

Ref No:

SRI KRISHNA INSTITUTE OF TECHNOLOGY , BANGALORE-90



## COURSE PLAN

Academic Year 2019-20

Program:	B E – Civil Engineering
Semester :	8
Course Code:	15cv81
Course Title:	Quantity Surveying and Contracts Management
Credit / L-T-P:	4 / 4-0-0
Total Contact Hours:	50
Course Plan Author:	RENUKA H R

Academic Evaluation and Monitoring Cell

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Note : Remove "Table of Content" before including in CP Book  
 Each Course Plan shall be printed and made into a book with cover page  
 Blooms Level in all sections match with A.2, only if you plan to teach / learn at higher levels

## A. COURSE INFORMATION

### 1. Course Overview

Degree:	Civil Engineering	Program:	B.E
Year / Semester :	4 <sup>th</sup> /VIII	Academic Year:	2019-20
Course Title:	Quantity Surveying and Contracts Management	Course Code:	15CV81
Credit / L-T-P:	04	SEE Duration:	180 Minutes
Total Contact Hours:	50	SEE Marks:	80 Marks
CIA Marks:	20 Marks	Assignment	1 / Module
Course Plan Author:	RENUKA H R	Sign	Dt:
Checked By:		Sign	Dt:
CO Targets	CIA Target : 88 %	SEE Target:	72 %

**Note:** Define CIA and SEE % targets based on previous performance.

### 2. Course Content

Content / Syllabus of the course as prescribed by University or designed by institute. Identify 2 concepts per module as in G.

Module	Content	Teaching Hours	Identified Module Concepts	Blooms Learning Levels
1	Quantity Estimation for Building; study of various drawing attached with estimates, important terms, units of measurements, abstract, Types of estimates - Approximate, detailed, supplementary and revised, Estimation of building -Short wall and long wall method – center line method. Estimate of R.C.C structures including Slab, beam, column , footings, with bar bending schedule.	10 (5.5)	Estimation	L5 Evaluate
2	Estimate of Steel truss, manhole and septic tanks. Quantity Estimation for Roads: Road estimation, earthwork fully in banking, cutting, partly cutting and partly Filling, Detailed estimate and cost analysis for roads.	10 (5.5)	Estimation	L5 Evaluate
3	<b>Specification for Civil Engineering Works:</b> Objective of writing specifications essentials in specifications, general and detail specifications of different items of works in buildings. <b>Analysis of Rates :</b> Factors Affecting Cost of Civil Works , Concept of Direct Cost , Indirect Cost and Project Cost. Rate analysis and preparation of bills, Data analysis of rates for various items of Works, Sub-structure components, Rate analysis for R.C.C. slabs, columns and beams.	10 (5.5)	Analysis of Rates	L5 Evaluate
4	<b>Contract Management-Tender and its Process:</b> Invitation to tender, Prequalification, administrative approval & Technical sanction. Bid submission and Evaluation process. Contract Formulation: covering Award of contract, letter of intent, letter of acceptance and notice to proceed. Features / elements of standard Tender document (source: PWD / CPWD / International Competitive Bidding – NHAI / NHEPC / NPC). Law of Contract as per Indian Contract act 1882 , Types of Contract, Entire contract, Lump sum contract, Item rate, % rate, Cost plus with Target, Labour, EPC and BOT, Sub Contracting. Contract Forms : FIDIC contract Forms , CPWD , NHAI , NTPC , NHEPC	10 (5.5)	Tender	L2 Evaluate
5	<b>Contract management post award:</b> Basic understanding on definitions, Performance security, Mobilization and equipment advances, Secured Advance, Suspension of work, Time limit for completion, Liquidated damages and bonus, measurement and payment, additions and alterations or variations and deviations, breach of contract, Escalation,	10 (5.5)	Valuation	L2 Understand

	settlement of account or final payment, claims, Delay's and Compensation, Disputes & its resolution mechanism, Contract management and administration <b>Valuation:</b> Definitions of terms used in valuation process, Cost, Estimate, Value and its relationship, Capitalized value. Concept of supply and demand in respect to properties ( land , building , facilities'), freehold and lease hold , Sinking fund, depreciation–methods of estimating depreciation, Outgoings, Processand methods of valuation : Rent fixation, valuation for mortgage, valuation of land.			
-	<b>Total</b>	<b>50</b>	-	-

### 3. Course Material

Books & other material as recommended by university (A, B) and additional resources used by course teacher (C).

1. Understanding: Concept simulation / video ; one per concept ; to understand the concepts ; 15 – 30 minutes
2. Design: Simulation and design tools used – software tools used ; Free / open source
3. Research: Recent developments on the concepts – publications in journals; conferences etc.

Modul es	Details	Chapters in book	Availability
<b>A</b>	<b>Text books (Title, Authors, Edition, Publisher, Year.)</b>	-	-
1, 2, 3, 4, 5	,"Estimating and costing",Datta B.N,28th Revised edition, UBSPD Publishing House, New Delhi, 2012.	3, 4	In Lib / In Dept
4,5	Quantity Surveying and Contracts Management, H.S. Vishwanath,1st Edition, Sapna Book House,2019.	1, 2, 3, 4, 5	Not Available
<b>B</b>	<b>Reference books (Title, Authors, Edition, Publisher, Year.)</b>	-	-
1, 2	" Estimating and Costing",Kohli D.D and Kohli R.C,12 th Edition, S.Chand Publishers, 2014.	4,5	In Lib / In Dept
1, 2	" Contracts and their Management" B.S. Ramaswamy ,3ed , Lexis Nexis (a division of Reed Elsevier India Pvt Ltd)	4,5	In Lib / In Dept
<b>C</b>	<b>Concept Videos or Simulation for Understanding</b>	-	-
C1	<a href="https://www.youtube.com/watch?v=g2UkPUSawWk">https://www.youtube.com/watch?v=g2UkPUSawWk</a>		
C2	<a href="https://www.youtube.com/watch?v=rO-BUg6ywck">https://www.youtube.com/watch?v=rO-BUg6ywck</a> , <a href="https://www.youtube.com/watch?v=tcpaB6nAzmc">https://www.youtube.com/watch?v=tcpaB6nAzmc</a>		
C3	<a href="https://www.youtube.com/watch?v=7tRLtVYv4HE">https://www.youtube.com/watch?v=7tRLtVYv4HE</a> , <a href="https://www.youtube.com/watch?v=lqHDNyMB47s">https://www.youtube.com/watch?v=lqHDNyMB47s</a> , <a href="https://www.youtube.com/watch?v=KdlayUTklxg">https://www.youtube.com/watch?v=KdlayUTklxg</a>		
C4	<a href="https://www.youtube.com/watch?v=qsQdglNy6so">https://www.youtube.com/watch?v=qsQdglNy6so</a> <a href="https://www.youtube.com/watch?v=v2_nLlf20Xo">https://www.youtube.com/watch?v=v2_nLlf20Xo</a> <a href="https://www.youtube.com/watch?v=sWMzdmEmQIM">https://www.youtube.com/watch?v=sWMzdmEmQIM</a>		
C5	<a href="https://www.youtube.com/watch?v=YQQoMye5bJQ">https://www.youtube.com/watch?v=YQQoMye5bJQ</a> <a href="https://www.youtube.com/watch?v=HauVRiLltLU">https://www.youtube.com/watch?v=HauVRiLltLU</a>		
C6	<a href="https://www.youtube.com/watch?v=-TY-Pzim0gE">https://www.youtube.com/watch?v=-TY-Pzim0gE</a>		
C7	<a href="https://www.ncmahq.org/discover-our-profession/what-is-contract-management">https://www.ncmahq.org/discover-our-profession/what-is-contract-management</a>		
C8	<a href="https://www.youtube.com/watch?v=Vu3lqtRSvEM">https://www.youtube.com/watch?v=Vu3lqtRSvEM</a>		
C9	<a href="https://www.ukessays.com/dissertation/examples/construction/forms-of-contract.php">https://www.ukessays.com/dissertation/examples/construction/forms-of-contract.php</a>		
C10	<a href="https://www.youtube.com/watch?v=cVWpVKvXoBQ">https://www.youtube.com/watch?v=cVWpVKvXoBQ</a>		
<b>D</b>	<b>Software Tools for Design</b>	-	-
<b>E</b>	<b>Recent Developments for Research</b>	-	-

<b>F</b>	<b>Others (Web, Video, Simulation, Notes etc.)</b>	-	-
1			
?			

#### 4. Course Prerequisites

Refer to GL01. If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.

Students must have learnt the following Courses / Topics with described Content . . .

Mod ules	Course Code	Course Name	Topic / Description	Sem	Remarks	Blooms Level
1						
3						
3						
5						
-						
-						

#### 5. Content for Placement, Profession, HE and GATE

The content is not included in this course, but required to meet industry & profession requirements and help students for Placement, GATE, Higher Education, Entrepreneurship, etc. Identifying Area / Content requires experts consultation in the area.

Topics included are like, a. Advanced Topics, b. Recent Developments, c. Certificate Courses, d. Course Projects, e. New Software Tools, f. GATE Topics, g. NPTEL Videos, h. Swayam videos etc.

Mod ules	Topic / Description	Area	Remarks	Blooms Level
1	Estimation of building by long wall and short. And center line method.	Entrepreneu rship		Evaluate L5
2	Estimation of Steel Truss, Septic tank, Manhole. Road work estimation.	Entrepreneu rship		Evaluate L5
3				
4				
5				
-				

## B. OBE PARAMETERS

### 1. Course Outcomes

Expected learning outcomes of the course, which will be mapped to POs. Identify a max of 2 Concepts per Module. Write 1 CO per Concept.

Mod ules	Course Code.#	Course Outcome <b>At the end of the course, student should be able to . . .</b>	Teach. Hours	Concept	Instr Method	Assessme nt Method	Blooms' Level
1	15CV81.1	Evaluate detailed and abstract estimates for Buildings.	5	Estimation of building.	Lecture	Internal assessment and Assignment	L5 Evaluate
1	15CV81.2	Evaluate detailed Estimate for Rcc Bilding Componenets.	5	Estimation of rcc Componenets.	Lecture/ Tutorial	Internal assessment and Assignment	L5 Evaluate
2	15CV81.3	Evaluate detailed for Steel trusses	5	Estimation	Lecture	Internal	L5

		and Rcc Sewers.		of Rcc sewers..		assessment and Assignment	Evaluate
2	15CV81.4	Evaluate detailed Estimate for Earthwork Excavation for road.	5	Estimation of Roads	Lecture	Internal assessment and Assignment	L5 Evaluate
3	15CV81.5	Understand the Specification of building work..	5	Specifications	Lecture	Internal assessment and Assignment	L2 Evaluate
3	15CV81.6	Evaluate rate analysis for various Civil Engineering components.	5	Rate analysis	Lecture/Tutorial	Internal assessment and Assignment	L5 Evaluate
4	15CV81.8	Understand the Contract management and its process.	5	Contract management	Lecture/Tutorial	Internal assessment and Assignment	L2 Understand
4	15CV81.8	Understand the Laws of Contract management .	5	Laws of CM.	Lecture/Tutorial	Internal assessment and Assignment	L2 Understand
5	15CV81.9	Student should be able to Understand the Contract management post awards .	5	estimates	Lecture	Internal assessment and Assignment	L2 Understand
5	15CV81.10	Student should be able to Understand the Valuation of civil work.	5	Valuate.	Lecture	Internal assessment and Assignment	L2 Understand
-	-	<b>Total</b>	<b>50</b>	-	-	-	<b>L2-L4</b>

## 2. Course Applications

Write 1 or 2 applications per CO.

Students should be able to employ / apply the course learnings to . . .

Modules	Application Area Compiled from Module Applications.	CO	Level
1	Used for Estimation of buildings.	CO1	L5
1	Used for Estimation of Rcc works in building.	CO2	L5
2	Used for Estimation of Steel and public works .	CO3	L5
2	Used for Estimation of earth work excavation ifor Roads.	CO4	L5
3	Used in the civil industry for estimation.	CO5	L2
3	Used in the civil industry for rate analysis.	CO6	L5
4	Used in the civil industry for contract management.	CO8	L2
4	Used in the civil industry in tender processes to solve the disputes.	CO8	L2
5	Used in the civil industry for the post award of works.	CO9	L2
5	Used in the civil Industry to know the cost of the property.	CO10	L2

### 3. Mapping And Justification

CO – PO Mapping with mapping Level along with justification for each CO-PO pair.

To attain competency required (as defined in POs) in a specified area and the knowledge & ability required to accomplish it.

Mod ules	Mapping		Mapping Level	Justification for each CO-PO pair	Lev el
	CO	PO			
-	CO	PO	-	<b>'Area': 'Competency' and 'Knowledge' for specified 'Accomplishment'</b>	-
1	CO1	PO1	1	By applying the knowledge and finding the problem to manage projects and in multidisciplinary environments.	L2
1	CO1	PO2	1	Preliminary investigation Identify analyze complex engineering problems .	L2
1	CO1	PO3	1	Design/Development of solutions for investigated problems by applying complex engineering problems.	L2
1	CO1	PO11	3	By applying the knowledge and finding the problem to manage projects and in multidisciplinary environments.	L2
1	CO2	PO1	1	Apply the knowledge of civil engineering fundamentals to study the applied loads.	L2
1	CO2	PO2	2	'Should be able to identify the problems reaching using first principle of mathematics.	L2
1	CO2	PO3	1	Design solution for complex engineering problems ans design system components by consideration of public health and safety.	L2
1	CO2	PO11	3	By applying the engineering knowledge and problem analysis. It will be helpful to continue projects.	L2
2	CO3	PO1	1	Apply the knowledge of mathematics is applicable to Design bending moment and shear force.	L5
2	CO3	PO2	1	By applying Engineering knowledge and analyze complex bending moment and shear force in rc slab culvert.	L5
2	CO4	PO1	1	Knowledge of engineering fundamentals is required to understand behavior of RC slab culvert.	L5
2	CO4	PO2	1	Analyse complex engineering problems reaching substantiated to Bending moment and shear force.	L5
2	CO4	PO3	1	Design a RC slab culvert for the complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety	L5
2	CO4	PO11	3	By applying the knowledge of design of bridge in slab culverts, as a member and leader in a team, to manage projects and in multidisciplinary environments .	L5
3	CO5	PO1	1	Apply the knowledge of mathematics is applicable to Design bending moment and shear force in longitudinal girder.	L5
3	CO5	PO2	1	By applying Engineering knowledge and analyze complex bending moment and shear force in longitudinal girder..	L5
3	CO6	PO1	1	Knowledge of engineering fundamentals is required to understand behavior of Longitudinal girder.	L5
3	CO6	PO2	1	Analyse complex engineering problems reaching substantiated to Bending moment and shear force in longitudinal girder.	L5
3	CO6	PO3	1	Design a longitudinal and cross girder for the complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety	L5
3	CO6	PO11	3	By applying the knowledge of design of bridge on longitudinal and transverse girder as a member and leader in a team, to manage projects and in multidisciplinary environments .	L5
4	CO8	PO1	1	Knowledge of engineering fundamentals is required to understand behavior of Box Culvert..	L5
4	CO8	PO2	1	Analyse complex engineering problems reaching substantiated to Bending moment and shear force for box culvert by kani's method.	L5
4	CO8	PO3	1	Design a Box Culvert for the complex engineering problems and design system components or processes that meet the specified needs with	L5

				appropriate consideration for the public health and safety	
4	CO8	PO11	3	By applying the knowledge of Box culverts as a member and leader in a team, to manage projects and in multidisciplinary environments .	L5
4	CO8	PO1	1	Knowledge of engineering fundamentals is required to understand behavior of Pipe culvertr.	L5
4	CO8	PO2	1	Analyse complex engineering problems reaching substantiated to Bending moment and shear force in Pipe culvert.	L5
4	CO8	PO3	1	Design a Pipe culverts for the complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety.	L5
4	CO8	PO11	3	By applying the knowledge of design of pipe culverts as a member and leader in a team, to manage projects and in multidisciplinary environments .	L5
5	CO9	PO1	1	Apply the knowledge of mathematics is applicable to Design loads on piers and abutments.	L2
5	CO9	PO2	1	By applying Engineering knowledge and analyze complex loading conditions in design of pier and abutments.	L2
5	CO10	PO1	1	Knowledge of engineering fundamentals is required to understand behavior of Piers and abutments.	L5
5	CO10	PO2	1	Analyse complex engineering problems reaching substantiated to Bending moment and shear force in Piers and abutments.	L5
5	CO10	PO3	1	Design a Pier and abutment for the complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety	L5
5	CO10	PO11	3	By applying the knowledge of design of Piers and abutments as a member and leader in a team, to manage projects and in multidisciplinary environments .	L5

#### 4. Articulation Matrix

CO – PO Mapping with mapping level for each CO-PO pair, with course average attainment.

Mod ules	CO.#	Course Outcomes At the end of the course student should be able to ...	Program Outcomes												PS O1	PS O2	PS O3	Lev el	
			PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 8	PO 8	PO 9	PO 10	PO 11	PO 12					
1	15CV81.1	Evaluate detailed and abstract estimates for Buildings.	2.0 6	2.3 3	2.4	-	-	-	-	-	-	-	-	-	2.3 3				L5
1	15CV81.2	Evaluate detailed Estimate for Rcc Bilding Componenets.	2.0 6	2.3 3	2.4	-	-	-	-	-	-	-	-	-	2.3 3				L5
2	15CV81.3	Evaluate detailed for Steel trusses and Rcc Sewers.	2.0 6	-	-	-	-	-	-	-	-	-	-	-	-				L5
2	15CV81.4	Evaluate detailed Estimate for Earth work Excavation for road.	2.0 6	2.3 3	2.4	-	-	-	-	-	-	-	-	-	2.3 3				L5
3	15CV81.5	Understand the Specification of building work..	2.0 6	2.3 3	-	-	-	-	-	-	-	-	-	-	-				L2
3	15CV81.6	Evaluate rate analysis for various Civil Engineering components.	2.0 6	2.3 3	-	-	-	-	-	-	-	-	-	-	-				L5
4	15CV81.8	Understand the Contract management and its process.	2.0 6	2.3 3	2.4	-	-	-	-	-	-	-	-	-	2.3 3				L2
4	15CV81.8	Understand the Laws of Contract management .	2.0 6	2.3 3	2.4	-	-	-	-	-	-	-	-	-	2.3 3				L2
5	15CV81.9	Understand the Contract management post awards .	2.0 6	2.3 3	-	-	-	-	-	-	-	-	-	-	-				L2
5	15CV81.10	Understand the Valuation of civil work.	2.0 6	2.3 3	2.4	-	-	-	-	-	-	-	-	-	2.3 3				L2
-	<b>15CV81PC</b>	<b>Average attainment (1, 2, or 3)</b>	<b>2.0 6</b>	<b>2.3 3</b>	<b>2.4</b>	-	-	-	-	-	-	-	-	-	2.3 3				-
-	PO, PSO	1.Engineering Knowledge; 2.Problem Analysis; 3.Design / Development of Solutions; 4.Conduct Investigations of Complex Problems; 5.Modern Tool Usage; 6.The Engineer and																	



		<i>Society; 8.Environment and Sustainability; 8.Ethics; 9.Individual and Teamwork; 10.Communication; 11.Project Management and Finance; 12.Life-long Learning; S1.Software Engineering; S2.Data Base Management; S3.Web Design</i>
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## 5. Curricular Gap and Content

Topics & contents not covered (from A.4), but essential for the course to address POs and PSOs.

Mod ules	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
1					
2					
3					
4					
5					

## 6. Content Beyond Syllabus

Topics & contents required (from A.5) not addressed, but help students for Placement, GATE, Higher Education, Entrepreneurship, etc.

Mod ules	Gap Topic	Area	Actions Planned	Schedule Planned	Resources Person	PO Mapping
1						
1						
2						
2						
3						
3						
4						
4						
5						
5						

## C. COURSE ASSESSMENT

### 1. Course Coverage

Assessment of learning outcomes for Internal and end semester evaluation. Distinct assignment for each student. 1 Assignment per chapter per student. 1 seminar per test per student.

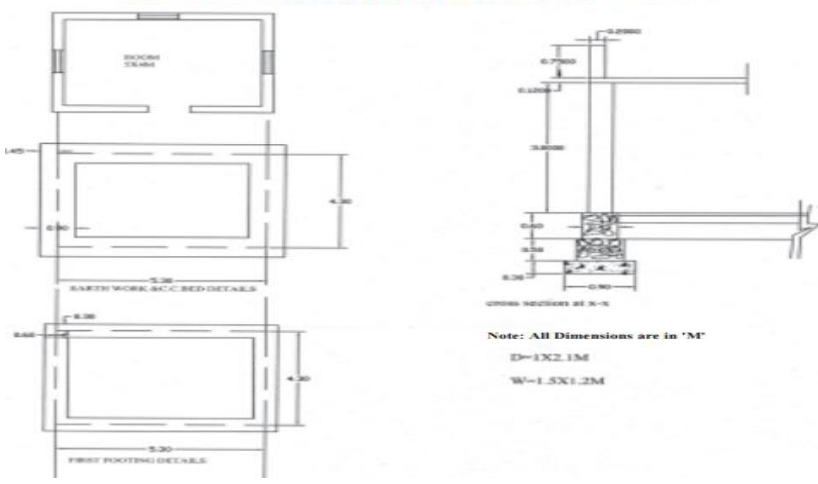
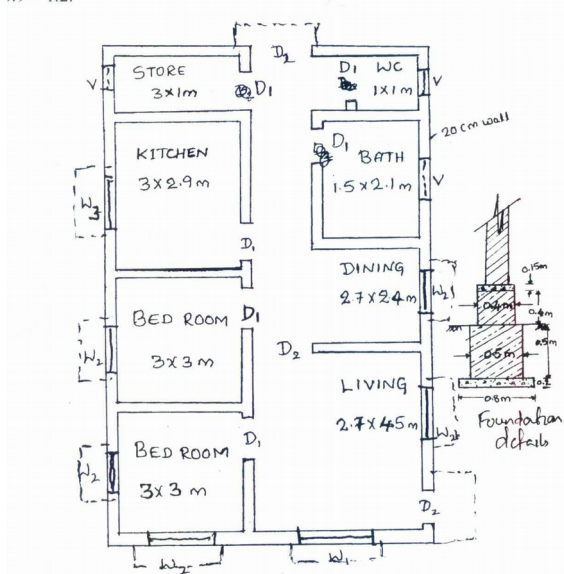
Mod ules	Title	Teach. Hours	No. of question in Exam						CO	Levels
			CIA-1	CIA-2	CIA-3	Asg	Extra Asg	SEE		
1	Quantity Estimation	10	2	-	-	1	1	2	CO1 CO2	L5
2	Detailed estimate	10	2	-	-	1	1	2	CO3, CO4	L5
3	Analysis of Rates	10	-	2	-	1	1	2	CO5, CO6	L5
4	Contract Management-Tender and its Process	10	-	2	-	1	1	2	CO8, CO8	L2
5	Valuation	10	-	-	4	1	1	2	CO9, CO10	L2
-	<b>Total</b>	<b>50</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>-</b>	<b>-</b>

### 2. Continuous Internal Assessment (CIA)

Assessment of learning outcomes for Internal exams. Blooms Level in last column shall match with A.2.

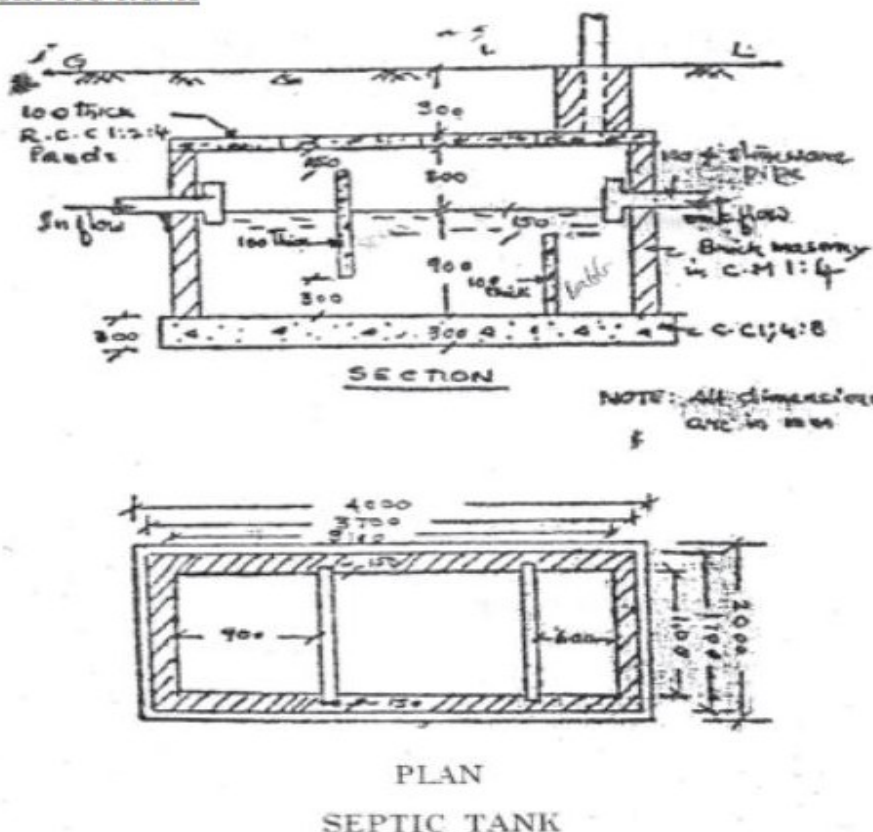
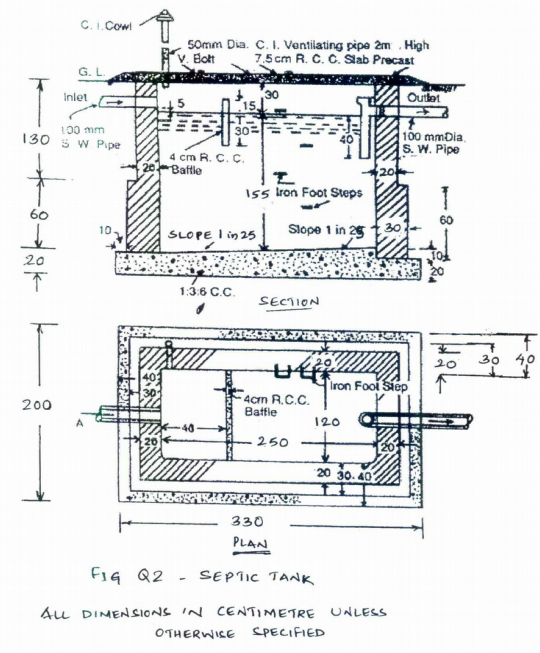
Mod ules	Evaluation	Weightage in Marks	CO	Levels
1, 2	CIA Exam – 1	15	CO1, CO2, CO3, CO4	L5



	<p style="text-align: center;"><b>Single Roomed Building (Load Bearing type structure)</b></p> 		
2	What is an estimation? Explain the different types of estimates	CO1	L2
3	What are the steps used in preparation of detailed estimate?	CO1	L2
4	<p>The Fig. Q1 (a) shows the detail of a residential building with a ceiling height of 3.5m. Work out the quantities for following items.</p> <p>a. Earthwork in excavation for foundation in ordinary soil @ Rs 211/cum</p> <p>b. Plinth concrete of DDC 1:2:4 at the rate of Rs 4200/cum</p> <p>c. 1st class brick work in CM 1:6 for superstructure at rate of Rs 3500/cum</p> <p>d. Ceiling plastering at rate of Rs 189/sqm</p> <p>D1 = 0.9 x 2.1m, D2 = 1.2 x 2.1m  W1 = 1.5 x 1.35m, W2 = 1.2 x 1.35m, W3 = 1.2 x 1.35m  V = 0.9 x 1.2.</p>  <p style="text-align: center;">Fig. Q1(a)</p> <p style="text-align: center;">me lintel over door and windows ventilators.</p>	CO2	L5
<b>e</b>	<b>Experiences</b>	-	-
1		CO1	L2
2			
3			
4		CO2	L3
5			

Module – 2

Title:	Quantity Estimation for Roads							Appr Time:	10 Hrs
<b>a</b>	<b>Course Outcomes</b>							<b>CO</b>	<b>Blooms Level</b>
-	At the end of the topic the student should be able to . . .							-	<b>Level</b>
1	Evaluate detailed for Steel trusses and Rcc Sewers.							CO3	L5
2	Evaluate detailed Estimate for Earth work Excavation for road.							CO3	L5
<b>b</b>	<b>Course Schedule</b>							-	-
<b>Class No</b>	<b>Portion covered per hour</b>							-	-
13	Steel truss							CO2	L5
14	manhole -problem							CO2	L5
15	problem							CO2	L5
16	septic tanks-problem							CO2	L5
18	problem							CO2	L2
18	Eart work excavation							CO3	L2
19	Problems on fully cutting.							CO3	L5
18	Problems on fully Banking.							CO3	L5
19	Problems on Partially Cutting.							CO3	L5
20	Problems on Partially Banking.							CO3	L5
<b>c</b>	<b>Application Areas</b>							-	-
-	Students should be able employ / apply the Module learnings to . . .							-	-
1	Used for Estimation of Steel and public works .							CO3	L5
2	Used for Estimation of earth work excavation ifor Roads.							CO4	L5
<b>d</b>	<b>Review Questions</b>							-	-
-	The attainment of the module learning assessed through following questions							-	-
1.	Estimate the quantities of earth work from chainage 80 to 86 measured with a standard 20 m chain from the following data. Use mean sectional area method. Side slopes 1:1 in cutting and 2:1 in Banking. Formation width of road is 10 tn. Draw the longitudinal section of the proposed road.							CO4	L5
	Chainage	80	81	82	83	84	85	86	
	Ground RL'S	88.10	88.84	88.80	88.20 90.40	90.85	90.20	89.98	
	Formation level	88.50	Raising gradient 1:100						
2.	Estimate the quantity of earth work for a portion of road work from the following data, using mid sectional area method Formation width = 4m ; side slope 2:1 is filling side slo e 1.5:1 is cutting.							CO4	L5
	Chainage	0	40	80	120	160	200	240	280
	Ground RL'S	100.6	100.2	99.8	100.2	100.8	101.9	102.4	102.5
	Formation level	101	Raising gradient 1 to 400						
3.	Estimate the quantity of earthwork in banking and cutting by mid sectional area method for a portion of road from the following data: Formation width of road is 10 metre. Side slope 2:1 in banking and 1.5:1 in cutting.							CO4	L5
	Chainage	0	100	200	300	400	500	600	800
	Ground RL'S	114	114.6	115	115.2	116.1	116.5	118	118.25
	Formation level	115	Upward gradient of 1:200						

<p>4</p>	<p>Calculate the amount of quantities of given items.</p> <p><b>SEPTIC TANK</b></p> 	<p>CO3</p>	<p>L5</p>
<p>5</p>	<p>The plan and section of the "Septic Tank" is given in Fig.Q2. Work out the quantities and cost of the following items of the work:</p> <p>a. Earthwork in excavation @ 250/m<sup>3</sup></p> <p>b. First class brickwork in CM 1:3 @ 8600/m<sup>3</sup></p>  <p>Fig Q2 - SEPTIC TANK</p> <p>ALL DIMENSIONS IN CENTIMETRE UNLESS OTHERWISE SPECIFIED</p>	<p>CO3</p>	<p>L5</p>
<p>e</p>	<p><b>Experiences</b></p>	<p>-</p>	<p>-</p>

1		CO3	L2
2			
3			
4		CO4	L3
5			

**E1. CIA EXAM – 1**

**a. Model Question Paper - 1**

Crs Code: 15CV81 Sem: VIII Marks: 30 Time: 85 minutes

Course: Quantity Surveying and Contracts Management

**Note: Answer all questions, each carry equal marks. Module : 1, 2**

		Marks	CO	Level
1	a	CO1	L2	8
	b	CO1	L2	8

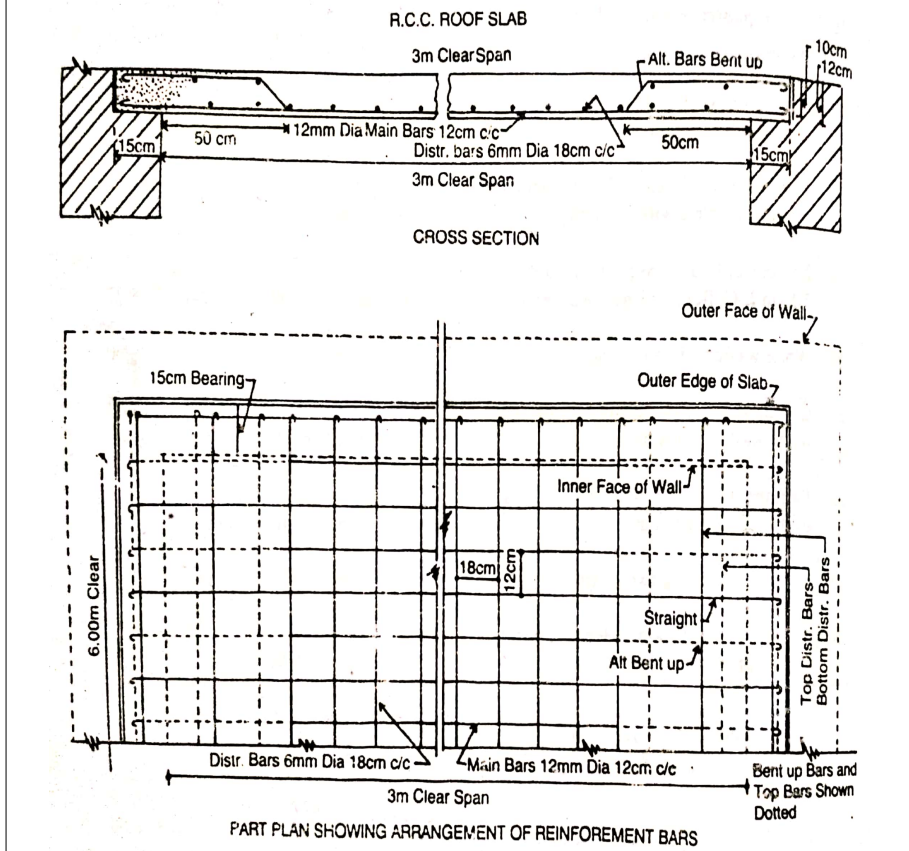
**OR**

2	a	CO1	L2	15
---	---	-----	----	----

Briefly explain.  
 1) Preliminary estimate.  
 2) Detailed estimate.  
 3) Revised Estimate .  
 4) Supplementary estimate.

3	a	CO1	L2	8
---	---	-----	----	---

	b	CO2	L5	8
--	---	-----	----	---

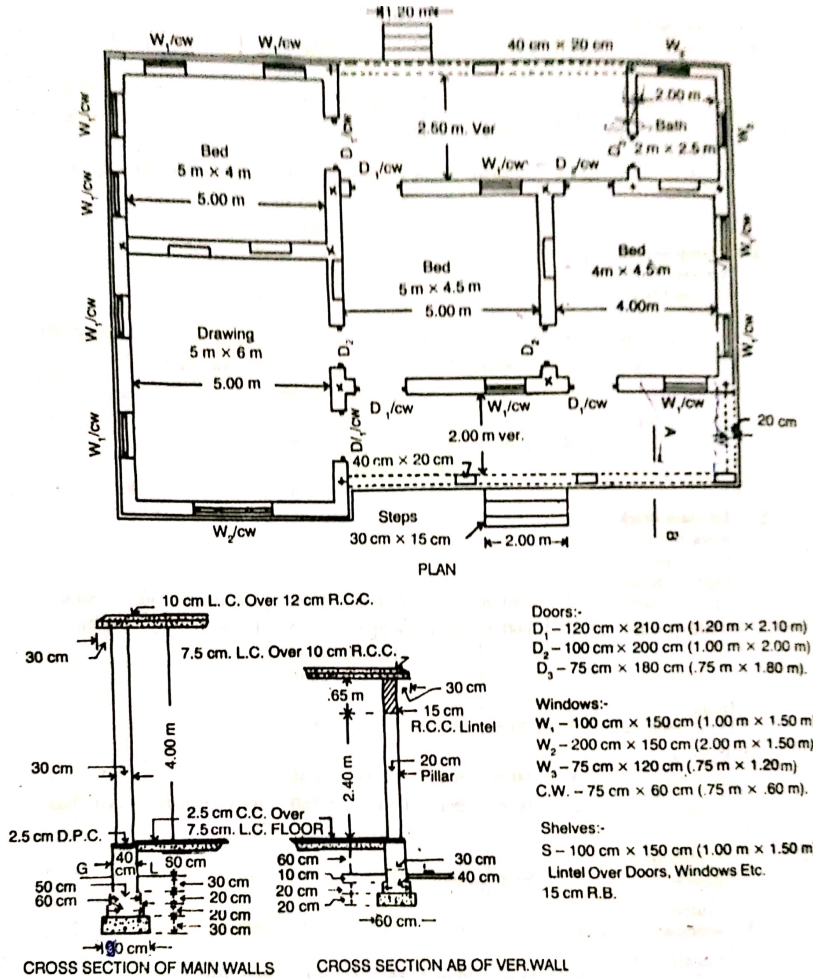


**OR**

4	a	CO1	L5	15
---	---	-----	----	----

Estimate the quantities of the following items of a residential building from the following drawing By using longwall and short wall method.

- 1) Earthwork in excavation in foundation .
- 2) Lime concrete in foundation.
- 3) First class brick work in 1:6 cement sand mortar in foundation and plinth?



**b. Assignment -1**

Note: A distinct assignment to be assigned to each student.

**Model Assignment Questions**

Crs Code:	15CV81	Sem:	VIII	Marks:	5	Time:	90 - 120 minutes
Course:	Quantity Surveying and Contracts Management			Module :	1, 2		

Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.

SNo	Assignment Description	Marks	CO	Level
1.	Preliminary estimate.	05	CO1	L2
2	Detailed estimate.	05	CO1	L2
3	Revised Estimate .	05	CO1	L2
4	Supplementary estimate.	05	CO2	L2
5	What is an estimate? Explain the necessity of estimate?	05	CO2	L2
6	Explain different types of estimate in buildings?	05	CO2	L2
8	Estimate for 25 user septic tank	05	CO3	L5
8	Estimate for 50 user septic tank	05	CO3	L5
9	Estimate for Manhole.	05	CO3	L5
10	Estimate for steel truss.	05	CO4	L5
11	Estimate for road work in fully cutting.	05	CO4	L5

12		Estimate for road work in fully Banking.	05	CO4	L5
13		Estimate for road work in Partially cutting.	05	CO4	L5
14		Estimate for road work in Partially Banking.	05	CO4	L5

## D2. TEACHING PLAN - 2

### Module – 3

Title:	Specification for Civil Engineering Works	Appr Time:	10 Hrs
<b>a</b>	<b>Course Outcomes</b>	<b>CO</b>	<b>Blooms Level</b>
-	At the end of the topic the student should be able to . . .	-	<b>Level</b>
1	Understand the Specification of building work..	CO5	L2
2	Evaluate rate analysis for various Civil Engineering components.	CO6	L5
<b>b</b>	<b>Course Schedule</b>		
<b>Class No</b>	<b>Portion covered per hour</b>	-	-
21	Objective of writing specifications essentials in specifications.	CO5	L2
22	General and detail specifications of different items of works in buildings.	CO5	L2
23	Factors Affecting Cost of Civil Works	CO5	L2
24	Concept of Direct Cost	CO5	L2
25	Indirect Cost and Project Cost	CO5	L2
26	Rate analysis and preparation of bills	CO6	L5
28	Data analysis of rates for various items of Works,	CO6	L5
28	Sub-structure components	CO6	L5
29	Rate analysis for R.C.C. slabs	CO6	L5
30	Rate analysis columns and beams.	CO6	L5
<b>c</b>	<b>Application Areas</b>	-	-
-	Students should be able employ / apply the Module learnings to . . .	-	-
1	Used in the civil industry for estimation.	CO5	L2
2	Used in the civil industry for rate analysis.	CO6	L5
<b>d</b>	<b>Review Questions</b>	-	-
-	The attainment of the module learning assessed through following questions	-	-
1	Write the detailed specification for any three of the following items: i) Burnt brick masonry in CM 1:6 ii) R.C.C. work in roof slab in CC 1:2:4 iii) Plastering in CM 1:3 for inside walls iv) Mangalore tiled roof over sal wood battens.	CO5	L2
2.	Work out from first principles the analysis of rate for the following any three items: i) Current concrete foundation bed in CC 1:3:6 ii) Coursed rubble stone masonry in CM 1:8 for foundation. iii) Damp proof course 25 mm thick in CM 1:3 iv) 12 mm thick Cement plastering in CM 1:3.	CO6	L5
3.	Write specifications for any three of the following : a. Burnt Brick masonry in CM 1:6 b. Mosaic or Terrazzo Floor c. Painting work d. Earth work excavation.	CO5	L2
4.	Carry out rate analysis for any three of the following :a) . CC (1:3:6) for foundations using 20mm and down size aggregates.b.) First class brick masonry for super structure is CM1:4 e) 12mm thick plastering for walls with CM1:6 d). 20mm thick DPC with CM1:5.	CO6	L5
5.	Write a detailed specification for the following items of work: 01) a. Reinforced cement concrete b. Cement plastering c. painting to new woodwork.	CO5	L2



<b>e</b>	<b>Experiences</b>	-	-
1			
2			
3			
4			
5			

## Module – 4

<b>Title:</b>	<b>Contract Management-Tender and its Process</b>	<b>Appr Time:</b>	<b>10 Hrs</b>
<b>a</b>	<b>Course Outcomes</b>	<b>CO</b>	<b>Blooms Level</b>
-	At the end of the topic the student should be able to . . .	-	-
1	Student should be able to Understand the Contract management and its process.	CO8	L2
2	Student should be able to Understand the Laws of Contract management .	CO8	L2
<b>b</b>	<b>Course Schedule</b>		
<b>Class No</b>	<b>Portion covered per hour</b>	<b>-</b>	<b>-</b>
31	Invitation to tender,	CO8	L2
32	Prequalification, administrative approval & Technical sanction	CO8	L2
33	Bid submission and Evaluation process.	CO8	L2
34	Contract Formulation: covering Award of contract, letter of intent, letter of acceptance and notice to proceed	CO8	L2
35	Features / elements of standard Tender document (source: PWD / CPWD / International Competitive Bidding – NHAI / NHEPC / NPC).	CO8	L2
36	Law of Contract as per Indian Contract act 1882	CO8	L2
38	Types of Contract,	CO8	L2
38	Entire contract, Lump sum contract, Item rate, % rate, Cost plus with Target,	CO8	L2
39	Labour, EPC and BOT, Sub Contracting.	CO8	L2
40	Contract Forms : FIDIC contract Forms , CPWD , NHAI , NTPC , NHEPC	CO8	L2
<b>c</b>	<b>Application Areas</b>	<b>-</b>	<b>-</b>
-	Students should be able employ / apply the Module learnings to . . .	-	-
1	Used in the civil industry for contract management.	CO8	L2
2	Used in the civil industry in tender processes to solve the disputes.	CO8	L2
<b>d</b>	<b>Review Questions</b>	<b>-</b>	<b>-</b>
-	The attainment of the module learning assessed through following questions	-	-
1	Write short notes on: i) Earnest money and security deposit ii) Measurement book and nominal muster roll iii) Administrative approval and technical sanction	CO8	L2
2	Write a note on any three of the following a. EMD and security deposit b. Technical sanction c. Measurement books d. Method of valuation	CO8	L2
3.	Write a short note on the following : a. Termination of the contract b. Purpose of valuation c. Measurement book.	CO8	L2
4	a. Explain "Sinking Fund". b. Briefly explain "The piece work agreement". c. Mention the advantages and disadvantages of "Lump sum contract".	CO8	L2
<b>e</b>	<b>Experiences</b>	<b>-</b>	<b>-</b>
1		CO8	L2
2			

3			
4		CO8	L3
5			

## E2. CIA EXAM – 2

### a. Model Question Paper - 2

Crs Code:	15CV81	Sem:	VIII	Marks:	30	Time:	85 minutes	
Course:	Quantity Surveying and Contracts Management							
-	-	<b>Note: Answer all questions, each carry equal marks. Module : 3, 4</b>				<b>Marks</b>	<b>CO</b>	<b>Level</b>
1		Write the detailed specification for any three of the following items:					c03	L2
	a	Burnt brick masonry in CM 1:6				3		
	b	R.C.C. work in roof slab in CC 1:2:4				4		
	c	Plastering in CM 13 for inside walls				4		
	d	Mangalore tiled roof over sal wood battens.				4		
		<b>OR</b>						
2		Write a detailed specification for the following items of work: 01) a. Reinforced cement concrete b. Cement plastering c. painting to new woodwork.				15	CO4	L2
3		Write a short note on the following : a. Termination of the contract b. Purpose of valuation c. Measurement book.				15	CO5	L2
4		a. Explain "Sinking Fund". b. Briefly explain "The piece work agreement". c. Mention the advantages and disadvantages of "Lump sum contract".				15	CO5	L2

### b. Assignment – 2

Note: A distinct assignment to be assigned to each student.

<b>Model Assignment Questions</b>								
Crs Code:	15CV81	Sem:	VIII	Marks:	5	Time:	90 – 120 minutes	
Course:	Quantity Surveying and Contracts Management Module : 3, 4							
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.								
<b>SNo</b>		<b>Assignment Description</b>				<b>Marks</b>	<b>CO</b>	<b>Level</b>
1		Burnt brick masonry in CM 1:6				5	CO7	L2
2		R.C.C. work in roof slab in CC 1:2:4				5	CO7	L2
3		Plastering in CM 13 for inside walls				5	CO7	L2
4		Mangalore tiled roof over sal wood battens.				5	CO7	L2
5		Mosaic or Terrazzo Floor				5	CO7	L2
6		Painting work				5	CO7	L2
8		Explain "Sinking Fund".					CO8	L2
8		Briefly explain "The piece work agreement".				5	CO8	L2
9		Mention the advantages and disadvantages of "Lump sum contract".				5	CO8	L2
10		Termination of the contract				5	CO8	L2
11		Purpose of valuation				5	CO8	L2

## D3. TEACHING PLAN - 3

### Module – 5

Title:	Contract Management-Post award	Appr Time:	10 Hrs
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<b>a</b>	<b>Course Outcomes</b>	<b>CO</b>	<b>Blooms Level</b>
-	At the end of the topic the student should be able to . . .	-	-
1	Understand the Contract management post awards .	CO9	L2
2	Understand the Valuation of civil work.	CO10	L2
<b>b</b>	<b>Course Schedule</b>	-	-
<b>Class No</b>	<b>Portion covered per hour</b>	-	-
1	Basic understanding on definitions, Performance security,	CO9	L2
2	Mobilization and equipment advances, Disputes & its resolution mechanism, Contract management and administration	CO9	L2
3	Secured Advance, Suspension of work, Time limit for completion,	CO9	L2
4	Liquidated damages and bonus, measurement and payment, additions and alterations or variations and deviations,	CO9	L2
5	breach of contract, Escalation, settlement of account or final payment, claims, Delay's and Compensation,	CO9	L2
6	<b>Valuation:</b> Definitions of terms used in valuation process, Cost, Estimate,	CO10	L2
8	Value and its relationship, Capitalized value.	CO10	L2
8	Concept of supply and demand in respect to properties ( land , building , facilities'), freehold and lease hold ,	CO10	L2
9	Sinking fund, depreciation-methods of estimating depreciation, Outgoings,	CO10	L2
10	Processand methods of valuation : Rent fixation, valuation for mortgage, valuation of land	CO10	L2
<b>c</b>	<b>Application Areas</b>	-	-
-	Students should be able employ / apply the Module learnings to . . .	-	-
1	Used in the civil industry for the post award of works.	CO9	L2
2	Used in the civil Industry to know the cost of the property.	CO10	L2
<b>d</b>	<b>Review Questions</b>	-	-
-	The attainment of the module learning assessed through following questions	-	-
<b>e</b>	<b>Experiences</b>	-	-
1		CO10	L2
2		CO9	
3			
4		CO9	L3
5			

### E3. CIA EXAM – 3

#### a. Model Question Paper - 3

Crs Code:	15CV81	Sem:	VIII	Marks:	30	Time:	85 minutes	
Course:	Quantity Surveying and Contracts Management							
-	-	<b>Note: Answer all questions, each carry equal marks. Module : 5</b>				<b>Marks</b>	<b>CO</b>	<b>Level</b>
1		Write a note on any three of the following a. EMD and security deposit b. Technical sanction c. Measurement books d. Method of valuation				15	CO8	L2
		OR						
2.		Write short notes on: i) Earnest money and security deposit ii) Measurement book and nominal muster roll				15	CO8	L2

		iii) Administrative approval and technical sanction			
3.	a	Define the terms used in the valuation process?	15	CO10	L2
	b	What is free hold and lease hold?			
	c	Explain depreciation method of estimation?			
		OR			
4		What are disputes and the resolution mechanism?	15	CO9	L2

### b. Assignment – 3

Note: A distinct assignment to be assigned to each student.

Model Assignment Questions							
Crs Code:	15CV81	Sem:	VIII	Marks:	5	Time:	90 – 120 minutes
Course:	Quantity Surveying and Contracts Management			Module :	5		

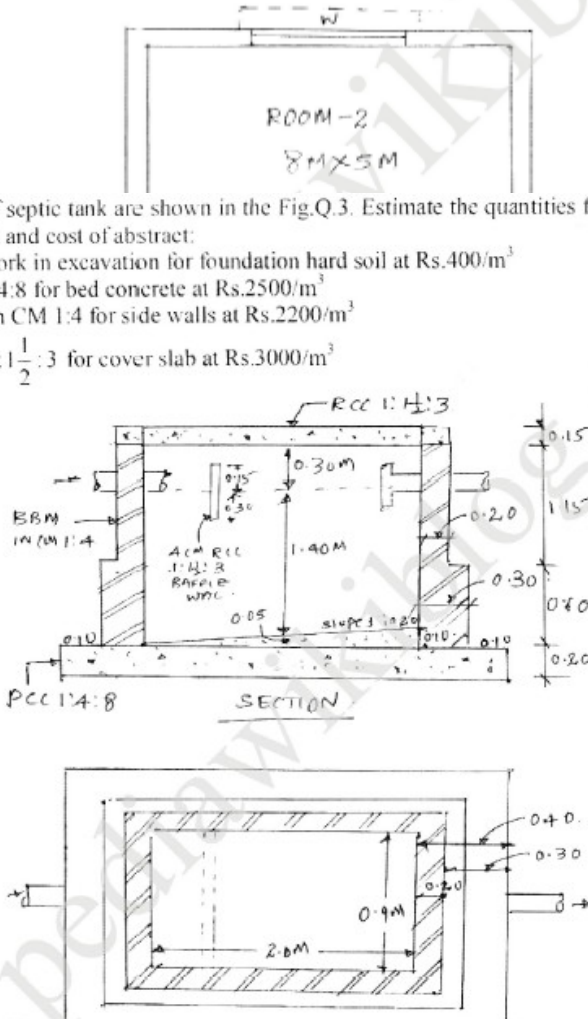
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.

SNo	Assignment Description	Marks	CO	Level
1	EMD and security deposit	5	CO10	L2
2	Technical sanction	5	CO10	L2
3	Measurement books	5	CO9	L2
4	Method of valuation	5	CO9	L2
5	Earnest money and security deposit	5	CO9	L2
6	Measurement book and nominal muster roll	5	CO9	L2
8	Administrative approval and technical sanction	5	CO9	L2
8	Define the terms used in the valuation process?	5	CO9	L2
9	What is free hold and lease hold?	5	CO9	L2
10	Explain depreciation method of estimation?	5	CO9	L2
11	What are disputes and the resolution mechanism?	5	CO9	L2

## F. EXAM PREPARATION

### 1. University Model Question Paper

Course:	Quantity Surveying and Contracts Management			Month / Year	May /2018		
Crs Code:	15CV81	Sem:	VIII	Marks:	80		
				Time:	180 minutes		
Mod ule	<b>Note</b>	Answer all FIVE full questions. All questions carry equal marks.			<b>Marks</b>	<b>CO</b>	<b>Level</b>
1		<p style="text-align: center;"><b>Module-1</b></p> <p>The details of the two room building are shown in the Fig.Q.1. Estimate the quantities and cost of the following items of works:</p> <p>i) Earth work excavation for foundation in ordinary soil at Rs.300/m<sup>3</sup>.</p> <p>ii) Cement concrete bed 1:4:8 for wall foundations at Rs.2500/m<sup>3</sup></p> <p>iii) SSM (Size Stone Masonry) in CM 1:8 for footings and basement foundation at Rs.1800/m<sup>3</sup></p> <p>iv) First class BBM (Burst Brick Masonry) work for super structure in CM 1:6 at Rs.2000/m<sup>3</sup></p> <p>v) RCC 1:1<math>\frac{1}{2}</math>:3 root slab at Rs.3000/m<sup>3</sup>. <span style="float: right;">(16 Marks)</span></p>				CO1	L4

	 <p>The details of septic tank are shown in the Fig.Q.3. Estimate the quantities for the following items of work and cost of abstract:</p> <ol style="list-style-type: none"> <li>Earthwork in excavation for foundation hard soil at Rs.400/m<sup>3</sup></li> <li>PCC 1:4:8 for bed concrete at Rs.2500/m<sup>3</sup></li> <li>BBM in CM 1:4 for side walls at Rs.2200/m<sup>3</sup></li> <li>RCC 1:1<math>\frac{1}{2}</math>:3 for cover slab at Rs.3000/m<sup>3</sup></li> </ol> <p>(16 Marks)</p>																														
2		16	CO2	L2																											
<b>MODULE 2</b>																															
3	<p>Estimate the quantities and cost of earth work for a portion of the road from the following data. Formation width of the road is 10m side slopes are 2:1 in filling and 1.5:1 in cutting. The cost of filling is Rs.180/m<sup>3</sup> and cutting Rs.120/m<sup>3</sup>.</p>	16	CO3	L4																											
4	<table border="1" data-bbox="295 1458 1141 1556"> <tr> <td>Ch. (m)</td> <td>0</td> <td>40</td> <td>80</td> <td>120</td> <td>160</td> <td>200</td> <td>240</td> <td>280</td> </tr> <tr> <td>RL of GL (m)</td> <td>100.60</td> <td>100.20</td> <td>99.80</td> <td>100.20</td> <td>100.80</td> <td>101.90</td> <td>102.40</td> <td>102.50</td> </tr> <tr> <td>RL of FL (m)</td> <td>101.00</td> <td colspan="7" style="text-align: center;">← Raising Gradient 1 in 400 →</td> </tr> </table>	Ch. (m)	0	40	80	120	160	200	240	280	RL of GL (m)	100.60	100.20	99.80	100.20	100.80	101.90	102.40	102.50	RL of FL (m)	101.00	← Raising Gradient 1 in 400 →							16	CO4	L4
Ch. (m)	0	40	80	120	160	200	240	280																							
RL of GL (m)	100.60	100.20	99.80	100.20	100.80	101.90	102.40	102.50																							
RL of FL (m)	101.00	← Raising Gradient 1 in 400 →																													
<b>MODULE-3</b>																															
5	<p>Write the detailed technical specifications for the following:</p> <ol style="list-style-type: none"> <li>Earth work excavation for foundation</li> <li>Burnt Brick Masonry in CM 1:6</li> <li>Plastering in CM 1:6 to interior surface</li> <li>RCC work proportion 1:2:4.</li> </ol>	16	CO5	L4																											
<b>OR</b>																															

6		Carryout the rate analysis for the following: i) Earth work excavation for foundation in ordinary soil. ii) P.C.C. 1:4:8 for foundation using 40mm and down size aggregate. iii) Coursed rubble masonry in CM 1:6. iv) RCC 1:1 $\frac{1}{2}$ :3 for roof slab.	16	CO6	L4
<b>MODULE-4</b>					
7		Explain the procedure of tendering and award of works in civil engineering projects?	16	CO7	L2
<b>OR</b>					
8		What are the different types of contract? Explain any three types of contract ?	16	CO8	L2
<b>MODULE-5</b>					
9		Write short notes about any four of the following: i) Performance security ii) Liquidated damages iii) Contract management iv) Breach of contract v) Mobilization and equipment advances.	16	CO9	L2
<b>OR</b>					
10	a	What is the difference between cost estimate and value?	06	CO10	L2
	b	Explain the methods of valuation?	10	CO10	L2

## 2. SEE Important Questions

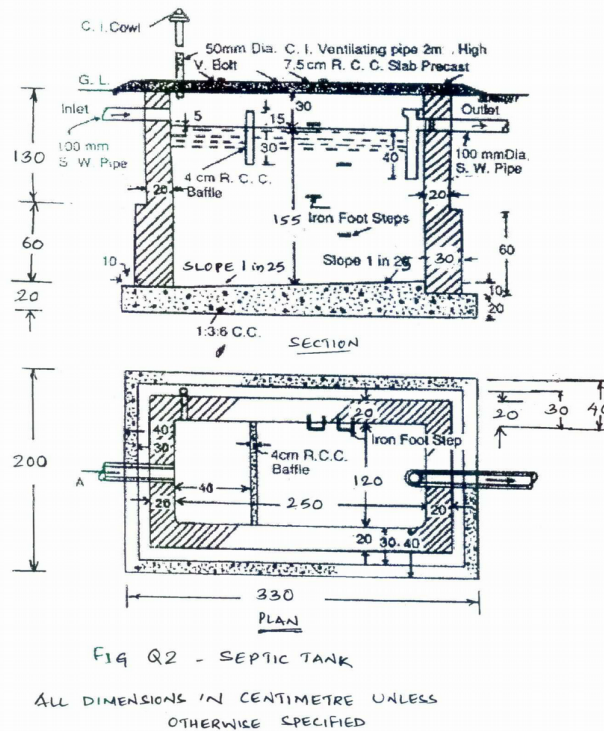
Course:	Quantity Surveying and Contracts Management			Month / Year	May /2018		
Crs Code:	15CV81	Sem:	8	Marks:	80	Time:	180 minutes
	<b>Note</b> Answer all FIVE full questions. All questions carry equal marks.				-	-	
Module	Qno.	Important Question			Marks	CO	Year
1	1	a) Estimate the following quantities of the following items of a residential building from the given drawing using long wall and short wall method? i) Earthwork in excavation. ii) Lime concrete in foundation. iii) 1 <sup>st</sup> class brick work in 1:6 cement sand mortar in plinth and foundation. iv) Damp proof course. v) 1 <sup>st</sup> class brick work in superstructure.			16	CO2	2016

		<p align="center"><b>Single Roomed Building (Load Bearing type structure)</b></p> <p align="center">Note: All Dimensions are in 'M'          D=1X2.1M          W=1.5X1.2M</p>			
1	2	What is an estimation? Explain the different types of estimates	16	CO1	2017
1	3	What are the steps used in preparation of detailed estimate?	08	CO1	2017
1	4	<p>The Fig. Q1 (a) shows the detail of a residential building with a ceiling height of 3.5m. Work out the quantities for following items.</p> <p>a. Earthwork in excavation for foundation in ordinary soil @ Rs 211/cum</p> <p>b. Plinth concrete of DDC 1:2:4 at the rate of Rs 4200/cum</p> <p>c. 1st class brick work in CM 1:6 for superstructure at rate of Rs 3500/cum</p> <p>d. Ceiling plastering at rate of Rs 189/sqm</p> <p>D1 = 0.9 x 2.1m, D2 = 1.2 x 2.1m          W1 = 1.5 x 1.35m, W2 = 1.2 x 1.35m, W3 = 1.2 x 1.35m          V = 0.9 x 1.2.</p> <p align="center">Fig. Q1(a)</p> <p>me lintel over door and windows ventilators.</p>	16	CO2	2017
2	1.	Estimate the quantities of earth work from chainage 80 to 86 measured with a standard 20 m chain from the following data. Use mean sectional area method. Side slopes 1:1 in cutting and 2:1 in Banking. Formation width of road is 10 tn. Draw the longitudinal section of the proposed road.	16	CO4	2016

		Chainage	80	81	82	83	84	85	86					
		Ground RL'S	88.10	88.84	88.80	88.20	90.85	90.20	89.98					
		Formation level	88.50	Raising gradient 1:100										
2	2.	Estimate the quantity of earth work for a portion of road work from the following data, using mid sectional area method Formation width = 4m ; side slope 2:1 is filling side slope 1.5:1 is cutting.									16	CO4	2016	
		Chainage	0	40	80	120	160	200	240	280				
		Ground RL'S	100.6	100.2	99.8	100.2	100.8	101.9	102.4	102.5				
		Formation level	101	Raising gradient 1 to 400										
2	3.	Estimate the quantity of earthwork in banking and cutting by mid sectional area method for a portion of road from the following data: Formation width of road is 10 metre. Side slope 2:1 in banking and 1.5:1 in cutting.									16	CO4	2017	
		Chainage	0	100	200	300	400	500	600	800				
		Ground RL'S	114	114.6	115	115.2	116.1	116.5	118	118.25				
		Formation level	115	Downward gradient of 1:200										
2	1	<b>SEPTIC TANK</b>									16	CO3	2018	
		Calculate the amount of quantities of given items.												
2	4	The plan and section of the "Septic Tank" is given in Fig.Q2. Work out the quantities and cost of the following items of the work:									16	CO3	2016	



- a. Earthwork in excavation @ 250/m<sup>3</sup>
- b. First class brickwork in CM 1:3 @ 8600/m<sup>3</sup>



3	1	Write the detailed specification for any three of the following items: i) Burnt brick masonry in CM 1:6 ii) R.C.C. work in roof slab in CC 1:2:4 iii) Plastering in CM 1:3 for inside walls iv) Mangalore tiled roof over sal wood battens.	16	CO5	2016
3	2.	Work out from first principles the analysis of rate for the following any three items: i) Current concrete foundation bed in CC 1:3:6 ii) Coursed rubble stone masonry in CM 1:8 for foundation. iii) Damp proof course 25 mm thick in CM 1:3 iv) 12 mm thick Cement plastering in CM 1:3.	16	CO6	2017
3	3.	Write specifications for any three of the following : a. Burnt Brick masonry in CM 1:6 b. Mosaic or Terrazzo Floor c. Painting work d. Earth work excavation.	16	CO5	2018
3	4.	Carry out rate analysis for any three of the following :a) . CC (1:3:6) for foundations using 20mm and down size aggregates.b.) First class brick masonry for super structure is CM1:4 e) 12mm thick plastering for walls with CM1:6 d). 20mm thick DPC with CM1:5.	16	CO6	2016
3	5.	Write a detailed specification for the following items of work: 01) a. Reinforced cement concrete b. Cement plastering c. painting to new woodwork.	16	CO5	2016
4	1	Write short notes on: i) Earnest money and security deposit ii) Measurement book and nominal muster roll	16	CO8	2017
4	2	Write a note on any three of the following a. EMD and security deposit b. Technical sanction	16	CO8	2017

## COURSE PLAN - CAY 2019-20

		c. Measurement books d. Method of valuation			
4	3.	Write a short note on the following : a. Termination of the contract b. Purpose of valuation c. Measurement book.	16	CO8	2017
4	4	a. Explain "Sinking Fund". b. Briefly explain "The piece work agreement". c. Mention the advantages and disadvantages of "Lump sum contract".	16	CO8	2017
5	1	Earnest money and security deposit	08	CO9	
5	2	Measurement book and nominal muster roll	09	CO9	
5	3	Administrative approval and technical sanction	08	CO10	
5	4	Define the terms used in the valuation process?	08	CO10	
5	5	What is free hold and lease hold?	08	CO9	
5	6	Explain depreciation method of estimation?	08	CO9	
5	8	What are disputes and the resolution mechanism?	08	CO9	

### Course Outcome Computation

Academic Year:

Odd / Even semester

INTERNAL TEST	T1				T2				T3							
	CO1		CO2		CO3		CO4		CO5		CO6		CO7		CO8	
QUESTION NO	Q1	LV	Q2	LV	Q3	LV	Q1	LV	Q2	LV	Q3	LV	Q1	LV	Q2	LV
MAX MARKS																
USN-1																
USN-2																
USN-3																
USN-4																
USN-5																
USN-6																
Average CO Attainment																

**LV Threshold : 3:>60%, 2:>=50% and <=60%, 1: <=49%**  
**CO1 Computation : (2+2+2+3)/4 = 10/4=2.5**

### PO Computation

Program Outcome	PO1	PO3	PO3	PO1	PO12	PO12	PO6	PO1								
Weight of CO - PO																
Course Outcome	CO1	CO2	CO3	CO4	CO5	CO6	CO7	CO8								
Test/Quiz/Lab	T1				T2				T3							
QUESTION NO	Q1	L	Q2	LV	Q3	LV	Q1	LV	Q2	LV	Q3	LV	Q1	LV	Q2	LV
MAX MARKS																
USN-1																
USN-2																
USN-3																
USN-4																
USN-5																
USN-6																
Average CO Attainment																