BSc (Hons) Sustainable Product Design–E304 (Under Review) (Full-Time)

1. Context and Objectives

Sustainable development goals, resource-efficient products and services, transition to a low-carbon economy are critical challenges for small island states (SIDs) such as Mauritius. SIDs generally have limited natural capital (fresh water, land, and forests), fragile ecosystems and significantly unique biodiversity. Any type of degradation of Mauritius's natural capital is highly undesirable as it would adversely affect quality of life and well-being.

Sustainable development requires that each generation should pass on to the next generation at least as large a productive base as it inherited. Sustainable design is a key component of sustainable development. Worldwide there are intense social, economic and environmental concerns with respect to large-scale manufacturing and services as globalised supply chains, fast commoditisation, higher disposable incomes and rampant consumerism drastically inflate the carbon footprint of these sectors. There is, thus, a critical need to integrate relevant technology, best practices and the human element that would lead to the emergence of an ethical and sustainable manufacturing and services sector in Mauritius. Moreover, Mauritius is regarded as a high-end tourist destination and eco-tourism is, therefore, a potential growth area. Mauritius lies almost at the centre of the trade corridor between Africa and Asia. It has the opportunity to position itself as an ethical, fair and sustainable supplier of goods and services, focusing mainly on the fundamental 'customer-service' part of the value-chain.

The programme will therefore provide potential students with knowledge, insights, IT tools and future strategies in the broad area of social, ethical, environmental and economic sustainability.

For this programme, design-driven functional consumer goods as well as the design oriented packaging of these products would be considered. Consumer goods such as motor vehicles, consumer electronics or other white goods **will not be considered** although these do rely on design to add value and achieve competitive advantage/ differentiation.

The graduates will be expected to find entry in the job market as trainee managers, technologists, sustainability executives, product designers, merchandisers, planning and marketing officers, corporate social responsibility officers, and other related positions.

Aim

The aim of this programme is to produce graduates with a sound understanding of sustainability concepts, their implications and practical applications in the field of product design.

Objectives

- To introduce basic concepts of product design and development;
- To present interdisciplinary concepts and tools that would holistically address issues such as sustainable development, sustainable economic growth, climate crisis, and corporate social responsibility;
- To introduce applied sustainability concepts in product design, product life cycles, technology transfer & integration, sustainable materials and packaging, recycling, and waste management, with a view to reduce the carbon footprint of industry and associated services;
- To highlight the concepts of energy efficiency, energy conservation, and integration of renewable energies in the manufacturing and services sector;
- To introduce concepts of optimisation in logistics such as distribution routes, fuel-efficient transportation and the reduction of logistics packaging materials;
- To consolidate and increase awareness of social, ethical and environmental standards in manufacturing and services.

2. Learning Outcomes

Upon completion of this programme, graduates should be able to:
- apply knowledge acquired of the properties of a wide range of materials and their processing into products;
- use computer tools and software for product design and prototyping;
- apply critical, analytical and creative skills with focus on product design and innovation;
- implement sustainability concepts in product design;
- add value to products from independent and cross-disciplinary learning;
- apply knowledge of sustainable product design to real life contexts and
- use communication skills and ability in work environment.

3. Teaching and Learning Methods

The Programme consists of a combination of teaching, self -study and other learning activities which altogether promote independent learning, critical thinking and above all nurtures student-centric learning across both semester and yearly modules.

Teaching methods may include face to face lectures, online delivery, tutorials, class discussions, practical sessions, lab work, experiential learning, placements/internships; other learning activities can be wide-ranging and may include, amongst others, assignments, class tests, group work, presentations among peers; attending workshops/seminars/guest lectures, site visits/trip and fieldwork

A typical semester module will carry 6 LCCS Credits which represent 180 notional learning hours as follows: 30 hours of teaching, 60 hours of self-study and 90 hours of other learning activities.

4. Entry Requirements

- **General Entry Requirements**

  As per General Entry Requirements for admission to the University for Undergraduate Degrees.

- **Programme Requirements**

  Five credits at SC/ 'O' Level, including Mathematics.
  Any 2 GCE 'A' Level Passes. A Foundation in Art, Design & Technology or in a design-related subject awarded by a recognised awarding body is also acceptable as NQF level 5.
  OR alternative qualifications acceptable to the UoM.
  In case of a tie between applicants' grades, preference will be given to candidates having studied design-related subjects at 'A' level, such as Design and Technology.

5. Programme Duration

	Normal (Years)	**Maximum (Years)**
Degree:	3	5

6. **Minimum LCCS Credits Required:**

- **For Degree Award**

MODULES	LCCS Credits
Management (Core)	18
Departmental (Core)	142
Management (Elective)	12
Departmental (Elective)	12
TOTAL	**184**

- **Exit Point:**

A student may exit with the award of a Diploma provided s/he satisfies the following minimum requirements as per table below. The request for exit at the Diploma level should be made in writing to the Dean of Faculty. A Diploma project is compulsory and would normally be of 12 weeks' duration, commensurate with work input of at least 50 contact hours, 100 hours of self-study and 150 hours of other learning activities. Diploma Project carries 10 LCCS credits and an equivalence of 300 notional learning hours. The Project will be submitted in line with UoM regulations and on the Turnitin Platform.

MODULES	LCCS Credits
Management (Core)	12
Departmental (Core)	108 (Inclusive of 10 LCCS Credits for Diploma Project)
TOTAL	**120**

Information regarding the classification of award and student grading is provided in the university regulations.

7. **Assessment and Deadlines**

Examinable Modules

A given module can either be taught in semester 1 or in semester 2 or throughout the two semesters (yearly). Assessment will be based on a written examination of 2 to 3-hour duration (normally a paper of 2-hour duration for modules carrying less than 12 LCCS credits and a 3-hour duration for modules carrying twelve or more LCCS credits) and on continuous assessment carried out during the semester or year.

Written examinations for all yearly modules will be carried out at the end of the academic year. Written examinations for semester modules will be carried out at the end of each respective semester.

The continuous assessment will count for 40%-50% of the overall percentage mark of the module(s), except for a Programme where the structure makes for other specific provision(s). Continuous assessment may be based on laboratory work, presentations/seminars and at least 2 assignments/tests per yearly module.

There will be a compulsory class test for all semester modules, unless otherwise stated in the programme structure. An overall total of 40% for combined continuous assessment and written examination components would be required to pass the module, without any minimum thresholds within the individual continuous assessment and written examination. The same criterion will apply for modules being assessed jointly.

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Special examinations (e.g. class tests) will be arranged at the end of semester 1 or semester 2 for exchange students who have registered for only one semester. In case of yearly modules, LCCS credits will be assigned on a pro-rata basis.

The following modules will be assessed as specified hereunder:

DASE 1108 (1) Product Ideation and Digital Imaging; DASE 1109(1) IT Tools and Applications, DASE 1201(1) Creativity and Innovation, DASE 1210(1) Computer Aided Design, DASE 2116(3) Virtual Design and 3D Modelling, DASE 2102Y(3) Sustainable Product Design & Prototyping, DASE 3106(5) Start-Up Fundamentals, DASE 3000Y(5) Sustainable Design Project.

There will be a minimum of 3 assignments and 1 mini-project per yearly module, and a minimum of 1 assignment and/or 1 mini-project per semester module, which will account for 60% of total marks. A final assessment based on 40% of total marks will be conducted at the end of the semester/academic year by the resource person concerned under examination conditions.

Special examinations will be arranged at the end of semester 1 or semester 2 for exchange students who have registered for only one semester. In case of yearly modules, LCCS credits will be assigned on a pro-rata basis.

Submission Deadline for Dissertation:

Submission deadline for DASE 3001Y(5) Dissertation will be in the final year of the programme. The Project will be submitted as per UoM regulations and on the Turnitin Platform.

8. List of Modules – BSc (Hons) Sustainable Product Design

CORE MODULES

Module Code	Module Name	Hrs/Wk L+T+P	Contact Hrs	Self-Study Hrs	Other Learning Hrs	LCCS Credits
Management						
MGT 1102(1)	Fundamentals of Entrepreneurship	3+0+0	30	60	90	6
MGT 1117(1)	Principles and Practice of Management	3+0+0	30	60	90	6
MGT 2088(3)	Business Planning and Development	3+0+0	30	60	90	6
TOTAL LCCS Credits (Management)						**18**
Departmental						
DASE 1108(1)	Product Ideation and Digital Imaging	1+0+4	30	60	90	6
DASE 1109(1)	IT Tools and Applications	2+0+2	30	60	90	6
DASE 1110(1)	Product Manufacturing Processes	2+0+4	40	80	120	8
DASE 1201(1)	Creativity and Innovation	2+0+2	30	60	90	6
DASE 1210(1)	Computer Aided Design	1+0+4	30	60	90	6
DASE 1211(1)	Pathways to Sustainability	3+0+0	30	60	90	6
DASE 1102Y(1)	Materials I	2+0+2	60	120	180	12
DASE 1200	Industrial Placement I	8 weeks				0
DASE 2115(3)	Design Philosophy	3+0+0	30	60	90	6
DASE 2116(3)	Virtual Design and 3D Modelling	1+0+4	30	60	90	6
DASE 2117(3)	Climate Change & Sustainable Livelihoods	3+0+0	30	60	90	6
DASE 2211(3)	Quality Concept	3+0+0	30	60	90	6
DASE 2100Y(3)	Materials II	2+0+2	60	120	180	12
DASE 2102Y(3)	Sustainable Product Design & Prototyping	1+0+4	60	120	180	12
DASE 2200	Industrial Placement II	8 weeks				0
DASE 3106(5)	Start-Up Fundamentals	2+0+4	40	80	120	8
DASE 3203(5)	Sustainability Standards & Auditing Processes	3+0+0	30	60	90	6
DASE 3000Y(5)	Sustainable Design Project	1+0+4	60	120	180	12
DASE 3001Y(5)	Dissertation					18
TOTAL LCCS Credits (Departmental)						**142**
DASE 2000 (3)	Diploma Project (Refer Section 6)	12 weeks				10

ELECTIVES

Module Code	Module Name	Hrs/Wk L+T/P	Contact Hrs	Self-Study Hrs	Other Learning Hrs	LCCS Credits
Management						
MGT 1218(1)	Marketing in Practice	3+0+0	30	60	90	6
ECON 1202(1)	Economics for Managers	3+0+0	30	60	90	6
MGT 2083Y(3)	Brand Management	3+0+0	60	120	180	12
Departmental						
DASE 3011Y(5)	Logistics & Supply Chain Management	3+0+0	60	120	180	12
DASE 3100(5)	Consumer Education & Empowerment	3+0+0	30	60	90	6
ECON 3105(5)	Economic Systems & Sustainability	3+0+0	30	60	90	6

9. Programme Plan

	YEAR 1		
Code	**Module Name**	**L*/T*/P*** **(Contact Hours)**	**LCCS** **Credits**
	Core		
MGT 1102(1)[1]	Fundamentals of Entrepreneurship	3+0+0 (30)	6
MGT 1117(1)[1]	Principles and Practice of Management	3+0+0 (30)	6
DASE 1108(1)[1]	Product Ideation and Digital Imaging	1+0+4 (30)	6
DASE 1109(1)[1]	IT Tools and Applications	2+0+2 (30)	6
DASE 1110(1)[1]	Product Manufacturing Processes	2+0+4 (40)	8
DASE 1201(1)[2]	Creativity & Innovation	2+0+2 (30)	6
DASE 1210(1)[2]	Computer Aided Design	1+0+4 (30)	6
DASE 1211(1)[2]	Pathways to Sustainability	3+0+0 (30)	6
DASE 1200[2]	Industrial Placement I	8 wks	0
DASE 1102Y(1)[Y]	Materials I	2+0+2 (60)	12
		Sub Total	**62**
	YEAR 2		
Code	**Module Name**	**L*/T*/P*** **(Contact Hours)**	**LCCS** **Credits**
	Core		
DASE 2115(3)[1]	Design Philosophy	3+0+0 (30)	6
DASE 2116(3)[1]	Virtual Design and 3D Modelling	1+0+4 (30)	6
DASE 2117(3)[1]	Climate Change & Sustainable Livelihoods	3+0+0 (30)	6
MGT 2088(3)[2]	Business Planning and Development	3+0+0 (30)	6
DASE 2211(3)[2]	Quality Concept	3+0+0 (30)	6
DASE 2200[2]	Industrial Placement II	8 wks	0
DASE 2100Y(3)[Y]	Materials II	2+0+2 (60)	12
DASE 2102Y(3)[Y]	Sustainable Product Design & Prototyping	1+0+4 (60)	12
	Electives		
MGT 1218(1)[2]	Marketing in Practice	3+0+0 (30)	6
ECON 1202 (1)[2]	Economics for Managers	3+0+0 (30)	6
MGT 2083Y(3)[Y]	Brand Management	3+0+0 (60)	12
	(Electives: Max. 12 LCCS Credits/Year) Sub Total		**66**
	YEAR 3		
Code	**Module Name**	**L*/T*/P*** **(Contact Hours)**	**LCCS** **Credits**
	Core		
DASE 3106(5)[1]	Start-up Fundamentals	2+0+4 (40)	8
DASE 3203(5)[2]	Sustainability Standards & Auditing Processes	3+0+0 (30)	6
DASE 3000Y(5)[Y]	Sustainable Design Project	1+0+6 (60)	12
DASE 3001Y(5)[Y]	Dissertation	-	18
	Electives		
DASE 3011Y(5)[Y]	Logistics & Supply Chain Management	3+0+0 (60)	12
DASE 3100(5)[1]	Consumer Education & Empowerment	3+0+0 (30)	6
ECON 3105(5)[1]	Economic Systems & Sustainability	3+0+0 (30)	6
	(Electives: Max. 12 LCCS Credits/Year) Sub Total		**56**
		Grand Total	**184**

DASE 2000(3) Diploma Project (Refer Section 6 & 7)
Module Code: Semester1: [1]; Semester 2:[2]; Yearly: [Y]
L*=Lectures, T* = Tutorials, P* = Practicals

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