

| BDes Course Structure (Revision after 120th senate meeting) | | | |
|---|-------------------------------------|-----------------|------------------------|
| Course number | Course Title | L-St-P-C | Existing course |
| Semester 1 (Credits 41) | | | |
| DD 101 | Introduction to Design | 0-2-0-4 | |
| DD 102 | Representation Techniques | 0-0-6-6 | DD 205 |
| DD 103 | Elements of Design | 1-1-2-6 | DD 202 |
| DD 104 | Applied Science for Design | 1-0-4-6 | |
| DD 105 | Tinkering studio | 1-0-4-6 | - |
| EE 101 | Electrical Sciences | 3-1-0-8 | - |
| ME 111 | Engineering Drawing | 1-0-3-5 | - |
| SA 101 | Sports and games/Performing Arts I | 0-0-2-0 | - |
| Semester 2 (Credits 40) | | | |
| DD 111 | Form, Order and Structure | 1-1-4-8 | DD 211 |
| DD 112 | Principles of Visual Design | 1-0-4-6 | DD 215 |
| DD 113 | Visualization and Illustrations | 0-0-6-6 | DD 205 |
| CS 101 | Introduction to Computing | 3-0-0-6 | - |
| CS 110 | Computing Laboratory | 0-0-3-3 | - |
| EE 102 | Basic Electronics Laboratory | 0-0-3-3 | - |
| ME101 | Engineering Mechanics | 3-1-0-8 | - |
| SA 102 | Sports and games/Performing Arts II | 0-0-2-0 | - |

Branch change:

Branch change after one year from Design to any other department is not permitted. Also, branch change to Design from any other discipline is not permitted.

Minor for Design students:

With current pre-requisite of common courses in first year, students from Design department will not be able to apply for Minor in any department. Design department wants to appeal other departments to open their minor for Design students. Design students may bring different perspective to your class.

BDes Course syllabus (2016 onwards)

Semester 1

Credits: 41

DD 101 Introduction to Design (0-2-0-4)

Preamble:

To give brief introduction of Design. This course will orient students for constructivist learning approach practiced in department of Design

Syllabus:

Brief History of Design; Various trends in Design; Emergence of Modern concept of Design; Introduction to various domains of design.

Text/Reference Books:

Hauffe, T., Design: A Concise History, Laurence King Publishing, 1998

Meggs, P.B., A History of Graphic Design, Library of Congress Cataloging, 1998

Pilloton, E., Design Revolution: 100 Products That Empower People, Metropolis Books, 2009

Lupton, E. and Miller, J.A., The ABC's of Bauhaus: The Bauhaus and Design Theory, Princeton Architectural Press, 1991

DD 102 Representation Techniques (0-0-6-6)

Preamble:

To learn sketching skills to visualize and externalize ideas and thoughts

Syllabus:

Structured introduction to the skills of drawing and sketching using a wide range of media, methods and techniques, different approaches to explore and record daily observations, ideas, imagination and concepts, drawing from memory and imagination, use of drawing as a means of developing creative thinking, develop an understanding of perspective and composition, Exploring Material Properties, Composition, Figure drawing, Object drawing and Drawing outdoors.

Text/Reference Books:

William J. Mitchell, The Nascent Medium, The MIT Press, 1992

Dalley Terence, The complete Guide to Illustrations and Design, Phaidon, 1980

Maurello Ralphs, The complete air brush, Leon Amiel Publishers Inc. NY, 1980

Schmid & Schmid, Handbook of Graphic Presentation, Roland Press, 1979

Herdeej, Graphic Diagrams, Graphic Press, 1976

Langford Michael, Advance Photograph, Focal Press, 1974

Hedgeco John, The air of colour photography, Michel Beazley, 1981

DD 103 Elements of Design (1-1-2-6)

Preamble:

To learn basic elements of visual design and its grammar

Syllabus:

Understanding the basic elements of design, Point/Dot and its characteristics;
Line: different types of lines, qualities of lines, Shape: types of shapes,
Form/Volume in two dimensions; Texture: types and applications; creating
compositions using the elements. The Science of Color Theories (Light & Pigment
Theories); History and functions of the basic Colour Wheel; Science of Colour
mixing (Subtractive & Additive colour mixing principles).

Text/Reference Books:

Samara Timothy, *Design Elements, 2nd Edition: Understanding the rules and knowing when to break them*, Rockport Publishers, 2014

Evans Poppy, Thomas Mark A., *Exploring the Elements of Design*, Delmar Cengage Learning, 2012

White Alex W., *The Elements of Graphic Design*, Allworth Press, 2011

Itten J., *The art of colour: the subjective experience and objective rationale of colour*, John Wiley and Sons., 1974

Gage, J., *Colour and meaning : art, science and* Singapore: Thames & Hudson symbolism, 1999

Sherin, A., *Design Elements, Color Fundamentals: A Graphic Style Manual for Understanding How Color Impacts Design*, Beverly, Mass: Rockport Publishers, 2011

DD 104 Applied Science for Design (1-0-4-6)

Preamble:

To understand creative applications of nature and science in design

Syllabus:

Adaptation and metamorphosis in nature, Evolution and mutation of forms,
Cultured materials and living tissues; Bio-machines: how different animals and
plants function like machines, principles behind diagnostic and therapeutic tools,
basics of orthotics and prosthesis.

Basics of robotics, aero dynamics, hydraulics, pneumatics and and their
applications, exhibit based experimentation with sound and light.

Smart materials and technologies such as hydrophobic and hydrophilic, self-
healing materials, experiments with molecular gastronomy in the context of
food, Dye and Pigment chemistry, stability of colors, photochemistry

Text/Reference Books:

Garratt J. *Design and Technology*, Cambridge University Press, 1996

Caborn C., Cave J., Mould I., *Design and Technology*, Thomas Nelson and Sons Ltd, UK, 1989

Myers W. *Bio Design*, MoMA, Thames and Hudson, London, 2012

Ghatak, A., *Experiments with Light*, Viva Books, 2015

Adington, M., Schodek, D., Smart Material and New Technology, Architectural Press, 2005
Sands M., Feynman R., Leighton R., The Feynman Lectures on Physics, Addison Wesley Longman, 1970
D'Archy Thomas, On growth and Form, Cambridge University Press, 2000

DD 105 Tinkering Studio

(1-0-4-6)

Preamble:

The Objective of this course is to open up the students to learn free and lateral thinking and initiate creative making. The course will encourage students to learn using hands on work and break away from traditional learning methods.

Syllabus:

The habit of tinkering; Exercises in lateral thinking; Exercises in creative problem solving; Exercises in craftsmanship; Problem identification in the real world; How to find creative solutions by doing; How to inculcate the habit of making; introduction to the maker and DIY communities; Building simple models using off-the-shelve mechanical, electrical and electronics DIY kits; Building working solutions to perceived problems in the world

Text/Reference Books:

Garratt J. Design and Technology, Cambridge University Press,1996
Edward de Bono, How to Have Creative Ideas: 62 exercises to develop the mind, RHUK, 2014
Don Norman, The Design of Everyday Things, Basic Books, 2014
Edward de Bono, Lateral Thinking, Penguin UK, 2010

Semester 2

Credits: 40

DD 111 Form, Order and Structure

(1-1-4-8)

Preamble:

The course aims to develop sensitivity towards 3D volumes and their interrelationship with respect to space.

Syllabus:

Introduction to the geometry of platonic solids and study of their interrelationship; Derivation of Archimedean solids through truncation of regular solids; Boolean solids; Order and structure- interrelationship of 2D and 3D forms; Construction of solids using paper; Form manipulation; Form transition; Expressive form, combinatory forms and topology of 3D forms.

Text/Reference:

W. Wong; Principles of Two Dimensional Design, John Wiley & Sons, 1972

K. Critchlow; Order in Space: A design Source Book, Thames and Hudson, 1969
E. H. Gombrich; The Sense of Order, Phaidon Press, 1994
R. Beech, Origami: the complete guide to the art of paper folding, Lorenz Books, 2001
C. Akner-Koler, Three Dimensional Visual Analysis, Konftfack, Sweden, 1994

DD 112 Principles of Visual Design

(1-0-4-6)

Preamble:

To learn the basic principles of visual design in visual compositions, application of elements of design in visual compositions.

Syllabus:

Study of visual principles – Balance: Formal and informal balance; Harmony / Unity; Emphasis / Focus; Rhythm: different types of rhythm; Pattern; Contrast; Scale and proportion; Visual hierarchy; Visual Order and Chaos; Positive – Negative space; Tessellation: Regular and Semi-regular tessellation, modular tessellations

Text/Reference Books:

Gonnella, Rose., Navetta, Christopher and Friedman, Max. Design Fundamentals: Notes on Visual Elements and Principles of Composition. Peachpit Press, 2015
Lidwell, William and Holden, Kritina. Universal Principles of Design. Rockport Publishers, 2010
Pipes, Alan. Foundations of Art and Design. Laurence King Publishing, 2008
Poopy Evans, Mark Thomas. Exploring the Elements of Design. Thomson Delmar Learning, 2008
Bryan, Peterson. Design Basics for Creative Results, How Design Books, 2003
Wong, Wucius. Principles of Two Dimensional Design. Canada: John Wiley & Sons, 1972

DD 113 Visualization and Illustrations

(0-0-6-6)

Preamble:

To understand the role of visualization in design and to learn how to externalize the visualizations through various illustrations

Syllabus:

Understanding basic principles of perception including depth and its representation; Inter-relationship of visual forms in terms of size, scale and overall proportion; Introduction to different medium, tools and instruments to create illustrations; Nature drawing - to study form, structure and various shapes; Representation of 3-dimensional forms; principles of perspectives; Introduction to basics of drawing techniques in the digital format; Conceptualizing ideas into an illustrative format; Exploring the area of realistic

to experimental illustrations; Transforming works form sketching to digital format

Text/Reference Books:

I. Johannes, Design and Form, John Wiley & Sons,1975

M. Galer and L Harvat, Digital Imaging, Focal Press, 2001

D. Heam and M. P. Baker, Computer Graphics, 2nd Ed., Prentice-Hall of India, 1994

R. Kasprin, Design Media – Techniques for water colour, pen and ink, pastel and coloured markers, John Wiley & Sons,1999

D.K, Francis, Design Drawing, John Wiley & Sons,1998

W. Mitchell and M. McCullogh, Digital Design Media, John Willy & Sons, 1995

J. Farace, Digital Imaging, Focal press, 1998

T. C. Wang, Pencil Sketching, John Wiley & Sons,1997.
