Programme Specifications

B. Voc. Programme

Programme: Bachelor of Vocation (B.Voc.)

Course: Product Design and Modelling

Faculty of Art and Design

Directorate of Training & Lifelong Learning

M. S. Ramaiah University of Applied Sciences

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

www.msruas.ac.in

Programme Specifications and Syllabus for awards

Vocational Diploma, Vocational Advanced Diploma, Bachelor of Vocational Degree in Product Design and Modelling

1.   **Title of the Awards**

      Vocational Diploma in Product Design and Modelling

      Vocational Advanced Diploma in Product Design and Modelling

      Bachelor of Vocational Degree in Product Design and Modelling

2.   **Modes of Study**

      Full-Time

3.   **Awarding Institution /Body**

      M.S. Ramaiah University Of Applied Sciences – Bangalore, India

4.   **Joint Award**

5.   **Teaching Institution**

      Faculty of Art and Design

      M S Ramaiah University of Applied Sciences - Bangalore, India

6.   **Date of Programme Specifications**

      July 2022

7.   **Date of Programme Approval**

      July 2022

8.   **Next Review Date:**

      July 2025

9.   **Programme Approving Regulating Body and Date of Approval**

      Board of Studies, Academic Council

10   **Programme Benchmark**

UGC Guidelines

11.   Rationale for the Course

Indian Engineering and Design sector has witnessed a combined growth rate of about 15 percent touching US$ 26.4 billion over the last year driven by increased national and global demand for its produce. India is on the quest to showcase its development power globally while promoting locally designed and developed products with its Make in India campaign.

Many local and international firms such as TATA Motors, GMR, Suzuki, Hyundai, TVS, GE, Ford, Samsung, Godrej, Royal Enfield, to name a few have set up R&D and Design centers in India to develop innovative products and offerings. To cater to these industries, helping them visualize their conceptual ideas physically, skilled model makers are required. There is remarkable potential for model makers in the industry today as there is an enormous dearth of skilled labor in this ever growing sector.

This Programme provides the prospective students with a strong foundation of the art of creating scaled models and prototypes of the concepts envisioned by prestigious R&D and Design centers in India and abroad. Bangalore with its industrial areas located in various locations such as Peenya, Dobaspet, Bidadi, Harohallli, Jigani, Bommasandra, Electronic City, Whitefield and Hebbal provide an ideal platform for students to learn and work in an Industrial environment.

12.   Programme Aim

The aim of the Programme is to develop skilled professionals who can create models of product concepts based on the requirements of the Engineering and Design Industry.

13.   Programme Objectives

The objectives of the Programme are:

1.   To impart knowledge on general education including material science, mechanics, electrical and electronics, computer applications, economics and sociology

2.   To impart training on effective application of the elements of design to build forms and structures to communicate ideas of products and systems

3.   To use appropriate materials to realize intended design ideas

4.   To impart training on physical and virtual tools to accurately model and build a design

concept to meet client requirements

5. To impart knowledge on managerial subjects and general subjects like principles of management, accountancy, customer relationship, behavioral skills, communication skills, for successful operation of product model making business

14. Intended Learning Outcomes of the Course

The Intended Learning Outcomes (ILOs) are listed under three headings:

1. Knowledge and Understanding 2. Practical Skills and 3. Capability/Transferable Skills.

12.1 Knowledge and Understanding

After undergoing this course, the student will be able to :

1. Explain the principles involved in general education

2. Describe the application of design elements for creating three dimensional forms

3. Describe the tools and techniques for creating virtual and physical models using appropriate materials

4. Read and understand various safety regulations, labour laws connected with model making and manufacturing Industry

12.2 Practical Skills

After undergoing this course, the student will be able to :

1. Prepare and interpret 2D drawings to create representational physical models

2. Practice construction of various 3D forms and structures

3. Operate various equipment and machinery involved in cutting and finishing raw materials for model making

4. Build mock up models and prototypes using appropriate material and surface finishes

12.3 Capability/Transferable Skills

After undergoing this course, the student will be able to :

1. Develop a project report to set up a model making studio

2.   Manage operations, finances, accounting and tax calculations

3.   Communicate effectively with suppliers and customers

4.   Build team and manage team

5.   Use modern ICT tools for efficient operation of the model making business

15.   Programme Structure

A student is required to successfully complete the following modules for the award of the degree. The Programme is delivered as per the Time-Table for every batch.

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Vocational Diploma

16	**Programme Structure**

Vocational Diploma

Trimester-1

General Education: 12 Credits, 180 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1	VGE017	Communication skills-1	4	60
2	VGE021	Computer Applications - 1	4	60
3	VGE008	Basic Electrical Systems	4	60
Vocational Education: 12 Credits, 180 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1	VPD001	Foundation Sketching	4	60
2	VPD002	Manual Rendering	4	60
3	VPD003	Physical Form Exploration	4	60

Trimester-2

General Education: 12 Credits, 180 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1	VGE033	Engineering Mechanics	4	60
2	VGE022	Computer Applications - II	4	60
3	VGE034	Environmental Science	4	60
Vocational Education: 12 Credits, 180 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1	VPD004	Materials for Product Modelling	4	60
2	VPD005	CAD Drawing	4	60
3	VPD006	Physical Model Making I	4	60

Trimester -3

General Education: 12 Credits, 180 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1		Industry internship	12	480

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Vocational Advanced Diploma

Trimester -1

General Education: 12 Credits, 180 Hours				
S. No.	Code	Module Title	Credit	Hours
1	VGE027	Electronic systems	4	60
2	VGE066	Communication skills -2	4	60
3	VGE064	Elements of Social Science and Ethics	4	60

Vocational Education: 12 Credits, 180 Hours				
S. No.	Code	Module Title	Credit	Hours
1	VPD007	3D Virtual Modelling	4	60
2	VPD008	Digital Product Illustration	4	60
3	VPD009	Physical Model Making II	4	60

Trimester -2

General Education: 12 Credits, 180 Hours				
S. No.	Code	Module Title	Credit	Hours
1	VGE005	Banking & Taxation	4	60
2	VGE013	Business Communication	4	60
3	VGE010	Elements of Mechanical Systems	4	60

Vocational Education: 12 Credits, 180 Hours				
S. No.	Code	Module Title	Credit	Hours
1	VPD010	3D Surface Modelling – I	6	90
2	VPD011	Materials for Product Development	6	90

Trimester -3

Industry Internship: 12 Credits, 180 Hours				
S. No.	Code	Module Title	Credit	Hours
1		Industry internship	12	480

| 18 | **Programme Structure** |

Vocational Degree

Trimester -1

General Education: 12 Credits, 180 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1	VGE059	Principles of Management	4	60
2	VGE068	Entrepreneurship development	4	60
3	VGE070	Mechanism for Product Design	4	60
Vocational Education: 12 Credits, 180 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1	VPD013	Physical Model Detailing and Surface Finishing	6	90
2	VPD014	Design Essentials	6	90

Trimester -2

General Education: 12 Credits, 180 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1	VGE047	Labour laws, occupational health and safety	4	60
2	VGE069	Cost Estimation and Project Management`	4	60
3	VGE056	Organizational Behaviour	4	60

Vocational Education: 6 Credits, 90 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1	VPD015	Work Portfolio	6	90

Trimester -3

Industry Internship: 18 Credits, 270 Hours				
S. No.	**Code**	**Module Title**	**Credit**	**Hours**
1		Industry internship	18	720

19. Delivery Structure

The Programme is in a tri semester pattern with an average of 30 hours of interactions per week and 12 -13 weeks per semester

20. Teaching and Learning Methods

The module delivery comprises of a combination of few or all of the following:

1. Face to Face Lectures using Audio-Visuals
2. Demonstrations
3. Laboratory/Field work/Workshop
4. Industry Visit
5. Group Exercises
6. Project Exhibitions
7. Technical Festivals

21. Assessment and Grading

Students' performance is assessed through Component 1 (Continuous Evaluation CE) and component 2 (Semester End Examination SEE).

1. Component 1 (Continuous Evaluation CE):

Two tests of 25 marks each will be conducted in each subject. The average of the marks will be considered. An average of 40% is compulsory in each subject. This is applicable for both general and vocational education

2. Component 2 (Semester End Examination SEE):

A semester end exam of 50 marks will be conducted in each subject. An average of 40% is compulsory in each subject. This is applicable for both general and vocational education

A student must score 40% of the combined CE and SEE scores to pass the subject and module

22. Failure

If a student fails in a module, he/she is required to take up the make-up examination.

23. Attendance

A student is required to have a minimum attendance of 75% in each of the modules.

24. Award of Class

As per the Academic Regulations for Vocational Programme.

25. Student Support for Learning

Student are given the following support:

1. Module 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

26.   Quality Control Measures

Following are the Quality Control Measures:

1. Review of module notes
2. Review of question papers
3. Student feedback
4. Moderation of assessed work
5. Opportunities for the students to see their assessed work
6. Review by external examiners and external examiners reports
7. Staff student consultative committee meetings
8. Student exit feedback
9. Subject Assessment Board
10. Programme Assessment Board

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