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# The Literate Engineer

Action Plan for Teaching Information Literacy to Engineering Students at Busitema University

2022 - 2024

Engineering Library Committee  
Faculty of Engineering Lecturers  
Engineering Information Foundation, New York, USA

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## **A. INTRODUCTION**

We at Busitema University, Faculty of Engineering and Technology believe that information literacy is a required element of a literate engineer. Engineering graduates must have the essential information literacy competencies to succeed as independent, lifelong learners in their careers and in all aspects of their personal lives. The policy guideline<sup>1</sup> on teaching information literacy to engineering students at Busitema University emphasize the collaborative nature of information literacy: librarians and lecturers working together on teaching research and information literacy skills to students. This integrated approach to teaching engineering courses at the Faculty of Engineering and Technology will be guided by this action plan for the next two years (2022 - 2024). Our desire to empower student engineers become literate engineers is articulated in a six-point strategy that put great emphasis on improving online teaching and learning experience through augmented and enhanced collaboration between librarians and lecturers for impactful IL programming. Developing the Literate Engineer action plan, Busitema University Library and the Faculty of Engineering and Technology is demonstrating its commitment to excellence in its IL programming. There is always room to develop, change and achieve a higher level of success. In this action plan, we build on what has been done over the past years and look towards our future progress.

## **B. BACKGROUND**

### **B.1 Curriculum Review Process**

Busitema University Library received funding from the Engineering Information Foundation (EiF) of the New York, United States. The grant focuses on enhancing communication and the use of information in engineering. Thus, the goal of the project was to incorporate information seeking in the engineering curriculum as essential component in delivering engineering education at Busitema. This will be achieved through implementing a disciplinary-based information literacy e-curriculum for teaching engineering courses as a novel approach to online teaching and learning, where the responsibility for teaching engineering courses is shared between the lecturer and the librarian rather than being limited to the lecturers.

The development of the action plan started with convening a Curriculum Review Committee workshop that constituted the Office of the Deputy Vice-Chancellor – Academic Affairs and innovation, the Academic Registrar, the deputy Director Quality Assurance, the faculty academic leadership, and the Engineering Librarians. During a two-day workshop, the Committee developed a working document that flamed the first draft of the action plan. Building on the working document and the discussions from the workshop, the Project PI drafted the first version of the Action Plan which was shared with the Curriculum Review Committee members for scrutiny and review.

Through a series of five workshops and eight follow up meetings, the pedagogical skills of lecturers and librarians were enhanced; and brought together lecturers and librarians to prepare e-courses, in organizing e-education content on the learning management system, and e-curriculum delivery. By the end of this exercise, we are certain that online learning for engineering students will receive higher approvals. Lecturers will be facilitators who empower students to become more autonomous learners; librarians will be the coaches who develop within students a capacity to evaluate and choose information; and in turn,

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<sup>1</sup> *The Literate Engineer: Policy Guidelines for Teaching Information Literacy to Engineering Students at Busitema University, 2022 - Engineering Information Literacy E-curriculum Policy Guide 1*

engineering students will experience a teaching and learning that is more engaging, interesting, and rewarding.

Thirteen engineering programmes will be reviewed to include disciplinary-based information literacy e-content; capacities of 47 engineering lecturers and 3 librarians in pedagogical skills will be developed and improved; 650 engineering students' information seeking skills and academic writing will be improved, and an open educational toolkit for developing engineering-based IL curriculum will be developed and shared on the project Webpage.

## **B.2 Busitema University**

Historically established as a multi-campus Public University, Busitema University is located in Eastern Uganda. The Main Campus houses the Faculty of Engineering (FoE), is at Busitema, 183 km along Kampala-Tororo highway, Busia District. The other five campuses are: Nagongera Campus, which is Busitema's Faculty of Science and Education, located North-West of Busitema, 21.2 km via Nagongera road; the Mbale Campus houses the Faculty of Health Sciences, located in Mbale town, North of Busitema, 72.7 km via Tororo - Mbale Road, Mbale Town and is situated along Mbale-Tirinyi Road, Mbale Hospital; the Arapai Campus is the Faculty of Agriculture and Animal Sciences located in Soroti City, Soroti District, 184 km North of the Main Campus and is accessed via Mbale - Soroti Road; the Pallisa Campus hosts the Faculty of Management Sciences and is located in Pallisa district, 127 km via Tororo-Mbale Road North of Busitema; and the Campus in Namasagali is the Faculty of Natural Resources and Environmental Sciences, located 178 km North-West of Main Campus when driving via Jinja and taking Kamuli Road. It is at this campus that the Maritime Institute will be established.

As stated in the University Strategic Plan 2020/21 to 2024/25, teaching and research at the Faculty of Engineering and Technology is geared towards value addition and competitiveness in critical national development priorities of human capital development and improved livelihood. The faculty is leader in irrigation, mechanization, agro-processing, ICT in Agriculture and climate change, engineering materials for low-cost packaging and natural fibres, renewable energy, and rice intensification research.

## **B.3 Faculty of Engineering and Technology**

The faculty offers three 2-years graduate, eight four-years undergraduate, and four two-years pre-undergraduate academic programmes to 650 students. The graduate programmes are: Masters in Agricultural Mechanization and Irrigation Engineering, and a Master of Computer Forensics; and a one-year Postgraduate Diploma in Computer Forensics. The undergraduate programmes are Bachelor of Electronics and Electrical Engineering, Bachelor of Computer Engineering, Bachelor of Agricultural Mechanization and Irrigation Engineering, Bachelor of Science in Agro-processing Engineering, Bachelor of Science in Water Resources Engineering, Bachelor of Science in Polymer, Textile and Industrial Engineering, Bachelor of Science in Mining Engineering, and Bachelor of Electrical Engineering. The diploma courses are: Diploma in Ginning and Industrial Engineering, Diploma in Agricultural Engineering, Diploma in Computer Engineering, and Diploma in Electronics and Electrical Engineering.

## **Engineering Library @ Busitema Campus**

The Engineering Library at Busitema Campus is a state-of-the-art building located a few meters from the Main gate. Constructed with funding from the African Development Bank, the Library is a two-storey building measuring 1,400 square meters of space with a seating capacity of 800 users/ 400 readers following COVID-19 standard operating procedures. The library architecture and design symbolize a place of learning, gathering and exploring - responding to the evolving information-seeking behaviors of engineering learners in an academic environment, interdisciplinary scholarly communication practices, information technology, and online pedagogy. The Engineering Library is an academic cornerstone – incorporating silent open reading spaces, individual and group study and discussion rooms, collaboration and interactive technologies, digital learning spaces, staff welfare and workrooms/ offices, inclusive places of convenience, and well distributed and balanced daylighting.

The library is open 07:00 am to 10:45 pm, Monday to Friday; and 08:00 to 06:00 pm, Saturday, Sunday & Public Holidays, with no breaks during the semester time. During recess term the opening hours are reduced based on the faculty's activities and student population on Campus. The recess term library opening hours are discussed by the Library Management Committee, presented and approved by the University Top Management before communicated to the students. This is to ensure that the library and the faculty's activities are well programmed and aligned.

The Engineering Library has nine library staff that includes the Custodian who scouts the library building to ensure the safety of the library materials, staff and the users; while the Systems Librarian supports the development, delivery and sustainability of the library's e-infrastructure.

There are several public service points: The Reference and Information desk located at the entrance, and adjacent to the right is the bag collection and cloak room while on the left is entrance to the University Librarian Office, Pantry, Board Room, Deputy University Librarian/ Campus Librarian Office and the staff sanitary services. Beyond the entrance is the reading space designed with a Hallway stretching up the second-store floor – similar to the Library of Congress's Reference Section. The Reserve Textbook collection is shelved at the Circulation point with open shelves running between the reading space; and opposite is the Technical Services and the Digitization Sections.

The First Floor has open reading spaces, a closed access collection, group discussion rooms, and the Archival and Periodicals Section. The Second Floor has the Learning Center with desktop computers connected to the internet; a wall-mounted projector for presentation and conducting trainings for staff and students. The Learning Center is managed by a Library Assistant, under the supervision of the Systems Librarian. There is also collaborative group discussions rooms and a closed access collection.

Despite the excellent building, the library experiences multiple power and internet blackouts which greatly affects the delivery of library and information services to the users; low productivity of staff because most of the work depends on the availability of good internet connectivity and constant power supply. Further, the library is faced with a shortage of library personnel, and while they possess the necessary library and information science education, they do not have the pedagogic skills and knowledge of the university curricula that are necessary for librarians to be able to guide and mentor both academic staff and students or organise curriculum related activities or facilitate research.

## C. OUR MANDATE

### C.1 Philosophy Statement

We believe in helping students recognize and articulate the need for relevant information, locate and access it, ethically use it to critique resources, facts and opinions to generate new knowledge and solve societal problems. [statement discussed during the workshop]

**OR** [lets choose between these 2 statements]

We believe in naturing a literate engineer – a graduate engineer capable of recognizing and articulating the need for relevant information, locate and access it, ethically use it to critique resources, facts and opinions to generate new knowledge and solve societal problems. [proposed revision]

#### **We commit to:**

- a) Help our students engage with information to solve engineering problems, thus create new understanding through active investigation and thought, instead of memorizing facts presented in-class lectures.
- b) Help our students acquire integrated skills to effectively participate in the generation and application of information for lifelong learning.
- c) Help our students to become pedagogically sophisticated through triangulated approaches, and enable them to become interdisciplinary researchers.
- d) Use multiple appropriate approaches to realize the intended learning outcomes, and enable students to do the assessment, and recognize as many learning styles and approaches as is realistically possible within the engineering discipline.
- e) Impart in students a set of integrated abilities encompassing the reflective discovery of information, the understanding of how engineering information is produced and valued, and the use of engineering information in creating new knowledge and participating ethically in communities of learning.
- f) Impart in students a set of applied skills for negotiating the huge amount of engineering information in the modern world and instilling in engineering students the practice of objectively examining competing versions of the truth and rejecting claims for which there is no evidence.

#### **Vision**

A Center of Excellence for producing information literate Engineers

#### **Mission**

To promote excellence in engineering education and training at Busitema University through a clearly defined path of Information Literacy e-curriculum that meets the needs of our students and reflects current trends in the engineering profession

## D. JUSTIFICATION

The engineering discipline poses unique challenges in identifying, evaluating, acquiring and using information. For instance, peer-reviewed articles are generally published in more costly journals and, therefore, not always available; gray literature requires knowledge of the agency/ organization publishing the information; much of engineering is now interdisciplinary and, therefore, requires knowledge of information resources in more than one discipline; and information can be in various formats (e.g., multimedia, database, website, data set, patent, Geographic Information System, 3-D technology, open file report, audio/visual, book, graph, map) and, therefore, may often require manipulation, working knowledge of specialized software, or/ and special information searching and use skills.

The need for engineering students to be information literate as a requirement for their success both academically and in their future professional pursuits is interminable. This need has only increased due to the changing engineering paradigm, COVID-19 induced challenges, and the increased demand to provide online instruction and courses for highly practical disciplines like engineering. To address these challenges, the library in collaboration with the Faculty of Engineering and Technology is developing the first-ever disciplinary-based information literacy (IL) e-curriculum for teaching engineering courses at Busitema University. This will be known as the **Engineering Information Literacy E-curriculum**. This e-curriculum will assist engineering lecturers and librarians to ensure that the engineering subject matter is taught in line with the University Vision, Mission, and Values, the Busitema University Library Mission, the needs of engineering students and lecturers, and the developments seen in current research on IL skills development.

The e-curriculum will increase the variety and frequency of IL sessions to be delivered and the quality of that delivery. To inform our new IL action plan, the library looks outward to the variety of library online resources subscribed to through the Consortium of Uganda University Libraries and development partners, increasing book budget, collections development policy, and library research support services. Putting this action plan in place, the library is affirming its strategic role in ensuring engineering students are able to develop the IL skills they require for success during their education at Busitema and future employment.

## E. INFORMATION LITERACY MODELS

The IL literature indicates that there are two main Information Literacy models, the Liaison Model/ Campus Librarian Model, and the Team-Based Model.

**Liaison Model** - The liaison model is a commonly used organizational structure of designating individual library staff as the primary contact for specific departments or programmes. This model is currently being used at the Faculty of Engineering and Busitema University at large. A variety of terms including library liaison, subject librarian, Campus Librarian, and subject specialist all refer to this concept (Tennant et al., 2006). The goal of the liaison model is to provide a key point of contact that will manage the collection and services within their assigned area (Livingston, 2002). Whatley (2002) identifies three main components of the liaison role: reference services, instructional services, and collection development. The Library Liaison Model, called Campus Librarian at Busitema University, provides an opportunity to grow and develop relationships with the faculty, lecturers, students, and departments and to build a strong understanding of the curriculum and resources for assigned courses.

**Team-Based Model** - A team-based model places each staff member within a group in which their skills are focused and service is delivered in a collaborative format. In this model, a team of librarians and lecturers “*design and deliver a range of supplemental, integrated and embedded services*” (University of Guelph, 2012, para. 6). A separate team delivers services related to collection development. Shifting to a team-based model is often described as being motivated by budget, a desire to increase productivity, and to increase flexibility (Andrade & Zaghoul, 2010). For engineering students, the change to a team-based model appears to have little effect as long as they continue to receive consistent service and their needs are being met.

**Embedded Librarianship model** - Embedded librarianship provides another method of delivering IL instruction to students whereby library instructional staff are ‘embedded’ in the various places, virtually and physically, where users can best access them as a resource. The library literature provides a wide range of levels of ‘embeddedness.’ For example, Williams (2012) describes the four main ways in which library staff might become embedded:

- In online classes
- Through co-teaching a course
- Physically in other locations (outside of the library)
- Within a Teaching/ Learning Centre on campus

Becoming embedded allows library staff to move out of their traditional space within the library. By taking the library staff out of the library, they are then able to move from their supportive role into a more collaborative partnership with lecturers and students (Carlson and Kneale, 2011, 167). The embedded model can be applied through a variety of methods as suggested above. Tasks of the embedded library staff person typically include providing both reference and other research services (Clyde and Lee, 2011). By providing these services outside of the traditional library environment, library staff is able to reach additional engineering students and provide service at the point of need.

Following a review of our own model and considering the advantages of a Team-Based Model, the curriculum review committee's decision is to continue with our current model for at least three years of implementing the new curriculum (2022/2025). Continuous studies will be conducted to gather evidence to ensure that we are meeting the needs of the engineering students with this model and the role of the Engineering Campus Librarian as a library staff position has become well established and successful.

## **F. STRENGTHS AND WEAKNESSES**

### **Strengths**

- Functional Library building/ Library spaces
- A wide range of digital subject collections - e.g engineering and technology
- Skilled human resources
- Reliable and relatively fast internet connection
- Collaboration initiatives between the library and the faculty staff
- The positive attitude of the students towards library programmes/ services



- Support from management
- The library systems to manage library functions

#### **Weaknesses**

- Inadequate library staff to implement the IL programme
- Unreliable power supply and lack of emergency alternative - generator
- Limited skills of library users to use the e-resources
- Absence of a video monitoring system - safety and security
- Responsiveness to change among staff and students

### **G. ENVIRONMENTAL SCAN**

#### **Internal Factors**

- Need to prioritize the library activities during the budgeting process
- The growing number of academic programmes constrain the available human resources
- Students lack the necessary accessories to access digital information
- Poor response to maintenance/ Slow response to address/ fix broken/ faulty systems and equipment
- Resistance of staff (both librarians and lecturers) to adopt the new changes in the curriculum

#### **External Factors**

- Lobby for additional funding towards university academic activities
- Continuous internet interruptions as a result of fiber optic cuts
- The continuous embargo on recruitment of staff by the government

### **H. STRATEGIC GOALS**

The following outlines the Library's Strategic Goals for Information Literacy

- Online Integration:** To enhance engineering teaching and learning through the development of a series of online library instructional assignments which will aid in the achievement of key Information Literacy competencies.
- Educational Role:** With a focus on embedded librarianship, to increase collaboration between the librarians and the lecturers to incorporate resources and information literacy outcomes into an effective educational experience for students.
- Pedagogical Skills:** to equip library staff with pedagogical skills to deliver an effective information literacy programme
- Assessment:** To develop a set of assessment tools that can be applied to select information literacy-related services, enabling us to evaluate the impact of spreading information literacy activities across the curriculum.

## I. OBJECTIVES AND GOALS

**Goal 1: Online Integration-To enhance engineering teaching and learning through the development of a series of online library instructional assignments which will aid in the achievement of key Information Literacy competencies.**

### Objective 1.1

To develop a set of learning outcomes based on the ALA/ ACRL Information Literacy Standards for Science and Engineering/Technology

#### Outcome 1.1

Identify the outcomes from a series of online IL instructional assignments and establish a priority order for their development.

#### Actions

- Develop online IL instructional assignments
- Develop learning outcomes for each assignment
- Develop criteria for developing the assignments and learning outcomes.

### Objective 1.2

To develop a set of online IL instructional assignments, based on the outcomes from 1.1, that will enable students to learn key IL skills in their own time and at their own pace.

#### Outcome 1.2

Each assignment is developed to build on the skills covered in the previous course. As a whole, the assignments will assist students to develop the basic skills required to meet a satisfactory level on the **Performance Indicators in ACRL Standards 1 and 2.**

Campus Librarians and lecturers may give assignments to be covered prior to an in-person session in order to cover other concepts or higher-level learning when meeting face to face.

#### Action

- Develop key performance indicators for each learning outcome
- Develop a schedule to guide the management of instructional assignments
- Develop a schedule for in-person sessions

### Objective 1.3

To develop online IL instructional assignments that are easily integrated into any existing or future courses

### **Outcome 1.3**

Online IL instructional assignments provide enough flexibility to be accessed from multiple places and formats.

#### **Action**

- Online IL instructional assignments converted to different formats
- The assignments are uploaded on the LMS and on the project website.

### **Objective 1.4**

Librarians and engineering lecturers work together to revise and update the existing programme structures and the courses to match with the **Engineering Information Literacy E-curriculum Policy - 1**.

### **Outcome 1.4**

- a) Learning outcomes of the existing programme structures and courses are revised and updated to match with Engineering Information Literacy E-curriculum
- b) Assignments developed and integrated into the existing programme structures/ courses to match with Engineering Information Literacy E-curriculum

#### **Action**

- Librarians and lecturers hold meetings to develop and update learning outcomes and the assignments to match with Engineering Information Literacy E-curriculum

**Goal 2: Educational Role: With a focus on embedded librarianship, to increase collaboration between the librarians and the lecturers to incorporate resources and information literacy outcomes into an effective educational experience for students**

### **Objective 2.1**

To develop individualized plans for key program areas where there are gaps, and with a proposal for future integration

### **Outcome 2.1**

Lecturer - Librarian individualized workplan/ schedule developed.

#### **Action**

- Revise and update the detailed timetable/ teaching schedule to include Engineering Information Literacy E-curriculum activities.

## Objective 2.2

To provide an integrated learning experience for engineering students where IL instruction is aligned and incorporated closely with regular course work.

### Outcome 2.2.1

Engineering librarians develop online supplementary materials to add to the LMS alongside regular course materials, e.g., research guides, quizzes, worksheets, etc.

#### Action

- Librarians develop research guides, worksheets, etc
- Add materials to the LMS to match with the content

### Outcome 2.2.2

Engineering librarians will partner with course instructors to develop and revise assignments where there are key IL skills involved.

#### Actions

- Librarians and course instructors meet to revise the assignments
- Librarians and course instructors develop new assignments

**Goal 3: Assessment: To develop a set of assessment tools that can be applied to select information literacy-related services, enabling us to evaluate the impact of spreading information literacy activities across the curriculum**

## Objective 3.1

Campus Librarians collaborate with lecturers to review curriculum documents in an effort to find ways to incorporate library resources and IL activity scheduling/ programming into effective educational experiences for students.

### Outcome 3.1

Engineering Librarians will on a monthly basis report statistically on the:

- Number of lecturers seeking input on course and assignment development
- Number of information literacy sessions conducted
- Lecturers making suggestions/ recommendations for resources to purchase
- Their work with lecturers to incorporate information literacy skills in their courses and assignments

## Actions

- Librarians and lecturers develop and agree on the parameters of measurements for each of the outcomes in 3.1 above
- Librarians develop data/ statistical tools to be used in collecting data
- Collect statistics on the number of courses and assignments developed
- Collect statistics on the number of IL sessions conducted
- Collect statistics on the recommendations and resources purchased
- Incorporate IL skills in courses and assignments

## Objective 3.2

Engineering Librarians engage in assessment strategies to assist them in determining the impact that IL activity schedule is having on students' educational experience.

### Outcome 3.2.1

Engineering Librarians will evaluate students' demonstration of IL skills and abilities during and following IL sessions using appropriate means and will report on these on a monthly basis. For example:

- Review of completed assignments
- Review of submitted bibliographies and references lists for inclusion of a variety of appropriate resources
- Review of coordination activities administered pre and post-session worksheets, feedback tools, and quizzes
- Post-session follow-up discussion of student IL skills with lecturers

## Actions

- Review and report on the performance of the assignments
- Report on each of the activities in the outcome 3.2.1

### Outcome 3.2.2

The Library will compile the information gathered through various assessment activities and use that information to revise the activity schedule where necessary to improve outcomes. This will include a monthly summary of activity through the monthly IL Team meetings as well as an overall summary report and recommendations by the Campus Librarian at the end of the academic year.

## Action

- Gather the assessment data and develop a report of the activities performed
- Based on the report, revise the activity schedule and make recommendations for improvement of learning outcomes
- Make a report of the monthly activities
- Produce an annual academic report with recommendations

## J. ACTIONS PLAN/ ACTIVITY TIMETABLE

| Action  | Timelines/ Dates 2021/22 |       |
|---|--------------------------|-------|
|   | Start                    | End   |
| <b>Goal 1:</b> Online Integration - To enhance engineering teaching and learning through the development of a series of online learning modules which will aid in the achievement of key Information Literacy competencies.   |                          |       |
| <b>Objective 1.1:</b> To develop a set of learning outcomes based on the ALA/ACRL Information Literacy Standards for Science and Engineering/ Technology  |                          |       |
| A-1: Develop online tutorials   | January                  | April |
| A-2: Develop learning outcomes for each tutorial  | January                  | April |
| A-3: Develop a criteria for developing online tutorials and learning outcomes.  | January                  | April |
| <b>Objective 1.2:</b> To develop a set of tutorials, based on the outcomes from 1.1, that will enable students to learn key IL skills on their own time and at their own pace. These may be used to supplement or replace some of the instruction normally covered during an in-person class. |                          |       |
| A-1: To develop key performance indicators  | January                  | April |
| A-2: Develop a schedule to guide tutorial management  | January                  | April |
| A-3: Develop a schedule for in-person sessions  | January                  | April |
| <b>Objective 1.3:</b> To develop modules that are easily integrated into any existing or future LMS platform  |                          |       |
| A-1: Librarians develop online modules in different formats   | January                  | April |
| A-2: The developed modules are uploaded on LMS  | January                  | April |
| <b>Objective 1.4:</b> To collaborate with engineering lecturers, the ODeL Coordination teams, and the Directorate of ICTs staff to seamlessly add the IL modules to existing courses.   |                          |       |
| Hold a meeting to develop and agree on the work schedule and in-person session  | January                  | April |
| <b>Goal 2: Educational Role:</b> With a focus on embedded librarianship, to increase collaboration with lecturers and other stakeholders regarding the incorporation of resources and information literacy outcomes into an effective educational experience for students.                    |                          |       |
| <b>Objective 2.1:</b> To develop individualized plans for key program areas identifying where IL instruction is currently offered, where there are gaps, and with a proposal for future integration.  |                          |       |

| Action   | Timelines/ Dates 2021/22 |       |
|--|--------------------------|-------|
|  | Start                    | End   |
| To develop a detailed timetable/ teaching schedule that includes IL instruction activities.  | January                  | April |
| <b>Objective 2.2:</b> To provide an integrated learning experience for students whereby IL instruction is aligned and incorporated closely with regular course work.   |                          |       |
| Librarians develop research guides, worksheets, etc  | January                  | April |
| Materials developed are included in LMS  | January                  | April |
| Librarians and course instructors meet to revise the assignments   | January                  | April |
| Librarians and course instructors develop new assignments  | January                  | April |
| <b>Goal 3: Assessment:</b> To develop a set of assessment tools that can be applied to select information literacy-related services, enabling us to evaluate the impact of information literacy programming.                       |                          |       |
| <b>Objective 3.1:</b> Program Liaisons collaborate with faculty and review curriculum documents in an effort to find ways to incorporate library resources and IL programming into effective educational experiences for students. |                          |       |
| <b>A-1:</b> Librarians and lecturers develop and agree on the parameters of measurements for each of the outcomes in 3.1 above   | January                  | April |
| <b>A-2:</b> Librarians develop data/ statistical tools to be used in collecting data   | January                  | April |
| <b>A-3:</b> Collect statistics on the number of courses and assignments developed  | January                  | April |
| <b>A-4:</b> Collect statistics on the number of IL sessions conducted  | January                  | April |
| <b>A-5:</b> Collect statistics on the recommendations and resources purchased  | January                  | April |
| <b>A-6:</b> Incorporate IL skills in courses and assignments   | January                  | April |
| <b>Objective 3.2:</b> Engineering Librarians engage in assessment strategies to assist them in determining the impact that Information Literacy programming is having on students' educational experience.                         |                          |       |
| <b>A-1:</b> Review and report on the performance of the assignments  | January                  | April |
| <b>A-2:</b> Report on each of the activities in the outcome 3.2.1  | January                  | April |
| <b>A-3:</b> Gather the assessment data and develop a report of the activities performed  | January                  | April |

| Action  | Timelines/ Dates 2021/22 |       |
|---|--------------------------|-------|
|   | Start                    | End   |
| <b>A-4:</b> Based on the report, revise the activity schedule and make recommendations for improvement of learning outcomes | January                  | April |
| <b>A-5:</b> Make a report of the monthly activities   | January                  | April |
| <b>A-6:</b> Produce an annual academic report with recommendations  | January                  | April |