RAMAIAH UNIVERSITY OF APPLIED SCIENCES

Programme Specifications

B. Des. Programme

Programme:	Department:
Product Design	Product Design

Faculty of Art & Design

M.S. Ramaiah University of Applied Sciences

University House, New BEL Road, MSR Nagar, Bangalore – 560 054

www.msruas.ac.in

Programme Specifications – Product Design

Faculty	Art and Design (FAD)
Department	Industrial Design
Programme	Product Design
Dean of Faculty	Mr. H. S. Lohit
Head of Department	Mr. H. S. Lohit

1	**Title of The Award** **B. Des. in Product Design**
2	**Modes of Study** Full Time
3	**Awarding Institution /Body** Ramaiah University of Applied Sciences
4	**Joint Award** Not Applicable
5	**Teaching Institution** Faculty of Art and Design Ramaiah University of Applied Sciences
6	**Date of Programme Specifications** July 2019
7	**Date of Programme Approval by the Academic Council of MSRUAS** July 2019
8	**Next Review Date:** June 2023
9	**Programme Approving Regulating Body and Date of Approval** --
10.	**Programme Accredited Body and Date of Accreditation** --
11	**Grade Awarded by the Accreditation Body** **--**
12..	**Programme Accreditation Validity** **--**
13.	**Programme Benchmark**

14. **Rationale for the Programme**

India is stated to be the largest consumer market in the world by the year 2030, according to a report by the global professional services company Deloitte in the year 2013. As the Indian economy continues to grow stronger, it offers vast opportunities for multinational firms to make further inroads into India as well as national firms to expand globally. With the increase in household income in the urban populace in India which is further stated to grow by around 10 percent annually for the next 8 years, according to a report by McKinsey Global Institute, a global management consulting firm in the year 2011, the Indian consumer is spending more on utility and luxury consumer products to match their needs and lifestyle.

The Indian consumer durables sector is competitive with both International and National players vying to woo consumers by offering newer, better and more value for money products. Some of the key players in the consumer durables sector in the Indian market include Philips, General Motors, Hyundai, Samsung, LG, Onida, Mahindra & Mahindra, Micromax, Tata Technologies, HCL Technologies, Godrej, Bajaj, TVS Motor Company, to name a few. To increase the value addition in their product offerings the firms have started focusing heavily on verticals such as product design.

As per data furnished by National Institute of Design to corporations such as Autodesk and others, it is estimated that India needs a workforce of 5000 to 8000 skilled designers per annum whilst the number of designers graduating from educational institutes in India are less than 500. Furthermore, due to high demand, entry level designers are being offered higher salaries when compared to entry level tech graduates, according to The Economic Times Bureau, 2014. With better career prospects, design is being viewed as a better alternative for students to pursue.

With an intention to create highly skilled, industry ready and sought-after product designers, the Faculty of Art and Design at the University has developed a superior design programme in the field of Product Design. This programme provides the prospective students with a strong design foundation coupled with art education so that the students can create not only aesthetically pleasing but also functionally appealing products. The graduates thus produced will be able to meet the human resources requirement of the product design sector. The graduates will be able to ideate and create newer and better product design solutions. Moreover, this acts as a first programme to develop further expertise in a chosen domain of product design.

As design is highly interdisciplinary in nature, the University provides an ideal platform for students to interact and work with others from different disciplines such as engineering, medicine and management. Furthermore, the Faculty of Art and Design at the University is presently associated with PACE (Partners for the Advancement of Collaborative Engineering Education) which links firms such as General Motors, Siemens, Hewlett-Packard with selected academic institutions worldwide to nurture young talent and create the product development teams of the future.

15.	**Programme Mission** The purpose of the programme is creation of innovative problem solvers in multi-disciplinary settings, entrepreneurs and leaders applying the knowledge, understanding, cognitive abilities, practical skills and transferable skills gained through systematic, flexible and rigorous learning in the chosen academic domain.
16.	**Graduate Attributes** 1. Ability to apply knowledge of Art and Design fundamentals to solve complex problems in product development 2. Ability to analyse design problems, interpret data and arrive at meaningful conclusions involving design inferences 3. Ability to design an artefact considering public health and safety, and the cultural, societal, and environmental considerations 4. Ability to understand and solve complex design problems by interacting with the end users 5. Ability to apply appropriate tools and techniques and understand utilization of resources appropriately to complex design activities 6. Ability to understand the effect of design solutions on legal, cultural, social and public health and safety aspects 7. Ability to develop sustainable solutions and understand their effect on society and environment 8. Ability to apply ethical principles to design practices and professional responsibilities 9. Ability to work as a member of a team, to plan and to integrate knowledge of various design and engineering disciplines and to lead teams in multidisciplinary settings 10. Ability to make effective oral presentations and communicate design ideas to a broad audience using written and oral means 11. Ability to lead and manage multidisciplinary teams by applying design and management principles 12. Ability to adapt to the changes and advancements in technology and engage in independent and life-long learning

17	**Programme Goal** The programme goal is to produce creative, innovative and skilled graduates with an ability to think independently and pursue a career in Industrial Design.
18	**Programme Objectives** The programme enables the students to conceptualize, model and create product design solutions with the aid of traditional and modern methods and tools. In this programme, aesthetic as well as functional approaches to design will be emphasised, with an exposure to hands-on implementation of design. **Objectives of the programme are to enable the students to:** 1. Describe the design phases involved in the creation of product design solutions 2. Apply art and basic elements of design to create aesthetically pleasing design solutions 3. Apply form to embody ideas and to communicate their value without compromising on manufacturing considerations 4. Design product solutions considering ergonomic factors and functionality 5. Model, simulate and present design solutions using manual techniques and digital tools 6. Relate the importance of professional ethics, history, social sciences relevant to professional practice 7. Develop a career in the field of Product Design
19.	**Programme Intended Learning Outcomes** The intended learning outcomes are listed under four headings 1. Knowledge and Understanding 2. Cognitive skills 3. Practical skills 4. Capability/Transferable skills **Knowledge and Understanding** After undergoing this programme, a student will be able to KU1. Describe the basic elements and principles of design for generating two dimensional and three dimensional forms KU2. Describe the techniques for creating physical models using appropriate materials KU3. Explain the design factors involved in creating aesthetic, ergonomic and functional product design solutions KU4. Summarize the importance of historical, social, legal, moral and ethical aspects relevant to professional practice

Cognitive Skills

After undergoing this programme, a student will be able to

CS1. Ideate design solutions for a given design brief
CS2. Synthesize aesthetic and functional product design solutions
CS3. Select appropriate materials and manufacturing processes to obtain desired product finish and quality
CS4. Generate detailed design for further development

Practical Skills

After undergoing this programme, a student will be able to

PS1. Draw basic sketches and doodles to communicate design ideas
PS2. Generate forms using various traditional materials and media techniques
PS3. Build study models, mock up models, working models and prototypes for evaluation
PS4. Create presentation material and communicate design

Capability/Transferrable Skills

After undergoing the programme, a student will be able to-

TS1: Manage information, develop technical reports and make presentations
TS2: Build, Manage and Lead a team to successfully complete a project and communicate across teams and organizations to achieve professional objectives
TS3: Work under various constraints to meet project targets
TS4: Adopt to the chosen profession by continuously upgrading his/her knowledge and understanding through Life-long Learning philosophy

20. Programme Structure

Semester -1

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19DFC101A	Elements of Design-1	2		2	3	100
2	19AFC102A	Foundation Drawing	1		6	4	100
3	19AFC103A	History of Art and Visual Culture	3			3	100
4	19AFC104A	Print Making Techniques	1		4	3	100
5	19DFC105A	Digital Design Basics			4	2	50
6	19DFC106A	Studio Practice-1			4	2	50
7	19AEC110A	Creative Writing for Design Communication	3			3	100
Total			**10**		**20**	**20**	**600**
Total number of contact hours per week			**30 Hours**				
Number of credits can be registered			**Minimum**	**20**	**Maximum**	**20**	

Semester -2

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19DFC111A	Design Drawing-1	1		4	3	100
2	19DFC112A	Creativity Techniques	2			2	50
3	19AFC113A	Foundation Painting	1		4	3	100
4	19AFC114A	Handicraft	2		4	4	100
5	19AFC115A	Sculpture	2		4	4	100
6	19DFC116A	Studio Practice-2			4	2	50
7	19SEC120A	Skill Enhancement Course - 1			4	2	50
Total			**8**		**24**	**20**	**550**
Total number of contact hours per week			**32 hours**				
Number of credits can be registered			**Minimum**	**20**	**Maximum**	**20**	

Semester -3

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19DFC201A	Elements of Design-2	1		6	4	100
2	19PDC202A	Product Photography	2		4	4	100
3	19PDC203A	Digital Illustration Techniques 1	1		6	4	100
4	19PDC204A	Materials, Finishes and Trim	3		2	4	100
5	19DFC205A	Studio Practice-3			4	2	50
6	19AEC210A	Environmental Studies	2			2	50
		Total	**9**		**22**	**20**	**500**
Total number of contact hours per week			**31 hours**				
Number of credits can be registered			**Minimum**	**20**	**Maximum**	**20**	

Semester -4

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19DFC211A	Design Drawing 2	1		6	4	100
2	19PDC212A	Digital Illustration Techniques 2	1		6	4	100
3	19PDC213A	Digital modelling and Animation	2		6	5	100
4	19PDC214A	Design Thinking and Need Identification	3			3	100
5	19DFC215A	Studio Practice-4			4	2	50
6	19SEC220A	Skill Enhancement Course - 2			4	2	50
Total			**7**		**26**	**20**	**500**
Total number of contact hours per week			**33hours**				
Number of credits can be registered			**Minimum**	**20**	**Maximum**	**20**	

Semester -5

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19PDC301A	Product Ergonomics	2		2	3	100
2	19PDC302A	Mechanism Design	2		2	3	100
3	19PDC303A	Computer Aided Industrial Design and Rendering	1		6	4	100
4	19PDC304A	Manufacturing Process & Surface Finishing	3			3	100
5	19PDC300A	Product Design Group Project			14	7	100
		Total	**8**		**24**	**20**	**500**
Total number of contact hours per week			**32 hours**				
Number of credits can be registered			**Minimum**	**20**	**Maximum**	**20**	

Semester -6

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19PDC311A	3D Modelling and Product Detailing	1		4	3	100
2	19PCE3XXA	Professional Core Elective - 1	2		4	4	100
3	19PCE3XXA	Professional Core Elective - 2	2		4	4	100
4	19PDC350A	Product Design Project-1/ Internship			14	7	100
5	19SEC320A	Skill Enhancement Course - 3			4	2	50
Total			**5**		**30**	**20**	**450**
Total number of contact hours per week			**35 hours**				
Number of credits can be registered			**Minimum**	**20**	**Maximum**	**20**	

Semester 7

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total credits	Max. Marks
1	19PDC401A	Portfolio Design and Presentation			6	3	100
2	19AEC410A	Soft Skills and Professional Development	2			2	50
3	19PCE4XXA	Professional Core Elective - 3	2		4	4	100
4	19PCE4XXA	Professional Core Elective - 4	2		4	4	100
5	19PDC400A	Product Design Project-2			14	7	100
Total			**6**		**28**	**20**	**450**
Total number of contact hours per week			**34 hours**				
Number of credits can be registered			**Minimum**	**20**	**Maximum**	**20**	

Semester 8

Sl. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total credits	Max. Marks
1	19PDC411A	Design Management and Professional Practice	4			4	100
2	19SEC420A	Skill Enhancement Course - 4			4	2	50
3	19PDC450A	Product Design Project - Final			28	14	100
Total			**4**		**32**	**20**	**250**
Total number of contact hours per week			**36 hours**				
Number of credits can be registered			**Minimum**	**20**	**Maximum**	**20**	

Total Credit for the Programme is 160 Credits.

Professional Core Electives:

Semester / Course	Consumer Durable Products		Transport Design		Decorative Product Design	
	Course Code	Course Title	Course Code	Course Title	Course Code	Course Title
6th Semester	19PCE312A	Advanced Form Exploration	19PCE314A	Vehicle Interior color and Trim	19PCE316A	Decorative Products
	19PCE313A	Consumer Product Trends and Innovation	19PCE315A	Vehicle Exterior Design	19PCE317A	Lighting Design
7th Semester	19PCE412A	Model Making	19PCE414A	Digital Sculpting And Rendering	19PCE416A	Furniture Design
	19PCE413A	Eco Design and Sustainability	19PCE415A	Clay Modelling And Transport Design	19PCE417A	Space And Environment Design

Skill Enhancement Course:

Students will be awarded 2 credits on completion of either one of the following, anytime in an academic

	year: • Participation in Art and Design exhibitions and shows • Participation in National & international design competition • Field/ Industrial visit • MOOC Course
21	**Programme Delivery** As per the time table
22	**Teaching and Learning Methods** 1. Face to face lectures using audio-visuals 2. Workshops-group discussions, debates, presentations 3. Demonstrations 4. Guest lectures 5. Laboratory-work/Field work/Workshop 6. Industry visit 7. Seminars 8. Group exercises 9. Project work 10. Project exhibitions 11. Technical festivals

23 **Assessment and Grading**

1. Every course will be assessed for a weightage of 100%
2. There are two components - Component-1 and Component-2
3. Component-1 carries a weight of 50% and Component -2 carries a weight of 50%
4. Component -1 (CE) and Component -2 (SEE)

Type of Courses / **Components**		**PBC**	**TBC**	**PC**	**SEC/ AEC**	**MC**
Component - 1 * (CE – Continuous Evaluation)	1A	Term Test – 15%	Term Test – 20%	NA	NA	NA
	1B	Creative Work Submission – 30 %	Assignment – 25 %	Creative Work Submission – 45 %	NA	NA
	1C	Attendance – 5%	Attendance – 5%	Attendance – 5%	NA	NA
Component – 2 * (SEE – Semester End Examination)	2A	Written Exam – 20 %	Written Exam – 50 %		Presentation - 100%	Presentation - 50%
	2B	Practical – 30 %		Practical – 50 %		Report Submission – 50 %

* % indicative. Course leaders can change the weightage with prior approval.

PBC – Process Based Course (Course which have both Theory and Practical Components)

TBC – Theory Based Course (Course which have only Theory Component)

PC – Practical Based Course (Course which have only Practical Component)

SEC – Skill Enhancement Course (Course which have only Practical Component)

AEC – Ability Enhancement Course (Course which have only Practical Component)

MC – Mentorship Course (Course which only Practical Component)

Note:

5. The Assessment Method will be chosen by the course leader as per the following

Sl .No.	**Assessment Type**	**Assessment method**
1	Test	Written – MCQ / Short Essay / Course specific presentations / Group Discussion / Combined
2	Creative Work Submission	Art work/ Physical Product/ Virtual Model and Renders/ Photographs / Video/ Folios/ Displays
3	Assignment	Word Processed Document/ Course specific presentations / Group Discussion / Combined
4	Theory Exam	Written – MCQ / Short Essay / Course specific presentations / Combined
5	Practical Exam	2 / 3 Hrs Demonstration with Viva

6. A minimum of overall 40% of both components is required for a pass
7. A maximum of 05% of the Component-1 marks is given on the basis of attendance in section 24

24 **Attendance**

A minimum of 80% attendance compulsory to appear for semester end examinations. Any condoning is as per the programme regulations. Component-1C marks is given on the basis of attendance as follows below mentioned table.

Sl. No.	Attendance	Marks
1	96 % to 100%	5
2	91 % to 95 %	4
3	86 % to 90 %	3
4	81 % to 85 %	2
5	80 %	1

25 **Award of Class**

As per the programme regulations

26 **Student Support for Learning**

1. Course notes
2. Reference books in the library
3. Magazines and journals
4. Internet facility
5. Computing facility
6. Laboratory facility
7. Workshop facility
8. Staff support
9. Lounges for discussions
10. Any other support that enhances their learning

27 **Quality Control Measures**

1. Student feedback
2. Opportunities for students to see their assessed work
3. Staff Student consultative committee meetings
4. Student exit feedback
5. Subject Assessment Board(SAB)
6. Programme Assessment Board(PAB)

28. Curriculum Map

Module Code	Intended Learning Outcomes											
	Knowledge and Understanding				Cognitive (Thinking) Skills (Critical, Analytical, Problem Solving, Innovation)				Practical Skills			
	KU1	KU2	KU3	KU4	CS1	CS2	CS3	CS4	PS1	PS2	PS3	PS4
19DFC101A	X			X	X				X	X		X
19AFC102A	X				X				X	X		X
19AFC103A				X								
19AFC104A		X			X				X			X
19DFC105A					X			X	X			X
19DFC106A		X			X				X	X	X	X
19AEC110A				X								
19DFC111A	X				X			X	X	X		X
19DFC112A			X		X							
19AFC113A	X				X				X	X		X
19AFC114A				X			X			X		X
19AFC115A				X			X		X	X		X
19DFC116A		X			X				X	X	X	X
19SEC120A	X	X	X	X	X	X	X	X	X	X	X	X
19DFC201A	X			X	X	X			X	X		X
19PDC202A				X								X
19PDC203A	X		X		X			X	X			X
19PDC204A		X					X			X	X	X
19DFC205A		X			X				X	X	X	X
19AEC210A				X								
19DFC211A	X				X	X		X	X	X		X
19PDC212A	X				X	X		X	X	X		X
19PDC213A	X				X	X		X				X
19PDC214A	X			X	X							
19DFC215A		X			X				X	X	X	X
19SEC220A	X	X	X	X	X	X	X	X	X	X	X	X
19PDC301A			X			X					X	X
19PDC302A		X			X			X	X		X	X
19PDC303A	X							X				X
19PDC304A		X	X				X			X	X	
19PDC305A					X	X	X	X	X	X	X	X
19PDC310A	X				X			X				X
19PDC300A					X	X	X	X	X	X	X	X
19SEC320A	X	X	X	X	X	X	X	X	X	X	X	X
19PDC401A					X	X			X	X	X	X
19AEC410A				X								
19PDC400A					X	X	X	X	X	X	X	X
19PDC410A				X								

19SEC420A	X	X	X	X	X	X	X	X	X	X	X	X
19PDC450A					X	X	X	X	X	X	X	X
19PCE301A	X	X			X				X	X	X	X
19PCE302A				X	X	X					X	X
19PCE401A	X				X		X	X	X	X	X	X
19PCE402A				X							X	X
19PCE311A			X		X	X	X		X	X		X
19PCE312A			X		X	X	X		X	X		X
19PCE411A	X				X			X	X			X
19PCE412A		X							X	X	X	X
19PCE321A		X	X		X				X	X	X	X
19PCE322A		X	X		X	X		X	X	X	X	X
19PCE421A		X	X		X	X		X	X	X	X	X
19PCE422A		X		X	X			X	X		X	X

29. Capability / Transferable Skills Map

Module Code	Group work	Self -learning	Research Skills	Written Communication Skills	Verbal Communication Skills	Presentation Skills	Behavioral Skills	Information Management	Personal management/ Leadership Skills
19DFC101A	X	X	X	X	X	X	X	X	X
19AFC102A	X	X	X	X	X	X	X	X	X
19AFC103A	X	X	X	X	X	X	X	X	X
19AFC104A	X	X	X	X	X	X	X	X	X
19DFC105A	X	X	X	X	X	X	X	X	X
19DFC106A	X	X	X	X	X	X	X	X	X
19AEC110A	X	X	X	X	X	X	X	X	X
19DFC111A	X	X	X	X	X	X	X	X	X
19DFC112A	X	X	X	X	X	X	X	X	X
19AFC113A	X	X	X	X	X	X	X	X	X
19AFC114A	X	X	X	X	X	X	X	X	X
19AFC115A	X	X	X	X	X	X	X	X	X
19DFC116A	X	X	X	X	X	X	X	X	X
19SEC120A	X	X	X	X	X	X	X	X	X
19DFC201A	X	X	X	X	X	X	X	X	X
19PDC202A	X	X	X	X	X	X	X	X	X
19PDC203A	X	X	X	X	X	X	X	X	X
19PDC204A	X	X	X	X	X	X	X	X	X
19DFC205A	X	X	X	X	X	X	X	X	X
19AEC210A	X	X	X	X	X	X	X	X	X
19DFC211A	X	X	X	X	X	X	X	X	X
19PDC212A	X	X	X	X	X	X	X	X	X
19PDC213A	X	X	X	X	X	X	X	X	X
19PDC214A	X	X	X	X	X	X	X	X	X
19DFC215A	X	X	X	X	X	X	X	X	X
19SEC220A	X	X	X	X	X	X	X	X	X
19PDC301A	X	X	X	X	X	X	X	X	X
19PDC302A	X	X	X	X	X	X	X	X	X
19PDC303A	X	X	X	X	X	X	X	X	X
19PDC304A	X	X	X	X	X	X	X	X	X
19PDC305A	X	X	X	X	X	X	X	X	X
19PDC310A	X	X	X	X	X	X	X	X	X
19PDC300A	X	X	X	X	X	X	X	X	X
19SEC320A	X	X	X	X	X	X	X	X	X
19PDC401A	X	X	X	X	X	X	X	X	X

19AEC410A	X	X	X	X	X	X	X	X	X
19PDC400A	X	X	X	X	X	X	X	X	X
19PDC410A	X	X	X	X	X	X	X	X	X
19SEC420A	X	X	X	X	X	X	X	X	X
19PDC450A	X	X	X	X	X	X	X	X	X
19PCE301A	X	X	X	X	X	X	X	X	X
19PCE302A	X	X	X	X	X	X	X	X	X
19PCE401A	X	X	X	X	X	X	X	X	X
19PCE402A	X	X	X	X	X	X	X	X	X
19PCE311A	X	X	X	X	X	X	X	X	X
19PCE312A	X	X	X	X	X	X	X	X	X
19PCE411A	X	X	X	X	X	X	X	X	X
19PCE412A	X	X	X	X	X	X	X	X	X
19PCE321A	X	X	X	X	X	X	X	X	X
19PCE322A	X	X	X	X	X	X	X	X	X
19PCE421A	X	X	X	X	X	X	X	X	X
19PCE422A	X	X	X	X	X	X	X	X	X

30	**Co-curricular Activities** Student are encourage to take part in co-curricular activities like seminars, conferences, symposium, paper writing, attending industry exhibitions, project competitions and related activities for them to
31	**Cultural and Literary Activities** To remind and ignite the creative endeavors annual cultural festivals are held and the students are made to plan and organise the activities
32	**Sports and Athletics** Students are encouraged to develop a habit of playing games on daily basis and also take part in annual sports and athletic events.