

# **Bachelor of Design**

## **BDes (Product Design)**

### **4 Years Degree Program**

#### **Program Educational Objectives (PEOs)**

The Program B. Des will create a sense of fundamentals and principles of design in students. It also enlighten a global perspective in context to product designing based on real time field exposures and experiences.

PEO 1. Awareness of the role of multiple functions in creating a new product (e.g. marketing, finance, industrial design, engineering, production).

PEO 2. Confidence in your own abilities to create a new product.

PEO 3. Apply creative process techniques in synthesizing information, problem-solving and critical thinking.

PEO 4. Use basic fabrication methods to build prototype models for hard-goods and soft-goods and packaging.

PEO 5. Demonstrate, apply, explain, and recognize basic family of materials used in soft-goods and hard-goods, including sustainable materials and manufacturing processes.

#### **Program Objectives (POs):**

PO 1. Approach any design challenge or opportunity with drive and confidence

PO 2. onsistently create original, appropriate, aesthetically attractive, and desirable artifacts and user experiences

PO 3. Frame, research and analyze an innovation context to understand the related systems and dynamics

PO 4. Decide with high levels of intelligence consistently throughout the innovation process

PO 5. Effectively work in multidisciplinary teams.

PO 6. Assume top managerial and leadership roles in the manufacturing environment.

PO 7. Be aware of contemporary global, societal, ethical, and professional issues in the practice of engineering

PO 8. Knowledge of contemporary issues.

PO 9. Understanding of professional and ethical responsibility.

PO 10. Identify problems, anticipate challenges, design and conduct surveys and experiments and interpret data to explore possible solutions.

### Bachelor of Design BDes (Product Design)

#### Curriculum Components

Components	Credits
Program Core (24 Courses)	<b>65</b>
Program Electives (Discipline Specific Electives) (06Courses)	<b>12</b>
Generic Electives (04 Courses)	<b>08</b>
Ability & Skill Development (Ability Enhancement Courses) (04 Courses)	<b>10</b>
Ability & Skill Development (Skill Enhancement Courses) (06 Courses)	<b>12</b>
Project Based Learning (PBL) (12 courses)	<b>50</b>
Project (02 Courses)	<b>25</b>
International Context/Yoga & Mediation (05 Courses)	<b>05*</b>
Green Credit (06 Courses)	<b>06*</b>
<b>Total</b>	<b>182+11*</b>

\*Mandatory non-graded course

### Scheme for B.Des

First Year – Semester I											
Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration (Hours)	Weightage				
		L	T	P			MSE	ASG	TA	ATTD	ESE/ JURY
UC20B101	Environment and Waste Management	2	-	-	2	3	30	05	05	10	50
UC20B102	Communication Skills	2	-	-	2	3	30	05	05	10	50
DS20B101	Sketching. I	-	-	6	3	3	30	30	05	10	50
DS20B102	Design Fundamentals	2	-	6	5	3	30	05	05	10	50
DS20B103	Material Exploration – I	1	-	4	3	3	30	05	05	10	50
DS20B104	Image representation and transformations	-	-	6	3	3	30	05	05	10	50
	DSE-I	-	-	4	2	3	30	05	05	10	50
PB20B101	Design Project-I			4	2	3	30	Continuous Assessment (20)			50
IY20B101	Yoga & Meditation-I	-	-	2	1*	2	50 (2 assessments by panel of Experts)				50
GC20B101	Green Credit-I	-	-	2	1*	-	50 (2 assessments by panel of Experts)				50
		<b>Total</b>			<b>22+2*</b>						

\*Mandatory non-graded course

First Year – Semester II											
Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration (Hours)	Weight age				
		L	T	P			MSE	ASG	TA	ATTD	ESE/ JURY
UC20B201	Computer Application-I	2	-	2	3	3	30	05	05	10	50
UC20B202	Entrepreneurship Development	2	-	-	2	3	30	05	05	10	50
DS20B201	Sketching-II	-	-	8	4	3	30	05	05	10	50
DS20B202	Typography fundamentals	-	-	4	2	3	30	05	05	10	50
DS20B203	Form and Space	-	-	6	3	3	30	05	05	10	50
DS20B204	Material Exploration –II	1	-	4	3	3	30	05	05	10	50
	DSE-II	-	-	4	2	2	30	Continuous Assessment (20)			50
PB20B201	Design Studio-II (Creative Exploration)	-	-	8	4	3	30	Continuous Assessment (20)			50
IY20B201	Yoga & Meditation-II	-	-	2	1	2	50 (2 assessments by panel of Experts)				50
GC20B201	Green Credit-II	-	-	2	1*	2	50 (2 assessments by panel of Experts)				50
		<b>Total</b>			<b>23+2*</b>						

\*Mandatory non-graded course

**MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ESE- End Sem Exam**

Second Year – Semester Third												
Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration (Hours)	Weightage					
		L	T	P			MSE	ASG	TA	ATTD	ESE	
UC20B301	Computer Application-II	2	-	1	3	3	30	05	05	10	50	
UC20B302	Quantitative Aptitude - I	2	-	-	2	3	30	05	05	10	50	
PD20B301	Form Transition	-	-	3	3	3	30	05	05	10	50	
PD20B302	Materials & Processes	1	-	2	3	3	30	05	05	10	50	
PD20B303	Basic Ergonomics	1	-	2	3	3	30	05	05	10	50	
PD20B304	Model Making Workshop	-	-	2	2	3	30	05	05	10	50	
	DSE-III	-	-	2	2	2	30	05	05	10	50	
	Generic Elective – I	-	-	2	2	2	30	05	05	10	50	
PB20B301	Design Project- III ( Simple Product)	-	-	3	3	2	30	Continuous Assessment (20)			50	
IY20B301	Yoga & Meditation-III	-	-	1	1*	2	50 (2 assessments by panel of Experts)				50	
GC20B301	Green Credit-III	-	-	1	1*	-	50 (2 assessments by panel of Experts)				50	
		<b>Total</b>			<b>23+2*</b>							

\*Mandatory non-graded course

Second Year – Semester Fourth												
Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration (Hours)	Weightage					
		L	T	P			MSE	ASG	TA	ATTD	ESE	
UC20B401	Design Thinking	2	-	-	2	3	30	05	05	10	50	
UC20B402	Quantitative Aptitude - II	2	-	-	2	3	30	05	05	10	50	
PD20B401	Product Interface & Design			4	2	3	30	05	05	10	50	
PD20B402	Science & Creative Intervention		1	4	3	3	30	05	05	10	50	
PD20B403	Basic UI/UX	1		4	3	3	30	05	05	10	50	
PD20B404	CAD & 3D Printing			4	2	3	30	05	05	10	50	
	DSE-IV			4	2	2	30	05	05	10	50	
	Generic Elective – II			4	2	2	30	Continuous Assessment (20)			50	
PB20B401	Design Project 2: Human-Machine Interaction	1		10	5	2	30	Continuous Assessment (20)			50	
IY20B401	Yoga & Meditation-IV	-	-	2	1*	2	50 (2 assessments by panel of Experts)				50	
GC20B401	Green Credit-IV	-	-	2	1*	-	50 (2 assessments by panel of Experts)				50	
		<b>Total</b>			<b>23+2*</b>							

\*Mandatory non-graded course

**MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ESE- End Sem Exam**

Third Year – Semester Fifth											
Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration (Hours)	Weightage				
		L	T	P			MSE	ASG	TA	ATTD	ESE
UC20B501	Introduction to Management and Leadership	2	-	-	2	3	30	05	05	10	50
PD20B501	Basic Mechanisms	1	-	6	3	3	30	05	05	10	50
PD20B502	Interaction Design	-	-	4	2	3	30	05	05	10	50
PD20B503	Media Studies	2	-	2	3	3	30	05	05	10	50
	DSE-V	-	-	4	2	3	30	05	05	10	50
	Generic Elective – III	-	-	4	2	2	30	05	05	10	50
PB20B501	Design Project: Techno-Aesthetic Detailing	-	-	8	4	2	30	Continuous Assessment (20)			50
PB20B502	Design Project: Design for Special Needs	-	-	8	4	2	30	Continuous Assessment (20)			50
	Industrial Internship (Winter Break for 6-8 weeks)	-	-	-	1*	-	<i>To be Credited in next Semester</i>				50
IY20B501	Yoga & Meditation-V	-	-	1	1*	2	50 (2 assessments by panel of Experts)				50
GC20B501	Green Credit-V	-	-	1	1*	-	50 (2 assessments by panel of Experts)				50
		<b>Total</b>			<b>22+3*</b>						

\*Mandatory non-graded course

Third Year – Semester Six											
Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration (Hours)	Weightage				
		L	T	P			MSE	ASG	TA	ATTD	ESE
UC20B601	Social and Professional Ethics	2	-	-	2	3	30	05	05	10	50
PD20B601	Prototyping	-	-	6	3	3	30	05	05	10	50
PD20B602	Emerging Technologies	2	-	-	2	3	30	05	05	10	50
PD20B603	Appropriate Economics	3	-	-	3	3	30	05	05	10	50
PD20B604	Design, History and Society	1	-	-	1	3	30	05	05	10	50
	DSE-VI	-	-	4	2	3	30	05	05	10	50
	Generic Elective – IV	-	-	4	2	3	30	Continuous Assessment (20)			50
PB20B601	Design Project: Packaging Design	-	-	6	3	3	30	Continuous Assessment (20)			50
PB20B602	Design Project: Technically Complex Product	-	-	6	3	3	30	Continuous Assessment (20)			50
	Industrial Internship (Winter Break for 6-8 weeks)	-	-	4	2	-	50 (2 assessments by panel of Experts)				50

IY20B601	Green Credit-VI	-	-	2	1*	-	50 (2 assessments by panel of Experts)	50
		<b>Total</b>			<b>23+1*</b>			

\*Mandatory non-graded course

**MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ESE- End Sem Exam**

<b>Third Year – Semester seventh</b>											
<b>Course Code</b>	<b>Course Title</b>	<b>Contact Hours per Week</b>			<b>Credits</b>	<b>ETE Duration (Hours)</b>	<b>Weightage</b>				
		<b>L</b>	<b>T</b>	<b>P</b>			<b>MSE</b>	<b>ASG</b>	<b>TA</b>	<b>ATTD</b>	<b>ESE</b>
PD20B701	Design Management	1	-	-	1	3	30	05	05	10	50
PB20B701	Design Project: Nature Inspired Design	-	-	12	6	3	30	Continuous Assessment (20)			50
PB20B702	Design Project: Sustainable Design	-	-	8	4	3	30	Continuous Assessment (20)			50
PB20B703	Design Project: System Design	-	-	12	6	3	30	Continuous Assessment (20)			50
PB20B704	Design Project: Story Telling and Product Design	-	-	8	4	2	30	Continuous Assessment (20)			50
		<b>Total</b>			<b>21</b>						

**Fourth Year – Semester VIII**

Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration (Hours)	Weight age				
		L	T	P			MSE	ASG	TA	ATTD	ESE
DS20B801	Professional Internship		-	30	15	3	100(Continuous Assessment )				100
DS20B802	Dissertation		-	20	10	3	100(Continuous Assessment)				100
		<b>Total</b>			<b>25</b>						

Mandatory non-graded course\*

Mandatory non-graded course \*

**Distribution of credits across all components**

SEM No.	Prog. Core	Discipline Specific Electives (DSE)	Generic Electives (GE)	Ability & Skill Development		Project Based Learning (PBL)	Project	International Context/Yoga & Meditation	Green Credit	Total Credit
				Ability Enhancement Courses	Skill Enhancement Courses					
I.	14	2		2	2	2		1	1	22+2*
II.	12	2		3	2	4		1	1	23+2*
III.	11	2	2	3	2	3		1	1	23+2*
IV.	10	2	2	2	2	5		1	1	23+2*
V.	9	2	2		2	8		1	1	22+3*
VI.	08	2	2		2	8			1	23+1*
VII	01					20				21
VIII							25			25
<b>Total</b>	<b>65</b>	<b>12</b>	<b>08</b>	<b>10</b>	<b>12</b>	<b>50</b>	<b>25</b>	<b>05*</b>	<b>06*</b>	<b>182+11*</b>

\*Mandatory non-graded course



**List of Program (Discipline Specific) Electives (DSE)**

<b>First Year – Semester One</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	DS20B105	Art appreciation
2.	DS20B106	Contemporary Art
<b>First Year – Semester Second</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	ID20B205	Basic Photography
2.	FD20B205	Fashion Photography
3.	PD20B205	Product Photography
<b>Second Year – Semester Third</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	ID20B306	Sustainable Design
2.	FD20B305	Accessory Design
3.	PD20B305	Design for Interactive Media
<b>Second Year – Semester Fourth</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	ID20B405	Design with Natural Material
2.	FD20B406	Fashion Styling & Representation
3.	PD20B405	Narratives and Story Telling
<b>Third Year – Semester Five</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	ID20B505	Vernacular Architecture and Interiors
2.	FD20B505	Craft, Creativity and Post-Modernism
3.	PD20B504	Automobile Accessory Design
<b>Third Year – Semester Sixth</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	ID20B604	Exhibition Design
2.	FD20B605	Fashion Journalism
3.	PD20B605	3D modeling and prototyping

## Generic Electives

Students of all Undergraduate programs are required to study 1 generic elective in each of the semesters from 3<sup>rd</sup> to 6<sup>th</sup>. They may choose any one of the following courses (excluding the courses offered by the parent departments, if not stated otherwise).

### List of Generic Electives

#### Generic Electives for III Semester

SN	Code	Nomenclature of the Course	Offering School
1.	GE20B301	Introductory Biology	School of Sciences
2.	GE20B302	Basic Analytical Chemistry	School of Sciences
3.	GE20B303	Basic Instrumentation Skills	School of Sciences
4.	GE20B304	Elementary Number Theory	School of Sciences
5.	GE20B305	Production Technology for Vegetable and Spices	School of Agriculture
6.	GE20B306	General Studies – I	Arts and Humanities
7.	GE20B307	Basics of Acting	School of Performing Arts
8.	GE20B308	C++ Programming	School of Advances Computing
9.	GE20B309	Photography	School of Design
10.	GE20B310	Introduction to Retail Chain System	School of Commerce

#### Generic Electives for IV Semester

SN	Code	Nomenclature of the course	Offering School
1.	GE20B401	Genetics and Society	School of Sciences
2.	GE20B402	Green Chemistry and Green Methods in Chemistry	School of Sciences
3.	GE20B403	Electrical circuit network Skills	School of Sciences
4.	GE20B404	Introduction to statistical methods and probability	School of Sciences
5.	GE20B405	Farming System & Sustainable Agriculture	School of Agriculture
6.	GE20B406	General Studies – II	Arts and Humanities
7.	GE20B407	Script Writing	School of Performing Arts
8.	GE20B408	R Programming	School of Advances Computing
9.	GE20B409	Typography	School of Design
10.	GE20B410	Building Leadership & Fellowship Skills	School of Commerce

**Generic Electives for V Semester**

SN	Code	Nomenclature of the course	Offering School
1.	GE20B501	Biotechnology	School of Sciences
2.	GE20B502	Pharmaceutical Chemistry	School of Sciences
3.	GE20B503	Digital, Analog and Instrumentation	School of Sciences
4.	GE20B504	Applications of Mathematic in Finance and Insurance	School of Sciences
5.	GE20B505	Crop Improvement-I	School of Agriculture
6.	GE20B506	Civil Services Aptitude Test – I	Arts and Humanities
7.	GE20B507	Mime	School of Performing Arts
8.	GE20B508	Web designing	School of Advances Computing
9.	GE20B509	Fine Arts	School of Design
10.	GE20B510	Resolving Conflicts and Negotiation Skills	School of Commerce

**Generic Electives for VI Semester**

SN	Code	Nomenclature of the course	Offering School
1.	GE20B601	Bioinformatics and Systems Biology	School of Sciences
2.	GE20B602	Pesticide Chemistry	School of Sciences
3.	GE20B603	Elements of Modern Physics	School of Sciences
4.	GE20B604	Mathematical Modeling	School of Sciences
5.	GE20B605	Post Harvest Management and Value Addition of Fruits and Vegetables	School of Agriculture
6.	GE20B606	Civil Services Aptitude Test – II	Arts and Humanities
7.	GE20B607	Body Movement (Expressing through Body nuances)	School of Performing Arts
8.	GE20B608	Python programming	School of Advances Computing
9.	GE20B609	Digital learning-Adobe cloud	School of Design
10.	GE20B610	Introduction to IFRS	School of Commerce

**Semester I**

Code	University Core-I	Total Lecture:15 Tutorial: 15
<b>UC20B101</b>	<b>Communication Skills</b>	1- 1- 0-2
<b>Learning Objectives:</b>	<p>The purpose of this course is to introduce students to the theory, fundamentals and tools of communication and to develop in them vital communication skills which should be integral to personal, social and professional interactions. Along with the above mentioned, care has been taken to enhance the grammatical skills of the students with sufficient practical purposes.</p> <p>The recommended readings given at the end are only suggestive; the students and teachers have the freedom to consult other materials on various units/topics given below. Similarly, the questions in the examination will be aimed towards assessing the skills learnt by the students rather than the textual content of the recommended books. The students are advised to arrange the prescribed texts well before beginning the classes.</p> <p>The course provides good introduction and understanding about the following:</p> <ul style="list-style-type: none"> <li>• The concept and understanding of different types of Communication</li> <li>• Introduce different tools of communication that are useful in various techniques of problems solving.</li> <li>• The Grammatical knowledge of Language learning with the enhancement of word power. To introduce the tricks and methods of official and Technical writing.</li> </ul>	
<b>Pre-requisites:</b>	None	
UNIT	CONTENT	HOURS
<b>I</b>	<b>Introduction:</b> Theory of Communication, Types and Modes of Communication, Effective Communication, Barriers of Communication, Strategies to overcome the Barriers	3
<b>II</b>	<b>Professional Skills:</b> Social skills - Small talks and leading the Conversation, conducting Debate and Discussions, Public Speaking, Public Speech, Presentation skills and Meeting etiquettes, Business Communication, GD and Interview Skills, Critical Conversations	3
<b>III</b>	<b>Cross Cultural Communication:</b> Contextual Conversation, do's and don'ts of Cross Cultural Communication, Verbal and Non Verbal Communication, Bias and Prejudice, Body Language.	3
<b>IV</b>	<b>Internet Etiquettes:</b> Email writing, Social Media Articles/Blogs, Notes, Memos, Reports & Proposal Writing, Writing Letters, Formal & Informal. Self profiling - Making Job Resume/CV, Elevator Pitch (3 minutes self- introduction during interviews), Twitter/Facebook bio.	3
<b>V</b>	<b>Critical Thinking:</b> Where the Mind is without Fear: Rabindranath Tagore The Portrait of a Lady: Khushwant Singh On the Rule of the Road: AG Gardiner Cherry Tree: Ruskin Bond Close Reading, Comprehension, Analysis and Interpretation, Paraphrasing and Summary	3
<b>Course Outcomes</b>		

At the end of the course the students will be able to:	
<b>CO 1</b>	Students will <b>apply</b> <sup>3</sup> correct usage of English grammar in writing and speaking.
<b>CO 2</b>	Students will <b>analyze</b> <sup>4</sup> and improve their speaking ability in English both in terms of fluency and comprehensibility
<b>CO 3</b>	Students will <b>evaluate</b> <sup>5</sup> themselves by giving oral presentations and will receive feedback on their performances.
<b>CO 4</b>	Students will <b>develop</b> <sup>3</sup> their reading speed and comprehension of academic articles
<b>CO 5</b>	Students will <b>compare</b> <sup>5</sup> their reading fluency skills.
<b>Text Books:</b>	<i>Fluency in English</i> - Part II, Oxford University Press, 2006. <i>Business English</i> , Pearson, 2008. <i>Language, Literature and Creativity</i> , Orient Blackswan, 2013.
<b>Reference Books:</b>	<i>Warriner's English Grammar and Composition: Complete Course</i> - John E. Warriner, Harcourt, Brace, Jovanovich (1973)

\*Professional skills\*- report writing, presentation skills and meeting etiquettes, business communication, GD and interview skills, critical conversations

Code	University Core-II	Total Lecture:30
<b>UC20B101</b>	<b>Environmental Studies &amp; Disaster Management</b>	<b>2-0-0-2</b>
<b>Learning Objectives:</b>	The course prepares students for careers as leaders in understanding and addressing complex environmental issues from a problem-oriented, interdisciplinary perspective. Students: <ul style="list-style-type: none"> <li>• Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.</li> <li>• Apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes.</li> <li>• Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.</li> </ul>	
<b>Pre-requisites:</b>	None	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>
<b>I</b>	Definition, Components of Environment, Relationship between different components, Man- Environment relationship, Impact of Technology on the environment, Environmental Degradation, Sustainable Development, Environmental Education.	5
<b>II</b>	Introduction: Ecology- Objectives and Classification, Concepts of an ecosystem- structure & function of ecosystem, Components of ecosystem- Producers, Consumers, Decomposers, Energy flow in the ecosystem - Ecological succession, Food chains, food webs and ecological pyramids, Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems and its types, Bio- Geo-Chemical Cycles - Hydrological Cycle, Carbon cycle, Oxygen Cycle, Nitrogen Cycle, Sulfur Cycle.	7
<b>III</b>	Composition of air, Structure of atmosphere, Ambient Air Quality Standards, Classification of air pollutants, Sources of common air pollutants like SPM, SO <sub>2</sub> ,	7

	NOX , Natural & Anthropogenic Sources, Effects of common air pollutants, Air Pollution Episodes, Sound and Noise measurements, Sources of Noise Pollution, Ambient noise levels, Effects of noise pollution, Noise pollution control measures, Water Quality Standards, Sources of Water Pollution, Classification of water pollutants, Effects of water pollutants, Eutrophication, Water Pollution Episodes, Global Warming and Green Houses Effect, Acid Rain, Depletion of Ozone Layer.	
<b>IV</b>	Renewable & Nonrenewable Resources: Renewable Resources, Nonrenewable Resources, Indian Scenario, Conventional Energy Sources & its problems, non-conventional energy sources- Advantages and its Limitations	4
<b>V</b>	Natural Disasters and its types, Accidental Disasters, Impact of Disasters on Trade and International Trade, Introduction, Natural disasters , Earthquakes, Hurricanes, Tornadoes, Floods, Drought, Tsunami, Volcanoes, Cyclones and Storms, Forest Fires, Severe Heat Waves, Landslides and Avalanches, Epidemics and Insect Infestations, Technological and Social Disasters Types of Technological Hazards, Social Disasters, Political and Crowd Disasters, War and Terrorism, Components of Disaster Management, Government's Role in Disaster Management through Control of Information, Actors in Disaster Management, Organizing Relief measures at National and Local Level, Psychological Issues, Carrying Out Rehabilitation Work, Government Response in Disaster.	7
<b>Course Outcomes</b>		
<b>CO1</b>	Students will <b>Understand</b> <sup>2</sup> the natural environment and its relationships with human activities.	
<b>CO2</b>	<b>Characterize</b> <sup>2</sup> and <b>analyze</b> <sup>4</sup> human impacts on the environment	
<b>CO3</b>	They will learn to Integrate facts, concepts, and methods from multiple disciplines and <b>apply</b> <sup>3</sup> to environmental problems.	
<b>CO4</b>	They will have capacity to integrate knowledge and to <b>analyses</b> <sup>4</sup> , <b>evaluate</b> <sup>5</sup> and manage the different public health aspects of disaster events at local and global levels.	
<b>CO5</b>	They will also have capacity to obtain, <b>analyse</b> <sup>4</sup> , and communicate information on risks, relief needs and lessons learned from earlier disasters in order to formulate strategies for mitigation in future scenarios	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• Dr. N. S. Varandani , Basics of Environmental Studies, Books India Publications</li> <li>• Mukesh Dhunna, Disaster Management, Vayu Education of India, Delhi Publication</li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• R. Rajagopalan, Environmental Studies by, Oxford University Press Publication</li> <li>• Richard T Wright &amp; Bernard J Nebel, Environmental Science, Prentice Hall India Publication</li> <li>• Daniel B Botkin &amp; Edward A Keller, Environmental Science, Wiley Publications.</li> </ul>	

<b>Code</b>	<b>Sketching-I</b>	<b>Total Lecture:45</b>
DS20B101		<b>0-0-3-3</b>
<b>Learning Objectives:</b>	Design Learners need to learn to visualize and communicate their concepts/ideas through various representation techniques like freehand drawing and sketches through manual and digital methods.	
<b>Pre-requisites:</b>	NIL	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>

I	<b>INTRODUCTION TO PENCIL EXERCISES</b> The course introduces the fundamental techniques of concept sketches, design development sketches, presentation sketches, presentation renderings and architectural drawing and develops the appropriate skills for visualization and representation. How pencil to be used, different grades & tone –graphite, charcoal etc, line-straight, curve, long hand. Pencil texture on different papers & surfaces.	9
II	<b>EXERCISES OF OBJECT DRAWINGS</b> Basic geometric forms & shapes. Observation of objects in surroundings –details, texture, light & shadow	9
III	<b>SKETCHING INDOOR OBJECTS</b> Still Life – Furniture, Equipment – Understanding Depth, light, shade, Shadow Etc.	9
IV	<b>OUTDOOR OBJECTS</b> Outdoor Sketching: Natural Forms/Built Forms. Understanding variety in Forms. Landscape drawing-natural objects.	9
V	<b>SKETCHING HUMAN FORM</b> Anatomy and Expressions – Graphical Representations.	9
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
CO1	Develop an understanding of various marking devices and surfaces and learn to draw freehand through observation and using motor skills	
CO2	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.	
CO3	Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.	
CO4	Illustrate the ability of design idea through 2d and 3d visuals	
CO5	To observe the environment and draw exterior and interior spaces	
<b>Text Books:</b>	Mick Maslen, Jack Southern <i>Drawing Projects</i> . Eric Oloffson, Clara Sjolen: <i>Design Sketching</i> . Koos Eisen <i>Sketching: The Basics</i>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Powell, Dick; Design Rendering Techniques: A Guide to Drawing and Presenting Design Ideas, Publisher: North Light Books, 1996</li> <li>• Caplin, Steve; Banks, Adam; The Complete Guide to Digital Illustration, Publisher: Watson-Guptill Publications, 2003</li> <li>• Buxton, Bill; Sketching User Experiences: Getting the Design Right and the Right Design (Interactive Technologies), Morgan Kaufmann, 2007</li> </ul>	

<b>Code</b>		<b>Total Lecture:75</b>
<b>DS20B102</b>	<b>Design Fundamentals</b>	<b>2-0-3-5</b>
<b>Learning Objectives:</b>	Design Learners need to learn to observe various phenomena in nature and in the human world around them with curiosity, sensitivity and empathy. They also need to develop skills to perceive shapes, form, space, colors and develop an interconnection between them and the meaning inherent in them.	
<b>Pre-requisites:</b>	NIL	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>

<b>I</b>	<b>Introduction to Elements &amp; Principle of Design</b> Study of Elements of Design- Point, line, form, volume, color, texture. Principle of Design- Balance, Rhythm, Symmetry, Emphasis, Contrast, Harmony, Unity Principle of Composition-Gestalt Theory of visual Exploration	10
<b>II</b>	<b>Color Theory and its explorations.-</b> Introduction –visible spectrum, colored light, color temperature, color interaction, color blindness. Color wheel – primary, secondary, tertiary colors, color wheel, color schemes color value, intensity, and modification of color hues – tints, shades, neutralization. Color charts – types, making and using. Color harmony, use of color harmony.	25
<b>III</b>	<b>Psychology of Color, -</b> Psychological impact of color – warm, cool and neutral colors, impact of specific hues, meanings of color, color and form, color and light, color and surface qualities, color and distances and scales	15
<b>IV</b>	<b>Texture, creative Compositions-</b> Different type of texture-visual Texture, Tactile Texture; Natural & Artificial Textures, Techniques of creating textures,	15
<b>V</b>	<b>Visual Sense-</b> Recognize ways of perceiving the world through visual, auditory, touch, smell, taste and visual senses and develop skills to hone them through various exercises in studio. Develop methods and create experiences to hone these senses in the studio	10
<b>Course Outcome</b>		
<b>CO1</b>	Develop an understanding of various Elements of design	
<b>CO2</b>	Develop an understanding of various Principles of Design	
<b>CO3</b>	Develop an understanding of the world of colors and emotional connect with human perception.	
<b>CO4</b>	Develop an unbiased view of the phenomena around them and develop a sense of curiosity, empathy.	
<b>CO5</b>	Develop awareness of various senses and learn ways to sharpen them to perceive the world around us with a new perspective	
<b>Text Books:</b>	<ol style="list-style-type: none"> <li>1. Jack Hobbs, Richard Salome: <i>The Visual Experience</i>.</li> <li>2. Jesse Russel and Ronald Cohn: <i>Observational Learning</i>. Authors:</li> <li>3. David Hamlyn :<i>Perception, Learning and the Self</i></li> <li>4. Arielle Eckstut and Joann Eckstut: <i>Secret Language of Color</i>. Authors:</li> </ol>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• W. Wong; <i>Principles Of Two Dimensional Design</i>, John Wiley And Sons, 1972</li> <li>• J. Bowers; <i>Introduction To Two---Dimensional Design: Understanding Form And function</i>, John Wiley &amp; Sons, 1999</li> <li>• L. Hotzschue; <i>Understanding Colour</i>, VNR, 1995</li> <li>• Itten, Johannes; <i>The Art of Color: The Subjective Experience and Objective Rationale of Color</i>, Wiley Publications,1997</li> </ul>	



Code		Total Lecture:45
DS20B103	<b>Material Exploration-I</b>	<b>1-0-2-3</b>
<b>Learning Objectives:</b>	Design Learners need to understand and explore the materials in the man-made environment and develop an understanding of their physical, chemical and visual properties to use them meaningfully through the use of various tools, processes and manipulations. Develop a sense of precision and accuracy handling the materials.	
<b>Pre-requisites:</b>	NIL	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>
<b>I</b>	Understand the world of PAPER and learn to manipulate it through various exercises by learning skills and using them	10
<b>II</b>	Understand the world of CLAY and learn to prepare and manipulate it through forming, coiling, throwing and other explorations	10
<b>III</b>	<b>CASE STUDY: Clay Workshops</b>	9
<b>IV</b>	Understand the world of various FABRICS and develop a sense of manipulating them by touch-feel, physical and visual properties.	10
<b>V</b>	<b>CASE STUDY: Fabric studies</b>	6
<b>Course Outcomes</b>		
<b>CO1</b>	Develop an understanding of materials through sensory perception and methods to manipulate them.	
<b>CO2</b>	Develop an understanding of PAPER, CLAY and FABRICS as material and its inherent properties.	
<b>CO3</b>	Develop knowledge of various tools available to manipulate PAPER, CLAY and FABRIC	
<b>CO4</b>	Develop a sense of accuracy and precision through manipulating the materials into various meaningful and abstract forms	
<b>CO5</b>	Apply knowledge of legal and regulatory framework and codes of practice in establishing and managing organizations.	
<b>Text Books:</b>	<ol style="list-style-type: none"> <li>1. Title: Materials for Design. Authors: Patrick Rand and Victoria Dell</li> <li>2. Title: On Paper: Everything on its 2000year history. Author: Nicholas Basbanes</li> <li>3. Title: Fabric for Fashion: Natural &amp; Man-Made Fabrics. Authors: Amanda Johnson and Clive Hallett</li> <li>4. Title: Clay Modelling for Beginners. Author: Jeanie Hirsch</li> </ol>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Hauffe, Thomas; Design, Publisher: Barron's Educational Series, 1996</li> <li>• Thompson R, 'Manufacturing process for design professionals', Thames and Hudson, London, 2007.</li> </ul>	

Code		Total Lecture:45
DS20B104	<b>IMAGE REPRESENTATION &amp; TRANSFORMATION</b>	<b>0-0-3-3</b>
<b>Learning Objectives:</b>	Learning the fundamental skills and knowledge of image representation to represent object in every form.	
<b>Pre-</b>	NIL	

<b>requisites:</b>		
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>
I	<b>The role of analytical drawings-</b> classification of the volumes of the spaces	9
II	<b>Perspective Drawing-</b> One point, two point, three point	10
III	Mimetic Imagery and Abstraction	10
IV	Memory & Ideation Drawing	10
V	Studies in Light & shadows on 3D form representation	6
<b>Course Outcomes</b>		
<b>CO1</b>	Students should be able to analyze different experiments in technical drawings, to increase use technical and architectural scales	
<b>CO2</b>	Conduct analysis of objects in terms of form, geometry and structure through drawing and modeling	
<b>CO3</b>	Evaluate idea in terms of 2D and 3D projections	
<b>CO4</b>	Apply various techniques in drawing with respect to technical drawing	
<b>CO5</b>	Apply sciography in design projects	
<b>Text Books:</b>	<ol style="list-style-type: none"> <li>1. The Art of Drawing, Pogany, Will</li> <li>2. The complete guide to illustration &amp; design, Phaidon, Oxford</li> </ol>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Hauffe, Thomas; Design, Publisher: Barron's Educational Series, 1996</li> <li>• Thompson R, 'Manufacturing process for design professionals', Thames and Hudson, London, 2007.</li> </ul>	

<b>Code</b>	<b>DESIGN STUDIO</b>	<b>Total Lecture: 45</b>
PB20B101		0-0-3-3
<b>Learning Objectives :</b>	The course has a purpose to generate new ideation in Design & explore new alternate solutions.	
<b>Pre-requisites:</b>	NIL	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>
<b>I</b>	Creative & Ideation Method-Brain storming & lateral thinking	9
<b>II</b>	Design Exploration & Concepts	9
<b>III</b>	Exposure to outer world in term of ideation	9
<b>IV</b>	Drafting of creative solution & creating a virtual out of planning.	9
<b>V</b>	Finalize the Design & creating in Portfolio	9
<b>Course Outcomes</b>		
<b>CO1</b>	Produce visual and verbal presentations.	
<b>CO2</b>	Analyze, justify, and rate applications of concepts	

<b>CO3</b>	To observe and experience how people from diverse background identify their needs and the constraints they face solving them
<b>CO4</b>	To apply the design process to identify the Need of the target audience
<b>CO5</b>	Apply sustainable practices in everyday life.
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• D. Norman; The Design Of Everyday things, London, The MIT Press, 1998</li> <li>• Potter, Norman; What Is a Designer: Things, Places, Messages, Princeton Architectural Press, 2002</li> </ul>
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Hauffe, Thomas; Design, Publisher: Barron's Educational Series, 1996</li> <li>• Cross, N; Design Thinking: Understanding How Designers Think and Work, Berg, Oxford, 2011.</li> </ul>

Code	Art Appreciation	Total Lecture: 30
DS20B101		<b>0-0-2-2</b>
<b>Learning Objectives:</b>	Design Learners need to develop the ability to visualize ideas, see patterns, understand abstract ideas, solve problems, device processes and understand how ideas interlink with other ideas and with systems. They need to develop Analytical, Critical and Creative Thinking abilities.	
<b>Pre-requisites:</b>	None	
UNIT	CONTENT	HOURS
<b>I</b>	. <b>Art Description:</b> A work of art from an objective point of view – its physical attributes and formal construction	5
<b>II</b>	<b>Analysis</b> :Historical, religious, or environmental information that surrounds a particular work of art that helps to understand the work's meaning	9
<b>III</b>	Context & Meaning: A statement of the work's content; a message or narrative expressed by the subject matter <ul style="list-style-type: none"> <li>• Defining Art</li> <li>• Who Makes Art – Process and Training?</li> <li>• How Art Speaks – Finding Meaning</li> <li>• How Art Works – The Elements and Principles of Visual Language</li> </ul>	5
<b>IV</b>	Artistic Media Architecture Our World – Nature, the Body, Identity, Sexuality, Politics, and Power Other Worlds – Myths, Dreams, and Spirituality Art in Time and Place – The Western World Judgment: A critical point of view about a work of art concerning its aesthetic or cultural value	6
<b>V</b>	Portfolio on different form of Art –Contemporary or modern	5
Course Outcomes		
<b>CO1</b>	To compare and contrast different methods, mediums, and materials artists use to create two- and three-dimensional works of visual art	
<b>CO2</b>	To evaluate the effect of society and cultures on a work of art	

<b>CO3</b>	To analyze different art of different periods
<b>CO4</b>	To express own art work after detail study arts of different periods
<b>CO5</b>	To Visualize the key elements of an art of particular period.
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• Elke Linda Buchholz, Susanne Kaeppele, et al.  Art: A World History , Nov 1, 2007</li> <li>• Carolyn Schlam:The Joy of Art</li> </ul>
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Itten, Johannes; The Art of Color: The Subjective Experience and Objective Rationale of Color, Wiley Publications,1997</li> <li>• Hauffe, Thomas; Design, Publisher: Barron’s Educational Series, 1996</li> </ul>

### Yoga and Meditation-I

Code	Yoga and Meditation
<b>IY20B201</b>	<b>1</b>
<b>Learning Objectives:</b>	<ul style="list-style-type: none"> <li>• To practice mental hygiene.</li> <li>• To possess emotional stability.</li> <li>• To integrate moral values.</li> <li>• To attain higher level of consciousness.</li> </ul>
<b>Pre-requisites:</b>	None
It will prepare the students physically and mentally for the integration of their physical, mental and spiritual faculties so that the students can become healthier, saner and more integrated members of the society and of the nation	
<b>Course Outcomes</b>	
<b>CO1</b>	The students will equip their self with basic knowledge about one’s personality
<b>CO2</b>	Students learn to handle oneself well in all life situations,
<b>CO3</b>	Students learn techniques of gaining good health.
<b>CO4</b>	Students will develop a discriminative mind capable of knowing the real from the unreal and to face the dualities of life with equanimity.

<b>Code</b>	<b>Green Credit</b>	
<b>GC20B201</b>		<b>1</b>
<b>Learning Objectives:</b>	<p>Yoga and Meditation helps in self-discipline and self-control, leading to immense amount of awareness, concentration and higher level of consciousness. Main objective are:</p> <ul style="list-style-type: none"> <li>• To provide the basic practical understanding about plantation.</li> <li>• To familiarize the various issues related with plantation and associated problems.</li> <li>• To make a bonding between tree and students.</li> </ul>	
<b>Pre-requisites:</b>	<b>None</b>	
<p>Preparing basic awareness about the environmental issues confronted by the humanity in the present global scenario and to equip the students to understand the environmental movements and basic of plantations.</p>		
<b>Course Outcomes</b>		
<b>CO1</b>	To monitor various stages of tree growth.	
<b>CO2</b>	To aware about of issues associate with plantations.	
<b>CO3</b>	Understand the environmental issues and goals.	
<b>CO4</b>	This allows “forests” to be traded as a commodity.	

**Semester II**

Code	University Core-I	Total Lectures : 30 Practicals: 30
<b>UC20B201</b>	<b>Computer Application</b>	<b>2-0-1-3</b>
<b>Learning Objectives:</b>	<p>The subject aim to provide the students with:</p> <ul style="list-style-type: none"> <li>• Understand various component of computer and their usage.</li> <li>• Understand software categories and how to use this software.</li> <li>• Acquire knowledge of Microsoft office suit and have hands on it.</li> <li>• Understand the usage of internet, its pros and cons.</li> <li>• Acquire knowledge of different types of virus and how to keep your computer safe.</li> <li>• Getting familiar with the DOS command.</li> <li>• Getting familiar with modern technologies like Artificial Intelligence, Cloud Computing, Internet of Things, Data science and about Big Data.</li> </ul>	
<b>Pre-requisites:</b>	Elementary knowledge about computer	
UNIT	CONTENT	HOURS
<b>I</b>	Introduction to Computers: Basics of computer , Characteristics of computers, Limitations of computers, System Components, Input devices, Output devices, Computer Memory, Central Processing Unit, Mother Board. Computer Generations & Classifications: Evolution of computers, Classification of Computers	6
<b>II</b>	Computer Memory: Memory System, Memory Cells, Memory Arrays, Random Access Memory (RAM) Read Only Memory (ROM), Physical Devices Used to construct Memories, Bus, Bus Interface, Industry standard architecture (ISA), Micro Channel Architecture (MCA), VESA (Video Electronics Standards Association, Peripheral component Interconnect, Accelerated graphics Port, FSB, USB, Dual Independent Bus, Troubleshooting. Storage Devices: Hard Disk- Construction, IDE drive standard and features, Troubleshooting, DVD, Blue-Ray disc, Flash Memory, Input Output Devices: Wired and Wireless connectivity, Wired and Wireless Devices, Input Devices, Touch Screen, Visual Display Terminal, Troubleshooting	6
<b>III</b>	Introduction to Computer Software: Computer Software, Overview of different operating systems, Overview of different application software, Overview of proprietary software, Overview of open source technology. Software Development, Design and Testing: Requirement Analysis, Design Process, Models for System Development, Software Testing Life Cycle, Software Testing, Software Paradigms, Programming Methods, Software Applications. Operating System Concepts: Operating System Concepts, Functions of Operating System, Development of Operating System, Operating system virtual memory, Operating System Components, Operating System Services, Operating System Security.	6
<b>IV</b>	Internet and Its Working: History of Internet , Web browsers, Web servers, Hypertext Transfer Protocol , Internet Protocols Addressing, Internet Connection Types, How Internet Works. Internet and Its Uses: Internet Security, Uses of Internet, Virus, Antivirus, Cloud System, Cloud Technologies, Cloud Architecture, Cloud Infrastructure, Cloud Deployment Models.	6

V	Introduction, Types of websites, Components of web site, Domain rank, Architecture of Website, Website Designing Basics, Domain, Hosting, Difference between dynamic & static website, Introduction to SEO, Page Rank, Domain Rank, Google Maps.	6
<b>Course Outcomes</b>		
CO1	<b>Define</b> <sup>1</sup> the need of hardware and software required for a computation task.	
CO2	<b>Demonstrate</b> <sup>2</sup> the working of important application software and their use to perform any engineering activity.	
CO3	<b>Utilize</b> <sup>3</sup> the operating system commands and shell script.	
CO4	<b>Illustrate</b> <sup>2</sup> the typical provisions of cyber law that govern the proper usage of internet and computing resources.	
CO5	<b>Interpret</b> <sup>5</sup> the emerging trends and applications of Computers Science and Engineering, impact of Computer in Science and Engineering.	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• Computer Fundamental by DP Nagpal, 2010 S Chand Publication</li> <li>• Computer Fundamental by Anita Goel, 2010 Pearson Education.</li> <li>• fundamental of computers by E Balagurusamy, McGrawHill</li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Basic Computer Engineering by Sanjay Kumar Dubey, 2012, JBC Publisher and distributors</li> <li>• Computer Fundamental by P.K Sinha, BPB Publication</li> </ul>	

<b>Code</b>	<b>University Core-II</b>	<b>Total Lectures: 30</b>
UC20B201	<b>Entrepreneurship Development</b>	<b>2-0-0-2</b>
<b>Learning Objectives:</b>	Develop understanding and confidence in students to venture into entrepreneurship by giving them baseline understanding of the various aspects impacting decision making on various frontiers as faced by an enterprise.	
<b>Pre-requisite:</b>	None	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>
<b>I</b>	<b>Entrepreneurship Development Introduction:</b> Concept and importance, qualities, nature, types, traits, Goal determination – Problems Challenges and solutions. Role of Entrepreneur in Indian economy and developing economies with reference to Self-Employment Development Entrepreneurial Culture.	<b>5</b>
<b>II</b>	<b>Entrepreneurial Process:</b> Environment, culture and stages in entrepreneurial process, changing dimensions in entrepreneurship – Digital entrepreneurship. Entrepreneur Vs. Intrapreneur, Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs. Manager; Role of Regulatory Institutions; Role of Development Organizations; Self Employment Oriented Schemes; Various grant schemes.	<b>5</b>
<b>III</b>	<b>Business Ideation &amp; Business Model Canvas:</b> Meaning and Objectives of a Business Plan, Advantages and cost of preparing a Business Plan, Elements, Critical Assessment Generating business idea – sources of new	<b>7</b>

	ideas, methods of generating ideas, opportunity recognition. Choice of the organization: Sole Proprietorship, partnerships, Joint Stock Co., Co-Operatives Family Business – meaning, characteristics, importance, types and models.	
<b>IV</b>	<b>Entrepreneurship Training &amp; Promotion:</b> Training Preparation and Development Programme. Evaluating entrepreneurial development programs. Developing support system. Feasibility study – market feasibility, technical/operational feasibility, financial feasibility, environmental scanning, competitor and industry analysis. Role of Central Government and State Government in promoting Entrepreneurship - Introduction to various incentives, subsidies and grants.	<b>8</b>
<b>V</b>	<b>Project Proposal:</b> Need and Objects; Nature of organization, Production Management; Financial Management; Marketing Management; Consumer Management. Planning and Monitoring entrepreneurship. Entrepreneurs before independence and entrepreneurial growth after independence under planning system.	<b>5</b>
<b>Course Outcomes</b>		
At the end of the course student would be able to:		
<b>CO1</b>	<b>Develop<sup>3</sup></b> managerial qualities and competencies of an entrepreneur	
<b>CO2</b>	<b>Acquaint<sup>2</sup></b> himself with the challenges of starting a new venture and the process of setting up a business.	
<b>CO3</b>	<b>Build<sup>3</sup></b> essential skills and creativity needed to build teams and work in and with them.	
<b>CO4</b>	<b>Know<sup>2</sup></b> the essential procedure and funding avenues for setting up a new business.	
<b>CO5</b>	<b>Learn<sup>2</sup></b> the various government initiatives and accordingly plan for his business.	
<b>Text Books</b>	<ul style="list-style-type: none"> <li>• Fundamental of Entrepreneurship – Dr. G.K Varshainey, Sahitya Bhawan Publications</li> <li>• Fundamental of Entrepreneurship – Dr. A.N Bharti, Dr. Pramodh Kumar Tripathi, Rajeev Sahitya Bhawan Publication, SBPD Publication</li> <li>• Fundamental of Entrepreneurship – H. Nandan, Third Edition, PHI Learning.</li> <li>• Fundamental of Entrepreneurship – Sangram Keshari Mohanty, PHI Learning.</li> <li>• Project Management - K. Nagarajan, New Age International, Second Edition</li> <li>• Dynamics of Entrepreneurship Development - Vasant Desai, Himalaya Publishing House, 2011</li> <li>• Entrepreneurship Development - Dr. P.C.Shejwalkar, Everest Publishing House, 2011</li> </ul>	
<b>Reference Books</b>	<ul style="list-style-type: none"> <li>• Entrepreneurship - Hisrich Peters, Mc Graw Hills, Tenth Edition</li> <li>• The Culture of Entrepreneurship - Brigitte Berger, ICS Pt., 1991</li> <li>• Entrepreneurship, 3rd Ed. - Steven Brandt</li> <li>• The Entrepreneurial Connection - Gurmit Narula, Tata McGraw Hills.</li> </ul>	



<b>Code</b>		<b>Total Lecture:60</b>
<b>DS20B201</b>	<b>SKETCHING-II</b>	<b>0-0-4-4</b>
<b>Learning Objectives:</b>	Design Learners need to learn to visualize and communicate their concepts/ideas through various representation techniques like freehand drawing and sketches through manual and digital methods	
<b>Pre-requisites:</b>	.	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>
<b>I</b>	<b>INTRODUCTION TO OTHER MEDIUM OF SKETCHING-</b> Charcoal Pencils, Chalk, pen Line, Negative space drawing	10
<b>II</b>	<b>OBJECT COMPOSITION-</b> <b>Live object drawing in all medium-pencil, charcoal etc.,long hand composition</b>	10
<b>III</b>	<b>LANDSCAPE COMPOSITION-</b> Landscape sketching on different themes, composition of leaves, rocks, flowers etc.,	15
<b>IV</b>	<b>. CREATIVE DRAWING-</b> Creative Composition, Portraits, Critical Design, Geometrical composition	15
<b>V</b>	<b>Portfolio Making-</b> On Individual discipline aspects	10
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	. Develop an understanding of various marking devices and surfaces and learn to draw freehand through observation and using motor skills.	
<b>CO2</b>	<b>Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.</b>	
<b>CO3</b>	<b>Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.</b>	
<b>CO4</b>	Illustrate the ability of design idea through 2d and 3d visuals	
<b>CO5</b>	To observe the environment and draw exterior and interior spaces.	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• Title: Drawing Projects. Authors: Mick Maslen, Jack Southern</li> <li>• 2. Title: Design Sketching. Authors: Eric Oloffson, Clara Sjolen</li> <li>• 3. Title: Sketching: The Basics. Author: Koos Eisen</li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Powell, Dick; Design Rendering Techniques: A Guide to Drawing and Presenting Design Ideas, Publisher: North Light Books, 1996</li> <li>• Caplin, Steve; Banks, Adam; The Complete Guide to Digital Illustration, Publisher: Watson-Guption Publications, 2003</li> <li>• Buxton, Bill; Sketching User Experiences: Getting the Design Right and the Right Design (Interactive Technologies), Morgan Kaufmann, 2007</li> </ul>	

<b>Code</b>		<b>Total Lecture:30</b>
<b>DS20B202</b>	<b>TYPOGRAPHY FUNDAMENTALS</b>	<b>0-0-2-2</b>
<b>Learning Objectives:</b>	Develop an understanding of the important role of typography in design, including the formal elements of Typography.	
<b>Pre-requisites:</b>	<b>NIL</b>	

UNIT	CONTENT	HOURS
I	Visualization and application of Typography. Exploration of various typography styles.	6
II	Logic, basic characteristics and difference of Serif and Sans Serif. Understanding the natural form of Typeface and its anatomy.	6
III	Psychological, Semantic and Expressive value of Typography and its applications. Guidelines for Typography in printing and production.	6
IV	Grids and Various sizes of printing products for Typography application. Layout making.	6
V	Ability to play with various other graphic elements emphasizing Typography. Choosing the right Font, size, orientation, balancing the Type forms with space.	6
<b>Course Outcomes</b>		
CO1	Acquire understanding of various typefaces and develop sensitivity.	
CO2	Develop skills to use Typography in engaging visual compositions	
CO3	Develop skills to reproduce type in appropriate media and printing method	
CO4	Acquire neatness and ability to present high quality output	
CO5	Develop skills to develop new types in a specific context. Acquire skills to creatively intervene type to emote a specific expression	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• Jute,Andre ;Grids : thestructure of graphic design. Crans-Pres-Celigny : Rotovision,1996</li> <li>• Schmid Helmut, Typography Today,2<sup>nd</sup> Edition, Seibundo Shinkosha, 2003.</li> <li>• Rand,Paul; Design, Form, and Chaos, Yale University Press, 1993</li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Robert Bringhurst: The Elements of Typographic Style: Version 4.0</li> <li>• Tim Brown :Flexible Typesetting</li> </ul>	

Code	Total Lecture:45	
DS20B203	<b>FORM &amp; SPACE</b> <span style="float: right;"><b>0-0-3-3</b></span>	
<b>Learning Outcomes:</b>	The course is to sensitize towards nature and built environment in terms of its form and structure and their relation with space.	
<b>Pre-requisites:</b>	NIL	
UNIT	CONTENT	HOURS
I	To understand the dynamics of change and transition in 2D & 3D forms thru Simplification, Manipulation and Stylization. This will be done through various explorations.	9

<b>II</b>	To develop an understanding of tangible & intangible aspects of Elements of Form (Physical attributes such as material, position, orientation etc. and Psychological, Emotive qualities, visual hierarchy & symbolism).	9
<b>III</b>	To understand the tools like radii manipulation and integration of 2D and 3D forms to create an intended visual expression of balance, harmony, rhythm, continuity, emphasis	9
<b>IV</b>	To develop associative and emotive expressions through manipulation of suitable materials by using an integration of 2D and 3D forms.	9
<b>V</b>	Creative Form Evolution.	9
<b>Course Outcome</b>		
<b>CO1</b>	To develop skills of visualization, presentation and communication thru various media and processes	
<b>CO2</b>	To develop sensitivity towards nature and built environment in terms of its form and structure and their relation with space	
<b>CO3</b>	Develop an understanding of materials through sensory perception and methods to manipulate them	
<b>CO4</b>	To understand what constitutes 'Designerly' thinking.	
<b>CO5</b>	To apply the design process to identify the Need of the target audience	
<b>Text Books:</b>	1. Title: Architecture, form, space & order. Author: Frank Ching 2. Title: Form follows Function. Author: Fay Sweets	
<b>Reference Books:</b>	1. Byers, Mel; The Design Encyclopedia, Publisher: John Wiley & Sons Publications.	

<b>Code</b>	<b>MATERIAL EXPLORATION- II</b>	<b>Total Lecture: 45</b>
<b>DS20B204</b>		<b>1-0-2-3</b>
<b>Learning Objectives:</b>	Design Learners need to understand and explore the materials in the man-made environment and develop an understanding of their physical, chemical and visual properties to use them meaningfully through the use of various tools, processes and manipulations. Develop a sense of precision and accuracy handling the materials.	
<b>Pre-requisites:</b>	NIL	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>
<b>I</b>	Understand the world of METAL in sheet form and learn to manipulate it through various exercises by learning cutting, beating, polishing and forming skills and using them to develop associative and emotive qualities	9
<b>II</b>	Variation in Metal Fabrication of object.	9
<b>III</b>	Understand the world of WOOD and learn to manipulate it through cutting, planning, sawing, sculpting and joining and other surface treatments like polishing, staining and texturing	9
<b>IV</b>	Variation in Wood composition of object.	9
<b>V</b>	Model representation	9
<b>Course Outcomes</b>		
After successful completion of course:		

<b>CO1</b>	Develop an understanding of materials through sensory perception and methods to manipulate them
<b>CO2</b>	Develop an understanding of hard materials like Metal, Wood and their inherent properties.
<b>CO3</b>	Develop knowledge of various tools and processes available to manipulate these materials
<b>CO4</b>	Develop a sense of accuracy and precision through manipulating the materials into various meaningful and abstract forms
<b>CO5</b>	To understand what constitutes 'Designerly' thinking.
<b>Text Books:</b>	1. Chris Lefteri: Materials for Inspiration. 2. Bruce Hoadley: Understanding Wood. 3. Ezio Manzini: Materials of Invention.
<b>Reference Books:</b>	W.B.Mckay –Building construction Vol1 –Longmans, UK 1981 2. W.B.Mckay –Building construction Vol 3 –Longmans, UK 1981

<b>Code</b>	<b>DESIGN STUDIO-CREATIVE EXPLORATION</b>	<b>Total Lecture: 60</b>
PB20B201		0-0-4-4
<b>Learning Objectives:</b>	The course has a purpose to generate new ideation in Design & explore new alternate solutions.	
<b>Pre-requisites:</b>	NIL	
<b>UNIT</b>	<b>CONTENT</b>	<b>HOURS</b>
<b>I</b>	Creative & Ideation Method-Brain storming & lateral thinking	5
<b>II</b>	Design Exploration & Concepts	5
<b>III</b>	Exposure to outer world in term of ideation	15
<b>IV</b>	Drafting of creative solution & creating a virtual out of planning.	20
<b>V</b>	Finalize the Design & creating in Portfolio	15
<b>Course Outcomes</b>		
<b>CO1</b>	Produce visual and verbal presentations.	
<b>CO2</b>	Analyze, justify, and rate applications of concepts	
<b>CO3</b>	To observe and experience how people from diverse background identify their needs and the constraints they face solving them	
<b>CO4</b>	To apply the design process to identify the Need of the target audience	
<b>CO5</b>	Apply sustainable practices in everyday life.	
<b>Text Books:</b>	Creative thinking	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Hauffe, Thomas; Design, Publisher: Barron's Educational Series, 1996</li> <li>• Bill Lucas (Author), Ellen Spencer (Author), Publisher: Crown House Publishing Teaching Creative Thinking:– December 19, 2017</li> </ul>	

<b>Code</b>	<b>Yoga and Meditation</b>	
<b>IY20B201</b>		<b>1</b>
<b>Learning Objectives:</b>	<ul style="list-style-type: none"> <li>• To practice mental hygiene.</li> <li>• To possess emotional stability.</li> <li>• To integrate moral values.</li> <li>• To attain higher level of consciousness.</li> </ul>	
<b>Pre-requisites:</b>	<b>None</b>	
	It will prepare the students physically and mentally for the integration of their physical, mental and spiritual faculties so that the students can become healthier, saner and more integrated members of the society and of the nation	
<b>Course Outcomes</b>		
<b>CO1</b>	The students will equip their self with basic knowledge about one's personality	
<b>CO2</b>	Students learn to handle oneself well in all life situations,	
<b>CO3</b>	Students learn techniques of gaining good health.	
<b>CO4</b>	Students will develop a discriminative mind capable of knowing the real from the unreal and to face the dualities of life with equanimity.	

**Green credit-II**