Feasibility study for the Offering of Bachelor of Science in Mechanical Engineering (BSME), Bachelor of Science in Electrical Engineering (BSEE), Bachelor of Science in Food Technology (BSFT), Bachelor of Industrial Technology (BIT) Major in Food Packaging & Bachelor of Science in Fisheries (BSF) Programs in Guimaras State College

Josephine G. Piodena
Lilian Diana B. Parreño
Josie H. Gaitano

ABSTRACT This study was conducted to look into the feasibility of offering the BS Mechanical Engineering, BS Electrical Engineering, BS Food Technology, BIT major in Food Packaging and BS Fisheries courses at Guimaras State College. The aspect of offering the course was evaluated and the financial capability of the project was analyzed so that minimum problems will be encountered. The researchers have identified competitors in offering the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT major in Food Packaging. The target market is the secondary schools' graduates in the province of Guimaras. The researchers conducted a survey with the use of a researcher-made questionnaire to 305 students. Purposive sampling was done to get the sample of the total secondary graduates of 2015. It was revealed in the study that the benefit cost ratio showed a positive result; this meant that the offering of BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT major in Food Packaging was viable and feasible up to 20% share of enrollment. It was also recommended to offer these courses at Guimaras State College.

Keywords: Feasibility Study, Course Offering, BSEE, BSME. BSF, BIT, GSC

INTRODUCTION

Background of the Study

Institutions of higher learning are considered the primary sources of quality manpower, technology of knowledge of every nation in its attempt to achieve the desired level of development. Education is the need of the present and the demand of the future. The worlds need to offer educational programs that will prove to be beneficial to society. Not only is it important to offer educational programs that meet the needs of today and meet the predicted demands of tomorrow, but it is more important to ensure that the programs are of good quality.

The Colleges that handle the curricular programs like BS Mechanical Engineering, BS Electrical Engineering, BS Food Technology, BIT major in Food Packaging, and BS Fisheries are the homes of several nationally accredited undergraduate and graduate programs. Scientific inquiry and historical awareness, social relations, and general welfare are themes flowing through the curriculum, which are imagined, formulated and implemented by dedicated and accomplished faculty members who constantly seek regular updating, engaged in innovative research and artistically creative endeavors.

Colleges prepare students for professional careers and provide them with the foundation for lifelong learning. They also have the primary responsibility for the two-year general education curriculum required of all students of the university.

Steeped in proud tradition, but energized with an inspired focus on the future, the Colleges where BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology, and Bit major in Food Packaging belong are institutions of opportunity. These vibrant learning communities are created by dedicated and inspired teaching faculty, some of whom are all recognized researchers. The Colleges are sustained by equally great accomplish students, who have proven to be some of the brightest not only in the local community but in the country as a whole whose expectations for intellectual achievement set the standard for academic performance. The continued evolvement of the alumni, who are making the curricular offerings more attuned with the current demands in the Philippines.

BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology and BIT major in Food Packaging are degree programs which center on the theoretical aspects and practical application of science and technology. Not only do these courses aim to furnish students with deep insights regarding the science and theories, but also with the application of the scientific theories as well.

Subjects covered include:

- General Education Subjects
- Foundation Subjects
- Professional Subjects
- Mandated Subjects
- Elective Subjects

The BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT major in Food Packaging program are taught through classroom-based frontal instructions conducted by the teacher, as well as practical exercises, projects, and with Google application-based instructions.

A graduate in each of the following five new curricular programs will pursue careers in:

BS Mechanical Engineering

Power and Energy Engineering, Automotive Engineering, Manufacturing Engineering, Mechatronics & Engineering, and Instrumentation and Control.

BS Electrical Engineering

Power Engineering (e.g. Power System Operation, Power system Protection, Power system Economics and Power Plant), Design Engineer (e.g. Advance Power System, Advance Electrical Designer, Machine Automation and Process Control Designer), Illumination Engineer, Entrepreneur, Sales Engineer, Distribution Engineer, and Engineering Educators and Researcher.

BS Fisheries

Fisheries management, Fisheries research, Fisheries extension service, Fisheries Industries, and Fisheries instruction.

BS Food Technology

Food manufacturing and engineering, quality control/assurance, product development, food analysis, food microbiology, marketing, distribution and sales, Agencies and Bureaus of Government, Food and Drugs (BFAD), Department of Science and Technology (DOST), Department of Trade and Industry (DTI), Department of Health (DOH), Food Service Establishment, Academic Institutions and Entrepreneurs/ Food Business.

BIT Major in Food Packaging

Technical/ Skilled worker (e.g. can perform task independently without supervision and has the mastery of performance standards that are required in the Technician Competency Skills Assessment (TCSA), Industry supervision and managers (e.g. can perform management function in the industrial organizations and can contribute to the Total Quality Management (TQM) of industrial organizations) and industry consultant and technologies (e.g. can conduct research feasibility studies to solve problems in industry and can perform higher skills required by industries).

The Commission on Higher Education (CHED) required students under the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology, and BIT Major in Food Packaging program to undergo an internship period. In addition, there is board examination for BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology. Further for BIT major in Food Packaging graduates, the CHED does not require graduates to take board exam but graduates are encouraged to pass NC2 or higher wherein assessment is done by the TESDA.

In order to have such programs in the Province of Guimaras, Guimaras State College, being the only state college in the province, should likewise offer these programs. However, there is a need to conduct a feasibility study about the offering of the five (5) proposed curricular programs namely: BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology, and BIT major in Food Packaging.

The primary objective of this study is to determine the feasibility of the offering the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology and BIT major in Food Packaging focusing in the functional areas such as marketing aspect, technical aspect, organizational and management, financial aspect and socio-economic aspect.

1. Marketing Aspect
   a. To determine whether it is viable and economical to offer courses specifically BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology, and BIT major in Food Packaging.
2. Technical aspect
   a. To determine whether the college has available resources, facilities, and equipment for the offering of the course.
   3. Organizational aspect
   a. To determine the competence of the faculty and the administration.
   b. To identify the effective organizational structure for this program.
   c. To identify the number of faculty and staff needed in order to operate the program.
4. Financial aspect
   a. To determine the financial viability of the offering vis a vis input for the operation and maintenance of facilities.
5. Socio-economic aspect
   a. To determine the advantage of the program to the parents, students, and community as a whole.
   b. To identify the benefits and contributions of the program to the progress of the community.

Methodology

The researcher made a research proposal on the offering of the courses specifically BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology, and BIT major in Food Packaging. After the proposal had been presented and approved, the researcher conducted a survey through a researcher made questionnaire to 305 randomly selected students from different secondary school graduates in the division of Guimaras and from outside Guimaras secondary schools who intend to study in Guimaras Island. The questionnaire used is composed of two parts. The first part deals with the personal information of the respondents and the second part are the questions on the possibility of the offering of the different courses in Guimaras State College. After the data gathering, the responses were tallied and interpreted.

After gathering the data for market study using the survey conducted to the secondary schools' graduates, assessment for technical, organization and management, financial and socio-economic aspects was done.

MARKET STUDY

A. Project Description

This study was conducted to look into the feasibility of offering the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology, and BIT major in Food Packaging courses at Guimaras State College. The aspect of offering the course was evaluated and the financial capability of the project was analyzed so that minimum problems will be encountered.

B. Competition

The researchers have identified competitors in offering the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology, and BIT major in Food Packaging. Among the competitors of BS Fisheries are University of the Philippines-Visayas and Iloilo College of Fisheries-Barotac Nuevo. Competitors for BS Mechanical Engineering are Western Visayas College of Science and Technology, Western Institute of Technology, University of Iloilo-Phinma, and Central Philippine University. For BS Food Technology, University of the Visayas is the competitor. While for BIT major in Food Packaging, there is no school in the region offering it.

C. Target Market

The target market is the secondary schools graduates in the province of Guimaras. The researcher conducted a survey with the use of a researcher-made questionnaire to 305 students. Purposive sampling was done to get the sample of the total secondary graduates of 2015. Data are presented in table 1.

Table 1.Projected enrollment for the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food technology, and BIT major in Food Packaging course at 50, 40, and 30 percent.

Courses to be offered	No. of students who intend to enroll in the proposed curricular programs	50%	40%	30%
Bachelor of Science in Fisheries (BSF)	32	16	13	10
Bachelor of Science in Food Technology (BSFT)	105	53	42	32
Bachelor of Industrial Technology major in Food Packaging (BIT food pack)	50	25	10	15
Bachelor of Science in Mechanical Engineering (BSME)	51	26	20	15
Bachelor of Science in Electrical Engineering	28	14	11	8
Total:	266	134	96	80

Data in table 2 shows the projected enrollment for the next five years assuming that there will be only 50, 40, and 30% of the total respondents who said yes they are interested to enroll in the course once offered. This will be safe enough in assuming that there are only 50, 40 and 30% who will enroll in these courses.

Table 2. Projected enrollment for the next five years at 50%, 40%, and 30%

	50%					40%					30%				
Course	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
BSF	16	33	51	70	90	14	19	35	52	70	11	23	36	50	65
BSFT	56	113	117	230	290	44	89	135	182	230	33	67	102	138	175
BIT (Food Pack…)	26	53	81	110	140	10	21	33	46	60	15	29	42	54	65
BSME	27	55	84	114	145	21	43	66	90	115	15	31	48	66	85
BSEE	15	31	48	66	85	11	23	36	50	65	8	17	27	38	50
Total	140	285	435	590	750	100	195	305	420	540	82	167	255	346	440

In order to come up with the projection on the money value or equivalence of the projected enrolment in the next five years, the data in table 2 were multiplied with the tuition per student. The resulting amount for per year for 50, 40 and 30% projections are shown in Table 3.

Table 3. Projected Gross income for the next 5 years categorized as to 50%, 40% and 30%

A. 50% (2 Semesters)

Course	Tuition Fee	No. of Studes/Sem	2015	No. of Studes/Sem	2016	No. of Studes/Sem	2017	No. of Studes/Sem	2018	No. of Studes/Sem	2019	Total
BSF	P 8,980	18	287,360	33	592,680	51	915,960	70	1,257,200	90	1,616,400	4,669,600
BSFT	P 8,980	56	1,005,760	113	2,029,480	171	3,071,160	230	4,130,800	290	5,208,400	15,445,600
BIT (Food Pack)	P 8,980	26	466,960	53	951,808	81	1,454,760	110	1,975,600	140	2,514,400	7,363,600
BSME	P 8,980	27	484,920	55	987,800	84	1,508,640	114	2,047,440	145	2,604,200	7,633,000
BSEE	P 8,980	15	269,400	31	556,706	48	862,080	66	1,185,360	85	1,526,600	4,400,200
Total	44,900	142	2,514,400	285	5,118,600	435	7,812,600	590	10,596,400	750	13,470,000	39,512,000

B. 40% (2 Semesters)

Course	Tuition Fee	No. of Studes/ Sem	2015	No. of Studes/Sem	2016	No. of Studes/Sem	2017	No. of Studes/Sem	2018	No. of Studes/Sem	2019	Total
BSF	P 8,980	14	251,440	19	341,240	35	628,600	52	933,920	70	1,257,200	3,412,400
BSFT	P 8,980	44	790,240	89	1,598,440	135	2,424,600	182	3,268,720	230	4,130,800	12,212,800
BIT (Food Pack)	P 8,980	10	179,600	21	377,160	33	592,680	46	826,160	60	1,077,600	3,053,200
BSME	P 8,980	21	377,160	43	772,280	66	1,185,360	90	1,616,400	115	2,065,400	6,016,600
BSEE	P 8,980	11	197,560	23	413,080	36	646,560	50	898,000	65	1,167,400	3,322,600
Total	44,900	100	1,796,000	195	3,502,200	305	5,477,800	420	7,543,200	520	9,698,400	28,017,600

C. 30% (2 Semesters)

Course	Tuition Fee	No. of Studes/Sem	2015	No. of Studes/Sem	2016	No. of Studes/Sem	2017	No. of Studes/Sem	2018	No. of Studes/Sem	2019	Total
BSF	P 8,980	11	197,560	23	413,080	36	646,560	50	898,000	65	1,167,400	3,322,600
BSFT	P 8,980	33	592,680	67	1,203,320	102	1,831,920	138	2,478,480	175	3,143,000	9,249,400
BIT (Food Pack)	P 8,980	15	269,400	29	520,840	42	754,320	54	968,840	65	1,167,400	3,680,800
BSME	P 8,980	15	269,400	31	556,760	48	862,080	66	1,185,360	85	1,526,600	4,400,200
BSEE	P 8,980	8	143,680	17	305,320	27	484,920	38	682,480	50	898,000	2,514,400
Total	44,900	82	1,472,720	167	2,999,320	255	4,579,800	346	6,213,160	440	7,902,400	23,167,400

D. Industry Trends

The BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT major in Food Packaging graduates are expected to be spiritually and morally upright individuals, globally competent professionals, productive and environment-friendly, entrepreneurial and technologically innovative, goal oriented and service committed, sustainable development advocate. In this regard, they can also apply to jobs which are not related to these five courses such as government employee, call center agent, telesales representative, administrative staff and freelancer working online. They could be hired to train new workers or keep administrative records, to name a few duties.

With this trend, graduates of BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT major in Food Packaging will have a big chance of getting employed since the industry calls for those who are experts in the field.

E. Services/Product

A. BS in Mechanical Engineering

The BS in Mechanical Engineering Program aims to develop graduates who have attained the following: an ability to apply knowledge of mathematics, science and engineering; an ability to design and conduct experiments, as well as to analyze and interpret data; an ability to design a system, component or process to meet desired needs within realistic constraints; an ability to function on multidisciplinary teams; an ability to identify, formulate and solving engineering problems; an understanding of professional and ethical responsibility; an ability to communicate

effectively in both Filipino & English languages; an understanding of the impact of engineering solutions in global and social context; and an ability to use techniques, skills and modern engineering tools necessary for mechanical engineering practice. BS in Mechanical Engineering Graduates can work because of the competencies they had developed.

Mechanical Engineering graduates can pursue careers in manufacturing firms, automotive companies, power generation, and utility plants. Since all manufactured products contain parts that transmit forces, mechanical engineering is considered vital in designing and selecting materials that will ensure the structural integrity of almost every product. Also, they can be academician (an instructor or a professor in a particular academic institution), which provides education under the field of engineering studies.

BSME program may now provide better career opportunities for students, even to those who may not be able to finish the full course. Technical-Vocational Education trainings (TVET) are embedded in the enriched ladderized curriculum and students will be awarded TESDA certifications for acquired competencies at certain levels.

B. BS in Electrical Engineering

The BS in Electrical Engineering Program aims to develop graduates who have attained the following: ability to apply knowledge of mathematics, physical, life and information sciences and engineering sciences appropriate to the field of practice; ability to design and experiments, as well as to analyze and interpret data; ability to design a system, component or process to meet desired needs within identified constraints; ability to work effectively in multi-disciplinary and multi-cultural teams; ability to recognize, formulate, and solve engineering problems; and recognition of professional, social and ethical responsibility.

C. BS in Food Technology

The BSFT program is designed to provide students with knowledge in the foundations of food technology associated with raw food materials and production management as well as food science. Students are also taught n how to create food products, ingredients, and processing equipment.

Graduates of BS Food Technology can be a Food Technician checking production processes and product quality. They are also responsible for monitoring the quality standards of products for ensuring whether it conforms to the specification and food safety practices.

Job opportunities such as Food Sales Representative who are responsible for selling food products and services to companies for distribution purposes; visits companies, deliver presentations; and takes orders; call center agent, Administrative Staff, and Freelancer working online which mainly depends on your skills.Several companies in the food industry have played a role in the development of food technology. These developments have contributed greatly to the food supply and have changed our world.

In the past, consumer attitude towards food technologies was not common talk and was not important in food development. Nowadays, the food chain is long and complicated, foods and food technologies are diverse; consequently, the consumers are uncertain about the food quality and safety and find it difficult to orient themselves to the subject. That is why consumer acceptance of food technologies is an important question. However, in these days acceptance of food products very often depends on potential benefits and risks associated with the food. This also includes the technology the food is processed with. Attributes like "uncertain", "unknown", or "unfamiliar" are associated with consumers' risk and consumer very likely will reject products linked to these attributes. Especially innovative food processing technologies are connected to these characteristics and are perceived as risky by consumers.

D. BS in Fisheries

The technical competency of the professional fisheries graduates makes them as successful Aqua Consultants. Most of them are working in this area. As an entrepreneur, after obtaining a professional degree in BS Fisheries candidate can start their own enterprise. The main areas in which fisheries enterprise can be developed are feed manufacturing, feed sales, ornamental fish culture and breeding, aquaculture, hatchery, and seed production, fish processing, and marketing, net making, the establishment of Agri clinics for fish disease diagnosis and for testing and supply of farm inputs. They can also be a staff or marine sanctuary, entrepreneur, assistant researcher, and researcher.

E. BIT major in Packaging Technology

Packaging engineering, also package engineering, packaging technology, and packaging science, is a broad topic ranging from design conceptualization to product placement. All steps along the manufacturing process and more must be taken into account in the design of the package for any given product. The package must sell and protect the product while maintaining an efficient, cost-effective process cycle. Students in a packaging program typically begin with generalized science, business, and engineering classes before progressing into industry-specific topics such as shell life stability, corrugated box design, cushioning, engineering design, labeling regulations, project management, food safety, robotics, RFID tags, quality management, packaging testing, packaging machinery, safety, robotics, RFID tamper-evident methods, recycling and computer-aided design.

F. Pricing Profile

Table 4 presents the payment of each student of their tuition and miscellaneous fee per semester. With 5% increase per year, the total miscellaneous and tuition fee ranges from Php 8,980 to Php 11, 461.02 at the end of the fifth year.

Table 4. Schedule of charges/payment in Guimaras State College per semester (per student) with 5% increase per year

Fees	Current Charge AY 2014	Year 1	Year 2	Year 3	Year 4	Year 5
Tuition	5,720	6,006	6,306.3	6,621.62	6,952.70	7,300.34
Miscellaneous	3, 260	3,423	3,594.15	3,773.86	3,962.55	4,160.68
Total	8,980	9,429	9,900.45	10,395.48	10,915.25	11,461.02

G. Publicity and Advertisement

Publicity is so important here since these are new curricular programs to be offered at Guimaras State College. The following are the plans for the publicity of the program.

1. Conduct a caravan to introduce the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology, and BIT Major in Food Packaging Program to the people in the community and encourage the students to enroll the course.
2. Give flyers to the people and post streamers in the different areas or places in Guimaras as part of advertising the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT Major in Food Packaging Program of Guimaras State College.
3. Conduct a Career Orientation program about the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT Major in Food Packaging course and how the students would become more competitive in the field of communication using English as a medium.

H. Strengths, Weaknesses, Opportunities and the Threats of the Proposed Project

- **Strengths**

1. Competent and Trainable Faculty and Staff

GSC generates its strengths from its competent and trainable faculty and staff. Its faculty is composed of 33 Master's Degree holders (32.038%), 13 Doctoral Degree holders (12.62%), and 57 Bachelor's Degree.

Faculty members with Doctoral Degrees have completed a Doctor of Philosophy in Educational Management and Doctor of Rural Development, those with Master's Degrees completed the Master of Arts in Educational Management, Master of Education majors in Educational Management, English, Filipino, Social Science and Mathematics, Master in Teaching Mathematics, Master of Science in Criminal Justice, Master of Science in Computer, Information Technology and Master in Public Administration. The Bachelor's Degree holders include Bachelor of Science in Elementary Education, Bachelor of Science in Secondary Education, Bachelor of Science in Industrial Education, Bachelor of Science in Information Technology, Bachelor of Science in Criminology and Bachelor of Science in Computer Science.

There are two non-teaching personnel with a degree, Doctor of Philosophy in Educational Management while four have Master's Degrees in Education major in Educational Management, Master in Public Administration, Master in Library Science, Master in Guidance and Counseling and the Bachelor's Degree Courses include Bachelor of Science in Commerce, Bachelor of Science in Business Administration, Bachelor of Science in Nursing, Bachelor of Science in Secondary Education/Bachelor in Elementary Education.

2. Available Equipment and Basic Facilities

The college has existing equipment and basic facilities to be used to support the performance of its mandate.

3. Strong Support of Faculty and Staff

With the competence and strong leadership of the current administration, the faculty and staff have shown strong support and enthusiasm to work and support the new administration in various activities. The school has also manifested its solid community spirit by actively participating in community activities not only in their host municipalities but also in the province.

- **Weaknesses**

1. Insufficient facilities and instructional devices for instruction and research in the 1st year of offering

It has an inadequate number of vehicle units for transportation that resulted in poor mobility of faculty and staff in the performance of their function.

2. Lack of manpower complement

The number of permanent needed for GSC to adequately perform its mandate is inadequate. For example, there is only one guidance counselor to serve the current 1,944 student population, which is far from the ideal ratio of 1 for every 1,000 students. Thus, on top of poor facilities, the lack of manpower has resulted to poor delivery of services to the students.

- **Opportunities**

1. Strong support from government officials and community stakeholders

The congressman, as well as the provincial and municipal executives, have shown full support to the GSC, being the only tertiary education in the province. Their continued support will facilitate assistance to GSC in performing its mandate.

2. Available funding for scholarships, research, and other development activities

With the presence of international and national development organizations in the province, e.g. SEAFDEC, National Mango Research and Development Center, University of the Philippines in the Visayas Marine reserve, etc., GSC has great opportunity to avail not only training and scholarship funds for its faculty and staff, but also funding support for its development projects.

- **Threats**

1. Competition from other SUCs and private Colleges and Universities near Guimaras Province

Though GSC is the only tertiary education institution in the province of Guimaras, many students in the province opted to go to more advanced SUCs and private tertiary education institutions in nearby major cities of the region, particularly in Iloilo City, which is accessible from the province.

2. Brain Drain of Professionals/New Graduates

The lure of higher salary abroad entices new graduates/professionals to opt for job opportunities abroad rather than seek employment locally, thus resulting to the dearth of qualified faculty applicants for the upcoming courses to be offered in GSC.

3. Limited regular position in the College

The Department of Budget and Management issued DBM Circular #13, S. 2002, stipulating a moratorium on the creation of new positions. This hinders the hiring of new faculty and staff that would facilitate the performance of the College's mandate.

TECHNICAL ASPECT

A. Enrollment Flow

For the incoming first-year students who would like to enroll, they should follow the flowchart. First, they should secure the Registration Form from the Registrar's Office. For those who were scholars, they should go first to the Office of the Student Affairs and Services for the validation, encoding, and confirmation of their scholarship before going to the Dean's Office to fill out the pre-registration form for the encoding of the subjects. Nonscholars shall proceed to the cashier's office for the payment of fees. After which, he/she shall go back to the Registrar's Office for the marking and validation of the form (Officially enrolled mark). This marked form together with the receipt for payment of ID will be presented to the ICT Office for picture taking for the school ID and then proceed to the school uniform Economic Development Center for the processing of the new School uniform.

Facilities and Requirements

The table shows the facilities and equipment of the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT major in Food Packaging program. Data showed that the needed facilities, building and speech laboratory are already available. On the other hand, multimedia equipment, laptop, and office furniture and fixtures are to be purchased.

Table 5. Facilities and Equipment requirements of the program

Facilities	Existing	To Be Purchased
1. Building	/	
2. Multimedia Equipment		/
3. Laptop		/
4. Office furniture and fixtures		/

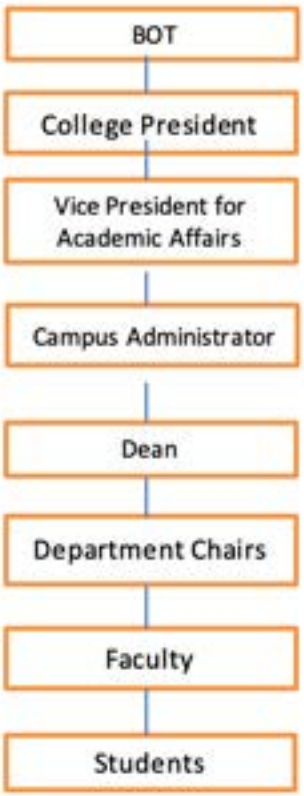
Table 6 presents the investment cost of the facilities to be purchased for the utilization of the BS Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT major in Food Packaging for 5 years. Only the first year has an investment amount which is Php 900,000 since the materials to be purchased is durable enough to use for five years long.

Table 6. Investment Cost for the next five years

Facilities to be purchased	Year 1	Year 2	Year 3	Year 4	Year 5
Multimedia Equipment					
▪ Projector/Audio	250,000	250,000	250,000	250,000	250,000
▪ Laptop	200,000	200,000	200,000	200,000	200,000
Office Furniture and Fixtures	200,000	200,000	200,000	200,000	200,000
Lab Equipment/Chemicals	250,000	250,000	250,000	250,000	250,000
Total	900,000	900,000	900,000	900,000	900,000

Organizational set up of the New Programs to be offered

The BS, Mechanical Engineering, BS Electrical Engineering, BS Fisheries, BS Food Technology and BIT major in Food Packaging of Guimaras State College starts from the office of the Board of Trustees, down to the College President, Vice President for Academic Affairs, Campus Administrator, Dean, and the Faculty Members and Students.



Job Descriptions:

Board of Trustees

General Powers and Duties

Section 1. The College shall have the general powers of a corporation as set forth in the Corporation Law. The administration of the College and the exercise of its powers shall be vested exclusively in the Board of Trustees and the President of the College insofar as authorized by the Board.

Specific Powers and Duties

The Board shall have the following specific powers and duties in addition to its general powers of administration and the exercise of all the powers granted to the Board of Directors of a corporation under Section 36 of Batas Pambansa Blg. 68, otherwise known as the Corporation Code of the Philippines.

a. To enact rules and regulations, not contrary to law, as may be necessary to carry out the purposes and functions of the College;

b. To receive and appropriate all sums as may be provided, for the support of the College in the manners it may determine, in its discretion, to carry out the purposes and functions of the College; c. To receive in trust legacies, gifts and donations of real and personal properties of all kinds and to administer and dispose of the same when necessary for the benefit of the College, subject to limitations, discretions, and instructions of the donor, if any. Such donations shall be exempted from all taxes and shall be considered as deductible items from the income tax of the donor; and

d. To fix the tuition fees and other necessary school fees and charges, such as, but not limited to, matriculation fees, graduation fees, as it may deem proper and reasonable to impose after consultations with the involved sectors.

Such fees charges, including government subsidies and other income generated by the College, shall constitute special trust funds and shall be deposited in any authorized government depository bank, and all interests that shall accrue therefrom shall form part of the same funds for the use of the College.

Any provision of existing laws, rules and regulations to the contrary notwithstanding, any income generated by the college from tuition fees and other charges, as well as from the operation of auxiliary services and land grants, shall be retained by the college and may be disbursed by the Board of instruction, research, extension or other programs/projects of the College: Provided that all fiduciary fees shall be disbursed for the specific purposes for which they are collected.

If, for reasons beyond its control, the College shall not be able to pursue any project for which funds have been appropriated and allocated under its approved program of expenditures, the Board may authorize the use of said funds for any reasonable purpose which, in its discretion, may be necessary and urgent for the attainment of the objectives and goals of the College:

a. To adopt and implement a socialized scheme of tuition and school fees for greater access to poor but deserving students;

b. To authorize the construction or repair of its buildings, machinery, equipment and other facilities and the purchase and acquisition of real and personal properties, including necessary supplies, materials and equipment. Purchases and other transactions entered into by the College through the board shall be exempt from all taxes and duties;

c. To appoint, upon the recommendation of the President of the College, vice-presidents, deans, directors, and heads of departments, faculty members and other officials and employees of the College;

d. To fix and adjust salaries of faculty members and administrative officials and employees subject to the provisions of the Revised Compensation and Position Classification System and other pertinent budget and compensation laws governing hours of service, and such other duties and conditions as it may deem proper: to grant them, at its discretion, leaves of absence under such regulations as it may promulgate, any provisions of existing law to the contrary notwithstanding, and to remove them for cause in accordance with the requirements of due process of law;

e. To approve the curricula, institutional programs and rules of discipline drawn by the administrative and academic councils as herein provided;

f. To set policies on admission and graduation of students;

g. To award honorary degrees upon persons in recognition of outstanding contribution in the field of education, public service, arts, science, and technology or in any field of specialization within the academic competence of the College; and to authorize the award of certificates of completion for non-degree and non-traditional courses;

h. To establish and absorb non-chartered tertiary institutions within the Province of Guimaras as branches, centers, stations, etc., in accordance with the CHED and in consultation with the Department of Budget and Management (DBM), and to offer therein programs or courses to promote and carry out equal access to educational opportunities mandated by the constitution;

i. To establish research and extension centers of the College where such will promote the development of the latter;

j. To establish chairs in the College to provide fellowship for qualified faculty members and scholarships to deserving students;

k. To delegate any of its powers and duties provided for hereinabove to the president and/or other officials of the College as it may deem appropriate so as to expedite the administration of the affairs of the College;

l. To authorize an external management audit of the institution, to be financed by CHED, and to institute reforms, including academic and structural changes, on the basis of audit results and recommendations;

m. To collaborate with other governing boards of state universities and colleges within the Province of Guimaras and the region, under the supervision of the CHED in consultation with the DBM, the restructuring of the College to become more efficient, relevant, productive, and competitive;

n. To enter into joint ventures with business and industry for the profitable development and management of the economic assets of the College, the proceeds from which shall be used for the development and strengthening of the same;

o. To develop consortia and other forms of linkages with local government units, institutions and agencies, both public and private, local and foreign, in furtherance of the purposes and objectives of the college;

p. To develop academic arrangements for instruction capability building with appropriate institutions and agencies, public or private, local or foreign, and to appoint experts/specialists as consultants, or visiting or exchange professors, scholars, researchers, as the case may be;

q. To set up the adoption of modern and innovative modes of transmitting knowledge such as the use of information technology, the dual system, open-learning, community laboratory, etc., for the promotion of greater access to higher education;

r. To establish policy guidelines and procedures for participative decision-making and transparency within the College;

s. To privatize, where most advantageous to the College, management of non-academic services such as health, food, building, grounds or property maintenance and similar such other activities; and

t. To extend the term of the President of the College beyond the age of retirement but not later than the age of seventy (70), whose performance has been unanimously rated as outstanding and upon the unanimous recommendation of the search committee for the president of the college

President

The president is the chief executive officer of the College. The president is the Board of Trustee's official link with the operating organization. The president is accountable to the Board acting as a body. The board will instruct the president through written policies delegating implementation to the president. The president's job performance will be considered synonymous with the organization's performance as a whole and Organizational accomplishment of the Board's policies on College outcomes. He should be involved in Organizational operation within the boundaries established in Board policies on Executive Limitations. The president shall also develop a working job description in concert with the Board.

Vice President for Academic Affairs

Assists the College President in overseeing a single campus or institution. She/he handles student inquiries and problems related to the education program entrance, eligibility requirements, and curriculum and academic standards. He/she requires a bachelor's degree in the area of specialty and at least 7 years of experience in the field or in a related area. He/she should be familiar with a variety of the field's concepts, practices, and procedures. Relies on experience and judgment to plan and accomplish goals. Performs a variety of tasks. Leads and directs the work of others. A wide degree of creativity and latitude is expected.

Campus Administrator

The campus administrator has the following functions

A. To supervise the following areas
1. Student Development
2. Physical Plant Facilities
3. Research and Extension
4. Curriculum and Instruction
5. Faculty Development
6. Laboratory Facilities
7. Library
8. Administration

B. To prepare reports on the progress of the above mentioned areas to the College President.

C. To perform other functions that may be required by the College President.

Dean

The college Dean exercises control and general supervision and coordination of the professors/instructors and academic activities of the college. To formulate, develop and evaluate educational policies, plans, programs and standards of the department and recommend these through the administrative and academic counsels for the approval of the board. To take leadership in the development of curriculum materials and the promotion of research and studies for the advancement of education. To review and evaluate faculty, performance, request for study permission to transfer and to recommend appropriate action.

Faculty

Professors must formulate and teach from a course syllabus/outline from which lecture notes are devised to dispense the required information to students in a systematic and sequential format. Additionally, professors must develop evaluative measures to determine the students' level comprehension and conceptualization, usually through scheduled periodic exams, the dreaded mid-term, and finals.

Student

A person engaged in study; one who is devoted to learning; a learner; a pupil; a scholar, especially one who attends a school, or who seeks knowledge from professional teachers or from books; as, the students of an academy, a college, or a university; a medical student; a hard student. One who studies or examines in any manner; an attentive and systematic observer; as a student of human nature, or of physical nature.

FINANCIAL ASPECT

The financial study for the proposed projects included the start-up capital needed sources of the capital return or investment, and other capital financial computation. It looks at how much cash/capital is needed, where it will come from, and how it will be spent. It is an assessment of the financial aspects of something. It has considered many things including start-up, capital, expenses, revenues, investor, income and disbursement.

Salaries and Wages with a 10% increase per year*

Table 7 shows the estimated salaries and wages of faculty and staff with the amount of 390/day for the Specialized Teacher and General Education Teacher and 280/day for the Clerk for 11 months.

In table no. 7 it shows the salaries and wages of the five curricular programs to be offered at GSC. We show the salaries of the clerk and faculty in the specialized field course. The five courses will have the total salaries and wages amounting to 210,800 per month and was increased by 10% per year.

Table 7. Schedule of payment for Salaries and wages

Position	No. of Persons	Basic Monthly	Year 1	Year 2	Year 3	Year 4	Year 5
Clerk	1	(280/day x 22)=6,160 x 1 = 6,160	73,920	81,312	89,443.2	98,387.52	108,226.27
Specialized Field	2	18,000 x 2 = 36,000 per month	432,000	475,200	522,720	574,992	632,491.2
Total			505,920	556,512	612,632.2	673,379.52	740,717.47

Operating Expenses

Table 8 shows the total operating expenses of one course for the next five years increased by 10% per year. These expenses will be true to all courses.

Table 8. Schedule of Operating expenses for one course with 10% increase per year

Operating Expenses	Per Month	Year 1	Year 2	Year 3	Year 4	Year 5
Office Supplies	2,000.00	24,000.00	26,400.00	29,040.00	31,944.00	35,138.00
Traveling	3,000.00	36,000.00	39,600.00	43,560.00	47,916.00	52,708.00
Miscellaneous	3,000.00	36,000.00	39,600.00	43,560.00	47,916.00	52,708.00
Faculty Training	3,000.00	36,000.00	39,600.00	43,560.00	47,916.00	52,708.00
Utilities (Light & Power)	5,000.00	60,000.00	66,000.00	72,600.00	79,860.00	87,846.00
Repairs and Maintenance	10,000.00	120,000.00	132,000.00	145,200.00	159,720.00	175,692.00
Total	26,000.00	312,000.00	343,000.00	377,520.00	415,272.00	456,799.00

Projected Cash Flow Statement

At 50% projection, the result showed for a positive cash balance ending from the first up to the fifth year. At the end of the fifth year, the cash balances ending amounted to P21,774,190.08. This simply shows that if only 50% of those high school graduates who answered yes they are going to enroll in one of the courses to be offered by GSC, the programs can survive and the income derived from the program can fund its own expenses.

A. 50%

Activities	Year 1	Year 2	Year 3	Year 4	Year 5
Cash Inflow: (50%)					
Cash Balance Beginning	0	916,480.00	1,342,984.00	4,377,495.00	10,226,015.55
Income from Tuition	2,514,400.00	5,118,600.00	7,812,600.00	10,596,400.00	13,470,000.00
Total	2,514,400.00	6,035,080.00	9,155,584.00	14,974,375.00	23,696,015.55
Cash Outflow					
Investment Cost	900,000.00	900,000.00	900,000.00	900,000.00	900,000.00
Subtotal	900,000.00	900,000.00	900,000.00	900,000.00	900,000.00
Operating Expenses:					
Salaries and wages	505,920.00	556,512.00	612,632.20	673,379.52	740,717.47
Office Supplies	24,000.00	26,400.00	29,040.00	31,944.00	35,138.00
Traveling	36,000.00	39,600.00	43,560.00	47,916.00	52,708.00
Miscellaneous	36,000.00	39,600.00	43,560.00	47,916.00	52,708.00
Faculty Training	36,000.00	39,600.00	43,560.00	47,916.00	52,708.00
Utilities (Light & Power)	60,000.00	66,000.00	72,600.00	79,860.00	87,846.00
Subtotal	697,920.00	767,712.00	844,952.20	928,931.52	1,021,825.47
Total Outflow	1,597,920.00	1,667,712.00	1,744,952.20	1,828,931.52	1,921,825.47
Net Inflow	916,480.00	4,376,368.00	7,410,631.80	13,145,443.48	21,774,190.08
Cash Balance Ending	916,480.00	4,376,368.00	7,410,631.80	13,145,443.48	21,774,190.08

B. 40%

At 40% projection, the result showed for a positive cash balance ending from the first up to the fifth year of offering the course. In the fifth year, the cash balance ending amounted to 6, 847,431.40

Activities	Year 1	Year 2	Year 3	Year 4	Year 5
Cash Inflow: (40%)					
Cash Balance Beginning	0	(2,593,600.00)	(3,783,496.00)	(3,083,304.95)	-288,464.40
Income from Tuition	1,796,000.00	3,502,200.00	5,477,800.00	7,543,200.00	9,698,400.00
Total	1,796,000.00	908,600.00	1,694,304.00	4,459,895.05	9,409,935.60
Cash Outflow					
Investment Cost	900,000.00	900,000.00	900,000.00	900,000.00	900,000.00
Subtotal	900,000.00	900,000.00	900,000.00	900,000.00	900,000.00
Operating Expenses:					
Salaries and wages	2,529,600.00	2,782,560.00	3,060,816.00	3,336.897.60	3,703,587.36
Office Supplies	120,000.00	132,000.00	145,200.00	159,720.00	175,692.00
Traveling	180,000.00	198,000.00	217,800.00	239,580.00	263,538.00
Miscellaneous	180,000.00	198,000.00	217,800.00	239,580.00	263,538.00
Faculty Training	180,000.00	198,000.00	217,800.00	239,580.00	263,538.00
Utilities (Light & Power)	300,000.00	330,000.00	363,000.00	399,300.00	439,230.00
Subtotal	3,489,600.00	3,883,560.00	4,222,416.00	4,644,657.60	5,109,123.36
Total Outflow	4,389,600.00	4,692,096.00	4,777,608.95	4,748,359.45	2,562,504.20
Net Inflow	(2,593,600.00)	(3,783,496.00)	(3,083,304.95)	(288,464.40)	6,847,431.40
Cash Balance Ending	(2,593,600.00)	(3,783,496.00)	(3,083,304.95)	(288,464.40)	6,847,431.40

C. 30%

The cash balance ending at 30% projection showed a positive result only from the second to the fifth year. It amounted to 20,772,761.3

Activities	Year 1	Year 2	Year 3	Year 4	Year 5
Cash Inflow: (30%)					
Cash Balance Beginning	0	(2,916,880.00)	(4,609,656.00)	(13,967,064.95)	15,432,865.5
Income from Tuition	1,472,720.00	2,999,320.00	4,579,800.00	6,214,160.00	7,902,400.00
Total	1,472,720.00	82,440.00	(9,189,456.00)	20,181,224.95	23,335,265.5
Cash Outflow					
Investment Cost	900,000.00	900,000.00	900,000.00	900,000.00	900,000.00
Subtotal	900,000.00	900,000.00	900,000.00	900,000.00	900,000.00
Operating Expenses:					
Salaries and wages	2,529,600.00	2,782,560.00	3,060,816.00	3,336.897.60	3,703,587.36
Office Supplies	120,000.00	132,000.00	145,200.00	159,720.00	175,692.00
Traveling	180,000.00	198,000.00	217,800.00	239,580.00	263,538.00
Miscellaneous	180,000.00	198,000.00	217,800.00	239,580.00	263,538.00
Faculty Training	180,000.00	198,000.00	217,800.00	239,580.00	263,538.00
Utilities (Light & Power)	300,000.00	330,000.00	363,000.00	399,300.00	439,230.00
Subtotal	3,489,600.00	3,883,560.00	4,222,416.00	4,644,657.60	5,109,123.36
Total Outflow	4,389,600.00	4,692,096.00	4,777,608.95	4,748,359.45	2,562,504.20
Net Inflow	(2,916,880.00)	(4,609,656.00)	(13,967,064.95)	15,432,865.5	20,772,631.3
Cash Balance Ending	(2,916,880.00)	(4,609,656.00)	(13,967,064.95)	15,432,865.5	20,772,631.3

Net Present Value 50%

Year	Investment Outlay	Gross Sales (Projected Income)	Gross Operational Expenses	Net Benefit	Discount Factor	Present Value
0	900,000.00					
1		2,514,400.00	312,000.00	2,202,400.00	0.8	1,761,920.00
2		5,118,600.00	343,200.00	4,775,400.00	.64	3,056,256.00
3		7,812,600.00	377,520.00	7,435,080.00	.51	3,791,890.80
4		10,596,400.00	415,272.00	10,181,128.00	.41	4,174,262.48
5		13,470,000.00	456,799.00	13,013,201.00	.33	4,294,356.33
Total		39,512,000.00	1,904,791.00	37,625,209.00		17,078,685.51

NPV= PV-Investment Outlay
Gross sale or income – gross operational expenses = Net Benefit
Net Benefit x discount factor = Present Value

Net Present Value 40%

Year	Investment Outlay	Gross Sales (Projected Income)	Gross Operational Expenses	Net Benefit	Discount Factor	Present Value
0	900,000.00					
1		1,796,000.00	312,000.00	1,484,000.00	0.8	1,187,200.00
2		3,502,000.00	343,200.00	3,158,800.00	.64	2,021,632.00
3		5,477,800.00	377,520.00	5,100,280.00	.51	2,601,142.80
4		7,543,200.00	415,272.00	7,037,928.00	.41	2,885,550.48
5		9,698,400.00	456,799.00	9,241,601.00	.33	3,049,728.33
Total		28,017,400.00	1,904,791.00	26,022,609.00		11,745,253.61

Net Present Value 30%

Year	Investment Outlay	Gross Sales (Projected Income)	Gross Operational Expenses	Net Benefit	Discount Factor	Present Value
0	900,000.00					
1		1,472,720.00	312,000.00	1,160,720.00	0.8	928,576.00
2		2,999,320.00	343,200.00	2,656,120.00	.64	1,669,916.80
3		4,579,800.00	377,520.00	4,202,280.00	.51	2,143,162.80
4		6,214,160.00	415,272.00	5,798,888.00	.41	811,844.32
5		7,902,400.00	456,799.00	7,445,601.00	.33	2,457,048.33
Total		23,168,400.00	1,904,791.00	21,263,609.00		8,040,548.25

SOCIO-ECONOMIC BENEFIT

A. GSC Community

The offering of additional curricular offerings like BS Mechanical Engineering, BS Electrical Engineering, BS Food Technology, BIT major in Food Packaging, and BS Fisheries is Beneficial to the GSC Community in the sense that it will increase its enrolment plus the fact that its profile as a State College will elevate.

B. Community People

The proposed project will be beneficial to the secondary school graduating students and to their parents since they need do not to go to the city to enroll the course because it will be offered in Guimaras State College.

C. Industry

The curricular programs like BS Mechanical Engineering, BS Electrical Engineering, BS Food Technology, BIT major in Food Packaging, and BS Fisheries will produce graduates who are competent in their own fields and values-oriented; thus, providing the industry with employees who are contributors for sustainable development.

Conclusions

Based on the results of the study, the benefit cost ratio showed a positive result. This means that the offering of BS Mechanical Engineering, BS Electrical Engineering, BS Food Technology, BIT major in Food Packaging, and BS Fisheries is viable and feasible up to 20% share of enrollment.