



University of Rajasthan Jaipur

SYLLABUS

(Three/Four Year Under Graduate Programme in B.Des. – Product Design)

I & II Semester


Examination-2023-24

As per NEP – 2020

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CURRICULUM FOR B.DES (PRODUCT DESIGN)								
PROGRAM CODE UG0512								
S.No.	COURSE CATEGORY	TYPE	COURSE CODE	COURSE NAME	L	T	P	TOTAL CREDIT
YEAR 1								
SEMESTER I								
1	DCC-1L	MJR	PRO-51L-101	History of Art & Design	4	0	0	4
2	DCC-1P	MJR	PRO-51P-102	History of Art & Design	0	0	2	2
3	DCC-2L	MJR	PRO-51L-103	Fundamental of Design & Methods	2	0	0	2
4	DCC-2P	MJR	PRO-51P-104	Fundamental of Design & Methods	0	0	4	4
5	DCC-3P	MJR	PRO-51P-105	Visualization & Ideation	0	0	6	6
6	AECC-1			Hindi + English	2+2	0	0	4
7	VAC-1			Value Added Course-I	2	0	0	2
8	SEC-1			Skill Enhancement course -I	2	0	0	2
TOTAL CREDITS ACHIEVED AFTER SEMESTER I								26
SEMESTER II								


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1	DCC-4L	MJR	PRO-52L-201	Overview & Evolution of Product Design Industry	4	0	0	4
2	DCC-4P	MJR	PRO-52P-202	Overview & Evolution of Product Design Industry	0	0	2	2
3	DCC-5P	MJR	PRO-52P-203	Product Illustration and Technical Drawing	0	0	6	6
4	DCC-6L	MJR	PRO-52L-204	Material & Form Exploration	2	0	0	2
5	DCC-6P	MJR	PRO-52P-205	Material & Form Exploration	0	0	4	4
6	AECC-2			English + Hindi	2+2	0	0	4
7	VAC-2			Value Added Course-II	2	0	0	2
8	SEC-2			Skill Enhancement course -II	2	0	0	2
TOTAL CREDITS ACHIEVED AFTER SEMESTER II								26
Credits Offered for 1 year Certificate								Year 1 Internship Total Credits 52 + 4 = 56

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As per UOR Examination Guidelines

Scheme of Examination for Undergraduate Programme As per UGC Framework for Undergraduate Programme for the Session 2023-2024

Scheme of Examination-

1 credit = 25 marks for examination/evaluation

Continuous assessment, in which sessional work and the terminal examination will contribute to the final grade. Each course in Semester Grade Point Average (SGPA) has two components- Continuous assessment (20% weightage) and (End of Semester Examination) EoSE (80% weightage).

1. Sessional work will consist of class tests, mid-semester examination(s), homework assignments, etc., as determined by the faculty in charge of the courses of study.
2. Each Paper of EoSE shall carry 80% of the total marks of the course/subject. The EoSE will be of 3 hours duration.
 - Part-A of the paper shall have multiple questions of equal marks. This first question shall be based on knowledge, understanding and applications of the topics/texts covered in the syllabus.
 - Part B of the paper shall consist of 4 questions with an internal choice of each. The four questions will be set with one from each of the units with internal choice. Third to fourth questions shall be based on applications of the topics/texts covered in the syllabus (60 % weightage) and shall involve solving Problems (40% weightage) if applicable.
3. 75% Attendance is mandatory for appearing in EoSE.
4. To appear in the EoSE examination of a course/subject student must appear in the mid-semester examination and obtain at least a C grade in the course/subject.
5. Credit points in a Course/Subject will be assigned only if, the student obtains at least a C grade in midterm and EoSE examination of a Course/Subject.

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(3A)

B.Des Semester

(Fashion Design, Interior Design, Jewellery Design, Communication Design, Product Design)

Examination Scheme

Time: Three Hours

Maximum Marks :80

No supplementary Answer book will be given to any candidate. The candidates should write the answers precisely in the main answer book only.

किसी भी परीक्षार्थी को पूराक उत्तर-पुस्तिका नहीं दी जाएगी। परीक्षार्थियों को समस्त प्रश्नों के उत्तर मुख्य उत्तर पुस्तिका में ही लिखने चाहिए।

Answers to short answer-type questions must be given in sequential order. Similarly, all the parts of one question of descriptive part should be answered in one place in the answer-book.

लघुत्तरात्मक प्रश्नों के उत्तर प्रश्नों के क्रमानुसार ही दें। इसी प्रकार किसी भी एक वर्णनात्मक प्रश्न के अन्तर्गत पूछे गए विभिन्न प्रश्नों के उत्तर उत्तर-पुस्तिका में एक ही स्थान पर क्रमानुसार हल करने चाहिए।

Write your roll number on the question paper before start writing the answers to questions.

प्रश्नों के उत्तर लिखने से पूर्व प्रश्न-पत्र पर रोल नम्बर अवश्य लिखिए।

Part A is compulsory having 10 very short answer-type questions (with a limit of 20 words) of two marks each. The first question is based on knowledge, understanding, and applications of the topics/text covered in the syllabus.

भाग अ में दो अंक के 10 अति लघु उत्तरीय प्रश्न (20 शब्दों की सीमा के साथ) अनिवार्य हैं। पहला प्रश्न पाठ्यक्रम में शामिल विषयों/पाठ के ज्ञान, समझ और अनुप्रयोगों पर आधारित है।

Part B of the question paper is divided into four units comprising question numbers 2-5. There is one descriptive question from each unit with internal choice. Each question will carry 15 marks.

भाग ब के प्रश्न पत्र को प्रश्न संख्या 2-5 सहित चार इकाइयों में विभाजित है। प्रत्येक इकाई से आंतरिक विकल्प के साथ एक वर्णनात्मक प्रश्न है। प्रत्येक प्रश्न 15 अंक का है।

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B.Des Semester

(Fashion Design, Interior Design, Jewellery Design, Communication Design, Product Design)

Examination Scheme

Time:- Three Hours

Maximum Marks :- 40

No supplementary Answer book will be given to any candidate. The candidates should write the answers precisely in the main answer book only.

किसी भी परीक्षार्थी को पूराक उत्तर-पुस्तिका नहीं दी जाएगी। परीक्षार्थियों को समस्त प्रश्नों के उत्तर मुख्य उत्तर पुस्तिका में ही लिखने चाहिए।

Answers to short answer-type questions must be given in sequential order. Similarly, all the parts of one question of descriptive part should be answered in one place in the answer-book.

लघुत्तरात्मक प्रश्नों के उत्तर प्रश्नों के क्रमानुसार ही दें। इसी प्रकार किसी भी एक वर्णनात्मक प्रश्न अन्तर्गत पूछे गए विभिन्न प्रश्नों के उत्तर उत्तर-पुस्तिका में एक ही स्थान पर क्रमानुसार हल करने चाहिए।

Write your roll number on the question paper before start writing the answers to questions.

प्रश्नों के उत्तर लिखने से पूर्व प्रश्न-पत्र पर रोल नम्बर अवश्य लिखिए।

Part A is compulsory having 10 very short answer-type questions (with a limit of 20 words) of One marks each. The first question is based on knowledge, understanding, and applications of the topics/text covered in the syllabus.

भाग अ में एक अंक के 10 अति लघु उत्तरीय प्रश्न (20 शब्दों की सीमा के साथ) अनिवार्य हैं। पहला प्रश्न पाठ्यक्रम में शामिल विषयों/पाठ के ज्ञान, समझ और अनुप्रयोगों पर आधारित है।

Part B of the question paper is divided into four units comprising question numbers 2-5. There is one descriptive question from each unit with internal choice. Each question will carry 7.5 marks.

भाग ब के प्रश्न पत्र को प्रश्न संख्या 2-5 सहित चार इकाइयों में विभाजित हैं। प्रत्येक इकाई से आंतरिक विकल्प के साथ एक वर्णनात्मक प्रश्न है। प्रत्येक प्रश्न 7.5 अंक का है।

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Semester - I

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DCC-1L

PRO-51L-101: History Of Art & Design

NSQF LEVEL: 5/SEM I	EOSE :-	3 HOURS	
CREDITS: 4 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: THEORY	MAX	20	80
DELIVERY: LECTURE, TUTORIAL	MIN	08	32

DCC-1P

PRO-51P-102: History Of Art & Design

NSQF LEVEL: 5/SEM I	EOSE :-	3 HOURS	
CREDITS: 2 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: PRACTICAL	MAX	10	40
DELIVERY: TUTORIAL	MIN	04	16

PRE-REQUISITE OF THE COURSE: None


OBJECTIVE: The objective of this course is to provide students with a comprehensive understanding of the history of art and design and its influence on contemporary product design. The course will explore various art movements, design styles, and influential designers throughout history. Students will analyze and interpret art and design within their historical and cultural contexts and apply this knowledge to inform their design practice.

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SYLLABUS :

UNITS	TOPIC	TEACHING HOURS
UNIT I	<p>INTRODUCTION TO ART AND DESIGN HISTORY</p> <ul style="list-style-type: none"> • Importance of studying art and design history in Product design • Overview of major art movements and design styles • Understanding the relationship between art, design, and culture • Social, historical and cultural context of key art and design movements, theories and practices • Use primary and secondary research methods to investigate an area of practice, with consideration of research ethics <p>ANCIENT ART AND DESIGN</p> <ul style="list-style-type: none"> • Indian Art, Craft and Culture • Egyptian, Greek, and Roman art and architecture • Prehistoric art and cave paintings • Byzantine and Islamic art and design influences 	20 Hours
UNIT II	<p>RENAISSANCE AND BAROQUE ART</p> <ul style="list-style-type: none"> • Italian Renaissance art and architecture • Northern Renaissance and its impact on design • Baroque art and architecture <p>ART AND DESIGN OF THE 18TH AND 19TH CENTURIES</p> <ul style="list-style-type: none"> • Neoclassical and Romantic movements • Industrial Revolution and its impact on design • Arts and Crafts movement, Art Nouveau, Modernism, Futurism 	20 Hours


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UNIT III	<p>MODERN ART AND DESIGN MOVEMENTS</p> <ul style="list-style-type: none"> • Art Deco, Bauhaus, Surrealism, Streamlining; Organic Design • Scandinavian Modern, Contemporary, Pop Art • Impressionism and Post-Impressionism • Art Nouveau and Jugendstil • Cubism, Futurism, and Constructivism • Bauhaus and the International Style <p>CONTEMPORARY ART AND DESIGN</p> <ul style="list-style-type: none"> • Space Age, Minimalism, Postmodernism, Memphis, Deconstructivism • Postmodernism and its influence on design • Contemporary art movements and design trends • Sustainable and socially responsible design practices 	20 Hours
UNIT IV	<p>FIELD VISITS TO MUSEUMS AND GALLERIES</p> <ul style="list-style-type: none"> • Visit local museums and galleries to observe and analyze artworks and design objects in person • Analyze historical and contemporary design elements and influences <p>INTEGRATION OF ART AND DESIGN HISTORY INTO PRODUCT DESIGN</p> <ul style="list-style-type: none"> • Applying knowledge of art and design history to inform design decisions • Incorporating historical design styles and elements into contemporary projects • Creating design concepts inspired by specific art / movements or periods 	30 Hours

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SUGGESTED BOOKS AND REFERENCES:

1. A World History of Art" by Hugh Honour and John Fleming
2. The Story of Art" by E.H. Gombrich

LEARNING OUTCOMES:

By the end of the course, students should be able to:

1. Demonstrate knowledge of major art movements and design styles throughout history.
2. Analyze and interpret artworks and design objects within their historical and cultural contexts.
3. Understand the impact of historical art and design on contemporary product design.
4. Apply historical design elements and styles to inform their design concepts and projects.
5. Recognize and appreciate the contributions of influential designers throughout history.
6. Conduct visual analysis and critical interpretation of art and design works.
7. Communicate the historical and cultural significance of art and design in written and oral presentations.

MOOC: Students are encouraged to enroll in the following MOOCs to supplement their learning:

1. "Art and Ideas: Teaching with Themes" on Coursera
2. "Design Thinking: Creativity for the 21st Century" on edX

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DCC-2L

PRO-51L-103 Fundamental Of Design & Methods

NSQF LEVEL: 5/SEM I	EOSE :-	3 HOURS	
CREDITS: 2 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: THEORY	MAX	10	40
DELIVERY: LECTURE, TUTORIAL	MIN	04	16

DCC-2P

PRO-51P-104: Fundamental Of Design & Methods

NSQF LEVEL: 5/SEM I	EOSE :-	4 HOURS	
CREDITS: 4 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: PRACTICAL	MAX	20	80
DELIVERY: TUTORIAL	MIN	08	32

PRE-REQUISITE OF THE COURSE: None

OBJECTIVE: The objective of this course is to introduce students to the fundamental principles of design and design methods. Through hands-on practice and experimentation, students will learn how to generate and refine design concepts, create visual representations of their ideas, and develop a critical understanding of the design process

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SYLLABUS:

UNITS	TOPIC	TEACHING HOURS
UNIT I	<p>INTRODUCTION TO DESIGN THINKING</p> <ul style="list-style-type: none"> • Understanding design as problem-solving • Introduction to design thinking and its application • Case studies on successful designs <p>ELEMENTS AND PRINCIPLES OF DESIGN</p> <ul style="list-style-type: none"> • Basic elements of design: line, shape, form, texture, color • Principles of design: balance, proportion, rhythm, contrast, unity • Examples of designs that demonstrate effective use of elements and principles 	20 hours
UNIT II	<p>SKETCHING AND VISUAL COMMUNICATION</p> <ul style="list-style-type: none"> • Techniques for sketching and drawing • Principles of visual communication • Basic principles of composition <p>DESIGN PROCESS AND METHODOLOGIES</p> <ul style="list-style-type: none"> • Overview of design process and methodology • User-centered design process • Prototyping and testing 	20 hours
UNIT III	<p>DESIGN TOOLS AND TECHNOLOGIES</p> <ul style="list-style-type: none"> • Introduction to design tools and software • Selecting appropriate tools for design projects 	20 hours
UNIT IV	<p>FIELDWORK</p> <ul style="list-style-type: none"> • Visiting design studios, exhibitions, and design shows. • Collecting reference material for projects. 	30 hours

SUGGESTED BOOKS AND REFERENCES:

1. Design Thinking: Understanding How Designers Think and Work by Nigel Cross
2. The Design of Everyday Things by Don Norman
3. A Designer's Art by Paul Rand
4. Design Basics by David A. Lauer and Stephen Pentak

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LEARNING OUTCOMES OF THE COURSE:

1. Understand the basic principles of design and design thinking.
2. Develop a critical understanding of the design process and methodologies.
3. Demonstrate an ability to generate and refine design concepts.
4. Develop visual communication and presentation skills.
5. Understand the importance of user-centered design and prototyping.
6. Be able to select and use appropriate design tools and technologies.
7. Gain exposure to the design industry through fieldwork and studio visits.

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DCC-3P

PRO-51P-105 Visualisation & Ideation

NSQF LEVEL: 5/SEM I	EOSE :-	4 HOURS	
CREDITS: 6 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: PRACTICAL	MAX	30	120
DELIVERY: PRACTICAL	MIN	12	48

PRE-REQUISITE OF THE COURSE: None

OBJECTIVE: This course aims to provide students with fundamental drawing techniques and visual communication skills used in the field of design. By the end of the course, students will be able to sketch, draw, and present their ideas visually using various tools and techniques.

SYLLABUS:

UNITS	TOPIC	TEACHING HOURS
UNIT I	INTRODUCTION TO VISUAL COMMUNICATION	20 hours

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	<p>Introduction to the basics of visual communication and its significance in design, an overview of the course content and objectives.</p> <p>DRAWING BASICS</p> <p>Line, Shape, Form, and Proportion: Introduction to basic drawing techniques including line work, geometric shapes, freehand sketching, and understanding the proportions and forms of objects.</p>	
UNIT II	<p>PERSPECTIVE DRAWING TECHNIQUES</p> <p>Introduction to 1-point, 2-point, and 3-point perspective drawing techniques and how to use them to create 3D visualizations.</p>	40 hours
UNIT III	<p>RENDERING TECHNIQUES</p> <p>Introduction to different rendering techniques such as hatching, cross-hatching, stippling, and shading, and how to use them to create realistic textures and materials.</p> <p>COMPOSITION AND LAYOUT DESIGN</p> <p>Introduction to the principles of composition and layout design, and how to apply them to create effective visual communication.</p>	40 hours
UNIT IV	<p>PRESENTATION TECHNIQUES</p> <ul style="list-style-type: none"> • Introduction to presentation techniques and how to use them to present design ideas effectively. • Introduction to Technologies of Virtuality • Producing VR and AR Experiences: Design Overview 	10 hours

SUGGESTED BOOKS AND REFERENCES:

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1. "Drawing for Designers" by Alan Pipes
2. "Design Drawing" by Francis D.K. Ching and Steven P. Juroszek
3. "Sketching: Drawing Techniques for Product Designers" by Koos Eissen and Roselien Steur

LEARNING OUTCOMES:

1. Develop fundamental drawing techniques used in the field of design.
2. Apply perspective drawing techniques to create 3D visualizations.
3. Use rendering techniques to create realistic textures and materials.
4. Communicate design ideas visually through freehand sketching.
5. Create effective compositions and layouts.
6. Present design ideas effectively through visual aids.

MOOCS:

1. "Drawing for Designers" by Alan Pipes - Online Course available on Udemy (<https://www.udemy.com/course/drawing-for-designers/>)
2. "Introduction to Sketching for Product Designers" - Online Course available on Coursera (<https://www.coursera.org/learn/sketching>)
3. "Color Theory for Designers" - Online Course available on Skillshare (<https://www.skillshare.com/classes/Color-Theory-for-Designers-Core-Concepts-and-Exercises/1675562632>)

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AECC-1

Hindi

*Syllabus Prescribed by the University of Rajasthan .

VAC-1

Value Added Course-I

*Select a course from the list provided by the University of Rajasthan for the Value Added Course.

SEC-1

Skill Enhancement Course-I

*Select a course from the list provided by the University of Rajasthan for the Skill Enhancement Course.

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SEMESTER - II

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DCC - 4L

PRO-52L-201: Overview and Evolution of Communication Design Industry

NSQF LEVEL: 5/SEM II	EOSE :-	3 HOURS	
CREDITS: 4 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: THEORY	MAX	20	80
DELIVERY: LECTURE, TUTORIAL	MIN	08	32

DCC - 4P

PRO- 52P -202: Overview and Evolution of Communication Design Industry

NSQF LEVEL: 5/SEM II	EOSE :-	2 HOURS	
CREDITS: 2 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: PRACTICAL	MAX	10	40
DELIVERY: TUTORIAL	MIN	04	16

PRE-REQUISITE OF THE COURSE: None

OBJECTIVE: The objective of this course is to provide students with an overview of the product design industry, its evolution, and current trends. The course will help students understand the role of product designers, their responsibilities, and how the industry has evolved over time.

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Students will also be introduced to various design styles, materials, and technologies used in the industry.

SYLLABUS:

UNITS	TOPICS	TEACHING HOURS
UNIT I	<p>INTRODUCTION TO PRODUCT DESIGN INDUSTRY</p> <ul style="list-style-type: none"> • Historical overview of product design • Key milestones and influential figures in the industry • Overview of the design process and its importance <p>Trends and Innovation in Product Design</p> <ul style="list-style-type: none"> • Current trends shaping the product design industry • Technological advancements and their impact on design • Case studies of innovative product designs 	20 hours
UNIT II	<p>The Digital Era of Product Design</p> <ul style="list-style-type: none"> • Evolution from traditional design methods to digital tools • Overview of computer-aided design (CAD) and prototyping • Exploring virtual reality (VR) and augmented reality (AR) in design <p>User-Centered Design and Consumer Behavior</p> <ul style="list-style-type: none"> • Understanding user-centered design principles • Analyzing the changing consumer landscape • Design thinking and empathy in product design 	20 hours
UNIT III	<p>Social, Cultural, and Economic Influences on Product Design</p> <ul style="list-style-type: none"> • Cultural factors influencing design aesthetics • Social and environmental considerations in product design • Economic factors and market trends impacting the industry 	20 hours

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	<p>Sustainable and Ethical Design Practices</p> <ul style="list-style-type: none"> • Overview of sustainable design principles • Ethical considerations in product design and manufacturing • Circular economy and its relevance to the industry 	
UNIT IV	<p>Critique and Evaluation of Product Designs</p> <ol style="list-style-type: none"> 1. Developing critical thinking skills in design analysis 2. Evaluating design aesthetics, functionality, and user experience 3. Providing constructive feedback and suggestions for improvement <p>Applied Learning and Design Projects</p> <ul style="list-style-type: none"> • Applying theoretical knowledge to real-world case studies • Collaborative design projects to demonstrate understanding • Presenting and showcasing design concepts and solutions 	30 hours

SUGGESTED BOOKS AND REFERENCES:

Books:

1. "The Design of Everyday Things" by Don Norman
2. "Universal Principles of Design" by William Lidwell, Kritina Holden, and Jill Butler
3. "Product Design and Development" by Karl Ulrich and Steven Eppinger
4. "Design Thinking: Understanding How Designers Think and Work" by Nigel Cross

Online Courses:

1. Coursera: "Design: Creation of Artifacts in Society" (University of Pennsylvania)
2. edX: "Product Design: The Delft Design Approach" (Delft University of Technology)
3. Core77 (www.core77.com)
4. Smashing Magazine (www.smashingmagazine.com)
5. Designmodo (www.designmodo.com)

Industry Publications:

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1. Fast Company Design (www.fastcompany.com/section/design)
2. Design Milk (www.design-milk.com)
3. Dezeen (www.dezeen.com)

Professional Organizations:

1. Industrial Designers Society of America (IDSA) (www.idsa.org)
2. Design Management Institute (DMI) (www.dmi.org)

LEARNING OUTCOMES OF THE COURSE:

- Understand the historical development and evolution of the product design industry.
- Identify key trends and factors driving innovation in the field of product design.
- Explore the impact of emerging technologies on the design process.
- Analyze the role of user-centered design and the changing consumer landscape.
- Examine the social, cultural, and economic influences on product design.
- Gain insights into sustainable and ethical design practices in the industry.
- Develop critical thinking skills to evaluate and critique product designs.
- Apply theoretical knowledge to real-world case studies and design projects.

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DCC-5P

PRO-52P-203: Product Illustration and Technical Drawing

NSQF LEVEL: 5/SEM II	EOSE :-	4 HOURS	
CREDITS: 6 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: PRACTICAL	MAX	30	120
DELIVERY: PRACTICAL	MIN	12	48

PRE-REQUISITE OF THE COURSE: None

OBJECTIVES:

- Students will learn the process of visualization and constructing multiview, isometric, and section drawings.
- Students will learn to analyze geometrically in any form.
- Students will be able to understand and appreciate the presence of hidden geometry in nature.
- Introduce students to the principles of technical drawing employing both sketching and Computer-Aided-Drafting techniques.

SYLLABUS:

UNITS	TOPICS	TEACHING HOURS
UNIT I	Evaluate different types of technical information in the context of diverse project types.	10 Hours

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	<ul style="list-style-type: none"> • Use the technical drawing tools properly and to plot pictures according to the dimensions. • Demonstrate understanding of different material surface finishes using Illustration techniques. • Create technical sketches, geometric constructions, orthographic projections, pictorial/sectional views, dimension drawings, and apply lettering techniques 	
UNIT II	<ul style="list-style-type: none"> • Prepare free-hand multiview sketches of objects • Technical Drawings • Orthographic Projections • Assembly Drawing • Specification templates/standards 	40 Hours
UNIT III	Exploration of geometry to play with space, forms, and communication means.	40 Hours
UNIT IV	<p>Develop technical drawings, details, schedules, and specifications in support of a given art and design project.</p> <p>CAD</p> <p>Templates</p> <p>Specification Software</p> <p>Reading Technical Drawings</p>	20 Hours

Learning Outcomes:

1. Proficiency in product illustration: Students will develop the ability to create accurate and visually appealing product illustrations. They will learn techniques to represent products in two-dimensional formats, including line drawings, orthographic projections, and exploded views.
2. Mastery of technical drawing conventions: Students will become familiar with the standards and conventions used in technical drawings, such as dimensioning, annotations, symbols, and scales. They will learn how to create clear and precise drawings that effectively communicate the design and specifications of a product.

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3. Understanding of perspective and foreshortening: Students will learn how to apply perspective principles to create realistic and visually dynamic product illustrations. They will develop skills in accurately depicting three-dimensional objects on a two-dimensional plane, including handling foreshortening and creating depth and volume.
4. Knowledge of digital tools for product illustration: Students will be introduced to digital tools and software commonly used in product illustration, such as computer-aided design (CAD) software and vector graphics editors. They will learn how to leverage these tools to create precise and professional-looking illustrations.
5. Ability to interpret and create technical drawings: Students will develop the ability to interpret technical drawings and translate them into physical prototypes or digital models. They will gain an understanding of the relationship between technical drawings and the manufacturing process, including considerations for materials, tolerances, and assembly methods. Additionally, students will acquire the skills to create their own technical drawings based on product designs and specifications.

Recommended Resources

Textbooks

1. BIELEFIELD, B. and SKIBA, I. (2013) Basics technical drawing. Birkhauser Verlag AG.
2. HENRY, K. (2012) Drawing for product designers (portfolio skills). London: Laurence King.
3. SIMMONS, C.H. (2012) Manual of engineering drawing: Technical product specification and documentation to British and international standards. 4th ed. Butterworth-Heinemann.
4. SIMMONS, C. and PHELPS, N. (2009) The essential guide to technical product specification: Engineering drawing. London: BSI British Standards Institution.
5. SZKUTNICKA, B. (2010) Technical drawing for fashion (portfolio skills). London: Laurence King.

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DCC-6L

PRO-52L-204: Material & Form Exploration

NSQF LEVEL: 5/SEM II	EOSE :-	3 HOURS	
CREDITS: 2 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: THEORY	MAX	10	40
DELIVERY: LECTURE, TUTORIAL	MIN	04	16

DCC-6P

PRO-52P-205: Material & Form Exploration

NSQF LEVEL: 5/SEM II	EOSE :-	4 HOURS	
CREDITS: 4 CREDITS	MARKS	MIDTERM	EOSE
SUB-TYPE: PRACTICAL	MAX	20	80
DELIVERY: TUTORIAL	MIN	08	32

PRE-REQUISITE OF THE COURSE: None

OBJECTIVE: The objective of this course is to provide students with a comprehensive understanding of the interplay between materials and form in design. The course will focus on developing students' skills in exploring and manipulating form while integrating material properties. By integrating material and form exploration, students will learn to create innovative and sustainable design solutions.

SYLLABUS:

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UNITS	TOPICS	TEACHING HOURS
UNIT I	<p>INTRODUCTION TO FORM AND MATERIAL EXPLORATION</p> <ul style="list-style-type: none"> • Understanding the relationship between form and material in design • Overview of techniques for form exploration • Introduction to different materials and their properties <p>SKETCHING AND DOODLING FOR FORM EXPLORATION</p> <ul style="list-style-type: none"> • Techniques for sketching and doodling to explore form • Developing observational skills and hand-eye coordination • Integrating materials into sketching exercises 	20 hours
UNIT II	<p>MODEL MAKING AND MATERIAL MANIPULATION</p> <ul style="list-style-type: none"> • Introduction to materials used in model making • Techniques for constructing models and manipulating materials • Exploring form through physical models <p>DIGITAL TOOLS FOR FORM EXPLORATION</p> <ul style="list-style-type: none"> • Introduction to 3D modeling software (e.g., SketchUp) • Techniques for generating and manipulating forms digitally • Integrating material properties and textures in digital models 	20 hours
UNIT III	<p>EVALUATION, REFINEMENT, AND MATERIAL SELECTION</p> <ul style="list-style-type: none"> • Methods for evaluating and refining different form options • Critique sessions for evaluating student work • Consideration of material properties in form selection and refinement 	20 hours

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	<p>MATERIAL APPLICATION AND INTEGRATION IN DESIGN</p> <ul style="list-style-type: none"> • Hands-on exploration of different materials and their applications • Experimentation with material combinations to enhance form • Integrating materials and form into design projects 	
UNIT IV	<p>SUSTAINABLE MATERIAL PRACTICES</p> <ul style="list-style-type: none"> • Introduction to sustainable materials and their role in design • Exploring eco-friendly material options and considerations • Future trends in sustainable material exploration <p>MATERIAL AND FORM INNOVATION</p> <ul style="list-style-type: none"> • Introduction to new and emerging materials in design • Case studies of innovative material applications • Discussion on future directions of material and form exploration 	30 hours

SUGGESTED BOOKS AND REFERENCES:

1. Design Thinking: Understanding How Designers Think and Work by Nigel Cross
2. Form, Function, and Design by Paul A. Heskett
3. Sketching: The Basics by Roselien Steur and Koos Eissen
4. Material Revolution: Sustainable and Multi-Purpose Materials for Design and Architecture by Sascha Peters

MOOCS AND SELF-LEARNING INSTRUCTIONS:

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1. Sketching for Product Designers:
<https://www.udemy.com/course/sketching-for-product-designers/>
2. 3D Modeling for Beginners:
<https://www.udemy.com/course/3d-modeling-for-beginners-learn-to-create-3d-models-from-scratch/>
3. "Materials Science and Engineering: A Comprehensive Introduction" offered by MIT OpenCourseWare
4. "Sustainable Materials for Emerging Technologies" offered by Coursera

SELF-LEARNING INSTRUCTIONS:

1. Practice sketching and doodling to explore different forms and integrate material elements.
2. Experiment with different materials for model making and document the outcomes.
3. Explore and learn different 3D modeling software to create digital models that incorporate both material and form.
4. Visit material suppliers and manufacturers to gain hands-on experience with materials and understand their properties.
5. Conduct material testing experiments to explore the physical properties and behavior of materials.
6. Explore online resources, case studies, and industry publications to stay updated on

Learning Outcomes:

- Understanding the relationship between form and material.
- To explore and manipulate form while integrating material properties
- To create innovative and sustainable design solutions.
- To critically evaluate, refine and select material and their properties.

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AECC-2

English

*Syllabus Prescribed by the University of Rajasthan

VAC-2

Value Added Course-II

*Select a course from the list provided by the University of Rajasthan for the Value Added Course.

SEC-2

Skill Enhancement Course-II

*Select a course from the list provided by the University of Rajasthan for the Skill Enhancement Course.

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