



Integral University, Lucknow

Effective from Session: 2017-2018							
Course Code	DAR – 501	Title of the Course	ESTIMATION AND COSTING – I	L	T	P	C
Year	III	Semester	V	3	1	0	
Pre-Requisite	-	Co-requisite	-				
Course Objectives	- To initiate the students into theory and practice of estimating and quantity surveying. - To inculcate awareness regarding factors effecting cost of buildings.						

Course Outcomes	
CO1	Introduction and importance of Estimation in building construction and Architecture.
CO2	To aware student regarding factors effecting the cost of Building.
CO3	Method of taking out quantities of materials used at different stages in Building Construction.
CO4	The analysis of rates of the material used in Construction and method of their organized presentation.
CO5	To specify about the specification.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1.	INTRODUCTION	Introduction to Estimating: Types of building estimates, drawings, to be attached with these estimates. 08 Preparation of rough cost estimates.	8	CO1
2.	UNITS	Units of measurements and units of payment of different items of works related to buildings.	7	CO2
3.	METHODS OF TAKING OUT QUANTITIES	Different methods of taking out quantities: Centre line into- in/ out-to-out methods.	6	CO3
4.	ANALYSIS OF RATES	Steps in the analysis of rates for the following items of work, requirements of material, labour, sundries and contractor's profit. (a) Earth works in excavation in foundation. (b) Earth work in filling. (c) Lime and Cement concrete in foundation. (d) Brick work in foundation. (e) Brick work in super structure. (f) Plastering and pointing. (g) Flooring. (h) R.C.C. and R.B. roof slabs. (i) R.C.C. and R.B. work in beams, lintels and sunshade. (j) Woodwork in chauhats/frames of doors and windows. (k) Woodwork in shutters of doors and windows. (l) Whitewashing, color washing, distempering, water-proof cement paint on walls and ceiling. (m) Painting on doors and windows.	10	CO4
5.	SPECIFICATIONS	Need, General specifications of buildings, methods of writing specifications. Detailed specifications of the above-mentioned items of work.	9	CO5

References Books:																
1. Estimating and costing in Civil Engg. by B.N. Dutta																
2. Estimating, costing, specification and valuation by M. Chakraborti.																
e-Learning Source:																
1. https://www.youtube.com/live/RHQESQqrZEY?si=qesHgO_V8y4fEEEd																

PO- PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	1
CO2	-	-	-	2	-	-	2	-	-	2	-	3	-	2	-	-
CO3	3	-	-	-	-	-	-	-	-	1	-	3	-	-	1	-
CO4	1	-	-	-	2	-	-	-	-	-	-	3	-	-	2	-
CO5	3	-	-	-	-	-	1	-	-	-	-	3	-	1	-	-

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD
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Integral University, Lucknow

Effective from Session: - 2017-2018

Course Code	DAR-502	Title of the Course	BUILDING CONSTRUCTION-II	L	01	T	00	P	03	C	-
Year	III	Semester	V								
Pre-Requisite	NONE	Co-requisite	NONE								
Course Objectives	Building Construction-II further goes in depth detail analysis of construction in Architecture, which helps to enhance practical knowledge, skills and awareness in construction on field while an Architecture design is being executed.										

Course Outcomes

CO1	To Further Enhance Understanding Of Construction Principles And Theories.
CO2	To introduce and familiarize students with construction methods and techniques addressing additional topics in Building construction.
CO3	Covering in brief Topics in Building Construction like Floors, Roofs, Scaffolding and Framework, Partition and Wall Paneling, and Construction Equipment.
CO4	To develop an understanding of scaffolding and formwork, including their types, requirements, and applications in construction, with a focus on concrete structures.
CO5	Introducing students to various construction equipment, including electric hand tools, earth-moving machinery, and transportation equipment, emphasizing their role in modern building construction processes.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1.	FLOORS	Ground Floors: Requirements of good flooring material, types of ground floors, clay, murrum, brick, stone, cement concrete, mosaic, tile terrazzo and timber floors. Upper Floors: R.C.C., R.B., Filler joist, flag stone and timber floors.	08	CO1
2.	ROOFS	Roofs and Trusses: Purpose of roof, Brief description of different types of roofs and trusses.	06	CO2
3.	PARTITIONS AND WALL PANELING	Methods and construction technology of wall paneling, cladding, full and low height partitions, false 08 ceilings, railings, brick jails, honey combing etc..	08	CO3
4.	SCAFFOLDING AND FORM WORKS	General - Types of scaffolds Form Work. Requirements for good formwork. Types of form work. The form works for concrete floors and beams. The form works for walls and columns. Period for removal of formwork	08	CO4
5.	CONSTRUCTION EQUIPMENTS	Electric Hand Tools: Vibrators, Pumps, Compactors/Rollers. Earth Moving and Excavation: Dozers, Scrapers, Graders, Shovels, Backhoe, Dragline, Trenchers. Transportation: Lorries, Trucks, Dumpers, Hoist, Cranes (Mobile, Static, Tower), Concrete mixers and pumps for ready mix concrete	10	CO5

References Books:

1. Building construction. By Sushil Kumar
2. Building Construction Engineering. By Gurcharan Singh

e-Learning Source:

University Lecture -Roof and Floor Construction (https://youtu.be/ptsDs8bcxTI?si=qTOc1l7_ILC52n7C)

PO-PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PSO1	PSO2	PSO3
CO																
CO1	-	2	-	-	-	-	3	1	-	-	-	-	-	-	-	3
CO2	-	-	-	1	-	-	3	2	-	-	-	-	-	-	-	3
CO3	-	-	-	1	-	-	3	2	-	-	-	-	-	-	-	3
CO4	-	-	-	1	-	-	3	2	-	-	-	-	-	-	-	3
CO5	-	1	-	-	-	-	3	1	-	-	-	-	-	-	-	3

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD
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Integral University, Lucknow

Effective Session: - 2017-2018

Course Code	DAR – 503	Title of the Course	INTERIOR DESIGN	L	03	T	01	P	00	C	-
Year	III	Semester	V								
Pre-Requisite	NONE	Co-requisite	NONE								
Course Objectives	- Architecture design is not complete without an Interior. In other words, Interior is a key influential part of any Architecture Design. It not only helps in further customization enhance Design. But also, its functional and psychological benefits cannot be remiss about. - The spaces, facilities and services allocated in a particular Design with Interior design are made into functionally usable and livable spaces appropriately aligned with the purpose of Design or design accordingly. Interior design gives a better visualization of the space and how it will emerge after competition not only to Designer but also to the client as well.										

Course Outcomes

CO1	A brief introduction to basic principle of Interior design with also addressing its functional and psychological concepts.
CO2	The conversion of space, facilities and services allocated in particular Design are made into functionally us a blend livable space.
CO3	Covering in brief Topics in Building Construction like Floors, Roofs, Scaffolding and Framework, Partition and Wall Paneling, and Construction Equipment.
CO4	To familiarize students with various materials used in interior finishes, including paneling, cladding, surface treatments, false ceilings, flooring, and soft furnishings, enabling them to make informed design choices.
CO5	To introduce the theory of colors and their psychological effects, emphasizing color schemes and classifications to enhance the aesthetic and functional aspects of interior spaces.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1.	INTRODUCTION	Principles of interior design, objectives of planning for interior design, Factors affecting the interior design. 10 Functionalism and comfort. Interior of Kitchen and Toilet.	10	CO1
2.	LIGHTING DESIGN	Comfortable design, Natural daylight, ventilation, Artificial light, lighting design.	08	CO2
3.	ROOM	Interior of Bedroom, living room and Dining room	10	CO3
4.	MATERIALS	Materials for paneling and cladding, surface finishing by wall papers and paints. False ceiling and floor covering, curtains and upholstery.	06	CO4
5.	COLOR	Theory of colors, psychological effects of colors, color schemes, classification of colors and their characteristics	06	CO5

References Books:

1. Interior Design by Ahmad Kasu
2. Interior Design by Joseph Di Chiara
3. Space Planning by Julius Bamero

e-Learning Source:

Interior Design - A Technical Guide (https://youtu.be/KSKDxKwlue8?si=wfs6h-pwaDHnNFR_)

PO-PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PO 13	PSO1	PSO2	PSO3
CO																
CO1	-	-	-	2	-	-	3	-	-	-	-	-	-	3	-	-
CO2	-	-	-	-	-	-	3	2	-	-	-	-	-	3	-	-
CO3	-	-	-	-	1	-	3	-	-	-	-	-	-	3	2	-
CO4	-	-	-	1	-	-	3	-	-	-	-	-	-	3	2	1
CO5	-	-	-	-	1	--	3	2	-	-	-	-	-	2	-	-

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD
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Integral University, Lucknow

Effective from Session: 2017-2018							
Course Code	DAR 504	Title of the Course	WORKING DRAWING	L	T	P	C
Year	3 rd YEAR	Semester	5 th SEM	3	1	0	-
Pre-Requisite	NONE	Co-requisite	NONE				
Course Objectives	1. The course aims at developing the requisite level of proficiency in Drawing, which is seen as a primary communication tool in the practice of architecture just like language. 2. Familiarization with drafting tools and accessories. 3. Implication of knowledge of design fundamentals and knowledge gained in other subjects to develop better design solutions.						

Course Outcomes	
CO1	The course aims at developing the requisite level of proficiency in Drawing, which is seen as a primary communication tool in the practice of architecture just like language.
CO2	The subjects should also focus on developing design abilities by applying basic principles.
CO3	Construction and choosing appropriate materials and techniques
CO4	Demonstrates knowledge of common drawing symbols used in architectural drawings
CO5	Design and produce detailed drawings or construction

Unit No.	Title of the Unit	Contact Hrs.	Mapped CO
1.	Site Plan Foundation plan with sectional detail	08	CO1
2.	Floor Plans Ground floor plan Typical Floor plan Terrace Floor plan	10	CO2
3.	Sections Sections one at least through staircase and toilet Elevations – front & rear	09	CO3
4.	Details-I Details of Toilet & kitchen Cupboard drawings details	08	CO4
5.	Details-II Boundary wall & Gate Design Electrical plan	06	CO5

References Books:
Time Saver standards for interior design and space planning by Joseph Dochiara
Building Drawing by M.G. Shah, C.M. Kale, S.Y. Patki
e-Learning Source:
https://youtu.be/u5JZW-tL6WU?si=HizhVJR0UXIX_Qrp
https://youtu.be/Tdrivxv6e0I?si=ZFEEapczHOjJ1CY2

PO-PSO	PO													PSO			
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PSO1	PSO2	PSO3	PSO4
CO1	-	3	1	2	-	3	-	-	-	2	-	-	-	-	2	-	
CO2	-	2	-	1	-	2	-	2	-	2	-	-	-	1	-	3	
CO3	-	-	-	1	2	2	-	-	-	3	-	-	-	-	-	3	
CO4	-	-	-	-	2	-	-	-	-	-	3	-	2	3	-	-	
CO5	-	1	-	-	-	-	1	-	-	-	-	1	-	-	3	-	

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Integral University, Lucknow

Effective from Session: 2017-2018

Course Code	DAR-505	Title of the Course	STRUCTURE DESIGN	L	T	P	C
Year	III	Semester	V	3	1	0	-
Pre-Requisite	DAR-305	Co-requisite	NA				
Course Objectives	1. To understand the basic principles of structural mechanics, so that it can help in building a strong basis to understand study of structural design.						
	2. Developing students, material skills to analyze and understand fundamentals and working of various parts of different structural systems.						

Course Outcomes

CO1	The subject aims at clarifying the basic principles underlying the inventions of various structural ideas with a view to bridge the gap between architectural theory and structural reality.
CO2	Architectural structure and architectural form with a view to stimulating the faculty of conceiving and developing new systems.
CO3	They will learn the basic differences and importance of architect and structural engineer for each other.

UnitNo.	Title of the Unit		Contact Hrs.	Mappe d CO
1.	Chain Survey	Validity, extent and content of structural knowledge necessary for an architect, need for understanding structural ideas, the difference between structural analysis and creation of structures, development of various forms. Classification of structural systems: Form-active structure systems, vector-active structure systems, bulk-active structure systems, surface-active structure systems, vertical structure systems.	8	CO1
2.	Compass Survey	Concept of reinforced concrete structures, advantages and disadvantages. Different materials used in RCC with their properties. Load and loading standard as per IS:875 Concept of design of reinforced concrete based on working stress method and limit state method and their difference. Simple problems including design of singly and doubly reinforced beam, one way and two-way slab.	8	CO2
3.	Levelling	Introduction, methods of pre-stressing and their application to large-space structures.	12	CO3
4.	Theodolite and Auto Level	Introduction to tension and compression members of steel roof trusses (No numerical problems should be asked in the examination).	6	CO1
5.	Plane Table Survey	Elements of Earthquake Engineering, zoning, base shear, lateral forces, ductile detailing and introduction to new codes.	6	CO2

References Books:

1. Reinforced concrete by Ashok K. Jain.

e-Learning Source:

1. <https://youtu.be/PNJvFTwA1jQ>

PO- PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14	PSO 1	PSO 2	PSO 3
CO1	1	-	1	-	-	-	-	-	-	-	-	3	-	-	1	2	
CO2	2	-	-	-	-	-	-	-	2	-	-	3	1	-	2	-	2
CO3	2	-	-	-	-	-	-	2	1	-	-	3	1	-	-	1	3

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD
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Integral University, Lucknow

Effective from Session: 2017-2018							
Course Code	DAR 506	Title of the Course	BUILDING CONTRACT	L	T	P	C
Year	3 rd YEAR	Semester	5 th SEM	3	1	0	-
Pre-Requisite	NONE	Co-requisite	NONE				
Course Objectives	To acquaint the students with most of the general aspects of tender and contracts.						

Course Outcomes	
CO1	The subject aims to acquaint the students with most of the general aspects of tender and contracts in very deep detail.
CO2	The subject will get an introduction to different types of tenders and contracts.
CO3	Also Familiarizing students with modern techniques to analyze climatic parameters and design buildings accordingly. The subject will aim on the different responsibilities of contractors, engineers, architects, etc.
CO4	The subject aims to acquaint the students with Execution of contracts.
CO5	They will learn differences between prime cost and provisional sums.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1.	Introduction	Tendering, Invitation to tender – by private invitation, by negotiations, essential characteristics of a tender notice, opening of tenders, acceptance of a tender, tender document.	08	CO1
2.	Types Of Tenders	Types of tenders, Earnest Money, Security deposit, retention amount and its essential characteristics and purpose of retention amount.	06	CO2
3.	Contract	Contract, its legal definition and its types. Contract by a private party and public body. When contract becomes void. Discharge of contract.	10	CO3
4.	Duties Of an Architect and Contractor	Execution of a contract. Conditions with respect to the power and duties of an Architect. Contractor's duties and liabilities under the contract – (i)Administrative and Organization, (ii) Executive of Work.	08	CO4
5.	Costing And Sub- Contract	Problems arising out of contract conditions, prime cost, provisional sums. Essential characteristics of prime cost, duties of sub-contractor and payment to nominated sub-contractor	08	CO5

References Books:

Professional practice by Roshan H. Namavat

Civil Engg. Contracts and estimates by B.S. Patel.

e-Learning Source:

https://youtube.com/playlist?list=PLwmbF3J4oevVqPMsMX__Qld6yHzyj0jNZ&si=xRoyd69RCoqgXtFr

<https://youtu.be/D5wB4Pxf0L0?si=kpTsPWwfqL2-377i>

PO-PSO	PO													PSO			
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PSO1	PSO2	PSO3	PSO4
CO1	-	-	-	-	-	-	-	2	-	-	-	-	2	-	-	3	
CO2	-	-	-	-	-	-	-	2	-	-	-	-	1	-	2	-	
CO3	-	-	-	-	-	-	2	3	-	1	-	1	2	1	-	3	
CO4	-	-	-	-	-	-	2	1	-	2	-	-	-	-	2	-	
CO5	2	-	-	-	-	-	-	2	-	3	-	-	3	3	-	-	

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD
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Integral University.

Effective from Session: -							
Course Code	DAR-507	Title of the Course	ArchitectureDesign–III	L	T	P	C
Year	III	Semester	V	01	00	04	-
Pre-Requisite	NONE	Co-requisite	NONE				
Course Objectives	● Architecture Design is the soul of Architecture. The objective of Architecture is to Design, the framework of design encompasses almost everything manmade, but it is generally associated with anybuilding environment, structure or object from town planning, urban design, and landscape to furniture and objects. All the other subjects contribute to make an Architecture Design, such is the irrelevance and Design’s importance in Architecture. ● One who acquires the skills and knowledge required to make an Architecture Design can arguably be called an Architect.						

Course Outcomes	
CO1	Making student learn about the art of collecting data and to carry out analysis for the process of evolving design and individuality of approach. Educational tours,Case studies and site analysis of recreational or hospitality projects. Studio exercises on site layout and landscape coordination.
CO2	Students will understand about site planning: organization, scale, hierarchy, orientation and climate
CO3	Students will understand about the layout and services of large public buildings with specialized services.
CO4	Students will Understand design as a function of specific agenda of repetitive units, site conditions, orientation and climate. Educational tours,Case studies and site analysis of recreational or hospitality projects. Studio exercises on site layout and landscape coordination.
CO5	Students will Understand a detailed architectural model of a given design problem, emphasizing precision, material selection, and construction techniques.

Unit No.	Title of the Unit	Contact Hrs.	Mapped CO
UNIT I	DESIGN PROBLEM -1	16	1
UNIT II	SEMINAR	04	2
UNIT III	DETAILED MODEL OF DESIGN PROBLEM -1	04	3
UNIT IV	DESIGN PROBLEM -2	12	4
UNIT V	DETAILED MODEL OF DESIGN PROBLEM -1	04	5

References Books:	
1. Neufert Fourth Edition	
e-Learning Source:	
University Lecture -Architecture & Design (https://youtu.be/bLYTCzLaQeE?si=vrkocNIP7dne4zFJ)	
NOTE – Site visits, case studies may involve local/out station study/Educational Tours. And shall have weightage in course work marks to be decided by subject teacher.	

PO-PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PSO1	PSO2	PSO3
CO																
CO1		1	3	3	2	1	3	1	2		3	3	3	3	2	1
CO2				2	3	1	3	1	3	3	1	1	2	3	2	2
CO3		1		3	3		2	1	1	2	2	2	1	2	1	1
CO4		2	3	3	3		3	1	2	3	3	2	2	3	2	2

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C05		1		3	3		2	1	1	2	2	2	1	2	1	1
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1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

Name & Sign of Program Coordinator	Sign & Seal of HoD
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Integral University, Lucknow

Effective from Session: 2017-2018							
Course Code	DAR – 508	Title of the Course	TOWN PLANNING	L	T	P	C
Year	3 RD YEAR	Semester	5 TH SEM	03	01	0	-
Pre-Requisite		Co-requisite					
Course Objectives	- To introduce the subject of Town planning to students of architecture so that the students can relate to the architectural projects in context of planning. - To develop basic skills in planning surveys, analysis, generating alternative planning strategies and evaluation of options and preparation of plans.						

Course Outcomes	
CO1	The subject focuses on generating an understanding about the development of civilization and its architectural implications.
CO2	Learning about different types of city planning.
CO3	Studying Town planning helps students to relate the architectural projects in context of planning.
CO4	Students will learn how to plan effective transportation networks for towns and cities.
CO5	Students will understand the definition and basic concept of zoning in urban planning.

Unit No.	Title of the Unit		Contact Hrs.	Mapped CO
1.	INTRODUCTION	Historical background of the modern city planning movement. Objects, importance and principles of town planning. Growth of towns, stages in town development, distribution of land uses, forms of planning	08	CO1
2.	ANCIENT PLANNING	Ancient town planning in India. Plans of old Indian cities - Mohenjo-Daro and Harapa, Taxila and Nalanda.	06	CO2
3.	MODERN PLANNING CONCEPTS	Concept of Master Plan, Necessity of Master Plan, preparation of Master Plan, Neighborhood Planning, Idea of city planning such as Chandigarh, Jaipur, Gandhinagar.	12	CO3
4.	URBAN ROADS	General requirements of a good city road. Classification of urban roads, types of street systems. Through and bypass roads, outer and inner ring roads, express ways, Freeways, Road junctions, parking, Traffic capacity of roads.	06	CO4
5.	ZONING AND SLUMS	Meaning of the term, Principles of zoning, Advantages of Zoning, Importance & Aspects of Zoning, Transition Zone, Economy of Zoning.	08	CO5

References Books:	
1.	Town Planning by S.C. Rangwala
2.	The Landscape of Man by Geofery & Susan

e-Learning Source:	
https://youtu.be/kzW11gIRjIk?si=zsRYhxqaJWL8iivW	
https://youtu.be/_oUwtT7W3rU?si=x2HvbuRz8Ma3GS0g	
https://youtu.be/Xms5sZrHDh0?si=3DmkRII4D4EI9kv	

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PSO1	PSO2	PSO3
CO1	-	-	2	1	3	-	-	-	3	1	-	-	2	1	2	3
CO2	-	-	2	3	1	-	1	-	3	1	-	-	2	-	-	1
CO3	-	-	1	2	3	-	1	-	3	2	-	-	2	-	2	-
CO4	2	-	-	-	-	-	-	-	3	-	-	3	-	3	-	1
CO5	-	-	-	-	3	2	-	-	2	2	-	3	-	-	-	2

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Name & Sign of Program Coordinator	Sign & Seal of HoD
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