

**SANJEEV AGRAWAL GLOBAL EDUCATION**  
**SAGE UNIVERSITY, BHOPAL**

**Bachelors of Design (B Des)**  
**(Interior Design)**

**Four years degree program**



**School of Design**  
**SAGE UNIVERSITY, BHOPAL**

## **About the program:**

Great design begins with an even greater story. Its fruits are in the chair you sit in, the website you scroll, or your favorite brand's logo. Design is always evolving in relation with how humans interact with their creations. Designers are innovators who enhance the way we lead our lives and interact with the world around us.

Within SAGE University (School of Design) B.Des. programs, you would be learning the core concepts of design, gaining expertise in how to apply creative, open-ended and inclusive approaches to define and (re-)solve problems. This enables organizations, that you start-up your own or you are employed in, to pursue innovative paths, unlike business-as-usual, and take decisions that create lasting value.

## **Program Objectives (POs)**

PEO 1. Confident young Entrepreneur or Designer with his or her own design Firm or Home Décor Studio.

PEO 2. Interior design Industry Professional who will excel in the job responsibility entrusted on him or her.

PEO 3. Confident and comprehensive academician having completed under graduate design program inside India or abroad with strong portfolio.

PEO 4. Freelance Consultant who helps the core and allied industry or individual or organization in a specific design domain with their expertise.

PEO 5. Educator or Trainer in fashion schools or organizations imparting and sharing the knowledge acquired by them

## **Program Educational Outcomes (PEOs):**

PO 1. To promote an understanding of Interior Design in relation to the needs of Home, contractual furnishings, home textiles, and the business-to-business Interior products.

PO 2. Explore and ideate new designs and solutions to fulfill the evolving needs and aspirations of an individual and the society and produce work of contemporary relevance.

PO 3. Analyze progress of human civilization through study of art, materials, techniques and technologies and their influence through ages.

PO 4. Recognize the need for and have ability to engage in independent and lifelong learning in the context of socio-technological changes.

PO 5. Develop logical and creative thinking for the solutions for Interior Design.

PO 6. Create a portfolio of finished art, collections, and work and presentation boards expressing a personal voice and vision.

PO 7. Articulate the history of Interior and material building in context of applied research and analysis.

PO 8. Collaborate with design, merchandising, management, and specialty groups to make informed garment design decisions.

PO 9. Undertake professional work as per established ethics, norms and law that govern the industry keeping social, economic and ecological perspective in cognition.

PO 10. Apply knowledge of legal and regulatory framework and codes of practice in establishing and managing.

### Scheme for B Des (w.e.f. 2021-22)

First Semester																
Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration (Hours)	Theory						Practical			GT
		L	T	P			MSE	ASG	TA	ATT	ESE	T	CE	ESE	T	
UC20B101	Environmental and Disaster Management	2	-	-	2	2	30	05	05	10	50	100	-	-	-	100
UC20B102	Communication Skills	2	-	-	2	2	30	05	05	10	50	100	-	-	-	100
DN21B111	Sketching. I	-	2	2	2	2	-	-	-	-	-	-	50	50	100	200
DN21B112	Design Fundamentals	1	-	4	3	5	30	05	05	10	50	100	50	50	100	200
DN21B113	Material Exploration-I	1	-	2	2	3	30	05	05	10	50	100	50	50	100	200
DN21B114	Image representation and transformations	1	-	2	2	3	30	05	05	10	50	100	50	50	100	200
	DSE-I	-	-	4	2	4	-	-	-	-	-	-	50	50	100	200
PB21B111	Design Studio-I (Project based learning)	-	-	4	2	4	50 (2 assessments by panel of Experts)						50	-	100	
IY20B101	Yoga and Meditation-I*	-	-	2	-	-	50 (2 assessments by panel of Experts)						-	-	-	
GC20B201	Green Credit-I*	-	-	2	-	-	50 (2 assessments by panel of Experts)						-	-	-	
		<b>Total</b>			17										1300	

\*Mandatory non-credited course

### Scheme for B Des (w.e.f. 2021-22)

Second Semester																
Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration	Theory						Practical			GT
		L	T	P			M S E	A S G	TA	A T T D	E S E	T	CE	E S E	T	
UC20B201	Computer Application -I	3	-	-	3	3	30	05	05	10	50	100	-	-	-	100
UC20B202	Entrepreneurship Development	2	-	-	2	3	30	05	05	10	50	100	-	-	-	100
DN21B211	Sketching-II	-	3	4	3	3	-	-	-	-	-	-	50	50	100	100
DN21B212	Typography fundamentals	-	-	4	2	3	-	-	-	-	-	-	50	50	100	100
DN21B213	Form and Space	1	-	4	3	4	30	05	05	10	50	100	50	50	100	200
DN21B214	Material Exploration -II	1	-	2	2	3	30	05	05	10	50	100	50	50	100	200
	DSE-II	-	-	4	2	4	-	-	-	-	-	-	50	50	100	100
PB21B211	Design Studio-II (Project based learning)	-	-	6	3	6	50 (2 assessments by panel of Experts)						50	100	100	
IY20B201	Yoga & Meditation-II*	-	-	2	-	-	50 (2 assessments by panel of Experts)						-	-	-	
GC20B201	Green Credit-II*	-	-	2	-	-	50 (2 assessments by panel of Experts)						-	-	-	
		<b>Total</b>			19											1000

\*Mandatory Non-Credit Course

### Scheme for B Des (2021-22)

Third Semester																
Course Code	Course Title	Contact Hours per Week			Credits	ETE Duration	Theory						Practical			GT
		L	T	P			MS E	A S G	T A	AT TD	ES E	T	C E	E S E	T	
UC20B301	Computer Application-II	3	-	-	3	3	30	05	05	10	50	100				100
UC20B302	Quantitative Aptitude - I	2	-	-	2	3	30	05	05	10	50	100				100
DN21B311	Anthropometric and Ergonomics	1	-	2	2	3	30	05	05	10	50	100	50	50	100	200
DN21B312	Technical & Architectural Drawing	-	-	4	2	3	-	-	-	-	-	-	50	50	100	100
DN21B313	Basics of Computer Design and Digital	1	-	2	2	3	30	05	05	10	50	100	50	50	100	200
DN21B314	Building Materials & Processes	1	-	4	3	3	30	05	05	10	50	100	50	50	100	200
	DSE-III		2	2	2	3	-	-	-	-	-	-	50	50	100	100
	Generic Elective – I	1	-	2	2	3	30	05	05	10	50	100	50	50	100	200
PB21B311	Design Studio-III (Project based learning) Space Analysis and Furniture	-	-	4	2	2	50 (2 assessments by panel of Experts)						50	-	-	100
IY20B301	Yoga & Meditation-III*	-	-	2	-	-	50 (2 assessments by panel of Experts)						-	-	-	
GC20301		-	-	2	-	-	50 (2 assessments by panel of Experts)						-	-	-	
		<b>Total</b>			<b>20</b>											<b>1200</b>

Fourth Semester																
Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Theory						Practical			GT
		L	T	P			MS E	AS G	TA	ATT D	ES E	T	C E	ES E	T	
UC20B401	Design Thinking	2	-	-	2	3	30	05	05	10	50	100	-	-	-	100
UC20B402	Quantitative Aptitude - II	2	-	-	2	3	30	05	05	10	50	100	-	-	-	100
DN21B411	Elements of Interior Space	1	-	4	3	3	30	05	05	10	50	100	50	50	100	200
DN21B412	Basic of furniture Technology	1	-	4	3	3	30	05	05	10	50	100	50	50	100	200
DN21B413	Model Making Workshop	-	2	2	2	3	-	-	-	-	-	-	50	50	100	100
DN21B414	Interior Landscape Design	1	-	4	3	3	30	05	05	10	50	100	50	50	100	200
	SE- IV	-	2	2	2	3	-	-	-	-	-	-	50	50	100	200
	Generic Elective – II	-	-	4	2	3	50 (2 assessments by panel of Experts)						50	-	-	100
PB21B411	Design Studio-III (Project based learning) Furniture	-	-	4	2	2	50 (2 assessments by panel of Experts)						50	-	-	100
	Industrial Internship*	-	-	2	2	-	50 (2 assessments by panel of Experts)						50	-	-	100
	Yoga & Meditation-IV*	-	-	2	-	-	50 (2 assessments by panel of Experts)						-	-	-	
	Green Credit -IV*	-	-	2	-	-	50 (2 assessments by panel of Experts)						-	-	-	
	<b>Total</b>				<b>23</b>											

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

Fifth Semester																
Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration	Theory						Practical			GT
		L	T	P			MS E	AS G	TA	ATT D	ESE	T	C E	ES E	T	
UC20B501	Introduction to Management and Leadership	2	-	-	2	3	30	05	05	10	50	100	-	-	-	100
DN21B511	Building Services I: Electricals, Water Supply, Plumbing	1	-	4	3	3	30	05	05	10	50	100	50	50	100	200
DN21B512	Psychology of Spaces	-	-	6	3	3	-	-	-	-	-	-	50	50	100	100
DN21B513	Technical Studio	-	-	6	3	3	-	-	-	-	-	-	50	50	100	100
DN21B514	Basics of Lighting Design	1	-	4	3	3	30	05	05	10	50	100	50	50	100	200
	DSE-V		-	4	2	3	-	-	-	-	-	-	50	50	100	100
	Generic Elective – III	2	-	-	2	3	30	05	05	10	50	100	-	-	-	100
PB21B5211	Design Studio- V (Project)	-	-	4	2	2	50 (2 assessments by panel of Experts)						50	-	-	100



	based learning) Residential Interior									
DN21B5215	Industrial Internship			4	2	3	50 (2 assessments by panel of Experts)	50	-	100
IY20B501	Yoga & Meditation-V*	-	-	2	-	-	50 (2 assessments by panel of Experts)			
GC20B501	Green Credit-V*	-	-	2	-	-	50 (2 assessments by panel of Experts)			
				<b>Total</b>	<b>2</b>	<b>2</b>				

\*Mandatory Non-Credit Course

**Sixth Semester**

Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Theory						Practical			GT
		L	T	P			MSE	ASG	TA	ATT D	ESE	T	CE	ESE	T	
UC20B601	Social and Professional Ethics	2	-	-	2	3	30	05	05	10	50	100	-	-	-	100
DN21B611	Appropriate Economics: Budgetary Estimation	3	-	-	3	3	30	05	05	10	50	100	-	-	-	100
DN21B612	Building Services II: Acoustics, HVAC, Fire, Insulation	1	-	6	4	3	30	05	05	10	50	100	50	50	100	200
DN21B613	Recreating the Masterpiece	-	-	8	4	3	-	-	-	-	-	-	50	50	100	100
	DSE-VI	-	-	4	2	3	-	-	-	-	-	-	50	50	100	100
	Generic Elective – IV	2	-	-	2	3	30	05	05	10	50	100	-	-	-	100
PB21B621 1	Design Studio- VI (Project based learning)	-	-	4	2	2	50 (2 assessments by panel of Experts)						50	-	-	100

	): Landsc a pe/OD Furnitu r e									
IY20B601	Yoga & Meditat i on-VI*	-	-	2	-	-	50 (2 assessments by panel of Experts)	-	-	-
GC20B60 1	Green Credit - VI	-	-	2	-	-	50 (2 assessments by panel of Experts)	-	-	-
		<b>Total</b>			<b>1 8</b>					

\*Mandatory Non-Credit Course

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

Seventh Semester																
Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Theory						Practical			GT
		L	T	P			MS E	AS G	TA	AT T D	ESE	T	C E	ES E	T	
DN21 B711	Executable Working Drawings	4	-	4	4	3	30	05	05	10	50	100	50	50	100	200
DN21 B712	Project Management (Workshop)	4	-	4	4	2	30	05	05	10	50	100	50	50	100	200
PB21B 711	Design Studio V (Project based learning) Sustainable Office	-	-	10	5	2	50 (2 assessments by panel of Experts)						50	100	100	
		<b>Total</b>			<b>18</b>											

\*Mandatory Non-Credit Course

**Eighth Semester**

Course Code	Course Title	Contact Hours per Week			Credits	ESE Duration (Hours)	Theory						Practical			GT
		L	T	P			MSE	ASG	TA	ATT D	ESE	T	CE	ESE	T	
DN20B801	Professional Internship	-	-	30	15	3	-	-	-	-	-	-	50	50	100	100
DN20B802	Dissertation	-	-	20	10	3	-	-	-	-	-	-	50	50	100	100
		<b>Total</b>			<b>25</b>											

\*Mandatory Non-Credit Course

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

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

<b>First Semester</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	DN21B116	Art appreciation
2.	DN21B117	Contemporary Art
<b>Second Semester</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	DN21B215	Basic Photography
2.	DN21B205	Fashion Photography
3.	DN21B225	Product Photography
<b>Third Semester</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	DN21B315	Sustainable Design
2.	DN21B325	Accessory Design
3.	DN21B325	Design for Interactive Media
<b>Fourth Semester</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	DN21B415	Design with Natural Material
2.	DN21B406	Fashion Styling & Representation
3.	DN21B425	Narratives and Story Telling
<b>Fifth Semester</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	DN21B515	Vernacular Architecture and Interiors
2.	DN21B515	Craft, Creativity and Post-Modernism
3.	DN21B524	Automobile Accessory Design
<b>Sixth Semester</b>		
<b>SN</b>	<b>Course Code</b>	<b>Course Title</b>
1.	DN20BI604	Exhibition Design
2.	DN21B605	Fashion Journalism
3.	DN21B625	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 JMC
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	Bollywood's Signature Moves	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

### **Project Based Learning- IV**

**Learning Objectives:**

1. Integrating the knowledge and skills of various courses on the basis of multidisciplinary projects
2. Develop the skill of critical thinking and evaluation.
3. To develop 21<sup>st</sup> century success skills such as critical thinking, problem solving, communication, collaboration and creativity/innovation among the students.
4. To enhance deep understanding of academic, personal and social development in students.
5. Employ the specialized vocabularies and methodologies



**General Guidelines:**

- PBL will be an integral part of UG/PG Programs at different levels.
- Each semester offering PBL will provide a separate Course Code, two credits will be allotted to it.
- Faculty will be assigned as mentor to a group of students by HoS.
- Faculty mentor will have 4 hours/week to conduct PBL for assigned students.
- Student will select a topic of their choice from syllabus of any course offered in respective semester (in-lines with sustainable development goals).
- Student may work as a team for single topic or may work as an individual.
- For MSE, student's performance will be assessed by panel of three experts either from other department/school, or from same department/school based on chosen topic. This will be comprised of a presentation by student followed by viva-voce. It will be evaluated for 30 marks.
- 20 marks would be allotted for continuous performance assessment by concerned guide/mentor.
- For ESE, student will need to submit a project report in prescribed format, duly signed by concerned guide/mentor and head of the school. The report should be comprised of following components:
  1. Introduction
  2. Review of literature
  3. Methodology
  4. Result and Discussion
  5. Conclusion and Project Outcomes
  6. References
- Student will need to submit three copies for
  1. Concerned School
  2. Central Library
  3. Self
- The integrity of the report should be maintained by student. Any malpractice will not be entertained.
- Writing Ethics to be followed by student, a limit of 10 % plagiarism is permissible. Plagiarism report is to be attached along with the report.
- Project could be a case study/ analytical work /field work/ experimental work/ programming or as per the suitability of the program.

## Semester I

Code	University Core-I	Total Lecture:30
<b>UC20B101</b>	<b>Environmental Studies &amp; Disaster Management</b>	<b>2-0-0-2</b>
<b>Learning Objectives:</b>	<p>The course prepares students for careers as leaders in understanding and addressing complex environmental issues from a problem-oriented, interdisciplinary perspective.</p> <p>Students:</p> <p>Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.</p> <p>Apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes.</p> <p>Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.</p>	
<b>Pre-requisites:</b>	None	
Unit	Content	Hours
<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.	6
<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.	6
<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> , NO <sub>x</sub> , 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.	6
<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	6
<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,	6

	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.	
<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>analyze</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>	Dr. N S.Varandani (2013) Basics of Environmental Studies, Books India Publications Mukesh Dhunna, Disaster Management, Vayu Education of India, Delhi Publication	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• R. Rajagopalan (2015) Environmental Studies by, Oxford University Press Publication</li> <li>• Richard T Wright et.al (2001) Environmental Science, Prentice Hall India Publication</li> <li>• Daniel B Botkin &amp; Edward A Keller (2005) Environmental Science, Wiley Publications.</li> </ul>	

### University Core-II

Code	Communication Skills	Total Lecture:30
<b>UC20B10 1</b>		<b>2- 0- 0-2</b>
<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</p>	

	<p>classes.</p> <p>The course provides good introduction and understanding about the following:  The concept and understanding of different types of Communication  Introduce different tools of communication that are useful in various techniques of problems solving.  The Grammatical knowledge of Language learning with the enhancement of word power.  To introduce the tricks and methods of official and Technical writing.</p>	
<b>Pre-requisites:</b>	None	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	<b>Introduction:</b> Theory of Communication, Types and Modes of Communication, Effective Communication, Barriers of Communication, Strategies to overcome the Barriers	6
<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	6
<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.	6
<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.	6
<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	6
<b>Course Outcomes</b>		
At the end of the course the students will be able to:		
<b>CO 1</b>	Students will apply3correct usage of English grammar in writing and speaking.	
<b>CO 2</b>	Students will analyze4 and improve their speaking ability in English both in terms of fluency and comprehensibility	
<b>CO 3</b>	Students will evaluate5 themselves by giving oral presentations and will receive feedback on their performances.	
<b>CO 4</b>	Students will develop3 their reading speed and comprehension of academic articles	

<b>CO 5</b>	Students will compare5 their reading fluency skills.
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>Delhi Department of English ,Fluency in English - Part II, Oxford University Press, 2006.</li> <li>Business English, Pearson, 2008.</li> <li>Language, Literature and Creativity, Orient Blackswan, 2013.</li> </ul>
<b>Reference Books:</b>	John E. Warriner (1973) Warriner’s English Grammar and Composition: Complete Course -, Harcourt, Brace, Jovanovich

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

<b>Code</b>	<b>SKETCHING-I</b>	<b>Total Lecture:30</b>
<b>DN21B111</b>		<b>0-2-2-2</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>
<b>I</b>	Introduction to pencil exercises -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.	6
<b>II</b>	Exercises of object drawings Basic geometric forms & shapes. Observation of objects in surroundings – details, texture, light & shadow	6
<b>III</b>	Sketching indoor objects Still Life – Furniture, Equipment – Understanding Depth, light, shade, Shadow Etc.	6
<b>IV</b>	Outdoor objects Outdoor Sketching: Natural Forms/Built Forms. Understanding variety in Forms. Landscape drawing-natural objects.	6
<b>V</b>	Sketching human form Anatomy and Expressions – Graphical Representations.	6
<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>	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.
<b>CO3</b>	Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.
<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>	1. Powell, Dick; Design Rendering Techniques: A Guide to Drawing and Presenting Design Ideas, Publisher: North Light Books, 1996
<b>Reference Books:</b>	2. Caplin, Steve; Banks, Adam; The Complete Guide to Digital Illustration, Publisher: Watson-Guptill Publications, 2003

Code	DESIGN FUNDAMENTALS	Total Lecture:45
DN21B112		1-0-4-3
<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	
Unit	Content	Hours
<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	9
<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.	9
<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	9
<b>IV</b>	<b>Texture, creative Compositions-</b> Different type of texture-visual Texture, Tactile Texture; Natural & Artificial Textures, Techniques of creating textures,	9
<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	9

<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>	J. Bowers; Introduction To Two---Dimensional Design: Understanding Form And function, John Wiley & Sons, 1999
<b>Reference Books:</b>	Itten, Johannes; The Art of Color: The Subjective Experience and Objective Rationale of Color, Wiley Publications,1997

<b>Code</b>	<b>MATERIAL EXPLORATION-I</b>	<b>Total Lecture:30</b>
<b>DN21B11 3</b>		<b>1-0-2-2</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>	To understand about paper and learn to manipulate it through various exercises by learning skills and using them	6
<b>II</b>	To understand clay and learn to prepare and manipulate it through forming, coiling, throwing and other explorations	6
<b>III</b>	Case study: Clay Workshops	6
<b>IV</b>	Understand the world of various fabrics and develop a sense of manipulating them by touch-feel, physical and visual properties.	6
<b>V</b>	Case study: Fabric studies	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>	1. Hauffe, Thomas; Design, Publisher: Barron's Educational Series, 1996
<b>Reference Books:</b>	2. Thompson R, 'Manufacturing process for design professionals', Thames and Hudson, London, 2007.

<b>Code</b>	<b>IMAGE REPRESENTATION AND TRANSFORMATION</b>	<b>Total Lecture:30</b>
<b>DN21B114</b>		<b>1-0-2-2</b>
<b>Learning Objectives:</b>	Learning the fundamental skills and knowledge of image representation to represent object in every form.	
<b>Pre-requisites:</b>	NIL	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	The role of analytical drawings- classification of the volumes of the spaces	6
<b>II</b>	Perspective Drawing-One point, two point, three point	6
<b>III</b>	Mimetic Imagery and Abstraction	6
<b>IV</b>	Memory & Ideation Drawing	6
<b>V</b>	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 scenography in design projects	
<b>Text Books:</b>	1. Signal and Image Representation in Combined Spaces (ISSN Book 7) by Yehoshua Zeevi and Ronald Coifman   9 February 1998	
<b>Reference Books:</b>	2. R. Kasprin; Design Media – Techniques for water color, pen and ink, pastel and colored markers, John Wiley & Sons,1999	



Code	DESIGN STUDIO-I PROJECT BASED LEARNING	Total Lecture:30
PB21B111		0-0-4-2
<b>Learning Objectives:</b>	The course has a purpose to generate new ideation in Design & explore new alternate solutions.	
<b>Pre-requisites:</b>	NIL	
Unit	Content	Hours
I	Creative & Ideation Method-Brain storming & lateral thinking	6
II	Design Exploration & Concepts	6
III	Exposure to outer world in term of ideation	6
IV	Drafting of creative solution & creating a virtual out of planning.	6
V	Finalize the Design & creating in Portfolio	6
Course Outcomes		
CO1	Produce visual and verbal presentations.	
CO2	Analyze, justify, and rate applications of concepts	
CO3	To observe and experience how people from diverse background identify their needs and the constraints they face solving them	
CO4	To apply the design process to identify the Need of the target audience	
CO5	Apply sustainable practices in everyday life.	
<b>Text Books:</b>	1. D. Norman; The Design Of Everyday things, London, The MIT Press, 1998 Potter, Norman; What Is a Designer: Things, Places, Messages, Princeton Architectural Press, 2002	
<b>Reference Books:</b>	2. Hauffe, Thomas; Design, Publisher: Barron's Educational Series, 1996 Cross, N; Design Thinking: Understanding How Designers Think and Work, Berg, Oxford, 2011.	

Code		Total Lecture: 30
DN21B116	Art Appreciation	0-0-4-2
<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	6
<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	6
<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>	6
<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	6
<b>Course Outcomes</b>		
<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>	1. Elke Linda Buchholz, Susanne Kaeppele, et al.  Art: A World History , Nov 1, 2007 Carolyn Schlam:The Joy of Art	
<b>Reference Books:</b>	2. Itten, Johannes; The Art of Color: The Subjective Experience and Objective Rationale of Color, Wiley Publications,1997 3. Hauffe, Thomas; Design, Publisher: Barron’s Educational Series, 1996	

Code	Yoga and Meditation-I	
IY20B201		0-0- 2-0
<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.	

Code	Green Credit – I	
GC20B301		0-0- 2-0
<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>	None	
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.		
<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  
Syllabus**

<b>Code</b>	<b>University Core-I</b>	<b>Total Lectures:45</b>
<b>UC20B201</b>	<b>Computer Application</b>	<b>3-0-0-3</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	
<b>UNIT</b>	<b>Content</b>	<b>Hours</b>
<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	9
<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	9

<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.	9
<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.	9
<b>V</b>	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.	9
<b>Course Outcomes</b>		
<b>CO1</b>	Define the need of hardware and software required for a computation task.	
<b>CO2</b>	Demonstrate the working of important application software and their use to perform any engineering activity.	
<b>CO3</b>	Utilize the operating system commands and shell script.	
<b>CO4</b>	Illustrate the typical provisions of cyber law that govern the proper usage of internet and computing resources.	
<b>CO5</b>	Interpret the emerging trends and applications of Computers Science and Engineering, impact of Computer in Science and Engineering.	
<b>Text Books:</b>	<ol style="list-style-type: none"> <li>1. <b>Computer Fundamental by DP Nagpal, 2010 S Chand Publication</b></li> <li>2. <b>Computer Fundamental by Anita Goel, 2010 Pearson Education.</b></li> <li>3. <b>Fundamental of computers by E Balagurusamy, McGrawHill</b></li> </ol>	
<b>Reference Books:</b>	<ol style="list-style-type: none"> <li>1. <b>Basic Computer Engineering by Sanjay Kumar Dubey, 2012, JBC Publisher and distributors</b></li> <li>2. <b>Computer Fundamental by P.K Sinha, BPB Publication</b></li> </ol>	

Code	University Core -II	Total Lectures: 30
UC20B201T	<b>Entrepreneurship Development</b>	2-0-0-2
<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	
Unit	Content	Hours
I	<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.	5
II	<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.	5
III	<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 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.	7
IV	<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.	8
V	<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.	5
<b>Course Outcomes</b>		
At the end of the course student would be able to:		
<b>CO1</b>	<b>Develop</b> managerial qualities and competencies of an entrepreneur	

<b>CO2</b>	<b>Acquaint</b> himself with the challenges of starting a new venture and the process of setting up a business.
<b>CO3</b>	<b>Build</b> essential skills and creativity needed to build teams and work in and with them.
<b>CO4</b>	<b>Know</b> the essential procedure and funding avenues for setting up a new business.
<b>CO5</b>	<b>Learn</b> the various government initiatives and accordingly plan for his business.
<b>Text Books</b>	<ol style="list-style-type: none"> <li>1. Fundamental of Entrepreneurship – Dr. G.K Varshainey, Sahitya Bhawan Publications</li> <li>2. Fundamental of Entrepreneurship – Dr. A.N Bharti, Dr. Pramodh Kumar Tripathi, Rajeev Sahitya Bhawan Publication, SBPD Publication</li> <li>3. Fundamental of Entrepreneurship – H. Nandan, Third Edition, PHI Learning.</li> <li>4. Fundamental of Entrepreneurship – Sangram Keshari Mohanty, PHI Learning.</li> <li>5. Project Management - K. Nagarajan, New Age International, Second Edition</li> <li>6. Dynamics of Entrepreneurship Development - Vasant Desai, Himalaya Publishing House, 2011</li> <li>7. Entrepreneurship Development - Dr. P.C.Shejwalkar, Everest Publishing House, 2011</li> </ol>
<b>Reference Books</b>	<ol style="list-style-type: none"> <li>1. Entrepreneurship - Hisrich Peters, Mc Graw Hills, Tenth Edition</li> <li>2. The Culture of Entrepreneurship - Brigitte Berger, ICS Pt., 1991</li> <li>3. Entrepreneurship, 3rd Ed. - Steven Brandt</li> <li>4. The Entrepreneurial Connection - Gurmit Narula, Tata McGraw Hills.</li> </ol>

<b>Code</b>		<b>Total Lecture:45</b>
<b>DN21B211</b>	<b>Sketching-II</b>	<b>0-3-3-3</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>
<b>I</b>	<b>Introduction to other medium of sketching-</b> Charcoal Pencils, Chalk, pen Line, Negative space drawing	9
<b>II</b>	<b>Object composition-</b> Live object drawing in all medium-pencil, charcoal etc. Long hand composition	9
<b>III</b>	<b>Landscape Composition-</b> Landscape sketching on different themes, composition of leaves, rocks, flowers etc.,	9
<b>IV</b>	<b>Creative drawing-</b> Creative Composition, Portraits, Critical Design, Geometrical	9

	composition	
<b>V</b>	<b>Portfolio Making-</b> On Individual discipline aspects	9
<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>	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.	
<b>CO3</b>	Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.	
<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>	1. Powell, Dick; Design Rendering Techniques: A Guide to Drawing and Presenting Design Ideas, Publisher: North Light Books, 1996	
<b>Reference Books:</b>	2. Caplin, Steve; Banks, Adam; The Complete Guide to Digital Illustration, Publisher: Watson-Guption Publications, 2003 3. Buxton, Bill; Sketching User Experiences: Getting the Design Right and the Right Design (Interactive Technologies), Morgan Kaufmann, 2007	

<b>Code</b>	<b>Typography Fundamentals</b>	<b>Total Lecture:30</b>
<b>DN21B212</b>		<b>0-0-4-2</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>	NIL	
<b>UNIT</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Visualization and application of Typography. Exploration of various typography styles.	6
<b>II</b>	Logic, basic characteristics and difference of Serif and Sans Serif. Understanding the natural form of Typeface and its anatomy.	6
<b>III</b>	Psychological, Semantic and Expressive value of Typography and its applications. Guidelines for Typography in printing and production.	6
<b>IV</b>	Grids and Various sizes of printing products for Typography application. Layout making.	6



<b>V</b>	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>		
<b>CO1</b>	Acquire understanding of various typefaces and develop sensitivity.	
<b>CO2</b>	Develop skills to use Typography in engaging visual compositions	
<b>CO3</b>	Develop skills to reproduce type in appropriate media and printing method	
<b>CO4</b>	Acquire neatness and ability to present high quality output	
<b>CO5</b>	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>	<ol style="list-style-type: none"> <li>1. Jute, Andre; Grids: The structure of graphic design. Crans-Pres-Celigny : Rotovision,1996</li> <li>2. Schmidt Helmut, Typography, 2nd Edition, Seibund, Shinkosha, 2003.</li> </ol>	
<b>Reference Books:</b>	<ol style="list-style-type: none"> <li>1. Rand, Paul ;Design, Form and Chaos, Yale University Press, 1993</li> </ol>	

<b>Code</b>		<b>Total Lecture:45</b>
<b>DN21B21 3</b>	<b>Form and Space</b>	<b>1-0-4-3</b>
<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	
<b>UNIT</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	To understand the dynamics of change and transition in 2D & 3D forms through 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 through 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: 30</b>
<b>DN21B214</b>		<b>1-0-2-2</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	6
<b>II</b>	Variation in Metal Fabrication of object.	6
<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	6
<b>IV</b>	Variation in Wood composition of object.	6
<b>V</b>	Model representation	6
<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>	Chris Lefteri: Materials for Inspiration. Bruce Hoadley: Understanding Wood. Ezio Manzini: Materials of Invention.
<b>Reference Books:</b>	W.B.Mckay –Building construction Vol1 –Longmans, UK 1981 2. W.B.Mckay –Building construction Vol3 –Longmans, UK 1981

<b>Code</b>	<b>DESIGN STUDIO-II PROJECT BASED LEARNING</b>	<b>Total Lecture: 30</b>
<b>PB21B211</b>		<b>0-0-4-2</b>
<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	12
<b>II</b>	Design Exploration & Concepts	12
<b>III</b>	Exposure to outer world in term of ideation	12
<b>IV</b>	Drafting of creative solution & creating a virtual out of planning.	12
<b>V</b>	Finalize the Design & creating in Portfolio	12
<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>	1. D. Norman; The Design Of Everyday things, London, The MIT Press, 1998 2. Potter, Norman; What Is a Designer: Things, Places, Messages, Princeton Architectural Press, 2002	
<b>Reference Books:</b>	1. Hauffe, Thomas; Design, Publisher: Barron’s Educational Series, 1996 2. Bill Lucas (Author), Ellen Spencer (Author), Publisher: Crown House Publishing Teaching Creative Thinking:– December 19, 2017	

**SEMESTER – III**  
**Syllabus**

Code	Computer Application-II	Total Lecture:45
<b>UC20B301</b>		<b>3- 0-0-3</b>
<p><b>Course Objectives (CO):</b> The aim of Computer Application is to provide students with an opportunity to develop &amp; understanding the latest trends &amp; technologies of computer system and computer software. Meanwhile, they also develop the skill of using computer applications software for solving problems.</p>		
Unit	Contents	Hours
1	<p><b>Computer Network:</b> Overview, Types (LAN, WAN and MAN), Data communication, topologies.</p> <p><b>Internet :</b>Overview, Architecture, Functioning, Basic services like WWW, FTP, Telnet, Gopher etc., Search engines, E-mail, Web Browsers.</p> <p><b>Internet of Things (IoT):</b> Definition, Sensors, their types and features, Smart Cities, Industrial Internet of Things.</p>	9
2	<p><b>Computer Security Basics:</b> Introduction to viruses, worms, malware, Trojans, Spyware and Anti- Spyware Software, Different types of attacks like Money Laundering, Information Theft, Cyber Pornography, Email spoofing, Denial of Service (DoS), Cyber Stalking, ,Logic bombs, Hacking Spamming, Cyber Defamation , pharming Security measures Firewall, Antivirus, Computer Ethics &amp; Good Practices, Introduction of Cyber Laws about Internet Fraud, Good Computer Security Habits,</p>	9
3	<p><b>Operating system:</b> Definition, Functions, Types, Classification, Elements of command based and GUI based operating system.</p> <p><b>Data base Management System:</b> Introduction, File oriented approach and Database approach, Data Models, Architecture of Database System, Data independence, Data dictionary, DBA, Primary Key, Data definition language and Manipulation Languages</p>	9
4	<p><b>Block chain:</b> Introduction, overview, features, limitations and application areas fundamentals of Block Chain. <b>Crypto currencies:</b> Introduction , Applications and use cases <b>Cloud Computing:</b> It nature and benefits, AWS, Google, Microsoft &amp; IBM Services</p>	9
5	<p><b>Emerging Technologies:</b> Introduction, overview, features, limitations and application areas of Artificial Intelligence, Augmented Reality , Virtual Reality, Grid computing, Green computing, Big data analytics, Quantum Computing and Brain Computer Interface.</p>	9

<b>Course Outcomes</b>	
At the end of the course the students will be able to:	
CO 1	Demonstrate the knowledge of the basic structure, components, features of computers network.
CO 2	Describe the concept of computer security issues & their solutions.
CO 3	Compare and contrast features, functioning & types of operating system and dbms.
CO 4	Demonstrate architecture, functioning & services of the Internet and basics of multimedia.
CO 5	Illustrate the emerging trends and technologies in the field of Information Technology.
Text Books	Norton P., "Introduction to Computers", Mc Graw Hill Education
Reference Books	Henry F. korth ,1997, Data base system concept ,6 edition, McGraw-Hill Education .

Code	Quantitative Aptitude-I	Total Lecture:30
<b>UC20B302</b>		<b>2-0-0-2</b>
<b>Learning Objectives</b>	Enable students to manage the placement challenges more effectively	
Unit	Contents	Hours
<b>1</b>	Numbers, H.C.F & L.C.M of Numbers, Decimal Fraction, Coding deductive logic, Data Sufficiency, Directional Sense	6
<b>2</b>	Simplification, Square root & Cube root, Average, Problem on Numbers & Problem on Ages, Percentage	6
<b>3</b>	Profit & Loss, Ratio & Proportion, Height & Distance Partnership, Chain Rule, Time & Work.	6
<b>4</b>	Deductive Reasoning, Logical Word Sequence, Objective Reasoning, Selection decision tables, Puzzles	6
<b>5</b>	Inductive reasoning- Analogy Pattern Recognition, Classification Pattern Recognition, Coding Pattern Recognition, Number Series Pattern Recognition	6
<b>Course Outcomes</b>		

At the end of the course the students should be able to:	
<b>CO1</b>	Able to analyzing data
<b>CO2</b>	Able to constructing hypotheses & solving problems
<b>CO3</b>	Able to understand mathematical and statistical concepts
<b>Text Book</b>	1. D P Gupta & Burnwal “General Quantitative Aptitude for Competitive Exams” Disha Publication
<b>Reference Books</b>	2. Abhijit Guha “Quantitative Aptitude for All Competitive Examinations” McGraw Hill Education

Code	ANTHROPOMETRIC AND ERGONOMICS	Total Lecture:30
DN21B311		1-0-2-2
<b>Learning Objectives:</b>	Practice of Ergonomics has primary objective to enhancing workplace Health, Safety and work design issues.	
<b>Pre-requisites:</b>	Nil	
Unit	Content	Hours
I	Introduction to Ergonomics-Human aid approach	6
II	Discipline Approach: Ergonomics / Human Factors a. Domain Philosophy and objective. b. Ergonomics / Human factors fundamentals. c. Physiology/ Work physiology and Stress	6
III	Human physical dimension concern a. Human body- structure and function- Anthropometrics. b. Anthropometry: Body growth. c. Anthropometry Landmark: Static and dynamic. d. Anthropometry Landmark: Sitting Position. e. Anthropometry: Squatting and cross– legged postures. Access Control. f. Anthropometry: Measuring techniques	6
IV	Posture and Movement a. Human Body- structure, function, posture and Job relation. b. Supportative devices, Chair characteristics and work surface. c. Movement and work counter	6
V	: Performance support and Design Intervention a. Occupational safety, Workstation Design, Furniture support and Design application. b. Design and Human compatibility. c. Visual performance and Display.	6
<b>Course Outcomes</b>		
<b>After successful completion of course students will able to:</b>		
CO1	Accurately recognize and evaluate hazards (ergonomic in nature) which are likely to cause occupational illness or injuries.	
CO2	Design and redesign tasks and workstations to fit employees.	
CO3	Apply knowledge, skills and abilities to an Industrial based problem.	
CO4	Using critical thinking strategies generate an appropriate furniture, fixture and materials selection considering applicable codes and sustainability	
CO5	Apply ethical and professional practices.	
<b>Text Books:</b>	Neufert –Ernst Neufert D. Chakrabarti, Indian Anthropometric Dimensions for ergonomic design practice, National Institute of Design, Ahmedabad, 1997.	
<b>Reference Books:</b>	Bridger: RS: Introduction to Ergonomics for beginners, a quick reference guides Taylor & Francis, 1993 (eBook).	

Code	<b>TECHNICAL &amp; ARCHITECTURAL DRAWING</b>		<b>Total Lecture:30</b>
<b>DN21B312</b>			<b>0-0-4-2</b>
<b>Learning Objectives:</b>	The aim is to block out spatial areas, define circular patterns, and develop plans and layout for furniture and equipment placement.		
<b>Pre-requisites:</b>	NIL		
Unit	Content	Hours	
<b>I</b>	Introduction To Drafting Instruments & their Utilization Parallel Bar, Set Square, Draftsman scale, Drawing Pencils etc.	6	
<b>II</b>	Architectural Terminologies What is Plan, Section, Elevations, Isometric View Drafting techniques Presentation of Different type of Views.	6	
<b>III</b>	Using Architectural Scales Draftsman Scale	6	
<b>IV</b>	Basic Drafting Lines & Symbols Object lines, Hidden Lines, Continue Line, Section Line, Graphic line Etc, Basic Symbols-Brick wall, north, scale, lamps, landscape etc.	6	
<b>V</b>	Orthographic Projections Projection of Line, Projection of Shapes, Projection in Solids, Projection in section in solids	6	
<b>Course Outcomes</b>			
After successful completion of course students will able to:			
<b>CO1</b>	Students to learn basic technical drawing to represent in professional practices.		
<b>CO2</b>	Students to learn how technical drawings proceed by step by step.		
<b>CO3</b>	Variation in Scale measurements.		
<b>CO4</b>	Identify and evaluate the technical aspects of interior design projects.		
<b>CO5</b>	Produce design compositions and develop presentation skills.		
<b>Text Books:</b>	Architectural drafting and design, 4th edition – Ernest R. Weidhaas, Allyn and Bacon, Boston, 1981.		
<b>Reference Books:</b>	<ol style="list-style-type: none"> <li><b>Drafting &amp; Design for Architecture &amp; Construction-Dana J.Hepler</b></li> <li><b>Architectural Graphics-Francis D.K. Ching</b></li> </ol>		

Code	<b>BASICS OF COMPUTER DESIGN</b>		<b>Total Lecture:30</b>
<b>DN21B313</b>			<b>1-0-2-2</b>
<b>Learning Objectives:</b>	The aim is to block out spatial areas, define circular patterns, and develop plans and layout for furniture and equipment placement.		
<b>Pre-requisites:</b>	NIL		
Unit	Content	Hours	
<b>I</b>	<b>Unit 1: Computer as an Aid to the Designer</b> Role of Computer in Designing; Computer Graphics, Systems and Hardware; Graphics Standards; Different types of Geometric Modeling Software	6	
<b>II</b>	<b>Unit 2: Modeling and Generation of Curves and Surfaces</b> Geometric	6	



	figures and their representation; Types of curves and surfaces; Scanning and tracing Sketches; Modeling of curves and surfaces using software; Freeform surface modelling; Generating 2D designs using computers (engraving and routing)	
<b>III</b>	<b>Unit 3: Solid Modeling Representation of solids:</b> wireframe, B-rep and CSG; Modeling of simple solids using software; Modeling of complex solids using software; Generation of 2D drawings from 3D models	6
<b>IV</b>	<b>Unit 4: 3D Modeling of Assemblies</b> Modeling of Machine elements; Modeling of assemblies; Modeling of moving systems; Animation	6
<b>V</b>	<b>Unit 5: Computer Aided Manufacturing and Project Work</b> Introduction to Computer Aided Manufacturing; Project Work in Modeling of a Product	6
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Students to learn basic technical drawing to represent in professional practices.	
<b>CO2</b>	Students to learn how technical drawings proceed by step by step.	
<b>CO3</b>	Variation in Scale measurements.	
<b>CO4</b>	Identify and evaluate the technical aspects of interior design projects.	
<b>CO5</b>	Produce design compositions and develop presentation skills.	
<b>Text Books:</b>	<ol style="list-style-type: none"> <li>1. Ibrahim Zeid (2009), Mastering CAD/CAM, 2nd Edition, Tata McGraw Hill International Edition</li> <li>2. P N Rao (2010), CAD/CAM Principles and Applications, 3rd Edition, Tata McGraw-Hill Education</li> </ol>	
<b>Reference Books:</b>	<ol style="list-style-type: none"> <li>1. Christoph M. Hoffmann, Geometric and Solid Modelling: An Introduction</li> <li>2. William Howard and Joseph Musto. Introduction to Solid Modeling Using solid works.</li> <li>3. McGraw Hills</li> <li>4. Alejandro Reyes, Beginners Guide to SolidWorks, SDC Publications</li> </ol>	

<b>Code</b>	<b>BUILDING MATERIALS &amp; PROCESSES</b>	<b>Total Lecture:45</b>
<b>DN21B314</b>		<b>1-0-2-3</b>
<b>Learning Objectives:</b>	To understand the importance of lifelong learning. Be able to design and conduct experiments, and to analyze data. Possess the skills and techniques necessary for modern materials in design process and to be able to select materials.	
<b>Pre-requisites:</b>	<b>Nil</b>	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	<p>Introduction to Material</p> <ol style="list-style-type: none"> <li>1. Wood - Soft and hardwood, plywood, laminated wood and particle boards – properties, manufacture &amp; uses.</li> <li>2. Synthetic Materials – Different types of Glass, their properties, manufacturing processes and uses.</li> <li>3. Plastics – injection molding &amp; other manufacturing methods, etc. Fabrics – textile, Jute, leather etc. different types and their uses</li> </ol>	9
<b>II</b>	<p>Advanced Materials</p> <ol style="list-style-type: none"> <li>1. Intelligent and Buildings Materials.</li> <li>2. Interactive Building Materials.</li> <li>3. General Material Trends</li> <li>4. Properties of Basic Material Trends.</li> <li>5. Forms of Curvature.</li> </ol>	9
<b>III</b>	<ol style="list-style-type: none"> <li>1. Walls –types of masonry Brick masonry -Types of bonds - single &amp; double Flemish bond, header bond, stretcher bond, rat trap bond, ornamental bonding.</li> <li>2. Floors- Floor coverings- - softwood, hardwood- resilient flooring - linoleum, asphalt tile, vinyl, rubber, cork tiles - terrazzo , marble &amp; granite – properties, uses &amp; laying. Floor tiles- ceramic glazed, mosaic and cement tiles- properties, uses and laying, details for physically handicapped.</li> </ol>	9
<b>IV</b>	<ol style="list-style-type: none"> <li>3. False Ceiling Construction of various kinds of false ceiling such as thermacol, plaster of paris, gypboard, metal sheets, glass and wood Construction of domes, vaults, &amp; other special ceilings.</li> <li>4. Wall Paneling Paneling – Using wooden planks, laminated plywood, cork sheets, fibre glass wool &amp; fabric for sound insulation and wall paneling for thermal insulation.</li> </ol>	9
<b>V</b>	<ol style="list-style-type: none"> <li>1. Plastering and Pointing: purpose, materials and methods of plastering and pointing, defects in plastering-Stucco plastering, lathe plastering</li> <li>2. Damp proofing- Causes, effects and methods.</li> <li>3. Paints- Purpose, types, ingredients and defects, Preparation and applications of paints to new and old plastered surfaces, wooden and steel surfaces.</li> </ol>	9

<b>Course Outcomes</b>	
After successful completion of course students will able to:	
<b>CO1</b>	Examine the properties of construction materials and their behaviors under environments
<b>CO2</b>	Appraise appropriateness and sustainability of materials for construction projects.
<b>CO3</b>	Analysis the use of material in Interiors.
<b>CO4</b>	Scope of new material in Construction which praise sustainability.
<b>CO5</b>	To gain knowledge about doors, windows, plastering, painting, damp proofing, scaffolding, shoring, underpinning and to take suitable engineering measures.
<b>Text Books:</b>	1. <b>Simmons, H: Leslie: Olins Construction Principles, Materials and Methods; John Wiley &amp; Sons, 9<sup>th</sup> edition, ISBN: 978-0-470-54740-3</b> 2. <b>Basic Construction Materials – 7<sup>th</sup> Edition.</b>
<b>Reference Books:</b>	1. <b>Sustainable Construction -2 Edition</b> 2. <b>Green Building &amp; Project Planning – 2<sup>nd</sup> Edition</b>

**Discipline Specific Electives  
(DSE)**

Code	DESIGN FOR INTERACTIVE MEDIA	Total Lecture:30
<b>DN21B325</b>		<b>0-0-4-2</b>
<b>Learning Objectives:</b>	To understand the connection between design, media and technology.	
<b>Pre-requisites:</b>	NIL	
Unit	Content	Hours
<b>I</b>	Communication and tools of Communication; Storytelling and narratives in Interactive medias	6
<b>II</b>	Media and changing technologies	6
<b>III</b>	Potential of technology and its impact on society	6
<b>IV</b>	Media artefacts and convergences	6
<b>V</b>	New Applications and ways of working	6
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Define the functional aspects of plants in interior.	

<b>CO2</b>	To explore methods for creatively investigating landscapes.
<b>CO3</b>	Apply knowledge of the Natural World to guide design decisions and activities taking into account natural resource constraints that impact land use.
<b>CO4</b>	Employ Creative Inquiry and Discovery in addition to a range of analytical skills, and general knowledge to develop design proposals, solve problems, generate new ideas, and produce creative work
<b>CO5</b>	Build Knowledge & Develop Reasoning Skills in applying broad and deep knowledge across academic disciplines and fields and using this knowledge to develop design proposals.
<b>Text Books:</b>	1. Time saver standards for landscape architecture. 2. Planting design by Theodore D.Walker, VNR Publications New York.
<b>Reference Books:</b>	3. Landscaping Principles and Practices by Jack E.Ingels, Delmar Publishers

<b>Code</b>	<b>ACCESSORY DESIGN</b>	<b>Total Lecture:30</b>
<b>DN21B325</b>		<b>0-2-2-2</b>
<b>Learning Objectives:</b>	<p>The students will have strong foundation in designing and have the ability to visually represent it by illustrations, photographs, graphics and visual display of merchandise.</p> <p>The students will be able to convert their design into a product or a garment using appropriate construction techniques.</p>	
<b>Pre-requisites:</b>	None	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Introduction to world art and culture; History of Jewellery Design	6
<b>II</b>	Material study and material manipulation.	6
<b>III</b>	Accessory Design Concept	6
<b>IV</b>	Drafting & Rendering accessory Design- Bags, wallets ,footwear etc	6
<b>V</b>	Design portfolio on accessory design.	6
<b>Course Outcomes</b>		
<b>CO1</b>	Student will have an in-depth knowledge, both practical and theoretical, of the jewelry, accessories design processes.	
<b>CO2</b>	Conceptualizing and designing jewelries for bridal wear with the highest form of relevance to modern trends	
<b>CO3</b>	Students will also be able to engage confidently, professionally and successfully with the domestic footwear industry and with the internal fashion accessory landscape.	
<b>CO4</b>	Graduates will be able to carve a niche for themselves in traditional as well as emerging sectors of global fashion industry space namely jewellery, body gears, home accessories, craft, furniture, footwear, bag, interiors, and in the realm of	

	Designing experiences.
<b>CO5</b>	Student will able to self-entrepreneur in accessory designing.
<b>Text Books:</b>	1 Accessory Design Aneta Genova (20 September 2011)
<b>Reference Books:</b>	1. Handmade in India, Aditi Ranjan & MPRanjan, Mapin PubLtd,2014 2. Fashionpedia,FashionaryInternationalLts,Hongkong,2017

<b>Code</b>	<b>DESIGN STUDIO- III (PROJECT BASED LEARNING) SPACE ANALYSIS AND FURNITURE</b>	<b>Total Lecture:30</b>
<b>PB21B311</b>		<b>0-0-4-2</b>
<b>Learning Objectives:</b>	"Wabi-Sabi is a retail and workshop space that explores the sustainable practice of shopping for upcycled household furnishings. "Using the Japanese concept of Wabi-Sabi and celebrating imperfection, the project gives users opportunities to shop in an adaptable and everchanging space for furniture.	
<b>Pre-requisites:</b>	None	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Introduction to Wabi Sabi	6
<b>II</b>	Design elements and principles of Wabi Sabi	6
<b>III</b>	Creation of Mood Board for commercial space	6
<b>IV</b>	Planning the layout	6
<b>V</b>	Final design for commercial space.	6
<b>Course Outcomes</b>		
<b>CO1</b>	Student will have an in-depth knowledge, both practical and theoretical, of the jewelry, accessories design processes.	
<b>CO2</b>	Conceptualizing and designing jewelries for bridal wear with the highest form of relevance to modern trends	
<b>CO3</b>	Students will also be able to engage confidently, professionally and successfully with the domestic footwear industry and with the internal fashion accessory landscape.	
<b>CO4</b>	Graduates will be able to carve a niche for themselves in traditional as well as emerging sectors of global fashion industry space namely jewellery, body gears, home accessories, craft, furniture, footwear, bag, interiors, and in the realm of Designing experiences.	
<b>CO5</b>	Student will able to self-entrepreneur in accessory designing.	

<b>Text Books:</b>	Beth Kempton “Wabi Sabi: Japanese Wisdom for a Perfectly Imperfect Life” (15 July 2020)
<b>Reference Books:</b>	Francesc Miralles , Héctor García(2 January 2020), The Book of Ichigo Ichie:  “The Art of Making the Most of Every Moment, the Japanese Way”

Code	YOGA AND MEDITATION
<b>IY20B301</b>	<b>0-0-2-0</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>Text Books:</b>	<ul style="list-style-type: none"> <li>• GM Cooper and Hausman RE, The Cell: A Molecular Approach, 5th edition. 2009, ASM Press &amp; Sunderland, Washington, D.C, Sinauer Associates, MA.</li> <li>• WM Kleinsmith, LJ Hardin and GP Bertoni, The World of the Cell.7th edition.,2009. Pearson Benjamin Cummings Publishing, San Francisco.</li> </ul>
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Biology 8th edition Campbell, N.A. and Reece, J. B Pearson Benjamin Cummings, San Francisco.</li> <li>• Biology 7th edition Raven, P.H et al (2006) Tata McGraw Hill Publications, New Delhi.</li> <li>• Griffiths, A.J.F et al (2008) Introduction to Genetic Analysis, 9th edition, W.H. Freeman &amp;Co.NY.</li> </ul>

<b>Code</b>	<b>GREEN CREDIT</b>
<b>GC20B301</b>	<b>0-0-2-0</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.</p> <p>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> </ul>
<b>Pre-requisites:</b>	None
<p>• To make a bonding between tree and students.</p>	
<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.

<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• Beth Kempton “Wabi Sabi: Japanese Wisdom for a Perfectly Imperfect Life” (15 July 2020)</li> </ul>
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Francesc Miralles , Héctor García(2 January 2020), The Book of Ichigo Ichie:</li> <li>• “The Art of Making the Most of Every Moment, the Japanese Way”</li> </ul>

**SEMESTER – IV**  
**Syllabus**

Code	DESIGN THINKING	Total Lecture:30
UC20B401		2-0-0-2
<b>Course Objectives</b> This course will enable students to to enhance the problem solving skills to improve the basic mathematical skills.		
UNIT	Contents	Hours
1	Module 1: Design Thinking Skills Understand the critical design thinking skills needed to either improve an existing product or design a new product.	6
2	Module 2: Identifying Customer Needs Learn to identify customer needs and draft customer needs statements as your first step towards user innovations.	6
3	Module 3: Product Specifications Learn how to translate user needs into product specifications quantitatively, and how establishing product metrics can help to define those specifications.	6
4	Module 4: Applied Creativity Learn to apply creativity, brainstorming, and concept generation process in designing needs solutions.	6
5	Module 5: Prototyping Explore prototyping methods, strategies, and real-life examples where these have been applied to create a design that represents customer needs and product specifications.	6
<b>Course Outcomes</b>		
At the end of the course the students should be able to:		
CO1	Learn the concepts that drive design thinking	
CO2	Submit project ideas around user innovations	
CO3	Identify customer needs and user groups	
<b>Text Books</b>	1. Design Thinking For Dummies, 1st Edition. ... 2. The <b>Design Thinking</b> Toolbox: A Guide to Mastering the Most Popular and Valuable Innovation Methods, 1st Edition	



Code	QUANTITATIVE APTITUDE-II	Total Lecture:30
UC20B402		2-0-0-2
<b>Course Objectives</b> This course will enable students to <ol style="list-style-type: none"> <li>To enhance the problem solving skills</li> <li>To improve the basic mathematical skills.</li> <li>Enable students to manage the placement challenges more effectively</li> </ol>		
UNIT	Contents	Hours
1	Time & Distance, Problem on Trains, Boats & Streams Simple Interest, Compound Interest, Stocks & Shares, True Discount	6
2	Area, Volume & Surface Area, Permutation & Combination, Race & Game of Skill, Calendar, Clock, Probability	6
3	Data Interpretation: Tabulation, Bar Graphs, Pie chart & Line Graphs, Information Ordering, Information Processing Engineering Mathematics- Logarithms, Permutation and Combinations, Probability	6
4	Exploratory Analysis- Design of experiments, Sampling, Sampling Error, Sampling Bias, Measures of Central Tendency and Dispersion, Statistical survey and Presentation of data, Statistical Inference	6
5	Correlation, Formulating Null & Alternate Hypothesis, Type I and Type II errors Regression, z-test/t-test, p-value	6
<b>Course Outcomes</b>		
At the end of the course the students should be able to:		
CO1	Able to analyzing data	
CO2	Able to constructing hypotheses & solving problems	
CO3	Able to understand mathematical and statistical concepts	
<b>Text Books</b>	1. R S Aggarwal “Quantitative Aptitude for Competitive Examinations” S Chand Publication	

	2. D P Gupta & Burnwal “General Quantitative Aptitude for Competitive Exams” Disha Publication
<b>Reference Books</b>	1. Deepak Aggrawal & D P Gupta “Rapid Quantitative Aptitude: With Shortcuts & Tricks for Competitive Exams” Disha Publication 2. Abhijit Guha “Quantitative Aptitude for All Competitive Examinations” McGraw Hill Education

Code	ELEMENTS OF INTERIOR SPACES	Total Lecture:45
DN21B411		1-0-4-3
<b>Learning Objectives:</b>	To develop an understanding of point, line & planar elements in defining an interior space.	
<b>Pre-requisites:</b>	NIL	
Unit	Content	Hours
I	<b>Wall Planes</b> Use of wall planes to create architectural effects - Natural patterns and textures obtained in masonry walls – articulation of openings in wall planes – effect of tilting the vertical axis of wall planes - niches and alcoves - cornices and moldings etc.	9
II	<b>Roof Planes</b> Different types and their visual impact – articulation of skylights and roof apertures – false ceiling – materials, finishes & patterns - types of false ceiling – various types of lighting.	9
III	<b>Floor Planes</b> Various types of flooring – mosaic, tile, stone etc. – aesthetic effects created by flooring material and pattern - graphic patterns and their visual effects – construction details – skirting, molding, embossing etc. Floor finishes and floor coverings.	9
IV	<b>Doors, Windows and Ventilators, etc.</b> Doors – types – flush doors, paneled doors, braced doors, carved wooden doors, metal embossed doors, glazed doors and their relevance – various materials and articulation. Windows – various types (casement, horizontal sliding, vertical sliding, hopper, pivoted) – various shapes (arched, circular, triangular etc) various materials (wood, aluminum, steel, pvc) and their suitability to that space – ventilators – louvered, paneled etc.	9
V	Case studies for manipulation of wall, floor and roof planes to create various architectural effects – case studies of various doors, windows and ventilators – case studies of columns, beams etc for interior effects.	9
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Develop an understanding of Positive and Negative spaces.	

<b>CO2</b>	Develop skills on utilization of available space in efficient and effective manner.
<b>CO3</b>	Develop space planning using basic furniture layouts.
<b>CO4</b>	Recognize different types of door and window styles for use in two dimensional floor plans.
<b>CO5</b>	Analyze, justify, and rate interior applications of concepts
<b>Text Books:</b>	New Project: The First Penguin Special, Exhibition, Vol. 129
<b>Reference Books:</b>	<b>The Complete Book of Home Organization: 336 Tips and Projects</b>

<b>Code</b>	<b>BASIC OF FURNITURE TECHNOLOGY</b>	<b>Total Lecture:45</b>
<b>DN21B412</b>		<b>1-0-4-3</b>
<b>Learning Objectives:</b>	This course introduces students to the art and science of building. Emphasis will be placed gaining an understanding of construction materials, methods and the process of translating design ideas into built form.	
<b>Pre-requisites:</b>	NIL	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	.Developing of a particular furniture type • Identifying the furniture & activity • Define the material & Aesthetics aspects • Furniture the design data to ergonomics	9
<b>II</b>	Study the particular furniture type • Detailed Measurements • Understanding the functions & activity • Identifying the design scope & limitation	9
<b>III</b>	<b>Partition and Panelling</b> Construction of paneling-materials used for paneling-ply, glass, gypsum, P.O.P, partition types, full partitions, part partitions-construction of partitions, P.O.P, gypsum introduction to modular, ready to assemble partitions.	9
<b>IV</b>	<b>Staircases</b> Types of staircases- materials used- wooden, m.s. etc. construction	9
<b>V</b>	Designing & detailing of • Residential Furniture – Seating, Sleeping, Storage & Children’s furniture • Commercial furniture – Showcases, Counters, Display units, Restaurant furniture, Bar furniture	9
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Recognize the functional aspects of furniture and designed-object materials.	
<b>CO2</b>	Explain the machine processes for construction of furniture and designed-objects.	
<b>CO3</b>	Describe and evaluate the methods of material manipulation.	
<b>CO4</b>	Compare the relationship of design history to the creation of new products for interior design.	

<b>CO5</b>	Create sample models that demonstrate various construction techniques.
<b>Text Books:</b>	1. Interior Design, John F. Pile, Harry N. Abrams Inc Publishers, New York 2. Interior Design Course, Mary Gilliat Coyran, Octopus Ltd., London
<b>Reference Books:</b>	1. The Encyclopaedia of Furniture, Joseph Aronson, Crown Publishers, New York 2. Interior Design & Decoration, Sherril Whiton, Prentice Hall 3. <b>Interior Design, Francis D.K. Ching, John Wiley &amp; Sons, New York</b>

<b>Code</b>	<b>MODEL MAKING WORKSHOP</b>	<b>Total Lecture:30</b>
<b>DN21B413</b>		<b>0-2-2-2</b>
<b>Learning Objectives:</b>	To introduce the students to basics of Model making with various materials.	
<b>Pre-requisites:</b>	Nil	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	<b>Introduction To Model Making</b> Introduction to concepts of model making and various materials used for model making-paper ,cardboard, thermocol, wood etc	6
<b>II</b>	<b>Block Modelling</b> Preparation of base for models using wood or boards Introduction to block models .(or 3D Compositions) involving the usage of various materials like Thermocol, Soap/Wax, Boards, Clay etc.	6
<b>III</b>	<b>Detailed Modelling</b> Details using tapering, shuttering, adding and subtracting material. Use of joining items like nails, adhesive, melting etc	6
<b>IV</b>	Use of ceramics-Plaster of Paris ,mud ,clay in Models	6
<b>V</b>	Deriving new materials for Model making like Glass, acrylic, wire ,stone etc	6
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Student will able to define attributes of space in scale modeling.	
<b>CO2</b>	Scope of materials in modeling.	
<b>CO3</b>	To develop entrepreneurship in professional model making.	
<b>CO4</b>	Able to precise in interiors & product design.	
<b>CO5</b>	Learn the skills of using tools and materials.	
<b>Text Books:</b>	Studio based learning.	
<b>Reference Books:</b>	1. <b>BENN, The book of the House, Ernest Benn Limited, London</b> 2. <b>Jannsen, Constructional Drawings &amp; Architectural models, Karl Kramer Verlag Stuttgart, 1973.</b> 3. <b>Harry W.Smith, The art of making furniture in miniature, E.P.Duttor Inc., New York, 1982</b>	

<b>Code</b>	<b>INTERIOR LANDSCAPE DESIGN</b>	<b>Total Lecture:30</b>
<b>DN21BI414</b>		<b>0-0-4-2</b>
<b>Learning Objectives:</b>	1. To introduce students to space planning and designing of interior landscape. 2. Apply knowledge of elements and materials for interior landscape.	
<b>Pre-requisites:</b>	NIL	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Introduction to space planning and designing of interior landscape.	6
<b>II</b>	Elements and materials for interior landscape.	6
<b>III</b>	Basic human functions and their implications for space requirements.	6
<b>IV</b>	Spatial interpretations. Various activities and their relationship with spaces.	6
<b>V</b>	Design an interior landscape for a residence.	6
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Its a light weight, easy to use, no images, no pdfs platform to make students life easier.	
<b>CO2</b>	Students will apply knowledge of Architecture as inspiration to make piece of Artifact.	
<b>CO3</b>	Apply knowledge of elements and materials for interior landscape.	
<b>CO4</b>	Investigate into spatial relationships.	
<b>CO5</b>	Prepare interior landscape	
<b>Text Books:</b>	Author: Hiraskar, History of Architecture	
<b>Reference Books:</b>	1. <b>Landscape Architecture: Jo Simmonds.</b> 2. <b>Introduction to landscape architecture: Michel Laurie.</b> 3. <b>Interior landscape design: Nelson Hammer..</b>	

### Discipline Specific Electives

#### (DSE)

<b>Code</b>	<b>DESIGN WITH NATURAL MATERIAL</b>	<b>Total Lecture:30</b>
<b>DN21B415</b>		<b>0-0-4-2</b>
<b>Learning Objectives:</b>	Student to come across the study of natural material use in Design & Spaces.	
<b>Pre-requisites:</b>	Nil	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Creative process in Craft. Craft as a means to explore material, process and Form. Study of Form in <i>Bamboo</i> and Other Craft. Cultural roots in Craft.	6

<b>II</b>	Identify types of <i>Stone</i> . Natural occurring Element with stone, carving, establishing of stone in interior, use of stone in landscaping	6
<b>III</b>	<i>Leather</i> : Source of Leathers, Use of leather in furnitutre and interiors	6
<b>IV</b>	Creative exploration in Craft using natural materials. Design to suit urban and export markets.	6
<b>V</b>	Sustainable interior by natural material, zero management technique in modern scenario.	6
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Student will come in knowledge of natural material use in interior.	
<b>CO2</b>	Entrepreneurship development with production & manufacturing of Natural materials.	
<b>CO3</b>	To design without exploitation of nature and environment.	
<b>CO4</b>	Learn the new creative in form of craft for sustainable living.	
<b>CO5</b>	To sustain the ancient time of simple living.	
<b>Text Books:</b>	Studio based learning	
<b>Reference Books:</b>	<ol style="list-style-type: none"> <li><b>1. Publication on Traditional arts and crafts on india, Ministry of Handicrafts Development, Government of India.</b></li> <li><b>2. JohhanesItten, The Art of colour, John Wiley and Sons, USA, 1973.</b></li> </ol>	

<b>Code</b>	<b>FASHION STYLING &amp; REPRESENTATION</b>	<b>Total Lecture:30</b>
<b>DN21B406</b>		<b>0-0-4-2</b>
<b>Learning Objectives:</b>	<p>The Fashion Styling course provides students with the techniques to create contemporary images, while meeting the expectations of international luxury, fashion and publishing industries.</p> <p>Fashion stylists play a major role in knowing how to emphasize the style and image of a fashion collection, brand or product from the catwalk to the promotion.</p>	
<b>Pre-requisites:</b>	Nil	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Introduction to fashion styling, fashion system, visual communication, graphic design and presentation skills, and the principles of art and dress.	6
<b>II</b>	Image Development: Photo shoot, script development through styling	6
<b>III</b>	Fashion branding and marketing, and apply acquired visual communication	6
<b>IV</b>	Cultural Studies of various styling in India & Foreign countries.	6
<b>V</b>	Study of various Fashion Carpets, Makeup communication & accessory.	6
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Analyze the fashion styling process and develop the creative, intellectual and technical	

	skills necessary to practice within the fashion styling industry
<b>CO2</b>	Identify, evaluate and use information from a variety of sources and formulate concepts to meet given criteria;
<b>CO3</b>	Use skills to plan, organize, produce and edit photo shootings
<b>CO4</b>	Communicate effectively articulating a rational and logical argument in oral and visual form
<b>CO5</b>	Demonstrate a high degree of professionalism characterised by initiative, creativity, motivation and self-management
<b>Text Books:</b>	NIL
<b>Reference Books:</b>	Various journals in Fashion & Styling

<b>Code</b>	<b>NARRATIVES AND STORY TELLING</b>	<b>Total Lecture:30</b>
<b>DN21B425</b>		<b>0-0-4-2</b>
<b>Learning Objectives:</b>	To introduce storytelling and narrative as a problem solving process	
<b>Pre-requisites:</b>	Nil	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Story, narrative and meaning making	6
<b>II</b>	Premise and problem statement	6
<b>III</b>	Characters and personas. Plot and Scenarios	6
<b>IV</b>	Relationship between problem, need and conflict	6
<b>V</b>	Conflict, Action and Resolution	6
<b>Course Outcomes</b>		
After successful completion of course students will able to:		
<b>CO1</b>	Provides the prospect to open on issues/challenges that form the basis of the story	
<b>CO2</b>	Relates to the characters/emotions that pose challenges and try out resolutions	
<b>CO3</b>	Unfolds the idea, process/procedures for a solution that the audience wishes to understand	
<b>CO4</b>	The outcome/resolution for the problems/challenges and inferences	
<b>CO5</b>	Connects to situations in which the challenges occur	
<b>Text Books:</b>	<ol style="list-style-type: none"> <li>1. Mike Korolenko, Bruce Wolcott; Storytelling and Design: Media Literacy for the Digital Age, Pearson Learning Solutions, 2005</li> <li>2. Marie-Laure Ryan (editor); Narrative across Media: The Languages of Storytelling, University of Nebraska Press, 2004 –</li> </ol>	
<b>Reference Books:</b>	<ol style="list-style-type: none"> <li>3. Kristin M. Langellier and Eric E. Peterson; Storytelling In Daily Life: Performing Narrative, Temple University Press, 2004</li> </ol>	

Code	DESIGN PROJECT-II PROJECT BASED LEARNING	Total Lecture:30
PB21B411	Furniture Design	0-0-4-2
<b>Learning Objectives:</b>		
<b>Pre-requisites:</b>	Nil	
Unit	Content	Hours
I	Overview of shop safety and tools, furniture making, joints, furniture making techniques, and hand tools	6
II	The first project is a small dovetailed box, built using only hand tools.	6
III	Properties of wood, power tool demonstration, machinery demonstration, jig-making, wood bending, table saw introduction, joinery, turning, routing, morticing, shaping, sanding, and finishing.	6
IV	Design a variety of furniture and utility items for interiors, houses	6
V	Design a variety of furniture and utility items for offices	6
Course Outcomes		
After successful completion of course students will able to:		
CO1	One may work in various industrial, recreational or domestic environments	
CO2	The work blends the effective and practical usage of space with an appreciation of aesthetics.	
CO3	Use skills to plan, organize, produce and edit photo shootings	
CO4	Allow supplies and expenses in accordance with schedules and agree to contractor fees	
CO5	Demonstrate a high degree of professionalism characterised by initiative, creativity, motivation and self-management	
<b>Text Books:</b>	Judith Gura(2017), Design, Furniture, Graphics, Architecture, Interiors	
<b>Reference</b>	Kimberlie Birks, Lora Appleton(2018), Play, Ride, Learn, Eat, Create, Sit, Sleep	

Code	YOGA AND MEDITATION -IV
IY20B401	2-0-0-0
<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



<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.

### SEMESTER III

<b>COURSE CODE</b>	<b>Introductory Biology</b>	<b>Total Lec.: 30</b>
<b>GE20B301</b>		<b>2-0-0-2</b>
<b>Learning Objectives:</b>	<p>The course will provide students the understanding of Biology. Biology is the study of organic life, from the structure and function of biomolecules through the complex evolutionary and regulatory processes of cells, organisms, populations, communities, and ecosystems.</p> <ul style="list-style-type: none"> <li>• Students will be introduced to the fundamental concepts that pass through these levels of organization.</li> <li>• In addition, the students should have in depth of knowledge to facilitate an integrative understanding of the interconnectedness and unity that make biology a cohesive discipline.</li> <li>• The main aim of this course is to provide students with the tools to become life-long learners in the field of Biology.</li> </ul>	
<b>Pre-requisites:</b>	None.	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Introduction: Themes in the study of life, Characteristics of living organisms, (properties of life), life's hierarchy of levels of organization, biological system of classification, grouping of organisms into three domains and multiple kingdoms, branches and sub-disciplines of biology. Living and non-living world, scientific method.	<b>5</b>
<b>II</b>	Chemistry of life: The constituents of matter; Structure of an atom; The energy level of electron; The formation and function of molecules depend on chemical bonding between atoms; Chemical reaction make or break chemical bonds; The water molecule is polar; Properties of water; Ionization of water.	<b>7</b>
<b>III</b>	Biomolecules: Organic chemistry-the study of carbon compounds; What makes carbon special? Properties of organic compounds. Structure and function of biomolecules. Most macromolecules are Polymers; Carbohydrates act as fuel and building materials; Lipids are group of hydrophobic molecules; Protein have diverse structures and functions; Nucleic acids store and transmit hereditary information.	<b>7</b>

IV	Introduction to Cellular Respiration:Laws of Thermodynamics, energy conversion converted through biological systems. Metabolism:(Endergonic (anabolic) reactions Exergonic (catabolic) reactions) .Structure and functions of enzymes in terms of Activation energy, Active site, Co-enzymes, Denaturation, Enzyme inhibitors , Substrate. Structure and role of ATP in the cell. Process of and summary equation for cellular respiration. Major pathways used in the pathways used in the process of cellular respiration: (Glycolysis, Bridge reaction, Citric Acid Cycle, Oxidative Phosphorylation & Electron Transport Chain) Compare and contrast aerobic respiration with fermentation. Importance of carbohydrate, lipid and protein breakdown and how these molecules are utilized in aerobic respiration.	4
V	Photosynthesis: Process of and summary equation for photosynthesis, importance of photoautotrophs as producers.Basic structure of a leaf and its component parts: Basic structure of a chloroplast: Electromagnetic spectrum and the significance of visible light as an energy source for photosynthesis.The two stages of photosynthesis, including the location, raw materials and products ofLight Reactions and Calvin Cycle. Interrelationship between the Light Reactionsand the Calvin Cycle. Adaptations in relation to photosynthesis in plants in different environments. Compare the processes of aerobic cellular respiration and photosynthesis to include locations, rawmaterials and products.	7
<b>Course Outcomes as per Blooms Taxonomy</b>		
CO1	The student will be able to <b>understand</b> <sup>2</sup> Energy and information flow in living systems.	
CO2	They will be able to <b>characterize</b> <sup>2</sup> form <b>analyze</b> <sup>4</sup> function of cells.	
CO3	They will be able to <b>understand</b> <sup>2</sup> concept of Heredity, molecular genetics and <b>apply</b> <sup>3</sup> it to individuals to populations	
CO4	They will be able to integrate knowledge and to <b>analyses</b> <sup>4</sup> and <b>evaluate</b> <sup>5</sup> different biological functions of life.	
CO5	They will be able to <b>analyse</b> <sup>4</sup> ecological relationship among organisms, populations, communities and their physical environment	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• GM Cooper and Hausman RE, The Cell: A Molecular Approach, 5th edition. 2009, ASM Press &amp; Sunderland, Washington, D.C, Sinauer Associates, MA.</li> <li>• WM Kleinsmith, LJ Hardin and GP Bertoni, The World of the Cell.7th edition.,2009. Pearson Benjamin Cummings Publishing, San Francisco.</li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Biology 8th edition Campbell, N.A. and Reece, J. B Pearson Benjamin Cummings, San Francisco.</li> <li>• Biology 7th edition Raven, P.H et al (2006) Tata McGraw Hill Publications, New Delhi.</li> <li>• Griffiths, A.J.F et al (2008) Introduction to Genetic Analysis, 9th edition, W.H. Freeman &amp;Co.NY.</li> </ul>	

### List of Generic Electives

Students of all Undergraduate programs are required to study **ONE** 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).

#### Generic Electives for III Semester

Code	Green Credit - IV	
<b>GC20B301P</b>		
<b>Learning Objectives:</b>	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: <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>	
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.		
Course Outcomes		
<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.	

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 Engineering & Technology
9.	GE20B309	Photography	School of JMC
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	Bollywood's Signature Moves	School of Performing Arts
8.	GE20B408	R Programming	School of Engineering & Technology
9.	GE20B409	Typography	School of Design
10.	GE20B410	Building Leadership & Fellowship Skills	School of Commerce

<b>COURSE CODE</b>	<b>Basic Analytical Chemistry</b>	<b>Total Lec.: 30</b>
<b>CH20B304</b>		<b>2-0-0-2</b>
<b>Learning Objectives :</b>	<ul style="list-style-type: none"> <li>• Prepare graduates with the basics concept of analytical chemistry.</li> <li>• Produce graduates with knowledge of different analytical techniques.</li> </ul>	
<b>Pre-requisite</b>	None	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Introduction to analytical chemistry and its interdisciplinary nature, concept of sampling, importance of accuracy, precision and sources of error in analytical measurements, presentation of experimental data and results, from the point of view of significant figures.	<b>6</b>
<b>II</b>	Analysis of soil: composition of soil, concept of pH and pH measurement, complexometric titrations, chelation, chelating agents, use of indicators, determination of pH of soil samples, estimation of calcium and magnesium ions as calcium carbonate by complexometric titration.	<b>6</b>
<b>III</b>	Analysis of water: definition of pure water, sources responsible for contaminating water, water sampling methods, water purification methods, determination of pH, acidity and alkalinity of a water sample, determination of dissolved oxygen (DO) of a water sample.	<b>6</b>
<b>IV</b>	Analysis of food products: nutritional value of foods, idea about food processing and food preservations and adulteration, identification of adulterants in some common food items like coffee powder, asafoetida, chilli powder, turmeric powder, coriander powder and pulses, etc., analysis of preservatives and colouring matter.	<b>6</b>
<b>V</b>	Analysis of cosmetics: major and minor constituents and their function, analysis of deodorants and antiperspirants, Al, Zn, boric acid, chloride, sulphate, determination of constituents of talcum powder: magnesium oxide, calcium oxide, zinc oxide and calcium carbonate by complexometric titration.	<b>6</b>
<b>Course Outcomes as per Bloom's Taxonomy</b>		
<b>CO1</b>	Students will <b>understand</b> <sup>2</sup> basic knowledge of analytical chemistry.	
<b>CO2</b>	They will be able to <b>explain</b> <sup>2</sup> different types of soil analysis.	
<b>CO3</b>	They will learn to <b>analyze</b> <sup>4</sup> different water samples.	
<b>CO4</b>	They will be able to <b>identify</b> <sup>3</sup> the nutrients and adulterants in common food products.	
<b>CO5</b>	They will <b>develop</b> <sup>3</sup> knowledge about analysis of cosmetics.	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• Vogel, A. I. Vogel's Qualitative Inorganic Analysis 7th Ed., Prentice Hall.</li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• D A Skoog, D.M. West, F.J. Holler, S.R. Crouch , Analytical Chemistry - An Introduction, 7th Edition, 2000, Saunders College Publishing, Philadelphia, London.</li> </ul>	

<b>COURSE CODE</b>	<b>Basic Instrumentation Skills</b>	<b>Total Lec.:30</b>
<b>GE20B303</b>		<b>2-0-0-2</b>
<b>Learning Objectives:</b>	<ul style="list-style-type: none"> <li>• To understand concepts and principle of DC and AC voltage and current measuring techniques.</li> <li>• To familiarize with different electronic measurement instruments.</li> <li>• To be able to measure different physical parameters with the help of CRO.</li> </ul>	
<b>Pre-requisite:</b>		
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Basic of Measurement techniques, Instruments accuracy, precision, sensitivity, resolution range etc. Errors in measurements and loading effects, Principles of measurement of DC and AC voltage and current, Measurement of resistance, Specifications of Multimeter and uses	<b>4</b>
<b>II</b>	Electronic Voltmeter: Advantage over conventional multimeter for voltage measurement with respect to input impedance and sensitivity. Principles of voltage, measurement, Type of AC millivoltmeters, Block diagram ac millivoltmeter, specifications and their significance, Amplifier- rectifier, and rectifier- amplifier.	<b>4</b>
<b>III</b>	Block diagram of basic CRO, Construction of CRT, Electron gun, electrostatic focusing and acceleration (Derivation not required), brief discussion on screen phosphor, visual persistence & chemical composition. Time base operation, synchronization. Front panel controls.	<b>6</b>
<b>IV</b>	Application of CRO for the measurement of voltage (dc and ac frequency, time period. Special features of dual trace, introduction to digital oscilloscope, probes. Digital storage Oscilloscope: Block diagram and principle of working, Block diagram, explanation and specifications of low frequency signal generators, pulse generator, and function generator. Brief idea for testing, specifications. Distortion factor meter, wave analysis.	<b>7</b>
<b>V</b>	Block diagram of bridge, working principles of basic (balancing type) RLC bridge. Specifications of RLC bridge, Block diagram & working principles of a Q- Meter. Digital LCR bridges, Principle and working of digital meters. Comparison of analog & digital instruments. Characteristics of a digital meter. Working principles of digital voltmeter.	<b>6</b>
<b>Course Outcomes</b>		
<b>CO1</b>	Students will able to <b>understand</b> <sup>2</sup> working principle of AC and DC measurement instruments.	
<b>CO2</b>	Students will able to <b>apply</b> <sup>3</sup> multimeter in voltage and current measurement.	
<b>CO3</b>	Students will able to <b>demonstrate</b> <sup>3</sup> the operating principle CRO and its use in physical quantity measurement.	
<b>CO4</b>	Students will able to <b>compute</b> <sup>4</sup> different parameters for characterizing different circuits like rectifiers and amplifier.	
<b>CO5</b>	Students will able to <b>distinguish</b> <sup>4</sup> working of analog and digital instruments.	

<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• B.L. Theraja, A text book in Electrical Technology, S Chand and Co.</li> <li>• Venugopal, Digital Circuits and systems, Tata McGraw Hill, 2011.</li> <li>• S. Ghishal, Digital Electronics, Cengage Learning, 2012.</li> <li>• S. Salivahanan &amp; N. S.Kumar Electronic Devices and circuits, , 3rd Ed.,Tata Mc-Graw Hill, 2012.</li> </ul>
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• M.G. Say, Performance and design of AC machines - ELBS Edn.</li> <li>• U.Tietze, Ch.Schenk, Electronic circuits: Handbook of design and applications, Springer, 2008.</li> <li>• Thomas L. Floyd, Electronic Devices, 7<sup>th</sup> Ed., Pearson India, 2008</li> </ul>

<b>COURSE CODE</b>	<b>Elementary Number Theory</b>	<b>Total Lec.: 30</b>
<b>GE20B304</b>		<b>2-0-0-2</b>
<b>Learning Objectives:</b>	To present a rigorous development of Number Theory using axioms, definitions, examples, theorems and their proofs.	
<b>Pre-requisites:</b>	None.	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	<b>The Integers:</b> Numbers and Sequences. Sums and Products. Mathematical Induction. The Fibonacci Numbers.	<b>5</b>
<b>II</b>	<b>Primes and Greatest Common Divisors:</b> Prime Numbers. The Distribution of Primes. Greatest Common Divisors. The Euclidean Algorithm. The Fundamental Theorem of Arithmetic. Factorization Methods and Fermat Numbers. Linear Diophantine Equations.	<b>7</b>
<b>III</b>	<b>Congruences:</b> Introduction to Congruences. Linear Congruences. The Chinese Remainder Theorem. <b>Applications of Congruences:</b> Divisibility Tests. Check Digits.	<b>5</b>
<b>IV</b>	<b>Multiplicative Functions:</b> The Euler Phi-Function. The Sum and Number of Divisors. Perfect Numbers and Mersenne Primes. Mobius Inversion.	<b>6</b>
<b>V</b>	<b>Primitive Roots:</b> The Order of an Integer and Primitive Roots. Primitive Roots for Primes. <b>Quadratic Residues:</b> Quadratic Residues and Nonresidues. The Law of Quadratic Reciprocity	<b>7</b>
<b>Course Outcomes as per Blooms Taxonomy</b>		
<b>CO1</b>	Students will be able to : 1) Effectively express the concepts and results of Number Theory.	

<b>CO2</b>	2) Construct mathematical proofs of statements and find counterexamples to false statements in Number Theory.
<b>CO3</b>	3) Collect and use numerical data to form conjectures about the integers.
<b>CO4</b>	4) Understand the logic and methods behind the major proofs in Number Theory.
<b>CO5</b>	5) Work effectively as part of a group to solve challenging problems in Number Theory
<b>Text Books:</b>	K. Rosen, Elementary Number Theory and its Applications (5 <sup>th</sup> Edition), Addison-Wesley (2005).
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• T. Koshy, Elementary Number Theory with Applications, Harcourt/Academic Press (2002)</li> <li>• G. Andrews, Number Theory, Dover Publications (1994)</li> <li>• O. Ore, Number Theory and Its History, Dover Publications (1988)</li> </ul>

<b>Code</b>	<b>Production Technology for Vegetables and Spices</b>	<b>Total Lecture: 30</b>
<b>GE20B305</b>		<b>1-0-1-2</b>
<p><b>Learning Objectives (CO)</b>  Understanding the importance of vegetables, spices, kitchen gardening in human nutrition &amp; in national economy. To know about various vegetables – their origin, area, climate, soil, improved varieties, spacing, transplanting, fertilizer requirement, irrigation, weed management , harvesting and yield.</p> <p><b>Prerequisite of course –</b>  Fundamentals of Horticulture.</p>		
<b>Unit</b>	<b>Contents</b>	<b>Hours</b>
<b>I</b>	Importance of vegetables & spices in human nutrition and national economy. Kitchen gardening. Brief about origin, area, climate, soil, improved varieties and cultivation practices such as time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, harvesting and yield,:Tomato, Brinjal, Chilli, Capsicum, French bean,Peas;	<b>3</b>
<b>II</b>	Brief about origin, area, climate, soil, improved varieties and cultivation practices such as time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, harvesting and yield,:Cucumber, Melons, Gourds, Pumpkin.	<b>2</b>
<b>III</b>	Brief about origin, area, climate, soil, improved varieties and cultivation practices such as time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, harvesting and yield,: Cole crops such as Cabbage, Cauliflower, Knol-khol	<b>5</b>
<b>IV</b>	Brief about origin, area, climate, soil, improved varieties and cultivation practices such as time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, harvesting and yield,: Bulb crops such as	<b>3</b>



	Onion, Garlic; Root crops such as Carrot, Raddish, Beetroot; Tuber crops such as Potato;	
V	Brief about origin, area, climate, soil, improved varieties and cultivation practices such as time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, harvesting and yield, Leafy vegetables such as Amaranth, Palak. Perennial vegetables).	4
	<b>COURSE OUTCOMES</b> At the end of the course the students should be able to	
CO 1	Understanding the importance of vegetables & spices in human nutrition and national economy.	
CO 2	To know about the importance of kitchen gardening in the nutrition of households.	
CO 3	Thorough understanding of cultural practices involved in Tomato, Brinjal, Chilli, Capsicum.	
CO 4	Thorough understanding of cultural practices involved in Cucumber, Melons, Gourds, Pumpkin.	
CO 5	Thorough understanding of cultural practices involved in French bean & peas.	
Text Books	PranabHazra, A. Chattopadhyay, K. Karmakar and S. Dutta. 2010. <i>Modern Technology in Vegetable Production</i> . New India Publishing Agency, New Delhi.	
Reference Books	NeerajPratap Singh, .2007. <i>Basic Concepts of Vegetable Science</i> . International Book Distributing Co. New Delhi. Academic Press, New Delhi.	
	<p><b>List of Practical</b></p> <ul style="list-style-type: none"> <li>• Identification of vegetables &amp; spice crops and their seeds.</li> <li>• Nursery raising.</li> <li>• Direct seed sowing and transplanting.</li> <li>• Fertilizers applications.</li> <li>• Study of morphological characters of different vegetables &amp; spices.</li> <li>• Harvesting &amp; preparation for market. Economics of vegetables and spices cultivation.</li> </ul>	

Code	General Studies-I	Total Lecture: 30
GE20B306		2-0-0-2
<b>Learning Objectives:</b>	<ul style="list-style-type: none"> <li>• The purpose of orienting students to General Studies is to develop in them an appreciation for the holistic nature of knowledge</li> <li>• In contemporary times, familiarity with General Studies is indispensable because at the senior learning stage there is an element of specialization due to which the students do not get exposed to some vital disciplines/areas of study that are not covered in their specialized field.</li> <li>• The whole course of General Studies is, therefore, focused on proper development of the 'affective domain' by exposing the students to varied</li> </ul>	

		domains of study.
Unit	Content	Hours
<b>I</b>	<b>Unit: 1. Innovation: (Science &amp; Technology)</b> 1. Computer VIRUS 2. Cybercrime 3. Computer terms 4. Programming Language 5. Buccal Cavity of human beings & Knock-Knee syndrome	<b>6</b>
<b>II</b>	<b>Unit: 2.The Political India:</b> 1. Amendment Acts 2. Committee related to Panchayati Raj Institutions 3. CAG and related articles 4. Cyber laws	<b>6</b>
<b>III</b>	<b>Unit: 3. The Democratic India</b> 1. Make in India 2. Indian Ministry related to FDI 3. Election Commission 4. SC/ST Act 1989, etc 5. Special Acts of law for minorities	<b>6</b>
<b>IV</b>	<b>Unit: 4. Contemporary Problems of Indian Society:</b> 1. Rural versus Urban Social Issues. 2. Poverty. 3. Unemployment. 4. Illiteracy. 5. Caste System & Communalism.	<b>6</b>
<b>V</b>	<b>Unit: 5 Human Rights</b> 1. Introduction of Human Rights 2. Protection of Human Rights Act 3. State Human Rights Commission 4. National Human Rights Commission 5. Article 21	<b>6</b>
<b>Course Outcome</b>		
At the end of the course the students will be able to:		
<b>CO 1</b>	<ul style="list-style-type: none"> <li>The course for General Studies for graduation level students has been revised keeping in mind the changing dynamics of today's society.</li> </ul>	
<b>CO 2</b>	<ul style="list-style-type: none"> <li>The purpose behind revising the curriculum is to make it more relevant.</li> </ul>	
<b>CO 3</b>	<ul style="list-style-type: none"> <li>It is hoped that this course will develop responsible citizens..</li> </ul>	
<b>CO 4</b>	<ul style="list-style-type: none"> <li>. In the following sections, a brief introduction to each unit has been provided, along with its specific objectives. Further, contemporary issues have been included in each unit to make it pertinent to the lives of students</li> </ul>	

<b>CO 5</b>	<ul style="list-style-type: none"> <li>Suggestive transactional strategies have also been incorporated in each unit to facilitate teachers in effectively planning the learning activities</li> </ul>
<b>Text Books:</b>	<ol style="list-style-type: none"> <li>Ramesh Singh General Knowledge McGraw-Hill publication</li> <li>M. Laxmikant ,Indian Polity (4th Edition or 5th Edition)</li> </ol>
<b>Reference Books:</b>	<ol style="list-style-type: none"> <li>Rajiv AhirSpectrum for Modern Indian History (Latest Edition)</li> <li>MadhyapradeshEkParichaya by McGraw-Hill publication</li> </ol>

<b>Code</b>	<b>Basics of Acting</b>	<b>Total Lecture:30</b>
<b>GE20B307</b>		<b>0-0-2-2</b>
<b>Learning Objectives:</b>	<p>The subject aims the students to provide</p> <p>Demonstrate the ability to accurately interpret and utilize written and verbal directions provided for performances.</p> <ul style="list-style-type: none"> <li>Apply feedback and criticism from previous performances toward improving and refining skills and techniques in subsequent performances.</li> <li>Provide constructive feedback to performances by classmates and Audiences.</li> <li>Compose written criticism of live theatrical productions.</li> <li>Maintain a detailed journal of the theatrical process.</li> </ul>	
<b>Pre-requisites:</b>	Nil	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Principles and Styles of Acting: Stanislavsky’s system, Chekov, Brechtian and alienation Theatre. (Lecture with PPT presentation)	<b>5</b>
<b>II</b>	Dimensions of Acting: <ol style="list-style-type: none"> <li>Body Movement (Aangik),</li> <li>Speech, Improvisation, pronunciation (Vachik),</li> <li>Costume (Aharya),</li> </ol>	<b>9</b>

	4. Emotions (Satvik). (lecture and practice of different dimension of drama)	
<b>III</b>	Relationship and Importance between different elements of Drama. (Set design, lightning, sound, stage etc.) (Lecture and understand the production with multiple studio Arrangements.)	<b>9</b>
<b>IV</b>	Study of Drama works Pre-Independence- (1) Bhartendu Harishchandra (2) Jai Shankar Prasad (3) Dharmveer Bharti etc. (lecture and individual presentation)	<b>5</b>
<b>V</b>	Modern Drama works: Mohan Rakesh, Girish Karnad, BheeshmSahini, Badal Sarkar, Saadat Hasan Manto, Habib Tanveer, Vijay Tendulkar. (lecture and individual presentation)	<b>9</b>
<b>Course Outcomes</b>		
<b>CO1</b>	Student will perform a broad spectrum of dramatic material both improvised and scripted, ranging from Realism to non-Realism, classical to contemporary.	
<b>CO2</b>	Student will develop vocal, physical and imaginative skills to express a broad spectrum of dramatic material.	
<b>CO3</b>	Student will review, analyze and give constructive criticism on performance.	
<b>CO4</b>	Student will work as an ensemble/collective group.	
<b>CO5</b>	Student will understand the rehearsal and performance process, including the relationship between the actor and the director, the actor and stage manager, actor and production crew, actor and fellow actors.	
<b>Text Books:</b>	West End Producer (2013), "Everything you always wanted to know about acting", Nick Hern Books Publication.	
<b>Reference Books:</b>	Spolin V. (1963), "The Improvisation for the theater"- A handbook of Teaching and Directing Techniques, North western University Press.	

<b>Code</b>	<b>C++ Programming</b>	<b>Total Lecture: 30</b>
<b>CS20B205</b>		<b>2-0-0-2</b>
<b>Course Objective:</b> The objective of course is to develop programming skills of students, using object oriented programming concepts, learn the concept of class and object using C++ and develop classes for simple applications.		
<b>I</b>	Introduction to Programming – Program and Programming –Programming Languages –Types of software's, Operating Systems –Dos commands –Basic Linux commands and vi editor –	<b>5</b>

	Compiler, Interpreter, Loader and Linker Fundamentals in C++ –History of 'C++' –Migrating from procedural oriented language –to object oriented languages Program –Keywords –Variables –Constants –Data type –Operators –Manipulators and uses –Basic Structure of a 'C++' program	
<b>II</b>	Control statements –Conditional Control Statements –if –if-else –nested if-else – else-if ladder –Multiple Branching Control Statement –switch-case –Loop Control Statements –while –do-while –for –Nested Loops –Jump Control statements – break –continue –goto –exit –return –Programming Examples –FAQ's	<b>6</b>
<b>III</b>	Pointer array Reference –pointer variable –Reference variable/alias variables? – Reference to Reference variable? –Reference to array? –Reference vs normal variable? –Reference vs pointer variable? –1D and 2D Arrays –What is dynamic memory allocation? –The new and delete operator –new vs malloc –delete vs free –Dynamic 1D and 2D Arrays	<b>7</b>
<b>IV</b>	Function –What is function ? –Why function ? –Advantages of using functions – Function Prototype –Defining a function –Calling a function –Actual and Formal Arguments –Types of functions –Parameter Passing Techniques –Call by Value – Call by Reference –Call by Pointer –Return statement –Returning More than one value From A Function –Return by value mechanism –Return by pointer mechanism –Return by reference mechanism –Inline Functions –Default Arguments –Function Overloading –Lambda function. –Recursion	<b>6</b>
<b>V</b>	Introduction to oops –c structure vs c++structure –Class –Object –Encapsulation –Abstraction –Polymorphism –Inheritance –Message Passing Classes and Objects –Declaring / defining classes –Data members and member functions –Access specifiers : public and private and protected –Creating objects of a class –Pointers to object –Implicit this pointer –Static data members –Static member functions – Passing objects to a member function –Returning objects from a member function –Friend functions –Friend classes –Nested classes –Local classes –The const member functions –The const objects –Array of objects –static objects –inline functions.	<b>6</b>

**Course Outcome(s) as per Blooms Taxonomy**

**Upon completion of this course, students will acquire knowledge about:**

<b>CO1</b>	<ul style="list-style-type: none"> <li>• Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems.</li> </ul>
<b>CO2</b>	<ul style="list-style-type: none"> <li>• Demonstrate an understanding of computer programming language concepts.</li> </ul>
<b>CO3</b>	<ul style="list-style-type: none"> <li>• Able to define data types and use them in simple data processing applications also he/she must be able to use the concept of array of structures. Student must be able to define union and enumeration user defined data types.</li> </ul>
<b>CO4</b>	<ul style="list-style-type: none"> <li>• Ability to design and develop Computer programs, analyzes, and interprets the concept of</li> </ul>

	pointers, declarations, initialization, operations on pointers and their usage.
<b>CO5</b>	<ul style="list-style-type: none"> <li>Develop confidence for self education and ability for life-long learning needed for Computer language.</li> </ul>
<b>Text Books</b>	<ol style="list-style-type: none"> <li>Herbert Schildt-2017, The complete reference C++, 4<sup>th</sup>edition, Mcgraw Hill.</li> <li>Bjarne, A Tour of C++,4<sup>th</sup> edition, Addison-Wesley.</li> </ol>
<b>Reference Books</b>	<ol style="list-style-type: none"> <li>Herbert Schildt-2017, The complete reference C++, 4<sup>th</sup>edition, Mcgraw Hill.</li> <li>Bjarne, A Tour of C++,4<sup>th</sup> edition, Addison-Wesley.</li> </ol>

<b>Code</b>	<b>Photography</b>	<b>Total Lecture:30</b>
		<b>1-0-1-2</b>
<b>Learning Objectives:</b>	<p>Students undergo a sound learning on technical aspects of photography ranging from using various formats of digital technology in photography; identify different kinds of still camera, camera shots, and moments. Compositions. Along with basic operations and the function of a still camera.</p> <p>Lighting techniques, fundamentals of photography &amp; editing for photography using high end professional equipment and resources.</p>	
<b>Pre-requisites:</b>	Basic interest & knowledge of still camera	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	History of Photography Introduction to camera, Types of a Still camera, Part of a still camera, parts of camera functions, other equipment.	<b>5</b>
<b>II</b>	Origin of Photography- early cameras and technology Photography as art Evolution of Camera- From film to digital era History of different genres of photography Current trends in technology and style	<b>7</b>
<b>III</b>	Depth of field, aperture, shutter speed, lenses and functions, Composition- different types of shots, camera angle and camera movements, subject and camera relationship.	<b>7</b>
<b>IV</b>	Lights and its properties, Different types of lights, other tools used in lighting, diffuser, reflectors, cutter and Gels. Basic lighting techniques accessories used in the lightning.	<b>7</b>

<b>V</b>	Scanning and Image Editing; SCANNING: Scanners as input devices- Working of a Scanner– Scanning procedure – Scanning resolution. IMAGE EDITING: Image editing through image editing software’s like Adobe Photoshop – Adjustment of Brightness, Contrast, Tonal and Color Values – Experimenting with Level and Curve.	<b>4</b>
<b>Course Outcomes</b>		
<b>CO1</b>	Students will Understand History of Photography Introduction to camera	
<b>CO2</b>	Characterize and analyze Origin of Photography- early cameras and technology	
<b>CO3</b>	They will learn to different types of shots, camera angle and camera movements	
<b>CO4</b>	They will have capacity to integrate knowledge and to analyses uses of lighting in different conditions.	
<b>CO5</b>	They will also have capacity to obtain prints through Scanning & photo editing	
<b>Text Books:</b>	1. Digital Photography- Duncan Evans	
<b>Reference Books:</b>	1. Digital Photography-Tom Ang 2. Art History: The Basics By Diana Newall, Grant Pooke	

<b>Code</b>	<b>Introduction to Retail Chain System</b>	<b>Total Lecture: 30</b>
<b>GE20B310</b>		<b>2-0-0-2</b>
<b>Learning Objectives</b> 1 To develop the analytical ability of the students to attain an insight into Retail Management contexts 2 To Understand the techniques for optimal utilization of resources		
<b>Unit</b>	<b>Contents</b>	<b>Hours</b>
<b>I</b>	An Introduction to Retailing: Factors Influencing Retailing, Basic Retail Models, Modern Retail format & Retailing in rural India	<b>6</b>
<b>II</b>	Strategic Planning in Retailing: Setting up Retail organization, Site analysis, Store Design / Layout, Cost & inventory control, Designing an information system for retail, Store based Strategy Mix, Store branding and Promotions	<b>6</b>
<b>III</b>	Retail Formats : Types, E-tailing, Ownership structures	<b>6</b>
<b>IV</b>	Retail Supply Chain : Issues in managing supply chains Networks, Demand Forecasting, sourcing & vendor selection, Overall Inventory Management	<b>6</b>

V	Store Operations Store Atmosphere, In-store service, Visual Merchandising, Store-wise inventory Management	6
<b>COURSE OUTCOMES</b>		
At the end of the course the students should be able to:		
CO 1	To Understand basics of Retailing	
CO 2	Elaborate the Key elements in Retail planning process	
CO 3	Know Different Retail formats	
CO 4	Illustrate issues in supply chain	
CO 5	Review the customer experience and engagement	
Text Books	Retail Management – Chetan Bajaj; Rajnish Tuli; Nidhi Varma – Oxford Fundamentals Of Retailing - K. V. S. Madaan -Tata McGraw-Hill Education Retail Management: A Strategic Approach, - Berman - Pearson Education India	
Reference Books	International Retail Marketing: A Case Study Approach - Margaret Bruce, Christopher Moore, Grete Birtwistle - Elsevier Butterworth-Heinemann, Strategic Retail Management: Text and International Cases - Joachim Zentes, Dirk Morschett, Hanna Schramm-Klein - Springer Science & Business Media	

**SYLLABUS  
SEMESTER IV**

<b>COURSE CODE</b>	<b>Genetics and Society</b>	<b>Total Lectures.: 30</b>
<b>GE20B401</b>		<b>2-0-0-2</b>
<b>Learning Objectives:</b>	<ul style="list-style-type: none"> <li>The course intends to teach concepts and application of modern transmission and molecular genetics.</li> <li>To identify and describe the process and purposes of the cell cycle, meiosis, and mitosis, as well as predict the outcomes of these processes.</li> </ul>	
<b>Pre-requisites:</b>	None.	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Basic unit of life- Cell:Microscopy. Eukaryotic and prokaryotic cells. Cell size, shape and complexity. Compare the relative sizes of plant, animal and bacterial cells. Plasma membrane. “Fluid Mosaic Model” of the plasma membrane, Cell wall. Sub cellular organelles structure and function. Microtubules, Intermediate filaments, Microfilaments Flagella and Cilia	<b>5</b>
<b>II</b>	Cell cycle and genetics, Stages of Cell cycle: Interphase (G1, S, and G2). Structure of chromosome. Homologous chromosomes, Mitosis, cytokinesis in animal cells and plant cells (include cleavage furrow formation, cell plate formation). Cell	<b>7</b>



	cycle control and the relevance of uncontrolled growth in cancer cells.	
<b>III</b>	Genetics: Chromosomes and cell division, patterns of inheritance and sex determination, population genetics, Genetic Variation, Methodologies used to study genes and gene activities, Developmental noise, Detecting macromolecules of genetics Mendel's Law Model organisms for the genetic analysis, Distinction between Phenotype and Genotype.	<b>7</b>
<b>IV</b>	Introduction to ecology and Evolution, Darwin's theory of evolution, The evolution of populations, Concepts of species, Mechanism of speciation. Genetic approach to Biology Patterns of inheritance and question of biology, Variation on Mendel's Law.	<b>4</b>
<b>V</b>	Diversity and classification of life, evidence for evolution, natural selection and adaptation, speciation, evolutionary trees. Regulation and exploitation of populations, ecosystem energy and nutrient flow, species interactions, biodiversity, human impacts. In breeding and out breeding, Hardy Weinberg law (prediction, derivation), allelic and genotype frequencies, changes in allelic frequencies, systems of mating, evolutionary genetics, natural selection.	<b>7</b>
<b>Course Outcomes as per Blooms Taxonomy</b>		
<b>CO1</b>	Display a broad <b>understanding</b> <sup>2</sup> of core genetics concepts Mendelian Genetics.	
<b>CO2</b>	<b>Explain</b> <sup>2</sup> key concepts of genome organization and repetitive DNA.	
<b>CO3</b>	<b>Develop</b> <sup>3</sup> quantitative reasoning and analytical skills.	
<b>CO4</b>	Indepth <b>understanding</b> <sup>2</sup> about genetic sequences and their significance in inheritance.	
<b>CO5</b>	<b>Analyze</b> <sup>4</sup> , <b>interpret</b> <sup>5</sup> , and present methodology and results from primary literature in the discipline.	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>EJ Gardner, MJ Simmons, DP Snustad, <b>Principles of Genetics.</b>, VIII Edition, 2006, John Wiley &amp; Sons.</li> <li>AJF Griffiths, SR Wessler, RC Lewontin, and SB Carroll, <b>Introduction to Genetic Analysis, IX Edition, W. H. Freeman &amp; Co</b></li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>WS Klug, MR Cummings, CA Spencer, <b>Concepts of Genetics.</b> IX Edition, 2009, Benjamin Cummings.</li> <li>PJ Russell, <b>Genetics- A Molecular Approach.</b> III Edition, 2009, Benjamin Cummings.</li> </ul>	

<b>COURSE CODE</b>	<b>Green Chemistry and Green Methods in Chemistry</b>	<b>Total Lectures: 30</b>
<b>CH20B404</b>		<b>2-0-0-2</b>
<b>Learning Objectives :</b>	<ul style="list-style-type: none"> <li>Prepare graduates with the basic concept of Green Chemistry.</li> <li>Produce graduates with knowledge of different types of green methods in chemistry.</li> </ul>	
<b>Pre-requisite</b>	None	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>

<b>I</b>	Introduction: Definitions of Green Chemistry. Brief introduction of twelve principles of Green Chemistry with examples, special emphasis on atom economy, reducing toxicity, green solvents, Green Chemistry and catalysis and alternative sources of energy, Green energy and sustainability	<b>10</b>
<b>II</b>	Surfactants for carbon dioxide – Replacing smog producing and ozone depleting solvents with CO <sub>2</sub> for precision cleaning and dry cleaning of garments.	<b>5</b>
<b>III</b>	Designing of environmentally safe marine antifoulant	<b>5</b>
<b>IV</b>	Rightfit pigment: Synthetic azo pigments to replace toxic organic and inorganic pigments.	<b>5</b>
<b>V</b>	An efficient, green synthesis of a compostable and widely applicable plastic (poly lactic acid) made from corn.	<b>5</b>
<b>Course Outcomes as per Bloom's Taxonomy</b>		
<b>CO1</b>	Students will be able to <b>understand</b> <sup>2</sup> Green Chemistry	
<b>CO2</b>	They will be able to <b>explain</b> <sup>2</sup> the green methods for dry cleaning process	
<b>CO3</b>	They will <b>develop</b> <sup>3</sup> the knowledge of use of green methods in real world cases	
<b>CO4</b>	They will be able to <b>identify</b> <sup>3</sup> the toxic organic and inorganic pigments and their replacements.	
<b>CO5</b>	They will be able to <b>explain</b> <sup>3</sup> the green methods of few synthesis.	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>Matlack, A.S. Introduction to Green Chemistry, Marcel Dekker (2001).</li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>Cann, M.C. &amp; Connely, M.E. Real-World cases in Green Chemistry, American Chemical Society, Washington (2000).</li> </ul>	

<b>COURSE CODE</b>	<b>Electrical Circuit Network Skills</b>	<b>Total Lec.:30</b>
<b>GE20B403</b>		<b>2-0-0-2</b>
<b>Learning Objectives:</b>	<ul style="list-style-type: none"> <li>The course enables the students to design and trouble shoots the electrical circuits, networks.</li> <li>Students learn the fundamentals of Ohm's law, Kirchhoff's current and voltage laws and its practical implementation</li> <li>Designing of circuits (at least proto type models) for a given set of specifications.</li> </ul>	
<b>Pre-requisite:</b>	Basic knowledge of electrostatics and current	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Voltage, Current, Resistance, and Power, Ohm's law. Series, Parallel, and series-parallel combinations, AC Electricity and DC Electricity, Main electric circuit elements and their combination, Rules to analyze DC sourced electrical circuits, Current and voltage drop across the DC circuit elements. Single-phase and three-phase alternating current sources, Rules to analyze AC sourced	<b>7</b>

	electrical circuits, Real, imaginary and complex power components of AC source, Power factor, Saving energy and money.	
<b>II</b>	Drawing symbols, Blueprints, Reading Schematics, Ladder diagrams, Electrical Schematics, Power circuits. Control circuits, Reading of circuit schematics, Tracking the connections of elements and identify current flow and voltage drop.	<b>5</b>
<b>III</b>	AC/DC generators, Inductance, capacitance, and impedance and their response with DC or AC sources, Operation of transformers, Electric Motors, Single-phase, three-phase & DC motors, Interfacing DC or AC sources to control heaters & motors, Speed & power of ac motor, Diode and rectifiers. Components in Series or in shunt.	<b>6</b>
<b>IV</b>	Electrical Protection, Relays, Fuses and disconnect switches, Circuit breakers, Overload devices, Ground-fault protection, Grounding and isolating, Phase reversal, Surge protection. Interfacing DC or AC sources to control elements (relay protection device)	<b>5</b>
<b>V</b>	Different types of conductors and cables, Basics of wiring-Star and delta connection, Voltage drop and losses across cables and conductors, Instruments to measure current, voltage, power in DC and AC circuits, Insulation, Solid and stranded cable, Conduit, Cable trays, Splices: wirenuts, crimps, terminal blocks, split bolts, and solder, Preparation of extension board.	<b>7</b>
<b>Course Outcomes as per Bloom's Taxonomy</b>		
<b>CO1</b>	Students will able to <b>apply</b> <sup>3</sup> the basics law of circuit analysis in real world.	
<b>CO2</b>	Students will able to <b>understand</b> <sup>2</sup> basic symbol theory of electrical circuits	
<b>CO3</b>	Student will able to <b>distinguish</b> <sup>3</sup> working AC and DC motors and <b>develop</b> the interface between them.	
<b>CO4</b>	Student will able to <b>implement</b> <sup>3</sup> the electrical protection methods.	
<b>CO5</b>	Student will able to <b>design</b> <sup>5</sup> extension board as per requirement.	
<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• B.L. Theraja, A text book in Electrical Technology, S Chand and Co.</li> <li>• Venugopal, Digital Circuits and systems, Tata McGraw Hill, 2011.</li> <li>• S. Ghishal, Digital Electronics, Cengage Learning, 2012.</li> <li>• S. Salivahanan &amp; N. S.Kumar Electronic Devices and circuits, , 3rd Ed.,Tata Mc-Graw Hill, 2012.</li> </ul>	
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• M.G. Say, Performance and design of AC machines - ELBS Edn.</li> <li>• U.Tietze, Ch.Schenk, Electronic circuits: Handbook of design and applications, Springer, 2008.</li> <li>• Thomas L. Floyd, Electronic Devices, 7<sup>th</sup> Ed., Pearson India, 2008</li> </ul>	

<b>COURSE CODE</b>	<b>Introduction to Statistical Methods and Probability</b>	<b>Total Lec.: 30</b>
<b>GE20B404</b>		<b>2-0-0-2</b>
<b>Learning Objectives:</b>	The main objective of this course is to provide students with the foundations of probabilistic and statistical analysis mostly used in varied applications in engineering and science like disease modelling, climate prediction and computer networks etc.	

<b>Pre-requisites:</b>	None.	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	Probability: Introduction, random experiments, sample space, events and algebra of events. Definitions of Probability – classical, statistical, and axiomatic.	<b>6</b>
<b>II</b>	Conditional Probability, laws of addition and multiplication, independent events, theorem of total probability, Bayes’ theorem and its applications.	<b>6</b>
<b>III</b>	Standard probability distributions: Binomial, Poisson, Normal, geometric, negative binomial, hypergeometric.	<b>6</b>
<b>IV</b>	Uniform, normal, exponential, Cauchy, beta and gamma along with their properties and limiting/approximation cases.	<b>6</b>
<b>V</b>	Statistics: Scatter diagram; graphical residual analysis, Q-Q plot to test for normality of residuals, autocorrelation and autocovariance functions; stationarity and non stationarity ; correlation and covariance	<b>6</b>
<b>Course Outcomes as per Blooms Taxonomy</b>		
<b>CO1</b>	Understand and critically discuss the issues surrounding sampling and significance	
<b>CO2</b>	Discuss critically the uses and limitations of statistical analysis	
<b>CO3</b>	Solve a range of problems using the techniques covered	
<b>CO4</b>	Discuss critically the uses and limitations of statistical analysis	
<b>CO5</b>	Describe and discuss the key terminology, concepts tools and techniques used in statistical analysis	
<b>Text Books:</b>	<ol style="list-style-type: none"> <li>1. Hogg, R.V., Tanis, E.A. and Rao J.M. (2009): Probability and Statistical Inference, Seventh Ed, Pearson Education, New Delhi.</li> <li>2. Miller, Irwin and Miller, Marylees (2006): John E. Freund’s Mathematical Statistics with Applications, (7th Edn.), Pearson Education, Asia.</li> <li>3. Myer, P.L. (1970): Introductory Probability and Statistical Applications, Oxford &amp; IBH Publishing, New Delhi.</li> <li>4. Sheldon M. Ross, “Introduction to Probability and Statistics for Engineers and Scientists”, Academic Press, (2009).</li> </ol>	
<b>Reference Books:</b>	<ol style="list-style-type: none"> <li>1. D. C. Montgomery and G.C. Runger, “Applied Statistics and Probability for Engineers”, 5th edition, John Wiley &amp; Sons, (2009).</li> <li>2. Robert H. Shumway and David S. Stoffer, “Time Series Analysis and Its Applications with R Examples”, Third edition, Springer Texts in Statistics, (2006).</li> </ol>	

<b>Code</b>	<b>Farming System &amp; Sustainable Agriculture</b>	<b>Total Lecture: 30</b>
<b>GE20B405</b>		<b>2-0-0-2</b>
<b>Learning Objectives (CO)</b> To teach the students about farming systems, their types and management, cropping systems and sustainable agriculture. To give the knowledge of integrated farming systems and their interactions. <b>Prerequisite of course</b> –Fundamentals of Agronomy.		
<b>Unit</b>	<b>Contents</b>	<b>Hours</b>
<b>I</b>	Farming System-scope, importance, and concept, Types and systems of farming system and factors affecting types of farming, Farming system components and their maintenance,	<b>6</b>
<b>II</b>	Cropping system and pattern, multiple cropping system, Efficient cropping system and their evaluation, Allied enterprises and their importance, Tools for determining production and efficiencies in cropping and farming system;	<b>6</b>
<b>III</b>	Sustainable agriculture-problems and its impact on agriculture, indicators of sustainability, adaptation and mitigation, conservation agriculture strategies in agriculture, HEIA, LEIA and LEISA and its techniques for sustainability,	<b>6</b>
<b>IV</b>	Integrated farming system-historical background, objectives and characteristics, components of IFS and its advantages, Site specific development of IFS model for different agro-climatic zones,	<b>6</b>
<b>V</b>	Resource use efficiency and optimization techniques, Resource cycling and flow of energy in different farming system, farming system and environment, Visit of IFS model in different agro-climatic zones of nearby states University/ institutes and farmers field.	<b>6</b>
<b>Course Outcomes</b>		
At the end of the course the students should be able to:		
<b>CO 1</b>	<b>Well acquainted with farming systems and their components.</b>	
<b>CO 2</b>	<b>Well acquainted with cropping systems and allied enterprises.</b>	
<b>CO 3</b>	<b>Understand sustainable agriculture, their problems and management.</b>	
<b>CO 4</b>	<b>Know about integrated farming systems and their interactions.</b>	
<b>CO 5</b>	<b>Well exposed to use resources efficiently in different activities of farming.</b>	
<b>Text Books</b>	1. Jayanthi C, Devasenapathy P and Vinnila, C. 2008. 2. Farming systems principles and practice. Satish serial publishing house, Delhi 3. Panda.S.C. 2011. Cropping and farming systems. Agrobios (India) Jodhpur.	
<b>Reference Books</b>	4. Arun K. Sharma. 2006. A hand book of organic farming - Agrobios (India) Jodhpur	

<b>Code</b>	<b>Subject: General Studies-II</b>	<b>Total Lecture:30</b>
-------------	------------------------------------	-------------------------

<b>GE20B406</b>	<b>2-0-0-2</b>	
<b>Learning Objectives:</b>	<ul style="list-style-type: none"> <li>• The purpose of orienting students to General Studies is to develop in them an appreciation for the holistic nature of knowledge</li> <li>• In contemporary times, familiarity with General Studies is indispensable because at the senior learning stage there is an element of specialization due to which the students do not get exposed to some vital disciplines/areas of study that are not covered in their specialized field.</li> <li>• The whole course of General Studies is, therefore, focused on proper development of the 'affective domain' by exposing the students to varied domains of study.</li> </ul>	
<b>Unit</b>	<b>Content</b>	<b>Hours</b>
<b>I</b>	<b>Current National issues</b> This part is intended to test the Candidate's awareness of current national issues.	6
<b>II</b>	<b>International Affairs &amp; Institutions</b> This part will include questions on important events in world affairs and on international institutions.	6
<b>III</b>	<b>Indian Economy</b> In this part, questions will be on the planning and economic development in India, economic & trade issues, Foreign Trade, the role and functions of I.M.F., World bank, ADB, W.T.O. etc.	6
<b>IV</b>	<b>Games &amp; Sports</b> Questions will assess the awareness of candidates in respect of games and sports at international and national level. It will also have questions pertaining to different awards and personalities in the context of India.	6
<b>V</b>	<b>Indian Agriculture</b> Attempt will be made to assess the general awareness of candidates in respect of crops, white revolution, green revolution, agriculture production and their impact on development of rural economy.	6
<b>Course Outcome</b>		
At the end of the course the students will be able to:		
<b>CO 1</b>	<ul style="list-style-type: none"> <li>• The course for General Studies for graduation level students has been revised keeping in mind the changing dynamics of today's society.</li> </ul>	
<b>CO 2</b>	<ul style="list-style-type: none"> <li>• The purpose behind revising the curriculum is to make it more relevant.</li> </ul>	
<b>CO 3</b>	<ul style="list-style-type: none"> <li>• It is hoped that this course will develop responsible citizens..</li> </ul>	
<b>CO 4</b>	<ul style="list-style-type: none"> <li>• . In the following sections, a brief introduction to each unit has been provided, along with its specific objectives. Further, contemporary issues have been included in each unit to make it pertinent to the lives of students</li> </ul>	
<b>CO 5</b>	<ul style="list-style-type: none"> <li>• Suggestive transactional strategies have also been incorporated in each unit to facilitate teachers in effectively planning the learning activities</li> </ul>	

<b>Text Books:</b>	<ul style="list-style-type: none"> <li>• M. Laxmikant <i>Indian Polity</i> (4th Edition or 5th Edition)</li> <li>• Rajiv Ahir <i>Spectrum for Modern Indian History</i> (Latest Edition)</li> <li>• <i>Madhyapradesh Ek Parichaya</i> by McGraw-Hill publication</li> </ul>
<b>Reference Books:</b>	<ul style="list-style-type: none"> <li>• Ramesh Singh <i>General Knowledge</i> McGraw-Hill publication</li> <li>• Current magazines, News Papers &amp; Journals</li> </ul>

Code	Bollywood Signature Moves	Total Lecture: 30
GE20B407		2-0-0-2
<p><b>Course Objective:</b></p> <ul style="list-style-type: none"> <li>• To Identify basic characteristics and vocabulary in Bollywood dance.</li> <li>• To Establish the capacity to recognize the difference, interconnectedness, and diversity of Bollywood and classical Indian dance, and Indian folk dance.</li> <li>• To Understand the key concepts, discourses, and formulaic storytelling elements involved in the practice of this form.</li> <li>• To Understand the transformation of this form from a cinematic experience to a live theatrical experience, and participatory dance culture. <ul style="list-style-type: none"> <li>• To Recognize the relationship between the movement and music.</li> </ul> </li> <li>• To Develop an awareness of the context and politics related to performing and viewing Bollywood dance.</li> <li>• To Recognize how the integration of Western dance styles and forms contributed to the development of a Bollywood dance vocabulary and style.</li> <li>• To Develop an understanding of personal and collective voice and style</li> </ul>		
<b>I</b>	<p><b><u>Basic Bollywood :</u></b> Introduction to Bollywood dance and cinema. Basic Bollywood combinations/choreography.</p>	<b>5</b>
<b>II</b>	<p><b><u>Bollywood Vocabulary:</u></b> Introduction to and basic vocabulary of classical Indian dances, rhythmic footwork and hand gestures Introduction to folk dances of the subcontinent and their inclusion in Bollywood cinema</p>	<b>6</b>
<b>III</b>	<p><b><u>Indo Jazz &amp; Contemporary Bollywood:</u></b> Contemporary and jazz Bollywood Dance: Analyzing it through the Interplay of Social Forces. Introduction of styles of Bollywood: Mujra, Item Number. Introduction of dance choreographies from classic and modern Bollywood films, exploring the differences, and learning choreography from film</p>	<b>7</b>
<b>IV</b>	<p><b><u>On-Off Screen Bollywood :</u></b> Transition to more intricate and longer combinations/choreography Bollywood in the global landscape for both stage and film, influence and inclusion of western dance Live vs. Film Bollywood Dance: clips provided by lecturer.</p>	<b>6</b>

<b>V</b>	<b><u>Synergetic Effects of Bollywood:</u></b> Group projects: Part One As a small group, learn and execute choreography from your choice of Hindi Film; Part Two- Add original choreography on to Part One as a group, to be performed live as part of final, and to be filmed and edited for presentation as part of final grade.	<b>6</b>
<b>Course Outcome(s) as per Blooms Taxonomy</b>		
<b>Upon completion of this course, students will acquire knowledge about:</b>		
<b>CO1</b>	Identify basic characteristics and vocabulary in Bollywood dance.	
<b>CO2</b>	Understanding the key concepts, discourses, and formulaic storytelling elements involved in the practice of this form	
<b>CO3</b>	Recognize the relationship between the movement and music.	
<b>CO4</b>	Recognize how the integration of Western dance styles and forms contributed to the development of a Bollywood dance vocabulary and style.	
<b>CO5</b>	Deeper ability to perform as in Group projects.	
<b>Text Books</b>	Shri Lakshminarayan Garg Kathak Nritya Anubhav Publishing House 1 Jan 2016 Dr Purudadheech – Kathak Nritya Siksha Vol 1– Bindu Prakashan – 9 <sup>th</sup> edition - 1 Jan 2016 Dr. Purudadheech – Abhinaya Darpan – Bindu Prakashan – 2010 Shri Bhagwatsharan Sharma – Tal Prakash – Sangeet Karyalaya – 1 Jan 2014 Shri Damodar Pandit – Sangeet Darpan – Sangeet Karyalaya – 1 JAN 2015	
<b>Reference Books</b>	Manmohan Ghosh- Nandikeshwar’s Abhinaya Darpan – Indian Mind/Dist. By Indica –2018 Dr Mandavi Singh - Kathak Parampara – Swati Prakashan –1990 Shri Kartikram ji - Raigarhmein Kathak – Vijaya Books –2016 Dr. Vidhi Nagar - Kathak Nartan – B R Rhythms –2013 Mansi Saxena – The kathak quiz book – Independently Published –2020 TetianaKapranova – Kathak – Indian Classical Dance – Independently Published – 2020	

Code	R Programming	Total Lectures: 30
<b>GE20B408</b>		<b>2– 0–0-2</b>
<b>Course Objective</b>		
<ul style="list-style-type: none"> <li>• To learn how to program in R</li> <li>• To learn how to use R for effective data analysis.</li> <li>• You will learn how to install and configure software necessary for a statistical programming environment.</li> <li>• The course covers practical issues in statistical computing which includes programming in R, reading data into R, accessing R packages, writing R functions, debugging, and organizing and commenting R code.</li> </ul>		
<b>Unit</b>	<b>Contents</b>	<b>Hours</b>



<b>I</b>	Introduction: Introducing to R, R Data Structures, Help functions in R, Vectors, Scalars, Declarations, recycling, Common Vector operations, Using all and any, Vectorized operations, NA and NULL values, Filtering, Vectorized if-then else, Vector Equality, Vector Element names	<b>5</b>
<b>II</b>	<b>Matrices, Arrays And Lists: Creating matrices, Matrix operations, Applying Functions to Matrix Rows and Columns, Adding and deleting rows and columns, Vector/Matrix Distinction, Avoiding Dimension Reduction, Higher Dimensional arrays, lists, Creating lists, General list operations, Accessing list components and values, applying functions to lists, recursive lists</b>	<b>6</b>
<b>III</b>	Data Frames: Creating Data Frames, Matrix-like operations in frames, Merging Data Frames, Applying functions to Data frames, Factors and Tables, factors and levels, Common functions used with factors, Working with tables, Other factors and table related functions, Control statements, Arithmetic and Boolean operators and values, Default values for arguments, Returning Boolean values, functions are objects, Environment and Scope issues, Writing Upstairs, Recursion, Replacement functions, Tools for composing function code, Math and Simulations in R	<b>7</b>
<b>IV</b>	OOP: S3 Classes, S4 Classes, Managing your objects, Input/Output, accessing keyboard and monitor, reading and writing files, accessing the internet, String Manipulation, Graphics, Creating Graphs, Customizing Graphs, Saving graphs to files, Creating three-dimensional plots	<b>6</b>
<b>V</b>	<b>Interfacing: Interfacing R to other languages, Parallel R, Basic Statistics, Linear Model, Generalized Linear models, Non-linear models, Time Series and Auto-correlation, Clustering</b>	<b>6</b>

### Course Outcomes (CO)

At the end of the course the students should be able to:

CO 1	Understand the basics in R programming in terms of constructs, control statements, string functions
CO 2	Understand the use of R for Big Data analytics
CO 3	Create applications using R programming
CO 4	Learn to apply R programming for Text processing
CO 5	Able to appreciate and apply the R programming from a statistical perspective
Text Books	<ul style="list-style-type: none"> <li>• Norman Matloff , “The Art of R Programming: A Tour of Statistical Software Design”, No Starch Press, 2011</li> <li>• Jared P. Lander, “R for Everyone: Advanced Analytics and Graphics”, Addison-Wesley Data &amp; Analytics Series, 2013.</li> </ul>
Reference Books	<ul style="list-style-type: none"> <li>• Mark Gardener, “ Beginning R – The Statistical Programming Language”, Wiley, 2013</li> <li>• Robert Knell, “Introductory R: A Beginner's Guide to Data Visualization, Statistical Analysis and Programming in R”, Amazon Digital South Asia Services Inc, 2013.</li> </ul>

Code	Typography	Total Lectures: 30
GE20B409		0-0-2-2
<b>Course Objective</b> <ul style="list-style-type: none"> <li>Develop an understanding of the important role of typography in design, including the formal elements of Typography.</li> <li>You will learn how to configure typographical elements</li> <li>The course covers practical issues Design</li> </ul>		
Unit	Contents	Hours
I	Visualization and application of Typography.Exploration of various typography styles.	6
II	Logic, basic characteristics and difference of Serif and Sans Serif. <b>Understanding the natural form of Typeface and its anatomy.</b>	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. <b>Choosing the right Font, size, orientation, balancing the Type forms with space.</b>	6
<b>Course Outcomes (CO)</b>		
At the end of the course the students should be able to:		
CO 1	Acquire understanding of various typefaces and develop sensitivity.	
CO 2	Develop skills to use Typography in engaging visual compositions	
CO 3	Develop skills to reproduce type in appropriate media and printing method	
CO 4	Acquire neatness and ability to present high quality output	
CO 5	Develop skills to develop new types in a specific context. Acquire skills to creatively intervene type to emote a specific expression	
Text Books	<b>Jute,Andre ;Grids : <i>The structure of graphic design.</i> Crans-Pres-Celigny : Rotovision,1996</b> <b>Schmid Helmut, <i>Typography Today</i>,2<sup>nd</sup> Edition, Seibundo Shinkosha, 2003.</b> <ul style="list-style-type: none"> <li><b>Rand,Paul; <i>Design, Form, and Chaos</i>, Yale University Press, 1993</b></li> </ul>	
Reference Books	Robert Bringhurst: <i>The Elements of Typographic Style: Version 4.0</i> <ul style="list-style-type: none"> <li><b>Tim Brown :<i>Flexible Typesetting</i></b></li> </ul>	

Code	Building Leadership & Fellowship Skills	Total Lecture: 30
<b>GE20B410</b>	<b>2-0-0-2</b>	
<p>Learning Objectives</p> <p>Learning is achieved through a variety of teaching methods; such as class discussions, interactive exercises, mini-lectures, readings, and videos.</p> <ol style="list-style-type: none"> <li>1. Deepen your knowledge of what leadership means, and what it takes to successfully lead and inspire teams in a global environment</li> <li>2. Recognize, differentiate, and critique observable leadership styles and behaviors, based upon the Mastering Leadership framework introduced in the course</li> <li>3. Increase your personal effectiveness by understanding your leader tendencies, strengthening your self-awareness, and practicing new skills</li> </ol>		
Unit	Contents	Hours
<b>I</b>	What Does It Mean to be a “Leader?” Leadership Defined Leadership in Transition	<b>6</b>
<b>II</b>	Understanding the Foundations of Leadership Leadership Models Leadership Trait Theory Leadership Behavior Theory Contingency Theory and Situational Leadership Theory	<b>6</b>
<b>III</b>	What’s Your Leadership Style? Authoritarian vs. Democratic Leadership Power and Leadership The Charismatic Leader Transactional Leadership Transformational Leadership The Servant Leader Situational Leadership Conclusions About Leadership Styles	<b>6</b>
<b>IV</b>	Learning Leadership Skills Hard vs. Soft Skills Interpersonal Skills Communicate Effectively Conflict Resolution Negotiation Problem-Solving and Critical Thinking Decision-Making Facilitation	<b>6</b>

<b>V</b>	The Visionary Leader Envisioning Strategic Thinking	<b>6</b>
<b>Course Outcomes</b>		
At the end of the course the students should be able to:		
<b>CO 1</b>	Understand your motivational drivers, emotional intelligence, and communication methods to establish a personal leadership style	
<b>CO 2</b>	Apply or adapt your leadership style to meet specific challenges	
<b>CO 3</b>	Manage the conditions that drive team performance	
<b>CO 4</b>	Handle stressful and demanding leadership situations	
<b>CO 5</b>	Take charge of your professional development as you navigate the challenges of transitioning from an individual contributor to a leader	
<b>Text Books</b>	Aviolio, Bruce J., Leadership Development in Balance: MADE/Born, Mahway NJ: Lawrence Erlbaum Associates Publishers, 2005. Baker, Michael T. People: the Real Business of Leadership, BookLocker.com, 2010. Bennis, Warren. Why Leaders Can't Lead. San Francisco: Jossey-Bass Publishers, 1989	
<b>Reference Books</b>	Gordon, Thomas. Leader Effectiveness Training: The No-Lose Way to Release the Productive Potential of People. New York: Bantam Books, 1977. Herman, Robert D. and Heimovics, Richard D. Executive Leadership in Nonprofit Organizations: New Strategies for Shaping Executive-Board Dynamics. San Francisco CA: Jossey-Bass Publishers, 1991.	