

2018

INDUSTRIAL DESIGN -B.S.



DANESHPAJOOHAN PISHRO HIGHER EDUCATION INSTITUTE

- COURSE CHART
- SYLLABUS
- SEMESTER CHART

Industrial Design

	General Courses					
Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
61-11-004	Islamic Thoughts-I	2	2	0		
61-11-011	Islamic Thoughts-II	2	2	0	Islamic Thoughts-I	
61-11-003	Rite of Life (Applied Ethics)	2	2	0		
61-11-012	Islamic Revolution of Iran	2	2	0		
61-11-014	Analytical History of Islam	2	2	0		
61-15-001	Persian Language	3	3	0		
61-15-002	English Language	3	3	0		
61-15-005	Physical Education	1	0.5	0.5		
61-15-011	Exercise-I	1	0	1	Physical Education	
61-15-007	Family and Population Knowledge	2	2	0		
61-11-008	Introduction to Constitution	2	2	0		
61-11-013	The Holy Quran Exegesis	2	2	0		
	Total Credits	22	Note: Onl Constitutio		ourse between 'Islamic Revolution of Ir e taken.	an' and 'Introduction to

	Science Courses					
Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474001	Fundamental of Visual Arts-I	3	2	1		
1473015	Fundamental of Visual Arts-II	3	1	2	Fundamental of Visual Arts-I	
1474002	Basic Drawing-I	3	0	3		
1474003	Basic Drawing-II	3	0	3	Basic Drawing-I	
1474004	Model Making-I	2	0	2	Technical Drawing-I, Materials and Production Methods-I, Materials and Production Methods-II	
1474005	Model Making-II	2	1	1	Model Making-I, Technical Drawing-II	
1474006	Basic Photography-I	2	0	2		
1474007	Basic Photography-II	2	0	2	Basic Photography-I	
1474008	Sculpting	2	0	2	Fundamental of Visual Arts-II	
1473013	Form & Space	2	1	1	Fundamental of Visual Arts-II, Geometry-I, Sculpting	
1474009	Geometry-I	2	1	1	Applied Mathematics-I, Technical Drawing-I	
1474010	Geometry-II	2	1	1	Applied Mathematics-II, Technical Drawing-I	
1474011	Introduction to Art in History-I	2	2	0		
1474012	Introduction to Art in History-II	2	2	0	Introduction to Art in History-I	
1473076	Islamic Art & Civilization	2	2	0		
1474013	Human Factors Engineering-Ergonomics-I	2	2	0		
5111050	Applied Mathematics-I	2	2	0		
5111051	Applied Mathematics-II	2	2	0	Applied Mathematics-I	
5122036	Physics-I Statics	2	2	0	Applied Mathematics-II	
	Total Credits	42			·	

Industrial Design Courses						
Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
5122037	Physics-II Kinetic	2	1	1	Physics-I	
5122038	Physics-III Electricity & Optics	2	1	1	Applied Mathematics-II	
1474015	Technical Drawing-I	2	1	1		
1474016	Technical Drawing-II	2	1	1	Technical Drawing-I	
1474017	History of Industrial Design	2	2	0	Introduction to Art in History-II	
1474018	Human Factors Engineering- Ergonomics-II	2	2	0	Human Factors Engineering-Ergonomics-I	
1474019	Evaluation of Industrial Production	3	2	1	Human Factors Engineering-Ergonomics-I, Fundamentals of Industrial Design-II	
1473064	Object Design in Islamic Civilization	2	2	0		
	Production Economy and Management	3	3	0		
1474021	Materials and Production Methods-I Wood Workshop	2	1	1		
1474022	Materials and Production Methods-II Metal Workshop	2	1	1		
1474023	Materials and Production Methods-III Plastic Workshop	2	1	1		
1474024	Industrial Sociology	2	2	0		
1474025	Computer-Aided Design	2	1	1		Applied Mathematics-II
1474026	Technical Design-I	2	1	1	Physics-I	
1474027	Technical Design-II	2	1	1	Technical Design-I, Physics-II	
1474028	Technical Design-III	2	1	1	Technical Design-II, Applied Mathematics-II	
1474029	Fundamentals of Industrial Design-I	2	2	0	History of Industrial Design	

1474030	Fundamentals of Industrial Design-II	2	1	1	Fundamentals of Industrial Design-I, Form & Space, Basic Drawing-II	
1474031	Industrial Design Project-I Design Process	4	2	Fundamentals of Industrial Design-II, Human Factors Engineering-Ergonomics-II, Technical Drawing-II, Basic Photography-II, Model Making-II		
1474032	Industrial Design Project-II Packaging	2	1	1	Industrial Design Project-I, Geometry-II, Materials and Production Methods-III	
1474033	Industrial Design Project-III Ergonomics	3	1	2	Human Factors Engineering- Ergonomics-II	
1474034	Industrial Design Project-IV Creativity	3	1	2	Industrial Design Project-I	
1474035	Industrial Design Project-V Environment	3	1	2	Industrial Design Project-I	
1474036	Industrial Design Project-VI Present & Future	3	1	2	Industrial Design Project-I	
1474037	Industrial Design Project-VII Furniture	2	1	1		Industrial Design Project-I Design Process
1474038	Industrial Design Project-VIII Bionics	2	1	1	Industrial Design Project-I	
1474039	Industrial Design Project- IX Relation with Factory	5	2	3	Industrial Design Project-I & -II & -III & -IV & -V & -VI & -VII & -VIII	
1474040	Final Project	6	3	3	(after passing 100 credits)	
1474041	Internship	1	0	1	(after passing 100 credits)	
Total Credits				·		·

Total Credits (All Courses)	138



Fundamentals of Visual Arts-I & -II

Course Code	urse Code Course Title		Theoretical	Practical	Pre-requisite	Simultaneous
1474001	74001 Fundamental of Visual Arts-I		2	1		
1473015	Fundamental of Visual Arts-II	3	1	2	Fundamental of Visual Arts-I	

This course provides an introduction to the general and fundamental consisting elements of art works and the ability to identify these elements in them. This course also attempts to develop students' professional criticism of these art works.

Basic Drawing-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474002	Basic Drawing-I	3	0	3		

The main goals of this course are:

- 1. Improving students' mind and hand correlation, to better transfer ideas.
- 2. Physical expression of the ideas in a short time and with simple professional equipment

Basic Drawing-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474003	Basic Drawing-II	3	0	3	Basic Drawing-I	

The main goals of this course are to improve students' vision, hand and mind correlation, and make them able to present high quality designs using professional equipment.

Model Making-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474004	Model Making-I	2	0	2	Technical Drawing-I, Materials and Production Methods-I, Materials and Production Methods-II	

This course aims to provide an introduction to different materials and the methods to use them in making models, in order to present designing ideas three-dimensionally.

Model Making-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474005	Model Making-II	2	1	1	Model Making-I, Technical Drawing-II	

This course aims to provide an introduction to the scientific principles of model making, and its operating process in Industrial Design projects.

Basic Photography-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474006	Basic Photography-I	2	0	2		

Getting to know the shooting method and the approach to monochrome photography



Familiarity with the camera and how it works.

Basic Photography-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474007	Basic Photography-II	2	0	2	Basic Photography-I	

Familiar with all kinds of lenses, color filters and photography at very close distances.

Sculpting

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474008	Sculpting	2	0	2	Fundamental of Visual Arts-II	

The main goals of this course are to develop students' skills to present simple volumes and subsequently complicated volumes, improving students' 3D imagination, and preparation for the market demands and projects containing professional volumes.

Form & Space

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1473013	Form & Space	2	1	1	Fundamental of Visual Arts-II, Geometry-I, Sculpting	

Through a focused series of individual and group projects, the influences of the human and physical contexts on form are explored. Usually students are supposed to design a residential house, as they are familiar with the function of the project, so they can focus on their design projects.

Geometry-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474009	Geometry-I	2	1	1	Applied Mathematics-I, Technical Drawing-I	

In this course, students will be taught some lessons on the rules for drawing 3D images. From the plans of this period, one can mention: incorporated image drawing method, perspective, isometric images, dimmetrics, parallel-axis images and central display imagery

Geometry-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474010	Geometry-II	2	1	1	Applied Mathematics-II, Technical Drawing-I	

Learn the principles of graphic geometry, the types of lines and plates, the different states of the two lines in relation to each other, the expansion of circumstance to single and intersect.

Introduction to Art in History-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474011	Introduction to Art in History-I	2	2	0		



This course provides an introduction to art and artistic works from Ancient Iran, Mesopotamia and Ancient Rome

Introduction to Art in History-II

	Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
ĺ	1474012	Introduction to Art in History-II	2	2	0	Introduction to Art in History-I	

This course provides an introduction to art and artistic works from India, China and Japan.

Islamic Art & Civilization

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1473076	Islamic Art & Civilization	2	2	0		

Topics covered in this course are:

- 1. Introduction to artistic works in the world of Islam
- 2. Introduction to artistic doctrines and periods in the history of Islam, in various countries

Human Factors Engineering – Ergonomics-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474013	Human Factors Engineering-Ergonomics-I	2	2	0		

The main goals of this course are:

- 1. Introduction to principles and fundamentals of Ergonomics, specially Anthropometry
- 2. Introduction to physiological principles of Work and Biomechanics
- 3. Introduction to principles and methods of Industrial Psychology

Applied Mathematics-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
5111050	Applied Mathematics-I	2	2	0		

Limits and Continuity, Differentiation, Curve Sketching, Integration, Methods and Applications of Integration, Continuous Random Variables, and Multivariable Calculus.

Applied Mathematics-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
5111051	Applied Mathematics-II	2	2	0	Applied Mathematics-I	

This course provides introduction to integrals, differential equations, matrices and etc.

Physics-I (Statics)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
5122036	Physics-I Statics	2	2	0	Applied Mathematics-II	



Static and force analysis; the study of external forces and force systems and their analytical solutions as applied to bodies at rest (equilibrium). Topic areas include beams, trusses and determinate frames.

Physics- II (Kinetic)

	Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
ĺ	5122037	Physics-II Kinetic	2	1	1	Physics-I	

This course provides an introduction to dynamics of particles & rigid bodies at general plane motion including kinematics, dynamic equilibrium, work & energy, and impulse & momentum.

Physics-III (Electricity & Optic)

	Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
I	5122038	Physics-III Electricity & Optics	2	1	1	Applied Mathematics-II	

This course provides an introduction to the fundamental physics of Electricity and Optics.

Technical Drawing-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474015	Technical Drawing-I	2	1	1		

The main goal of this course is to provide an introduction to principles and rules of Technical Drawing as a tool to present industrial products.

Technical Drawing-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474016	Technical Drawing-II	2	1	1	Technical Drawing-I	

The main goal of this course is to teach students to draw and read industrial blueprints to use them in Industrial Design projects.

History of Industrial Design

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474017	History of Industrial Design	2	2	0	Introduction to Art in History-II	

This course aims to provide a summary on how Industrial Design came to exist and its evolution, as well as its role in the development of Industrial Projects until today.

Human Factors Engineering – Ergonomics-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
14/401X	Human Factors Engineering- Ergonomics-II	2	2	0	Human Factors Engineering- Ergonomics-I	

This course provides an introduction to harmful environmental factors related to industrial productions, their impact mechanism and prevention methods.



Evaluation of Industrial Production

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474019	Evaluation of Industrial Production	3	2	1	Human Factors Engineering-Ergonomics-I, Fundamentals of Industrial Design-II	

Introduction of Evaluation, Types of Evaluation, Evaluation case studies, Usability testing, Experiments, Field studies, Heuristic Evaluation, Analytics, Predictive models.

Object Design in Islamic Civilization

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1473064	Object Design in Islamic Civilization	2	2	0		

This course provides introduction to the ruling methods, logics, and soul of the objects and products designing in Islamic culture and civilization, and its impact on the rest of the world.

Production Economy and Management

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474020	Production Economy and Management	3	3	0		

This course provides an introduction to the concepts of economy, market, marketing of industrial products, and industrial production and management issues.

Materials and production methods- I (Wood Workshop)

Course Code Course Title		Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474021	Materials and Production Methods-I Wood Workshop	2	1	1		

Introduction to wood and its usage in industries

Understanding Wood Properties and How to Use it in Industries through Understanding the properties of different wood, learning how to make wooden products and fittings, how to use hand tools and machinery works for this industry.

Materials and production methods-II (Metal Workshop)

		Credits	Theoretical	Practical	Pre-requisite	Simultaneous	
ĺ	1474022	Materials and Production Methods-II Metal Workshop	2	1	1		

This course provides an introduction to properties of metals and their application in industries.

What is presented in this course includes familiarity with the characteristics of the metal and how it is used in the industries. This course includes lessons about general properties of metals, metal fittings and methods for forming metals (casting, forging, turning, metallurgy, sheeting, etc.)

Materials and production methods-III (Plastic Workshop)

	Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
I	1474023	Materials and Production Methods-III Plastic Workshop	2	1	1		



This course provides an introduction to properties of plastics and their application in industries.

Industrial Sociology

Course C	Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
147402	24	Industrial Sociology	2	2	0		

The course attempts to analyze the structure and process of industrial organizations from the sociological perspective.

The course enables students to have a general view of modern industry

Computer-Aided Design

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474025	Computer-Aided Design	2	1	1		Applied Mathematics-II

This course provides students with the ability to use computer hardware and software for designing.

Technical Design-I

Course Code	Course Title	Credits	Theoretical	Theoretical Practical		Simultaneous
1474026	Technical Design-I	2	1	1	Physics-I	

Stress; Torsion; Bending; Deflection; General stress-strain relations

Transformation of stress and strain and yield criteria; Deflection of beams; Stability of equilibrium; Design of columns

Technical Design-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474027	Technical Design-II	2	1	1	Technical Design-I, Physics-II	

Design of shafts, keys and couplings; Design of spur gears; Spring design; Design of screws and fasteners; Design of bearings Cams; Gears; Balancing of Rotating Systems; Balancing of Reciprocating Systems; Forces and Torques

Technical Design-III

Course Code	Course Title	Credits Theoretical		Practical	Pre-requisite	Simultaneous
1474028	Technical Design-III	2	1	1	Technical Design-II, Applied Mathematics-II	

This course aims to provide a general introduction to the applications of hydraulic and pneumatic systems in industrial machines.

Fundamental of Industrial Design-I

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474029	Fundamentals of Industrial Design-I	2	2	0	History of Industrial Design	

This course provides a theoretical introduction to the related topics of Industrial Design recognition.



Fundamental of Industrial Design-II

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474030	Fundamentals of Industrial Design-II	2	1	1	Fundamentals of Industrial Design-I, Form & Space, Basic Drawing-II	

This course provides a theoretical introduction to emotional interactions between humans and industrial products.

Industrial Design Project-I (Design Process)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
	Industrial Design				Fundamentals of Industrial Design-II, Human Factors	
1474031	Project-I Design	4	2	2	Engineering-Ergonomics-II, Technical Drawing-II,	
	Process				Basic Photography-II, Model Making-II	

The main goal of this is to develop students' minds to apply what they have learned from the prerequisite courses, and to learn how to operate industrial design projects, both theoretically and practically, based on the needs of the user.

Industrial Design Project-II (Packaging)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474032	Industrial Design Project-II Packaging	2	1	1	Industrial Design Project-I, Geometry-II, Materials and Production Methods-III	

This course provides theoretical and practical introduction to principles and fundamentals of packaging for industrial products.

Industrial Design Project-III (Ergonomics)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
147403	Industrial Design Project-III Ergonomics	3	1	2	Human Factors Engineering- Ergonomics-II	

This course aims to develop students' ability to apply ergonomic factors in designing industrial products.

Industrial Design Project-IV (Creativity)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474034	Industrial Design Project-IV Creativity	3	1	2	Industrial Design Project-I	

This course aims to develop students' creativity in presenting improvisational solutions.

Industrial Design Project-V (Environment)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474035	Industrial Design Project-V Environment	3	1	2	Industrial Design Project-I	

This course aims to provide an introduction to psychology issues and their related application in industrial productions in environments.



Industrial Design Project-VI (Present & Future)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474036	Industrial Design Project-VI Present & Future	3	1	2	Industrial Design Project-I	

The goal of this course is to develop students' creativity to find solutions to industrial problems, according to technologic capacities, and socio-cultural issues of the country's present and future.

Industrial Design Project-VII (Furniture)

Course Code	Course Title	Credits	Theoretical	Practical	Pre- requisite	Simultaneous
1474037	Industrial Design Project-VII Furniture	2	1	1		Industrial Design Project-I Design Process

The main goals of this course are:

- 1. Introduction to the concept of
- 2. Experiencing practical designing for humans, in making furniture objects which have close connections with the user.
- 3. Creating a chance for students to show their creative ideas in practice

Industrial Design Project-VIII (Bionics)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous	
1474038	Industrial Design Project-VIII Bionics	2	1	1	Industrial Design Project-I		

This course provides an introduction to the science of Bionics Design and its application in designing industrial products.

Industrial Design Project-IX (Relation with Factory)

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474039	Industrial Design Project- IX Relation with Factory	5	2	3	Industrial Design Project-I & -II & -III & -IV & -V & -VI & -VII & -VIII	

This course aims to develop students' ability to apply their university knowledge in practical factory settings.

Final Project

Course Code	Course Title Credits		Theoretical	Practical	Pre-requisite	Simultaneous		
1474040	Final Project	6	3	3	(after passing 100 credits)			

Teaching students how to do researches, gather information, categorize data, and present results based on data.

Internship

Course Code	Course Title	Credits	Theoretical	Practical	Pre-requisite	Simultaneous
1474041	Internship	1	0	1	(after passing 100 credits)	

This course provides practical introduction of studied courses through the university, in industrial environments.

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Total	ID Industrial Desi		G General Co	urse	Course title						В	ach	elor of Sci				Desig	n			Semester
	S Science	nce Elective Course Credits acc		Course typaccording the guide	to	Semester Chart									Se						
17	Physical Education				Islamic Thought-I						Technica Drawing			Introduction to Art in History-I		Basic Drawing-I		Fundamental of Visual Arts-I		1	
	1 G		2		G		2	S	2	ID	2	ID	2	S	3	S	3	S			
19			Exercise-I		Islamic Thought-II		Sculpting		Applied Mathematics- II		Technica Drawing-		Materials and production methods-II Metal Workshop		Introduction to Art in History-II		Basic Drawing-II		Fundamental of Visual Arts-II		7
	1		G		2	G	2	S	2	S	2	ID	2	ID	2	S	3	S	3	S	
20	Analytical History of Islam		Basic Photography- I		Engineering-		Islamic Ar & Civilization	& Physics-1		History of Industrial Design		Materials a production methods-l Plastic Work	on Geometry-I		Model Making-I		Fundamentals of Industrial Design-I		3		
	2	G	2	S	2	S	2	S	2	S	2	ID	2	ID	2	S	2	S	2	ID	
20	Islamic Basic Revolution of Photography- Iran II			Human Factors Engineering- Ergonomics-II	'	Computer- Aided Design		Physics-II Kinetic			Technical Form & Space		Geometry-II		Model Making-II		Fundamentals of Industrial Design-II		4		
	2	G	2	S	2	S	2	I D	2	ID	2	ID	2	S	2	S	2	S	2	ID	
18	Rite of Life (Applied Ethics)			Physics-III Electricity & Optics				Technical Design- II			Evaluation Industria Productio	dustrial Sociology			Desi Projec	Industrial Design Project-III Ergonomics		Industrial Design Project-I			
	2		G		2		ID			2		ID	3	ID	2	ID	3	ID	4	ID	
17	General Course		Production Economy and Management			Technical Design-III		Object Design in Islamic Civilization		Industrial Design Project-V Environment		Industrial Design Project-IV Creativity		n Industrial Design Project-II Packaging		9					
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15	The Holy		an Exegesi	Exegesis English Langua			age	e Persian Language			Industri	Industrial Design Project-VIII Bionics			Industrial Design Project-VII Furniture Industrial Design Project-VI Present & Future		Project-VI	7			
	2		G		3		G			3		G	2		I	D	2	ID	3	ID	
10			Final	Projec	t			Internship Inde						Indu	dustrial Design Project- IX, Relation with Factory					∞	
12		6			ID			1			ID			:	5				ID		