Continuous Assessment Cover Sheet
Faculty of Engineering

Module Details			
Module Code	CE1913	**Module Title**	Introduction to Sustainable Engineering
Program: SLIIT/Curtin/SHU/		**Course: BSc/ BEng/**	
Stream: Civil/Electronics/Mechanical/			

Assessment details			
Title		**Group assignment**	**YES / NO**
		If yes, Group No.	
Lecturer/ Instructor		**Date of Performance**	
Due date		**Date submitted**	

Student statement and signature

By this declaration, I/we confirm my/our understanding and acceptance that the work reported in this report is my/our own work. I/we also understand the consequences of engaging in plagiarism or copying others work without proper citation. Any material used in this work (whether from published sources, the internet or elsewhere) have been fully acknowledged and referenced and are without fabrication or falsification of data.

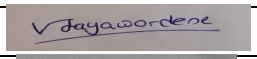
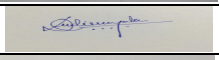
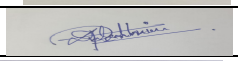
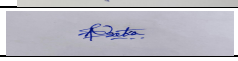
[Copying or plagiarism will result in a "0" mark for the continuous assessment and "F" for the module after an investigation on academic misconduct;

All academic misconduct is considered seriously and defined as dishonest and in direct opposition to the values of a learning community. Misconduct may result in penalties from failure to exclusion from the campus.
Further help and guidance on how to avoid academic misconduct can be obtained from your academic advisor/tutor]

By this declaration, I/we confirm my understanding and acceptance that-

- **I/we have adhered to relevant ethical guidelines and procedures in the completion of the assignment.**
- **I/we have not allowed another student to have access to or copy from this work.**
- **This work has not been submitted previously.**

[The Institute may request an electronic copy of this work for submission to the Plagiarism detection facility (TURNITIN). You must make sure that an electronic copy of your work is available in these circumstances]

Details of the student/s submitting the assignment		Signature
ID Number	**Name (As per the institute records)**	
EN21466830	Jayawardene M.V.G.J	
EN21481130	Vindipa K.G.V	
EN21485640	Dissanayake D.M.K.N	
EN21482120	Perera M.A .D	
EN21492716	Isaka. N.A. T	

OFFICE USE ONLY

Receiving Officer (seal, signature, date)	**Specific comments about the work (including overall comments and guidelines for improvement)**
	Tutor: **Signature:** **Date:**
	Marks: **[All marks are subject to external moderation and approval of board of examinations]**

Sri Lanka Institute of Information Technology

Department of Civil Engineering

CE1913 Introduction to Sustainable Engineering

Evaluation form- Submission 1

A.1 Project title	A redesign/ alternative for tooth brush			Project No.
				05

A.2 Group member Names		ID Number	A.3 Mentor details	
M1	Vilan Jayawardene	EN21466830	Mentor name	Ms. Manuri Senarathna
M2	Vinal Gamage	EN21481130	Mentor signature	
M3	Kasuni Dissanayake	EN21485640	Evaluation date	
M4	Dulanthi Perera	EN21482120		
M5	Thinuri Isaka	EN21492716		

A.4 Submission 1 (Questions 1 to 4)	**10%**

Assessment element		LO	Low competency level							Average competency level							High competency level						
A.4.1	Report formatting and correctness. (10%)	2	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Formatting includes margins, correctness of fonts, section numbering, cover page, referencing style, figure and table numbering and captions, referencing etc. Correctness includes grammatical and spelling			There are many formatting errors in the report. It has many grammatical and spelling mistakes. Guidelines given in D01 are							A reasonable effort has been made to conform to the standard given in D01, and it includes some spelling and grammatical							The report substantially meets the formatting standards given in D01 and has hardly any grammatical and spelling mistakes.						

mistakes as well. Please refer Section B of this document for full details on formatting.			substantially defaulted. Feedback:							mistakes.													
A.4.2	Answer to Q1 (20%)	1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
All the raw materials are identified with percentages and correctly categorized			The raw materials used in the product are not identified correctly. Also, the percentages are not correct/incomplete. There are errors in the material categorization into renewable and non-renewable materials correctly. References are not included in the reference list. Feedback:							All the raw materials used in the product are identified but the percentages are not correct or incomplete. There are few errors in the material categorization into renewable and non-renewable materials correctly. References are not included in the reference list.							All the raw materials used in the product are identified with the correct percentages and categorized them into renewable and non-renewable materials correctly. References are included in the reference list.						
A.4.3	Answer to Q2 (20%)	1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
What are the properties of the product?			Properties of the product (including properties at different states							Not all properties of the product (including properties at different							Properties of the product (including properties at different states						

			(i.e wet and dry properties etc) have not been identified correctly. The contribution of raw materials to achieve the above mentioned properties are not correctly identified.							states (i.e wet and dry properties etc) have been identified correctly. The contribution of some of the raw materials to achieve the above mentioned properties are correctly identified.							(i.e wet and dry properties etc) have been identified correctly. The contribution of raw materials to achieve the above mentioned properties are also correctly identified.						
			Feedback:																			
A.4.4	Answer to Q3 (30%)	1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
How the product is made? Explained using the process flow diagram																							
			Most of the inputs, outputs and intermediate products and processes have been identified incorrectly. Most of the symbols used in the flow diagram to identify the inputs, outputs etc. are incorrect.							Some inputs, outputs and intermediate products and processes have been identified incorrectly. Some incorrect symbols have been used in the flow diagram to identify the inputs, outputs etc.							Process flow diagram has been drawn by identifying all the inputs, outputs and intermediate products and processes correctly. Correct symbols have been used in the flow diagram to identify the inputs, outputs etc.						
			Feedback:																			
A.4.5	Answer to Q4 (20%)	1	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
What are the uses/applications of the product?																							
			Poor identification of uses and applications and they are not hat reasonable and practical.							Some attempt has been made to identify uses and applications and							Excellent identification of uses and applications and they are very reasonable and practical.						

			they are somewhat reasonable and practical.	
		Feedback:		

Guidelines for filling form

A.1 State the project title/Number here.

A.2 Indicate the name and ID number of the group member. The technical pitch would be evaluated on group basis. Please ensure that the order of members M1, M2, M3 M4 and M5 are as given in team work contract document.

A.3 Mentor Details- Please fill the name of your mentor.

A.4 The answers to Q1 to Q4 will be evaluated with the intention of finding out the depth of thinking the student has invested in the project, and to see of the path taken is appropriate to complete the rest of the project. This is an opportunity given to the students at an early stage of the project to direct and guide themselves in the right direction and open the minds to the different strategies which can be used to address the problem statement.

Additional Instructions for evaluators and for the information of the students:

The grading is based on a rubric where the quality of the work is separated into three categories. Namely Low, Average, and High competency level for each assessment element. Each of these competencies are associated with the learning outcomes of the project. Based on the explanation given in the rubric for each category, you should pick the category into which the work presented falls into and then you should put a tick in the box immediately underneath the marks to indicate the grading within this competency category.

B. How to organize your report?

Page 1 - Submission cover sheet
Page 2 – Relevant marking rubric (this document)
Pages 3,4,5- report
Page 6 – references

Figure and Tables (if any)

All the tables (at the top) and figures (at the bottom) should be numbered and carry a self explanatory caption.

Formatting

You should number all the pages
Margins – 2.5 cm gutter and 2 cm all around
Spacing – 1.5
Font- Times New Roman
Referencing style- Harvard (pl see https://www.citethisforme.com/harvard-referencing)

A Sustainable Alternative to Toothbrush

1. What are the ingredients (categories them into renewable and nonrenewable)

Table 1: Percentages of ingredients in a toothbrush

Ingredients	Percentage	Renewable	Non-Renewable
Nylon 6 / Polyester	4-5%		✓
Polypropylene	40-60%		✓
Polyethylene	30-40%		✓
Sulfur	Less than 1%		✓
Cis - 1,4 poly(isoprene)	10-20%	✓	

2.What are the properties of Toothbrushes?

a. Properties of the product

Table 2: Properties of the toothbrush

	Properties	Description
Bristles	Softness	The softness of the bristles reduces the damage to the teeth.
Rubber grip	Flexibility	Rubber is flexible because it has the elastic properties of, Isoprene (natural rubber). Attaching a rubber grip to a toothbrush makes it easy to firmly grip by hand
Plastic handle (Polypropylene, Polyethylene)	Moisture resistance	Plastic is water repellency due to its structure. This property depends upon types of plastics. Polypropylene plastics offer higher moisture resistance. Due to this moisture resistance, it helps to hold the toothbrush handle without slipping
Plastic handle (Polypropylene, Polyethylene)	Durability	The structure of plastic is made from carbon-to-carbon bonds and these bonds make plastic durable.
Bristles	Reliability	Nylon 6 is used in toothbrushes and used in producing bristles. Nylon is extremely strong than polyester. Both Nylon and Polyester are abrasion resistance and resistant to damage from many chemicals. Therefore, it is suitable for toothbrush bristles.

b. Properties of the ingredients (Give to the toothbrush)?

Table 3: Properties of the ingredients

Ingredients	Softness	Moisture resistance	Flexibility	Durability	Reliability
Nylon 6 / Polyester	✓	✓	✓	✓	✓
Polypropylene		✓		✓	
Polyethylene		✓		✓	

Cis - 1,4 polyisoprene		✓	✓		
Sulfur			✓		

3. How toothbrush is made (process flow diagram).

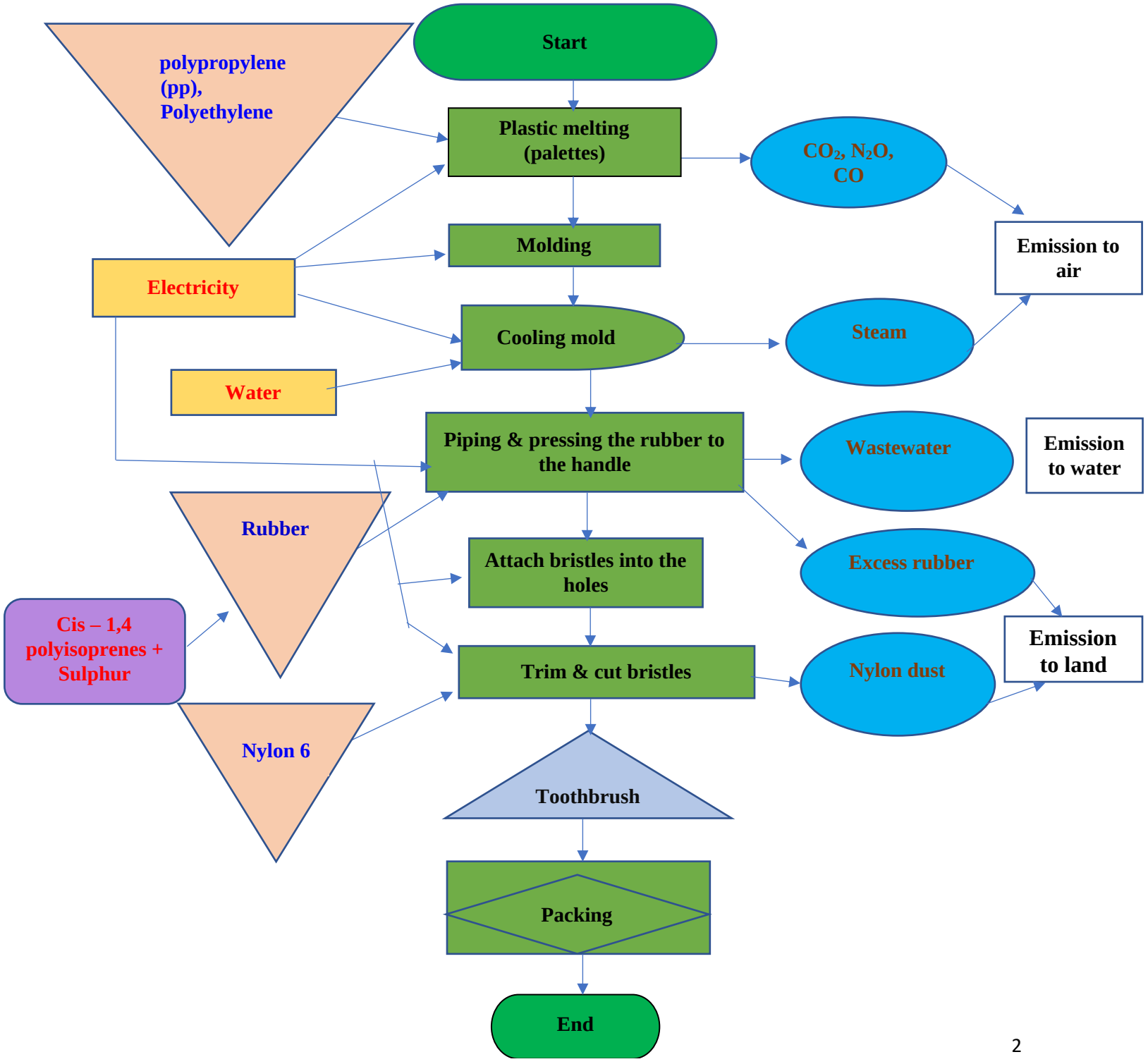


Figure 01: Manufacturing process of the toothbrush

4. What are the uses or applications of the toothbrush?

A toothbrush is an oral hygiene instrument used to clean the teeth, gum, and tongue. Regular toothbrushing is important for both children and adults. The toothbrush can be practically used for 3 months. After its usable period. It also has some other applications.

Uses –

- It helps to remove bacterial plaque that causes tooth decay and gum diseases.

Applications –

- Brushing teeth

Alternative applications –

- Cleaning the grout grime on tile floors
- Applying hair dye
- Refreshing a comb
- Cleaning the shoe soles
- Removing marks on the floor
- Cleaning hairbrush

References

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