

NAAC Criterion-I

Curricular Aspects

Key Indicator -1.1 Curriculum Design and Development

Sub-Criteria -1.1.2



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Gola ka Mandir, Gwalior - 474005, Madhya Pradesh, India

MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR – 474005
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CIVIL ENGINEERING DEPARTMENT

SEMESTER	2017-2019 BATCH		2020-2022 BATCH		Percentage Change
	COURSE CODE	COURSE NAME	COURSE CODE	COURSE NAME	
I	510101	Management Theory	510111	Computational Techniques	76.47
	510102	Materials & Equipments	510112	Construction Materials & Machines	
	510103	Quantitative Methods	510113	Contract Management	
	510104	Contract Management	DE	510114 Maintenance Management 510115 Infrastructure Development 510116 Formwork for Concrete Structure	
	510105	Functional Planning Building Services & Maintenance Management	OC	800108 Organizational Behaviour & Management 800109 Safety & Quality Management	
	510106	Computer Lab - I	510119	Construction Lab	
	510107	Construction Lab - I	510120	Self Learning / Presentation (SWAYAM/NPTEL)	
II	510201	Construction Techniques	510211	Project Economics & Financing	
	510202	Construction Economics & Finance	510212	Construction Cost Management	
	510203	Construction Cost Management	510213	Construction Project Management	
	510204	Project Management	DE	510214 Scheduling of Repetitive Construction Project 510215 Durability & Repair of Concrete Structure 510216 Project Procurement System 520217 Safety in Construction	
	510205	Project Planning Scheduling & Control	OC	800208 Sustainable Materials & Green Buildings	
	510206	Computer Lab - II	510219	Computational Laboratory for Construction Management	
	510207	Construction Lab - II	510220	Self Learning / Presentation (SWAYAM/NPTEL)	
III	510301	Infrastructure Project Management	510311	Dissertation Part - I	
	510302	Urban Hydrology & Waste Management	OC	800308 Urban Governance & Development Management	
	510303	Seminar			
	510304	Preliminary Dissertation			
IV	510401	Dissertation	510405	Dissertation Part II	

Course Code: 510112

Course Name: Construction Materials & Machines

L	T	P	C
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Course Objectives:

1. To study the properties, design and production of various types of concrete i.e. cement
2. To understand the applications of polymeric materials, additives, admixtures.
3. To understand management of equipments used in construction industry.
4. To learn the design & methods of various foundations.
5. To study the design & manufacturing of various types of formwork and prefabricated components
6. To understand the concept of Modular coordination.

Syllabus:

Unit-I

Construction Materials & Concrete: Physical properties of construction materials and testing in field and laboratory as per IS code. Design and production of concrete its manufacture eg. Batching, Mixing, Transporting, Placing compacting and curing. Design and production of high strength Ready mix concrete.

Unit-II

New Construction Materials: Polymeric materials. Polymer concrete, Additives and admixtures in concrete, Light weight, Heavy and no fine concrete, Ferro cement and fiber reinforced concrete, high performance concrete and composite materials, roller compacted concrete.

Unit-III

Construction Equipments: Construction equipments and its characteristics, Operation and selection. Different types of construction equipments eg. Power shovels, drag lines, Scrapper, Bulldozer, Tractor, Rippers, Motor graders, aggregate processing and batching plants, Cycle time and capacity ratings, Sizing and matching, Hot Mix plant, RMC Plant.

Unit-IV

Foundations: Techniques of construction of piles, Cassions, Wells, Cofferdams and diaphragms. Drilling blasting, Underpinning, Shoring and shuttering of foundation.

Formwork: Design and construction of different types of formworks and temporary structures. Stationary and slip formwork techniques, Formwork of special structures eg. Shells, Bridges, Towers etc.

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Unit-V

Steel Construction, Prefabrication & Prestressing: Fabrication and erection (Shop and in situ construction techniques). Erection of steel structures like bridges, Chimneys and trusses.

Application of prefabrication in construction Modular coordination and standardization; Special equipments and plants for industrial production of prefabricated components.

Prestressing methods, Special equipments and plants for industrial production of prestressed components.

Course Outcomes:

Upon completion of the course, the students will be able to:

CO 1: Explain the advanced elements of buildings, engg. materials & construction.

CO 2: Distinguish the suitability of different foundations in Civil Engineering structure.

CO 3: Evaluate the properties of various types of concrete in construction industry accordingly.

CO 4: Apply various techniques for prefabrication & pre-engineered elements of building and modular coordination and standardization.

CO 5: Design different types of formwork as per their suitability.

CO 6: Describe various methods for design mix of concrete & equipment management.

Reference Books:

1. D. G. Gransberg, C. M. Popescu and R. C. Ryan, Construction equipment management for engineers, estimators, and owners, Taylor & Francis, New York, 2006.
2. R. L. Peurifoy, C. J. Schexnayder, A. Shapira and R. Schmitt, Construction planning, equipment, and methods, 8th ed., McGraw Hill, New York, 2010.
3. V. Shantha Kumar, Concrete, Oxford University press.
4. A.M. Neville. Properties of concrete, Pearson
5. M.L. Gambhir, Concrete Technology, Tata Mc Graw Hill Pub. Co.
6. Soil Mechanics by Gopal Ranjan , New Age Publishers.
7. Mahesh Verma, Construction Equipment, its planning & Application, Metropolitan Book Co.(P) Ltd.,
8. Foundation Design Manual by Narayan V. Nayak
9. Prestressed concrete by Rajagopalan
10. Prestressed concrete by T.Y. Lin
11. Highway Engg by Justo and Khanna.





Course Code: 510211

Course Name: Projects Economics & Financing

L	T	P	C
3	-	-	3

Course Objectives:

1. To understand managerial economics.
2. To understand demand analysis and forecasting in construction industry.
3. To understand Time value of money and Cost of Capital.
4. To understand budgeting of construction projects.
5. To understand selection and evaluation of construction projects.
6. To understand project financing and risk.
7. To understand the accounting processes in construction industry.

Syllabus:

Unit-I

Basic Economic Theories: Principles of managerial economics. Economic theories. Demand analysis and forecasting. Demand elasticity. Cost and production analysis. Production function. Pricing decisions. Policies & practice.

Unit-II

Money: Time value of money. Different methods & comparisons. Cash flow, discounted cash flow, cash flow forecasting. Financial ratios and statements. Cost of Capital.

Unit-III

Capital Budgeting: Working capital. Capital budgeting and performance budgeting. Break even analysis. Project selection. Project appraisals

Unit-IV

Project Financing: Means of Finance, Financial institutions in India, Policies of financial institutions, Financial assistance, Special schemes, Project risk

Unit-V

Financial Accounting: Book keeping processes of construction industry. Accountancy cycle. Journals. Forms and ledgers etc. for accounting and monitoring labour, equipment and material costs. PWD accounting procedure and types of financial statements in Government.

MK Mehta
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Course Outcomes:

Upon completion of the course, the students will be able to:

- CO1: Apply** principles of managerial economics.
- CO2: Perform** demand analysis in construction sector.
- CO3: Workout** time value of money and cost of capital.
- CO4: Analyze** break-even point and appraisal of projects.
- CO5: Determine** appropriate means of financing a project.
- CO6: Monitor** the various cost components of construction projects by using accounting procedures.

Reference Books:

1. Project Planning, Analysis, Selection, Financing, Implementation & Review by Prasanna Chandra, Publisher Tata McGraw-Hill Education.
2. Engineering Economics & Analysis, by Donald G Newnan, Publisher Oxford University Press.
3. Economic Theory and The Construction Industry by P. Hillebrandt, Publisher Palgrave Macmillan UK
4. Construction Economics: A New Approach by Danny Myers, Publisher Routledge
5. Construction and Project Management Theory And Practices by K.N. Jha, Publisher Pearson Education India
6. Construction Project Management: Planning, Scheduling and Controlling by K.K. Chitkara, Publisher Tata McGraw-Hill Education

