO2[Endorsement of Detailed Proposal]
    CEO2 --> URDE2[Endorse Detailed Proposal]
    URDE2 --> President2[Endorse Detailed Proposal]
    President2 --> RA2[Review Detailed Proposal]
    RA2 --> DDP2[Detailed Proposal Presentation for Final Review]
    DDP2 --> Approves2[Approves Proposal]
    Approves2 --> MOA2[MOA signing]
    MOA2 --> INP2[Issue of Notice to Proceed]
    INP2 --> ISO2[Issue SO]
    ISO2 --> Proponent2[Project Implementation]
  
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Research Budget

The Cagayan University (CSU), being a government institution, allocates an annual budget across all its departments. As a university that places significant emphasis on the synergy between Instruction, Research, and Extension, it meticulously invests in projects and programs that have been carefully proposed and approved. Moreover, the university



allocates funding for research initiatives and projects proposed by faculty members within the college, resulting in the issuance of Special Orders on a yearly basis.

Report on the Estimated Budget Allocation for Research involving BSCE Faculty

This report presents a detailed financial and collaborative analysis of a select group of fourteen key researchers at the Carig Campus, based on a review of accomplishment reports from 2023 to the second quarter of 2025. The central finding is the consolidation of a total research budget of **PHP 119,771,939.71** allocated to projects involving these individuals.

The analysis reveals that the research portfolio is overwhelmingly supported by external funding, with national government agencies such as the Department of Science and Technology (DOST) and the Department of Environment and Natural Resources (DENR) providing over 98% of the total budget. This indicates a strong alignment between the proponents' research agenda and national development priorities.

Furthermore, the funding is strategically concentrated in high-impact, technology-focused thematic areas, primarily Engineering. The most significant financial investments are in programs related to electromobility, disaster-resilient infrastructure, and advanced industrial technology.

The report also maps out a highly structured and efficient collaborative network. A core group of proponents—notably Arthur Ibanez, Emer T. Quezon, and Roger Rumpon—serve as central figures in securing and managing large-scale grants. They lead specialized sub-teams that include other proponents from the specified list, forming a productive research ecosystem. The narrative concludes that this cohort functions as a vital institutional asset, driving innovation, attracting substantial external capital, and enhancing the university's reputation as a center for applied research and development.

Link: [Report on the Estimated Budget Allocation for Research involving BSCE Faculty](#)

Project Procurement Management Plan (2025)

Based on the 2025 Project Procurement Management Plan (PPMP), the College of Engineering and Architecture has outlined a budget of **PHP 219,285.00** to support its research and extension projects. The plan focuses on strategic investments in capacity building, operational supplies, and stakeholder engagement.

A significant portion of the budget is allocated to a two-day training workshop designed for 65 participants. This includes PHP 130,000.00 for the venue, lodging, meals, and snacks, supplemented by PHP 51,500.00 for the professional fees of resource persons. This highlights a primary focus on enhancing the skills and knowledge of its personnel.

To support the college's operational needs, the plan details the procurement of various supplies. This includes general office materials such as whiteboard markers, notepads, paper, and pens. Additionally, there is an allocation for ICT supplies, covering essential data storage devices like a 1TB external hard drive and 1TB flash drives, as well as a complete set of printer inks to support documentation and reporting needs. The plan also



includes other materials such as a mobile whiteboard for presentations and basic sanitation supplies.

Finally, the PPMP allocates PHP 5,000.00 for representation expenses, specifically for tokens for stakeholders and industry partners. This demonstrates the college's commitment to maintaining and strengthening its professional networks and collaborations.

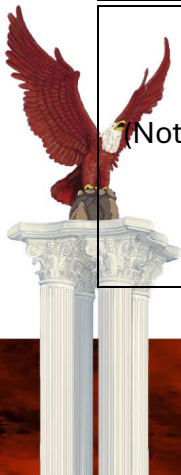
Link: [Project Procurement Management Plan \(2025\)](#)

Special Orders for Institutionally Funded Researches

Here is a table summarizing the special orders for institutionally funded research, listing the researchers, project titles, and the corresponding special order.

Table 6. Special Order For Research

Researchers/Members	Title of the Project/Study	Special Order Title / Number
CY 2025		
Dr. Bryan Lacambra (Project Leader); Dr. Emer T. Quezon, Engr. Roger P. Rumpon, Engr. Michael B. Orpilla, Engr. Cierrie Joy C. Manaois (Co-researchers); and 9 Members	"Design, Development, and Fabrication of 3+1 Seater eTrike"	"AUTHORITY TO CONDUCT THE CAMPUS FUNDED RESEARCH PROGRAMS/PROJECTS/STUDIES OF CSU CARIG CAMPUS" (OP-5005-SO-2025-06-412) Link: Special Order OP-5005-SO-2025-06-412
(Not specified)	"Paggurufunan para ta Progreso," "Working Towards a Sustainable Community," "Empowering LGU Gonzaga," and "Human and Animal Health and Wellness Program"	"Authority to Implement Extension Programs for CY 2025" (OP-5005-SO-2025-06-408) Link: Special Order OP-5005-SO-2025-06-408
(Not specified)	35 varied research projects	"Authority to Conduct Research Programs for CY 2025" (OP-5005-SO-2025-04-243) Link: Special Order OP-5005-SO-2025-04-243



Researchers/Members	Title of the Project/Study	Special Order Title / Number
CY 2024		
(Not specified)	(Amendment to reflect changes in proponents and durations)	"Amendment of 2024 Research Programs" (OP-5005-SO-2024-09-766) Link: Special Order OP-5005-SO-2024-09-766
Arthur G. Ibañez (Project Leader); Ralph S. Reyes, Audy R. Quebral, Edmund dela Cruz Jr., Jennifer B. Ibañez, Jayvee Tolentino (Project Staff); 5 Project Support Staff; Florentina G. Dumlao (Project Consultant)	"Assessment, Development and Preservation for Typhoon and Earthquake Resilient Ivatan Houses" (Year 2 Conduct)	"DESIGNATION OF PROJECT TEAM MEMBERS FOR THE DOST-FUNDED PROJECT..." (OP-5005-SO-2024-09-734) Link: Special Order OP-5005-SO-2024-09-734
Charmie S. Calvo, Gladys B. Abaleta, Arlen B. Calimag, Domarjun S. Taguinod	"Assessing Digital Skills Proficiency in Office Productivity Tools, Computer Basic Operations and Internet Technologies..."	"AUTHORITY TO CONDUCT THE RESEARCH PROGRAMS/PROJECTS/STUDIES OF CSU CARIG" (OP-5005-SO-2024-09-729) Link: Special Order OP-5005-SO-2024-09-729
John Michael Casibang, Ruth N. Maguundayao, Roger P. Rumpon, Jennyfer Rabanera, James Cabildo, Arthur G. Ibañez, Emer T. Quezon, Jowell John Talosig, Mary Jane Calagui, and 13 others	"Analysis of Licensure Examination Performance of the Cagayan State University Engineering Programs: Basis for Intervention Project"	"MODIFICATION TO SPECIAL ORDER OP-5005-SO-2024-03-261..." (OP-5005-SO-2024-08-640) Link: OP-5005-SO-2024-08-640



Researchers/Members	Title of the Project/Study	Special Order Title / Number
(Not specified)	"E-Profiling System for the Town of Gonzaga," "Web-Based Record Management System for the Forensic Unit of PNP R02," "Smart Portable N-P-K Analyzer"	"Authority to Conduct New Mid-Year Research Projects for CY 2024" (OP-5005-SO-2024-05-479) Link: Special Order OP-5005-SO-2024-05-479
(Not specified)	"Design and Development of Load Bearing Interlocking Masonry Walls," "Lab-scale regeneration of Waste Cooking Oil," "Conversion of Conventional Tricycle to e-Trike using Mid Drive Motor"	"Authority to Continue Additional Research for CY 2024" (OP-5005-SO-2024-04-391) Link: Special Order OP-5005-SO-2024-04-391
(Not specified)	"Fabrication of Pilot Scale Salt Making Equipment," "Design and Fabrication of Typhoon Resilient Hybrid Solar Wind Street Lightning System," "Biodiversity Assessment in Tuguegarao City," "Analysis of	"Authority to Conduct New Research Programs for CY 2024" (OP-5005-SO-2024-03-261) Link: Special Order OP-5005-SO-2024-03-261



Researchers/Members	Title of the Project/Study	Special Order Title / Number
	Licensure Examination Performance..."	
Audy R. Quebral, Arthur G. Ibañez, Bryan Lacambra	"Design. Development, and Fabrication of Buggy (A Locally Made Mini Four-Wheeled Electric Vehicle)"	"AUTHORITY TO CONTINUE THE CONDUCT OF THE RESEARCH... WITH FUND AUGMENTATION" (OP-5005-SO-2024-02-181) Link: OP-5005-SO-2024-02-181
CY 2023		
Arthur G. Ibañez (Project Leader); Anderson G. Gonzales, Ralph Reyes, Kelvin Baldovino, Jennifer Ibañez, Audy Quebral, Djovi R. Durante, Edmund Dela Cruz (Project Staff); Florentina Dumlao (Project Consultant) ⁵⁵	"Assessment, Development, and Preservation for Typhoon and Earthquake Resilient Ivatan Houses" ⁵⁶⁵⁶⁵⁶⁵⁶	"DESIGNATION OF PROJECT TEAM MEMBERS FOR THE DOST PCIEERD-FUNDED PROJECT..." (OP-5005-SO-2023-02-164) Link: OP-5005-SO-2023-02-164
John Michael Casibang, Oliver Doctolero, Anderson Gonzales, and 4 others	"Design and Development of load bearing interlocking mansory walls for disaster resilient housing"	"AUTHORITY TO CONTINUE THE CONDUCT OF THE RESEARCH... FOR CY 2023" (OP-5005-SO-2023-02-127) Link: OP-5005-SO-2023-02-127
Audy Quebral, Arthur Ibañez, Bryan Lacambra	"Design, Development and Fabrication of Buggy (A locally Made Mini Four-Wheeled Electric Vehicle)"	"AUTHORITY TO CONTINUE THE CONDUCT OF THE RESEARCH... FOR CY 2023" (OP-5005-SO-2023-02-127) Link: OP-5005-SO-2023-02-127



Researchers/Members	Title of the Project/Study	Special Order Title / Number
Roger Rumpon, Bryan Lacambra, Mark Cabaddu, and 3 others	"Design and Fabrication Testing of Essential Oil Extractors for Quality Production of Essential Oils from Fruit Wastes"	"AUTHORITY TO CONTINUE THE CONDUCT OF THE RESEARCH... FOR CY 2023" (OP-5005-SO-2023-02-127) Link: OP-5005-SO-2023-02-127
Arthur Ibañez, Julius Capili, Bryan Lacambra, and 4 others	"Design, Development and Fabrication of Smart Waste Composter"	"AUTHORITY TO CONTINUE THE CONDUCT OF THE RESEARCH... FOR CY 2023" (OP-5005-SO-2023-02-127) Link: OP-5005-SO-2023-02-127
Anderson Gonzales, Cyrus Kelly Macabangon, Dexter Dumayag	"Correlates Students Beliefs on Environmental Protection"	"AUTHORITY TO CONTINUE THE CONDUCT OF THE RESEARCH... FOR CY 2023" (OP-5005-SO-2023-02-127) Link: OP-5005-SO-2023-02-127
CY 2022		
SL: Engr. John Michael B Casibang; Co-researchers: 7 Engrs including Arthur G Ibañez	"Design and Development of Load Bearing Interlocking Masonry Walls for Disaster Resilient Housing"	"AMENDMENT... AUTHORITY TO CONDUCT THE RESEARCH... FOR APRIL-DECEMBER 2022" (OP-5005-SO-2022-04-234) Link: OP-5005-SO-2022-04-234
SL: Engr. Ralph S. Reyes; Co-researchers: 8 including Engr Arthur G Ibañez	"Design and Development of Precast Walls for Disaster Resilient Housing"	"AMENDMENT... AUTHORITY TO CONDUCT THE RESEARCH... FOR APRIL-DECEMBER 2022" (OP-5005-SO-2022-04-234) Link: OP-5005-SO-2022-04-234



Researchers/Members	Title of the Project/Study	Special Order Title / Number
SL: Engr. B. Roger Rumpo; Co-researchers: 6 including Engr Arthur G. Ibañez	"Design, Fabrication and testing of Essential oil Extractor for Quality Production of Essential oils from fruit Wastes"	"AMENDMENT... AUTHORITY TO CONDUCT THE RESEARCH... FOR APRIL-DECEMBER 2022" (OP-5005-SO-2022-04-234) Link: OP-5005-SO-2022-04-234
(Not specified)	"Design and Development of Load Bearing Interlocking Masonry Walls..." and "Design, Fabrication and testing of Essential oil Extractor..."	"Authority to Conduct University-Funded Research for CY 2022" (OP-5005-SO-2022-03-211) Link: Special Order OP-5005-SO-2022-03-211

Provision of Materials and Other Resources

The University is deeply committed to supporting its faculty and students in generating high-caliber research outputs. This commitment is evident throughout the entire research process, from the initial proposal phase to the eventual publication of findings. The University provides comprehensive assistance to ensure the success of these research endeavors.

Furthermore, the University ensures that necessary hardware and software resources are readily accessible to its academic community. This includes a range of tools and applications that empower researchers in their work. Noteworthy among these are quality assurance software such as Turnitin, SPSS, and other plagiarism-checking tools. These resources play a significant role in upholding academic integrity and research rigor, aligning with the University's dedication to producing research of the highest caliber.

This support system from the university not only enables faculty and students to engage in meaningful research but also underscores the University's commitment to fostering a culture of excellence in scholarship and innovation. The availability of state-of-the-art resources reflects the University's dedication to providing a conducive environment for research pursuits across various disciplines.



Aside from these, the university also gives research grants for faculty and student researchers.

RESEARCH GRANTS AND RDE FUND SOURCING

These are grants for the implementation costs of earmarked or approved researches for funding. CSU has funding opportunities from the budget allocated through the General Appropriation Act (GAA) and from its income for research and faculty development. The GAA fund for research is classified under the Maintenance, Operating and Other Expenses (MOOE). The research grant for individual researches shall not exceed 5% of the total fund or P200,000 whichever is higher.

The research grant awardee shall be chosen from the selection of evaluated proposals as described in Chapter 4.

In addition to the institutional grants, there are funding agencies that can be tapped to fund researches that are within their respective research thrusts. A call for research proposals is usually announced.

Automatic allocation from the GAA fund (exclusive of the University approved RD&E projects) shall be as follows:

1. Direct Cost – 65%
2. Paper presentation – 10%
3. Capacity building – 15%
4. Incentives – 5%
5. Overhead – 5%

Fund for RD&E from the income of the University shall be:

1. Research and Development (RD) - 10%
2. Extension - 15%

The CHED CMO No. 20, s 2011 (Policies and Guidelines for the Use of Income, Special Trust Fund and Programs of Receipts and Expenditures of the State Universities and Colleges) provides allocations by SUC function: instruction – 50% of tuition fee (Sec 6), Research – 10% (Sec 8) and Extension – 10% (Sec. 10). It indicates that Campus Executive Director/Administrator is tasked to coordinate the plans, programs, projects activities of the campus in accordance with the overall vision, mission, goals and objectives of the SUC.

Researchers who are able to source out of research fund shall be given an incentive of one percent (1%) of externally funded RD&E project but not to exceed P100,000 based on LIB (this is practiced by other SUCs). The amount and schedule of giving the award shall be based on tranche release by the funding agency. The award should be based on the signed Memorandum of Agreement. The mechanics shall be based on COA rules. The distribution of the award to proponents shall be:

1. Project Leader/Proponent – 50%
2. Study Leaders – 50% divided equally

Figure 21. Research Grants and RDE Fund Sourcing (From Campus RDE Manual)



RDE PAPER PRESENTATION IN SCIENTIFIC CONFERENCES

This is a form of research dissemination where the researcher presents his/her paper in prestigious and scientific conferences and as a way to publicize high-quality researches of the University. The incentive for paper presentation shall be a full financial support for the presentation on official business provided that:

1. Paper presentation should only be on legitimate scientific conferences preferably organized by academic or scientific societies (avoid predatory conferences) except for invited papers for recognized expertise.
2. Paper presentation shall be approved at the University level only but endorsed from the campus through channels. Papers may be presented only if it is evaluated by the URDEC (or through report have been presented in the agency in-house review), duly endorsed by the VPRDE and approved by the University President for local presentations or the BOR for presentations abroad.
3. Only outputs from University sanctioned researches shall be considered and the paper should be related to the theme or focus of the conference.
4. For equity purposes, a paper should be supported once only for paper presentation. If the researcher wishes to present the paper the second time around in another conference, it shall be on official time only, except for winning papers to be elevated for presentation at the regional, national or higher level.
5. To apply for the grant, the researcher must complete the following:
 - Letter of intent
 - Official invitation letter from the conference organizer which indicates the title and theme of the invited lecture
 - Acceptance letter from the conference organizers which indicates the title of the accepted paper
 - Official information about the conference
 - Abstract of the paper to be presented

A Notification of results of the application shall be made within 10 working days from the date of receipt of the application. Paper presentation grant is on a first come first serve basis subject to the availability of fund for paper presentations. The grantee is advised to prepare his/her cash advance for the paper presentation expenses. If the paper won on contested paper presentations, the incentive shall be for the researcher(s). The sharing of the award shall be among the authors. In addition to the award given by the organizing committee, the University shall provide incentive for authors of "Best Papers" presented in recognized scientific conference. Only papers based on research outputs from the University-sanctioned researches are entitled for the following award:

Table 6. Awards for research papers presented in conferences

Category	International	National	Regional
First	P 10,000	P 7,000	P 5,000
Second	P 7,000	P 5,000	P 3,000
Third	P 5,000	P 3,000	P 1,500

*Subject to availability of funds

Figure 22. Rewards Criteria for RDE Paper Presentation

Table 7. Awards for Best Papers presented in In-house reviews

Category	Rank	Amount (P)	Minimum Points garnered
Research Category	First	10,000	95%
	Second	7,000	90%
	Third	5,000	85%
Development/Extension Category	First	10,000	95%
	Second	7,000	90%
	Third	5,000	85%

Figure 23. Table 7 From RDE Manual (Awards for Best Papers Presented in In-house Reviews)



All faculty members and staff of the University and thesis students who work on CSU projects (should indicate CSU as their affiliation) are eligible for the award. The paper publication should be in any of the following:

1. Journals listed and indexed in the Institute of the Scientific Information (ISI)
2. Thomson Reuters WoS Indices (Science CI Expanded, Social Science CI, Arts and Humanities CI)
3. Elsevier's Scopus Listings
4. ASEAN Citation Index
5. Philippine Citation Index (incoming)
6. CHED-accredited journals • CHED Journal Challenge

CHED Journal Incubation grantee

Cash incentives to authors of published researches in the above mentioned accredited and refereed scientific journals mentioned above as follows (*Subject to availability of funds):

1. Thomson Reuters and Elsevier's Scopus - P50,000
1. 2. ASEAN Citation Index - P40,000
2. 3. Philippine Citation Index - P30,000
3. 4. CHED Journal Challenge - P50,000 – when available
4. CHED Journal Incubation grantee - P40,000 (when list is available)

Figure 24. Research Paper Publication Awards

Published book – P40,000/book

Chapter in an edited published book – P30,000/chapter

Full paper in a peer reviewed Conference proceedings – P20,000/paper

The award is divided equally among authors if the book is co-authorship provided the book is published while they are still an employee of the University or before retirement/resignation.

REGISTERED INTELLECTUAL PROPERTY RIGHTS (IPR) OFFICE PHILIPPINES (IPROPHIL)

Registered IPR which:

1. Must be a product of research
2. The registration should be a joint institution-inventor registration. The invention is owned by the institution but the researcher remains to be the author.
3. Other provisions under the Technology Transfer Law and provisions under Chapter X of this Manual shall apply.
4. The following are the awards:

Patent	– P50,000
Utility Model	– P40,000
Copyright	– P30,000
Trademark	– P20,000

Applications for IPR shall be paid by the University following the accounting rules and regulations.

Figure 25. Research Paper Publication Awards



This special order, OP-5005-SO-2024-04-379, dated April 23, 2024, serves as the official authorization for faculty-researchers to receive financial incentives for articles published in prestigious Scopus and Web of Science indexed journals during 2023. The document underscores the university's commitment to fostering a culture of high-impact research by rewarding scholarly output in accordance with its awards and incentives policy.

A key highlight in this order is entry number 11, which recognizes a significant contribution from the College of Engineering and Architecture. For their publication titled "**Comparative Study between Conventional and Converted Electric Tricycle**" in the Philippine Journal of Science, a research team including **Arthur Ibanez** was granted a publication incentive of P40,000.00. This award acknowledges the team's valuable work in the field of electro-mobility, a core research area for the college.

Link: [Special Order OP-5005-SO-2024-04-379](#)

Participation of Significant Number of Faculty and Students in Major Projects and Activities

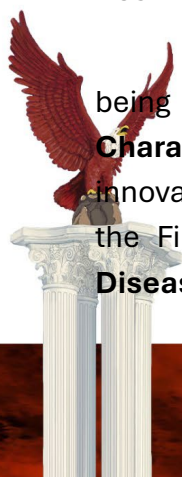
RDE Agenda Setting

Cagayan State University (CSU) places a strong emphasis on recognizing and valuing the contributions of diverse stakeholders in all aspects of its pursuits, aligning with its overarching vision and mission. This inclusive approach is particularly evident in its research endeavors, where CSU actively engages a wide spectrum of participants, including students, faculty, esteemed alumni, industry professionals, and representatives from various agencies. This collaborative effort ensures a comprehensive and well-rounded research agenda, ultimately enhancing the university's impact and effectiveness in advancing knowledge and innovation. This inclusive research framework not only enriches the academic experience for students but also strengthens the university's connections with industry and the broader community.

A prime example of this commitment in action is the annual **University Search for Best Undergraduate Thesis**. This event serves as a platform to cultivate and celebrate a culture of research excellence right from the grassroots level. The competition actively encourages students to produce innovative and impactful studies across various disciplines, as seen in the distinct **Experimental and Technological categories**.

The recent triumphs of the **CSU Carig Campus** in the 2025 search underscore the success of this student-centered, mentor-guided research model. The university's dedication to this collaborative spirit is further highlighted by its practice of formally recognizing and awarding not just the undergraduate researchers but also their dedicated **Best Thesis Mentors**, celebrating the synergy between faculty guidance and student inquiry.

The winning projects exemplify the relevance and cutting-edge nature of the research being fostered. The First Place in the Experimental Category, "**Synthesis and Characterization of HAp-Based 3D Scaffold Derived from Eggshell Waste**," showcases innovation in sustainable material science with potential biomedical applications. Similarly, the First Place in the Technological Category, "**FUNGI BUSTER: Detection of Major Diseases in Oyster Mushrooms (*Pleurotus ostreatus*) using YOLOv11**," demonstrates the



application of advanced artificial intelligence to address critical challenges in local agriculture.

These achievements by the students and faculty of the College of Engineering and Architecture are a testament to CSU's successful strategy. By investing in and celebrating undergraduate research, the university is not only nurturing the next generation of innovators but also directly contributing to technological advancement and sustainable solutions for the community.



Figure 26. CSU Carig Takes First Place (Experimental Category) in the Search for Best Undergraduate Thesis in the University (2025)



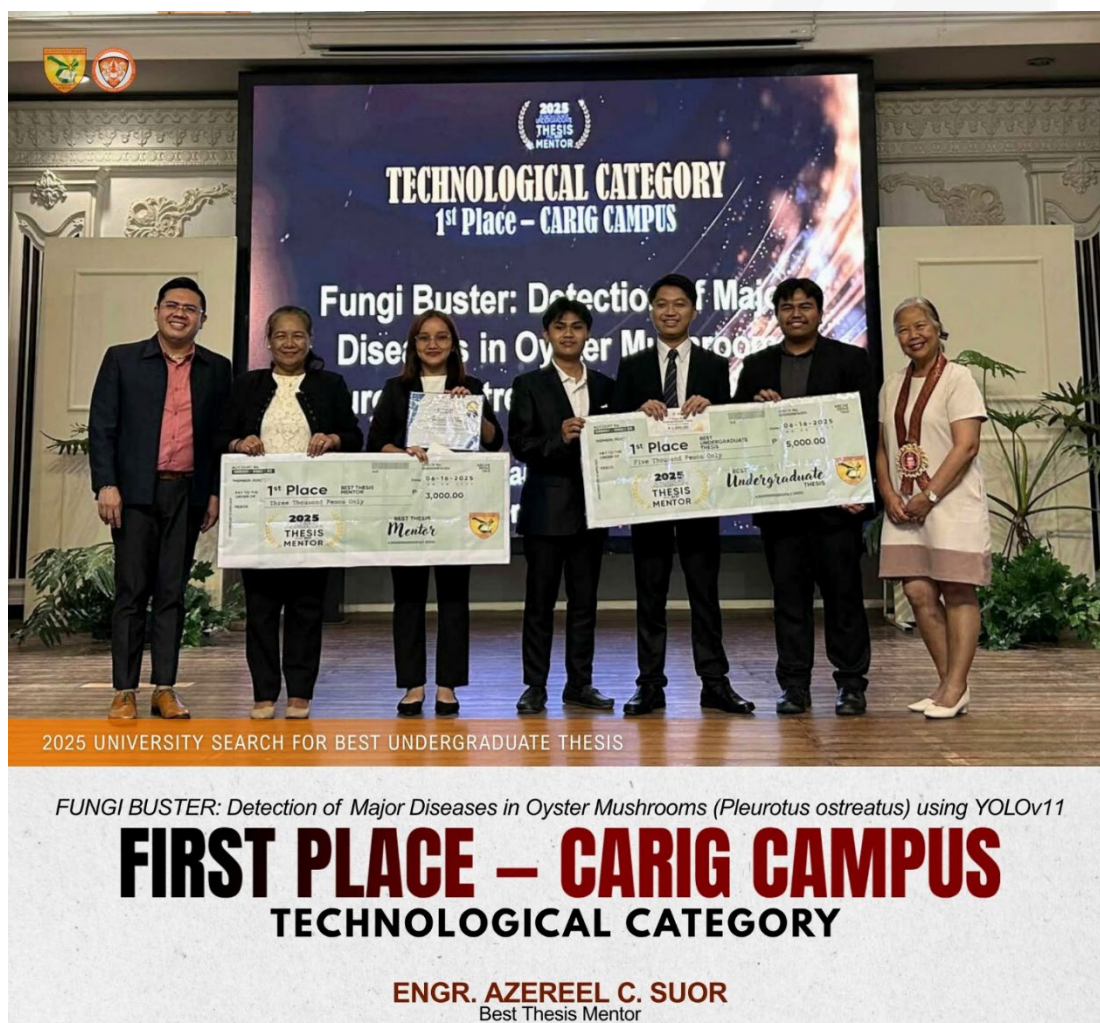


Figure 27. CSU Carig Takes First Place (Technological Category) in the Search for Best Undergraduate Thesis in the University (2025)

Research Colloquium

The Research Colloquium held on May 16, 2025, at the Cagayan State University - Carig Campus showcased a series of paper presentations that unveiled the impressive research endeavors of students across various engineering disciplines. The event aimed to cultivate and sustain a vibrant research culture within the academic community, with a distinct emphasis on interdisciplinary perspectives.

The event commenced with a cordial welcome from Engr. John Michael B. Casibang, the Dean of the College of Engineering and Architecture. Engr. Casibang's remarks resonated with his enthusiasm for the research colloquium, underlining its pivotal role in elevating academic excellence. Following this, Engr. James B. Cabildo, the College Research Coordinator, expounded upon the rationale behind the event, underscoring the indispensable role of research in fostering intellectual growth and generating knowledge.

The true strength of the colloquium was evident in the diversity and relevance of the student-led presentations. The program demonstrated a remarkable convergence of disciplines, featuring proponents from **Computer, Electrical, Civil, Agriculture and Biosystems, Electronics, and Chemical Engineering**. This interdisciplinary showcase moved beyond theoretical concepts to tackle real-world challenges, highlighting the college's focus on creating tangible solutions.





BACHELOR OF SCIENCE IN CIVIL ENGINEERING 4TH SURVEY VISIT

The research themes presented were particularly compelling, clustering around key areas of innovation and community impact:

- **Sustainability and Environmental Solutions:** A significant number of studies focused on green technology and resource management. This was exemplified by projects like **"PET to H2O: A Solar-powered Water Dispensing System with Integrated Plastic Bottle Recycling,"** the **"Synthesis and Characterization of Hap-Based 3D Scaffold Derived from Eggshell Waste,"** and **"EcoSheet: Promoting a Recycling Culture through Development of Paper Reverse Vending Machine."**
- **Smart Technology and Automation:** Students demonstrated proficiency in modern automation and the Internet of Things (IoT). Presentations included an **"IOT-Based Smart Distribution Panelboard,"** a **"Smart Parking System for Real-Time Tracking,"** and an **"Automated Rotary, Coffee Bean Drying Machine for Coffee Farming,"** showcasing the drive towards efficiency and intelligent systems.
- **Community-Centric Engineering:** Many projects were directly aimed at improving life in local and remote communities. A prime example was the **"Tree of Light: A Study on the Accessibility of Solar-Powered Charging Station with Automatic LED Lighting For OFF-Grid Remote Communities,"** which addresses energy accessibility. Another study focused on improving the local construction industry in **Tuguegarao City.**

This colloquium served not only as a presentation platform but as an incubator for groundbreaking ideas. It is noteworthy that several of these studies, including **"Fungi Buster"** and the **"Hap-Based 3D Scaffold Derived from Eggshell Waste,"** progressed to win top honors at the university-wide level, proving the colloquium's effectiveness in vetting and refining high-caliber research. The event concluded with insightful closing remarks from the Assistant College Dean, Engr. Oliver J. Doctolero, solidifying the colloquium's role as a cornerstone of the college's dynamic and impactful research agenda





CAGAYAN STATE UNIVERSITY – CARIG CAMPUS
**COLLEGE OF ENGINEERING
AND ARCHITECTURE**

Research Colloquium PROGRAM

7:30-8:00 AM	Registration of Participants
8:00-8:10 AM	Welcome Remarks <i>Engr. John Michael B. Casibang, College Dean</i>
8:10-8:15 AM	Rationale of Activity <i>Engr. James B. Cabildo, College Research Coordinator</i>
	Paper Presentation Proper
8:15-8:35 AM	PET to H2O (Bote Para sa Tubig): A Solar-powered Water Dispensing System with Integrated Plastic Bottle Recycling <i>Proponents (Computer Engineering)</i>
8:35-8:55 AM	IOT-Based Smart Distribution Panelboard with Electrical Fault Disconnect <i>Alecsis Jaye Peralta Maramag (Electrical Engineering)</i>
8:55-9:15 AM	S-Park: Smart Parking System for Real-Time Tracking and Congestion Mitigation Validated Through PTV Vissim Simulation <i>Proponents (Civil Engineering: Transportation Track)</i>
9:15-9:35 AM	Fungi Buster <i>Proponents (Agriculture and Biosystems Engineering)</i>
9:35-9:55 AM	EcoSheet: Promoting a Recycling Culture through Development of Paper Reverse Vending Machine <i>Proponents (Computer Engineering)</i>
9:55-10:15 AM	Total Quality Management and Organizational Performance in Tuguegarao City's Construction Industry <i>Proponents (Civil Engineering: CEM Track)</i>
10:15-10:35 AM	Tree of Light: A Study on the Accessibility of Solar-Powered Charging Station with Automatic LED Lighting For OFF-Grid Remote Communities <i>Jay-M Aldous Ulep Agabin, Kyle Ferrer Cusipag, Karylle Ferrer Cusipag, Angelika Agustin Tacuboy (Electronics Engineering)</i>
10:35-10:55 AM	Synergizing Drag and Lift: An Experimental Investigation of Hybrid Savonius-H-Darrieus Vawt Dynamics for Low-Wind Ignition and Enhanced Torque-Efficiency Tradeoff <i>Kenneth Donyell P. Malifier, Sidrick Rowell L. Bassig (Electrical Engineering)</i>

Figure 28. Research Colloquium Programme Page 1



10:55-11:15 AM	Ethanolio Extract of Kamias (Averrhoa Bilimbi L.) fruit as Corrosion Inhibitor of Mild Steel <i>Proponents (Civil Engineering: Structural Track)</i>
11:15-11:35 AM	Efficacy of Different Soil Amendments Using Double Ring Infiltrrometer: A Study in Pinopoc, Alcala, Cagayan <i>Edmund M. Calata, Cyrille Glaze G. Fieror, Daisyrie C. Molina (Agriculture Biosystems Engineering)</i>
11:35-11:55 AM	Synthesis and Characterization of Hap-Based 3D Scaffold Derived from Eggshell Waste <i>Jhun Reiman Ursua, Christine Lyn Austria, Vege Goze, Ely Ann Guzman, Kamille Kaye Cuarteros (Chemical Engineering)</i>
11:55-12:15 PM	Development of an Automated Rain Gauge with Real-Time Monitoring and Data Logging <i>Nikolais Kieve Adri Blanco Caranguian, Teddy Jose Dayag, Marc Byron Castillejo Saguino (Electronics Engineering)</i>
12:15-12:35 PM	Automated Rotary, Coffee Bean Drying Machine for Coffee Farming <i>Joey Mhar Corpuz Babida, Jaerald Bayaua Gallarder, Sunshine Gatos Umblas (Electronics Engineering)</i>
12:35-12:55 PM	Closing Remarks <i>Engr. Oliver J. Doctolero, Assistant College Dean</i>

Figure 29. Research Colloquium Programme Page 2



College Journal

At the heart of the College of Engineering and Architecture at Cagayan State University's Carig Campus is its flagship scholarly publication: the **Research Journal**. This annual publication serves as the primary platform for showcasing the intellectual and innovative outputs developed within the college.

As stated in its mission, the journal is a dedicated "vehicle for the dissemination of research outputs and/or innovations developed by the students and faculty." This highlights a core value of the college: providing a formal, recognized space where the hard work of both seasoned educators and aspiring student-researchers can be shared, archived, and celebrated. The journal's professional standing is affirmed by its official ISSN (2961-3485), marking it as a legitimate serial publication.

The journal is managed by a dedicated **Editorial Board** composed entirely of the college's own faculty members. This internal structure ensures a deep understanding of the subject matter and maintains a standard of excellence relevant to the fields of engineering and architecture. The leadership of an Editor-in-Chief, Dr. Mary Jane C. Calagui—a faculty member also recognized for her mentorship of award-winning student theses—demonstrates a seamless link between hands-on research guidance and formal publication.

The cover of Volume 4 itself tells a story, with a collage of images depicting hands-on projects: complex wiring, mechanical assemblies, construction sites, and modern electronics. This visual summary perfectly captures the practical, tangible nature of the research fostered by the college.

Ultimately, the Research Journal is more than just a collection of papers; it is a testament to the vibrant research culture at the CSU College of Engineering and Architecture. It is the final, crucial step in the academic process, turning innovative projects and diligent study into a lasting contribution to the field.

Link: [COEA Journal Volume 5](#)





Figure 30. Latest Printed Research Journal of COEA

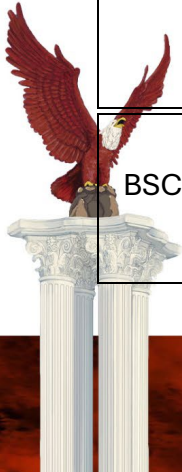
Milestones

Research Awards, Distinctions and Grants

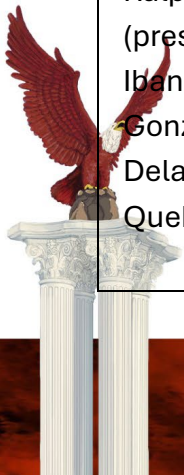
This section highlights the significant recognition and support earned by our faculty, a testament to the College's vibrant research culture and its commitment to producing high-impact, nationally relevant work. Our success in securing competitive funding and earning institutional rewards is a clear indicator of the quality and distinction of our research endeavors.

Here is a summary of the milestones, research awards, distinctions, and grants in table form.

Author(s)	Title of Study	Year	Award
BSCE Students	"Total Quality Management and Organizational Performance in Tuguegarao City's Construction Industry"	2025	Third Place - Social Category (College Search for Best Undergraduate Thesis) Link: Best Undergraduate Thesis 2025
BSCE Students	"Ethanollic Extract of Kamias (Averrhoa Bilimbi L.) Fruit as	2025	Third Place - Experimental Category



Author(s)	Title of Study	Year	Award
	Corrosion Inhibitor of Mild Steel"		(College Search for Best Undergraduate Thesis) Link: Best Undergraduate Thesis 2025
Cagayan State University (led by Dr. Arthur G. Ibañez 23)	"Electromobility Research and Development Center (EMRDC) Program: Venturing on Electronic Transportation"	2025	Presidential Recognition as an Outstanding Development Partner in Accelerating Technology and Innovation Link: Presidential Recognition Pictures
Dr. Emer T. Quezon, Engr. John Michael B. Casibang, Engr. Ralph Angelo Estiller, Engr. Michael B. Orpilla, Engr. Melody Paned, and Engr. Oliver Cagumbay 27272727	"Gridshield Analytics"	2025	First Place (Hack4Resilience at 3rd iSCENE) Link: iSCENE Pictures
Engr. Michael B. Orpilla, Dr. Emer T. Quezon, Engr. John Michael B. Casibang, Engr. Melody Paned, Engr. Oliver Cagumbay, and Engr. Ralph Angelo Estiller	"Gridshield Analytics"	2025	Top 10 Finalists (Hack4Resilience: AI for Disaster Resilience Challenge) Link: Hack4Resilience Pictures
Ralph S. Reyes (presenter); Arthur G. Ibañez, Anderson G. Gonzalez, Edmund Dela Cruz Jr., Audy R. Quebral	"Assessment of Traditional Ivatan Houses: The case of Itbayat, Batanes"	2024	Best Presenter Award (PIKAECAH International Conference) Link: PIKAECAH Pictures



Author(s)	Title of Study	Year	Award
Dr. Emer T. Quezon, Engr. Michael B. Orpilla, Engr. Melody S. Paned, Engr. Ralph Angelo B. Estiller, Engr. John Michael B. Casibang, and Engr. Oliver P. Cagumbay	"GRIDSHIELD Analytics"	2024	First Place (Best Innovative Idea Pitching) Link: Best Idea Pitching Pictures
Dr. Emer T. Quezon, Engr. Michael B. Orpilla, Engr. James B. Cabildo, and Engr. Ian C. Pagulayan	"SMART AGRIGATE"	2024	Second Place (Best Innovative Idea Pitching) Link: Best Idea Pitching Pictures
COEA Researchers	"C-Trike"	2024	First Place (Best Technology Pitch)
Mark Clifford B. Duque, Rodel D. Pineda, and Jenina T. Taguiam	"Assessment of Driver's Understanding of Traffic Control Devices: The Case of Tuguegarao-Alcala-Aparri Road"	2023	1st Place - Social Category (COEA Search for Best Undergraduate Thesis) Link: Best Undergraduate Thesis 2023 Pictures
Rico Jay B. Cardenas, Benedick S. Castaneda, and Rolando P. Bolando	"Examining the Potential of Spent Coffee Grounds (SCGS) as Corrosion Inhibitor in Steel Bars"	2023	2nd Place - Experimental Category (COEA Search for Best Undergraduate Thesis) Link: Best Undergraduate Thesis 2023 Pictures



Best Practices

The research area's best practices are anchored in two core principles: **robust interdisciplinary collaboration** and the **strategic acquisition of external funding**. This approach ensures that research projects are comprehensive, innovative, and aligned with national development priorities.

Faculty members consistently engage in cross-program collaboration, breaking down silos to solve complex problems. This is exemplified in projects like the "Analysis of Licensure Examination Performance of the Cagayan State University Engineering Programs," which involved a large, integrated team of faculty from Civil Engineering and all other programs within the college. Similarly, the 2022 research on "Design and Development of Precast Walls" was a joint effort between Civil Engineering and Architecture faculty. This collaborative spirit extends to competitive, award-winning innovations like "Gridshield Analytics," where BSCE faculty teamed up with colleagues from other engineering disciplines to secure 1st Place at the 3rd iSCENE Hack4Resilience competition .

This collaborative model is a key factor in the program's success in securing significant external funding. From 2023 to 2025, **over 98% of the faculty's PHP 119.7 million research budget was sourced from external agencies**, primarily the **Department of Science and Technology (DOST)** and the **Department of Environment and Natural Resources (DENR)** . This external support fuels the program's most impactful, large-scale initiatives, including the **DOST-PCIEERD-funded "Assessment, Development and Preservation for Typhoon and Earthquake -Resilient Ivatan Houses"** and the various projects under the flagship **Electromobility (EMRDC) program** , which recently earned Presidential Recognition for its contribution to technology and innovation

