



GONDWANA UNIVERSITY, GADCHIROLI

DIRECTION NO 26 OF 2022

"Admissions and examinations leading to the award of one year diploma in bamboo entrepreneurship and design (Credit Based Semester Pattern) in the Faculty of Science and Technology, Direction, 2022"

Whereas, the territorial area within the jurisdiction of the Gondwana University is endowed with the rich resource of bamboo on which the tribal population is dependent for its livelihood. However in spite of the richness of the resource the socio-economic conditions of the tribal's in the area continues to be marginalized one and it is the duty of the university to generate and promotes sense of self respect and dignity amongst weaker sections of the society and also to generate, develop and disseminate knowledge, technology and skills amongst the stakeholders to uplift their standard of living

And

Whereas, it is also the duty of the university to foster high quality research of contemporary significance, is globally competitive and locally, regionally and nationally relevant;

And

Whereas, the Board of Deans in its meeting held of 17th February 2020 vide item no. 1 unanimously resolved to recommend to the academic councils of the university to start the one year diploma program in Bamboo Entrepreneurship and Design;

And

Being conscious about its responsibilities a meeting of various stakeholders was convened on 11th June 2020, under the chairmanship of the Vice Chancellor of the university, in which it was decided to bring out a one year diploma in Bamboo Entrepreneurship and Design from the academic session 2020-2021;

And

Whereas, the Vice Chancellor in exercise of his powers under section 12(7) of the Maharashtra Public University Act 2016 approved on behalf of the academic council and management council of the university starting of the one year diploma program in Bamboo Entrepreneurship and Design from the academic session 2020-2021

And

Whereas, in the meetings of the Board of Studies for the subject of “Bamboo Entrepreneurship and Design” held on 15th July 2022 and 8th August 2022 certain decisions regarding introduction of a one year diploma program on Bamboo Entrepreneurship and Design were taken. It was also decided in this meeting to start the program from academic session 2020-21

And

Whereas, Hon’ble Vice-chancellor on behalf of the Academic Council on has approved IDC-IIT Bombay developed model curriculum for One Year Under-Graduate Diploma in Bamboo Entrepreneurship Design, dated 04.04.2020 under the provision of section 12(7) of the Act, considering the exigency of the matter;

And

Whereas, under section 73 of the Act an Ordinance prescribing conditions for admission of students to any program of the university, fixation of the fees and charges for any program , condition governing the appointments and duties of examiners, conduct of examination, other tests and evaluations and the manner in which the candidate may be assessed or examined by the examiner and other related matters is required to be made by the university; however since ordinance making is time consuming process and since admissions of the students for the One Year diploma Program in Bamboo Entrepreneurship and Design is round the corner in the academic session 2022-23 it has necessitated issuance of a direction under section 12(8) of the M.P.U. Act 2016;

Now, therefore, I, Dr. Prashant Bokare, Vice Chancellor, and Gondwana University, in exercise of my powers under section 12(8) of the M.P.U. Act do hereby issue the following direction

1. This Direction shall be called as Admissions and examinations leading to the award of one year diploma in Bamboo Entrepreneurship and Design (Credit Based Semester Pattern), in the Faculty of Science and Technology, Direction, 2022.
2. This direction shall come into force from the date of its issuance. However, this direction shall also govern the conduct of examinations and declaration of results of the all the students who have been admitted in this program in the academic session 2021-2022
3. In this directions unless the context requires otherwise following words and phrases shall have the meaning assigned here under:

- i) **Course**- Course means a subject (theory/ practical) prescribed for any semester of the program.
 - ii) **Credit Based Semester System (CBCS)**: Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.
 - iii) **Credit point**- Credit point stands for performance of students in a particular course. It is a product of total credits of a course and the grade point secured by the student in the concerned course.
 - iv) **Credit**: A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week, as far as possible.
 - v) **Grade Point**: It is numerical weight allotted to each letter grade on a 10 point scale.
 - vi) **Letter Grade**: It is an index of the performance of students in a said course. Grades are denoted by letters A+, A, B+,B, C+, C,D, F and Z.
 - vii) **Program**- Program means One Year Diploma in Bamboo Entrepreneurship and Design.
 - viii) **Semester**: Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.
 - ix) **University**- University means Gondwana University.
4. **Edibility for Admission**: - For admission to One Year Diploma in Bamboo Entrepreneurship and Design an aspiring student should have passed the 12th Standard examination conducted by the Maharashtra State Board of Education, Pune, CBSC and any other equivalent Board.
 5. **Admission Process**: - Subject to reservation policy of the state with respect to admission of students in educational institutions framed by the state government from time to time the admission to the programme under this direction shall be conducted by the Chief Program Officer and Head Science and Technology Resource Center of the university as per the process and the schedule to be notified by the said center.
 6. **Intake Capacity**:- Maximum 30 number of the students shall be admitted in the program in each academic year
 7. **Fees**: - The admission and examination fees and the other fees for the programme shall be as notified by the university from time to time.

8. Program Structure: - The one year diploma programme under this direction shall consist of two semesters called first and second semester respectively. Each semester shall have the courses the number of the courses, credit for each course, duration of examination, pattern of question papers, the maximum and minimum passing marks for each course shall be as detailed in **Annexure-A** to this direction and the contents of each course shall be as detailed in **Annexure-B** to this direction.
9. Medium of Instructions: - The medium of instructions and examinations shall be Marathi
10. Rules of Allowed to Keep Term (ATKT)
- i) Students who has taken admission in the first semester of the program and having attended minimum 75% of the classes for each course prescribed for that semester shall be allowed to appear in the end semester examination to be conducted by the university.
 - ii) A student, who has completed the term of the first semester and has appeared in the end semester examination of the first semester conducted by the university, shall be allowed to appear in the end semester examination of the second semester conducted by the university. However the result of the end semester examination of the second semester shall not be declared by the university unless and until the examinee has passed in the first semester examination
11. Rules of Examinations:-
- i. Every course prescribed for the program under this direction shall carry the maximum marks consisting of internal assessment marks and university examination marks as prescribed in annexure-A to this direction. An examinee securing marks in any course out of the prescribed total marks shall be awarded the letter grade as per the table hereunder

Table 1: Criteria for Award of Grades

Grade	Percentage Score	Grade points
O	75-100	10
A	60-74	09
B	55-59	08
C	50-54	07
D	45-49	06
E	40-44	05
F	0-39	00
X	Absent in Examination	--

- ii. A student who PASSES in each head of passing shall be granted exemption in that paper. But, if he passes in practical and fails in combined head of ESE+IA of a subject, shall reappear for the ESE of the given subject. However, his/her marks of the IA and P shall be carried over and he/she shall be entitled for grade obtained by him/her on passing of the end semester examination of the given course.
- iii. The marks for the IA or Practical/Project shall be forwarded by Principal/Head of the Institution to the University as per the Schedule.
- iv. If a student is permitted to repeat any semester/course, the new letter grade will replace the old letter grade in the computation of the SGPA and further that every student will have only one grade-sheet for every semester and the last semester grade-sheet to indicate CGPA based on the adapted criteria for the Award of the Degree.
- v. An unsuccessful examinee, at any of the end semester examination shall have the right to carry his/her Internal Assessment marks for the theory or practical course for his/her successive examination in the failed courses.
- vi. The provisions of the examination Ordinance of the university dealing with award of grace marks for passing in a particular head and for improvement of Division (Higher class) shall be applicable for declaration of results of examinations conducted under this direction.
- vii. The rules of the university with respect to revaluation/challenge to valuation shall be applicable with respect to results of the examination conducted as per the direction.
- viii. Calculation of **SGPA** and **CGPA**

Semester Grade Point Average (SGPA) - It is indicative of performance of a student in a given semester. The Grade Point Average for a semester (SGPA) is obtained by adding the products of Actual Grade Points and relative weightages for different courses as shown in the course scheme for respective semester and dividing the total by the total credit hours for that semester as illustrated below.

$$SGPA = [C_i G_i + C_{ii} G_{ii} + \dots + C_n G_n] / (C_i + C_{ii} + \dots + C_n)$$

Where, C – No of Credits of individual course

G–Corresponding grade point obtained in respective course

For example:

An examinee of the first semester examination has obtained
10 grade points in the subject code BED1TT01 carrying 4 credits;
9 Grade points for the subject code BED1TT02 carrying 8 credits;
8 Grade points for the subject code BED1DG01 carrying 4 credits;
7 Grade points for the subject code BED1DG02 carrying 4 credits;
6 Grade points for the subject code BED1DG03 carrying 4 credits;
5 Grade points for the subject code BED1DG04 carrying 2 credits;
5 Grade points for the subject code BED1TP01 carrying 12 credits;
In this case the SGPA of examinee would be

$$\text{SGPA} = \{(10*4) + (9*8) + (8*4) + (7*4) + (6*4) + (5*2) + (5*12)\} / 38 = 7$$

Cumulative Grade Point Average (CGPA) -The Cumulative Grade Point Average (CGPA) is indicative of the overall academic performance of a student in all the courses registered in both the semesters. It is the cumulative total of the products of actual grade point and its weightage up to the second semester divided by total credits of both the semesters.

- ix. Notwithstanding anything to the contrary in this Direction, no person shall be admitted to an examination under this Direction, if he/she has already passed that examination or an equivalent examination of any other Statutory University.
- x. The Classification of Division of Examinees for the award of the Diploma under this Direction shall be on the basis of Cumulative Grade Point Average CGPA, calculated on the basis of the rules contained in this direction in this behalf, as shown in the table below.

Table 2

Sr.No.	CGPA Interval	Interpretation of Class / Division
1	9.01 -10.00	First Class with Distinction
2	7.01 - 9.00	First Class
3	6.01 - 7.00	Higher Second Class
4	5.01 - 6.00	Second Class
5	4.01 - 5.00	Third Class

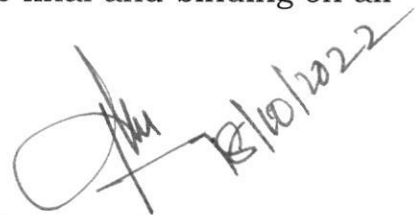
- xi. All the successful examinees in the second semester examination conducted by the university shall be entitled to receive diploma, in the prescribed format, signed by the Vice-Chancellor, on payment of a fee prescribed by the University.

12. Conduct of Internal & end semester examinations:-

- (i) There shall be two semester examinations leading to the award of the diploma in Bamboo Entrepreneurship and Design
- (ii) The period of Academic Session shall be such as may be notified by the University through its Academic Calendar.
- (iii) First and Second Semester Examination shall be held by the University in winter & supplementary examination in summer every year. Similarly the regular end semester examination for second semester shall be held in the summer and supplementary examination for the same shall be held in the winter every year.
- (iv) The Internal Assessment marks shall be based on Student's performance in the Internal Theory examination(s) conducted by the Science and Technology Resource Centre where the programme is going to be offered. The assessment shall be based on student's performance in Assignments/quizzes/GDs/Seminar/Viva voce/Response Classes.

13. Where any question regarding interpretation of the provision of this direction arises the same shall be referred to the vice chancellor of the university whose opinion in the matter shall be final and binding on all the concerned people

Place: Gadchiroli
Date: 8/10/2022


(Dr. Prashant Bokare)
Vice-Chancellor

Annexure- A (i)
Teaching and Examination Scheme for
One Year Diploma in Bamboo Enterprise and Design
Semester One

Paper Name Code	Subject Code	Subject	Credit	% of Assessment (subject Minimum Marks)			
				IA	UE	Total	Min. Passing
Paper I	BED1TT01	Part A: Trade Theory 1	4	25	75	100	40
	BED1TT02	Part B: Employability Skills 1 (Transferable Skills and Entrepreneurship)	8	50	150	200	80
Paper II	BED1DG01	Part A: Design	4	25	75	100	40
	BED1DG02	Part B: Engineering Drawing	4	25	75	100	40
	BED1DG03	Part C: Computer Aided Design	4	25	75	100	40
	BED1DG04	Part D: Social Development	2		50	50	20
Practical	BED1TP01	Trade Practical	12	150	150	300	180
Total			38	300	650	950	440

Semester Two

Paper Name	Paper Code	Subject	Credit	% of Assessment (subject Minimum Marks)			
				IA	UE	Total	Min. Passing
Paper I	BED2PD01	Trade Theory 2 : Design Process Based Product Development	4	25	75	100	40
Paper II	BED2BP01	Part A: Business Plan Development	6	75	75	150	60
	BED2BP02	Part B : Cultural Capital and Colloquium	2		50	50	20
Paper III	BED2ME02	Marketing Channels and E-commerce	4	25	75	100	40
Practical	BED2PP01	Trade Practical: Design Process Based Product Development	8	50	150	200	120
	BED2PP02	Internship/Specialization	12	300		300	180
	BED2PP03	Portfolio Making	2	50		50	30
Total			38	525	425	950	490

Annexure- A (ii)
Question Paper Pattern Format
Diploma in Bamboo Entrepreneurship and Design (BED)

Semester - 1

Paper I - BED1TT02 - Employability Skills 1	- 150 Marks
Paper I - BED1TT01 - Trade Theory 1	- 75 Marks
Paper II- BED1DG01 – Design	- 75 Marks
Paper II - BED1DG02 - Engineering Drawing	- 75 Marks
Paper II - BED1DG03 - Computer-Aided Design	- 75 Marks
Paper II - BED1DG04 - Social Development	- 50 Marks
Practical - BED1TP01 - Trade Practical 1	- 150 Marks

Semester - 2

Paper I - BED2PD01 - Trade Theory 2: Design Process Based Product Development	- 75 Marks
Paper II- BED2BP01 - Business Plan Development	- 75 Marks
Paper II- BED2BP02 – Cultural Capital and Colloquium	- 50 Marks
Paper III - BED2ME01 - Marketing Channels and E-commerce	- 75 Marks
Practical - BED1TP01 - Trade Practical 2: Design Process Based Product Development	- 150 Marks

Question Paper Pattern Format
Diploma in Bamboo Entrepreneurship and Design (BED)

Subject:

Semester – 1st

Semester 1- Paper I - BED1TT02 - Employability Skills 1 - 150 Marks

Time: 4 Hours

Max. Marks: 150

Q. 1 Long Question - Answer any 3 out of 5	60 marks (3 × 20 Marks each)
Q. 2 Short Question - Answer any 4 out of 6	40 marks (4 × 10 Marks each)
Q. 3 Write a Short Note - Answer any 6 out of 8	30 marks (6 × 5 Marks each)
Q. 4 Fill in the blanks/Match the pair/MCQ	20 marks (20 × 1 Marks each)

Question Paper Pattern Format
Diploma in Bamboo Entrepreneurship and Design (BED)

Subject:

Semester - 1st

Paper I - BED1TT01 - Trade Theory 1	- 75 Marks
Paper I - BED1DG01 – Design	- 75 Marks
Paper II - BED1DG02 - Engineering Drawing	- 75 Marks
Paper II - BED1DG03 - Computer-Aided Design	- 75 Marks

Semester - 2nd

Paper I - BED2PD01 - Trade Theory 2: Design Process Based Product Development	- 75 Marks
Paper II- BED2BP01 - Business Plan Development	- 75 Marks

Time: 3 Hours

Max. Marks: 75

Q. 1	Short Question - Answer 4 out of 6	40 marks (4 × 10 Marks each)
Q. 2	Write a Short Note - Answer 4 out of 6	20 marks (4 × 5 Marks each)
Q. 3	Fill in the blanks/Match the pair/MCQ	15 marks (15 × 1 Marks each)

Question Paper Pattern Format
Diploma in Bamboo Entrepreneurship and Design (BED)

Subject:

Semester - 1st

Paper II - BED1DG04 - Social Development

- 50 Marks

Semester - 2nd

Paper II - BED2BP02 - Cultural Capital and Colloquium

- 50 Marks

Time: 2 Hours

Max. Marks: 50

Q. 1	Short Question - Answer 2 out of 5	20 marks (2 × 10 Marks each)
Q. 2	Write a Short Note - Answer 4 out of 6	20 marks (4 × 5 Marks each)
Q. 3	Fill in the blanks/Match the pair/MCQ	10 marks (10 × 1 Marks each)

Question Paper Pattern Format
Diploma in Bamboo Entrepreneurship and Design (BED)

Subject:

Semester - 1st

Practical - BED1TP01 - Trade Practical 1

- 150 Marks

Semester - 2nd

Practical - BED1TP01 - Trade Practical 2: Design Process Based Product Development

- 150 Marks

Time: 6 Hours

Max. Marks: 150

Q. 1	Long Practical - Answer 2 out of 5	100 marks (2 × 50 Marks)
Q. 2	Short Practical - Answer any 5 out of 7	50 marks (5 × 10 Marks)

Annexure B

Syllabus

Diploma in Bamboo Entrepreneurship and Design (BED)

Subjects	Units
<i>Semester 1</i>	
Trade Theory and Practical	16
Employability Skill	8
Design	11
Engineering Drawing	13
Computer-Aided Design	3
<i>Semester 2</i>	
Trade Theory and Practical -2	4
Business Plan Development	1
Cultural Capital and Colloquium	2
Marketing Channels and E-Commerce	1

Semester 1

Course 1: Trade Theory and Practical

Objectives:

- The trainees will be able to Identify, select bamboo hand tools based on operations to be performed.
- The trainees will be able to make slats/strips of different thickness and sizes
- The trainees will be able to treatment, seasoning and opt for appropriate storage of bamboo
- The trainees will be able to do dyeing using Natural colors
- The trainees will be able to do different mat weaves and create new patterns and motifs in mat weaving
- The trainees will be able to use Molds, Jigs, Fixtures, Templates and Product specific tools
- The trainees will be able to make products with bamboo slats/slivers/full bamboo using weaving, coiling and joining techniques.
- The trainees will be able to work with various bamboo processing machines
- The trainees will be able to perform various bamboo surface Embellishments and decorative techniques
- The trainees will be able to understand the use of standard Carpentry, Metal and Industrial Plastic material types, processes and tools and machines.
- The trainees will be able to integrate other materials like wood, metal with bamboo.
- The trainees will be able to do structural models, simple furniture and construct scaled structural models.
- The trainees will be able to prepare documentation of the process and work in Report format.
- The trainee will be able to exhibit the work using posters with space awareness.
- The trainees will be able to understand the quality requirements of urban and International markets
- The trainees will be able to identify the skills and knowledge of the local craft community and propose interventions in creating viable products for urban and export markets.

Unit No.	Trade Theory	Trade Practical
1	<p>ORIENTATION Welcome meet, Introducing Faculty, Staff, facilities and infrastructure. CREATIVE GROUP PROJECT Creative Group Project to enable peer interaction. Using mix material and abilities that the trainees would already have. The task will be using creative analytical and verbal skills. The tasks will require forming teams and building interpersonal relations.</p>	<p>CREATIVE ORIENTATION PROJECT Group formation, Task briefing, Group work, work/plan execution, Display and presentation of work, Feedback and Discussion</p>
2	<p>INTRODUCTION TO BAMBOO CRAFT History of Bamboo Craft, Traditional and Modern Uses of Bamboo, Exposure to National and International Products, Role of Bamboo in sustainable livelihood creation, Sustainable and Eco friendly nature of material.</p>	
3	<p>INTRODUCTION TO BASIC HAND TOOLS USED IN BAMBOO WORK: Sawing tools Scraping tools Strip making tools Measuring tools Marking tools Weaving tools Binding tools Finishing tools Sharpening tools, Tools Maintenance</p>	<p>Demo and Practice of tools in bamboo work: Various kinds of Hacksaws, Scrappers, Machete, Knife, Steel rule, Measuring tape, Inside callipers, Outside callipers, IDC Gauge, Templates, Compass, Hand Drill, Hammer, Piercing too, Fevicol, Sandpaper pad, Sandpaper file, Chisel edged rasp file, Sanding machine, Emery stones, IDC Fine splitting Knife.</p>
4	<p>SLATS AND SLIVERS MAKING Introduction to Slats and Slivers Types of Slats and Slivers Uses of Slats and Slivers PROCESS OF SLATS MAKING Selection of Bamboo for Slat Making, Tools and Equipment required for Slat making - dau or machete. Step by Step process of Slats making, How to make Slats as per required dimensions wrt width, thickness and length Quality control in Slats making PROCESS OF SLIVERS MAKING Selection of Bamboo for Sliver Making, Tools and Equipment required for Sliver making - dau or machete. Step by Step process of Slivers making, How to make Slivers as per required dimensions wrt width, thickness and length Quality control in Slivers making MATERIAL MANAGEMENT</p>	<p>Demo and practice of Slats Making process Sharpening the Tools, Cutting and splitting of Bamboo, Preparing the segments of bamboo, Making Slats of various as per required dimensions Demo and practice of Strip Making process Sharpening the Tools, Cutting and splitting of Bamboo, Preparing the segments of bamboo and soaking in water (for dry bamboo) Making strips of various as per required dimensions, Process documentation in practical/lab book format To manage the inventory of Raw materials, Sorting and storage based on dimensions, Colours as a strip library.</p>

	<p>TREATMENT Causes for fungus in Bamboo, Difference in the treatment of Bamboo Slats, Slivers and Full bamboo Treatment, Traditional, Small scale and Industrial scale treatment methods,</p> <p>BORAX BORIC ACID TREATMENT, ALUM TREATMENT Chemicals and Equipment needed for treatment, Treatment for small scale industry Proper storage of Chemicals, Safety Precautions,</p> <p>Seasoning of treated Bamboo, Storage of treated Bamboo.</p>	<p>Demo and practice of Treatment process, Selection of Equipment for Treatment based on the given batch type (slats, slivers and full bamboo) and Quantity, Calculation of amount of Chemicals required for the given batch of Raw materials, Process of Borax Boric Treatment Safety precaution to be followed during treatment Drying the treated materials, Storage of Treated materials Proper storing of Chemicals, Process documentation in practical/lab book format</p>
6	<p>WEAVING Introduction to weaving, Types of weaves, Applications and Uses in Bamboo Craft, Weave geometry and weave grammar, Basic weaves, Use of Color strips, Decoding of weave, MOTIFS AND PATTERNS How to Create Mats with new Patterns and Motifs Weaving with Other material - Natural fibres Weave Based Products</p>	<p>Demo and Practice of Weaving process 1x1 weave 2x2 weave 3x3 weave</p> <p>Hexagonal weave, Tangential weave, Decoding patterns and designs EXPLORATION - Mat weaving using other Materials with bamboo - Jute and other natural fibres. Creating new patterns and motifs. Process documentation in Report format</p>
7	<p>DYEING Natural Dyes, Chemistry of Dyeing Dyeing with Turmeric, Dyeing with Tea, Dyeing with Katha, Dyeing with Hirda, Flame of the forest, Jungle Yellow, Manjistha powder, Manjistha Roots, Indigo, Olive Green Color, Alta, Orange Colour, Purple Colour</p>	<p>Demo and practice of Dyeing process, Calculation of the amount of Dye required for given batch of materials, Equipment and tools required for Dyeing process of Dyeing Importance of Retention time, Safety precautions during Dyeing process, Drying the Dyed material, Storing the dyed strips Process documentation in practical/lab book format</p>
8	<p>RAW MATERIALS Growth and Distribution of Bamboo species in India, Anatomy of Bamboo, Parts, Properties and Uses, Types of Bamboo, Identification of bamboo type based on Anatomy. Introduction to Bamboo Propagation. Different Propagation methods. Identifying and selecting appropriate bamboo for use in specific applications. Cane : Introduction to Cane and Uses in combination with bamboo</p>	<p>Familiarization of bamboo anatomy, Exposure to Different Bamboo types: samples, Properties, Uses</p> <p>VISIT: TO LOCAL BAMBOO MARKET Documentation of local and non-local varieties and their commercial aspects. Interaction with traders and vendors for in depth understanding of the commercial aspects, logistics, availability, sectorial application etc. and difficulties faced by them.</p> <p>Selecting Bamboo depending on application.</p> <p>EXPOSURE VISIT TO BAMBOO NURSERY:</p>

		To Study Commercial, Ornamental And Other Types Of Bamboo Species, Study Propagation And Viability Introduction to Propagation, Demo of different propagation methods.
9	<p>WORKSHOP 1 - PRODUCT PROTOTYPING AND PRODUCTION MOULDS, TEMPLATES JIGS AND FIXTURE. Types of Moulds, Principles and Uses Moulds maintenance and Moulds Materials.</p> <p>PRODUCTS SPECIFIC TOOLS- COIL TECHNIQUE COIL BASED PRODUCTS WEAVE BASED PRODUCTS SLAT BASED PRODUCTS</p>	<p>Demo and Product making using Moulds, Templates Jigs and Fixture.</p> <p>Dinner Mats (Templates, Slivers) Waste paper basket (Knockdown Mould, Slivers) Demo and Product making using Product specific tools.</p> <p>Photo frame (Product Specific Tools, Jig, Templates, Fixtures, Slats) Lamps (Product specific tools, templates, fixtures, Jigs, Slats)</p> <p>Demo and Product making using Coil Technique.</p> <p>Pen stand (Positive, Negative Mould, Long slivers), Coil bowl (Knockdown mould, Long Slivers), Coil box (Complex mould, Long slivers).</p> <p>Process documentation in practical/lab book format</p>
10	<p>WORLD VIEW</p> <p>National and International Exposure to Bamboo and other Crafts, Crafts based Entrepreneurships, Case studies, Expert talks etc. PRACTICAL/LAB BOOK SUBMISSIONS AND WORK EVALUATION AND ASSESSMENT - 1</p>	<p>Worksheets/write up to assess the understanding and synthesis of the topic content by the Trainee. Completion and submission of lab record books by trainees Submission of Physical artefacts and work done for evaluation and assessment</p>

11	<p>INTRODUCTION TO BAMBOO PROCESSING MACHINES AND DEMO</p> <p>Demonstration of various Bamboo Processing machines:</p> <p>Cross Cutting Machine Double side cutting Parallel splitter four side planning Portable Cross Cutting Radial splitting Slicing Machine Strip/Stick machine Two side planning cum sizing Manual and Automatic Slivering</p>	<p>Understanding: The use of various machines in bamboo processing; Industrial setup, machines specifications, process output, machine handling, etc.</p> <p>Demonstration of various Bamboo processing machines and equipment.</p> <p>Safety precautions while handling machines Internal workshop study/Industrial Visit. Process documentation in practical/lab book format</p>
12	<p>BAMBOO SURFACE EMBELLISHMENTS AND DECORATIVE TECHNIQUES</p> <p>Introduction to Bamboo finishes, Processes and sample Products of various surface embellishment techniques.</p> <p>LIST OF SURFACE EMBELLISHMENT TECHNIQUES:</p> <p>Stains Melamine finish (touchwood) Water soluble colours, Smoke finish, Pyrography, Printing process, Painting, Screen Printing, Hot Stamping, Laser etching, Flocking, Carving</p>	<p>Demo and practice of various finishing techniques.</p> <p>Creating samples of different Finishing techniques and Application of techniques on products</p> <p>Dinner Mats Waste paper basket Coil bowl Coil box Photo frame Lamps Pen Stand</p> <p>Process documentation in practical/lab book format</p>
13	<p>WORKSHOP 2 - CARPENTRY, METAL AND INDUSTRIAL PLASTIC: MATERIAL AND PROCESSES</p> <p>WORKSHOP SAFETY CARPENTRY BASICS, Classification and Grading of Materials - Types of wood, Types of Plywood, Standard Sizes and Cost, Processes - Marking, Cutting, Drilling, Planning, Joining, Finishing Hand tools and Portable power tools and wood machines,</p> <p>METAL WORK BASICS Classification and Grading of materials, Iron, Steel rods -standard sizes and cost Processes - Measuring, Cutting, Joining, welding, bending, finishing Tools and Machines Pipe Bending</p> <p>INDUSTRIAL PLASTIC Polystyrene and Acrylic, Standards sizes and cost, Processes and tools, Blow moulding, Laser cutting, 3D printing FRP</p> <p>PRACTICAL/LAB BOOK SUBMISSIONS AND WORK EVALUATION AND ASSESSMENT - 1</p>	<p>Demo and Practice of Wood Processes, Tools and machines</p> <p>Demo and Practice of Metal Processes, Tools and machines</p> <p>Furniture - benches, racks, stands, chairs etc.,(Metal, Wood and Bamboo) Accessories - (Metal, bamboo wood cane) Utility Basket (Metal, Bamboo, Cane) LED Lamps (Brass, Concrete Moulding)</p> <p>Demo and Practice of Plastic processes and tools for making Moulds, Jigs, Fixtures and Templates Blow moulded parts for products</p> <p>Process documentation in practical/lab book format Completion and-submission of lab record books by trainees Submission of Physical artefacts and work done for evaluation and assessment</p>

14	<p>JOINERIES Standard joineries used in Bamboo work and their uses, Tools and equipment required , Non-Conventional Joints (Bamboo to Timber, Bamboo to Metal, Bamboo to Glass) Fasteners: Screws and Bolts, Adhesives</p> <p>STRUCTURES AND JOINERY Exploration in structures and Concept Development</p> <p>INTRODUCTION TO FURNITURE DIY Design Process based Furniture Knockdown Designs</p> <p>INTRODUCTION TO CONSTRUCTION Field Visit to Construction Site Interior Design: interior space elements Concept of scale in model making</p>	<p>Table top accessories Wall accessories Display stands, Racks</p> <p>DEMONSTRATION AND MAKING OF VARIOUS BAMBOO JOINTS T Joint, Lap Joint, Half Lap Joint.</p> <p>MULTIPLE MATERIAL JOINERY DEMO AND PRACTICE TO BENDING OF FULL BAMBOO</p> <p>Demonstration and Making of Stool Chair Benches and Racks Shoe stand Book shelf</p> <p>BAMBOO STRUCTURES MAKING - Geodesic Dome CONSTRUCTION OF A SCALED MODEL OF HOUSING/STRUCTURE Process documentation in practical/lab book format</p>
15	<p>EXHIBITION</p> <p>Exhibition is a semester end event that gives the trainees an opportunity to display their course outcomes, project work and other learnings from the semester</p> <p>Trainees will be trained to develop skills and capabilities for: Space and exhibition design, Panel designing Presentation skills and Articulation skills</p> <p>Exhibition gives an opportunity for trainees to seek feedback and critique on quality, design, craftsmanship and their product making skills.</p>	<p>Prepare panel display of course work outcome; Prepare exhibition display of physical outcome of courses / projects.</p>
16	<p>SOCIAL CAPITAL</p> <p>Study and appreciation of Indigenous knowledge, Social Norms and Kinship, Values and Cultural Heritage.</p> <p>Study and appreciation of sustainability, conservation of resources, sustainable harvesting, Natural and organic food, green economy, low carbon footprint, recycling and reuse.</p> <p>Study and appreciation of traditional tools and artefacts and their historical linkages.</p>	<p>The Students will:</p> <p>Study and Survey socio economic, cultural, ecological aspects of a village ecosystem Documentation of traditional knowledge, art and crafts.</p> <p>Submission of report.</p>

Course 2: Employability Skill

Objectives:

The trainees will be able to Read, Write and Speak English

The trainees will be able to use internet for research and academic performance

The trainees will be able to use MS office

The trainees will be able to do PPT presentations

Trainees will know the fundamentals of Businesses in relation to Bamboo.

The trainees will be able to know the essentials of Team & Human Resource Management.

Trainees will know about Bamboo Procurement.

Trainees will have an idea of Accounting & Finance.

Trainees will know about the available Government & Institutional support for the Bamboo Sector.

Trainees will also know the statutory rules of the Sector.

1.	English Literacy Hours of Instruction: 20 Hrs. Marks Allotted : 25	
	Introduction to English Language	English and its use in India, it's uses in Business & Government, Importance of English
	Grammar	Tense Chart, vowels, sentences, parts of speech, verbs, Nouns, Adjectives, Adverb, Preposition, Synonyms & Antonyms.
	Written/Spoken English	Correct Sentence Formation, Thoughts to Speech, Pronunciation, Greetings, Introduction & Office Hospitality
2.	Communication skills and Personality Development Hours of Instruction: 20 Hrs. Marks Allotted : 25	
	Fundamentals of Communications	Introduction to Communication & Role of Effective Communication
	Types of Communications	Reading, Writing and Oral Communication.
	Positive Thinking	Crisis in Business, Role of Positive Thinking, Attitude, Motivation, Personal Goal Setting, Ethics & Values.
	Leadership & Team	Aligned to Team Goals, Understanding Issues in Team, Team Management.
	Decision making & Problem Solving	Different Business Issues, How to handle Crisis, How to find Solutions to the Problems, Confidence Building
	Job Interview FAQs	How to Hunt a Placement, Resume Writing, Networking for a job.
	Personal Grooming & Professional Etiquettes	Role of Grooming in Workplaces, Dress Code, Greetings And Common Office Language
3.	Digital Literacy Hours of Instruction: 10 Hrs. Marks Allotted : 25	
	Computer Basics Hardware	Introduction to Computer Hardware and software
	Computer Basics Operating Systems	Types of OS – Licensed & Open Sourced, File Structure
	M.S. Office	Paint, Word, Excel and PowerPoint.
	Internet	Understanding the Internet, How to Search Google, Popular Social Media Platforms, Understanding Privacy & Cyber Security.
	E-Mail	How to use Mail.
	APPS	Introduction to world of apps, types of apps, Android, iOS
4.	Entrepreneurship & Bamboo Business Management Hours of Instruction: 10 Hrs. Marks Allotted : 05	
	Fundamentals of Entrepreneurship; Traits of an Entrepreneur	
	From Cottage and Village Industries to the world of Startup Entrepreneurship	

	Overview of Bamboo Based Entrepreneurship in India
	Government, Social Entrepreneurship and Bamboo Sector
	Different Bamboo Products and Business Scenario in Bamboo
	Global Scenario & Bamboo Sector: World Bamboo Organization, World Bamboo Congress, INBAR UNIDO, UNDP & other global bamboo organizations, India - National Bamboo Mission and allied Agencies, State Bamboo Missions and Boards; District level development agencies.
5.	HR & Team Management Hours of Instruction: 10 Hrs. Marks Allotted : 15
	Scenario of Bamboo Business Organizations in India
	Man-Power Requirement
	Recruitment Techniques
	Bamboo Training Institutes in India
	Team Building and Team Work
	Workplace Administration
	Labour Welfare Legislation
6.	Bamboo Procurement, Production Processes and Logistics Hours of Instruction: 10 Hrs. Marks Allotted : 15
	Study of Bamboo Procurement, Production and logistics
	Basics of Production Planning
	Bamboo Production Tools and Resources
	Transport and Logistics Management
7.	Accounting & Finance Hours of Instruction: 10 Hrs. Marks Allotted : 15
	Basics of Accounting in SMEs
	Book Keeping
	Invoicing
	Introduction to Accounting Software
	GST & Other taxes
	Audit and Financial Statement
	Banking Rules, Loans & schemes
	Fixed Cost and Variable Cost, Working Capital management
8.	Government Policies and Statutory Rules Hours of Instruction: 10 Hrs. Marks Allotted : 10
	Bamboo procurement, Forest Act and PESA
	Govt policies & Schemes
	Central and State Governments, Missions and Boards: Programmes and Schemes
	Study of Maharashtra Forest Laws

Course 3: Design

Objectives:

The trainees will be able to apply Design methods like Group Discussion, Brainstorming and Mind Map

The trainees will be able to use visual sensitivity skills during design and fabrication of products

The trainees will be able to design Posters and can print poster in A2 and A3 sizes

The trainees will be able to apply ergonomics concepts during the design and fabrication of furniture

The trainees will be able to understand the benefits of group working with designers

The trainees will be able to do basic branding and packaging of the products

The trainees will be able to understand the use of sketches, concepts, mockups and prototypes, branding and packaging.

The trainees will be able to understand and use concepts of ergonomics and anthropometry.

The trainees will be able to make portfolio

Sr. No.	Design
1	Introduction
2	Design Thinking tools - Group Discussion, Brainstorming, Mind Map
3	Creativity Tasks
4	Geometry 2D
5	Visual sensitivity
6	Graphic Design - MS Word, MS Paint, MS PPT, Poster Making A2, A3
7	Geometry of Solid Shapes
8	Introduction to Design Process - Basic Ideation, Concepts, Mockups, Prototypes
9	Workshop with Designers
10	Anthropometry, Ergonomics and Space Design
11	Graphics Branding and Packaging

Course 4: Engineering Drawing

Objectives:

The trainees will be able to do free hand sketch of objects with ratio and proportion

The trainees will be able to do plan and elevation of the objects

The trainees will be able to do plan and elevations of objects with dimensions

The trainees will be able to understand and read the Engineering drawings

The trainees will be able to understand free hand, isometric and orthographic drawings

The trainees will be able to use simple drawing aids such as Set Squares, Mini Drafter, Compass, protractor etc.

Sr. No	Engineering Drawing
1	Introduction - Syllabus, Discussion: Importance and applications in trade
2	Free hand sketching of parallel lines, curved lines, triangle, square, rectangle, circle, polygons etc., Solid figures - cube, cone, prism, cylinder, cuboid, etc.
3	Free hand sketching of objects
4	Scale and Proportion.
5	Free hand sketches of objects with scale, proportion and dimensions.
6	Isometric drawing, Free hand isometric drawing using isometric graph paper.
7	Freehand sketching of Orthographic projections, 1st angle and 3rd angle projections conventions. Practice on graph paper.
8	Standard line Conventions, their meaning, Symbols for simple engineering materials used on drawing as per IS standards.
9	Introduction to drawing instruments. Drafter, Drawing board, Scale, Pencils, Drawing sheets, T square, compass, Divider, sets square, protractor, French curves, templates, eraser.
10	Orthographic projections with Dimensions using drawing instruments
11	Orthographic projections to Isometric view
12	Isometric view to Orthographic projections
13	Reading Draft drawing

Course 5: Computer Aided Design

Objectives:

Introduction to CAD, basic drawing in 2D

Introduction to CAD basic drawing in 3D

Reading blueprints

Printing product drawings

Sr. No.	Basics of Computer Aided Design
1	AUTOCAD 2D-3D
	Introduction of Shapes
	Introduction to 2d shapes in MS paint
	Introduction to 3d shapes MS paint
	Drawing of 2d shapes in MS paint
	Drawing of 3d shapes in MS paint
	Introduction to AutoCAD: Uses in Mechanical Engineering
2	Installation of AutoCAD
3	Uses of AutoCAD commands
	Perform AutoCAD 2D Fundamentals

Semester 2

Course 1: Trade Theory and Practical -2

Objectives:

The trainees will be able to use design process for design development and fabrication of products

The trainees will be able to step by step apply the design process in new product development

The trainees will be able to effectively understand and use the various steps and stages of the design process.

The trainees will be able to use the divergent and convergent nature of the design process

The trainees will be able to use creative and critical thinking as part of the design process.

The trainee can be able to understand the Industrial working environment and use related industrial processes.

The trainee can be able to get the opportunity to work with industry professionals and organizations,

The trainee can be able to work in real life projects and contribute to the team efforts as per internship requirement.

The trainee can be able to make professional portfolio by appropriately emphasizing skills, competence and employability

The trainee can be able to make use of images, layout, data and course outcomes for effective portfolio making.

Unit No.	Trade Theory	Trade Practical
1	<p>DESIGN PROCESS BASED PRODUCT DEVELOPMENT (SPECIALIZATION)</p> <p>SPECIALIZATION OPTIONS: Craft based products Furniture and Interior Structure Construction Jewellery Office Accessories Home Accessories Toys and Musical Instruments Lighting</p> <p>PRACTICAL/LAB BOOK SUBMISSIONS AND WORK EVALUATION AND ASSESSMENT - 1</p>	<p>DESIGN BASED APPROACH Topic Selection, Research, Initial Project Brief Market study, Interaction with Consumers and Sellers, Understanding Market requirements, Literature review, Redefined Project Brief, Design Directions, Ideation, Concept Development, Concept Evaluation, Mock-ups, Study Models and Prototypes. Detailing and Manufacturing Final Model Making and Report Submission of Work Completion and submission of lab record books by trainees Submission of Physical artefacts and work done for evaluation and assessment</p>
2	<p>INTERNSHIP</p> <p>The objective of the Internship is: To provide an opportunity for the students to gain Professional experience and practical skills in Entrepreneurship and Development sectors.</p> <p>It will include work related to whole enterprise management starting from commercial, bulk procurement and processing of raw materials to final sales, distribution and consumer experience.</p> <p>Learnings include Product Design & Development, Handling of bulk orders, Operation of machinery, manpower deployment, Use of infrastructure and facilities, Storage and inventory management, Finishing processes, Quality control, Branding and Packaging, Costing and Pricing and Transportation of finished</p>	<p>The trainees will:</p> <p>Select Industry/Agency based on their Area of Interest.</p> <p>Be placed in the selected Industry/Agency for the Internship period.</p> <p>Benefit from exposure to field work and ground realities.</p> <p>Prepare an Internship report which includes the following.</p> <p>Certificates: Student's declaration, Certificate from Industry/Agency/Organization</p>

	<p>products.</p> <p>Internships can be done with Industry, Professional Design firms, Academic Institutions, Commercial Organizations and Government Offices/Agencies and NGOs.</p> <p>The Internship selection is based on the Area of Interest of the trainee in order to gain advanced knowledge and Specialization.</p> <p>The internship is expected to offer the trainees a professional experience, and contribute to their worldview of the sector.</p> <p>Additionally the internship will also help in developing a sectorial network with relevant stakeholders and contribute to their portfolio of experience and work. This will have a direct positive bearing on job placement and their employability</p>	<p>Acknowledgement Background Note Introduction to context General Practices, Operational Process Working Experience Observations Summary/Conclusion. References</p>
3	<p>PORTFOLIO MAKING</p> <p>What is a portfolio? Importance of Portfolio making How to make a professional Portfolio Who You Are. What You Do. Compilation of materials that exemplifies your learning and skills training and experience. Examples of Your Work. How to Get in Touch With You. How to connect you work with your prospective employer. How to pitch to investors/FIs for a start-up/ business partnership.</p>	<p>The trainees will: Prepare a detailed and well documented presentation and visual report of all significant work undertaken/completed during the diploma programme. Photograph all physical work done, Graphically compile all other tasks and course outcomes in a presentable format. Prepare a visual pitch based on the abilities, qualities, competences, skill and knowledge gained during the programme, for sharing and interacting with prospective employers/invertors/FIs</p>
4	<p>INDUSTRY INTERFACE PLACEMENT & EXHIBITION</p> <p>This is an event for facilitating interface between passing out trained and potential employers, collaborators, partners, investors and FIs</p>	<p>Prepare portfolio and prepare for industry interface talk.</p> <p>Prepare panel display of course work outcome; prepare exhibition display of physical outcome of courses / projects / internship.</p>

Objectives:

The trainees will be able to develop a business plan for the production set up
 The trainees will be able to understand the various critical aspects of a standard business plan.
 The trainees will be able to understand market, business and finance aspects.

Unit No.	Trade Theory	Trade Practical
1	<p>BUSINESS PLAN DEVELOPMENT</p> <p>CONCEPT OF BUSINESS / STARTUP: Opportunity/problem Statement. What is the unique opportunity/problem? How to turn your opportunity/problem into business? How to find an amazing business idea? Market Survey & Competitive Analysis, Financial viability analysis of business product/service, Management & Business Organization, Manpower Planning, Technology and Processes, Infrastructure and fixed asset, Capital requirement & Capex, Marketing & Sales strategy, Working Capital Projection.</p> <p>REPORT SUBMISSIONS AND WORK EVALUATION AND ASSESSMENT</p>	<p>Prepare a Comprehensive Business plan containing:</p> <p>Market Analysis, Financial viability analysis, Management & Business Organisation, Manpower Plan, Technology and Processes, Infrastructure and fixed asset, Capital requirement & Capex, Marketing & Sales strategy, Working Capital Projection Completion and submission of Report by trainees</p>

Course 3: Cultural Capital and Colloquium

Objectives:

Be able to understand the role of cultural performances and traditional folk skills in an academic context.
 The trainee will be able to accord dignity respectability and honor to traditional and cultural skills and artistic talent.
 The trainee will be able to choose an area of interest to study, research, analyze and synthesize.
 The trainee will be able to articulate the area of study in the form of a report and present a seminar

Unit No.	Trade Theory	Trade Practical
1	<p>CULTURAL CAPITAL WORKSHOP</p> <p>Accord dignity to traditional skills, talent and cultural capabilities. Appreciation of Self-worth, self-respect through values of Indigenous knowledge.</p> <p>Creation of cultural awareness, aesthetic and cultural sensitivity, and appreciation of cultural diversity. Learning of traditional, folk, classical and contemporary art forms - curricular and extracurricular ways Appreciation of the world of arts, music and literature. Art, Culture and traditional perspectives.</p> <p>Different folk art forms, folk songs, stories, riddles, narratives and games will be included in the education process.</p>	<p>Theatre will be used for getting students to imbibe and practice the elements of performance: script writing, stage-setting, costume making, performances of drama, music, dance and so on.</p> <p>Art works and Paintings will be displayed in an exhibition for viewing by students, teachers and the public.</p>
2	<p>COLLOQUIUM</p> <p>Academic seminar on relevant topics related to the bamboo sector.</p> <p>Bamboo relate theme selection such driven by individual motivation and passion such as: Raw materials, Policies, New product Design and Development, Economic Development, Ethnography etc.</p>	<p>The Colloquium is a student organized event under the guidance of faculty.</p> <p>List of activities involve: Discussion and selection of the topics by Students, Topic Research and Presentation</p>

	<p>Seminar with an objective of developing a world view and knowledge sharing. Brainstorming sessions, Debates, Presentations and talks, Conclusion and observations.</p> <p>To develop a cognitive skill set of Objective Study, Analysis, Synthesis, and Written & Verbal Articulation.</p>	<p>(PPT), Planning and organizing Seminar, Inviting External Resource Persons for Talks, Discussions and Presentations. Presentation of Colloquium, Colloquium Report and Publication.</p>
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Course 4: Marketing Channels and E-Commerce

Objectives:

The trainees will be able to develop a Business Plan.

The trainees will be able to do a Market Survey.

Trainees will know about Branding, Packaging & Selling.

Trainees will have an idea Internet Marketing.

Trainees will know how to sell their Products Online.

1.	<p>Marketing Channels & E-Commerce Hours of Instruction: 20 Hrs. Marks Allotted : 50</p>
	Principles of Marketing
	Market Survey
	Marketing strategy & 4Ps
	Introduction to Marketing Channels for Bamboo products
	Introduction to Craft markets of India
	Branding Packaging and Advertising
	Events & Fairs
	Web & E-Commerce