Book No 24

FILE NO._____

24/0

CTM. IIth & Term

Syllabus -

501

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FILE NO. 140

24/1

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL

THREE YEARS DIPLOMA PROGRAMME IN
CONSTRUCTION TECHNOLOGY AND MANAGEMENT

UNDER

MULTIPOINT ENTRY AND CREDIT SYSTEM

DETAILED SYLLABUS

APPLIED TECHNOLOGY COURSES FOR CONSTRUCTION TECHNOLOGY AND MANAGEMENT,

(1) CTM 501 CONSTRUCTION TECHNOLOGY- I
(2) CTM 502 CONSTRUCTION TECHNOLOGY- II
(3) CTM 503 CONSTRUCTION TECHNOLOGY- III
(4) CTM 504 QUANTITY SURVEYING COSTING- I
(5) CTM 505 QUANTITY SURVEYING COSTING- II
(6) CTM 506 CONSTRUCTION MANAGEMENT.
(7) CTM 507 STRUCTURAL DESIGN AND DRAWING- I (R.C.C.)
(8) CTM 508 STRUCTURAL DESIGN AND DRAWING-II (STEEL)
(9) CTM 509 INDUSTRIAL TRAINING AND REPORT- I.
(10) CTM 510 INDUSTRIAL TRAINING AND REPORT- II.
(11) CTM 511 ADVANCED ENTREPRENEURSHIP AND PROJECT
(12) CTM 512 PROJECT

SPONSORED BY -
DIRECTOR OF TECHNICAL EDUCATION BHOPAL (M.P.)

DEVELOPED BY
CURRICULUM DEVELOPMENT CENTRE
M.P. BOARD OF TECHNICAL EDUCATION BHOPAL

IN COLLABORATION WITH
TECHNICAL TEACHERS TRAINING INSTITUTE (W.R.) BHOPAL.

PREFACE.

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In Madhya Pradesh most of the Polytechnics offer straight joacketed Diploma programmes in Civil, Mechanical, Electrical and Electronics & Tele-Communication Engineering. Curriculum is the most crucial input in a technical education, hence, initiating to develop a need based curriculae for establishing relevence of Polytechnic output to the needs of industry, is the demand of the time.

At present 10+ and 12+ science stream/technical stream students in diffgrent proportions join a three year diploma Programme in all Polytechnics. 10+ students are admitted to first year and 12+ students in Second year of three year diploma programme. These students do not have any option in selection of courses (subjects) and have no apportunity for taking alternative courses appropriate to their capability.

The National policy on Education, therefore, rightly recognised the need for a flexible structure which would allow students to enter the system at different points depending on their entry levels, and take up combination of courses according to needs, thereby facilitating the production of man power for a spectrum of technologies and occupations enhancing the efficiency of the system.

It is, in this context, that the Directorate of Technical Education, Madhya Pradesh and M.P. Board of Technical Education explored the feasibility of restructuring polytechnic education in Madhya Pradesh under World Bank Scheme by introducing the Multi Point Entry and Credit System (MPECS). This Scheme of flexible structure has been introduced at [illegible] Government Polytechnic, Bhopal from July, 1990.

Considering the nature of the scheme, the courses (subjects) offered in this new scheme have been clustered under the following groups.

(1) FOUNDATION COURSES are meant for preparing adequate base of Science, Maths. and language and they are to be undertaken only by students who have passed 10+

(Contd...2)

(2) HARD CORE COURSES are the courses which are to be taken both by 10+ and 12+ students.

(3) In the SOFT CORE COURSES there is a choice for the students to select the courses of their choice.

(4) BASIC TECHNOLOGY courses are the bridge courses between Science subjects and applied Technology courses.

(5) APPLIED TECHNOLOGY courses are the terminal courses through which the desired knowledge and skills are developed in the students, to perform his job function in the chosen field of technology.

(6) DIVERSIFIED courses are included to provide an opportunity for some more detailed knowledge in specific areas in the same or related discipline.

The curriculum development centre of the M.P. Board of Technical Education therefore undertook the task of preparing the syllabus/curriculum of the various courses of Diploma programme in Mechanical, Electrical and Construction Technology and Management started under Multi Point Entry and Credit System in collaboration with the CDC Centre of Technical Teacher's Training Institute, Bhopal. The first workshop for preparing the syllabus of the above three disciplines was conducted at TTTI., Bhopal from 26-11-90 to 1-12-90 in which teachers from various Polytechnics and particularly from S.V. Government Polytechnic, Bhopal actively participated. The Board of Studies of the respective disciplines have approved the prepared syllabus, and the syllabus is being printed with the intention that the implementation of MPECS should continue unabated.

Where ever required a component of safety and environment has been included in the syllabus and proper care has been taken in :-

(a) Maintaining sequence of topics.

(b) Allotting HRS for each topics.

(c) Avoiding overlpas of the content.

(d) Relevance of the content.

(e) Prerequisite of the content.

(Contd....3

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The comments and healthy critisism from faculty members are however welcome, so that this prepared syllabii can be reviewed and revised periodically.

We are highly grateful to the Director of Technical Education and Prof. C.A. Keshwani, Additional Director of Technical Education, Bhopal for their valuable guidance, encouragement and active co-operation in organising the above workshop.

Words of obligation are due, to P rof. S.A. Balu, Principal, TTTI, Bhopal and the CDC faculty of TTTI, Bhopal. It is out of their valuable suggestions and long term experience in curriculum development that this syllabus is in the hands of the user.

We aspire to improve this in times to come.

Secretary, 22/2/91
M.P.Board of Technical Education,
Bhopal.

LIST OF PARTICIPANTS. 24/5

POLYTECHNIC FACULTY.

(1)	Shri B.B. Bhargava.	S.V. Government Polytechnic, Bhopal.
(2)	Shri U.K. Shrivastava.	S.V. Government Polytechnic, Bhopal.
(3)	Shri T. Chatterjee.	Government Polytechnic, Jabalpur.
(4)	Shri B.L. Khare.	Government Women's Poly. Sagar.
(5)	Shri B.P. Sinha.	S.V. Government Polytechnic, Bhopal.
(6)	Shri S.K. Saxena.	S.V. Government Polytechnic, Bhopal.
(7)	Shri R.M. Hastak.	Government Polytechnic, Jabalpur.
(8)	Smt. S. Ekbote.	S.V. Government Polytechnic, Bhopal.
(9)	Shri R.K. Gawande.	S.V. Government Polytechnic, Bhopal.
(10)	Shri R.C. Chouksey.	Shri Vaishnav Polytechnic, Indore.
(11)	Shri R.R. Gangane.	Government Polytechnic, Ujjain.
(12)	Shri M.G. Rawal.	Government Polytechnic, Jabalpur.
(13)	Shri B.K. Saxena.	S.V. Government Polytechnic, Bhopal.

T.T.T.I. FACULTY.

(1)	Prof. V.M. Kapse	Head of the Department C.D.C.
(2)	Dr. N.S. Kapruan.	
(3)	Prof. G.N.N. Rao	
(4)	Prof. H.P. Ramanna.	
(5)	Dr. K.C. Sabbarwal.	
(6)	Prof. S.B.L. Shrivastava.	
(7)	Prof. P.C. Jain.	
(8)	Prof. M.K. Shrivastava.	

CURRICULUM DEVELOPMENT CENTRE:

(1)	Shri Ashok Ratnaparkhi.	Joint Director
(2)	Shri K.K. Jain.	Deputy Director
(3)	Shri C.P. Bhargava.	Deputy Director.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL. 24/6

PROGRAMME; DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT UNDER M.P.E.C.S. PROGRAMME - SCHEME.

DISCIPLINE FOUNDATION COURSES.

S. No.	CODE No.	COURSE TITIES	CREDIT
1.	101	Communication Skill- I	3
2.	102	Communication Skill- II.	3
3.	CTM 103	Physics.	5
4.	CTM 104	Chemistry.	5
5.	107	MatMematics- I.	4
6.	108	Mathematics- II.	4
		Total credits.	24

Notes 1. To be compulsorily taken by all 10+ students of DCTM programme.
2. Course;101, 102, 107 and 108 are common to DCTM,DME & DEE Programmes.

DISCIPLINE:HARD CORE

S.NO.	CODE NO.	COURSE TITIE	CREDIT
1.	201	Applied Mech.	4
2.	CTM 202	SOil Mechanics.	3
3.	CTM 203	Hydraulics.	3
4.	CTM 204	Elements of Civil Engg. Drawing.	5
		Total Credits.	15

Note (1) Compulsory for all 10+ and 12+ students of DCTM programme.
(2) Course 201 common to DCTM, DME & DEE. pdgrammes.

DISCIPLINE : SOFT CORE COURSES.

S.No.	Code No.	COURSE TITIE.	Credits
1.	301	Computer App.	3
2.	302	Environmental Engg.	3
3.	CTM 303	Rural Housing and Sanitation.	3
4.	CTM. 304	Interior Decoration and fuhiture Design.	3
5.	CTM. 305	Industrial Engg.	3
6.	CTM. 306	Architecture.	3
7.	CTM 307	Element of Mechanical & Elect.Engg.	3
8.	CTM 308	Town and Country planning.	3
		Total Credits.	06

Note(1) Any three courses to be offered by each student of DCTM Programme
(2) Course 301 & 302 common to DCTM, DME & DEE. Programmes.

DISCIPLINE : BASIC TECHNOLOGY

S.No.	Code No.	Course title	Credit
1.	CTM 401	Surveying- I.	5
2.	CTM 402	Surveying- II.	5
3.	CTM 403	Enterpreneurship.	3
4.	CTM 404	Mech.of Structure	4
5.	CTM 405	Civil Engineering Drg.	5
6.	CTM 406	Material Technology	5
		Total credits.	27

Note : All courses are to be taken by students of DCTM Programme.

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...L PROGRAMME SCHEME.

PROGRAMME: DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

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DISCIPLINE : APPLIED TECHNOLOGY.

S.No.	Code No.	Course title	Credit.
1.	CTM 501	Construction Tech.I.	6
2.	CTM 502	Construction Tech.II.	6
3.	CTM 503	Construction Tech.III.	6
4.	CTM 504	Quality Surveying Costing.- I.	5
5.	CTM 505	Quality Surveying Costing- II.	4
6.	CTM 506	Construction Management.	5
7.	CTM 507	Structural Design & Drawing. I.(RCC)	5
8.	CTM 508	Structural Design & Drawing II(Steel)	4
9.	CTM 509	Industrial Training & Report I.	3
10.	CTM 510	Industrial Training & Report II.	3
11.	CTM 511	Advanced Enterpreneurship & Project.	5
12.	CTM 512	Project.	5
		Total Credits.	57

Note: S(1) Student will have to clear all the foundation courses before taking up any course of this level of DCTM programme.

(2) All courses are to be taken by students of DCTM programme.

DISCIPLINE : DIVERSIFIED.

S.No.	Code No.	Course Title	Cr
1.	CTM 601	Fabrication & Erection.	4
2.	CTM 602	Materials Management	4
3.	CTM 603	Marketing Management	4
4.	CTM 604	Human Resource Management.	4
5.	CTM 605	Prefab. Conc. Construction.	4
6.	CTM 606	Advance Environmental Engineering.	4
7.	CTM 607	Computer Aided Design.	4
8	CTM 608	Advanced Structural Design and Drafting.	4
		Total Credits.	08

Note :(1) Student will have to clear all the foundation courses before taking up any course of this level of DCTM programme.

(ii) Any two courses to be offered by the student of DCTM programme.

NOTE: To pass the programme, student has to earn 140 credits.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL.

SCHEME OF STUDIES AND EXAMINATION OF DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT. (M.P.E.C.S.)

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FOUNDATION COURSE.

S.No.	CODE NO.	COURSE	PRE-REQUISITE	HOURS/WEEK TH.	HOURS/WEEK PR.	CREDITS	SESSIONAL TERM WORK	SESSIONAL LAB WORK	PROGRESSIVE ASSESSMENT I	PROGRESSIVE ASSESSMENT II	BOARD PAPER	EXAM. DUR.	THEORY MARKS.	PRACTICAL/VIVA PRACT.	PRACTICAL/VIVA DUR.	PRACTICAL/VIVA MARKS.	REMARKS.
1. FOUNDATION COURSE																	
1.	101	COMMUNICATION SKILL I	-	3	-	3	20	-	10	10	1	3 Hrs.	100	-	-	-	
2.	102	COMMUNICATION SKILL-II.	-	3	-	3	20	-	10	10	1	3 Hrs.	100	-	-	-	
3.	CTM 103	PHYSICS.	-	4	2	5	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
4.	CTM 104	CHEMISTRY.	-	4	2	5	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
5.	107	MATHEMATICS-I	-	4	-	4	20	-	10	10	1	3 Hrs.	100	-	-	-	
6.	108	MATHEMATICS-II.	-	4	-	4	20	-	10	10	1	3 Hrs.	100	-	-	-	

TOTAL CREDITS 24

NOTE: (1) Foundation courses are compulsory for all 104 students.

(2) Course code No. 101, 102, 107, 108 are common to DCTM/DME/DEE.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL.

SCHEME OF STUDIES AND EXAMINATION OF DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT

(M.P.E.C.S.)

2. HARD CORE.

2. HARD CORE

S.No.	CODE NO.	COURSE.	PRE-REQUISITE	HOURS/WEEK TH.	HOURS/WEEK PR.	CREDIT	SESSIONAL PROGRESSIVE ASSESSMENT. TERM WORK	LAB WORK I	LAB WORK II.	BOARD PAPER	EXAM. DUR.	THEORY HOURS.	PRACT/VIVA PRACT. DUR.	PRACT/VIVA MARKS.	REMARKS.
		2 HARD CORE.													
1.	201	APPLIED MECHANICS.	-	3	2	4	20	20	10	10	1	3 Hrs.	100	1	3 Hrs. 50
2.	CTM 202	SOIL MECHANICS.	-	2	2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs. 50
3.	CTM 203	HYDRAULICS.	-	2	2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs. 50
4.	CTM 204	ELEMENTS OF CIVIL ENGG. DRAWING.	-	2	6	5	20	20	10	10	1	3 Hrs.	100	1	(VIVA)) 50
						TOTAL CREDITS 15									

NOTE :-(1) Hard Core courses are compulsory for all 10+ and 12+ students.

(2) Course Code No. 201 is common to DCTM/DME/DEE.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL.

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SCHEME OF STUDIES AND EXAMINATION OF DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

(M.P.E.C.S.)

3. SOFT CORE.

3. SOFE CORE.

S.No.	CODE NO.	COURSE.	PRE-REQUISITE	HOURS/WEEK TH.	HOURS/WEEK PR.	CREDIT.	SESSIONAL TERM WORK	SESSIONAL LAB. WORK	PROGRESSIVE ASSESSMENT. I	PROGRESSIVE ASSESSMENT. II.	BOARD PAPER	EXAM. DUR.	THEORY MARKS.	PRACTICAL/VIVA PRACT.	PRACTICAL/VIVA DUR.	PRACTICAL/VIVA MARKS.	REMARKS.
11.	301	COMPUTER APPLICATION.	-	2	2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
12.	302	ENVIRONMENTAL ENGINEERING.	-	2	2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
13.	CTM 303	RURAL HOUSING AND SANITATION.	-	3	-	3	20	20	10	10	1	3 Hrs.	100	-	-	-	
14.	CTM 304	INTERIOR DECORATION AND FURNITURE DESIGN.	-	2	2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
15.	CTM 305	INDUSTRIAL ENGINEERING.	-	2	2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
16.	CTM 306	[illegible] ARCHITECTURE	CTM 306 CTM 204	2	2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
17.	CTM 307	ELEMENTS OF MECHANICAL AND ELECTRICAL ENGG.	-		2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
18.	CTM 308	TOWN AND COUNTRY PLANNING.	CTM 204	2	2	3	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
			TOTAL CREDITS			9											

NOTE :- Any Three courses will be offered by each student

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL.

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SCHEME OF STUDIES AND EXAMINATION OF DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.
(M.P.E.C.S.)

4. BASIC TECHNOLOGY.

4. BASIC TECHNOLOGY.

S.No.	CODE NO.	COURSE.	PREREQUISITE	Hours/Week Th.	Hours/Week Pr.	CREDIT.	SESSIONAL TERM WORK	SESSIONAL LAB. WORK.	PROGRESSIVE ASSESSMENT I.	PROGRESSIVE ASSESSMENT II.	BOARD PAPER	EXAM. DUR.	THEORY MARKS.	PRACTICAL/VIVA PRACT.	PRACTICAL/VIVA DUR.	PRACTICAL/VIVA MARKS.	REMARK.
		4.BASIC TECHNOLOGY															
19	CTM 401	SURVEYING I	-	2	6	5	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
20.	CTM 402	SURVEYING-II.	CTM 401	2	6	5	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
3.	CTM 403	ENTREPREPRE-NEURSHIP.	-	3	-	3	-	-	10	10	1	3 Hrs.	100	-	-	-	
4.	CTM 404	MECH. OF STRUCTURE.	201	4	-	4	-	-	10	10	1	3 Hrs.	100	-	-	-	
5.	CTM 405	CIVII ENGG. DRAWING.	CTM 204	2	6	5	20	20	10	10	1	4 Hrs.	100	1	-	50 (VIVA)	
6.	CTM 406	MATERIALS TECHNOLOGY.	201 CE 02	3	4	5	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	

TOTAL CREDITS 27

NOTE:- All courses are compulsory.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL.

SCHEME OF STUDIES AND EXAMINATION OF DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

(M.P.E.C.S.)

5. APPLIED TECHNOLOGY. 5. APPLIED TECHNOLOGY.

S.No.	CODE NO.	COURSE.	PRE-REQUISITES.	HOURS/WEEK TH.	HOURS/WEEK Pr.	CREDITS.	SESSIONAL TERM WORK	SESSIONAL TAB. WORK	PROGRESSIVE ASSESSMENT. I	PROGRESSIVE ASSESSMENT. II	BOARD PAPER.	EXAM. DUR.	THEORY MARKS.	PRACTICAL/VIVA PRACT.	PRACTICAL/VIVA DUR.	PRACTICAL/VIVA MARKS.	REMARKS.
		5 APPLIED TECHNOLOGY															
1.	CTM 501	CONSTRUCTION TECHNOLOGY-I.	CTM 204	4	4	6	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
2.	CTM 502	CONSTRUCTION TECHNOLOGY- II.	CTM 204	4	4	6	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
3.	CTM 503	CONSTRUCTION TECHNOLOGY-III.	CTM 204	4	4	6	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
4.	CTM 504	QUANTITY SURVEY AND COSTING-I.	CTM 405	2	6	5	20	-	10	10	1	3 Hrs.	100	-	-	-	
5.	CTM 505	QUANTITY SURVEY AND COSTING-II.	CTM 405 & CTM 501	2	4	4	20	-	10	10	1	3 Hrs.	100	-	-	-	
6.	CTM 506	CONSTRUCTION MANAGEMENT.	NIL.	4	2	5	20	-	10	10	1	3 Hrs.	100	-	-	-	
7.	CTM 507	STRU.DESIGN AND DRAWING I (R.C.C.)	CTM 404	3	3	5	20	-	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
8.	CTM 508	STRUCT.DESIGN AND DRAWING-II (STEEL)	CTM 404	2	3	4	20	-	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
9.	CTM 509	INDUSTRIAL TRAINING REPORT-I	-	-	6	3	20	-	10	10	-	-	-	1	-	50(VIVA)	
10	CTM 510	INDUSTRIAL TRAINING REPORT-II	-	-	6	3	20	-	10	10	-	-	-	1	-	50 (VIVA)	
11	CTM 511	ADVANCED ENTREPRENEURSHIP AND PROJECT.	CTM 403	2	3	5	20	20	40	40	4	3 Hrs.	100	1	-	50 (VIVA)	
12	CTM	PROJECT (CIVIL ENGG.)	MIN.CREDITS 90	-	6	5	20	-	-	-	-	-	-	-	-	50 (VIVA)	

TOTAL CREDITS. 27

(1) The students will not be allowed to take up these 5, and 6 level courses unless he clears all the foundation courses.

(2) All courses are compulsory.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL.

SCHEME OF STUDIES AND EXAMINATION OF DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT

(M.P.E.C.S.)

6. DIVERSIFIED COURSES.

S.No.	CODE NO.	COURSE.	PREREQUISITE.	HOURS/WEEKS TH.	HOURS/WEEKS PR.	CREDITS.	SESSIONAL TERM WORK	SESSIONAL LAB. WORK.	PROGRESSIVE ASSESSMENT. I	PROGRESSIVE ASSESSMENT. II	BOARD PAPER	EXAM. DUR.	THEORY MARKS.	PRACTICAL/VIVA. PRACT.	PRACTICAL/VIVA. DUR.	PRACTICAL/VIVA. MARKS.	REMARKS.
		6.DIVERSIFIED COURSE															
1.	CTM 601	FABRICATION ERECTION.	CTM 508	3	2	4	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
2.	CTM 602	MATERIAL MANAGEMENT.	CTM 406 & CTM 508	3	2	4	20	-	10	10	1	3 Hrs.	100	-	-	-	
3.	CTM 603	MARKETING MANAGEMENT.	CTM 403	3	2	4	20	-	10	10	1	3 Hrs.	100	-	-	-	
4.	CTM 604	HUMAN RESOURCES MANAGEMENT.	CTM 403	3	2	4	20	-	10	10	1	3 Hrs.	100	-	-	-	
5.	CTM 605	PREFAB.CONC. CONSTRUCTION.	CTM 501	3	2	4	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
6.	CTM 606	ADVANCED ENVIRONMENTAL ENGG.	302	3	2	4	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
7.	CTM 607	COMPUTER AIDED DESIGN.	301	3	2	4	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	
8.	CTM 608	ADVANCED STRUCTURAL DESIGN AND DRAFTING.	CTM 507 & CTM 508	3	2	4	20	20	10	10	1	3 Hrs.	100	1	3 Hrs.	50	

NOTE:-

(1) Only two courses are to be offered.

(2) The student will not be allowed to take up these five and six level courses unless he clears all the foundation courses.

(3) Total credits for diversified courses - 08

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME: DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- I.

COURSE CODE NO: CTM 501

PREREQUISITE : CTM 204

SCHEME OF STUDIES.

Topic No.	Content.	Hours. Theory	Pract.	Total.
1.	Foundations.	12	15	27
2.	Masonry.	12	6	18
3.	Concrete and concreting.	10	7	17
4.	Doors and windows.	6	6	12
5.	Stairs.	8	-	8
6.	Roofs.	10	10	20
7.	Construction machinery.	6	-	6
8.	Visits.	-	20	20
		64	64	128

Credits - 6

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

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PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY.

COURSE CODE NO: CTM 501

PREREQUISITE; CTM 204

TOPIC 1. FOUNDATIONS

Bearing capacity
Types of foundation- Spread footing.
Pile, Raft, Stepped.
Excavation Methods.
Shoring and strutting.
Dewatering, preparing Foundation Plan
Drilling and Blasting
Materials and equipment used in Blasting.

TOPIC 2. MASONRY.

BRICK MASONRY : Necessity of Bond, types of Bond and their relative merits and demerits, construction procedure provision for services like water supply, sanitary and Electricity Installation

STONE MASONRY : Rubble, coarse and Ashler and their relative merits/demerits where used. Dressing of stones, scaffolding, Retaining walls and Breast walls, damp proof corse-situations where used, causes of dampness, source of dampness, process of damp-proofing prevention of dampness.

TOPIC: 3 : CONCRETE AND CONCRETING.

Ingredients, Nominal mixes (by weight and by volume). Water cement ratio, work ability, centring, form work, placement of concrete, Compaction and vibration, curing-necessity and methods. Introduction to reinforced concrete and prestressed concrete as per I.S. Code, Provisions for service like water supply, sanitary Engineering and Electricity Installation

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TOPIC 4: DOORS AND WINDOWS :

Types of door and window frame and shutters- in timber, steel and Aluminium. Sebtion of suitable situation where each is used. Ventilators, Erection and fixing of doors and window frames.

TOPIC 5 : STAIRS.

Requirements.
Classification
Technical terms
Form work for RCC stairs
Thumb rule /design of staircase,
Centring, formwork, and construction methods.

TOPIC : 6 ROADS

Flat and pitched roots.
Steel and timber trusses complete erection process, erection equipment used. Water proofing treatment.

TOPIC: 7: CONSTRUCTION MACHINERY.

Concrete Mixers

Tilting and Non-tilting type Vibrators- Needle Vibrator, plate vibrator

Cranes, Hoist, winches specific use of each

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/17
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- I.

COURSE CODE NO: CTM 501

PRE-REQUISITE : CTM 204

LIST OF PRACTICALS.

(1) Layout of Residential buildings.

(2) Layout of a multi storyed structure. (framed structure)

(3) Layout of different types of Brick bondwall corner on Tee junction.

(4) Slump test.

(5) Compressive strength of concrete cubes.

(6) Carpentry joints.

(7) Welding work. Demonstration and Practice.

(8) Layout of simple steel truss.

(9) Site/Field visits to observe the following items and to prepare visit report.
(1) Excavation of foundation of a building.
(Load bearing structure/framed structure)
(2) Shoring, strutting.
(3) Brick/stone masonry.
(4) Centring and form work for columns, beams and slabs.
(5) Concreting work in beams, columns and slops.
(6) Roof Truss construction.
(7) Finishing work.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY.

COURSE CODE NO : CTM 501

PREREQUISITE : CTM 204

LIST OF BOOKS.

(1) Building construction - Sushil Kumar.

(2) Building construction - R.C. Rangwala.

(3) Building construction. - Ahuja & Birdi.

(4) Construction of structures and Management of works. - by: S.C Rangwala

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- II.

COURSE CODE NO : CTM 502

PREREQUISITE : CTM 204

RATIONALE.

The subject is to cater the needs of technicians engaged in the investigation, planning and construction of Roads, Bridges and Culverts. The study of technology behind the layout, construction and maintenance of reasonabilty good all weather road network is important topics of construction of road pavement and construction of culvert and small bridges have to be dealt with higher level.

Case studies and field visits will be immense value for technicians.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

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PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- II.

COURSE CODE NO: CTM 502

PREREQUISITE : CTM 204

SCHEME OF STUDIES.

	TOPICS.	Theory	Practical	Total.
	A-BUILDING.			
1.	Flooring.	8	-	8
2.	Finishing.	8	-	8
3.	Building servides.	6	-	6
4.	Laying and Maintenance of service connections.	5	6	11
5.	B- ROADS.			
5.	History and development of Roads.	6	-	6
6.	Highway Geometrics.	4	-	4
7.	Road construction.	4	-	4
8.	Drainage.	3	-	3
9.	Equipment and Machinery.	2	-	2
10.	Maintenance of Roads.	2	-	2
	C. BRIDGES AND CULVERTS.			
11.	Introduction.	4	-	4
12.	Method of Construction.	4	-	4
13.	Foundation.	4	-	4
14.	Erection of bridges.	2	-	2
15.	Maintenance of bridges & culverts.	2	-	2
16.	Visits and Report writing.	-	58	58
		64	64	128

Credits - 6

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL.

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PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- II.

COURSE CODE NO. : CTM 302

PREREQUISITE : CTM 204

TOPIC 1. A- BUILDING.

FLOORING

Types of Floors:

Timber, Brick, Tiles, Flagstone, Kota stone Cast in situ Floor, Cement concrete Floor, P.V.C. Tiles, Mossaic Flooring ceramic Tiles. Relative Merits/Demerits, situation where used. Methods of construction and adopted for each type of flooring.

TOPIC: 2. FINISHING :

Differente techniques adopted in Finishing.

Mud plastering, Lime plastering, cement plastering.

Situations where used.

Pointing :- Different types,

construction Methods, situations,

Distempering

colour washing

oil painting

wood painting.

French Polish- Application procedure.

Precautions to be taken for application

TOPIC : 3: BUILDING SERVICES

WATER SUPPLY SERVICES.

Laying of water supply line : Open type, concelled type, types of pipes and size of pipe to be used for main line and branch line in house water connection system. Types of water supply fittings like Bibcock, Shower, Pillar/ trap, stop valve, water mixers. Maintenance and Repairs of water supply fittings construction and Installation of water tanks and its water connections.

SANITARY SERVICES.

Nahani Trap, Gulley Trap, Water closets, Indian type European type, wash basins, kitchen sinks, flushing tanks, Methods of house sewage collection, Inspection chamber, Layout of sewerage system for building.

Inspection chamber, septic tank,

Stone ware pipes and accessories, used in building sewage system.

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TOPIC : 4: Laying and Maintenance of service connections. Methods adopted in laying of water supply lines, Positions of accessories, related to water pressure. Tools and Plumbing kits required for laying of water supply line and time to time maintenance.

Methods adopted in laying of Sanitary sewer line.
Fixing of European type single syphonic W.C. and Double syphonic W.C.
Fixing of Indian type water closet.
Fixing of wash basins.
Tools required for maintenance of sewers.

B. ROADS

TOPIC 5: History and Development of Roads:
Classification of Roads, Types of Roads.
Cross Section of Road, Alignment of Road surveys required for alignment of Road.

TOPIC: 6 HIGHWAY GEOMETRICS.

Gradient, Camber, super elevation, Curves, I.R.C. standards.

TOPIC 7 Road construction

Component parts of Road,
Construction procedure of water Bound Macadam Road.
Construction of Bituminous Road.
Surface dressing, Premix carpenting.
Construction of cement concrete Road.
Construction joints used in cement concrete Road.

TOPIC: 8 : DRAINAGE.

Drainage of Roads, Methods of providing surface and subsurface drainage system and their construction.

TOPIC: 9 : EQUIPMENT AND MACHINERY.

Types of equipment and Machinery used for construction of Road based on types of Road. Road Roller, Dumper.

TOPIC 10 : Maintenance of Roads.
Methods adopted for maintenance of various types of Road.
Routine Maintenance periodical maintenance.

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C- BRIDGES AND CULVERTS.

TOPIC 11. INTRODUCTION

Various terms used in bridges. Components parts of Bridges and culverts. Types of bridges and culverts. Substructure of bridges, superstrucgure of bridges.

TOPIC: 12 Method of construction of slab bridge, T-beam bridge, Pipe culvert.

TOPIC: 13 :FOUNDATION

Types of bridge Foundation, Coffer Dam and their types, Construction Methods of foundation for small bridges and Culverts construction of superstructures.

TOPIC: 14: Errection of bridges

Errections methods by using Falsework.

Errection Methods without Falsework.

TOPIC: 15: MAINTENANCE OF BRIDGES AND CULVERTS.

Bridge Inspection Register,
Routine Maintenance, Special Maintenance.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/24
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY.-II.

COURSE CODE NO : CTM- 502

PRE-REQUISITE : CTM-204

LIST OF EXERCISES FOR VISITS AND REPORT WRITING.

(1) Study of water supply and sanitary fittings. Drawing their detailed sketches, making threads in the G.I. pipe.

(2) Site visits to observe actual fittings and installation of buildings and Report writing.

(3) Draw sketches to show sequential operations of construction of various types of Roads.

(4) Site visits to actual site of road construction. Procedure adopted. Report writing.

(5) Draw sketches to show details of sequential operation of construction of brides and culverts.

(6) Field visits to actual site of construction. Report writing.

Vedeo Films may be shown as demonstration to actual construction operations.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/25
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- II.

COURSE CODE NO: CTM 502

PREREQUISITE : C T M 2 0 4

REFERENCE BOOKS.

(1) Building Construction - By Sushil Kumar.

(2) -do- - By Rangwala.

(3) Highway Engineering. - By Khanna Justo.

(4) Bridge Engineering. - By Birdra.

(5) Bridge Engineering. Alagia.

(6) Bridge Eninee ring - by S.C. Rangwala.

(7) -do- - by -do-

(8) Highway Engineering - by N.K. Vaswani

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME. DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY - III.

COURSE CODE NO; CTM 503

PREREQUISITE : CTM 204

RATIONALE.

Under Multipoint entry and credit system a Diploma in Construction Technology and Management programme is started; hence Courses (subjects) in this programme are introduced so that they are used to make a technician in this programme a perfect one.

In this course construction Technology III the subjects are divided into three group viz Water supply, Sanitary Engineering and Irrigation. Such topics to be taught in this course are i[illegible], which are met during construction and more related to Civil Engineering building/ construction.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL. 24/27

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- III.

COURSE CODE NO: CTM 503

PREREQUISITE : CTM 304

SCHEME OF STUDIES.

S.No.	TOPICS.	Allotted Hrs. Th.	Pr.	Total.
1.	Sources of water supply.	4	-	4
2.	Quality of Water.	5	14	19
3.	Distribution system.	6	-	6
4.	Underground water source.	6	-	6
5.	Pumps.	4	6	10
6.	Pipes and pipe fittings.	3	8	11
	B. SANITARY ENGINEERING.			
7.	System of Sanitarion and Sewerage.	3	-	3
8.	Waste collection systems.	3	-	3
9.	Sewer Instllation.	4	-	4
	C. IRRIGATION.			
10.	Storage works.	4	-	4
11.	Dams- Non Rigid.	6	-	6
12.	Rigid Dams.	6	-	6
13.	Canals.	6	-	6
14.	Diversion Head works.	2	-	2
15.	Field visits.	2	36	38
		64	64	128

Credits = 6

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/28
BHOPAL.

PROGRAMME ; DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- III.

COURSE CODE NO: CTM . 503

PREREQUISITE : CTM 204

SECTION 'A' WATER SUPPLY ENGINEERING.

TOPIC 1. SOURCES OF WATER:-
Surface Source, Underground source

Types of surface source- as River, Canal, Reservoir.

TOPIC. 2. QUALITY OF WATER.

1. Hydraulic cycle and water quality-Suitable for drinking purpose.
Physical properties of water:

Colour, Turbiidity, suspended solids, Taste and Odour.
Temperature.
Chemical Properties of water.

Total Dissolved solids.
Alkalinity, Hardness, Metals, Fluoride,
Organics, Nutrients, IH value
BIOLOGICAL WATER QUALITY
Pathages, Pathogen indicators.
Portable water standards.

TOPIC 3. DISTRIBUTION SYSTEM.

Components of Distribution system.
Selection of distribution system.

Methods of Distribution
- Dead end system.
- Grid Iron system.
- Ring system.
- Radial system.

Types of appurtenances used in Distribution system.
Service connections used for different components.

TOPIC 4 UNDER GROUND WATER SOURCE.

Different types of ground water source.
Hydraulics of wells.
Construction of shallow and deep wells.
Tube well boring
- Creteria
- Method:

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TOPIC 5 : PUMPS.

Types of Pumps.

- Centrifugal pump
- Deep well pump.
- Air lift pump.

Working Horse power, Break Horse Power and efficiency of pumps.

- Use of characteristics curves of centrifugal pump.

TOPIC 6 : PIPES AND PIPE SPECIALS.

Types of pipes used for water supply cast Iron, wrought Iron, Hume pipes, R.C. Pipes, Galvenised Iron Pipes, Methods of jointing various types of pipes, Pipe specials used as

. Bend, Tee, Reducer, Cross, Wye, Elbow, Socket, Union

Pipe Corrosion.

SECTION 'B'

SANITARY ENGINEERING

TOPIC. 7: SYSTEM OF SANITATION AND SEWERAGE.

Terms used in sanitation.

Garbage, sullage, sewage, sewerage.

TOPIC 8. : WASTE COLLECTION SYSTEMS

Terms used related to waste collection system and conveyance.

Conservency system, water closet system. System of sewerage.

Criteria for adoption of each system. Comparision of system.

TOPIC. 9 . Sewer Installation

Selection of suitable shape and Material of sewer.

Laying of sewer. Testing of Sewer.

Sewer appartunances, like Manhole, Leephole, Grid chamber, Oil & Grease Grease chamber. Catch water drains, leeping of weirs.

SECTION 'C' IRRIGATION ENGINEERING

TOPIC. 10 : STORAGE WORKS.

Function of storage work, Components of storage work, Salient Features of storage Reservoir.

TOPIC 11. DAMIS.

Types of Dam :- Rigid Dams , Non Rigid Dams.

Selection of Type of Dam., Typical Cross Section of Earthen Dam. Materials used in various components of earthen dam.

- Method of construction of Earthen Dam.
- Types of Earth moving Machineries required in construction of Earthen Dam.

TOPIC 12: RIGID DAMS.

Types of Gravity Dams { Concrete Dams / Masonry Dams.

Component parts of Gravity Dam.

Profile of Gravity Dam related to water pressure, wind pressure, Silt pressure, Weight of Dam, Earth quake pressure, Uplift pressure.

Construction procedure of Gravity Dam., Machineries and equipments used in construction of Gravity Dam.

Foundation treatment for Gravity Dams.

TOPIC 13 : CANALS.

Definitio, classification of Canals, Types of Canals, Canal alignment, Cross Drainage works, Canal Regulation works, Canal lining its purpose and types of Canal lining.

TOPIC 14 : DIVERSION HEAD WORK Weir, Barrage.

TOPIC 15 : Field visits and Report writing.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY III

COURSE CODE NO : CTM 503

PREREQUISITE : CTM 204

LIST OF PRACTICALS/VISITS SUGGESTED.

(1) Testing of water sample for physical Property.

(2) Testing of water for Chemical property.

(3) Testing of water for Biological property, counting of bicterial cells through Microscope.

(4) Thread cutting practice on G.I. pipes.

(5) Study of pumps and their working.

(6) Visit to Dam site (constructed/ under construction) and preparation of report on basis of data collected at site/Records.

(7) Visit to Canal works and preparation of Report.

(8) Visit to Drilling work site and preparaton of Report.

(9) Calculating the yield of well.

The student has to submit the report after each visit.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/32
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION TECHNOLOGY- III.

COURSE CODE NO : CTM 503

PREREQUISITE : CTM 204

RECOMMENDED BOOKS.

(1) Water supply and Sanitary Engineering. By Birdie.

(2) Text book of water supply and Sanitary Engg. By Hussain S.K.

(3) Elements of Public Health Engineering. By- Duggal K.N.

(4) Water and Waste Water Technology. By Hamer, Mark.

(5) Water power Engineering. By Pandey, Punmia & Lall.

(6) Irrigation Engineering. By K.N. Awasthy.

(7) Water supply and Sanitary Engineering By S.C. Rangwala.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : QUANTITY SURVEYING COSTING- I.

COURSE CODE NO: CTM 504

PREREQUISITE : CTM 405

SCHEME OF STUDIES.

	TOPICS	Alloted Hours Th.	Pr.	Total.
(1)	Introduction.	1	-	1
(2)	Stage I or approximate Estimate	3	-	3
(3)	Taking out quantities.	6	18	24
(4)	Use of Schedule of Rates.	4	12	16
(5)	Analysis of Rates.	2	10	12
(6)	Stage II or detailed. Estimate for Buildings.	8	26	34
(7)	Earth work Estimates.	8	30	38
		32	96	128

Credits -5

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : QUANTITY SURVEYING & COSTING- I.

COURSE CODE NO. : CTM 504

PREPREQUISITE : CTM 405

TOPIC 1. INTRODUCTION

Purpose of Estimate and its importance to the field situations.

TOPIC 2: STAGE I OR APPROXIMATE ESTIMATE.

Approximate Method of Stage I Estimate.

- Service Unit Method.
- Plinth area Method.
- Cubic content Method.

Approximate Methods for water supply, Sanitary and Electrical installations.

Different Civil Engineering structures.

Like, Bridge, culvert, Road, Dams over head tanks.

TOPIC. 3 TAKING OUT QUANTITIES.

Units of Measurements, Different items of work required in estimating building works.

Accuracy in Measurement and calculating quantities

Long and short wall Method.

Centre line Method.

Standard conversion used in measurements,

Taking out quantities from working drawing of building.

Taking out quantities of building during construction.

TOPIC 4 : USE OF SCHEDULE OF RATES:

Information available in schedule of Rates with specification of particular item.

- Labour Rates.
- Material Rates
- Transportation Rates.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/35
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : QUANTITY SURVEYING COSTING- I.

COURSE CODE NO: CTM 504

PREREQUISITE : CTM 405

SUGGESTED WORK FOR PRACTICE/TERM WORK.

(1) Workout the quantitites of all items of work for single storey residential building with Flat Roof.

(2) -do- with pitched Roof.

(3) -do- shop cum residential double storeyed building.

(4) RATE ANALYSIS FOR.

(1) Brick Masonry.

(2) Excavation in Foundation.

(3) Cement concrete.

(4) Cement Mortar.

(5) Flooring.

(6) Wood work.

(5) Estimate of earth work for different sections.

(6) Estimate of Road of 1 Km. length for Pavement surface.

W.B.M.

Bitumen.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : QUANTITY SURVEYING COSTING- I.

COURSE CODE NO: CTM 504

PREREQUISITE : CTM 405

SUGGESTED WORK FOR PRACTICE/TERM WORK.

(1) Workout the quantities of all items of work for a single storey residential building with Flat Roof.

(2) -do- with pitched Roof.

(3) -do- shop cum residential double storeydd building.

(4) RATE ANALYSIS FOR.

(1) Brick Masonry.

(2) Excavation in Foundation.

(3) Cement concrete.

(4) Cement Mortar.

(5) Flooring.

(6) Wood work.

(5) Estimate of earth work for different sections.

(6) Estimate of Road of 1 Km. length for Pavement surface.

W.B.M.

Bitumen.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/37
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : QUANTITY SURVEYING COSTING I.

COURSE CODE NO : CTM 504 [illegible].

PREREQUISITE : CTM 405

LIST OF REFERENCE BOOKS.

(1) Estimating and Costing : By B.N. Dutta
S. Datta & Co.
Tagore Path
Motilal Bose Rd.
Lucknow.

(2) Estimating & Costing and Valuation. : By Rangwala
Chartor Publications
Station Road
Anand.

(3) Estimating & Costing. : By Birdie
J.C. Kapoor
For Dhampat Rai & Sons
Delhi & Jullunder.

(4) Estimating & Costing Vol. I & Vol. II. : By J.C. Malhotra
Khanna Publishers
2B, Nabh Market
Nai Sarak
New Delhi.

(5) Current-Schedule of Rates from PWD/PHE/ Irrigation Deptts.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/38
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : QUANTITY SURVEYING & COSTING II.

COURSE CODE NO: CTM- 505

PREREQUISITE a-f (i) CTM 405 (ii) CTM 504

RATIONALE.

One of the job specifications of a diploma holder is to prepare estimate of Civil Engineering structures as far cost and quantity of various construction materials required. This is an essential and basic accuracy for all projects.

The first step towards efficient management of the project including proper estimation and utilisation of human resources required for the project.

This subject is in continuation of quantity surveying and costing-I.

In this chapters, the timber structure, R.C.C. structures and Steel Structures Bridge and Culverts, water supply and Sanitary Engineering are included. The students will be able to calculate the quantity of works of the structures of the above mentioned chapters.

A chapter on valuation and rent fixation is also included so that the students will be familiar with the method for valuation work and fixing rent.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/39
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : QUANTITY SURVEYING & COSTING II.

COURSE CODE NO: CTM 505

PREREQUISITE and CTM 504 CTM 405

S.No.	TOPICS.	Allotted Hours Theory	Pract.	Total
(1)	Estimate of Timber Structure.	2	4	06
(2)	Estimate of R.C.C. Structures.	6	12	18
(3)	Estimate of Steel Structures.	4	8	12
(4)	Estimates of culverts and Bridges.	6	12	18
(5)	Estimate of Water supply and Sanitary.	6	12	18
(6)	Valuation and Rent Fixation.	8	16	24
	Total.	32	64	96

Credits 4

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/40
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : QUANTITY SURVEYING & COSTING II.

COURSE CODE NO: CTM- 505

PREREQUISITE : CTM 405 AND CTM 504.

TOPIC 1 : ESTIMATE OF TIMBER STRUCTURES.

Estimate of Doors and Windows
Estimate of King post Roof Truss.
Estimate of Roof covering material (Tiles).

TOPIC 2 : ESTIMATE OF R.C.C. STRUCTURES.

Estimate of slab.
Estimate of beam.
Estimate of T-beam.
Estimate of Staircase from with actual working Drawing.
Estimate of R.C.C. column with its footing.
Preparation of Abstract of above items.
Preparation of Bar bending schedule, and to calculate amount of steel.

TOPIC 3 : ESTIMATE OF STEEL STRUCTURES.

Estimate of steel column (Stanchion)
Estimate of Steel Truss and - Gusset plate.
Estimate of Roof covering materials.
G.I. Roof, A.C. Roof.
Estimate of Steel frames for Doors & windows.

TOPIC: 4: ESTIMATE OF CULVERTS AND BRIDGES.

Estimate of Hume pipe culvert with splayed type of wing wall, Turn wall, Face wall.
Estimate of R.C.C. slab bridge, Straight type wing walls.

TOPIC 5 : ESTIMATE OF WATER SUPPLY AND SANITARY FITTING.

Detailed Estimate of Water supply for building work.
Detailed Estimate of Sanitary works for building work.
Estimate of S.W. pipe line.
Estimate of Septic tank.
Estimate of Manhole

TOPIC 6 : VALUATION & Definition, Purpose of valuation.

- Gross income/Net income.
- Out goings.
- Sinking Fund.
- Obselescence and depreciation.
- Capitalized value and year purchase.

Methods of Depreciation, Method of valuation, Lease and Free hold property. Rent fixation of building.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/41
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : QUANTITY SURVEYING- II.

COURSE CODE NO : CTM 505

PREREQUISITE : CTM 405 and CTM 504

LIST OF REFERENCE BOOKS.

(1) Estimating and Costing	By B.N. Dutta S.Patta & Co. Tagore Path Motilal Bose Road, Lucknow.
(2) Estimating, Costing and Valuation.	By Rangwala Charotar Publications Anand.
(3) Estimating & Costing.	By Birdie & J.C. Kapoor Dharpat Rai & Sons Delhi.
(4) Estimating and costing Vol.I & Vol. II.	By- J.C. Malhotra Khanna Publishers 2B, Nath Market Nai Sarak, Delhi.
(5) Current schedule of rates from P.W.D./ P.H.E./Irrigation.	

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, BHOPAL.

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PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION MANAGEMENT.

COURSE CODE NO : CTM 506

PREREQUISITE : CTM 501

RATIONALE.

This is one of the most important subject in construction Technology and Management. This subject is placed in Applied Technology. This will develop management aspect in the Diploma holders. Construction management deals with the Civil Engg. construction Industry, Management aspect, Human resource management, Material management, Equipment management, Finance management, Quality control etc.

Hope

Hope this subject will increase the proficiency of a construction technician in his profession.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/43

BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION MANAGEMENT.

COURSE CODE NO : CTM 506

PREREQUISITE : CT: 501

SCHEME OF STUDIES.

S.No.	TOPIC.	NAME OF TOPIC.	TH.	PR.
1.		Preliminary.	4	
2.		Civil Engineering construction Industry	3	
3.		Management.	10	
4.		Human Resource management.	08	
5.		Material Management.	06	
6.		Equipment management.	04	
7.		Finance Management.	12	
8.		Quality control.	5	
9.		Work Study.	8	
10.		Environmental Aspect.	4	
11.		Visits.		32
			64	

Credits - 5

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/44
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION MANAGEMENT.

COURSE CODE NO: CTM 506

PREREQUISITE : CTM 501

TOPIC No. 1. PRELIMINARY

Importance of construction managament in Civil Engineering, Different types of approval, Documents required by competant authority for according approval, Muster roll, Measurement Book, Indent, Intrepretation of specifications, types of contracts, Tender documents, site order book and its purpose, Daily diary and its maintenance.

TOPIC No. 2: CIVIL ENGINEERING CONSTRUCTION INDUSTRY.

Importance of Industory, Types of Civil Engineering Industries- Residential and Industrial, Development of Construction Industry.

TOPIC No. 3. MANAGEMENT.

Management- Concept, meaning, function.
Management Process- Planning, Organising, Directing, Coordination, Motivating, Leadership, Communication Skill.

TOPIC No. 4. HUMAN RESOURCE MANAGEMENT.

General, Labour management, Different categories of labour, Recruitment of labour, Industrial dispute, grievances, Handling disputes, Labour agitation, Labour Laws, regulations and safety.

TOPIC No. 5. MATERIAL MANAGEMENT.

Importance, Function, Inventory, control and procurement, ABC analysis, Econoic order quantity.

TOPIC No. 6 : EQUIPMENT MANAGEMENT.

Labour intensive in mechanised work owning and Hiring equipment.

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CTM
506

TOPIC No. 7 : FINANCE MANAGEMENT.

Investment theory- Concepts of Investment theory, Present working capital, Recovery per year, cash flow, break even analysis, its application, annual rate of return method, yield on investment, billing, cash flow, break even analysis.

TOPIC No. 8 QUALITY CONTROL.

Concept of quality, Statistical quality control, Sampling, Techniques, check list to ensure quality of materials, Processes, finish and strength.

TOPIC.No. 9. WORK STUDY.

Concept of productivity in relation to construction work, Planning and scheduling Bar Chart, CPM.

TOPIC No. 10: ENVIRONMENTAL ASPECT.

Importance of environmental aspect in Civil Engineering work, pollution of air, water, subsoil, Noice, Ecological, Surface pollution due to Industrial effluent, Remadial aspect, Environmental aspect in relation to by laws of Housing and Development works.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/46
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION MANAGEMENT.

COURSE CODE NO. ; CTM 506

PREREQUISITE : CTM 501

PRACTICALS.

(1) CIVIL ENGINEERING CONSTRUCTION :

(i) Visit to residential building under construction.

(ii) Visit to industrial campus in which various types of Civil Engineering works are under progress.

(2) MANAGEMENT

To provide sufficient input (know how) and activities

To manage construction work.

(i) Develop ability to identify field problems.

(ii) Develop problem solving ability, potential problems, analysis and decision analysis by (a) Group discussions

(b) guided discussions, (c) case studies.

(3) HUMAN RESOURCES MANAGEMENT & MATERIAL MANAGEMENT.

Arranged industrial visits and discussions with entrepreneurs, contractors, and site engineers to identify and solve possible field problems to reinforce theoretical class room teaching.

(4) EQUIPMENT MANAGEMENT.

Selection of correct equipment for a particular job and its management for optimum utilisation of man power hours, to develop this ability in a student lively discussions with entrepreneur, contractors, Engineers and skilled workers, operator on site is to be arranged.

(5) QUALITY CONTROL

Visit to construction sites and observations of quality control methods and devices on site. Discussions with site engineers regarding various methods of quality controls being adopted at that particular work site.

(6) WORKS STUDY

Provide information to students regarding Gantt Bar Chart (i) and CPM network being planned for a proposed construction work (ii) Study of the proposed Gantt Bar charts and CPM net work for a particular construction work and compare the same with various activities in progress. Note the lag and lead in various activities and find out logical reasons for these deviations and get suitable remedies for the lacuna.

(7) ENVIRONMENTAL ASIECTS.

Visit to a good township to observe and discuss the extent to which aspects are taken care of during construction work, specialy- plumbing and sanitary works etc. and measures taken safeguard workers during construction of Civil works.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : CONSTRUCTION MANAGEMENT.

COURSE CODE NO. : CTM 506

PREREQUISITE :

LIST OF REFERENCE BOOKS.

(1)	Construction of structure and Management of works.	: By S.C. Rangwala
(2)	Civil Engineering Management	: By- O. N. Wakhlu
(3)	Labour based construction programmes and Practical guide for planning & Management.	D.K. Publishers Distributors : P.Ltd; 29/9 Nangia Pub. Shakti Nagar, Delhi.
(4)	Construction Management & Account.	H. Singh - Tata Mcgraw Hill.
(5)	Construction Management & Accounts.	Vazirani & Chandra.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAFTING I (R.C.C.)

COURSE CODE No. CTM 507

PREREQUISITE : CTM 404

RATIONALE.

The technician in construction Technology must have the concept of R.C.C. and should also be able to design simple R.C.C. structures, though he is not required to design complicated R.C.C. structures.

Keeping this view in mind the course of R.C.C. is so designed that a technician in construction technology develop a concept, theory of R.C.C. gradually and finally will be able to design simple R.C.C. structures such as beam, slab column etc.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/50
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAWING- I.

COURSE CODE NO: CTM 507

PREREQUISITE : CTM 404

SCHEME OF STUDIES.

		Hours Th.	Pr.	Total
(1)	Introduction.	04	03	7
(2)	Theory of R.C.C.	8	03	11
(3)	Design of Beam.	20	04	24
(4)	Design of slab.	8	4	12
(5)	Design of "Tee" Beam with slab.	10	8	18
(6)	Design of column and its footing.	6	4	10
(7)	Design of staircase.	8	6	14
	Total periods.	64	32	96

Credits - 5

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

24/51

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAWING - I.

COURSE CODE NO: CTM- 507

PREREQUISITE : CTM 404

DETAILS OF CONTENTS.

(1) INTRODUCTION : S.I. Units , Meaning of R.C.C.

Purpose of reinforcement. Materials of reinforcement - Steel as a reinforcing material. Types [illegible]. Types of steel used for reinforcement mild steel, Tor steel, Permissible stress in concrete and steel. Different mix. of concrete to be used for R.C.C. work. Use of I.S. Code No. 456-1978 and I.S. 875- 1984 for designing R.C.C. structures.

(2) THEORY OF R.C.C. : Bending stress diagram for a rectangular concrete beam. Neutral Axid and Neutral layer. Effect of reinforcement on Neutral layer. Critical and Actual N.A. Balanced, under reinforced and over reinforce section.

Moment of resistance. Percentage of steel area/ Working stress method design and limit state design. Shear stress, - Bond stress, Bond length, Layout of columns and beams in building hall Design of R.C. structures are to be made by limit state method adopting above I.S. codes.

(3) R.C.C. BEAM : Design of singly doubly reinforced and cantilever beam completely.

(Contd.

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(4) DESIGN OF SLAB : Design of one way Two way cantilever slab. Design of R.C. Chajja with lintel.

(5) DESIGN OF " TEE" Beam and continuous slab.

(6) Theory and Design of R.C. column and column footing.

(7) Design of stair case - Constructional and structural design of Dog Legged type stair case and open well type stair case.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

24/53

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAWING I. R.C.C.

COURSE CODE NO: CTM 507

PREREQUISITE : CTM 404

LIST OF WORKING DRAWING WITH BAR BENDING SCHEDULE TO BE PREPARED.

(1) Arrangement and position of column and beam for a building, and a big hall

(2) Longitudinal Section, Cross Section of singly reinforced beam with bar bending schedule.

(3) Longitudinal Section, Cross Section of Doubly reinforced beam.

(4) R.C.C. Chajja with lintel.

(5) Longitudinal Section, Cross Section and Plan of one way RC slab with schedule of reinforcement.

(6) Two way slab.

(7) Tee beam and slab.

(8) Column and its footing.

(9) Stair case.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

24/54

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : STRUCTURAL DESIGN & DRAWING I. R.C.C.

COURSE CODE NO: CTM 507

PREREQUISITE : CTM 404

LIST OF BOOKS.

(1) R.C.C. -Shah & Kale

(2) -do- -Vazirani & Ratwani.

(3) -do- -Ramamurthum.

(4) -do- - Sushil Kumar.

(5) -do- - O.P. Jain.

(6) I.S. Code. 456 - 1978

(7) R.C.C. design. Daya Ratnam

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

24/55

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAWING II.

COURSE CODE NO: CTM 508

PREREQUISITE : CTM 404

RATIONALE.

The the steel structures are not very common in general use but the construction technician can not neglect this but must have some knowledge of riveting, weldi and steel structures and their structural design. For this reasons, this Course is included in in the Programme D.C.T.M.

In the initial chapters the design of riveted joint, welded joint, tension member and a comprression member are dealth. After these chapters the design of column and its footing and trjss are introduced.

In the last a chapter on Timber design is alsd included which deals the stresses in timber and design of solid column and simple beam.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

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PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAWING II.

COURSE CODE NO: CTM- 508

PREREQUISITE : CTM 404

SCHEME OF STUDIES.

TOPIC No.	NAME OF TOPIC.	HRS. TH.	Hrs. Pr.	Total
(1)	Introduction.	4	2	6
(2)	Riveted joint.	8	6	14
(3)	Tension Member.	6	-	6
(4)	Compression member.	6	-	6
(5)	Column bases and column Footing.	4	8	12
(6)	Roof Truss.	14	16	30
(7)	Timber structures.	6	-	6
	Total periods	48	32	80

Total Credits 4

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/57

BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAWING- II.

COURSE CODE NO: CTM- 508

PREREQUISITE : CTM- 404

(1) INTRODUCTION:

Examples of steel structure, I.S. Code 800- , Structural Steel Section, Loads, D.L, L.L, W.L, Allowable stresses.

(2) RIVETED JOINTS:

Rivets, types, Nominal dia,, Clearance, Gross dia. Unwin's formula, Pitch of rivet, Edge distance, Tacking rivets, Permissible stress in rivet, Types of riveting, Power driven shop - riveting, Power driven field driven etc. Types of reveted joint, Lap joint of Butt joint. Eccentric riveted connection Welded joint, Strength of welded joint, Types of welded joint and Design of welded joint.

(3) TENSION MEMBER :

Sections may be used as Tension member. Net sectional/area of effective sectional a single L Iron and Double angle iron. Design of Tension member

(4) COMPRESSION MEMBER :

criteria of failure of short column and Long column and condition, Effective length of a column, Slenderness ratio and corresponding compressive stress : Design of simple column and compound column consisting of two channels/angles & Battern plates 2 IS. of design details

(5) COLUMN BASES :

Types- Slab base and Gusseted base. Design of/slab base and M.S. with concrete pedastal. Cleat angles, their use only.

(6) ROOF TRUSS -

Types of Trusses, Span and slope, Rise and pitch. Loads Levels on the Roof. Combination of loads for design of truss. Selection of types of truss, Forces in the member Design of members of truss, Design of Purlin. Detailing of different Roof joints and purlin connection.

(7) TIMBER STRUCTURES :

Grades of Timber- Stress in timber. Factors affecting stress/ strength of timber. Types of timber column, Slenderness ratio. Short column, Intermediate column and long column and their design. Design of laterally supported timber beam.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAFTING II (STEEL)

COURSE CODE NO : CTM 508

PRE REQUISITE : CTM 404

LIST OF PLATES/SKETCHING.

(1) Sketching of different types of rivets and Steel Section.

(2) Sketching of different types of riveted joints.

(3) Details of steel column and its complete details.

(4) Details of built up column and its base.

(5) Graphical solution of frames to find out the stress in the member.

(6) Stress diag^{m} for D.L., ".L. for given loads on a truss.

(7) Working drawing of steel truss with the details of joint.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/59
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : STRUCTURAL DESIGN AND DRAWING II. (STEEL)

COURSE CODE NO. CTM 508

PRE REQUISITE : CTM 404

REFERENCE BOOKS

(1) Steel strucrures By Ramamurthem.

(2) Structural Engg. Vol. IV.(Steel) By Vazirani.

(3) Steel structures By Ramchandra.

(4) Steel structure By Arya and Ajmani.

(5) Steel structure By Malhotra.

(6) I.S.S. 800-

(7) Steel Structure By- R.K. Dhoble.
and
D.S. Dharmadhikari.

MADHYA PRADE.

24/60

BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : INDUSTRIAL TRAINING & REPORT.

COURSE CODE NO : CTM - 509

PREREQUISITE : NIL.

The following visits will be made and the report will have to be submitted :

Visit No.	Aim of Visit.
(1)	Exposure to real situation of construction.
(2)	Different methods of construction.
(3)	Different machinery and equipments used in construction.
(4)	To list materials of construction.
(5)	Category and functions of different employee engaged in construction.
(6)	Management of labour.
(7)	Management of materials.
(8)	Obstruction/ difficulties/ Problems on the Project if any and remedy/suggestions to overcome

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION, 24/61
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : ENTREPRENEURSHIP.

COURSE CODE NO: CTM 511
PREREQUISITE :

R A T I O N A L E.

These days there is sufficient unemployment in the qualified technicians, particularly in Civil Engineering.

It is not possible for the Government to employ each and every passout Diploma holder to provide a suitable employment for him. They have got sufficient technical backgfound but have no confidence and "Know How" to start the own profession. To make them less dependent for the Government jobs and to motivate them to start their own entreprise, the course of entrepreneurship is included in the Diploma of Construction Technology and Management.

This course subject is included at two levels one as Entrepreneurship dealing with fundamentals and principles of entrepreneurship at IV level and other named as "Advanced Entrepreneurship and Project"

In this course, the chapter on managing an enterprise, salesmanship, Cost control and Monitoring the project, manpower management and the problems that may arise and their remedies have been included.

Hope this course will develop confidence and methodology to start their own entreprise with bit effort.

MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

24/62

Programme :

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : ADVANCED ENTREPRENEURSHIP AND PROJECT.

COURSE CODE NO: : CTM 511

PREREQUISITE : CTM 403

SCHEME OF STUDIES

S.No.	TOPIC.	TH. HRS.	Pr. Hrs.	Total.
(1)	Managing an Enterprise.	7	-	7
(2)	Sales Techniques and Promotion.	7	-	7
(3)	Cost control and Monitoring.	6	- -	6
(4)	Manpower Management and Industrial Relations.	6	-	6
(5)	Problems and Remedies.	6	-	6
(6)	Visit to different Project/ Industrirries and to prepare project Group discussion.	-	96	96
		32	✕	128

Credits - 5

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME. DIPLOMA IN CONSTRUCTION TECHNOLOGY AND MANAGEMENT.

COURSE : ADVANCE ENTREPRENEURSHIP AND PROJECT.

COURSE CODE NO. : CTM 511

PREREQUISITE :

S.No.	TOPIC.	CONTENTS OUTLINE.	Hrs. Th.	Pr.
1.	Managing and Enterprise.	Definition of Management, Basic functions of managers, Appropriate organisation structure Delegation, Span of control. Purchase procedure, Elements of a sound Purchase system, Inventory control, ABC analysis, Phases of Production Planning and control process, Importance of production control.		
2.	Sales Techniques and Promotion.	Significance of Sales forecast Methods of forecasting Sales, Sales Promotion techniques, Selection of Appropriate channels compensation and incentives to sales staff.		
3.	Cost control and monitoring.	Elements of cost, calculation of unit cost. Calculation of Break- even point Budgeting- Budgetory control, Standard costs variances and Budgetory control. Monitoring progress of project Periodical cost variances, Remedial action.		
4.	Man power Management and Industrial Relations.	Factors affecting Productivity, - Importance of training, and development styles of leadership, Adoption of appropriate style of leadership, Need of industrial Relations and peace, Causes of Industrial disputes, Methods of settling Industrial disputes Unionism- Role of Trade Union for maintaining Industrial peace.		
5.	Problems and remedies.	Factors giving rise to the problems, symptoms of sickness, scientific problem solving - Data collection, alternative strategies, Govt. supports, structural changes. Selection of an appropriate strategy for given cases of Industrial sickness with scheduling.		

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : ADVANCE ENTREPRENEURSHIP AND PROJECT.

COURSE CODE No : CTM- 511

PREREQUISITE : CTM 403

LIST OF PRACTICALS.

(1) Field visits are to be arranged.

(2) Group discussions

(3) Project work.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,
BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : PROJECT CIVIL ENGINEERING.

COURSE CODE NO. : CTM 512

PREREQUISITE : MINIMUM 90 Credit.

RATIONALE.

Projects are intended to provide students with an opportunity to develop and demonstrate initiative, confidence and ability to tackle new problems and spirit of enquiry. Through project work it is possible to integrate and reinforce the skills acquired by the students in separate subject studies.

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MADHYA PRADESH BOARD OF TECHNICAL EDUCATION,

BHOPAL.

PROGRAMME : DIPLOMA IN CONSTRUCTION TECHNOLOGY & MANAGEMENT.

COURSE : PROJECT

COURSE CODE NO: CTM 512

PREREQUISITE : Minimum 90 credits.

P R O J E C T.

The project work is a student centred learning method. The project will include both Field Work and Office Work. On field the student will conduct surveys and gather data. In office, he will prepare drawings, estimates and a technical (feasibility) report. The suggested Project works, out of which one should be selected, are given below.

(1) A residential building single/ Double storeyed.

(2) A road alignment and construction as per norms.

(3) Development of colony - Layout as per bye- laws.

(4) Water supply system for a colony.

(5) Sewerage system for a colony.

(6) A shop-cum- Residential Building.

Total 96 hrs.