

UNIVERSIDAD PARA LA COOPERACIÓN INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE REFURBISHMENT OF THE IRENE B
WILLIAMS SECONDARY SCHOOL (IBWSS) LIBRARY

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FINAL GRADUATION PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE
MASTER IN PROJECT MANAGEMENT (MPM) DEGREE

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Master in Project Management (MPM) Degree

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DEDICATION

This Final Graduation Project is dedicated to the persons that are open to taking risks and branching off into territories unknown.

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To my dearest friends who had faith that I would be successful in an area of study that was unknown to me before I enrolled into the program, I say thank you from the bottom of my heart.

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ABBREVIATIONS AND ACRONYMS

- Antigua and Barbuda Board of Education (BOE)
- Caribbean Community (CARICOM)
- Caribbean Examination Council (CXC)
- Earned Value (EA)
- Earned Value Management (EVM)
- Eastern Caribbean Dollar (XCD)
- Final Graduation Project (FPG)
- Head of Department (HOD)
- Irene B. Williams Secondary School (IBWSS)
- Masters in Project Management (MPM)
- Ministry of Education Science and Technology (MOEST)
- Planned Value (PV)
- Project Management Body of Knowledge (PMBOK)
- Project Management Institute (PMI)
- Schedule Performance Index (SPI)
- Schedule Variance (SV)
- School Based Assessment (SBA)
- United States Dollars (USD)
- Universal Secondary Education (USE)
- Universidad para la Cooperación Internacional (UCI)
- University of the West Indies (UWI)
- Work Breakdown Structure (WBS)

EXECUTIVE SUMMARY (ABSTRACT)

In most regions across the world, it is mandatory for children to receive some form of schooling, and this is seen as important because its main purpose is to prepare individuals to be productive fully functioning adults. For many education is considered to be the most powerful tool to create change (Pariente, Martinez-Monés & Abellán, 2016). In Antigua and Barbuda, it is compulsory for all children between the ages of five (5) to sixteen (16) years to be enrolled in an educational institution. However, before 2013 it was not automatic for everyone to get the opportunity to attend secondary school.

The introduction of Universal Secondary Education (USE) in 2013 afforded all school age children an opportunity to attend secondary school in Antigua and Barbuda. This educational reform required changes in the level of education offered at several government institutions. Irene B. Williams Secondary was one of the schools that underwent adjustments in its level and style of educational delivery, unfortunately this change was not reflected in the infrastructure.

As a result, the library at the institution had to be refurbished to foster information literacy skills for students of secondary school age. To remedy the problem the Fifth Form students of the institution under the guidance of their Building and Furniture Technology teacher realized the refurbishment project; however, this was done without any proper plan to guide, facilitate and monitor the process.

Hence, the general objective of the final graduation project was to develop a Project Management Plan founded on the guidelines of the Project Management Institute (PMI) to manage resources in the refurbishment of the Irene B. Williams Secondary School library.

Correspondingly the specific objectives were: objective 1 to develop a Project Integration Management Plan to identify and coordinate the processes and activities within the project life cycle, objective 2 to create a Scope Management Plan to outline all the tasks necessary to complete the project, objective 3 to create a Schedule Management Plan to schedule project activities and ensure that the project is completed within the established timeframe, objective 4 to create a Cost Management Plan to apply proper budget allocation and disbursement of funds throughout the project life cycle, objective 5 to design a Quality Management Plan to produce quality deliverables that meet the functional, educational and aesthetic specifications of a 21st century library, objective 6 to create a Human Resource Management Plan to identify the most appropriate person(s) with the required skills and knowledge and assign them to their roles and responsibilities, objective 7 to create a Communication Management Plan to facilitate effective and efficient communication, objective 8 to draft a Risk Management Plan to identify risks and develop risk responses to minimize their effect on the project, objective 9 to formulate a Procurement Management Plan to locate and acquire goods and services needed for the project and objective 10 to develop a Stakeholder

Management Plan to identify stakeholders, their interest and power of influence on the project.

The research methodologies employed to develop the Final Graduation Project were analytical and qualitative. The selection offered the author an opportunity to collect credible and relevant information from various reliable sources. The analytical method allowed for comprehensive review of the topic through literary reviews, while the qualitative method allowed for the review of first-hand information, relevant to the specific project, which made a significant contribution to the development of the project.

The Project Management Plan which comprises of subsidiary plans that manage the initiation, planning, execution, monitoring, control and closing phases of projects was developed to provide guidelines that would improve the project performance and success. This was done by applying knowledge, skills, processes, tools and techniques that are founded in the principles established by the PMBOK® Guide 5th Edition.

Subsequent to reviewing the outlined objectives, it was concluded that if the Irene B. Williams Secondary School Library Refurbishment Project was realized using a Project Management Plan developed following the guidelines and principles of the PMBOK® Guide 5th Edition the time and resources would have been better managed.

It was therefore recommended that educators involved in Project Based Learning equip themselves with knowledge in the area of project management to ensure that Project Management Plans are developed and utilized for all future projects.

1. INTRODUCTION

1.1. Background

On Monday 5th September 2011, in Swetes Village in the twin island state of Antigua and Barbuda a new secondary school was opened, the Irene B. Williams Secondary School. This prestigious event was celebrated by Ministers of Parliament, Ministers of the Clergy, the Principal, teaching and auxiliary staff, parents and students at the Swetes Wesleyan Holiness Church.

This institution has experienced many changes in its location, name, infrastructure and level of education offered to its students. In the late 1872 it started its operation as the Cana Moravian School, however due to some administrative issues during the 1940's the Government of Antigua and Barbuda took charge of the institution and it was renamed Swetes Primary School. The classes at that time were held in a wooden structure which the villagers called "Joshua Long Hall". As the population grew so did the need for a bigger and more modern facility, so in 1993 a new school was built. This new structure was named Irene B. Williams Primary School paying homage to a former principal, the late mother of the Governor General His Excellency Sir Rodney Williams, KGN, GCMG, KSt, GCFO, MBBS (UWI).

The Ministry of Education Science and Technology (MOEST) and other educational stakeholders decided in 2011 to convert the Irene B. Williams Primary School into the 10th government secondary school, in preparation for the introduction of Universal Secondary Education (USE) in 2013.

At the Irene B. Williams Secondary School, different teaching strategies are utilized to help develop skills and cater to the needs of the 21st Century learner. One approach is through Project Based Learning (PBL) where students try to solve problems through research etc. and create a project as the solution. Though the

projects realized have been considered a success, this has and continues to be done without any established guidelines.

1.2. Statement of the problem

Teaching in the 21st Century demands that the students be prepared with the skills and knowledge needed to survive in this rapidly evolving technology driven world. Project Based Learning is a pedagogic strategy, which meets this requirement and has become an integral part of the educational delivery process in Universal Secondary Education at the Irene B. Williams Secondary School. This demands that the school has the necessary infrastructure to facilitate the process. When the physical transition of the plant was being considered, the project was not designed based on the guidelines stipulated by the Project Management Institute (PMI). This resulted in challenges in the effective management of the resources used in the refurbishment of the IBWSS library Project.

1.3. Purpose

This Final Graduation Project is being undertaken to create a Project Management Plan for the refurbishment of the Irene B. Williams Secondary School library. The Project Management Body of Knowledge (PMBOK) 5th Edition defines a Project Management Plan as “The document that describes how the project will be executed, monitored and controlled.” (Project Management Institute, 2013). Having a Project Management Plan is an essential document in the project life cycle as it guides the processes and also provides checks and balances which help to ensure quality deliverables and a successful project.

It is the expectation that the creation of a Project Management Plan will create a framework, which will be utilized at the Irene B. Williams Secondary School as an integral element in PBL. The result of its incorporation should result in projects that

- i. Finish in a timely manner.
- ii. Efficient use of resources.
- iii. Quality deliverables.

1.4. General objective

The general objective is to develop a Project Management Plan founded on the guidelines of the Project Management Institute (PMI) to manage resources in the refurbishment of the Irene B. Williams Secondary School library.

1.5. Specific objectives

1. To develop a Project Integration Management Plan to identify and coordinate the processes and activities within the project life cycle.
2. To create a Scope Management Plan to outline all the tasks necessary to complete the project.
3. To create a Schedule Management Plan to schedule project activities and ensure that the project is completed within the established timeframe.
4. To create a Cost Management Plan to apply proper budget allocation and disbursement of funds throughout the project life cycle.
5. To design a Quality Management Plan to produce quality deliverables that meets the functional, educational and aesthetic specifications of a 21st century library.
6. To create a Human Resource Management Plan to identify the most appropriate person(s) with the required skills and knowledge and assign them to their roles and responsibilities.
7. To create a Communication Management Plan to facilitate effective and efficient communication.
8. To draft a Risk Management Plan to identify risks and develop risk responses to minimize their effect on the project.
9. To formulate a Procurement Management Plan to locate and acquire goods and services needed for the project.
10. To develop a Stakeholder Management Plan to identify stakeholders, their interest and power of influence on the project.

2. THEORETICAL FRAMEWORK

2.1. Company/Enterprise framework

2.1.1 Company/Enterprise background

Irene B. Williams Secondary School is a relatively small school in Antigua and Barbuda with an enrolment of 264 students, when compared to similar institutions that have been in existence for at least half a century, that have an average enrolment of 600 students. In the six years that it has existed there have been two graduation ceremonies one in 2016 and the other in 2017.

It is an institution that prides itself in catering to the holistic development of its students so that in the future they can become self-sufficient and productive citizens.

2.1.2 Mission and vision statements

Mission

“The Mission of the Irene B. Williams Secondary School is to provide a teaching learning environment which promotes academic excellence and wholeness through the development of the emotional, cultural, spiritual, psychological, and inter/intrapersonal development of each child. This institution will nurture creative minds will rise above the ordinary, with a sense of courage to become good decision makers and innovators who can transform lives and communities, in this nation and in the global world (abusSTAR - Irene B. Williams Secondary, n.d.).”

Vision

“On the belief that all students are capable of learning and achieving their full potential; and as a centre of excellence, the vision of the Irene B. Williams Secondary School is to prepare all students to meet the challenges of a changing world with the skills and values that will promote lifelong

learning, creativity, innovation and the development of their body, mind and spirit (abusSTAR - Irene B. Williams Secondary, n.d.).”

2.1.3 Organizational structure

The Irene B. Williams Secondary School’s administration consists of the Principal and Deputy Principal they manage the general operations of the school with assistance from the management team. This management team comprises of five (5) Heads of Department, five (5) Level Heads, and the guidance counsellor who meet regularly with other members of staff and stakeholders to brainstorm on policies and strategies that will continue to improve the culture at the institution.

The staff consists of 41 individuals, with the exception of the principal, deputy principal and guidance counsellor, each teacher is responsible for teaching a particular subject area and in a few instances individuals teach two different subject areas. In addition to meeting the academic needs of students, teachers are also assigned form teacher duties to address the pastoral needs of students.

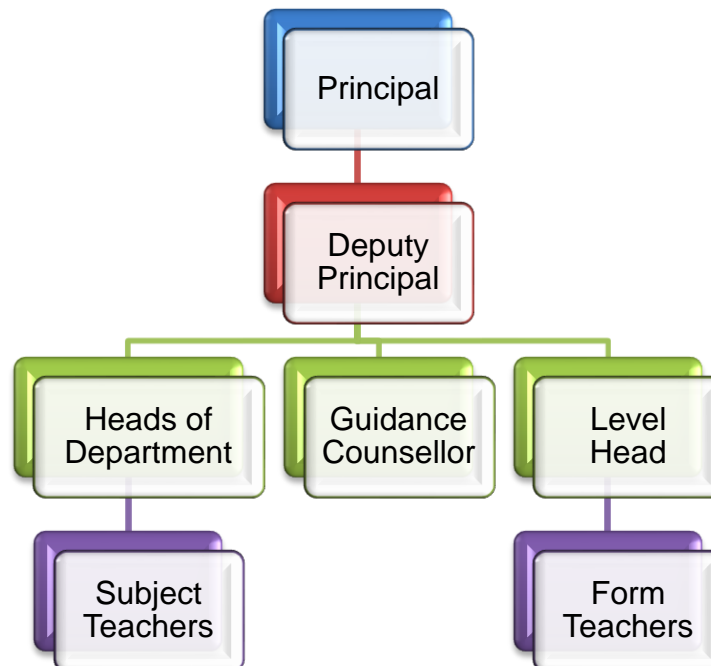


Figure 1 Organizational structure of the Irene B. Williams Secondary School (Source: Compiled by author)

2.1.4 Products offered

The Irene B. Williams Secondary School is a public educational institution that provides quality education from Form 1 to Form 5 (Grade 7 to Grade 11) to the children from the rural areas in Antigua and Barbuda. The education received by the students at the institution is student centered and prepares them for life by catering to their learning abilities and needs. The school pays special attention to the technical and vocational subjects, and tries to ensure that upon graduation every student is proficient in a skills based subject; hence the building and furniture technology students undertaking the library refurbishment project.

2.2. Project Management concepts

2.2.1 Project

The Project Management Institute (PMI) in an article titled “What is Project Management?” stated that “A project is temporary in that it has a defined beginning and end in time, and therefore defined scope and resources. And a project is unique in that it is not a routine operation, but a specific set of operations designed to accomplish a singular goal.” (Project Management Institute, n.d.).

While the Guide to the Project Management Body of Knowledge (PMBOK®) – Fifth Edition expresses that, a project is “a temporary endeavor undertaken to create a unique product, service or result. The temporary nature of projects indicates that a project has a definite beginning and end.” (Project Management Institute, 2013, p.3).

Both definitions share several similar characteristics that serve as guides in determining if an undertaking is a project or an operation (PMI, 2017). The creation of a Project Management Plan for the refurbishment of the Irene B. Williams Secondary School is a project as it has a predetermined start and end date and is being realized to solve a particular problem that exists at that institution.

2.2.2 Project management

“Project management is the discipline of using established principles, procedures and policies to manage a project from conception through completion (“what is project management”, n.d.)”. This is a condensed definition when compared to that found in PMBOK guide 5th ed which states that “Project Management is the knowledge, skills, tools, and techniques to project activities to meet the project requirements.” This can be realized by strategically by grouping the management processes, which form the five process groups. (Project Management Institute, 2013, p.5).

There exists a variety of project management methodologies, but for the development of this project, the guidelines outlined in PMBOK guide 5th edition will be utilized, as it is recognized and accepted internationally. In addition, having the project divided into process groups makes it more manageable and easier to detect if there are any deviation in the scope.

2.2.3 Project life cycle

A project’s life is the different aspects that are realized to ensure its successful completion. Project Management Institute (2013) defines a project life cycle as “...the series of phases that a project passes through from its initiation to its closure” (p. 38)”. There are three types of project life cycles and the selection is dependent on the type of project that is being undertaken. The types of project life cycles are predictive, iterative and incremental, and adaptive (Snyder, 2013).

The number of phases that a project has is not set to a specific number, however many sources have divided it into four as is illustrated in Figure 2. The phases are completed in a logical order though they may sometimes overlap during the project life cycle.

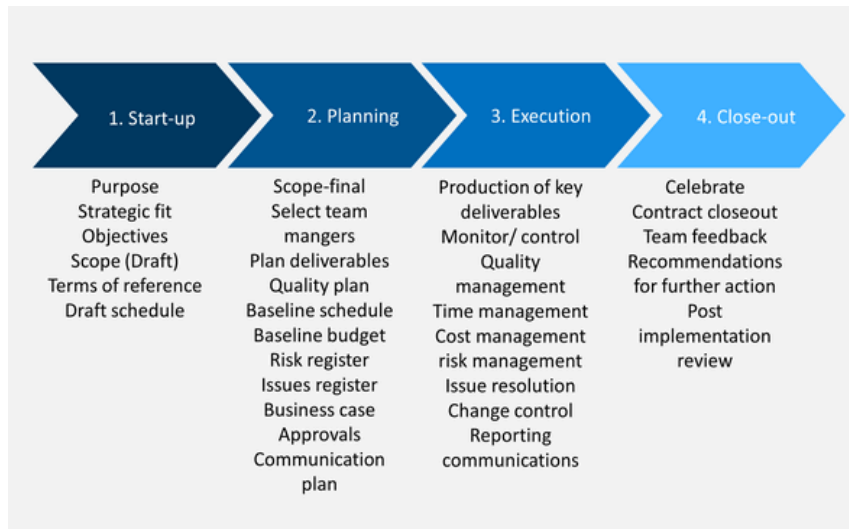


Figure 2 Project Life cycle. (Source: Retrieved from <https://www.sketchbubble.com/en/presentation-project-life-cycle.html>)

2.2.4 Project management processes

According to Project Management Institute (2013) processes are “a set of interrelated actions and activities performed to achieve a specified set of products, results, or services.” There are forty-seven project management processes, which are arranged strategically into five Process Groups as illustrated in Figure 3 to help ensure project success (Project Management Institute 2013). Due to the nature of this project, only the processes, which are incorporated in the Initiating Process Group and the Planning Process Group, will be realized.

Project Management Process Groups					
Knowledge Areas	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
9. Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

Figure 3 Project Management Process Group and Knowledge Area Mapping.
(Source: Project Management Body of Knowledge (PMBOK®) – Fifth Edition)

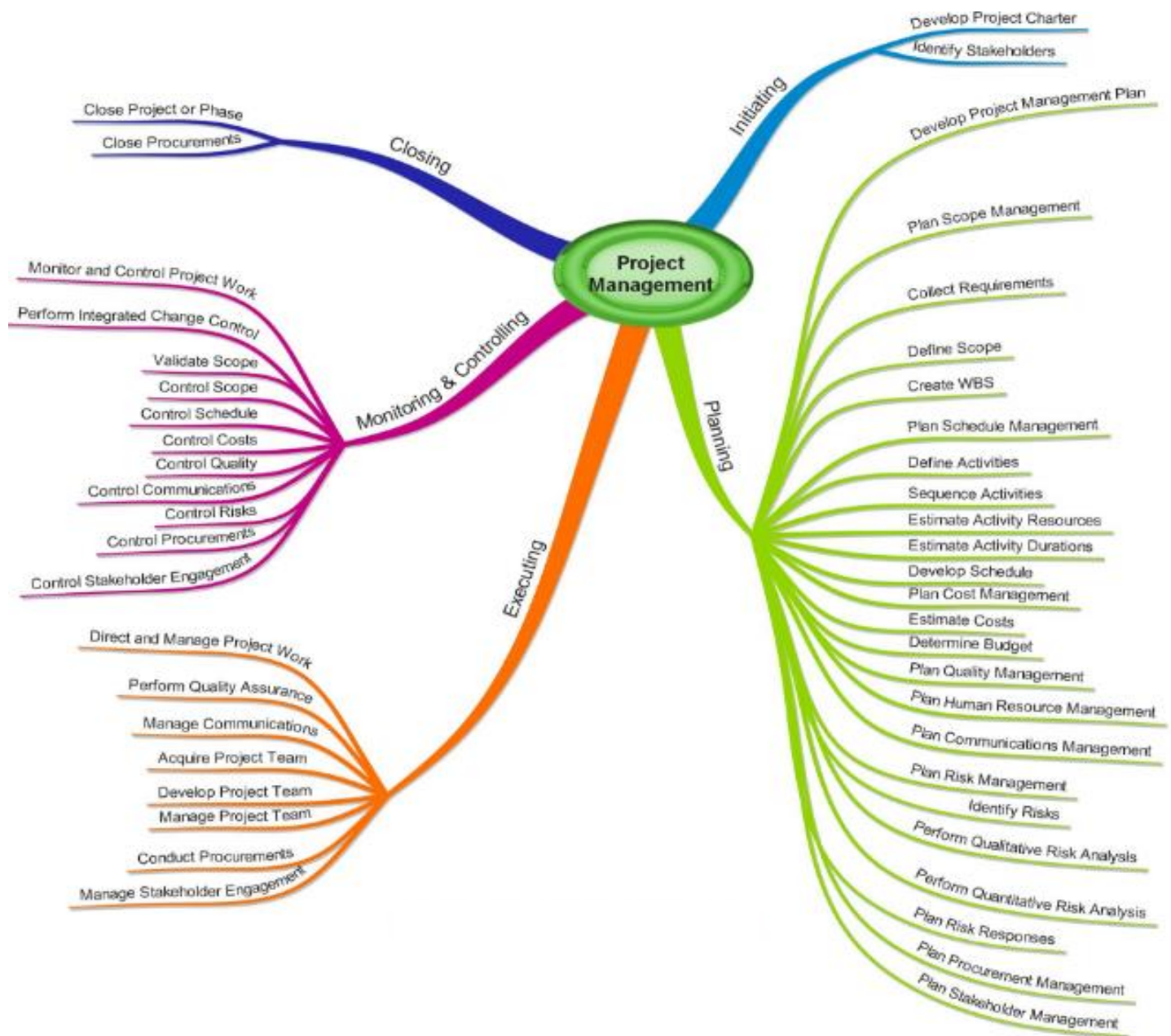


Figure 4 Project Management Processes Group Mind Map. (Source: Retrieved from <http://www.kodyaz.com/pmp/project-management-knowledge-areas-according-to-pmi.aspx>)

2.2.5 Project management knowledge areas

According to Project Management Institute (2013), a knowledge area is “An identified area of project management defined by its knowledge requirements and described in terms of its component processes, practices, inputs, outputs, tools and techniques.” (p. 554).

There are ten knowledge areas in project management that are highlighted in PMBOK® Fifth Edition and each one embodies “...a complete set of concepts, terms, and activities that make up a professional field, project management field, or area of specialization.” Project Management Institute (2013).



Figure 5 Project Management Knowledge Area Processes Mind Map (Source: Retrieved from <http://www.kodyaz.com/pmp/project-management-knowledge-areas-according-to-pmi.aspx>)

2.3. Other applicable theory/concepts related to the project topic and context

2.3.1 Project Management Plan

A Project Management Plan can be considered a map that is used to guide the project life cycle, it describes the project execution, monitoring and its control. Project Management Institute (2013)

A Project Management Plan can range from a detailed document to a simple summary. It contains subsidiary management plans, baselines, and a range of other planning documents. Whether a detailed plan or a summary it must define how the project is to be executed, monitored, and controlled. The document identifies and defines the approach the team will take to map out the scope of the project, and ensure quality delivery (Conforto, Amaral, Da Silva, Di Feloppo, & Kamikawachi, 2016).



Figure 6 Project Management Plan (Source: Retrieved from www.free-management-ebooks.com/faqpm/processes-03.htm)

A Project Management Plan will greatly improve the project success rate as the stakeholders in the process will be aware of their roles and responsibilities, the timelines that they are working with and all the resources that are available to them. The Project Management Plan will ensure that the project lifecycle is realized in a more efficient way at the Irene B. Williams Secondary School.

3. METHODOLOGICAL FRAMEWORK

3.1. Information sources

Information is power only if you can take action with it. Then, and only then, does it represent knowledge and, consequently, power (Rumeser, Emsley. 2018). However, this information is only powerful /effective if it originates from a credible source.

An information source is where you got your information from; this can be a book or a Website. Information sources are the various means by which information is recorded for use by an individual or an organization. It is the means by which a person is informed about something or knowledge is availed to someone, a group of people or an organization. Information sources can be observations, people, speeches, documents, pictures, organizations. Information sources can be in print, non-print and electronic media or format. Information can be obtained from a primary, secondary or a tertiary source (Abyad, 2017).

3.1.1 Primary sources

“A primary source provides direct or first-hand evidence about an event, object, person, or work of art.” (library.ithaca.edu). This information can be found in recordings (audio and visual), legal documents, data collected from interviews or surveys, written communication etc.

For the effective development of this FGP, the primary information sources that were utilized are interviews, Building Technology and Furniture SBAs of past students of IBWSS, scheme of work for Building Technology and Furniture and CXC syllabus for Building Technology and Furniture.

3.1.2 Secondary sources

Secondary sources of information “... describe, discuss, interpret, comment upon, analyze, evaluate, summarize, and process primary sources.” which can be found

in editorials, textbooks, literary reviews and even in newspaper and magazine articles (library.ithaca.ed).

Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies, Daily Observer Newspaper and online literature related to project management were the secondary sources consulted for the development of the FGP.

Chart 1 Information sources (Source: Author of study)

Objectives	Information sources	
	Primary	Secondary
To develop a Project Integration Management Plan to identify and coordinate the processes and activities within the project life cycle.	Interviews with MOEST and BOE officials and the Head of Department of Building Technology and Furniture at the IBWSS. Building Technology and Furniture SBA	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site and PMP Certification all-in-one for Dummies.
To create a Scope Management Plan to outline all the tasks necessary to complete the project.	Interview with the Head of Department of Building Technology and Furniture at the IBWSS.	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies and online literature related to project management.

	<p>Scheme of work for Building Technology and Furniture</p> <p>CXC syllabus for Building Technology and Furniture</p> <p>Building Technology and Furniture SBAs</p>	
<p>To create a Schedule Management Plan to schedule project activities and ensure that the project is completed within the established timeframe.</p>	<p>Interview with the Head of Department of Building Technology and Furniture at the IBWSS.</p> <p>Scheme of work for Building Technology and Furniture</p> <p>CXC syllabus for Building Technology and Furniture</p>	<p>Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies and online literature related to project management.</p>

	Building Technology and Furniture SBA	
To create a Cost Management Plan to apply proper budget allocation and disbursement of funds throughout the project life cycle.	Interview with BOE officials and the Head of Department of Building Technology and Furniture at the IBWSS. Scheme of work for Building Technology and Furniture CXC syllabus for Building Technology and Furniture Building Technology and Furniture SBA	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies and online literature related to project management
To design a Quality Management Plan to produce quality deliverables that meets the functional,	Interviews with MOEST and BOE officials and the Head of Department of	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies and online literature

educational and aesthetic specifications of a 21st century library.	Building Technology and Furniture at the IBWSS. CXC syllabus for Building Technology and Furniture	related to project management
To create a Human Resource Management Plan to identify the most appropriate person(s) with the required skills and knowledge and assign them to their roles and responsibilities.	Interview with the Head of Department of Building Technology and Furniture at the IBWSS. Scheme of work for Building Technology and Furniture	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies and online literature related to project management
To create a Communication Management Plan to facilitate effective and efficient communication.	Interview with the Head of Department of Building Technology and Furniture at the IBWSS.	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies and online literature related to project management
To draft a Risk Management Plan to identify risks and	Interview with the Head of Department of	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI)

develop risk responses to minimize their effect on the project.	Building Technology and Furniture at the IBWSS. CXC syllabus for Building Technology and Furniture	site, PMP Certification all-in-one for Dummies and online literature related to project management
To formulate a Procurement Management Plan to locate and acquire goods and services needed for the project.	Interviews with MOEST and BOE officials and the Head of Department of Building Technology and Furniture at the IBWSS.	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies and online literature related to project management
To develop a Stakeholder Management Plan to identify stakeholders, their interest and power of influence on the project.	Interview with the Head of Department of Building Technology and Furniture at the IBWSS.	Project Management Body of Knowledge (PMBOK) Fifth Edition, Project Management Institute (PMI) site, PMP Certification all-in-one for Dummies and online literature related to project management

3.2. Research methods

Research is defined as the Systematic investigation to establish facts or principles or to collect information on a subject (Rumeser, Emsley. 2018). The same source characterizes method as a means or manner of procedure, especially a regular and systematic way of accomplishing something (Rumeser, Emsley. 2018). Taking these two definitions into context a research method is the collection of information on a subject by way of an established systematic procedure; it is thee guideline that establishes how research tasks will be completed.

3.2.1 Analytical method

“Analytical research is a specific type of research that involves critical thinking skills and the evaluation of facts and information relative to the research being conducted (Rumeser, Emsley. 2018. P.79).”

3.2.2 Qualitative method

Qualitative Research is primarily exploratory research. It is used to gain an understanding of underlying reasons, opinions, and motivations. It provides insights into the problem or helps to develop ideas or hypotheses for potential quantitative research. Qualitative Research is also used to uncover trends in thought and opinions, and dive deeper into the problem. The qualitative approach is best used in research projects where an in-depth look at the phenomenon been considered is necessary to provide data that fills a gap in the research, and in studies where the data can be used to influence positive social change (O’Dweyer & Bernauer, 2014).

Chart 2 Research methods (Source: Author of study)

Objectives	Analytical method	Qualitative method
	To develop a Project Integration Management Plan to identify and coordinate the processes and activities within the project life cycle.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create an Integration Management Plan.
To create a Scope Management Plan to outline all the tasks necessary to complete the project.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create a Scope Management Plan.	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements involved in creating the Scope Management Plan.
To create a Schedule Management Plan to schedule project activities and ensure that the project is completed within the established timeframe.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements

	create a Schedule Management Plan.	involved in creating the Schedule Management Plan.
To create a Cost Management Plan to apply proper budget allocation and disbursement of funds throughout the project life cycle.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create a Cost Management Plan.	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements involved in creating the Cost Management Plan.
To design a Quality Management Plan to produce quality deliverables that meets the functional, educational and aesthetic specifications of a 21st century library.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create a Quality Management Plan.	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements involved in creating the Quality Management Plan.
To create a Human Resource Management Plan to identify the most appropriate person(s) with the required skills and knowledge and assign them to their roles and responsibilities.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create a Human	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements involved in creating

	Resource Management Plan.	the human management plan.
To create a Communication Management Plan to facilitate effective and efficient communication.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create a Communication Management Plan.	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements involved in creating the Communication Management Plan.
To draft a Risk Management Plan to identify risks and develop risk responses to minimize their effect on the project.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create a Risk Management Plan.	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements involved in creating the Risk Management Plan.
To formulate a Procurement Management Plan to locate and acquire goods and services needed for the project.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create a Procurement	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements involved in creating the Procurement

	Management Plan.	Management Plan.
To develop a Stakeholder Management Plan to identify stakeholders, their interest and power of influence on the project.	Provided insight from various literary sources into the processes, inputs, tools, techniques and outputs required to create a Stakeholder Management Plan.	Allowed for observation and recording of intimate/ unique perspectives, experiences and requirements involved in creating the Stakeholder Management Plan.

3.3. Tools

According to bussinessdictionary.com a tool is “An item or implement used for a specific purpose.” This definition is a general one; however, PMBOK® GUIDE (2013) states that a tool is “something tangible, such as a template or software program, used in performing an activity to produce a product or result (p.565).

Chart 3 Tools (Source: PMBOK® GUIDE (2013))

Objectives	Tools
To develop a Project Integration Management Plan to identify and coordinate the processes and activities within the project life cycle.	Expert Judgement, Change control tools and Meetings.
To create a Scope Management Plan to outline all the tasks necessary to complete the project.	Expert Judgement, Meetings, Interviews, Group creativity techniques, Group decision-making techniques, Product analysis, Decomposition and Variance analysis.
To create a Schedule Management Plan to schedule project activities and ensure that the project is completed within the established timeframe.	Expert Judgement, Meetings, Decomposition, Group decision-making techniques and Resource optimization techniques.
To create a Cost Management Plan to apply proper budget allocation and disbursement of funds throughout the project life cycle.	Expert judgement, Meetings and Group decision-making techniques.
To design a Quality Management Plan to produce quality deliverables that meets the functional, educational and aesthetic specifications of a 21st	Meetings, Quality audits, Inspection and Approved change requests review.

century library.	
To create a Human Resource Management Plan to identify the most appropriate person(s) with the required skills and knowledge and assign them to their roles and responsibilities.	Organization Charts, Expert judgement, Meetings, Ground rules and Observation and conversation.
To create a Communication Management Plan to facilitate effective and efficient communication.	Communication technology, Meetings, and Expert judgement.
To draft a Risk Management Plan to identify risks and develop risk responses to minimize their effect on the project.	Expert judgement, SWOT analysis, Meetings, Probability and impact matrix and Strategies for threats and opportunities.
To formulate a Procurement Management Plan to locate and acquire goods and services needed for the project.	Expert judgement, Meetings, Independent estimates and Record management system.
To develop a Stakeholder Management Plan to identify stakeholders, their interest and power of influence on the project.	Expert judgement, meetings and interpersonal skills.

3.4. Assumptions and constraints

According to PMBOK® GUIDE (2013) an assumption is “A factor in the planning process that is considered to be true, real, or certain, without proof or demonstration.” (p.529) and constraint as “A limiting factor that affects the execution of a project, program, portfolio, or process.” (p.533).

Chart 4 Assumptions and constraints (Source: Author of study)

Objectives	Assumptions	Constraints
To develop a Project Integration Management Plan to identify and coordinate the processes and activities within the project life cycle.	It is assumed that all processes will be identified, completed and integrated seamlessly.	All processes may not be identified.
To create a Scope Management Plan to outline all the tasks necessary to complete the project.	The project scope will be well determined.	Changes in scope may result in cost and time overruns.
To create a Schedule Management Plan to schedule project activities and ensure that the project is completed within the established timeframe.	The time allocated for the development of the project is adequate.	Lack of expert resources may cause delays.
To create a Cost Management Plan to apply proper budget allocation and disbursement of funds throughout the project life cycle.	The developed and allocated budget will be adequate to complete the	The cost of resources may change.

Objectives	Assumptions	Constraints
	project.	
To design a Quality Management Plan to produce quality deliverables that meets the functional, educational and aesthetic specifications of a 21st century library.	That the requirements of the stakeholders are incorporated in the plan to ensure quality deliverables.	Not being able to source the required quality resources for the deliverables.
To create a Human Resource Management Plan to identify the most appropriate person(s) with the required skills and knowledge and assign them to their roles and responsibilities.	That a suitable tutor will be assigned to work along with the author. There will be a philologist on island to review FGP. And that all persons involved will understand their roles and responsibilities.	The tutor may not be assigned in a timely manner. The philologist may not have adequate time to work with the author.
To create a Communication Management Plan to facilitate effective and efficient communication.	Effective communication means and chains will be	All team members may not be au fait with the appropriate

Objectives	Assumptions	Constraints
	utilized.	means of communication to be utilized during the development of the project.
To draft a Risk Management Plan to identify risks and develop risk responses to minimize their effect on the project.	That all risks will be identified and planned for.	Unidentified risk (force majeure) may cause project delays.
To formulate a Procurement Management Plan to locate and acquire goods and services needed for the project.	Procurement of resources will be hassle free as the resources will be available on island.	Shortage of resources due to natural disasters.
To develop a Stakeholder Management Plan to identify stakeholders, their interest and power of influence on the project.	All stakeholders will be identified and work harmoniously towards the successful completion of the project.	Interest level of stakeholders may change.

3.5. Deliverables

Burley (2017) a deliverable is a "... a product or service that is given to your client. A deliverable usually has a due date and is tangible, measurable and specific. A deliverable can be given to either an external or internal customer and satisfies a milestone or due date that is created and produced in the project plan..."

A more succinct definition found in PMBOK® GUIDE (2013) states that a deliverable is "Any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project." (p.537).

Chart 5 Deliverables (Source: Author of study)

Objectives	Deliverables
To develop a Project Integration Management Plan to identify and coordinate the processes and activities within the project life cycle.	Integration Scope Management Plan
To create a Scope Management Plan to outline all the tasks necessary to complete the project.	Scope Management Plan
To create a Schedule Management Plan to schedule project activities and ensure that the project is completed within the established timeframe.	Schedule Management Plan
To create a Cost Management Plan to apply proper budget allocation and disbursement of funds throughout the project life cycle.	Cost Management Plan
To design a Quality Management Plan to produce quality deliverables that	Quality Management Plan

meets the functional, educational and aesthetic specifications of a 21st century library.	
To create a Human Resource Management Plan to identify the most appropriate person(s) with the required skills and knowledge and assign them to their roles and responsibilities.	Human Resource Plan
To create a Communication Management Plan to facilitate effective and efficient communication.	Communication Management Plan
To draft a Risk Management Plan to identify risks and develop risk responses to minimize their effect on the project.	Risk Management Plan
To formulate a Procurement Management Plan to locate and acquire goods and services needed for the project.	Procurement Management Plan
To develop a Stakeholder Management Plan to identify stakeholders, their interest and power of influence on the project.	Stakeholder Management Plan

4. RESULTS

4.1. Project Integration Management

To create a Project Management Plan for the Refurbishment of the Irene B Williams Secondary School (IBWSS) Library it was paramount to develop a Project Integration Management Plan that identified and coordinated the processes and activities within the project life cycle.

For a project to be successful, the processes of this knowledge area must be realized adeptly.

The creation of a Project Charter was the first process of this knowledge area. The Project Charter is a document that formally authorizes the project, describes the objectives and deliverables and allows the project manager to employ organizational resources to ensure the project's successful completion.

The Project Charter for the IBWSS Library Refurbishment Project was elaborated using a template provided by the UCI platform.

PROJECT CHARTER	
Date	Project Name:
13 th November, 2017.	Irene B Williams Secondary School (IBWSS) Library Refurbishment Project.
Knowledge Areas / Processes	Application Area (Sector / Activity)
Knowledge areas: Project Integration Management, Project Scope Management, Project Schedule and Cost Management, Project Quality Management, Project Human Resource Management, Project Communication Management, Project Risk Management,	Education and technology.

<p>Project Procurement Management and Project Stakeholder Management</p> <p>Process groups: Initiation, Planning, Executing, Monitoring and Controlling, Closing and Controlling, Closing</p>	
Start date	Finish date
4 th September, 2017.	15 th December, 2017.
Project Objective	
Renovate the Irene B. Williams Secondary School library to create a more modernized and age appropriate environment that will facilitate knowledge acquisition for the 21 st Century learner.	
Project purpose or justification (merit and expected results)	
<p>The Irene B Williams Secondary School in Antigua and Barbuda is a “new” rural educational institution. Previously it was a primary school, but as the need for more students to access Universal Secondary Education (USE) arose, the Ministry of Education Science and Technology (MOEST) decided that it was more feasible to change the level of education offered at the institution. There were changes made to the curriculum, staffing, hours of operation and uniforms; one thing that however remained the same was the infrastructure and aesthetics.</p>	
<p>Education in the 21st Century requires educators to meet children where they are and to provide them with a variety of learning tools in a learner centered and learner friendly environment. Presently the library at the Irene B. Williams Secondary School does not meet these requirements, hence the need for it to be refurbished.</p>	
<p>The rationale of this project to create a more efficient and student –friendly facility that supports and enhances learning in both a traditional and technological framework.</p>	
Description of Product or Service to be generated by the Project – Project final deliverables	
<p>The project final deliverable will be a refurbished library that allows users to have access to both traditional and modern information sources, as well as foster their innovative and creative abilities, while facilitating collaborative and independent learning.</p>	

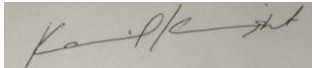
Assumptions		
<p>The following assumptions were made:</p> <ul style="list-style-type: none"> • The Ministry of Education Planning Unit, Antigua and Barbuda Board of Education (BOE), the school's administration, librarian staff and students will be supportive of the refurbishment plan. • Project team members are devoted and accessible as is required to complete project deliverables. • Project guidelines outlined in the subsidiary documents will be adhered to. • The project can be realized in the stipulated period of three months. • The project will not be over budget. • Health and safety standards of the Building and Furniture Technology syllabus will be practiced by the project team during the development of the project. 		
Constraints		
<ul style="list-style-type: none"> • Time period may not be adequate to complete the project. • Proposed budget may not be approved by the Board of Education to make all the earmarked changes to the library. • Some project members, e.g. students and teachers of the Building and Furniture Technology Department, have other classes and duties which may take away from how much time they can contribute to the project. • Delay in the procurement process due to multiple institutions requisitioning resources from the Antigua and Barbuda Board of Education. 		
Preliminary risks		
Cause	Effect	Impact
Failure to identify all project requirements	Delayed deliverables	Scope, Time, Quality
Unrealistic cost estimate	Delayed deliverables	Scope, Time, Quality
Unrealistic timeline estimate	Delayed deliverables	Scope, Time
Project team availability	Delayed deliverables	Scope, Time, Quality
Budget		
Estimated budget: \$164,799.50 XCD / \$61264.00 USD		
Milestones and dates		
Milestone	Start Date	End Date
Collect Requirements of Building and Furniture Technology SBA	4 th September, 2017.	4 th September, 2017.
Meeting with stakeholders	5 th September, 2017.	6 th September, 2017.

to discuss requirements		
Brainstorm session to decide how requirement will be met	7 th September, 2017.	8 th September, 2017.
Site visits and inspection of library	9 th September, 2017.	9 th September, 2017.
Obtain permission from MOEST, School Administration and School Librarian	11 th September, 2017.	12 th September, 2017.
Layout drawing of library	13 th September, 2017.	14 th September, 2017.
Create resource requisition lists	15 th September, 2017.	16 th September, 2017.
Paint walls	18 th September, 2017.	23 rd September, 2017.
Install light fixtures	25 th September, 2017.	30 th September, 2017.
Install whiteboard	2 nd October, 2017.	7 th October, 2017.
Construct bookshelves	9 th October, 2017.	28 th October, 2017.
Install new furniture	30 th October, 2017.	31 st October, 2017.
Install laptop work stations	2 nd November, 2017.	6 th November, 2017.
Site clean-up and preliminary inspection	7 th November, 2017.	13 th November, 2017.
Final inspection by CXC Moderator	14 th November, 2017.	16 th November, 2017.
Building and Furniture Technology SBA complete (document)	17 th November, 2017.	7 th December, 2017.
Evaluation from CXC Moderator (document)	8 th December, 2017.	14 th December, 2017.
Handing over and reopening ceremony	15 th December, 2017.	15 th December, 2017.

Relevant historical information

Due to reforms in the education system in Antigua and Barbuda, the Irene B. Williams Secondary School opened its doors in September of 2011 in the village of Swetes. Meeting the needs of 21st Century learners is one of the main focuses at this educational institution, therefore it was necessary to change the environment in which they learn. In the final year (5th Form) of secondary school, students whose countries are members Caribbean Community (CARICOM) all sit a standardized exam with the Caribbean Examination Council (CXC).

Some subjects offered consist of a School Based Assessment (SBA). In 2016, the first cohort of Building and Furniture Technology students with assistance and guidance from their teachers did their SBA in the form of Project Based Learning (PBL) and constructed benches to be utilized in the outdoor classroom spaces. From that year, it was decided that 5th Form students would use their knowledge and contribute to the structural and educational development of the institution.

Stakeholders	
<p>Direct stakeholders: Administration of the Irene B. Williams Secondary School Project Team (staff and 5th Form (11th Grade) Building and Furniture Technology students of Irene B. Williams Secondary School) Ministry of Education Science and Technology, Planning Unit Antigua and Barbuda Board of Education Mr Karil Knight (5th Form Building and Furniture Technology Teacher at IBWSS) – Project Manager Head of Building and Furniture Technology Department Library Staff</p> <p>Indirect stakeholders: Staff and students of Irene B. Williams Secondary School (users of the library and its facilities)</p>	
Project Manager: Karil Knight	Signature: 
Authorized by:	Signature:

Once the Project Charter was completed and approved the elaboration of the Project Management Plan began. “A Project Management Plan is a formal, approved document that defines how the project is executed, monitored, and controlled. It may be a summary or a detailed document and may include baselines, subsidiary management plans, and other planning documents (“Understanding Project Management” 2017).”

Document Acceptance

We the undersigned have reviewed and approved the Integration Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

Any changes to this document will be executed by the Project Manager and the Head of the Building and Furniture Technology Department.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

4.2. Scope Management Plan

The Scope Management Plan is the component of the Project Management Plan that incorporates all the tasks that must be realized, and in what sequence for the successful completion of a project. It helps the project manager to distribute resources in a more efficient manner, prevent/ reduce scope creep. This process occurs directly after the creation of the Project Charter and involves the planning scope management, collecting requirements, defining scope, creating a WBS, validating and controlling scope (Project Management Institute, 2013, p. 106).

To initiate, a stakeholder register matrix was created to firstly identify the stakeholders, their roles/ responsibilities, expectation and requirement along with their influence/impact on the project.

Once the requirements were identified, the project scope was defined by creating a Scope Management Plan that will be used by the project management team to ensure that there is no scope creep. The project charter, expert judgement, group decision and meetings were used as input.

Included in the Scope Management Plan are the scope definition, project scope statement, work breakdown structure (WBS), WBS dictionary, scope validation and control measures.

Table 1 Roles and Responsibility (Source: Author of study)

Roles/ Institution	Responsibility
MOEST	Ensure that grades from the Building and Furniture Technology teacher and CXC moderator are submitted to the CXC Portal on time.
BOE	Provide requisitioned resources for the realization of the renovation project.
CXC Moderator	<ol style="list-style-type: none"> 1. Observe the project team. 2. Evaluate skills and competencies displayed. 3. Evaluate the quality of products.
Head of Department (H.O.D) Building and Furniture Technology	<ol style="list-style-type: none"> 1. Oversee the Building and Furniture Technology Teacher 2. Liaise between: <ul style="list-style-type: none"> • BOE and Building and Furniture Technology Teacher • CXC Moderator and Building and Furniture Technology Teacher
Project Manager (Building and Furniture Technology Teacher)	<ol style="list-style-type: none"> 1. Manage project by ensuring proper integration of all processes. 2. Manage and monitor the resources of the project. 3. Ensure that the project meets the requirement of the CXC Building and Furniture Technology syllabus. 4. Ensure that project documents are properly maintained and signed by him. 5. Inform stakeholders of the project's status.
Project Team (Building and Furniture Technology students)	<ol style="list-style-type: none"> 1. Adhere to the CXC guidelines given so that they can successfully complete the project. 2. Follow the schedule so that the completion deadline is not missed. 3. Give progress reports and communicate any difficulties they encounter to their teacher.
Library staff	Provide guidelines on the requirements of Library and Media Centre facilities

Project Scope Statement
Irene B. Williams Secondary School Library Refurbishment Project
Swetes Village, St Paul's, Antigua and Barbuda

Project Title: Irene B. Williams Secondary School Refurbishment Project

Date Prepared:

Product Scope Description:

The refurbished library will facilitate the 21st Century learner having access to both traditional and modern sources of information. It will also encourage them to be innovative and creative during collaborative and independent learning.

Product Acceptance Criteria

The library project will be accepted once the students under the guidance of their teacher have demonstrated competence in the use of traditional and modern materials, systems, and processes related to the furniture elaboration and building industry. In doing so the following will be presented:

- Repainted walls in color Berger Paint White Score
- Four 6ft fluorescent light fixtures
- 8x4ft White board / dry erase board which doubles as projector screen
- Three 6 x 5ft bookshelves
- Twenty new chairs and five 48x30x30 inches tables (seat 4 persons each)
- Six workstations with laptops

Project Deliverables:

- Building and Furniture Technology SBA
- Project Management Plan

Product Exclusion

- Ventilation system/Air conditioning unit
- Projector
- Internet installation
- Tiling of floors

- Anything not specifically included is excluded

Project Constraints:

- Time period may not be adequate to complete the project
- The Antigua and Board of Education annual budgetary allocation may not be adequate to make all the earmarked changes to the library.
- Some project members, e.g. students and teachers of the Building and Furniture Technology Department, have other classes and duties, which may reduce how much time they can contribute to the project.
- Delay in the procurement process due to multiple institutions requisitioning resources from the Antigua and Barbuda Board of Education

Project Assumptions:

- The Ministry of Education Planning Unit, Antigua and Barbuda Board of Education (BOE), the school's administration, librarian staff and students will be supportive of the refurbishment plan.
- Project team members are devoted and accessible as is required to complete project deliverables.
- Project guidelines outlined in the subsidiary documents will be adhered to.
- The project can be realized in the stipulated time frame of three months.
- The project will not be over budget.
- Health and safety standards of the Building and Furniture Technology syllabus will be practiced by the project team during the development of the project.

WBS for the Irene B. Williams Secondary School Library Refurbishment Project

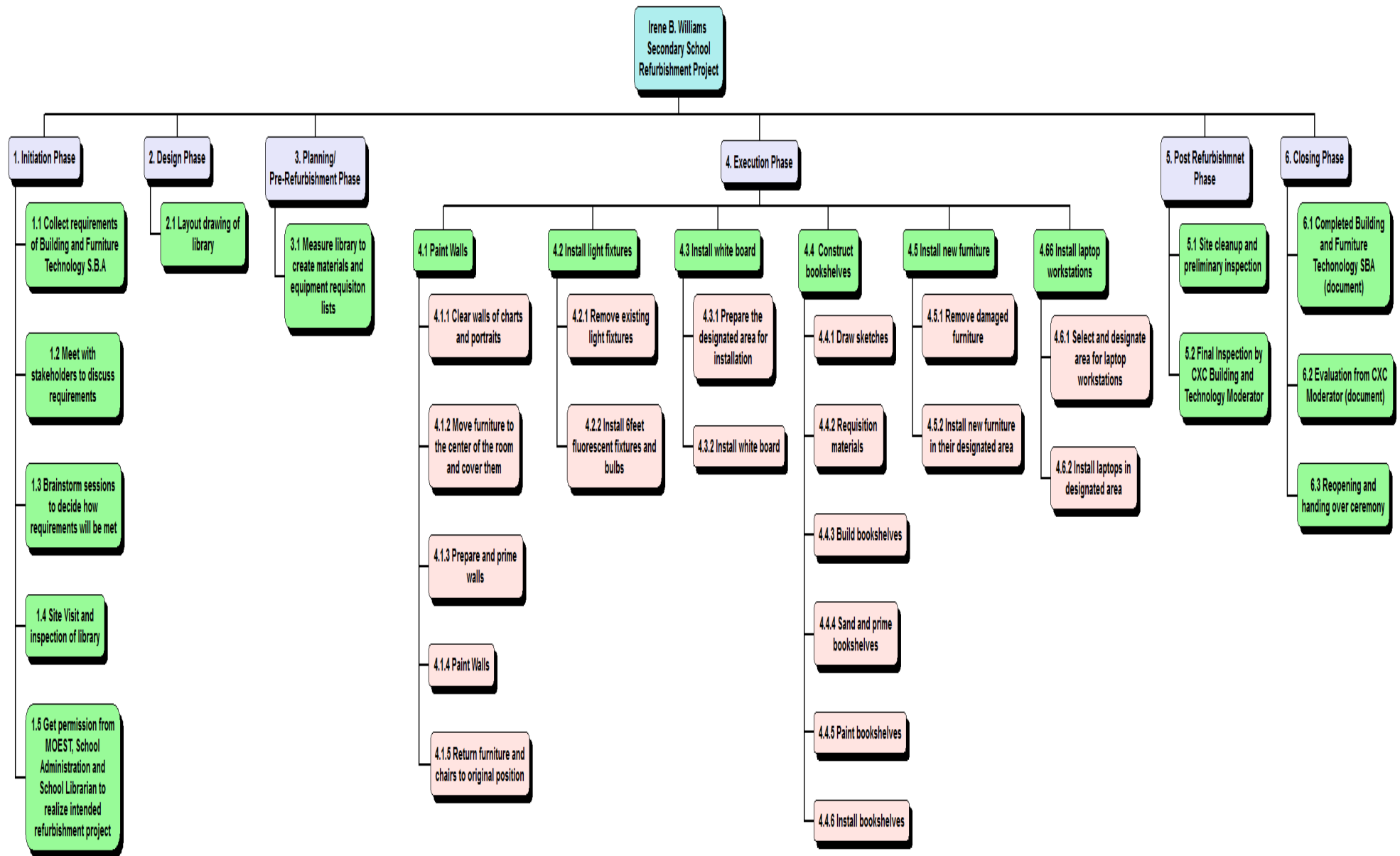


Figure 7 WBS Irene B. Williams Secondary School Library Refurbishment Project (Source: Compiled by author)

Table 2 WBS Dictionary (Source: Author of study)

Level	WBS Code	Work Package Name	Description of work
1	1	Initiation Phase	
2	1.1	Collect requirements of Building and Furniture Technology SBA	The CXC Building and Furniture Technology Syllabus is perused by the teacher to ascertain what is the aim, objective and requirements that need to be met for the successful realization of the SBA component of the subject.
2	1.2	Meet the stakeholders to discuss requirements	School administration, Head of Department, Fifth Form teacher of Building and Furniture Technology and students will meet to discuss the requirements of the SBA.
2	1.3	Brainstorm sessions to decide how requirements will be met	Fifth Form teacher of Building and Furniture Technology and students will meet to and come up with various ideas as to how the requirements of the SBA will be met.
2	1.4	Site visit and inspection of library	Fifth Form teacher of Building and Furniture

			Technology and students will visit the library to see what the area they intend to work on looks like.
2	1.5	Get permission from MOEST, School Administration and School Librarian to realize intended refurbishment project	Fifth Form teacher of Building and Furniture Technology will write to inform MOEST, School Administration and School Librarian of the proposed project and to receive approval.
1	2	Design Phase	
2	2.1	Layout drawing of Library	Drawings of what the library looks like and what it will look like will be created.
1	3	Planning/Pre-Refurbishment Phase	
2	3.1	Measure library to create materials and equipment lists	Area will be measured to determine how much primer and paint would be needed, the size of whiteboard that would fit on available wall space, how many light fixtures would provide adequate lighting and how many bookshelves, tables, chairs and laptop workstations can be safely accommodated.

1	4	Execution Phase	
2	4.1	Paint Walls	
3	4.1.1	Clear walls of charts and portraits	Charts, maps, portraits and signage will be removed from walls and secured.
3	4.1.2	Move furniture to the center of the room and cover them	Existing library furniture will be moved to the center of the room to make it easier for walls to be accessed.
3	4.1.3	Prepare and prime walls	Adhesives will be removed. Holes or cracks will be filled. Walls will be primed in preparation for painting.
3	4.1.4	Paints Walls	Walls will be painted in the color Berger Paint White Score.
3	4.1.5	Return furniture and chairs to original position	All furniture will be returned to their places once painting is completed.
2	4.2	Install light fixtures	
3	4.2.1	Remove existing light fixtures	The incandescent light bulb fixtures will be removed to create space for new light fixture installation.
3	4.2.2	Install 6feet florescent fixtures and bulbs	Four 6' florescent fixtures and bulbs will be installed in the areas where the incandescent light bulb fixtures used to be.
2	4.3	Install white board / dry erase board	

3	4.3.1	Prepare the designated area for installation	The area earmarked for the white board / dry erase board installation will be measured and marked.
3	4.3.2	Install white board / dry erase board	White board / dry erase board will be installed to the area previously marked on the wall.
2	4.4	Construct bookshelves	
3	4.4.1	Draw sketches	Sketches will be drawn by the Building and Furniture Technology students and revised by their teacher.
3	4.4.2	Requisition materials	The Building and Furniture Technology students and their teacher will create a materials list which will be sent to B.O.E to requisition materials needed to construct bookshelves.
3	4.4.3	Build bookshelves	The Building and Furniture Technology students and under the supervision of their teacher will construct three 6'x5' bookshelves in the Building and Furniture

			Technology Laboratory.
3	4.4.4	Sand and prime bookshelves	The Building and Furniture Technology students and under the supervision of their teacher will sand and prime the three 6'x5' bookshelves in the Building and Furniture Technology Laboratory.
3	4.4.5	Paint bookshelves	The Building and Furniture Technology students and under the supervision of their teacher will paint the three 6'x5' bookshelves white in the Building and Furniture Technology Laboratory.
3	4.4.6	Install bookshelves	The Building and Furniture Technology students and under the supervision of their teacher will install the three 6'x5' bookshelves in their respective spaces in the library.
2	4.5	Install new furniture	
3	4.5.1	Remove damaged furniture	The broken and defaced tables and chairs will be taken

			out of the library and returned to the B.O.E for them to be written off and discarded.
3	4.5.2	Install new furniture in their designated area	The twenty new chairs and the five 48"x30"x30" tables from the B.O.E will be placed in their areas in the library.
2	4.6	Install laptop workstations	
3	4.6.1	Select and designate area for laptop workstations	The area in the library to set-up laptop workstations will be earmarked for installation.
3	4.6.2	Install laptops in designated area	Install area in the library to set-up laptop workstations will be earmarked for installation.
1	5	Post Refurbishment Phase	
2	5.1	Site clean-up and preliminary inspection	The Building and Furniture Technology students and under the supervision of their teacher will clean up the library and it will be inspected by their teacher.
2	5.2	Final inspection by CXC Building and Furniture Technology Moderator	CXC Building and Furniture Technology Moderator will come in to inspect the project to see if requirements are met and write a

			report and give an evaluation.
1	6	Closing Phase	
2	6.1	Completed Building and Furniture Technology SBA (document)	The Building and Furniture Technology students and under the supervision of their teacher will complete the written component of their SBA to be graded and submitted to CXC Headquarters in Barbados.
2	6.2	Evaluation from CXC Moderator (document)	CXC Building and Furniture Technology Moderator will present written evaluation and grade to the MOEST and also to the Building and Furniture Technology teacher at IBWSS.
2	6.3	Reopening and handing over ceremony	The Building and Furniture Technology students along with their teacher will hand over the library to the librarian during a small reopening ceremony.

Validate Scope

Validate scope according to PMBOK® GUIDE (2013) is “the process of formalizing acceptance of the completed project deliverables. The key benefit of this process is that it brings objectivity to the acceptance process and increases the chance of the final product, service, or result acceptance by validating each deliverable.” (p.133).

Control Scope

This is an important aspect in project management since it helps to reduce scope creep and gold plating both of which can affect the project schedule and its resources. PMBOK® GUIDE (2013) explains that control scope is “...the process of monitoring the status of the project and product scope and managing changes to the scope baseline. The key benefit of this process is that it allows the scope baseline to be maintained throughout the project.” (p.136).

Document Acceptance

We the undersigned have reviewed and approved the Scope Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

Any changes to this document will be executed by the Project Manager and the Head of the Building and Furniture Technology Department.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

Requirements Management Plan

The Requirements Management Plan was created to formally identify the procedures for gathering, documenting, analyzing and effectively managing the project requirements, thus preventing scope creep.

It was necessary to identify and document the key stakeholders and their varying responsibilities throughout the requirement management process.

Roles and Responsibilities

Table 3 Roles and Responsibilities (Source: Author of study)

Role	Responsibilities
H.O.D	<ol style="list-style-type: none"> 1. Oversee the Building and Furniture Technology Teacher 2. Review project requirements. 3. Ensure that the project meets the requirement of the CXC Building and Furniture Technology syllabus.
Project Manager (Building and Furniture Technology Teacher)	<ol style="list-style-type: none"> 1. Collect Project requirements. 2. Review project requirements with H.O.D and project team. 3. Approve project requirements. 4. Develop project requirements. 5. Ensure that the project meets the requirement of the CXC Building and Furniture Technology syllabus.
Project Team (Building and Furniture Technology students)	<ol style="list-style-type: none"> 1. Collect Project requirements. 2. Review project requirements with H.O.D and project manager. 3. Adhere to the CXC guidelines given so that they can successfully complete the project.
B.O.E	Ensure that the resources provided to realize the project meets the requirement of the CXC Building and Furniture Technology syllabus.

Requirements Processes

Collect Requirements

Stakeholders play an integral part in the successful completion of any project, ergo it necessary to gather, assess, document and manage their needs and requirements.

The tools and techniques utilized to collect these requirements were document analysis, brainstorming and expert judgement.

Table 4 Requirements (Source: Author of study)

Stakeholder	Requirement	Priority
Ministry of Education Science and Technology	The project is completed on schedule to allow the CXC Moderator to complete his assessment in a timely manner.	Medium
Administration of the Irene B. Williams Secondary School	The H.O.D is able to account for his department.	Medium
BOE	Requisition forms are submitted at least one week before resources are needed.	High
CXC Moderator	Project Manager ensures that project team follows the guidelines established by the CXC Building and Furniture technology syllabus, Library Media Centre Facilities Guidelines for new construction and major renovations December 11, 2015 Draft Revision and ISO 9001.	High
Head of Department (H.O.D) Building and Furniture Technology	Project manager will communicate the project's status and report any issues that may hinder the project's success.	Medium
Project Manager (Building and Furniture Technology Teacher)	H.O.D ensures that resources are acquired in a timely manner.	High

Project (Building Furniture Technology students)	Team and	Project manager will provide the necessary guidelines throughout the project development. H.O.D ensures that resources are acquired in a timely manner.	High
Library Staff		Project will be successfully completed so that the area can become functional for the new school term.	Medium

Requirement tracking

Requirement traceability provides a documented guide that is used to track requirements from their inception to realization. This process ensures that the approved requirements are implemented, tracks any requirement changes that are made and essentially minimizes or prevents scope creep.

Table 5 Requirement Traceability Matrix (Source:www.mypmllc.com/project-management-resources/free-project-management-templates)

ID Number	Source	Requirement	WBS Deliverable	Assigned to	Acceptance Criteria	Accepted by and date
1	Building and Furniture Technology syllabus, Ministry of Education Science and Technology, Administration of the Irene B. Williams Secondary School, CXC Moderator and Head of Department (H.O.D) Building and Furniture Technology	The students successfully complete the Building and Furniture Technology SBA (practical and written component).	5.2 Final inspection by CXC Building and Furniture Technology Moderator 6.1 Completed Building and Furniture Technology SBA (document)	Project Manager (Building and Furniture Technology Teacher)	Each member of the project team will have a written SBA, which documents the theoretical and practical components utilized to realize the project.	CXC Moderator 7 th December, 2017.
2.	Project Manager	1. The walls of the IBWSS be repainted.	4.1 Paint Walls 4.2 Install	Project Team (Building	1.Repainted walls in color Berger Paint	Head of Department (H.O.D)

	(Building and Furniture Technology Teacher)	2. The light fixtures be changed. 3.A whiteboard be installed. 4. Larger bookshelves. 5. Damaged furniture be replaced. 6. Computer work stations.	light fixtures 4.3 Install white board / dry erase board 4.4 Construct bookshelves 4.5 Install new furniture 4.6 Install laptop workstations	and Furniture Technology students)	White Score. 2. Four 6ft fluorescent light fixtures. 3. 8x4ft White board / dry erase board which doubles as projector screen 4. Three 6 x 5ft bookshelves 5. Twenty new chairs and five 48x30x30 inches tables (seat 4 persons each) 6. Six workstations with laptops	Building and Furniture Technology, Project Manager and Library Staff. 13 th December, 2017.
3.	Library Staff	1. A refurbished school library that will meet the needs of 21 st Century learner. 2. Project will be successfully completed so that the area can become functional for the new school term.	6.3 Reopening and handing over ceremony	Project Manager (Building and Furniture Technology Teacher) and Project Team (Building and Furniture Technology students)	A modernized and age appropriate Library which will facilitate knowledge acquisition for the 21 st Century learner.	Project Manager and Library Staff. 15 th December, 2017.

Change Management

If there are any requests to have adjustments made to the requirements the following steps must be realized:

1. The change request s must be written and submitted to the project manager.
2. The project manager will evaluate the change request.
3. If the change request is approved all the necessary project documents will be updated, stakeholders will be informed and the adjustments will be made.

NB. If the change request is not approved, the reasons will be documented and stakeholders will be informed.

Document Acceptance

We the undersigned have reviewed and approved the Requirement Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

Any changes to this document will be executed by the Project Manager and the Head of the Building and Furniture Technology Department.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

4.3. Schedule Management Plan

The creation of the Schedule Management Plan was undertaken to schedule project activities and ensure that the project is completed within the established timeframe of three months. It is said to be the “the efficient use of time by means of good organization, efficient productivity, and proper planning (Project Management n.d.).”

This plan was developed after the Project Charter and Scope Management Plan was completed since they had to be used as inputs to help identify and sequence activities, estimate activity resources durations.

Expert Judgement and meetings were the tools and techniques used to develop the schedule management plan for this refurbishment project.

Schedule Management Plan Irene B. Williams Secondary School Library Refurbishment Project Swetes Village, St Paul’s, Antigua and Barbuda

Schedule Development

Microsoft Projects software will be utilized to develop the schedule for this refurbishment project and it will be under the management of the project manager. To do so he will define and sequence the activities, estimate activity resources and the duration of each task.

The proposed schedule will be given to the relevant stakeholders for perusal after which it can be approved.

The approved schedule is then shared with the stakeholders to ensure that they are informed of the development of the project.

Define and sequence activities

In this process, the activities/tasks that need to be realized to deliver the project's deliverables are identified and documented.

Once the above is completed, the activities are then logically sequenced and their relationships are identified and documented.

Table 6 Activity List (Source: Author of study)

ID	Activity Name	Duration	Start	Finish
1	Irene B. Williams Secondary School Library Refurbishment Project	87 days	4th September, 2017.	15th December, 2017.
2	1.Initiation Phase	8 days	4th September, 2017.	12th September, 2017.
3	1.1 Collect requirements of Building and Furniture Technology SBA	1 day	4 th September, 2017.	4 th September, 2017.
4	1.2 Meet with stakeholders to discuss requirements	2 days	5 th September, 2017.	6 th September, 2017.
5	1.3 Brainstorm sessions to decide how requirements will be met	2 days	7 th September, 2017	8 th September, 2017
6	1.4 Site visit and inspection of library	1 day	9 th September, 2017	9 th September, 2017
7	1.5 Get permission from MOEST, School Administration and School Librarian to realize intended project	2 days	11 th September, 2017	12 th September, 2017
8	2.Design Phase	2 days	13th September, 2017	14th September, 2017
9	2.1 Layout drawing of library	2 days	13 th September, 2017	14 th September, 2017
10	3.Planning/Pre-	2 days	15th September,	16th September,

	Refurbishment Phase		2017	2017
11	3.1 Measure library to create materials and equipment requisition lists	2 days	15 th September, 2017	16 th September, 2017
12	4. Execution Phase	42 days	18th September, 2017	6th November, 2017
13	4.1 Paint walls	6 days	18 th September, 2017	23 rd September, 2017
14	4.1.1 Clear wall of charts and portraits	1 day	18 th September, 2017	18 th September, 2017
15	4.1.2 Move furniture to the center of the room and cover them	1 day	18 th September, 2017	18 th September, 2017
16	4.1.3 Prepare and prime walls	2 days	19 th September, 2017	20 th September, 2017
17	4.1.4 Paint walls	2 days	21 st September, 2017	22 nd September, 2017
18	4.1.5 Return furniture and chairs to original position	1 day	23 rd September, 2017	23 rd September, 2017
19	4.2 Install light fixtures	6 days	25 th September, 2017	30 th September, 2017
20	4.2.1 Remove light fixtures	3 days	25 th September, 2017	27 th September, 2017
21	4.2.2 Install 6feet fluorescent fixtures and bulbs	3 days	28 th September, 2017	30 th September, 2017
22	4.3 Install white board / dry erase board	6 days	2 nd October, 2017	7 th October, 2017
23	4.3.1 Prepare the designated area for installation	3 days	2 nd October, 2017	4 th October, 2017
24	4.3.2 Install whiteboard	3 days	5 th October, 2017	7 th October, 2017
25	4.4 Construct bookshelves	18 days	9 th October, 2017	28 th October, 2017
26	4.4.1 Draw sketches	1 day	9 th October, 2017	9 th October, 2017
27	4.4.2 Requisition materials	1 day	10 th October, 2017	10 th October, 2017
28	4.4.3 Build bookshelves	9 days	11 th October, 2017	20 th October, 2017
29	4.4.4 Sand and prime bookshelves	4 days	21 st October, 2017	25 th October, 2017
30	4.4.5 Paint bookshelves	2 days	26 th October, 2017	27 th October, 2017
31	4.4.6 Install	1 day	28 th October, 2017	28 th October, 2017

	bookshelves			
32	4.5 Install new furniture	2 days	30 th October, 2017	31 st October, 2017
33	4.5.1 Remove damaged furniture	1 day	30 th October, 2017	30 th October, 2017
34	4.5.2 Install new furniture in their designated area	1 day	31 st October, 2017	31 st October, 2017
35	4.6 Install laptop workstations	4 days	2 nd November, 2017	6 th November, 2017
36	4.6.1 Select and designate area for laptop workstations	1 day	2 nd November, 2017	2 nd November, 2017
37	4.6.2 Install laptops in designated area	3 days	3 rd November, 2017	6 th November, 2017
38	5. Post Refurbishment Phase	9 days	7th November, 2017	16th November, 2017
39	5.1 Site clean-up and preliminary inspection	7 days	7 th November, 2017	14 th November, 2017
40	5.2 Final Inspection by CXC Building and Furniture Technology Moderator	2 days	15 th November, 2017	16 th November, 2017
41	6. Closing Phase	24 days	17th November, 2017	15th December, 2017
42	6.1 Completed Building and Furniture Technology SBA (document)	19 days	17 th November, 2017	8 th December, 2017
43	6.2 Evaluation from CXC Moderator (document)	4 days	11 th December, 2017	14 th December, 2017
44	6.3 Reopening and handing over ceremony	1 day	15 th December, 2017	15 th December, 2017

Estimate Activity Resources and Duration

This process determines the type and amount of resources that are required to complete each task and the time that each resource will be required for realizing these tasks.

Through analysis, it was concluded that for the Irene B. Williams Secondary School Library Refurbishment Project that resources displayed in the table below were necessary for the project deliverables to be completed.

Table 7 Estimate Activity Resources and Duration (Source: Author of study)

ID	Activity Name	Duration	Resource
1	Irene B. Williams Secondary School Library Refurbishment Project	87 days	
2	1.Initiation Phase	8 days	
3	1.1 Collect requirements of Building and Furniture Technology SBA	1 day	Building and Furniture Technology Head of Department and Fifth Form teacher
4	1.2 Meet with stakeholders to discuss requirements	2 days	Building and Furniture Technology Head of Department, Fifth Form teacher and Fifth Form students
5	1.3 Brainstorm sessions to decide how requirements will be met	2 days	Building and Furniture Technology Head of Department, Fifth Form teacher and Fifth Form students
6	1.4 Site visit and inspection of library	1 day	Building and Furniture Technology Fifth Form teacher and Fifth Form students
7	1.5 Get permission from MOEST, School Administration and School Librarian to realize intended project	2 days	Building and Furniture Technology Fifth Form teacher
8	2.Design Phase	2 days	
9	2.1 Layout drawing of library	2 days	Building and Furniture Technology Fifth Form students
10	3.Planning/Pre-Refurbishment Phase	2 days	
11	3.1 Measure library to create materials and equipment requisition lists	2 days	Building and Furniture Technology Fifth Form teacher and Fifth Form students
12	4. Execution Phase	42 days	

13	4.1 Paint walls	6 days	
14	4.1.1 Clear wall of charts and portraits	1day	Building and Furniture Technology Fifth Form students
15	4.1.2 Move furniture to the center of the room and cover them	1day	Building and Furniture Technology Fifth Form students
16	4.1.3 Prepare and prime walls	2 days	Building and Furniture Technology Fifth Form students
17	4.1.4 Paint walls	2 days	Building and Furniture Technology Fifth Form students
18	4.1.5 Return furniture and chairs to original position	1 day	Building and Furniture Technology Fifth Form students
19	4.2 Install light fixtures	6 days	
20	4.2.1 Remove light fixtures	3 days	Building and Furniture Technology Fifth Form students
21	4.2.2 Install 6feet fluorescent fixtures and bulbs	3 days	Building and Furniture Technology Fifth Form students
22	4.3 Install white board / dry erase board	6 days	
23	4.3.1 Prepare the designated area for installation	3 days	Building and Furniture Technology Fifth Form students
24	4.3.2 Install whiteboard	3 days	Building and Furniture Technology Fifth Form students
25	4.4 Construct bookshelves	18 days	
26	4.4.1 Draw sketches	1 day	Building and Furniture Technology Fifth Form students
27	4.4.2 Requisition materials	1 day	Building and Furniture Technology Fifth Form teacher
28	4.4.3 Build bookshelves	9 days	Building and Furniture Technology Fifth Form students
29	4.4.4 Sand and prime bookshelves	4 days	Building and Furniture Technology Fifth Form students
30	4.4.5 Paint bookshelves	2 days	Building and Furniture Technology Fifth Form students
31	4.4.6 Install bookshelves	1 day	Building and Furniture Technology Fifth Form students
32	4.5 Install new furniture	2 days	
33	4.5.1 Remove damaged furniture	1 day	Building and Furniture Technology Fifth Form students
34	4.5.2 Install new furniture in their designated area	1 day	Building and Furniture Technology Fifth Form students
35	4.6 Install laptop workstations	4 days	Building and Furniture Technology

			Fifth Form students
36	4.6.1 Select and designate area for laptop workstations	1 day	Building and Furniture Technology Fifth Form students
37	4.6.2 Install laptops in designated area	3 days	Building and Furniture Technology Fifth Form students
38	5. Post Refurbishment Phase	9 days	
39	5.1 Site clean-up and preliminary inspection	7 days	Building and Furniture Technology Head of Department, Fifth Form teacher and Fifth Form students
40	5.2 Final Inspection by CXC Building and Furniture Technology Moderator	2 days	CXC Building and Furniture Technology Moderator
41	6. Closing Phase	24 days	
42	6.1 Completed Building and Furniture Technology SBA (document)	19 days	Building and Furniture Technology Head of Department, Fifth Form teacher and Fifth Form students
43	6.2 Evaluation from CXC Moderator (document)	4 days	CXC Building and Furniture Technology Moderator
44	6.3 Reopening and handing over ceremony	1 day	Building and Furniture Technology Head of Department, Fifth Form teacher, Fifth Form students, School Administration and Librarian

ID	Task Mode	Task Name	Duration	Start	Finish
1	➤	Irene B. Williams Secondary School Library Refurbishment Project	87 days	September 4, 2017	December 15, 2017
2	➤	1.Initiation Phase	8 days	September 4, 2017	September 12, 2017
3	➤	1.1 Collect requirements of Building and Furniture Technology SBA	1 day	September 4, 2017	September 4, 2017
4	➤	1.2 Meet with stakeholders to discuss requirements	2 days	September 5, 2017	September 6, 2017
5	➤	1.3 Brainstorm sessions to decide how requirements will be met	2 days	September 7, 2017	September 8, 2017
6	➤	1.4 Site visit and inspection of library	1 day	September 9, 2017	September 9, 2017
7	➤	1.5 Get permission from MOEST, School Administration and School Librarian to realize intended project	2 days	September 11, 2017	September 12, 2017
8	➤	2.Design Phase	2 days	September 13, 2017	September 14, 2017
9	➤	2.1 Layout drawing of library	2 days	September 13, 2017	September 14, 2017
10	➤	3.Planning/Pre-Refurbishment Phase	2 days	September 15, 2017	September 16, 2017
11	➤	3.1 Measure library to create materials and equipment requisition lists	2 days	September 15, 2017	September 16, 2017
12	➤	4. Execution Phase	42 days	September 18, 2017	November 6, 2017
13	➤	4.1 Paint walls	6 days	September 18, 2017	September 23, 2017
14	➤	4.1.1 Clear wall of charts and portraits	1 day	September 18, 2017	September 18, 2017
15	➤	4.1.2 Move furniture to the center of the room and cover them	1 day	September 18, 2017	September 18, 2017
16	➤	4.1.3 Prepare and prime walls	2 days	September 19, 2017	September 20, 2017
17	➤	4.1.4 Paint walls	2 days	September 21, 2017	September 22, 2017

Project: Network diagram Date: May 12, 2018	Task		Inactive Summary		External Task
	Split		Manual Task		External Milestone
	Milestone		Duration-only		Deadline
	Summary		Manual Summary Rollup		Critical
	Project Summary		Manual Summary		Critical Split
	Inactive Task		Start-only		Progress
	Inactive Milestone		Finish-only		Manual Progress

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ID	Task Mode	Task Name	Duration	Start	Finish
18	➤	4.1.5 Return furniture and chairs to original position	1 day	September 23, 2017	September 23, 2017
19	➤	4.2 Install light fixtures	6 days	September 25, 2017	September 30, 2017
20	➤	4.2.1 Remove light fixtures	3 days	September 25, 2017	September 27, 2017
21	➤	4.2.2 Install 6feet fluorescent fixtures and bulbs	3 days	September 28, 2017	September 30, 2017
22	➤	4.3 Install white board	6 days	October 2, 2017	October 7, 2017
23	➤	4.3.1 Prepare the designated area for installation	3 days	October 2, 2017	October 4, 2017
24	➤	4.3.2 Install whiteboard	3 days	October 5, 2017	October 7, 2017
25	➤	4.4 Construct bookshelves	18 days	October 9, 2017	October 28, 2017
26	➤	4.4.1 Draw sketches	1 day	October 9, 2017	October 9, 2017
27	➤	4.4.2 Requisition materials	1 day	October 10, 2017	October 10, 2017
28	➤	4.4.3 Build bookshelves	9 days	October 11, 2017	October 20, 2017
29	➤	4.4.4 Sand and prime bookshelves	4 days	October 21, 2017	October 25, 2017
30	➤	4.4.5 Paint bookshelves	2 days	October 26, 2017	October 27, 2017
31	➤	4.4.6 Install bookshelves	1 day	October 28, 2017	October 28, 2017
32	➤	4.5 Install new furniture	2 days	October 30, 2017	October 31, 2017
33	➤	4.5.1 Remove damaged furniture	1 day	October 30, 2017	October 30, 2017
34	➤	4.5.2 Install new furniture in their designated area	1 day	October 31, 2017	October 31, 2017
35	➤	4.6 Install laptop workstations	4 days	November 2, 2017	November 6, 2017
36	➤	4.6.1 Select and designate area for laptop workstations	1 day	November 2, 2017	November 2, 2017

Project: Network diagram Date: May 12, 2018	Task		Inactive Summary		External Task
	Split		Manual Task		External Milestone
	Milestone		Duration-only		Deadline
	Summary		Manual Summary Rollup		Critical
	Project Summary		Manual Summary		Critical Split
	Inactive Task		Start-only		Progress
	Inactive Milestone		Finish-only		Manual Progress

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ID	Task Mode	Task Name	Duration	Start	Finish
37	✈	4.6.2 Install laptops in designated area	3 days	November 3, 2017	November 6, 2017
38	✈	5. Post Refurbishment Phase	9 days	November 7, 2017	November 16, 2017
39	✈	5.1 Site clean-up and preliminary inspection	7 days	November 7, 2017	November 14, 2017
40	✈	5.2 Final Inspection by CXC Building and Furniture Technology Moderator	2 days	November 15, 2017	November 16, 2017
41	✈	6. Closing Phase	24 days	November 17, 2017	December 15, 2017
42	✈	6.1 Completed Building and Furniture Technology SBA (document)	19 days	November 17, 2017	December 8, 2017
43	✈	6.2 Evaluation from CXC Moderator (document)	4 days	December 11, 2017	December 14, 2017
44	✈	6.3 Reopening and handing over ceremony	1 day	December 15, 2017	December 15, 2017
45	✈				
46	✈				
47	✈				
48	✈				
49	✈				
50	✈				
51	✈				
52	✈				
53	✈				
54	✈				
55	✈				

Project: Network diagram Date: May 12, 2018	Task		Inactive Summary		External Tasks
	Split		Manual Task		External Milestone
	Milestone		Duration-only		Deadline
	Summary		Manual Summary Rollup		Critical
	Project Summary		Manual Summary		Critical Split
	Inactive Task		Start-only		Progress
	Inactive Milestone		Finish-only		Manual Progress

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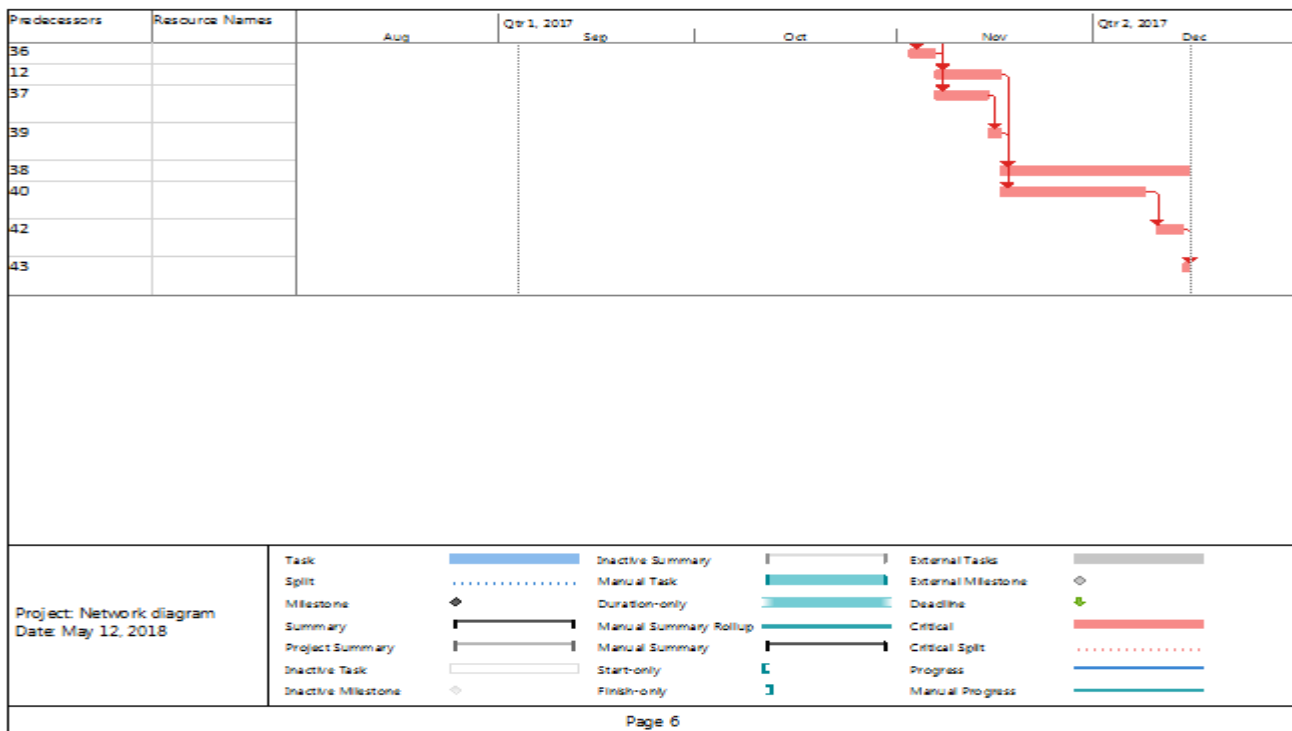
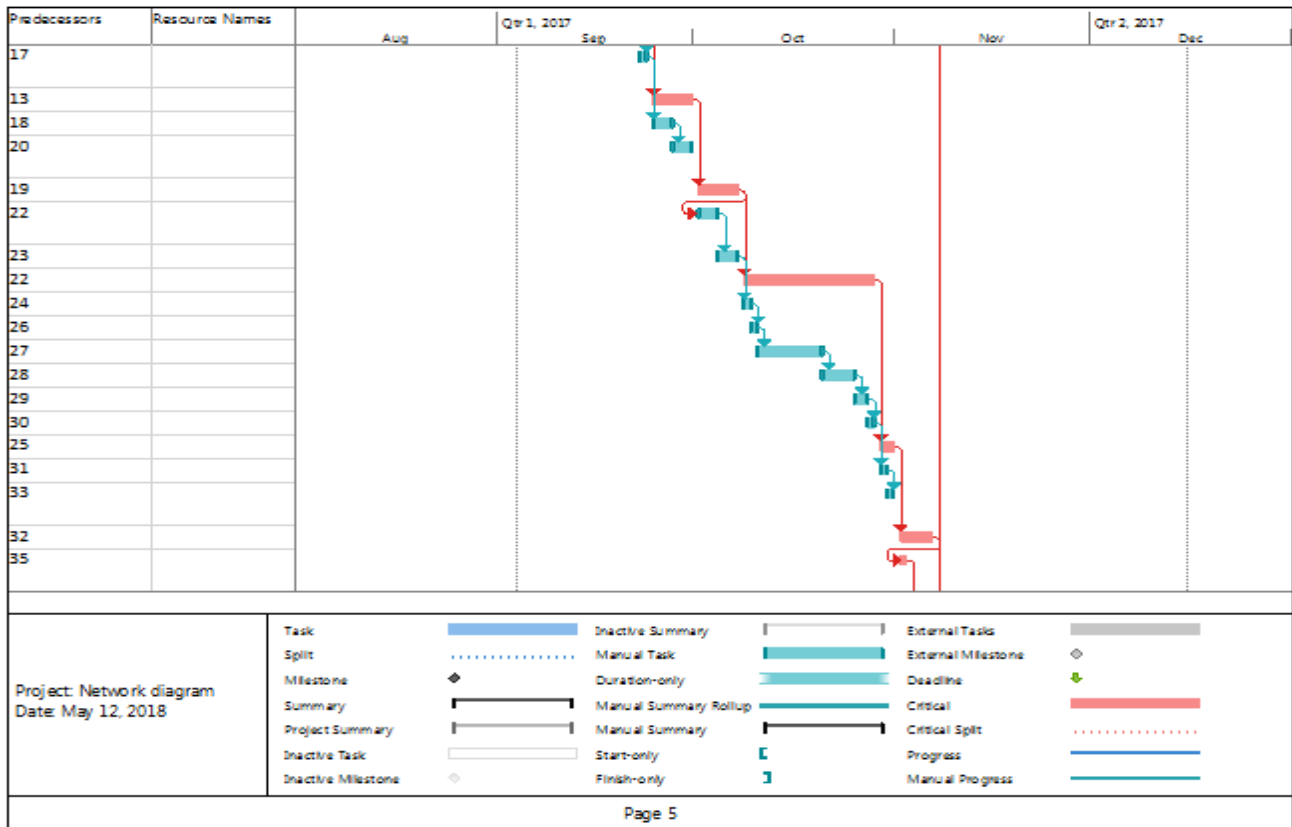


Figure 8 Project schedule (Source: Compiled by author)

Schedule Control

An impact analysis can help to determine if changes made to the project can affect the schedule positively or negatively.

The project manager is responsible for analyzing these requests and their possible impact on the scope, cost, schedule, risk, quality and available resources. Once this is done, he must document the information and present it to the project team; here it will be determined if the change(s) will be made.

If a change request is approved, it must be communicated to the stakeholders.

Change Management

The approved schedule may have to be adjusted/ updated when new information becomes available. These changes will affect the schedule's baseline therefore; they must be properly managed and approved by the project manager.

If there is a request to adjust the start and end dates of the activities the following steps must be followed:

1. The change request s must be written and submitted to the project manager.
2. The project manager and project team will evaluate the change request.
3. If the change request for the schedule adjustment is approved all the necessary project documents will be updated, stakeholders will be informed and the schedule will be updated.

NB. If the change request is not approved, the reasons will be documented and stakeholders will be informed.

Document Acceptance

We the undersigned have reviewed and approved the Schedule Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

Any changes to this document will be executed by the Project Manager and the Head of the Building and Furniture Technology Department.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

4.4. Cost Management Plan

The Cost Management Plan entails how project cost will be planned, managed and controlled (PMBOK®,2013).

The bottom-up estimating method was utilized to create an estimated budget for the proposed cost to realize the Irene B. Williams Secondary School Library Refurbishment Project.

This had to be done since the Board of Education was the entity that incurred all the direct, indirect, and fixed and variable cost of the project.

Additionally, the project manager and project team members were not paid wages/salaries since the project was undertaken as a partial fulfilment of a course of study for the Caribbean Examination Council (CXC).

Estimated Budget

Irene B. Williams Secondary School Library Refurbishment Project Swetes Village, St Paul's, Antigua and Barbuda

The project manager along with the project team is responsible for creating the estimated budget for the project. Expert judgement and bottom-up estimating method were used to generate the estimated budget, which would reflect the possible overall cost of the project if the institution was responsible for undertaking the financing the project.

Project Budget

Below is the estimated budget in Eastern Caribbean Dollars XCD for the Irene B. Williams Secondary School Library Refurbishment Project.

Material Cost	\$12,969.50
Labor Cost	\$147,030.00
Contingency Reserve (3% of Project cost)	\$4,800.00
Total Budget	\$164,799.50

Irene B. Williams Secondary School Library Refurbishment Project Cost Baseline

Project Manager: Mr. Karil Knight

			Cost	
			Eastern Dollars	Caribbean
Purpose	Resource	Quantity	Unit Cost XCD	Total Cost XCD
Material	Putty	4	\$9.00	\$36.00
	Primer	5	\$50.00	\$250.00
	Paint	5	\$110.00	\$550.00
	Putty knife	4	\$10.00	\$40.00
	Paint brushes	6	\$12.00	\$72.00
	Paint roller pads	4	\$11.00	\$44.00
	Paint roller frames	4	\$22.50	\$90.00
	Paint tray	6	\$12.50	\$75.00
	6 feet fluorescent light bulb	4	\$18.00	\$72.00
	6 feet fluorescent light fixture	4	\$90.00	\$360.00
	8' x 4' white board / dry erase board/dry erase board	1	\$376.00	\$376.00
	electric drill	1	\$297.00	\$297.00
	2" masonry screw	50	\$0.56	\$28.00
	2" wall plugs	50	\$0.30	\$15.00
	Carpenter's level	1	\$42.00	\$42.00
	sheets of cedar ply	4	\$120.00	\$480.00
	yellow pine 1"x12"x16" pieces	9	\$80.00	\$720.00
	1lb of 2" secret head nail	1	\$5.50	\$5.50
	Wood glue	3	\$19.00	\$57.00
	Sand paper	20	\$3.00	\$60.00
	Chairs	20	\$100.00	\$2000.00
	Tables	5	\$500.00	\$2500.00
	Laptops	6	\$800.00	\$4800.00
Wages	Project Manager	87	\$250.00	\$21750.00
	Project team (12 members)	87	\$120.00 x 12= 1440.00	\$125280.00
Contingency Reserve (3% of project cost)				\$4800.00
			GRAND TOTAL	\$164,799.50

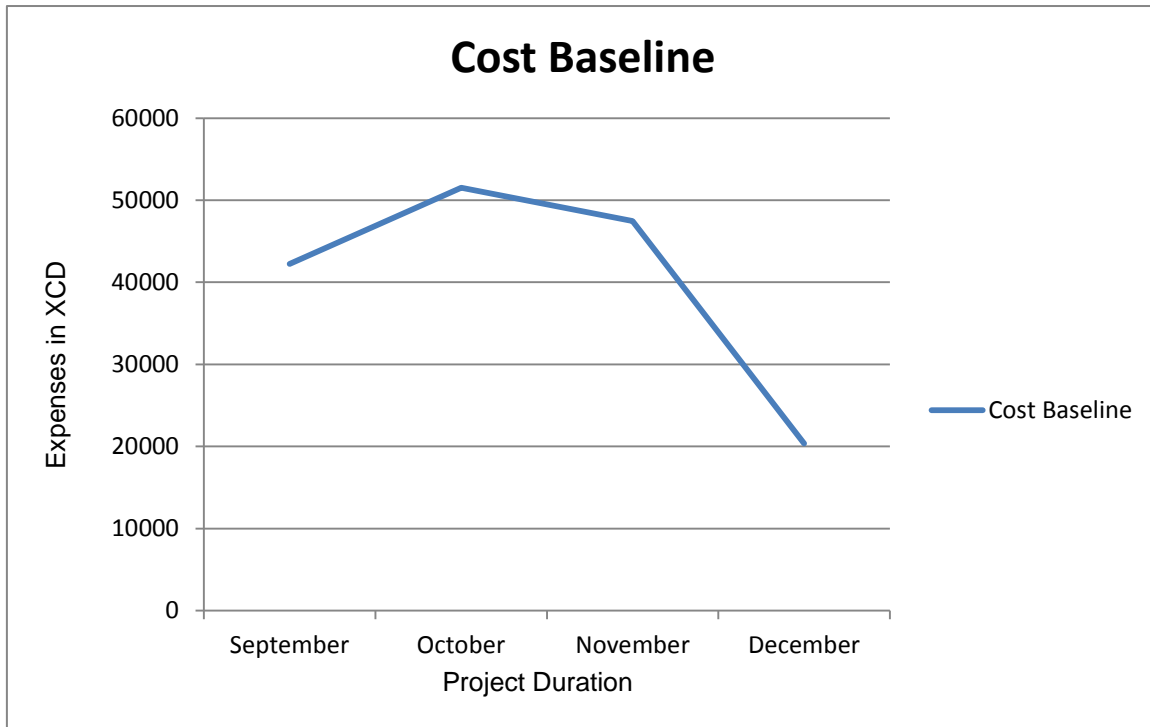


Figure 9 Project Cost Baseline (Source: Compiled by author)

Cost Validation

Businessdictionary.com defines cost validation as an “Examination of a cost estimate or proposal to confirm the accuracy of its cost data.”

The Head of Department for Building and Furniture Technology along with the subject teacher will perform this review, which is of critical importance since cost is one of the triple constraints in project management and any change that it incurs will affect the other two areas.

The cost validation process will ensure that:

- The cost estimate(s) generated adhered to the guidelines that govern how they are to be created and compare to estimates of similar projects realized in the past.
- The most appropriate estimating method and technique were utilized to create an estimate based on the characteristics of the project
- The information in the estimate are accurate, applicable and presented in a comprehensible format (Pillai, 2008).

Control Cost

PMBOK® GUIDE (2013) defines control cost as the process of "...monitoring the status of the project to update the project costs and managing changes to the cost baseline." (p.215).

Because of the nature of the Irene B. Williams Secondary School Library Refurbishment Project the control cost process will be utilized for the purpose of progress reporting; data will be gathered by using earned value management (EVM) technique.

"Earned value management (EVM) is a methodology that combines scope, schedule, and resource measurements to assess project performance and progress." (PMBOK® GUIDE (2013), p.217). This technique will be utilized to help determine the schedule variance (SV) and the schedule performance index (SPI).

Table 8 Measuring project performance (Source: Author of study)

Name	Formula	Interpretation of results		
		Ahead of schedule	Behind schedule	On time
Schedule Variance (SV)	Earned value (EV) less Planned value (PV) EV-PV	Positive number	Negative number	Zero
Schedule Performance Index (SPI)	Earned value (EV) divided by Planned value (PV) EV/PV	Greater than 1	Less than 1 (less than efficient performance)	Equal to 1

The information will be used to compile a progress report that would inform all stakeholders of the project's development.

After an analysis is completed and the result yielded indicates that there is a delay in the schedule fast tracking would have to be employed to compress the schedule in an attempt to get it back on track.

Change Management

If there are any requests to have adjustments made to the budget the following steps must be realized:

1. The change request s must be written and submitted to the project manager.
2. The project manager will evaluate the change request.
3. If the change request is approved all the necessary project documents will be updated, stakeholders will be informed and the adjustments will be made.

NB. If the change request is not approved, the reasons will be documented and stakeholders will be informed.

Document Acceptance

Signature	
Print Name	
Project Role	
Date	

4.5. Quality Management Plan

The Quality Management Plan was created to produce quality deliverables that meet the functional, educational and aesthetic specifications of a 21st century library.

“Project Quality Management works to ensure that the project requirements, including product requirements, are met and validated (“What is Project Quality” n.d.).” It involves planning quality management, performing quality assurance and controlling quality.

The Author created the following Quality Management Plan.

Quality Management Plan

Irene B. Williams Secondary School Library Refurbishment Project Swetes Village, St Paul’s, Antigua and Barbuda

The objective of the Quality Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project is to identify the processes that will be used to define, manage and control quality.

Quality Management Approach

The quality management approach for the Irene B. Williams Secondary School Library Refurbishment Project will guarantee that the overall project is of acceptable quality.

The quality standards of the product and process for the project will be governed by the guidelines and requirements of the CXC Building and Furniture Technology syllabus, the Requirements Management Plan of the Irene B. Williams Secondary School Library Refurbishment Plan, Library Media Centre Facilities Guidelines for new construction and major renovations December 11, 2015 Draft Revision and ISO 9001.

Checklists and rubrics will be created and utilized to measure quality during the project lifecycle. The project manager (Fifth Form teacher for Building and Furniture Technology) and H.O.D will collaborate on the creation of these

instruments which verified if deliverables were meeting requirements and quality threshold, free from defects and delivered on time.

Project team members are free to indicate/highlight areas for quality improvements; this will be reviewed to determine its impact on the overall project. If approved the project manager will update the necessary project documents to include the improvement.

To ensure that the objective of the Quality Management Plan was fulfilled the following specific responsibilities were assigned to different project stakeholders

Table 9 Responsibilities and Roles (Source: Author of study)

Responsibility	Role
Oversee Quality Management Plan	<ul style="list-style-type: none"> • Fifth Form teacher for Building and Furniture Technology • Building and Furniture Technology H.O.D
Verify that quality audits are carried out	Building and Furniture Technology H.O.D
Carry out quality audits	<ul style="list-style-type: none"> • Project manager • Project team
Execute and review quality inspections	<ul style="list-style-type: none"> • Fifth Form teacher for Building and Furniture Technology • Building and Furniture Technology H.O.D
Verify that each phase of the project is properly planned for	Fifth Form teacher for Building and Furniture Technology
Check the quality of resources received from Board of Education	Fifth Form teacher for Building and Furniture Technology
Monitor inventory of resources received from Board of Education	<ul style="list-style-type: none"> • Project manager (Fifth Form teacher for Building and Furniture Technology) • Project team
Document all inspections and audits performed and update project documents	Fifth Form teacher for Building and Furniture Technology

Quality Requirements

The project manager will establish the product and process quality standards and requirements. These standards will be based on pre-established requirements which are based on the CXC Building and Furniture Technology syllabus, Library Media Centre Facilities Guidelines for new construction and major renovations December 11, 2015 Draft Revision and ISO 9001.

Quality Assurance

The quality assurance of the Irene B. Williams Secondary School Library Refurbishment Project will concentrate on the process undertaken to refurbish the library. The Plan-do-check-act cycle will be the iterative quality process used throughout the project lifecycle to guarantee quality.

The H.O.D and Fifth Form teacher (project manager) of Building and Furniture Technology will carry out inspections and quality assessment periodically to verify that standards are being met and if not they will meet with the team to rectify the issue(s).

The project manager along with the project team will carry out quality audit once weekly to ensure that processes are meeting the project standards. If there are any deviations, the team will have to meet and put a plan of action in place to realign the processes.

Audit findings and process improvements must be documented and updated in the project documents.

Quality Control

For the project to be successful, it is necessary that all quality standards be met; therefore inspections will be carried out to monitor the activities and work product.

Their results/quality will be recorded and compared to the pre-established quality standards in the CXC Building and Furniture Technology syllabus, Library Media

Centre Facilities Guidelines for new construction and major renovations December 11, 2015 Draft Revision and ISO 9001.

If there were any areas that were found to not be performing up to standard, the project team will formulate an action plan with corrective measures, assign persons to execute it and track its implementation.

Project documents would then be updated to reflect changes and lessons learned.

Document Acceptance

We the undersigned have reviewed and approved the Quality Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

Any changes to this document will be executed by the Project Manager and the Head of the Building and Furniture Technology Department.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

4.6. Human Resource Management Plan

The Human Resource Management Plan was created to identify the most the most appropriate person(s) based on their skills and knowledge to assign them to work packages. It will also define their roles and responsibilities throughout the project life cycle.

Students realized the Irene B. Williams Secondary School Library Refurbishment Project in their final year as one of their assessments for the CXC Building and Furniture Technology course. The human resource available for the project was the teacher, who plays the role of the project manager and the twelve students who make up the project team and are responsible for the undertaking and all activities in the project life cycle.

The composition of the team cannot be altered because as previously stated the project was realized as a partial fulfilment of a course of study for each student to receive his or her grade.

Human Resource Management Plan Irene B. Williams Secondary School Library Refurbishment Project Swetes Village, St Paul's, Antigua and Barbuda

Human resource management is an essential element of the Irene B. Williams Secondary School Library Refurbishment Project. It is the tool responsible for the holistic management of the project's human resources throughout the project lifecycle.

The Human Resource Management Plan is composed of

- Roles and responsibilities of team members
- Project organization chart
- Staffing management plan
- Project Team Management and Development

Roles and Responsibilities

For the project to be a success, it was necessary to clearly define and outline the roles and responsibilities of the team members. This ensured that everyone knows what part he or she plays and ensured that operations are seamless.

The following project team roles and responsibilities were established for the Irene B. Williams Secondary School Library Refurbishment Project

Table 10 Roles and Responsibilities (Source: Author of study)

Project Team	
Role	Responsibilities
H.O.D	<ol style="list-style-type: none"> 1. Oversee the Building and Furniture Technology Teacher 2. Liaise between: <ul style="list-style-type: none"> • BOE and Building and Furniture Technology Teacher CXC Moderator and Building and Furniture Technology Teacher
Project Manager (Building and Furniture Technology Teacher)	<ol style="list-style-type: none"> 1. Manage project by ensuring proper integration of all processes. 2. Manage and monitor the resources of the project. 3. Ensure that the project meets the requirement of the CXC Building and Furniture Technology syllabus. 4. Ensure that project documents are properly maintained and signed. 5. Inform stakeholders of the project's status.
Project Team (Building and Furniture Technology students)	<ol style="list-style-type: none"> 1. Adhere to the CXC guidelines given so that they can successfully complete the project. 2. Follow the schedule so that the completion deadline is not missed. 3. Give progress reports and communicate any difficulties they encounter to their teacher.

Project Organizational Chart

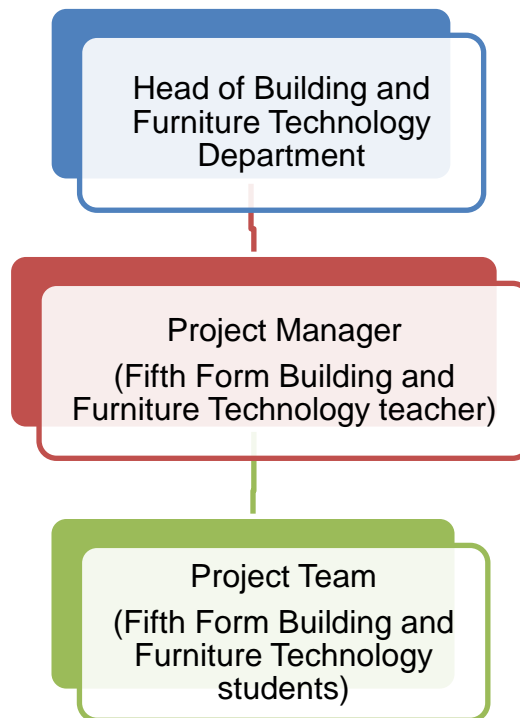


Figure 10 Irene B. Williams Secondary School Library Refurbishment Project organization chart (Source: Compiled by author)

A RACI chart was created to establish the relationship between project tasks and team members. The project manager is in charge of reviewing and approving any suggested change to project responsibilities. The project documents will be updated, and stakeholders would be informed if it becomes necessary to make changes to the project document.

Table 11 RACI chart (Source: Author of study)

No.	WBS	H.O.D	Project Manager	Project Team	CXC Moderator
1	Collect requirements of Building and Furniture Technology SBA	A	R	I	I
2	Meet with stakeholders to discuss requirements	A	R	R	I
3	Brainstorm sessions to decide how requirements will be met	A	R	R	I
4	Site visit and inspection of library	A	R	R	I
5	Get permission from MOEST, School Administration and School Librarian to realize intended project	A	R	I	I
6	Layout drawing of library	I	A	R	I
7	Measure library to create materials and equipment requisition lists	I	A	R	I
8	Paint walls	I	A	R	I
9	Install light fixtures	I	A	R	I
10	Install white board / dry erase board	I	A	R	I
11	Construct bookshelves	I	A	R	I
12	Install new furniture	I	A	R	I
13	Install laptop workstations	I	A	R	I
14	Site clean-up and preliminary inspection	A	R	R	I
15	Final Inspection by CXC Building and Furniture Technology Moderator	I	A	I	R
16	Completed Building and Furniture Technology SBA (document)	I	A	R	I
17	Evaluation from CXC Moderator (document)	A	I	I	R
18	Reopening and handing over ceremony	A	R	R	I

Key:

R– Responsible for completing the work

A – Accountable for ensuring task completion/sign off

C – Consulted before any decisions are made

I – Informed of when an action/decision has been made

Staff Management

Table 12 Staff Management chart (Source: Author of study)

Role	Project Responsibility	Number of Persons	Estimated Start Date	Duration Required
H.O.D	Oversee the operations of the Project Manager.	1	4 th September 2017.	87 days
Project Manager	Lead the project team. Report status of project.	1	4 th September 2017.	87 days
Project team	1. Successfully complete the project. 2. Meet the project completion deadline. 3. Give progress reports and communicate any difficulties they encounter to their teacher.	12	5 th September 2017.	86 days
CXC Moderator		1	15 th November, 2017	26 days

For this project, the project team was pre-assigned and their roles and responsibilities will not change since it was a class project and each member of the class had to participate in as partial fulfilment of the course of study.

Document Acceptance

We the undersigned have reviewed and approved the Human Resource Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

Any changes to this document will be executed by the Project Manager and the Head of the Building and Furniture Technology Department.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

4.7. Communication Management Plan

The Communication Management Plan was designed to facilitate effective and efficient communication of all stakeholders of the Irene B. Williams Secondary School Library Refurbishment Project.

PMBOK® GUIDE (2013) indicates that project communication management encompasses "... the processes that are required to ensure the timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information." It also highlighted that "Effective communication creates a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests, which impact or have an influence upon the project execution or outcome."(p.287).

Communication Management Plan Irene B. Williams Secondary School Library Refurbishment Project Swetes Village, St Paul's, Antigua and Barbuda

This document was created to establish the communications goals and strategies of the Irene B. Williams Secondary School Library Refurbishment Project.

It is the intention that this plan will ensure that the correct information is disseminated via the most appropriate channels to the necessary stakeholders in a timely manner.

Communication Matrix

"A communication matrix is a document summarizing the Communication Management Plan for a project. To remain effective, the communication matrix must be accessible to all stakeholders and updated throughout the project ("Communication Matrix in Project" n.d.)."

The communication matrix for the Irene B. Williams Secondary School Library Refurbishment Project was generated by the project team and managed by the project manager. The matrix includes:

- Intended audience of communication
- Rationale for communication
- Objective, frequency and mode of communication.

Table 13 Communication Matrix (Source: Author of study)

Stakeholder	Communication Requirement	Objective	Frequency	Method	Person Responsible
MOEST	Provide project progress report.	Inform about project progress and execution of activities.	Monthly – fourth Monday of every month	Written reports	Head of Department (H.O.D) Building and Furniture Technology
BOE	Provide project progress report.				Email
CXC Moderator	Provide project progress report.			<ul style="list-style-type: none"> • Written reports • Email • Status meetings 	Project Manager (Building and Furniture Technology Teacher)
School Administration	Provide project progress report.			Weekly – every Monday	<ul style="list-style-type: none"> • Meetings

					Technology Teacher)
Head of Department (H.O.D) Building and Furniture Technology	Provide project progress report.	Report project progress, deadlines, Adjustments of schedule and arising issues.	Daily-Urgent/ as is needed	<ul style="list-style-type: none"> • Conversations • Email • Meetings 	Project Manager (Building and Furniture Technology Teacher)
Project Manager (Building and Furniture Technology Teacher)	Provide project progress report.		Weekly – every Monday		Weekly site visits
Project Team (Building and Furniture Technology students)	Verify project progress status.	Advise the project team of the importance of the Irene B. Williams Secondary School Library Refurbishment Project. Remind them of the scope, progress of implementation, the need to meet schedule deadlines and maintain quality standards.	Daily-Urgent/ as is needed Weekly – every Monday Daily site visits	<ul style="list-style-type: none"> • Conversations • Email • Meetings 	Project Manager (Building and Furniture Technology Teacher)
Library Staff	Provide project progress report.	Inform about project progress and execution of activities.	Weekly – every Monday	<ul style="list-style-type: none"> • Meetings 	Project Manager (Building and Furniture Technology Teacher)

Project Meetings

Project meetings scheduled and hosted regularly:

- To inform the H.O.D, project team and CXC moderator of the project progress and execution of activities.
- To review work progress
- To have discussions, get feedback and make decisions.

Table 14 Project Meetings (Source: Author of study)

Classification	Purpose/Description	Frequency	Person responsible	Participants
Project Status Meeting and logistics	<ul style="list-style-type: none"> • Discuss the progress of the project. • Determine if project is on schedule and meeting quality requirements. • Determine if there is a need to bring in outside help to complete activities. • Establish if there were any problems with the materials received and if they are adequate to complete activities. 	Weekly	Project Manager	Project Team and H.O.D
Project Status Meeting	Inform of the project progress and quality of deliverables.	Monthly	Project Manager	C.X.C Moderator

Project Reporting

Table 15 Project Reporting (Source: Author of study)

Report Type	Purpose/Description	Frequency	Person responsible
Project Status Report	<ul style="list-style-type: none"> • Validate the activities completed during the month. • Highlight any project issues. 	Monthly	Project Manager
Forecasting Report	<ul style="list-style-type: none"> • Discuss activities to be undertaken during the next month. 	Monthly	Project Manager
Site Inspection Report	<ul style="list-style-type: none"> • Validate the activities completed during the week. • Discuss activities to be undertaken during the upcoming week. • Highlight any site issues and solutions. 	Weekly	Project Manager
Lessons Learned Documentation Report	<ul style="list-style-type: none"> • Compilation of reports and documents can be used to plan/guide future projects. 	Monthly	Project Manager

Communications Management

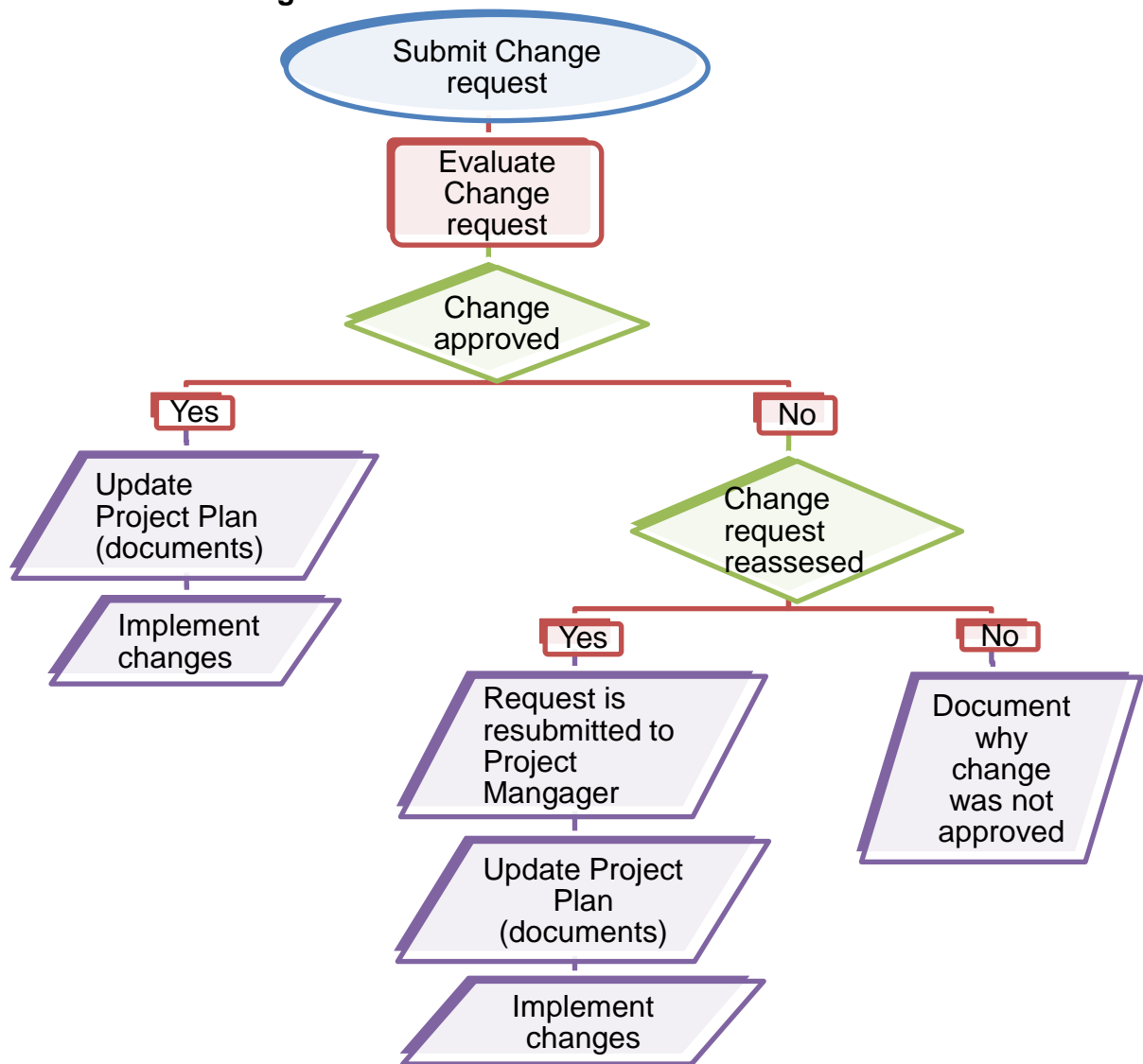


Figure 11 Irene B. Williams Secondary School Library Refurbishment Project Communication management flowchart (Source: Compiled by author)

Issue Log

PMBOK® GUIDE (2013) states that “An issue log is used to document and monitor the resolution of issues. It may be used to facilitate communication and ensure a common understanding of issues. A written log documents and helps to monitor who is responsible for resolving specific issues by a target date.” (p.305).

With this as a guideline, the creation of an issue log was necessary. The project manager will be responsible for maintaining the log. All issues that arise throughout the project life cycle will be recorded.

Table 16 Project Issue Log (Source: Author of study)

Issue Description	Date reported	Priority	Response plan	Person Responsible	Status	Date resolved

Project Management Information System

“An information management system provides a set of standard tools for the project manager to capture, store, and distribute information to stakeholders about the project costs, schedule progress, and performance.” PMBOK® GUIDE (2013) (p.306).

The process uses several resources, but it is necessary for the successful execution of the project.

For this project, team members will gather information that will be stored in at least two formats. Where it is possible written communication, sketches, material requisition and like documents will be scanned and uploaded to the Building and Furniture Technology Departments’ desktop; while emails will be printed and appropriately filed in the appropriate areas in the department’s filing cabinet.

The project manager will verify that the necessary information has been stored and are in the designated areas.

Information will be disseminated to stakeholders as is necessary and in the most appropriate format.

Document Acceptance

We the undersigned have reviewed and approved the Communication Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

Any changes to this document will be authorized and made by the Project Manager and the Head of the Building and Furniture Technology Department.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

4.8. Risk Management Plan

According to PMBOK 5th Edition a "...risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, and quality. A risk may have one or more causes and, if it occurs, it may have one or more impacts." (p.310).

A Risk Management Plan was created to identify known and unknown risks and develop risk responses to minimize their effect on the project; its development was influenced by the methodology of Project Management Book of Knowledge (5th) Edition.

Risk Management Plan

Irene B. Williams Secondary School Library Refurbishment Project Swetes Village, St Paul's, Antigua and Barbuda

Some preliminary risks were identified during the creation of the project charter, however as subsidiary plans were created further possible risks were identified and registered in the Risk Management Plan.

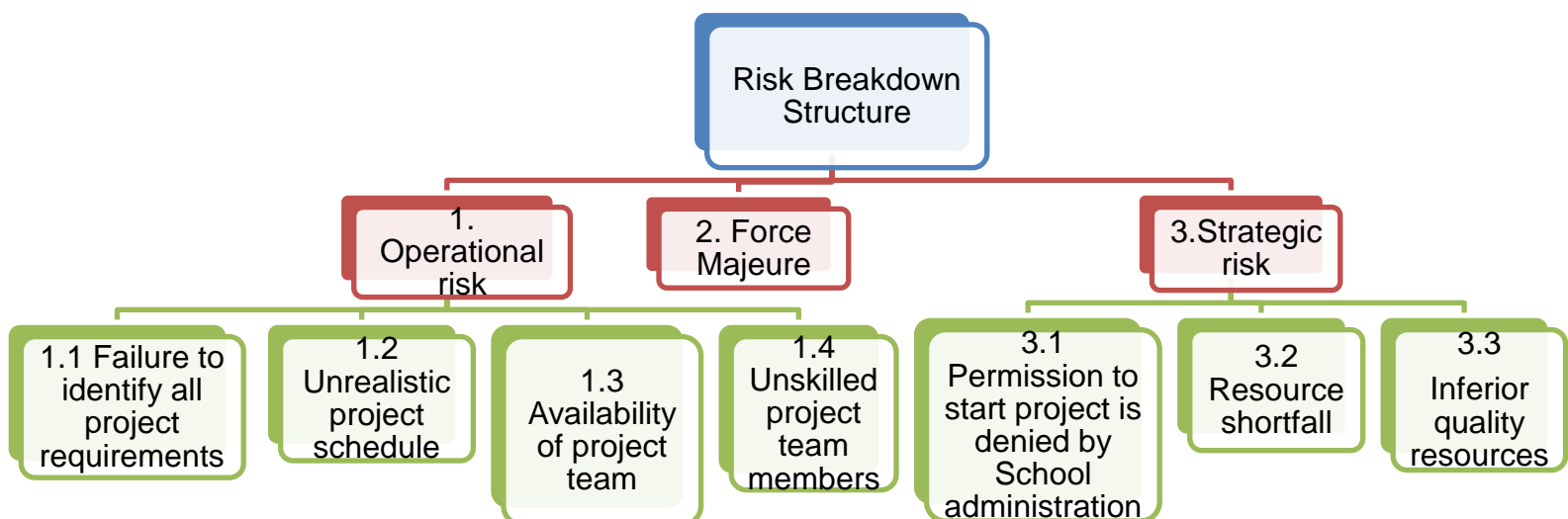


Figure 12 Irene B. Williams Secondary School Library Refurbishment Project Risk breakdown structure (Source: Compiled by author)

Risk Probability and Impact

This analysis was carried out to determine how likely the risk(s) are to occur and the impact. Expert judgement and analytical tools were used to assess the probability and impact of each risk identified.

Table 17 Risk probability impact matrix

		Impact				
		Insignificant (1)	Marginal (2)	Moderate (3)	Critical (4)	Catastrophic (5)
Probability	Certain (5)	5	10	15	20	25
	Likely (4)	4	8	12	16	20
	Occasional (3)	3	6	9	12 Availability of project team	15 Resource shortfall
	Seldom (2)	2	4 Failure to identify all project requirements	6 Unrealistic project schedule	8 Unskilled project team members	10
	Unlikely (1)	1 Force Majeure	2	3	4 Inferior quality resources	5 Permission to start project is denied by School administration

Risk outcome: Low, Medium, High

Risk Register

Table 18- Risk Register

RBS Code	Risk	Consequences	Probability	Impact	Overall Rating	Trigger	Response and Strategy
3.2	Resource shortfall	Delay in project schedule.	3	5	15	BOE does not have the material and equipment as they are in high demand by all the other secondary schools on island.	<p>Avoidance Draft up project ideas/proposal in term 3 of previous scholastic year and present it to school administration for permission/approval.</p> <p>Requisition resources at the beginning of September from BOE.</p>
1.3	Availability of project team	Inadequate human resource can affect tasks on critical path.	3	4	12	Project team has classes in times designated for project work.	<p>Avoidance Collaborate with other subject teachers and create a special timetable which will allow project team members to get the necessary working hours in.</p>
1.4	Unskilled project team members	Deliverables may not meet quality requirement which increases the possibility of rework.	2	4	8	Team member did not acquire enough practical knowledge during class time.	<p>Mitigation Stronger team members will be paired with weaker ones (it is still a learning process). Project Manager (teacher) will be on site to guide and assist team members through the process.</p>
1.2	Unrealistic project schedule	Missed deadline.	2	3	6	Inexperience in preparing schedules.	Schedule compression by fast tracking some activities.

3.1	Permission to start project is denied by School administration	Project Manager (teacher) and Project team (students) would have to look outside the institution to find an alternative to complete the course requirement.	1	5	5	Administration believes that project may become a safety hazard.	<p>Avoidance Make a safety and precaution presentation to Administration.</p> <p>Have them review the Building and Furniture Technology to see that overall safety is one of the requirements for the project.</p>
1.1	Failure to identify all project requirements	Project scope creep or gold plating.	2	2	4	Inexperience in project planning and management.	<p>Avoidance Hold consultations with an individual experienced in project management</p>
3.3	Inferior quality resources	Deliverables will not meet quality requirement	1	4	4	<p>BOE may not have the material specifically required for realization of the project.</p> <p>Only sub-quality materials were available from the suppliers to the BOE.</p>	<p>Mitigation The school will use funds from the Petty Cash account to purchase materials.</p>
2	Force Majeure		1	1	1	Acts of God	Acceptance

Document Acceptance

We the undersigned have reviewed and approved the Risk Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

The Project Manager and the Head of the Building and Furniture Technology Department will execute all changes to the document.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

4.9. Procurement Management Plan

Project Procurement Management generally involves processes of purchasing products and services that the project team does not possess (PMBOK 5th Edition, 2013).

In the case of the Irene B. Williams Secondary School Library Refurbishment Project, a Procurement Management Plan was designed solely to facilitate the acquisition of resources and equipment from the Antigua and Barbuda Board of Education. The BOE is a statutory body, which was created to improve the quality of education offered to the citizens of Antigua and Barbuda.

The Board of Education Act, 1994 of Antigua and Barbuda stipulates that the BOE must supply the resources needed to complete courses of studies in the different subject areas offered by institutions on the island. As a result, the Procurement Management Plan was created to reflect the uniqueness of the procurement process at IBWSS.

Procurement Management Plan Irene B. Williams Secondary School Library Refurbishment Project Swetes Village, St Paul's, Antigua and Barbuda

The Procurement Management Plan was created to determine how project resources would be obtained, and utilized throughout the project lifecycle.

Procurement Management Approach

Project procurement management allows the project manager and his team to decide what resources are required, how much is required, at what point it is required and how it will be acquired (PMBOK 5th Edition, 2013).

Procurement Definition

The resources that are critical to the development of the project have been listed in the table below.

Table 19- Procurement Definition

Resource	Justification	Date needed by
Putty	To fill cracks and holes in the wall.	19 th September 2017.
Primer	Preparatory coating used before painting.	19 th September 2017.
Paint	To add color to the wall.	19 th September 2017.
Putty knife	Putty application.	19 th September 2017.
Paint brushes	Paint application.	19 th September 2017.
Paint roller pads and frames	Paint application to large flat surfaces.	19 th September 2017.
Paint tray	To hold paint during painting.	19 th September 2017.
6 feet fluorescent light bulb	To illuminate the library.	25 th September 2017.
6 feet fluorescent light fixture	To house fluorescent bulbs.	25 th September 2017.
8' x 4' white board / dry erase board	To write information for students and double as a projector screen.	2 nd October 2017
electric drill	To drill holes into wall and fasten screws.	2 nd October 2017
2" masonry screw	To fasten whiteboard to the wall.	2 nd October 2017
2" wall plugs	To anchor screws into the wall.	2 nd October 2017
Carpenter's level	To indicate if white board / dry erase board is level horizontally and vertically.	2 nd October 2017
4 sheets of cedar ply	To create the back of the bookshelves.	11 th October 2017
9 pieces yellow pine 1"x12"x16"	To create shelves for bookshelves.	11 th October 2017
1lb of 2" secret head nail	To assemble bookshelves.	11 th October 2017
Wood glue	To assemble bookshelves.	11 th October 2017
Sand paper	To prepare wood for priming.	11 th October 2017
primer	Preparatory coating used bed before painting.	11 th October 2017
paint	To add color to the bookshelf.	11 th October 2017
20 chairs	To sit.	30th October 2017
5 tables	For students to use for writing.	30th October 2017
6 laptops	To carry out online research and document creation.	2 nd November2017

Procurement Risk

The success of a project depends heavily on the project team's ability to identify potential risks and devise strategies to prevent them or minimize their effects.

The project procurement process of the IBWSS Library Refurbishment project is not immune to risks, particularly since the BOE is the sole supplier of resources to schools in Antigua and Barbuda.

Potential procurement risks that have been identified are:

1. The possible shortage of resources required to realize the project since the BOE supplies materials to all schools on the island.
2. The materials supplied may be of an inferior quality, which may affect the quality of the project deliverables.

Table 12 and 13 in the Risk Management Plan highlights how these risks will be handled.

Standardized Procurement Documentation

The process of procuring resources from the BOE will be conducted using the requisition form and delivery note that they provide. The use of these two documents will:

1. Give credibility to transactions
2. Create a check and balance system for accountability
3. Save time
4. Eliminate any ambiguity in the transactions.



Antigua and Barbuda Board of Education
 CNR. Popeshead and St. George's Street
 Bounty Shopping Center Building
 P.O. Box 3152, St. John's, Antigua, W.I

Requisition Form

Requisition Number: _____ Date: _____
 Institution: _____
 Department: _____
 Delivery Location: _____

Description	Quantity

Ordered by: _____

Approved by: _____

Figure 13 Sample of Antigua and Barbuda Board of Education Requisition Form



Antigua and Barbuda Board of Education
 CNR. Popeshead and St. George's Street
 Bounty Shopping Center Building
 P.O. Box 3152, St. John's, Antigua, W.I

Delivery Note

Ref: Requisition Number: _____ Requisition Date: _____
--

Delivery Note Number: _____ Date: _____
 Institution: _____
 Department: _____
 Delivery Location: _____

Description	Quantity	Received

Delivered by: _____
 Received by: _____

Figure 14 Sample of Antigua and Barbuda Board of Education Delivery Note

Procurement Constraints

The BOE is the sole provider of resources needed for the realization of the IBWSS Library refurbishment project. If the materials they provide are substandard, this constraint can negatively affect the quality of the project deliverables.

Performance Metrics for procurement process

The performance metrics is used to rate the efficacy of the BOE during the procurement process. Each aspect can be rated on a scale of 1-3.

Table 20- Procurement performance metric

Supplier	Product Quality	Product Availability	Documentation Quality	Transactional Efficiency
BOE				
BOE				
BOE				
BOE				

1- Unsatisfactory

2- Satisfactory

3- Exceptional

Document Acceptance

We the undersigned have reviewed and approved the Procurement Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

The Project Manager and the Head of the Building and Furniture Technology Department will execute any changes to this document.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

4.10. Stakeholder Management Plan

A Stakeholder Management Plan was developed in which stakeholders were identified and prioritized according to their interest, power and influence on the project.

The Stakeholder Management Plan is created by the project manager and project team with the objective of identify and satisfying the stakeholders' need without compromising the success of the project.

Stakeholder Management Plan Irene B. Williams Secondary School Library Refurbishment Project Swetes Village, St Paul's, Antigua and Barbuda

The project Stakeholder Management Plan was developed during the project-planning phase and will establish the procedure for identifying and managing stakeholders.

Roles and Responsibility

Table 21 Description of responsibilities and project roles in stakeholder management

Role	Responsibilities
Project Manager (Building and Furniture Technology Teacher)	<ol style="list-style-type: none"> 1. Identify and categorize stakeholders 2. Prepare strategies to include in the Stakeholder Management Plan. 3. Perform stakeholder analysis. 4. Write Stakeholder Management Plan. 5. Approve Stakeholder Management Plan. 6. Review Stakeholder Management Plan. 5. Approve Stakeholder Management Plan 6. Communicate stakeholder communication and engagement.
Project Team (Building and Furniture Technology students)	<ol style="list-style-type: none"> 1. Identify categorize stakeholders 2. Perform stakeholder analysis. 3. Write Stakeholder Management Plan. 4. Review Stakeholder Management Plan.

Stakeholder Identification

Expert judgement and meetings were the tools and techniques used to identify the stakeholders of this project. A stakeholder register was used to record their identities, roles and influence on the project.

The stakeholder register was subsequently used to effectively plan the engagement/management strategy of each stakeholder be it an individual or an organization.

Table 22 Stakeholder Register

Stakeholder Register				
Stakeholder	Responsibility	Expectations	Major requirement	Influence
MOEST	Ensure that grades from the Building and Furniture Technology teacher and CXC moderator are submitted to the CXC Portal on time.	The CXC Moderator will complete his assessment of the project on schedule and submit the information to the CXC Portal.	The project is completed on schedule to allow the CXC Moderator to complete his assessment in a timely manner.	Medium
Administration of the Irene B. Williams Secondary School	Ensure that the H.O.D is overseeing the resources and activities in his department.	The H.O.D is actively monitoring his department.	The H.O.D is able to account for his department.	Medium
BOE	Provide requisitioned resources for the realization of the renovation project.	Requisitions to procure resources will be submitted.	Requisition forms are submitted at least one week before resources are needed.	High
CXC Moderator	<ol style="list-style-type: none"> 1. Observe the project team. 2. Evaluate skills and competencies displayed. 3. Evaluate the quality of products. 	Project was developed using CXC guidelines and will finish on schedule.	Project Manager ensures that project teamwork under the established guidelines.	Low
Head of Department (H.O.D) Building and Furniture Technology	<ol style="list-style-type: none"> 1. Oversee the Building and Furniture Technology Teacher 2. Liaise between: <ul style="list-style-type: none"> • BOE and Building and Furniture 	Project manager is competent to carry out his duties.	Project manager will communicate the project's status and report any issues that may hinder the project's success.	Medium

	<p>Technology Teacher</p> <ul style="list-style-type: none"> • CXC Moderator and Building and Furniture Technology Teacher 			
Project Manager (Building and Furniture Technology Teacher)	<ol style="list-style-type: none"> 1. Manage project by ensuring proper integration of all processes. 2. Manage and monitor the resources of the project. 3. Ensure that the project meets the requirement of the CXC Building and Furniture Technology syllabus. 4. Ensure that project documents are properly maintained and signed by him. 5. Inform stakeholders of the project's status. 	Resources will be available to successfully complete the project.	H.O.D ensures that resources are acquired in a timely manner.	High
Project Team (Building and Furniture Technology students)	<ol style="list-style-type: none"> 1. Adhere to the CXC guidelines given so that they can successfully complete the project. 2. Follow the schedule so that the completion deadline is not missed. 3. Give progress reports and communicate any difficulties they encounter to their teacher. 	Support and resources will be available to successfully realize the project.	<p>Project manager will provide the necessary guidelines throughout the project development.</p> <p>H.O.D ensures that resources are acquired in a timely manner.</p>	High
Library Staff	Provide guidelines on the requirements of Library and Media Centre facilities	Refurbished library will meet the needs of 21 st Century learner.	Project will be successfully completed so that the area can become functional for the new school term.	Medium

Stakeholder Analysis

A power interest grid was constructed upon the completion of the stakeholder register for a graphical representation. It is used to highlight which stakeholder(s) should be managed closely, kept satisfied, monitored and kept informed.

It allows the project manager to decide how much time and energy will be given to each stakeholder in order for the project to be successful.

Below is the Power Interest grid with the stakeholders for the Irene B. Williams Secondary School Library Refurbishment Project.

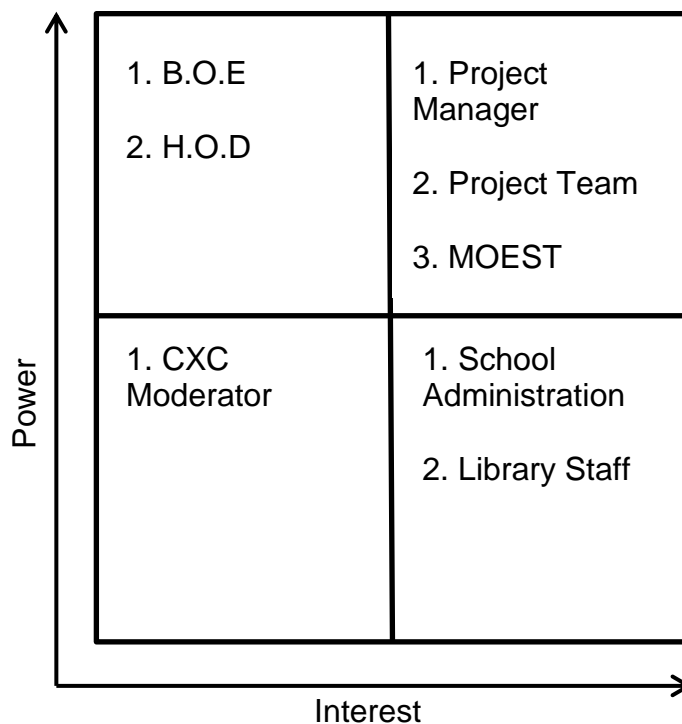


Figure 15 Irene B. Williams Secondary School Library Refurbishment Project power and interest grid (Source: Compiled by author) Plan Stakeholder Management

PMBOK 5th Edition explains the plan stakeholder management is the action taken to develop “...appropriate management strategies to effectively engage stakeholders throughout the lifecycle of the project, based on the analysis of their needs, interests and potential impact on project success. The key benefit of this process is that it provides a clear, actionable plan to interact with project stakeholders to support the project’s interests. (p.399).

Expert judgement and meetings were the tools and techniques used to determine the level of engagement of the project’s stakeholders since this is an integral aspect to project success. Stakeholder engagement level can be labelled as unaware, resistant, neutral, supportive or leading; this is can however change during a project’s lifecycle.

Below is the stakeholder engagement assessment matrix that was used to determine the current and desired level of engagement of each stakeholder.

Table 23 Stakeholder engagement assessment matrix

Stakeholder	Level of engagement				
	Unaware	Resistant	Neutral	Supportive	Leading
MOEST				C D	
Administration of the Irene B. Williams Secondary School				C	D
BOE			C D		
CXC Moderator			C D		
Head of Department (H.O.D) Building and Furniture Technology				C	D
Project Manager (Building and Furniture Technology Teacher)					C D
Project Team (Building and Furniture Technology students)					C D
Library Staff				C D	

“C” represents their current level of engagement and “D” the desired level of engagement.

Manage Stakeholder Engagement

“...Communicating and working with stakeholders to meet their needs/ expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle.” is the objective of manage stakeholder engagement. (PMBOK 5th Edition p.404)

This process is realized to garner the highest level of support from stakeholders by managing their expectations to optimize the chances of the project being successful.

Manage stakeholder engagement allows the project manager to build a positive relationship with stakeholders by sharing information, receiving their feedback and solving conflicts. Upon the conclusion of this process, lessons learned are documented, distributed and archived for future project use.

Table 24 Stakeholder engagement strategy

Stakeholder	Methodology	Frequency	Person Responsible
MOEST	Written reports Email	Monthly fourth Monday of every month	Head of Department (H.O.D) Building and Furniture Technology
BOE	Written reports Email		Head of Department (H.O.D) Building and Furniture Technology Head of Department (H.O.D) Building and Furniture Technology
CXC Moderator	<ul style="list-style-type: none"> • Written reports • Email • Status meetings 		Project Manager (Building and Furniture Technology Teacher)
School Administration	<ul style="list-style-type: none"> • Meetings 	Weekly every Monday	Project Manager (Building and Furniture Technology Teacher)
Head of Department (H.O.D) Building and Furniture Technology	<ul style="list-style-type: none"> • Conversations • Email • Meetings 	Daily- Urgent/ as is needed	Project Manager (Building and Furniture Technology Teacher)

Project Manager (Building and Furniture Technology Teacher)	<ul style="list-style-type: none"> • Conversations • Email • Meetings 	Weekly every Monday Weekly site visits	–	Project Team (Building and Furniture Technology students)
Project Team (Building and Furniture Technology students)	<ul style="list-style-type: none"> • Conversations • Email • Meetings 	Daily-Urgent/ as is needed Weekly every Monday Daily site visits	–	Project Manager (Building and Furniture Technology Teacher)
Library Staff	<ul style="list-style-type: none"> • Meetings 	Weekly every Monday	–	Project Manager (Building and Furniture Technology Teacher)

Control Stakeholder Management

Stakeholders are pivotal to a project's success; ergo, they must be closely supervised. The stakeholder engagement plan and strategies should be of a flexible nature so that they can be readily realigned if the needs of the stakeholders should change.

Proper stakeholder management control ensures that stakeholder engagement activities remain relevant throughout the development of the project.

Tools and techniques utilized during the control stakeholder management process are expert judgement and meetings. These are used to identify possible new stakeholders, reassess known key stakeholders along with their interest and to further determine if their needs are being met.

Project documents such as the stakeholder register and issue logs are updated to reflect adjustments as needed.

Document Acceptance

We the undersigned have reviewed and approved the Stakeholder Management Plan for the Irene B. Williams Secondary School Library Refurbishment Project.

The Project Manager and the Head of the Building and Furniture Technology Department will realize any changes to this document.

Signature	
Print Name	
Project Role	
Date	

Signature	
Print Name	
Project Role	
Date	

5. CONCLUSIONS

After developing the Project Management Plan for though, the Irene B Williams Secondary School (IBWSS) Library Refurbishment Project the author concluded that:

1. Even though the Irene B Williams Secondary School (IBWSS) Library Refurbishment Project was considered a success, its lifecycle would have been better if a Project Integration Management Plan existed, as it would have helped to identify and coordinate the processes and activities within the project life cycle.
2. A Scope Management Plan was needed in the Irene B Williams Secondary School (IBWSS) Library Refurbishment Project to prevent stakeholders from asking for the inclusion of aspects that were not requirements of the CXC Syllabus to be a part of the project.
3. The Irene B Williams Secondary School (IBWSS) Library Refurbishment Project was completed on schedule, but the allocated time was not used efficiently.
4. The Irene B Williams Secondary School (IBWSS) Library Refurbishment Project met the quality standards set by CXC, even though some rework and deviation from the original plan had to be made.
5. The Irene B Williams Secondary School (IBWSS) Library Refurbishment Project had the necessary human resource personnel to successfully complete the project.

6. There was not a well-established Communication Management Plan in place for the Irene B Williams Secondary School (IBWSS) Library Refurbishment Project.
7. Although a few risks were identified, a probability impact assessment was not carried out, no risk register was created and as such, a contingency or mitigation plan was not in place.
8. The procurement process for the Irene B Williams Secondary School (IBWSS) Library Refurbishment Project was a straight forward one since the Board of Education supplied the resources needed to realize the project.
9. The stakeholders of the Irene B Williams Secondary School (IBWSS) Library Refurbishment Project were identified but were not placed in a stakeholder register. Their interests and levels of engagement were not identified nor were any engagement strategies devised to handle them.
10. Teachers at the Irene B. Williams Secondary School need to be more au fait with the project management practices and principles so that they can maximize the benefits of Project Based Learning.

6. RECOMMENDATIONS

Having finalized this course of study the author makes the following recommendations:

1. The Building and Furniture Technology teacher and the Fifth Form students of IBWSS should develop a Project Integration Management Plan as one of the processes when developing projects as it will allow them to better identify and coordinate the processes and activities within the project life cycle.
2. The Building and Furniture Technology teacher and the Fifth Form students of IBWSS should devise a Scope Management Plan that outlines all the tasks necessary to complete any project that they are realizing.
3. The Building and Furniture Technology teacher and the Fifth Form students of IBWSS should design a Schedule Management Plan to ensure that the project is not only completed within the established timeline, but that adequate time is allocated to each activity for it to be properly executed.
4. The Building and Furniture Technology teacher and the Fifth Form students of IBWSS should create a Quality Management Plan to ensure that the processes and products meet standards and requirements. The project team (students) need to receive more training in some practical aspects. This will reduce the possibility of deviating from established plans to meet requirements.
5. A Human Resource Management Plan should be developed by the Building and Furniture Technology teacher and the Fifth Form students of IBWSS to ensure that responsibilities are assigned to the most qualified/suitable individual.

6. A Communication Management Plan should be devised by the Building and Furniture Technology teacher and the Fifth Form students of IBWSS to more effectively control the exchange, distribution, storage and retrieval of information.
7. The Building and Furniture Technology teacher and the Fifth Form students of IBWSS should design a Risk Management Plan, as it will help to give more stability to the project as it can minimize scope creep, allow for proper budgeting and resource allocation.
8. The Building and Furniture Technology teacher and the Fifth Form students of IBWSS should design a Procurement Management Plan which will guide to manage the steps required to acquire resources from the Board of Education.
9. The Building and Furniture Technology teacher and the Fifth Form students of IBWSS should create a Stakeholder Management Plan to identify all key stakeholders and their needs, develop strategies to engage, monitor and control them.
10. The Ministry of Education, Science and Technology should provide certificate training in Project Management to teachers that they employ so that they are more knowledgeable about the processes that can help to improve Project Based Learning.

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8. APPENDICES

Appendix 1: FGP Charter

PROJECT CHARTER	
Formalizes the project start and confers the project manager with the authority to assign company resources to the project activities. Benefits: it provides a clear start and well defined project boundaries.	
Date	Project Name:
13 th November,2017.	Project Management Plan for the refurbishment of the Irene B Williams Secondary School (IBWSS) library.
Knowledge Areas / Processes	Application Area (Sector / Activity)
<p>Knowledge areas: Project Integration Management,Project Scope Management, Project Schedule and Cost Management, Project Quality Management, Project Human Resource Management, Project Communication Management, Project Risk Management,Project Procurement Management and Project Stakeholder Management.</p> <p>Process groups: Initiation, Planning, Executing, Monitoring and Controlling, Closing</p>	Education and technology.
Start date	Finish date
13 th November, 2017.	22nd December,2017.
Project Objectives (general and specific)	
<ol style="list-style-type: none"> 1. To develop a Project Integration Management Plan to identify and coordinate the processes and activities within the project life cycle. 2. To create a Scope Management Plan to outline all the tasks necessary to complete the project. 3. To create a Schedule Management Plan to schedule project activities and ensure that the project is completed within the established timeframe. 4. To create a Cost Management Plan to apply proper budget allocation and disbursement of funds throughout the project life cycle. 5. To design a Quality Management Plan to produce quality deliverables that meets the functional, educational and aesthetic specifications of a 21st century library. 6. To create a Human Resource Management Plan to identify the most appropriate 	

person(s) with the required skills and knowledge and assign them to their roles and responsibilities.

7. To create a Communication Management Plan to facilitate effective and efficient communication.

8. To draft a Risk Management Plan to identify risks and develop risk responses to minimize their effect on the project.

9. To formulate a Procurement Management Plan to locate and acquire goods and services needed for the project.

10. To develop a Stakeholder Management Plan to identify stakeholders, their interest and power of influence on the project.

Project purpose or justification (merit and expected results)

The Irene B Williams Secondary School in Antigua and Barbuda is a “new” rural educational institution. Previously it was a primary school, but as the need for more students to access Universal Secondary Education (USE) arose, the Ministry of Education Science and Technology (MOEST) decided that it was more feasible to change the level of education offered at the institution. There were changes made to the curriculum, staffing, hours of operation and uniforms; one thing that however remained the same was the infrastructure and aesthetics.

Education in the 21st Century requires educators to meet children where they are and to provide them with a variety of learning tools in a learner centred and learner friendly environment. Presently the library at the Irene B. Williams Secondary School does not meet these requirements, hence the need for it to be refurbished.

The rationale of this project to develop a Project Management Plan for the refurbishment of the Irene B Williams Secondary School library is to ensure that the appropriate project management guidelines and practices are followed, efficient utilization of resources and the production, update and appropriate storage of project documents. While creating a more efficient and environment –friendly facility which supports and enhances learning in both a traditional and technological framework.

Description of Product or Service to be generated by the Project – Project final deliverables

The project final deliverable will be the Project Management Plan for the refurbishment of the Irene B. Williams Secondary School library, which will incorporate the subsidiary documents of a Project Management Plan.

The deliverables are: Integration Scope Management Plan, Scope Management Plan, Schedule Management Plan, Cost Management Plan, Quality Management Plan, Human Resource Plan, Communication Management Plan, Risk Management Plan, Procurement Management Plan and Stakeholder Management Plan.

Assumptions

The following assumptions were made:

- The Ministry of Education Planning Unit, Antigua and Barbuda Board of Education (BOE), the school's administration, librarian staff and students will be cooperative and provide information required to develop the Final Graduation Project.
- There will be adequate print and digital information sources available to support the project research.
- The assigned tutor will be able to provide support and guidelines that will facilitate the development of the FGP.
- The project can be realized in the stipulated time frame of three months.
- The project will not be too expensive to realize.

Constraints

- Time period may not be adequate to complete the project
- Locating and contracting a philologist who will work efficiently

Preliminary risks

Cause	Effect	Impact
Failure to identify all projects requirements	Incomplete deliverables	Scope, Time,Quality
Unrealistic FGP Schedule	Delayed deliverables	Scope, Time
Philologist availability	Delayed deliverables	Time,Quality
Project scope creep	Delayed deliverables	Scope, Time,Quality

Budget

Estimated budget: \$1350.00 XCD / \$500.00 USD

Milestones and dates

Milestone	Start date	End date
Final Graduation Project Seminar	13 th November, 2017	22 nd December,2017
Tutoring	30 th July, 2018	19 th October, 2018
Reading By Reviewers	22 nd October, 2018	9 th November, 2018
Adjustment	12 th November, 2018	7 th December, 2018
Presentation to the Board of Examiners	10 th December, 2018	14 th December, 2018

Relevant historical information

Due to reforms in the education system in Antigua and Barbuda the Irene B. Williams Secondary School opened its doors in September of 2011 in the village of Swetes. Meeting the needs of 21st Century learners is one of the main focuses at this educational institution, therefore it was necessary to change the environment in which they learn. In the final year (5th Form) of secondary school, students whose countries are members Caribbean Community (CARICOM) all take a standardized exam with the Caribbean Examination Council (CXC).

Some subjects offered consist of a School Based Assessment (SBA). In 2016 the first cohort of Building and Furniture Technology students with assistance and guidance from their teachers did their SBA in the form of Project Based Learning (PBL) and

constructed benches to be utilized in the outdoor classrooms. From that year it was decided that 5th Form students would use their knowledge and contribute to the structural and educational development of the institution.

Stakeholders

Direct stakeholders:

Administration of the Irene B. Williams Secondary School

Project Team (staff and 5th Form (11th Grade) Building and Furniture Technology students of Irene B. Williams Secondary School)

Ministry of Education Science and Technology, Planning Unit

Antigua and Barbuda Board of Education

Shemeca S Hogan – Project Manager

Graduation Seminar Lecturer – Carlos Brenes Mena

Indirect stakeholders:

Staff and students of Irene B. Williams Secondary School (users of the library and its facilities)

Student Adviser - Gariela Zúñiga

Project Manager:

Shemeca Shantasha Hogan

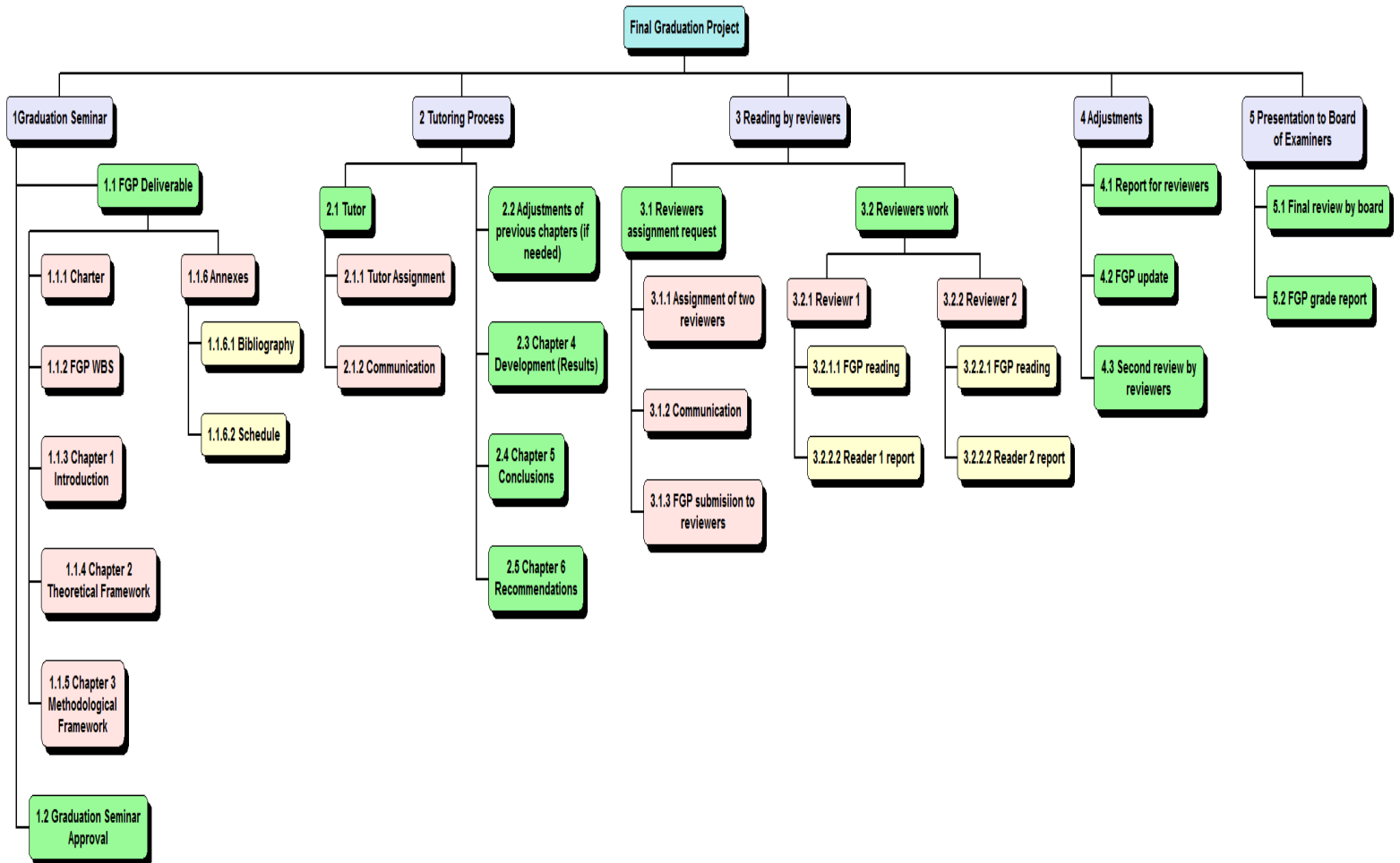
Signature:

S. Hogan

Authorized by:

Signature:

Appendix 2: FGP WBS



Appendix 3: FGP Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	4th Quarter		
						Oct	Nov	Dec
1	➤	Final Graduation Project	286 days	Mon 11/13/17	Fri 12/14/18			
2	➤	1 Graduation Seminar	31 days	Mon 11/13/17	Fri 12/22/17			
3	➤	1.1 FGP Deliverables	26 days	Mon 11/13/17	Sun 12/17/17			
4	➤	1.1.1 Charter	3 days	Mon 11/13/17	Wed 11/15/17			
5	➤	1.1.2 FGP WBS	3 days	Thu 11/16/17	Sun 11/19/17			
6	➤	1.1.3 Chapter 1 Introduction	3 days	Mon 11/20/17	Wed 11/22/17			
7	➤	1.1.4 Chapter 2 Theoretical Framework	6 days	Thu 11/23/17	Thu 11/30/17			
9	➤	1.1.5 Chapter 3 Methodological Framework	6 days	Mon 12/4/17	Sun 12/10/17			
10	➤	1.1.6 Annexes	18 days	Thu 11/23/17	Sun 12/17/17			
11	➤	1.1.6.1 Bibliography	6 days	Mon 12/11/17	Sun 12/17/17			
12	➤	1.1.6.2 FGP Schedule	3 days	Thu 11/23/17	Sun 11/26/17			
13	➤	1.2 Graduation Seminar approved	5 days	Mon 12/18/17	Fri 12/22/17			
14	➤	2 Tutoring Process	60 days	Mon 7/30/18	Fri 10/19/18			
15	➤	2.1 Tutor	3 days	Mon 7/30/18	Wed 8/1/18			
16	➤	2.1.1 Tutor Assignment	1 day	Mon 7/30/18	Mon 7/30/18			
17	➤	2.1.2 Communication	2 days	Tue 7/31/18	Wed 8/1/18			
18	➤	2.2 Adjustment of of previous chapter (if needed)	5 days	Thu 8/2/18	Wed 8/8/18			
19	➤	2.3 Chapter 4 Development (Results)	42 days	Thu 8/9/18	Fri 10/5/18			
20	➤	2.4 Chapter 5 Conclusions	5 days	Mon 10/8/18	Fri 10/12/18			

Project: FGP ScheduleRetake Date: Mon 8/6/18	Task		Inactive Summary		External Tasks	
	Split		Manual Task		External Milestone	
	Milestone		Duration-only		Deadline	
	Summary		Manual Summary Rollup		Progress	
	Project Summary		Manual Summary		Manual Progress	
	Inactive Task		Start-only			
	Inactive Milestone		Finish-only			

Page 1

ID	Task Mode	Task Name	Duration	Start	Finish	4th Quarter		
						Oct	Nov	Dec
21		2.5 Chapter 6 Recommendation	5 days	Mon 10/15/18	Fri 10/19/18			
23		3 Reading by Reviewers	15 days	Mon 10/22/18	Fri 11/9/18			
24		3.1 Reviewers assignment request	5 days	Mon 10/22/18	Fri 10/26/18			
25		3.1.1 Assignment of two reviewers	2 days	Mon 10/22/18	Tue 10/23/18			
26		3.1.2 Communication	2 days	Wed 10/24/18	Thu 10/25/18			
27		3.1.3 FGP submission to reviewers	1 day	Fri 10/26/18	Fri 10/26/18			
28		3.2 Reviewer's work	10 days	Mon 10/29/18	Fri 11/9/18			
29		3.2.1 Reviewer 1	10 days	Mon 10/29/18	Fri 11/9/18			
30		3.2.1.1 FGP reading	9 days	Mon 10/29/18	Thu 11/8/18			
31		3.2.1.2 Reader 1 report	1 day	Fri 11/9/18	Fri 11/9/18			
32		3.2.2 Reviewer 2	10 days	Mon 10/29/18	Fri 11/9/18			
33		3.2.2.1 FGP reading	9 days	Mon 10/29/18	Thu 11/8/18			
34		3.2.2.2 Reader 2 report	1 day	Fri 11/9/18	Fri 11/9/18			
35		4 Adjustments	20 days	Mon 11/12/18	Fri 12/7/18			
36		4.1 Report for reviewers	9 days	Mon 11/12/18	Thu 11/22/18			
37		4.2 FGP update	1 day	Fri 11/23/18	Fri 11/23/18			
38		4.3 Second review by reviewers	10 days	Mon 11/26/18	Fri 12/7/18			
39		5 Presentation to Board of Examiners	5 days	Mon 12/10/18	Fri 12/14/18			
40		5.1 Final review by board	2 days	Mon 12/10/18	Tue 12/11/18			

Project: FGP Schedule Retake Date: Mon 8/6/18	Task		Inactive Summary		External Task	
	Split		Manual Task		External Milestone	
	Milestone		Duration-only		Deadline	
	Summary		Manual Summary Rollup		Progress	
	Project Summary		Manual Summary		Manual Progress	
	Inactive Task		Start-only			
	Inactive Milestone		Finish-only			

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ID	Task Mode	Task Name	Duration	Start	Finish	4th Quarter		
						Oct	Nov	Dec
41		5.2 FGP grade report	3 days	Wed 12/12/18	Fri 12/14/18			
Project: FGP ScheduleRetake Date: Mon 8/6/18		Task Inactive Summary Split Manual Task Milestone Duration-only Summary Manual Summary Rollup Project Summary Manual Summary Inactive Task Start-only Inactive Milestone Finish-only	External Tasks External Milestone Deadline Progress Manual Progress					
Page 3								

Appendix 4: Revision Dictum



ÉMARGE Ed. Consultants

Cashew Hill, St. John's Antigua

Tel: 1-268-772-9057

Email: emargeconsultants@gmail.com

<http://emargeconsultants.webs.com/>

www.facebook.com/EmargeConsultants

June 10, 2018

To Whom It May Concern:

I have been an educator for over forty-five years. I am the Founder and President of EMARGE Ed. Consultants and a specialist educator in the areas of Educational Research and Assessment and Evaluation.

I have reviewed Sections 1 to 3 of Miss Hogan's Final Graduation Report, making suggestions to improve the quality of the presentation. The suggestions highlighted the following: (i) grammar; (ii) structure; (iii) use of scholarly articles; (iv) better use of supporting references (v) adding evidence to support ideas; and (vi) ensuring questions re the tasks were adequately answered.

My qualifications include:

Master of Education, Assessment and Evaluation, University of the West Indies, Cave Hill, Barbados; and

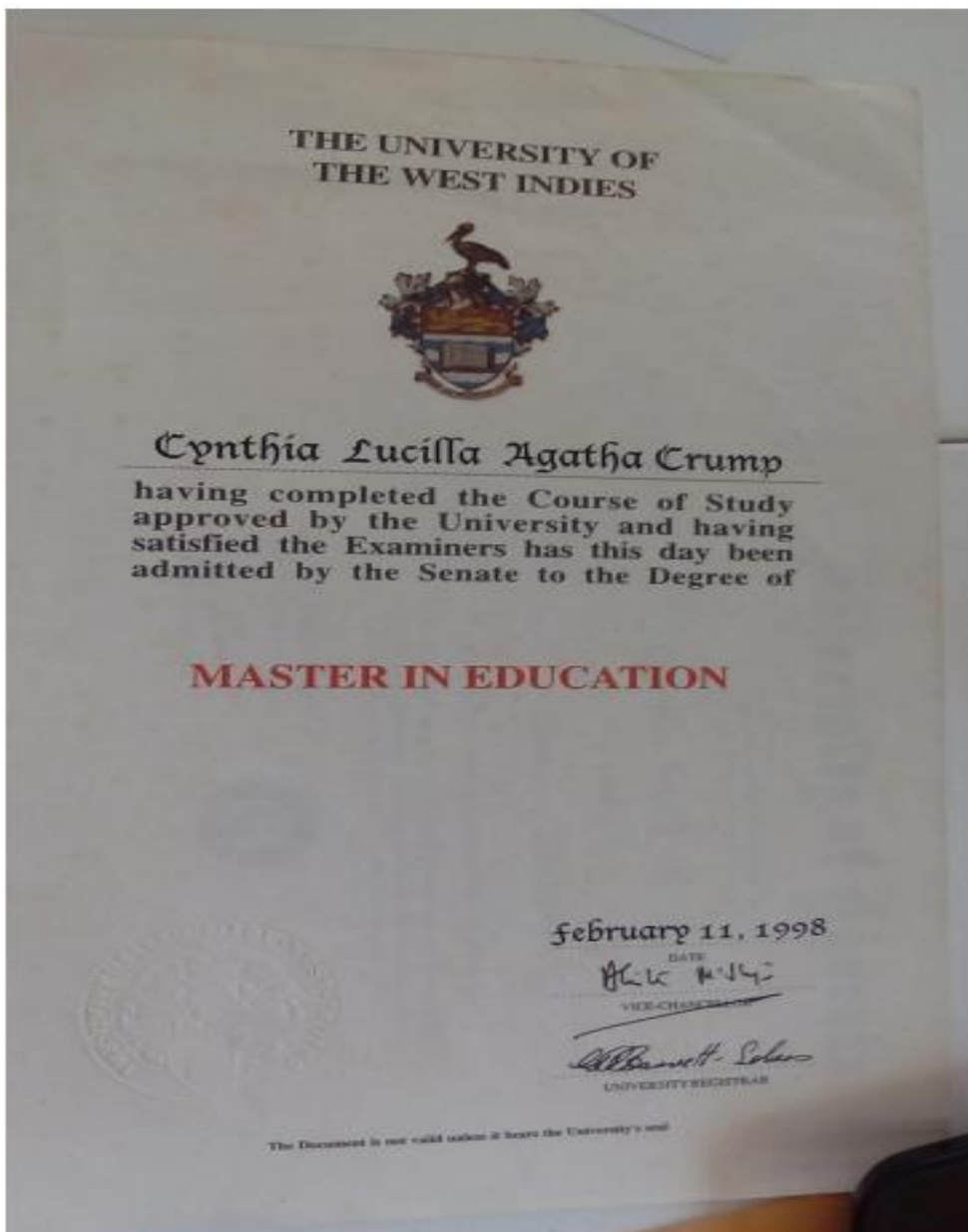
Doctor of Education, Educational Leadership and Instruction, University of Phoenix

Copies of certificates are attached.

Sincerely,

Cynthia Crump (ED.D)

Appendix 5: Consultant Credentials



University of Phoenix

*Upon the recommendation of the Faculty,
University of Phoenix does hereby confer upon*

Cynthia Lucilla A. Crump

the degree of

Doctor of Education

with all the rights, honors and privileges thereto appertaining

*In witness whereof, the seal of the University and the signatures as authorized
by the Board of Directors, University of Phoenix, are herewith affixed,
this thirtieth day of November, in the year two thousand eleven.*

Ministry of Education
Sports and Youth Affairs

I certify that this is a
true copy of the original

Charan - E. D.
15 - 5 - 12

Gerardo Luis Engel
Chairman, Board of Directors

John W. Spickard
Chairman Emeritus



Wesley B. Griggs
President

Appendix 6: Revision Dictum

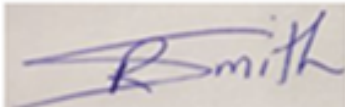
**Renée J. Smith BSc, MSc
Parham Town
St Peters, Antigua and Barbuda**

6th August, 2018.

To whom it may concern:

I hereby confirm that Shemeca Shantasha Hogan has made all the corrections that I indicated to the final Graduation Project.

It is my opinion that the document has met the literary standards of a student reading for a degree at the Masters level.

A handwritten signature in blue ink that reads "R Smith". The signature is written in a cursive style with a large, stylized initial "R".

Renée J. Smith BSc, MSc

Appendix 7: Consultant Credential

