CURRICULUM – 2018

(C-18)

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP



STATE BOARD OF TECHNICAL EDUCATION & TRAINING

TELANGANA, HYDERABAD

III SEMESTER

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP, (C -18)
SCHEME OF TEACHING AND EXAMINATION
THIRD SEMESTER

S. NO.	SUBJECT CODE	SUBJECT NAME	Instruction periods per week			Total Periods per semester	Credits	Continuous Internal Evaluation			Semester End Examination		Total Marks	Min marks (Internal +End Exam)
			L	T	P			Mid Sem I	Mid SemII	Sesionals	Max marks	Min marks		
		THEORY SUBJECTS												
1	18 AA-301 F	APPLIED ENGINEERING MATHEMATICS	2.4	1.6	0	60	3	20	20	20	40	15	100	35
2	18 AA-302 C	ENGINEERING MECHANICS	2.4	1.6	0	60	3	20	20	20	40	15	100	35
3	18 AA-303 C	BUILDING SPECIFICATIONS	2.4	1.6	0	60	3	20	20	20	40	15	100	35
4	18 AA-304 C	HISTORY OF INDIAN ARCHITECTURE	2.4	1.6	0	60	3	20	20	20	40	15	100	35
5	18AA-305C	CAD THEORY	2.4	1.6	0	60	3	20	20	20	40	15	100	35
		DRAWING SUBJECTS												
6	18 AA-306 P	PERSPECTIVE DRAWING	1	0	2	45	1.5	20	20	20	40	20	100	50
7	18 AA-307 P	ARCHITECTURAL DESIGN-	1	0	2	45	1.5	20	20	20	40	20	100	50
		PRACTICAL SUBJECTS												
8	18 AA-308 P	MODEL MAKING LAB PRACTICE												
9	18 AA-309 P	BASIC CAD LAB PRACTICE	1	0	2	45	1.5	20	20	20	40	20	100	50
10	18 AA-310 P	COMMUNICATION SKILLS AND LIFE SKILLS LAB	1	0	2	45	1.5	20	20	20	40	20	100	50
11		**Skill Upgradation**	0	0	7	105	2.5	**Rubrics**						Grade-A/B/C/D
		TOTAL	17	8	17	630	**25**	200	200	200	400	175	1000	425

APPLIED ENGINEERING MATHEMATICS

Course Title **: APPLIED ENGINEERING MATHEMATICS**	Course Code **: 18COMMON301F**
SEMESTER : **III**	Course Group **: Foundation**
Teaching Scheme (L : T : P) : **36 :24 : 0 (** in Periods)	Credits : **3 Credits**
Type of Course : **Lecture + Assignments**	Total Contact Periods : **60**
CIE : 6**0 Marks**	SEE : **40 Marks**
Programmes : **Common to all Engineering Diploma Programmes**	

Pre requisites

This course requires the knowledge of Basic Engg. Mathematics and Engg. Mathematics at Diploma 1st and 2nd Semester level.

Course Outcomes: COs

At the end of the course, the student will have the ability to:

CO 1	Integrate different kinds of functions
CO 2	Integrate functions using different methods
CO 3	Find the values of definite integrals.
CO 4	Solve simple problems of Areas, Volumes.
CO 5	Find the Mean and RMS values of various functions and Approximate values of Definite integrals using Trapezoidal and Simpson's 1/3rd rule
CO 6	Form the Differential Equation and Solve Simple DEs of 1st order and 1stdegree.

Course Content:

Unit-I **Duration: 10 Periods (L: 6.0 – T:4.0)**

Indefinite Integration-I

Integration regarded as anti-derivative – Indefinite integral of standard functions. Properties of indefinite integral. Integration by substitution or change of variable. Integrals of the form $\sin^m\theta$. $\cos^n\theta$. where m and n are positive integers. Integrals of tan x, cot x, sec x, cosec x and powers of tan x, sec x by substitution.

Evaluation of integrals which are reducible to the following forms:

$i)\ \frac{1}{a^2+x^2}, \frac{1}{a^2-x^2}, \frac{1}{x^2-a^2}$

$ii)\ \frac{1}{\sqrt{a^2+x^2}}, \frac{1}{\sqrt{a^2-x^2}}, \frac{1}{\sqrt{x^2-a^2}}$

$iii)\ \sqrt{x^2+a^2}, \sqrt{a^2-x^2}, \sqrt{x^2-a^2}$

Unit – II **Duration: 08 Periods (L: 4.8 – T:3.2)**

Indefinite Integration-II

Integration by decomposition of the integrand into simple rational algebraic functions. Integration by parts, Bernoulli's rule.

Unit-III **Duration: 06 Periods (L: 3.6 – T:2.4)**

Definite Integral and its Properties:

Definite integral-fundamental theorem of integral calculus, properties of definite integrals, evaluation of simple definite integrals. Definite integral as the limit of a sum.

Unit – IV **Duration: 10 Periods (L: 6.0 – T:4.0)**

Applications of Definite Integrals:

Areas under plane curves – Sign of the Area – Area enclosed between two curves. Solid of revolution – Volumes of solids of revolution.

Unit – V **Duration: 08 Periods (L: 4.8 – T:3.2)**

Mean, RMS values and Numerical Integration:

Mean values and Root Mean Square values of a function on a given interval.

Trapezoidal rule, Simpson's 1/3 rule to evaluate an approximate value of a definite integral.

Unit – VI **Duration: 18 Periods (L: 10.8 – T:7.2)**

Differential Equations of First Order:

Definition of a differential equation – order and degree of a differential equation – formation of differential equations – solution of differential equation of first order, first degree : variables - separable, homogeneous, exact, linear differential equation, Bernoulli's equation.

Suggested Learning Outcomes

Unit-I

1.0 Use Indefinite Integration to solve engineering problems

1.1 Explain the concept of Indefinite integral as an anti-derivative.

1.2 State the indefinite integral of standard functions and properties of Integrals $\int (u + v)\, dx$ And $\int ku\, dx$ where k is constant and *u, v* are functions of *x.*

1.3 Solve integration problems involving standard functions using the above rules.

1.4 Evaluate integrals involving simple functions of the following type by the method of substitution.

i) $\int f(ax + b)\, dx$ *where* $f(x)\, dx$ is in standard form.

ii) $\int [f(x)]^n f'(x)\, dx$

iii) $\int f'(x)/[f(x)]\, dx$

iv) $\int f\{g(x)\} g'(x)\, dx$

1.5 Find the Integrals of *tan x, cot x, sec x* and *cosec x using*the above.

1.6 Evaluate the integrals of the form $\int Sin^m\theta Cos^n\theta .\, d\theta$ where m and n are positive integers.

1.7 Evaluate integrals of powers of *tan x* and *sec x*.

1.8 Evaluate the Standard Integrals of the functions of the type

$$i)\ \frac{1}{a^2+x^2}, \frac{1}{a^2-x^2}, \frac{1}{x^2-a^2}$$

$$ii)\ \frac{1}{\sqrt{a^2+x^2}}, \frac{1}{\sqrt{a^2-x^2}}, \frac{1}{\sqrt{x^2-a^2}}$$

$$iii)\ \sqrt{x^2+a^2}, \sqrt{a^2-x^2}, \sqrt{x^2-a^2}$$

1.9 Evaluate the integrals of the type

$$\int \frac{1}{a \pm bSin\theta} d\theta, \int \frac{1}{a \pm b\cos\theta} d\theta \text{ and } \int \frac{1}{a\cos\theta \pm b\sin\theta \pm c} d\theta .$$

Unit-II

2.0 Use Indefinite Integration to solve engineering problems

2.1 Evaluate integrals using decomposition method.

2.2 Evaluate integrals using integration by parts with examples.

2.3 State the Bernoulli's rule for evaluating the integrals of the form $\int u.v dx$.

2.4 Evaluate the integrals of the form $\int e^x [f(x) + f'(x)]\, dx$.

Unit-III

3.0 Understand definite integral and use it in engineering applications

3.1 State the fundamental theorem of integral calculus

3.2 Explain the concept of definite integral.

3.3 Calculate the definite integral over an interval.

3.4 State various properties of definite integrals.

3.5 Evaluate simple problems on definite integrals using the above properties.

3.6 Explain definite integral as a limit of sum by considering an area.

Unit –IV

4.0 Understand definite integral and use it in engineering applications

4.1 Find the Areas under plane curves and area enclosed between two curves using integration.

4.2 Obtain the Volumes of solids of revolution.

Unit –V

5.0 Understand Mean, RMS values and Numerical Methods

5.1 Obtain the Mean value and Root Mean Square (RMS) value of the functions in any given Interval.

5.2 Explain the Trapezoidal rule, Simpson's 1/3 rules for approximation of definite integrals and provide some examples.

Unit –VI

6.0 Solve Differential Equations in engineering problems.

6.1 Define a Differential equation, its order and degree

6.2 Form a differential equation by eliminating arbitrary constants.

6.3 Solve the first order first degree differential equations by the following methods:

i. Variables Separable.

ii. Homogeneous Equations.

iii. Exact Differential Equations

iv. Linear differential equation of the form $dy/dx + Py = Q$,

where P and Q are functions of x or constants.

v. Bernoulli's Equation (Reducible to linear form.)

6.4 Solve simple problems leading to engineering applications by using above methods.

Reference Books:

1. Integral Calculus Vol.I, by M.Pillai and Shanti Narayan

2. Thomas' Calculus, Pearson Addison –Wesley Publishers

Suggested E-Learning references

1. www.freebookcentre.net/mathematics/introductory-mathematics-books.html

2.E-books:www.mathebook.net

Suggested Student Activities

1. Student visits Library to refer Standard Books on Mathematics and collect related material

2.Quiz

3.Group discussion

4.Surprise tests

5. Seminars

6. Home Assignments

CO / PO - MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	3	2	2	1			1			3	1,2,3,4,7,10
CO2	3	2	2	1			1			3	1,2,3,4,7,10
CO3	3	2	2	1			1			3	1,2,3,4,7,10
CO4	3	2	2	1			1			3	1,2,3,4,7,10
CO5	3	2	2	1			1			3	1,2,3,4,7,10
CO6	3	2	2	1			1			3	1,2,3,4,7,10

SKILL UPGRADATION IN - APPLIED ENGINEERING MATHEMATICS

ACTIVITY ASSESSMENT Steps

1. **Mathematical concepts**
2. **Procedure**
3. **Explanation**
4. **Working with others**
5. **Mathematical errors**

ACTIVITIES

1 .Write a short notes on different types of integrals.

2. Prepare a notes on different methods to evaluate integrals.

3. List out Properties of definite integrals.

4. List out and explain various applications of definite integrals.

5. Explain the procedure to solve problems on Areas using integration

6. Explain the procedure to find volumes of irregular shapes of solids of revolution using integration.

7. Prepare a presentation to find Mean values and R.M.S values of any given function.

8. Explain the procedure to calculate approximate area by using Trapezoidal rule.

9. Explain the procedure to calculate approximate area by Simpson's 1/3 rule

10. Prepare a presentation on solving 1st order differential equations using any suitable method.

CO / PO - MAPPING OF ACTIVITIES

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	1			1	2	2	3
CO2	3	2	2	1			1	2	2	3
CO3	3	2	2	1			1	2	2	3
CO4	3	2	2	1			1	2	2	3
CO5	3	2	2	1			1	2	2	3
CO6	3	2	2	1			1	2	2	3
CO7	3	2	2	1			1	2	2	3
CO8	3	2	2	1			1	2	2	3
CO9	3	2	2	1			1	2	2	3
CO10	3	2	2	1			1	2	2	3

Rubrics for Activity assessment

CATEGORY	**4**	**3**	**2**	**1**
Mathematical Concepts	Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).	Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).	Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).	Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.

Procedures	Typically, uses an efficient and effective procedure to solve the problem(s).	Typically, uses an effective procedure to solve the problem(s).	Sometimes uses an effective procedure to solve problems, but does not do it consistently.	Rarely uses an effective procedure to solve problems.
Explanation	Explanation is detailed and clear.	Explanation is clear.	Explanation is a little difficult to understand, but includes critical components.	Explanation is difficult to understand and is missing several components OR was not included.
Working with Others	Student was an engaged partner, listening to suggestions of others and working cooperatively throughout lesson.	Student was an engaged partner but had trouble listening to others and/or working cooperatively.	Student cooperated with others, but needed prompting to stay on-task.	Student did not work effectively with others.
Mathematical Errors	90-100% of the steps and solutions have no mathematical errors.	Almost all (85-89%) of the steps and solutions have no mathematical errors.	Most (75-84%) of the steps and solutions have no mathematical errors.	More than 75% of the steps and solutions have mathematical errors.

EXAMINATION PATTERN					
MID SEM - I EXAM (Duration 1 hour)					
		PART A	**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Marks each	3 Marks each	5 Marks each	20 Marks
No. of Questions		4 Questions	2/4 Questions	2/4 Questions	
S.No.	**Unit No.**	**R**	**U**	**A**	**Remarks**
1	UNIT I	1,2	5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT II	3,4	6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4	4	4	
Total Marks		**4**	**6**	**10**	**20 Marks**
MID SEM - II EXAM (Duration 1 hour)					
1	UNIT III	1,2	5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT IV	3,4	6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4	4	4	
Total Marks		**4**	**6**	**10**	**20 Marks**
SEMESTER END EXAMINATION (Duration 2 hours)					
		PART A	**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Mark each	3 Marks each	5 Marks each	40 Marks
No. of Questions		8 Questions	4/8 Questions	4/8 Questions	
S.No.	**Unit No.**	**R**	**U**	**A**	**Remarks**
1	UNIT I	**4** 1	9(a)	13(a)	
2	UNIT II				
3	UNIT III	2	10(a)	14(a)	
4	UNIT IV				
5	UNIT V	3 5,6	9(b)	13(b)	
			11(a)	15(a)	
			11(b)	15(b)	
6	UNIT VI	7,8	10(b)	14(b)	
			12(a)	16(a)	
			12(b)	16(b)	
Total Questions		8	8	8	
Total Marks		**8**	**12**	**20**	**40 Marks**

Code: C18-Common-301F

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA

BOARD DIPLOMA EXAMINATIONS

MID SEM –I, MODEL PAPER, III SEMESTER

APPLIED ENGINEERING MATHEMATICS

TIME: 1: 00 Hour Max. Marks: 20

PART-A

Instructions: 1. Answer **ALL** questions 04 X 01 = 04

1 Each question carries **ONE** mark

1.Integrate: $e^x - \sin x + x^4$

1. Find : $\int \frac{dx}{5x+7}$ dx
2. Write Bernoulli's rule of integration
3. Find : $\int x \log x \, dx$

PART-B

Instructions: 1. Answer any **TWO** questions 02 X 03 = 06

2. Each question carries **THREE** marks

5 a). Evaluate : $\int \frac{x^5}{1+x^{12}} dx$.

Or

5 b) Evaluate : $\int \frac{dx}{(x^{2+}25)}$

6 a). Evaluate : $\int x \, sinx dx$

Or

6 b).Evaluate : $\int \frac{3x+2}{(x-1)(2x+3)} dx$.

PART C

Instructions: 1. Answer any **TWO** questions 02 X 05 = 10

2. Each question carries **FIVE** marks

7 a). Evaluate $\int \sqrt{x^2 + 2x + 5}\, dx$

Or

7 b) Evaluate : $\int cosx\, cos2x dx$.

8 a). Find $\int xTan^{-1}x dx$.

Or

8 b) Find $\int x^4 Cos2x dx$.

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Code: C18-Common-301F

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA

BOARD DIPLOMA EXAMINATIONS

MID SEM –II, MODEL PAPER, III SEMESTER

APPLIED ENGINEERING MATHEMATICS

TIME: 1: 00 Hour Max. Marks: 20

PART-A

Instructions: 1. Answer **ALL** questions 04 X 01 = 04

2 Each question carries **ONE** mark

1. Integrate : $\int_0^1 (x^4 + 1)\, dx$
2. Evaluate : $\int_0^{\pi} Sin3x dx$
3. Evaluate : $\int_0^1 \frac{1}{1+x^2} dx$
4. Write the formula to find area bounded by the curve y= f(x) , x-axis,between the limits x=a and x =b

PART-B

Instructions: 1. Answer any **TWO** questions 02 X 03 = 06

2. Each question carries **THREE** marks

Find the Mean value of the function y = logx on [1 , e]

5 a) Evaluate: $\int_0^{\frac{\pi}{2}} \sqrt{1 - Sin2x} dx$

Or

5 b) Evaluate : $\int_0^{\frac{\pi}{2}} sin^2 x dx$

6 a). Find the area bounded by the line 2x + y =8, x-axis and the lines x = 2 and x = 4.

Or

6 b). Find the Volume of the Solid generated by revolving the part of the Circle $x^2 + y^2 = 36$

From x = 0 to x = 4 about x – axis.

PART C

Instructions: 1. Answer any **TWO** questions 02 X 05 = 10

2. Each question carries **FIVE** marks

7 a). Evaluate: $\int_0^{\frac{\pi}{2}} \frac{\sqrt{Sinx}}{\sqrt{Sinx}+\sqrt{Cosx}} dx$

Or

7 b). Evaluate : $\int_0^{\frac{\pi}{2}} \log sin\, x dx$

8 a) Find the area enclosed between the Parabolas $y = 3x - x^2 and y = x^2 - x.$

Or

8 b). Find the Volume of the Solid generated by the revolution of the area bounded by the

Ellipse $\frac{x^2}{25} + \frac{y^2}{16} = 1$, about x- axis.

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C18-common-301F

BOARD DIPLOMA EXAMINATION,(C-18)
MODEL PAPER
III SEMESTER END EXAMINATION
APPLIED ENGINEERING MATHEMATICS

Time: 2 hours [Total Marks: 40]

PART-A

Instructions: 1. Answer **ALL** questions 08 X 01 = 08Marks

2 Each question carries **ONE** mark

1. Integrate: $x^7 - 3/x$

2. Evaluate: $\int_0^1 (x^2 + 1)$ dx

3. Write the formula to find mean value of y = f(x), in the interval (a, b)

4. Find the Order and Degree of the Differential Equation $x\frac{dy}{dx} = \sqrt{1 + \left(\frac{dy}{dx}\right)^2}$.

5 Write Trapezoidal Rule to find the approximate value of $\int_a^b f(x)dx$.

6. Write the formula to find RMS value of y = f(x) over the range x=a and x = b.

7. Solve:$\frac{dy}{dx} = e^{2x+y}$

8. Write the condition for exactness of the differential equation M(x,y)dx + N(x,y)dy =0

PART-B

Instructions: 1. Answer any **FOUR** questions 04 X 03 = 12 Marks

2. Each question carries **THREE** marks

9 a). Evaluate:$\int_0^{\frac{\pi}{2}} \sqrt{1 - Sin2x}dx$

Or

9 b) Find the approximate value of $\int_0^6 \frac{dx}{1+x}$ by taking n = 6 using Trapezoidal rule.

10 a) Find the area bounded by the Parabola $y = x^2 - 2x + 1$ and x-axis.

Or

10 b) Form the Differential Equation from $y = Ae^x + Be^{3x}$ where A, B are arbitrary Constants.

11 a) Find the RMS value of $\sqrt{\log x}$ over the range x= 1 and x= e

Or

11 b) Calculate approximate value of $\int_0^4 \frac{dx}{1+x}$ by taking n= 4 using Simpson's 1/3 rule

12 a) Solve: $x\frac{dy}{dx} + 2y = logx$.

Or

12 b) Solve: $x(1-y^2)dx + y(1-x^2)dy = 0$

PART C

Instructions: 1. Answer any **FOUR** questions 04 X 05 = 20 Marks

2. Each question carries **FIVE** marks

13 a) Evaluate: $\int \frac{1}{x^2+2x+2}$ dx

Or

13 b) Find the RMS value of $y = \sqrt{8-4x^2}$ between x = 0 and x = 2

14 a) Find the volume of solid generated by revolving the Ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ about Major axis

Or

14 b) Solve: $\frac{dy}{dx} = Sin(x+y)$

15 a) A curve is drawn to passing through the points given by the following table:

x	1	1.5	2	2.5	3	3.5	4
y	3	3.4	3.7	3.8	2.7	2.6	2.1

Calculate the approximate area bounded by the curve , x-axis and the lines x= 1 and x= 4 using Simpson's 1/3 rule

Or

15 b) Evaluate: $\int_0^1 \sqrt{(1-x^2)}dx$ approximately by taking n = 4 using Simpson's 1/3 rd Rule.

16 a) Solve : $(y^2 - xy)dx = x^2dy$.

Or

16 b) . Solve: $\frac{dy}{dx} + yCosx = y^3$Sin2x.

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ENGINEERING MECHANICS

Course Title:	**Engineering Mechanics**	Course Code :	**18AA-302C**
Semester:	**III Semester**	Course Group :	**Core**
Teaching Scheme in Hrs(L:T:P):	**3:1:0**	Credits :	**3**
Type of Course :	**Lecture+ Assignments**	Total Contact Hours :	**60 Periods**
CIE :	**60 Marks**	SEE :	**40 Marks**

Pre requisites

Basics of Physics.

Course Outcomes

Upon completion of the course the student shall be able to

CO1	Evaluate resultant force, its importance and calculation
CO2	Illustrate the concept of centroids for various shapes and its calculation
CO3	Calculate Moment of Inertia of standard sections.
CO4	Explain Simple stresses and strains and its effect on simple sections and composite sections.

Time Schedule

Unit No	Unit Name	Hours/Periods
1	Introduction	04
2	Forces & Moments	16
3	Centroid	12
4	Moment of Inertia	08
5	Simple Stresses and Strains	12
6	Stresses and Strains in composite sections	08
Total		60

Specific Learning Outcomes

Upon completion of the course the student shall be able to

1.0 Understand the basic concepts of Engineering Mechanics

1.1 Define Mechanics and Engineering Mechanics
1.2 State the applications of Engineering Mechanics
1.3 State the branches of Engineering Mechanics
1.4 Define the terms 1.Statics 2.Dynamics 3.Kinetics 4.Kinematics
1.5 State the systems of measurements and Units
1.6 State S.I and M.K.S units of physical quantities used in Civil Engineering

2.0 Understand the concept Equilibrium of Co-Planar forces

2.1 Define the following terms
- a) Force
- b) Moment
- c) Resultant
- d) Equilibrium of forces
- e) Equilibrant
- f) Moment of a couple

2.2 Distinguish between
- 2.2.1 Scalar and Vector quantities
- 2.2.2 Co-planar and Non co-planar forces
- 2.2.3 Parallel and non-parallel forces
- 2.2.4 Like and unlike parallel forces

2.3 Compute the resultant of two co-planar forces acting at a point by
- 2.3.1 Law of parallelogram of forces
- 2.3.2 Triangle law of forces

2.4 Explain 'Lami's Theorem'.
- 2.4.1 Solve simple problems using Lami's Theorem

2.5 Solve problems on computation of the resultant of a system of coplanar concurrent forces by
- 2.5.1 Law of polygon of forces
- 2.5.2 Resolution of forces

2.6 Solve problems on computation of the resultant of a system of coplanar parallel forces.
2.7 Explain the properties of a couple.

2.8 State the conditions of equilibrium of rigid body subjected to a number of co-planar forces.

2.8.1 Determine resultant of co-planar concurrent forces by analytical methods.

2.9 List and describe various types of supports (like Simple support, fixed support, hinged support, roller support)

2.10 List and sketch various types of beams (like simply supported beams, cantilever, fixed beams, overhanging beams, continuous beams)

2.11 List various types of loading (like point load, uniformly distributed load, uniformly varying load

2.12 To determine support reactions for cantilever, simply supported and overhanging beams with point loads and uniformly distributed loads

3.0 Centroid

3.1 Define Centroid and Centre of gravity.

3.2 Distinguish between Centroid and Centre of gravity.

3.3 State the need for finding the Centroid and Centre of gravity for various engineering applications.

3.4 Calculate the positions of Centroid for simple plane figures from first principles.

3.5 Explain the method of determining the Centroid by 'Method of moments'.

3.6 Determine the position of Centroid of standard sections-T, L, I, Channel section, Z section, unsymmetrical I section.

3.7 Determine the position of Centroid of built up sections consisting of RSJs, flange plates and Plane figures having hollow portions

4.0 Compute the Moment of Inertia and radius of gyration

4.1 Define Moment of Inertia (MI), Polar Moment of Inertia, Radius of gyration.

4.2 State the necessity of finding Moment of Inertia for various engineering applications.

4.3 Determine Moment of Inertia and Radius of gyration for regular geometrical sections like T, L, I, Channel section, Z section, unsymmetrical I section.

4.4 State 1. Parallel axes theorem 2. Perpendicular axes theorem to determine MI.

4.5 Determine MI of standard sections by applying Parallel axes theorem.

4.6 Determine MI of built-up sections by applying Parallel axes theorem.

4.7 Calculate radius of gyration of standard sections.

4.8 Determine the polar M.I for solid and hollow circular section applying Perpendicular axes theorem.

5.0Calculate the simple Stresses and Strains in structural materials

1.1 Define the following terms

a) Stress
b) Strain
c) Modulus of Elasticity

d) Longitudinal Strain
e) Lateral Strain
f) Poisson's ratio
g) Modulus of rigidity
h) Bulk Modulus
i) Working stress
j) Factor of safety
k) Resilience
l) Strain Energy
m) Proof resilience and
n) Modulus of Resilience

5.2 Distinguish between different kinds of stresses and strains.

5.3 Draw the stress-strain curve for ductile materials (Mild steel) and hence explain the salient points in the curve.

5.4 State Hooke's law and limit of proportionality.

5.5 Solve problems on relationship between simple stress and simple strain under axial loading on uniform bars and stepped bars.

5.6 State the relationship among the elastic constants.

5.7 Solve problems on relationship between elastic constants.

6.0Calculate Stresses and Strains in composite sections

6.1 Calculate stresses in simple and composite members under axial loading.

6.2 Explain temperature stress, strain, hoops stress, temperature stresses in composite sections.

6.3 Explain the mechanical properties of materials

6.4 Elasticity, plasticity, ductility, brittleness, malleability, stiffness, hardness, toughness, creep, fatigue – examples of materials which exhibit the above properties.

Course Contents

UNIT - 1: Introduction **Duration: 04 Periods (L: 1.5 – T:0.5)**

Mechanics – Engineering Mechanics – Applications and branches of Engineering Mechanics – Statics, Dynamics, Kinetics and Kinematics – Systems of measurements and Units – S.I and M.K.S units of physical quantities used in Civil Engineering

UNIT - 2: Forces & Moments **Duration: 16Periods (L:12.0 – T:4.0)**

Definition of force – vectors and scalars – systems of forces – co-planar forces - Resultant of forces at a point – Parallelogram Law and Triangle Law of forces – Lami's theorem – Polygon law of forces – Resolution of forces - Parallel forces – like and unlike – moment of force –couple- Conditions of equilibrium of a rigid body

subjected to a number of co-planar forces - Structural members supporting co-planar forces – Types of supports – Types of beams – Types of loading - Reactions

UNIT - 3:Centroid **Duration: 12 Periods(L: 9.0 – T:3.0)**

Definitions – Centroid, Centre of gravity - Position of Centroid of standard figures like rectangle, triangle, circle, semi-circle, parallelogram and trapezium - Determination of location of Centroid of standard steel sections – T, L, I, Channel section, Z section - built up sections consisting of RSJs& flange plates and plane figures having hollow portion.

UNIT - 4:Moment of Inertia **Duration: 08Periods(L: 6.0 – T:2.0)**

Definition of Moment of Inertia - Perpendicular and parallel axes theorems - Moment of Inertia of standard sections like rectangle, triangle, circle and hallow circular sections - Moment of Inertia of built up sections – T, L, I, Channel section, and Z sections using parallel axis theorem - Moment of Inertia and radius of gyration of built-up sections consisting of the combinations of RSJs & flange plates, channels & flange plates etc. - Polar Moment of Inertia of solid and hollow circular sections using Perpendicular axis theorem

UNIT - 5: Simple Stresses and Strains **Duration: 12Periods(L: 9.0 – T:3.0)**

Stress and strain – type of stresses and strains - Stress strain curves for ductile materials (like mild steel)–Hooke's law – Young's modulus – deformation under axial load - Shear stress and Shear Strain – Modulus of rigidity - Longitudinal and lateral strain – Poisson's ratio, Bulk Modulus – relationship between elastic constants (proof not required, only problems).

UNIT - 6: Stresses and Strains in Composite sections

Duration: 08Periods(L: 6.0 – T:2.0)

Composite sections – effect of axial loads - Temperature stresses and strains – hoop stress – Temperature stresses in composite sections - Mechanical properties of materials

Recommended Books

1. Engineering Mechanics – N.H. Dubey (Tata McGraw Hill)
1. Engineering Mechanics – R.S.Khurmi
2. Engineering Mechanics – P.K. AbdulLatheef
3. Engineering Mechanics& Statics – Dayaratnam
4. Engineering Mechanics – N. Srinivasulu
5. Engineering Mechanics – S.S. Bavikati
6. Engineering Mechanics – A.K. Tayal

Suggested E-learning references

1.www.elearning.com/survey

2. http://nptel.ac.in

Suggested Student Activities

1. Drawing Shear force and Bending Moment diagrams on Graph Paper for simply supported beam, Cantilever and Draw the load diagram (free body diagram) by knowing SFD
2. Prepare a program in MS Excel to find centre of gravity; IZZ and IYY of I, L,T and channel sections
3. Submit a report on the importance of centroid of electric fan, moving vehicles, rotating

CO-PO Mapping Matrix

Course Outcomes		CL	Linked PO	Teaching Periods
CO1	Evaluate resultant force, its importance and calculation		1,2,3,4,8	20
CO2	Illustrate the concept of centroids for various shapes and its calculation		1,2,3,4,6,8,10	12
CO3	Calculate Moment of Inertia of standard sections.		1,2,3,4	08
CO4	Explain Simple stresses and strains and its effect on simple sections and composite sections.		1,2,3,4,10	20

EXAMINATION PATTERN					
MID SEM - I EXAM (Duration 1 hour)					
		PART A	**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Marks each	3 Marks each	5 Marks each	20 Marks
No. of Questions		4 Questions	2/4 Questions	2/4 Questions	
S.No.	**Unit No.**	**R**	**U**	**A**	**Remarks**
1	UNIT I	1,2	5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT II	3,4	6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4	4	4	
Total Marks		**4**	**6**	**10**	**20 Marks**
MID SEM - II EXAM (Duration 1 hour)					
1	UNIT III	1,2	5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT IV	3,4	6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4	4	4	
Total Marks		**4**	**6**	**10**	**20 Marks**
SEMESTER END EXAMINATION EXAM (Duration 2 hours)					
		PART A	**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Mark each	3 Marks each	5 Marks each	40 Marks
No. of Questions		8 Questions	4/8 Questions	4/8 Questions	
S.No.	**Unit No.**	**R**	**U**	**A**	**Remarks**
1	UNIT I	**4** 1	9(a)	13(a)	
2	UNIT II				
3	UNIT III	2	10(a)	14(a)	
4	UNIT IV				
5	UNIT V	3 5,6	9(b)	13(b)	
			11(a)	15(a)	
			11(b)	15(b)	
6	UNIT VI	7,8	10(b)	14(b)	
			12(a)	16(a)	
			12(b)	16(b)	
Total Questions		8	8	8	
Total Marks		**8**	**12**	**20**	**40 Marks**

BUILDING SPECIFICATIONS

Course Title	**Building Specifications**	Course Code	**18 AA -303 C**
Semester	**III**	Course group	**core**
Teaching Scheme in Hrs (L:T:P)	**3:1:0**	Credit	**03**
Type of course	**Lecture + assignments**	Total Contact Hours	**60**
CIE	**60 marks**	SEE	**40 marks**

Pre requisites

This course requires the basic knowledge of building materials and various building activities..

Course Outcomes

Course Outcomes	
CO1 :	Know the nature and class of work, materials used in building construction.
CO2 :	To be able to write the specifications for different building materials.
CO3:	Know the workmanship for various building activities for satisfactory execution of works.
CO4 :	Able to specify the equipment, tools and plants to be engaged for a work
CO5 :	To verify and check the strength of materials for a work
CO6 :	To know that specifications is an essential part of a contract document required for arbitration purposes.

Time Schedule		
Unit No.	**Unit Name**	**Hour**
1	Introduction toSpecifications	3
	General Specifications	3
2	Specifications for Building Materials	12
3	Detailed Specifications for Building activities	12
4	Detailed Specifications for Building activities	10
5	Detailed Specifications for RCC Works	12
6	Specifications for Water Supply, Plumbing & sanitary fittings.	8

Course Contents:

Unit1: Introduction to Specifications

1.1 What is specification?
1.2 Necessity of specification
1.3 How to write specifications?
1.4 Types of specifications

General Specifications

1.5 General specifications for Ist class buildings.
1.6 General specifications for IInd class buildings.

Unit2: Specifications for Building Materials

2.1 Specifications for various building materials: Stone for masonry, Brick, Surkhi, Natural Sand, Coarse aggregates for concrete, Water, Stone Dust, Fly ash, Soil, Wood
2.2 Specifications for various building materials: Lime, Portland Cement, Reinforcement, Paint, G.I. Sheets, AC sheets, Glass.
2.3 Specifications for mortars (cement, lime)
2.4 Carriage, Stacking & Storage of materials

Unit3: Detailed Specifications for Building Activities

3.1 Clearing and leveling of site -

3.2 Marking of lines and Earth work in excavation in trenches for foundations, filling excavated earth in foundation trenches, sand filling in plinth, measurement, rate

3.3 Laying P.C concrete bed and construction of footings and Plinth with R.R. Masonry- materials, laying, joints, curing, measurement, rate

3.4 Filling in Trenches and basement

3.5 Laying of DPC at Plinth level

3.6 Construction of superstructure with Brick Masonry in C.M- materials, laying, joints, curing, measurement, rate

3.7 Flooring - Cement concrete flooring, Natural stone (Marble) flooring, Tile flooring, Mosaic flooring – Materials, workmanship, Laying, joints, Curing, Finishing, measurement, rate

Unit4: Detailed Specifications for Building Activities

4.1 Wood work- materials for frames and shutters for doors and windows, Workmanship, measurement, rate

4.2 Steel & Iron work – Structural steel, Doors & window, measurement, rate

4.3 Plastering- Materials, workmanship, measurement , rate

4.4 White washing, color washing, & distempering- Materials, workmanship, measurement , rate

4.5 Painting and Polishing- Materials, workmanship, measurement , rate

4.6 Glazing – materials (sheet glass, plate glass & wired Glass), Putty, beading,, measurement, rate

Unit5: Detailed specifications for RCC works

5.1 Cement Concrete -Formwork, proportions for materials, ,Grades of Cement, proportion, Mixing-hand and machine mixing, Slump, Laying,, Curing, Measurement, Rate

5.2 Reinforced Cement Concrete- Materials, Form work (Centering & Shuttering), Preparation and laying of Steel reinforcement, Proportions, Mixing, Laying & curing, Expansion Joints, Finishing, Measurement, Rate

5.3 Precast Concrete – Materials & workmanship

5.4 Ready Mix Concrete

Unit 6 : Specifications for Water supply, Plumbing & Sanitary fittings

6.1 Specifications for Water supply, Plumbing – Materials- Asbestos cement pressure pipes, Cast iron, PVC pipes

6.2 Workmanship- General -Water supply- Galvanized mild steel tubes, PVC, Sluice Valve

6.3 Workmanship- Plumbing- soil waste pipes, ventilating pipes, fittings and floor traps, joints, ferrules, Lead connection pipe

6.4 Sanitary Fittings – general, fixing of water closet (Indian and European), flushing cistern, overflow pipe, wash basin, Kitchen sink, measurement and rate.

6.5 Manholes – materials, workmanship, measurement and rate.

Specific Learning Outcomes

1.0 Introduction to Specifications

1.1 Understand the necessity of specifications.

1.2 State the procedure of writing specifications

1.3 State the types of specifications.

1.0General Specifications

2.1 To know the procedure of writing general specifications.

2.0 Specifications for Building Materials

2.1 Understand the specifications for building materials

2.2 Write specifications for the following building materials stone, brick, sand, gravel, cement, Lime water, glass, wood, paints, ,G.I. sheets and AC sheets

3.0 Detailed Specifications for Building Activities

3.1 Write detailed specifications for clearing and levelling site

3.2 Write detailed specifications for Excavation of Trenches for foundations.

3.3 Write detailed specifications for laying plain cement concrete bed, footings and plinth with R.R. Masonry and Brick Masonry.

3.4 Write detailed specifications for filling in foundation and Plinth.

3.5 Write detailed specifications for laying Damp Proof course at plinth level.

3.6 Write detailed specifications for super structure with brick masonry in Cement Mortar..

3.7 Write detailed specifications for plastering works

3.8 Write detailed specifications for Cement concrete flooring, natural stone tile flooring, tile flooring, Mosaic flooring.

4.0 Detailed Specifications for Building Activities

4.1 Write detailed specifications for Wood work for doors and windows.
4.2 Write detailed specifications for Decorative and protective finishes for Walls, Ceilings, Wood works and Iron works

.

5.0 Detailed Specifications for RCC Works

5.1 Write detailed specifications for RCC works
5.2 Write detailed specifications for steel.
5.3 Write detailed specifications for centering and shuttering
5.4 Write detailed specifications for materials and proportions for cement concrete.
5.5 Write detailed specifications for mixing and laying cement concrete.
5.6 Write detailed specifications for curing and finishing cement concrete work.
5.7 Know the measurement of RCC work.

6.0 Specifications for Water supply, Plumbing & Sanitary fittings

6.1 Write detailed specifications for water supply works.
6.2 Write detailed specifications for plumbing works
6.3 Write detailed specifications for drainage works

Suggested Student Activities

1. Market survey of material specifications
2. Assignments
3. Site visits

Skill Up gradation Projects

1. As this subject is a market oriented subject, students are made to prepare a separate REPORT consisting of specifications of various building materials as part of their assignments.

2. This site visits should RECORD the sequence and workmanship of various building activities.

   It should be supplemented with site photographs.

Recommended Books

1. Estimating & Costing in Civil Engineering – BN Dutta
2. Estimating, Costing, Specifictin& Valuation in Civil Engineering – MChakraborti
3. All India Standard Schedule of Rates 1. Standard Specifications National Buildings Organisation
4. Andhra Pradesh Standard Specifications – Govt. of Andhra Pradesh

Suggested E learning Resources.:

1. https://www.researchgate.net/publication/316750635_E-learning_standards
2. https://www.researchgate.net/.../224085435_Standards_and_specifications_for_e-learnin...

CO /PO mapping

	COURSE OUTCOME	CL	Linked PO
CO1	Know the nature and class of work, materials used in building construction.	U	1,2,5,6
CO2	To be able to write the specifications for different building materials.	U	1,2,5,6,7
CO3	Know the workmanship for various building activities for satisfactory execution of works.	U/A	1,2,5,6,7,10
CO4	Able to specify the equipment, tools and plants to be engaged for a work	U/A	1,2,4,5,10
CO5	To verify and check the strength of materials for a work	R/U/A	1,2,3,8,10
CO6	To know that specifications is an essential part of a contract document required for arbitration purposes.	U/A	2,7,9

CO/PO MAPPING MATRIX

	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering tools	Engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Lifelong learning	
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	x	x			x	x					1 2 5 6
CO2	x	x			x	x	x			x	1 2 5 6 7
CO3	x	x			x	x	x			x	1 2 5 6 7 10
CO4	x	x		x	x					x	1 2 4 5 10
CO5	x	x	x					x		x	1 2 3 8 10
CO6		x					x		x		2 7 9

EXAMINATION PATTERN						
MID SEM - I EXAM (Duration 1 hour)						
		PART A		**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Marks each		3 Marks each	5 Marks each	20 Marks
No. of Questions		4 Questions		2/4 Questions	2/4 Questions	
S.No.	**Unit No.**	**R**		**U**	**A**	**Remarks**
1	UNIT I	1,2		5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT II	3,4		6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4		4	4	
Total Marks		**4**		**6**	**10**	**20 Marks**
MID SEM - II EXAM (Duration 1 hour)						
1	UNIT III	1,2		5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT IV	3,4		6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4		4	4	
Total Marks		**4**		**6**	**10**	**20 Marks**
SEMESTER END EXAMINATION (Duration 2 Hours)						
		PART A		**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Mark each		3 Marks each	5 Marks each	40 Marks
No. of Questions		8 Questions		4/8 Questions	4/8 Questions	
S.No.	**Unit No.**	**R**		**U**	**A**	**Remarks**
1	UNIT I	**4**	1	9(a)	13(a)	
2	UNIT II					
3	UNIT III		2	10(a)	14(a)	
4	UNIT IV					
5	UNIT V	3	5,6	9(b)	13(b)	
				11(a)	15(a)	
				11(b)	15(b)	
6	UNIT VI		7,8	10(b)	14(b)	
				12(a)	16(a)	
				12(b)	16(b)	
Total Questions		8		8	8	
Total Marks		**8**		**12**	**20**	**40 Marks**

C18-AA-303C

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM- I EXAMINATION (C-18)
C18-AA-303C, BUILDING SPECIFICATIONS

Time : 1 hour Max. Marks:20

Part A 4x1=4marks

Instructions: 1.Answer all questions .
2.Each question carries one mark

1. What is a specification?
2. State the specification for stone to be used for ashlar masonry.
3. What are the different types of specifications?
4. Write specification for sand used in building construction activity.

Part B 2x3=6marks

Instructions: 1.Answer the following questions .
2.Each question carries three marks

5. a) State the procedure for writing specification.
   OR
   b) State the importance of specifications in building construction.
6. a) Write the specifications for cement
   OR
   b) Write specifications for bricks for construction of superstructure

Part C 2x5=10marks

Instructions: 1.Answer the following questions .
2.Each question carries three marks

7. a) Write the general specifications for first class buildings.
   OR
   b) Explain detailed specifications.
8. Write specifications for water in construction activity.

   OR

   b) State specifications for glass for window panes.

C18-AA-303C

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM II EXAMINATION (C-18)
C18-AA-303C, BUILDING SPECIFICATIONS

Time : 1 hour Max.Marks: 20

Part A 4x1=4marks

Instructions: 1.Answer all questions .
2.Each question carries one mark.

1. What are the materials used in DPC?
2. What is the measurement of excavation of trenches.
3. List the various proportions of mortar.
4. What is curing

Part B 2x3=6marks

Instructions: 1.Answer the following questions .
2.Each question carries three marks.

5. a) Name the protective and decorative finishes
   OR
   b) List various activities of building construction for detailed specifications
6. a) Write detailed specifications for painting an iron work.
   OR
   b)What is the method of applying cement mortar to masonry walls?

Part C 2x5=10marks

Instructions: 1.Answer the following questions .
2.Each question carries five marks.

7. a) Write specification for laying 2cm. thick damp proof course at plinth level.
   OR
   b) Write detailed specification for natural stone flooring on a cement concrete base.

8.a) Write detailed specification for preparation of cement mortar 1:5.
   OR
   b) State the specifications for painting woodwork.

C18-AA-303C

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING.
BOARD DIPLOMA END SEMESTER EXAMINATION, (C18)
C18-AA-303C, BUILDING SPECIFICATIONS

Time: 2 hours Max. Marks: 40

Part A 8x1=8 marks

Instructions: 1.Answer all questions .
2.Each question carries one mark.

1. Write specifications for gravel.
2. Write specifications for lime.
3. What are the different types of glasses?
4. What is ready mix concrete?
5. Name the various sanitary fittings.
6. What are materials used for plumbing pipes.
7. Name the different grades of cement.
8. What is centering

Part B 4x3=12 marks

Instructions: 1.Answer the following questions .
2.Each question carries three marks.

9.a) What is the importance of specifications

OR

b) What is form work?

10. a) Write detailed specifications for painting an iron work.

OR

b) Name any six sanitary fixtures

11. a) Write the units of measurement of RCC, steel and cement

OR

b) Write short notes on centering.

12. a) What is an overflow pipe?

OR

b) What is the purpose of a mnhole?

Part C 4x5=20 marks

Instructions: 1.Answer the following questions .
2.Each question carries five marks

13. a) Write detailed specifications for first class bricks,

OR

b) Write detailed specification for laying RCC roof slab

14. a) Write specifications for marking out of lines.

OR

b) write about sanitary fittings.

15. a) Write detailed specification for steel in RCC work.

OR

b) Write detailed specification for laying and curing RCC work.

16. a) Write specifications for water supply requirements.

OR

b) Write specifications for plumbing requirements

HISTORY OF INDIAN ARCHITECTURE

Course Title	**HISTORY OF INDIAN ARCHITECTURE**	Course Code	**18AA-304C**
Semester	**III**	Course group	**Core**
Teaching scheme in Hrs (L:T:P)	**3:1:0**	Credits	**3**
Type of Course	**Lecture +Assignments**	Total Contact Hours	**60**
CIE	**60 marks**	SEE	**40 marks**

Prerequisites

This course requires the basic knowledge of historic events, their chronological order and also good sketching abilities

Course Outcomes

CO1	Define the technical terms.
CO2	Explain the influences on different styles of Indian Architecture.
CO3	Explain Architectural characters of various styles of Indian Architecture.
CO4	Sketch plan, elevation and section of various important examples of Indian Architecture.

Time Schedule		
Unit No	**Unit Name**	**Hour**
1	Influences on Indian Architecture	2
	Vedic Architecture	3
	Indus Valley Architecture	3
2	Buddhist Architecture	12
3	Hindu Rock cut Architecture	3
4	Dravidian Architecture	17
5	Indo-Aryan Architecture	6
6	Indo- Islamic Architecture	6
	Moghul Architecture	8
	Total	60

Course Contents

1.0 Influences on Indian Architecture

1.1 Geographical , geological, climatic, religious and historical influences on Indian architecture .

Vedic Architecture

1.2 Architecture and planning of vedic houses.
1.3 Vedic town planning

Indus valley Architecture

1.4 Residential planning ,
1.5 Town planning of Mohenjadaro and Harappa
1.6 Drainage and water supply systems.

2.0 Buddhist Architecture

2.1 Development of rock –cut architecture by Buddhists
2.2 Sanchistupa – planning and elevation features, gateways at Sanchi.
2.3 Chaitya hall at Karli – planning and elevation features, interior columns, ceiling and the stupa.
2.4 Vihara at Ajantha.

3.0 Hindu Rock –cut Architecture

3.1 Architectural features of Hindu rock- cut architecture.
3.2 Planning and elevation features of Kailasa temple at Ellora.

4.0 Dravidian Architecture

4.1 Pallavas –Rock-cut phase-Monolithic rathas of Dharma raja ratha, Arjunaratha at Mamallapuram.
4.2 Structural phase – Shore temple of Mamallapuram.
4.3 Cholas- Architecture of Brihadeswara temple at Tanjore.
4.4 Pandyas – Design and development of Gopurams.
4.5 Vijayanagar dynasty –Architecture of Vittala temple at Hampi.
4.6 Madurai style – Architecture of Meenakshi temple at Madurai.

5.0 Indo-Aryan Architecture

5.1 Orissan style –prinicipal parts of an Orissan temple
5.2 Lingaraja temple at Bhuvaneswer.
5.3 Khujuraho style –KandareoMahadeo temple.

6.0 Indo- Islamic Architecture

6.1 Imperial style- Architectural features , method of construction
6.2 Planning and elevation features of Alai Darwaza
6.3 Planning and elevation features of an Indian mosque.
6.4 Provincial style-planning and architectural characters of Jama Masjid at Ahmedabad.

Mughal Architecture

6.5 Architectural characters of Fathehpursikri,
6.6 Diwan-i-khas, Diwn –i- am. Jodhbai palace
6.7 Tajmahal at Agra.

Specific Learning Outcomes

Unit 1: Influences on Indian Architecture

1.1 State and explain the factors influenced on the formation and development of Indian Architectue.

Vedic Architecture

1.2 Comprehend the knowledge of Vedic Architecture.
1.3 Explain the planning of Vedic houses and town planning.
1.4 Sketch types of houses.

Indus Valley Architecture

1.5 Understand the development of Indus Valley Architecture.

1.6 Explain the planning of courtyard houses, towns and drainage system.

Unit2: Buddhist Architecture

2.1 Understand the development features.
2.2 Explain the Architectural features.
2.3 Sketch and describe Sanchistupa.
2.4 Explain the planning features and elevation features of Sanchistupa.
2.5 Explain the interior columns of Chaitya Hall at Karli.
2.6 Explain the Vihara at Ajanta.
2.7 Sketch the plan and section of Chaitya hall at Karli.
2.8 Sketch the plan and section of Vihara at Ajanta.

Unit3: Hindu Rock cut Architecture

3.1. Comprehend the development.

a. Sketch and explain the Kailasa Temple.

Unit 4Dravidian Architecture

4.1 Sketch the rathas of Mamallapuram –Dharma Raja andArjunarathas.

4.2 Describe the structural examples of Shore temple at Mamallapuram.

4.3 Choladynasty , describe the structure of Brihadeswara temple at Mamallapuram.

4.4 Sketch the sikara of Brihadeswra temple

4.5 Pandyas ,sketch and describe the plan and elevation of Gopuram.

4.6 Comprehend the design development of mandapas and hypostyle hall of Vittala temple, Hampi ,Vijayanagardyanasty.

4.7 Vijayanagar dynasty- Sketch the plan of Vittala temple, Hampi.

4.8 Describe the planning development of Madurai temple.

4.9 Sketch and describe the Meenakshi temple.

UNIT -5 Indo- Aryan Architecture

5.1 State the architectural character of Orissan temple.

5.2 Describe with a sketch ,the prinicipal parts of typical Orissan temple.

5.3 Sketch and describe temple of Lingaraja at Bhuvaneswar.

5.4 State the architectural features of Khajuraho temple.

5.5 Sketch and describe the KandariaMahadeo temple

UNIT -6 Indo- Islamic Architecture

6.1 Indo –Islamic Architecture

6.2 Understand distinct features and Architectural characters.

6.3 Sketch and describe Alai Darwaja.

6.4 Explain the general features of Indian Mosque.

6.5 Sketch and describe the Jama masjid of Ahmedabad.

Mughul Architecture

6.6 Comprehend the development of Mughal Architecture.

6.7 State the Architectural characters.

6.8 Sketch and describe the structures of FatehpurSikri.

6.9 Sketch and describe Diwan –i- khas.

6.10 Sketch and describe the Jodhbai palace.

6.11 Sketch and describe Tajmahal at Agra.

Suggested Student Activities

1. Quiz
2. Assignments &Sketch book
3. Group discussions
4. Watching you tube videos
5. A study tour to local historic buildings

Assignments

A sketch book with following neat labeled sketches is to be maintained and Submitted:

1. Vedic houses
2. Vedic town plan
3. The plan and elevation of Sanchi stupa
4. The plan and section of chaityahall at karli
5. The plan and section of vihara at Ajanta.
6. The kailasa temple at Ellora.
7. The Dharmaraja and Arjuna rathas of Mamallapuram
8. The plan and elevation of the Shore temple at M amallapuram
9. The sikhara of Brihadeswaratemple, Tanjore
10. The plan and elevation of gopuram
11. Plan and elevation of the vithala temple, Hampi
12. The plan and view of Meenakshi temple at Madurai
13. The principal parts of typical Orissantemple.
14. The temple of Lingaraja, Bhuvaneswar.
15. The kandaria mahadeo temple.
16. The plan and elevation of Alai darwaja.
17. Parts of a typical Indian mosque
18. The Jama Masjid of Ahmedabad.
19. The plan and elevation of Diwan-i-khas
20. The plan and elevation of Jodhabai palace
21. The plan and elevation of the Tajmahal at Agra.

Skill Upgradation Projects:

1. Students shall be taken to a one day tour to visit local historic buildings to study the architectural features of different styles

Recommended Books:

1. Indian Architecture (Buddhist and Hindu) by Percy Brown.
2. Indian Architecture (Islamic) by Percy Brown.
3. Indian Architecture by Satish Grover.
4. History of Architecture by Banister Flecher.
5. World Architecture by Hiraskar.

Suggested E learning Resources.:

1. **www.all-art.org**
2. **www.digi Libraries.com/history of architecture**

CO /PO mapping

	COURSE OUTCOME	CL	Linked PO
CO1	Define technical terms	U	1,2,5
CO2	Explain the influences on different styles of Indian Architecture	R/U/A	1,2,5,6,9
CO3	Explain Architectural characters of various styles of Indian architecture.	R/U/A	1,2,5,6,9
CO4	Sketch plan, elevation and section of various important examples of Indian architecture.	R/U/A	1,2,3,8,9,10

CO /PO Mapping Matrix

	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering tools	Engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Lifelong learning	
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	x	x			x				x		1 2 5
CO2	x	x			x	x			x		1 2 5 6 9
CO3	x	x			x	x			x		1 2 5 6 9
CO4	x	x	x					x	x	x	1 2 3 8 9 10

EXAMINATION PATTERN						
MID SEM - I EXAM (Duration 1 hour)						
		PART A		**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Marks each		3 Marks each	5 Marks each	20 Marks
No. of Questions		4 Questions		2/4 Questions	2/4 Questions	
S.No.	**Unit No.**	**R**		**U**	**A**	**Remarks**
1	UNIT I	1,2		5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT II	3,4		6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4		4	4	
Total Marks		**4**		**6**	**10**	**20 Marks**
MID SEM - II EXAM (Duration 1 hour)						
1	UNIT III	1,2		5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT IV	3,4		6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4		4	4	
Total Marks		**4**		**6**	**10**	**20 Marks**
SEMESTER END EXAMINATION (Duration 2 hours)						
		PART A		**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Mark each		3 Marks each	5 Marks each	40 Marks
No. of Questions		8 Questions		4/8 Questions	4/8 Questions	
S.No.	**Unit No.**	**R**		**U**	**A**	**Remarks**
1	UNIT I	**4**	1	9(a)	13(a)	
2	UNIT II					
3	UNIT III		2	10(a)	14(a)	
4	UNIT IV					
5	UNIT V		3 5,6	9(b)	13(b)	
				11(a)	15(a)	
				11(b)	15(b)	
6	UNIT VI		7,8	10(b)	14(b)	
				12(a)	16(a)	
				12(b)	16(b)	
Total Questions		8		8	8	
Total Marks		**8**		**12**	**20**	**40 Marks**

C18-AA-304C

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM -I EXAMINATION (C-18)
C18-AA-304C, HISTORY OF INDIAN ARCHITECTURE

Time : 1 hour Max.Marks: 20

Part A 4x1=4marks

Instructions: 1.Answer all questions .
2.Each question carries one mark

1. Sketch a vedic hut
2. What are the factors influencing Indian Architecture
3. What is rock cut architecture
4. Sketch a village gate

Part B 2x3=6marks

Instructions: 1.Answer the following questions .
2.Each question carries three marks

5 a) Write the geographical influences on Indian Architecture.

OR

b)What are the town planning aspects of ancient India.

6 a) Sketch a vihara and name its parts.

OR

b) Write the elevation features of a chaitya hall

Part C 2x5=10marks

Instructions: 1.Answer the following questions .
2.Each question carries five marks

7 a) Explain Indus valley civilization

OR

b) Write about the water supply and drainage facilities that were existing during Indus Valley civilization.

8 a)Sketch and name the parts of Sanchi stupa in elevation.

OR

b) Sketch and name the parts of Karli Chaitya hall.

C18-AA-304C

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING.
BOARD DIPLOMA END SEMESTER EXAMINATION, (C18)
C18-AA-304C, HISTORY OF INDIAN ARCHITECTURE

Time: 2 hours Max. Marks: 40

Part A 8x1=8 marks

Instructions: 1.Answer all questions .
2.Each question carries one mark.

1.Sketch a vedic hut
2.List the rock-cut rathas
3.Write about kalas.
4.Sketch a vihara.
5.what is the meaning of "pida"
6.What is a mandapa
7. List the elements of Islamic architecture.
8. Write the parts of a mosque

Part B 4x3=12 marks

Instructions: 1.Answer the following questions .
2.Each question carries three marks.

9 a) Write about Vedic town planning

OR

b) skech the an orissan temple in elevation and name the parts

10. a) Write about Dharma raja ratha

OR

b) Write about the development of Moghul architecture.

11. a) Write the characteristics of an Orissan temple.

OR

b) Sketch the elevation of Kandareo Mahadeo temple.

12. a) Sketch the plan of Alai Darwaza and name its parts.

OR

b) Sketch and indicate the elevation features of Alai Darwaza.

Part C 4x5=20 marks

Instructions: 1.Answer the following questions .
2.Each question carries five marks

13. a) Explain the features of Sanchi stupa in detail.

OR

b) Describe Lingaraja temple.

14. a) Describe the great tower of Brihadeswara temple, Tanjore.

OR

b) Describe the planning features of a mosque.

15. a) Explain the features of aKhajuraho Temple.

OR

b) Sketch the plan of Lingaraja temple.

16. a) Explain the characteristics of Fateh pur Sikri

OR

b) Sketch the plan of Taj Mahal and name its parts.

CAD THEORY

Course Title	**CAD THEORY**	Course Code	**18AA-305C**
Semester	**III**	Course group	**Core**
Teaching scheme in Hrs (L:T:P)	**3:1:0**	Credits	**3**
Type of Course	**Lecture +Tutorials**	Total Contact Hours	**60**
CIE	**60 marks**	SEE	**40 marks**

Pre requisites

This course requires the basic knowledge of engineering drawing and architectural graphics.

Course Outcomes

Upon completion of the course the student will be able to

CO1 :	Use AutoCAD to generate 2D drawings suitable for architecture
CO2 :	Use the draw, edit commands and create text and tables and dimensioning.
CO3 :	Draw engineering objects and architectural graphics in orthographic projections in AutoCAD
CO4	Create layers in CAD drawing

Time Schedule		
Unit No	**Unit Name**	**Hour**
1	Draw commands in AutoCAD	10
2	Drawing aids	10
3	Editing commands	12
4	Creating text and tables	8
5	Dimensioning	10
6	Layers	10
	Total	60

Course Contents

Unit 1: Draw commands

Draw lines, arcs, circles, rectangles, ellipses, regular polygons, polylines, points, infinite lines, construction lines, x lines, single and multiline text

Unit 2: Drawing aids

Layers, object properties, drafting settings dialogue box, modes, object snaps, control and function keys

Unit 3: Editing commands

Move, copy, multiple copy, single copy, offset, rotate, scale, fillet, chamfer, trim, extend, stretch, lengthen, array-rectangular and polar, mirror, text mirroring.

Grips, Design centre, zoom, pan, properties palette, match properties

Unit4: Creating text and tables

Annotative objects, annotative scale, assigning annotative scales and properties, customizing annotative scale. Multiple annotative scales, text, edit text, tables

Unit 5: Dimensioning

Need for dimensioning, dimension line, dimension text, arrow heads, extension lines, leader, centre mark, centerlines, alternate units, tolerances, limits, associative dimensions, definition points, dimension commands, ribbon, toolbar, command line usage, dimensioning many objects together.

Unit 6: Layer

Describe the concept of layer, use the layer dialogue box. Create layers, set up properties of layers,

Specific Learning Outcomes

The student shall be able to

1.0 Draw commands

1.1 Describe the all the draw commands in AutoCAD

2.0 Drawing aids

2.1 Understand the layers concept in creation of drawings
2.2 Understand the object properties concept
2.3 Sketch and describe the drafting settings dialogue box
2.4 List different modes and object snaps
2.5 List the Control and function keys

3.0 Editing commands

3.1 List and describe all the edit commands
3.2 Understand the concept of grips
3.3 Describe the importance of the Design centre
3.4 Understand the difference between Zoom and pan

4.0 Creating text and tables

4.1 Understand annotation scale and objects
4.2 Describe the creation and editing of text

4.3 Describe the insertion and modification of tables

5.0 Basic dimensioning

5.1 Understand the concept of dimensioning in AutoCAD
5.2 List the dimensioning styles
5.3 Describe the editing of dimensions

6.0 Layers

6.1 Describe the concept layer and
6.2 Describe use of layer command
6.3 Describe creation of layer
6.4 Describe setting up of layer properties.

Suggested Student Activities

1. Assignments
2. Refer to Google images and refer to drawings on internet
3. Refer to AutoCAD Design centre for library of drawings

Recommended Books:

1. Engineering drawing with AutoCAD , T. Teyapoovan
2. Inside AutoCAD, Parker, Daniel, Rice, Habert1. AutoCAD Reference Guide: Everything You Wanted to Know about AutoCAD--Fast! By Dorothy Kent
3. Arshad N Siddique, ZahidKhab, Mukhtar Ahmed- Engineering Drawing with CADD

Suggested E learning Resources:

1. https://www.youtube.com/watch?v=BAiiV4PIiZ0/
2. https://www.bing.com/videos/search?q=AutoCAD+2010+Architecture&&view=detail&mid=D3C2F41AD2173F3F
3. BC1DD3C2F41AD2173F3FBC1D&FORM=VRDGAR/
4. www.cadtutor.net/tutorials/autocad/drawing-objects.php/

CO-PO Mapping

	COURSE OUTCOME	CL	Linked PO	Teaching hours
CO1	Use AutoCAD to generate 2D drawings suitable for architecture	R/U/A	1,2,3,4,5,8,9,10	30
CO2	Use the draw, edit commands and create text and tables and dimensioning.	R/U/A	1,2,3,4,5,8,9,10	10
CO3	Draw engineering objects and architectural graphics in orthographic projections in AutoCAD	R/U/A	1,2,3,4,8,9,10	10
CO4	Create layers in CAD drawing	R/U/A	1,2,3,4,5,8,9,10	10

CO /PO Mapping Matrix

	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering tools	Engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Lifelong learning	
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	x	x	x	x	x			x	x	x	1,2,3,4,5,8,9,10
CO2	x	x	x	x				x	x	x	1,2,3,4,5,8,9,10
CO3	x	x	x	x				x	x	x	1,2,3,4,8,9,10
CO4	x	x	x	x	x			x	x	x	1,2,3,4,5,8,9,10

Note:

1. **The Cad theory class has to define the exercises that the student has to perform in CAD lab**
2. **Original software of AutoCAD latest release has to be installed in the CADD lab and class room.**
3. **LCD projector should be used to demonstrate the commands while teaching CAD theory in the class.**

EXAMINATION PATTERN						
MID SEM - I EXAM (Duration 1 hour)						
		PART A		**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Marks each		3 Marks each	5 Marks each	20 Marks
No. of Questions		4 Questions		2/4 Questions	2/4 Questions	
S.No.	**Unit No.**	**R**		**U**	**A**	**Remarks**
1	UNIT I	1,2		5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT II	3,4		6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4		4	4	
Total Marks		**4**		**6**	**10**	**20 Marks**
MID SEM - II EXAM (Duration 1 hour)						
1	UNIT III	1,2		5(a) or 5 (b)	7(a) or 7(b)	
2	UNIT IV	3,4		6(a) or 6(b)	8(a) or 8(b)	
Total Questions		4		4	4	
Total Marks		**4**		**6**	**10**	**20 Marks**
SEMESTER END EXAMINATION (Duration 2 hours)						
		PART A		**PART B**	**PART C**	**Total Marks**
Marks/Question		1 Mark each		3 Marks each	5 Marks each	40 Marks
No. of Questions		8 Questions		4/8 Questions	4/8 Questions	
S.No.	**Unit No.**	**R**		**U**	**A**	**Remarks**
1	UNIT I	**4**	1	9(a)	13(a)	
2	UNIT II					
3	UNIT III		2	10(a)	14(a)	
4	UNIT IV					
5	UNIT V	3	5,6	9(b)	13(b)	
				11(a)	15(a)	
				11(b)	15(b)	
6	UNIT VI		7,8	10(b)	14(b)	
				12(a)	16(a)	
				12(b)	16(b)	
Total Questions		8		8	8	
Total Marks		**8**		**12**	**20**	**40 Marks**

C18AA305C

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM I EXAMINATION (C-18)
C18AA305C, CAD THEORY

Time : 1 hour Max Marks: 20

Part A 4x1=4marks

Note: Answer all questions . Each question carries one mark

1. Define a polyline
3. Define a xline.
4. What is a layer in AutoCAD?
5. What is OSNAP?

Part B 2x3=6marks

Note: Answer the following questions. Each question carries 3 marks

6. a) State the differences between single and multiline text.

OR

c) State the differences between line and polyline.

7. a) List the different modes in AutoCAd.

OR

b) List any three function keys and list their function.

Part C 2x5=10marks

Note: Answer the following questions. Each question carries 5 marks

8. a) Describe how you will draw a rectangle in AutoCAD

OR

b) Describe the purpose of xlines

9. a) Why do we need a layer in a AutoCAD drawing?

OR

b) Describe the drafting settings dialogue box.

C18AA305C

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM -II EXAMINATIONS (C-18)
C18AA305C, CAD THEORY

Time : 1 hour Max Marks: 20

Time : 1 hour Max Marks: 20

Part A 4x1=4marks

Note: Answer all questions. Each question carries one mark

1. Define fillet command.
2. Describe the offset command.
3. Define what a table in AutoCAD software is.
4. List the different types of text available in AutoCAD.

Part B 2x3=6marks

Note: Answer the following questions. Each question carries 3 marks

5. a) State any three differences between copy and multiple copy in AutoCAD.

-OR

d) State the three differences between rectangular and polar array.

6. a) What is meant by annotative scale?

OR

b) What are annotative objects?

Part C 2x5=10marks

Note: Answer the following questions. Each question carries 5 marks

7. a) Describe the method of array command.

OR

b) Describe how you will use mirror command with an example

8. a) Describe how you will create a schedule of openings in a AutoCAD drawing.

OR

b) Describe how you will create multiple annotative scales.

C18AA305C

STATE BOARD OF TECHNICAL EDUCATION AND TRINING.
BOARD DIPLOMA END –SEMESTER EXAMINATIONS, (C18)
C18AA305C, CAD THEORY.

Time: 2 hours Max marks: 40

Part A 8x1=8 marks

Note: Answer all the questions. Each question carries one mark.

1. Define the chamfer command.
2 What is a table in AutoCAD and how is it useful in drawing?
3 List any two types of dimensioning
4 Define the fillet command.
5 Define aligned dimensioning.
6 Define unidirectional dimensioning.
7 What is a layer?
8 How will you set layer dialogue box?

Part B 4x3=12 marks

Note: Answer the following questions. Each question carries three marks.

9. a) Describe how you will draw an array using an example.

OR

b) Describe the differences between aligned and unidirectional dimensioning.

10. a) State the differences between fillet and chamfer.

OR

b) State the advantages of layer.

11. a) List the parts of a dimension line.

OR

b) State the differences between the radial and angular dimensioning.

12. a)Describe how you will set up a new layer

OR

b) List the different properties of a layer

Part C 4x5=20 marks

Note: Answer the following questions. Each question carries five marks.

13. a) State the differences between a line and xline.

OR

b) State the shortcut keys for dimlinear and dim angular

14. a) Describe how you will draw a schedule of openings in a AutoCAD drawing

OR

b) State the differences between dimlinear and dim continuous.

15. a) Describe how you will dimension a drawing using an example.

OR

b) What are the merits of dimensioning in AutoCAD when compared to manual dimensioning?

16. a) Describe how you will change the properties of an existing layer

OR b) Describe why a layer is freezed?

b)Describe why you will freeze a layer?

PERSPECTIVE DRAWING

Course Title	**Perspective Drawing**	Course Code	**18 AA -306 P**
Semester	**III**	Course group	**core**
Teaching Scheme in Hrs (L:T:P)	**1:0:2**	Credit	**1.5**
Type of course	**Lecture + Studio exercises**	Total Contact Hours	**45**
CIE	**60 marks**	SEE	**40 marks**

Prerequisites:

This course requires the basic knowledge of visual arts and engineering drawing.

Course Outcomes

Course Outcomes	
CO1 :	Understand the importance of perspective drawing
CO2 :	Know the terminology in perspective drawing
CO3:	Differentiate between 2D & 3D drawings, one and two point perspectives
CO4 :	Able to draw the perspective drawings by projection method
CO5 :	Differentiate between human eye view, bird's eye view & worm's eye view
CO6 :	Know the importance of sciography & draw in elevations

Time Schedule		
Unit No	**Unit Name**	**Hour**
1&2	Introduction to Perspective drawing Terminology	03
3	One Point Perspective	15
4	Two point Perspective	18
5	Sciography	9
	Total	45

Course Contents

Unit1: Introduction to perspective drawing Duration: 9 hours(L: Studio:)

1. **Introduction**
   i. Introduction to the subject
   ii. Uses of the perspectives in Architectural Drawing.

Unit 2Terminology Duration: 6 hours(L: Studio:)

2. **Terminology**
   i. Ground Plane
   ii. Horizontal Plane
   iii. Axillary Plane,
   iv. Centre of vision
   v. Central plane
   vi. Eye level & Eye level plane
   vii. Object
   viii. Station point
   ix. Height line
   x. Picture plane
   xi. Vanishing points
   xii. Cone of vision
   xiii. Fore ground
   xiv. Back ground
   xv. Sky line
   xvi. Any other terms relevant to the subject
   xvii. One point perspective
   xviii. Two point perspective

Unit3: One Point Perspective Duration 6 hours(L: Studio:)

One point perspective

i. Concept and uses
ii. Method of projection & principles / Guide lines
iii. Human eye view and birds eye view

Exercises

i) Object placed on the picture plane
ii) Object placed behind the picture plane
iii) Object placed in front of the picture plane

The exercises (i) (ii) and (iii) to be done considering single block, multiple blocks and composed with various geometric forms Iv0Composite forms- cube & pyramid, cube/cuboid &cylinder, etc.

iv) An interior view for a bed room or a living room
v) Exterior views for an entrance façade.

Unit 4 Two Point Perspective **Duration: hours(L: Studio:**

Two point perspective

i. Concept and uses
ii. Method of projection & principles / Guide lines
iii. Human eye view and birds eye view

Exercises

i. Buildings in the form of L,H,I,.T, etc,
ii. Portico and roof projections
iii. Doors and windows.
iv. Steps etc.

Cone etc,

a. Small buildings – One room unit
b. Buildings of two/ three rooms having single floor with doors, windows, steps, parapet, portico and roof projections.

Unit5: Sciography **Duration: hours(L: Studio:**

Sciography

Definitions of terms

i Shade
ii Shadow
iii Shadow line
iv Sciography

Exercises in pencil media
Sciography in elevation for simple blocks
Sciography in elevation for buildings done for one point & Two point exercises mentioned above.

Suggested Learning Outcomes

1.0 Introduction

1.1 Understand the importance of perspective drawing.

1.2 Explain to understand the uses of it.

2.0 Terminology

2.1 Define and explain the terminology with sketches.

2.2 Explain to understand the difference between the perspectives (one and two point).

3.0 One point or parallel perspective

3.1 To draw the perspectives of various geometrical forms like cuboids, cylinders, cones , etc.

3.2 Able to draw the GP, HP, PP, and locate SP, VP and height lines.

3.2 Explain the methods of projection for buildings and for interior views.

3.3 Explain the method of locating points on ceiling or floor.

3.4 To draw human eye view, birds eye view, etc.

4.0 Two point or angular perspective

4.1 Explain the method of of projection for buildings in two point perspective views.

4.2 Explain the method of locating points on ceiling or floor.

4.3 To draw the perspectives of various geometrical forms like cuboids, cylinders, cones , etc.

4.4 To draw human eye view, birds eye view, etc

5.0 Sciography

5.1 Explain with sketches while defining the terminology

5.2 Explain to draw Sciography in elevations and simple blocks with different media pencil (black & White), Colour pencils etc.

Suggested Student Activities

1. Viewing real buildings and photographing for perspective views from different angles.
2. Observing and drawing the sciography on buildings at different times of the day.
3. Assignments.
4. Quiz

ASSIGNMENTS

ONE POINT PERSPECTIVE DRAWING

1 Parallel perspective – A block
2. Parallel perspective – A block (changing PP)
3. Parallel perspective – A block (changing SP)
4. Parallel perspective – A block (changing Eye Leel)
1. Parallel perspective – Multiple blocks (Equal Heights)
2. Parallel perspective – Multiple Blocks –(Unequal heights)
3. Parallel perspective – A Pyramid
4. Parallel perspective – A Cylinder
5. Parallel perspective – A flight steps
6. Parallel perspective –

TWO POINT PERSPECTIVE DRAWING

7. Angular perspective – A Block
8. Angular perspective – A Block with roof projection
9. Angular perspective – Multiple blocks
10. Angular perspective – A Flight of Steps
11. Angular perspective – A Window
12. Angular perspective – A rectangular one roomed building perspective with doors& windows, plinth, steps, roof projections.
13. Angular perspective – – A L shaped building perspective with doors& windows, plinth, steps, roof projections.
14. Angular perspective – A Garden pavilion building.
15. Angular perspective – A Building with a Sloping roof.
16. Angular perspective – A Gateway.

SCIOGRAPHY

17. Sciography- of simple building elements windows, roof projection, portico projection.
18. Sciography- of solids like cylinder, cone, pyramid, cube or cuboid, etc,

19. Sciography- of Building 1
20. Sciography- of Building 2
21. Sciography- of Building 3

Recommended Books

1. Building drawing by Shah & Kale and Patki
2. Creative perspective by Robert .W.Gill
3. Rendering with pen & Ink by Robert.W.Gill
4 Interior Design by M. PrathapRao.
5. Engineering Drawing by B.N. Dutta.

Suggested E learning Resources.:

1. https://www.tes.com/teaching-resource/perspective-drawing-resources-6036616
2. https://www.tes.com/teaching-resource/perspective-drawing-lesson-6335488
3. https://www.studentartguide.com/articles/one-point-perspective-drawing
4. https://www.lynda.com/Art-Illustration-tutorials/Drawing.../158841-2.html

CO /PO mapping

CO	COURSE OUTCOME	CL	Linked PO
CO1	Understand the importance of perspective drawing	R/U	1,2,3,4,8
CO2	Know the terminology in perspective drawing	U	2
CO3	Differentiate between 2D & 3D drawings, one and two point perspectives	R/U	1,2
CO4	Able to draw the perspective drawings by projection method	U/A	1,2,3,4
CO5	Differentiate between human eye view, bird's eye view & worm's eye view	A	1,2,3,4
CO6	Know the importance of sciography & draw in elevations	U/A	1,2,10

CO/PO MAPPING MATRIX

	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering tools	Engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Lifelong learning	
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	x	x	x	x				x			1,2,3,4,8
CO2		x									2
CO3	x	x									1,2
CO4	x	x	x	x						x	1,2,3,4
CO5	x	x	x	x							1,2,3,4
CO6	x	x								x	1,2,10

EXAMINATION PATTERN				
MID SEM - I EXAM (Duration: 1-1/2 hour)				
		PART A	**PART B**	**Total Marks**
Marks/Question		4 Marks each	12 Marks	20 Marks
No. of Questions		2 Questions	1/1 Questions	
S.No.	**Unit No.**	**U**	**A**	**Remarks**
1	UNIT I	1		
2	UNIT II	2		
3	UNIT III		3	
Total Questions		2	1	
Total Marks		**8**	**12**	**20 Marks**
MID SEM - II EXAM (Duration: 1-1/2 hour)				
1	UNIT III	1		
2	UNIT IV	2	3	
Total Questions		2	1	
Total Marks		**8**	**12**	**20 Marks**
SEMESTER END EXAMINATION (Duration: 3 hours)				
		PART A	**PART B**	**Total Marks**
Marks/Question		4 Marks each		40 Marks
No. of Questions		4 Questions	2/2 Questions	
S.No.	**Unit No.**	**U**	**A**	**Remarks**
1	UNIT I	1		
2	UNIT II			
3	UNIT III	2		
4	UNIT IV	3	5 (16 Marks)	
5	UNIT V	4	6 (8 Marks)	
Total Questions		**4**	**2**	
Total Marks		**16**	**24**	**40 Marks**

For subjects 18AA - 306P

C18-AA-306P

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM -I EXAMINATION (C-18)
C18-AA-306P, PERSPECTIVE DRAWING

Time : 1-1/2 hours Max. .Marks: 20

Part A 2x4=8marks

Instructions: 1.Answer all questions .
2.Each question carries FOUR marks

1. State the importance of perspective drawing as a media of communication in Architecture.

1. Define the terms height line and cone of vision.

Part B 1x12=12marks

Instructions: 1.Answer the following question .

2. Draw one point perspective of the following figure given below: FIGURE 1
   Scheme of valuation :
   Drawing plan, GL,HL,PP, SP, VP -3 marks
   Drawing Visual rays, perpendiculars, vanishing lines -3 marks
   Drawing block perspective in one point perspective .- 6marks

C18-AA-306P

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM II EXAMINATION (C-18)
C18-AA-306P, PERSPECTIVE DRAWING

Time : 1-1/2 hours Max. Marks: 20

Part A 2x4=8marks

Instructions: 1.Answer all questions .
2.Each question carries four marks.

1. Draw one point perspective of a block 4X 4X6 cms. in birds eye view.
2. Differentiate between human eye view and birds eye view with neat sketches.

Part B 1x12=12marks

Instructions: 1.Answer the following question .

3.Draw two point perspective of the following block figure given below: FIGURE 1

Scheme of valuation :
Drawing plan, GL,HL,PP, SP, VP -2 marks
Drawing Visual rays, perpendiculars, vanishing lines -2 marks
Drawing block perspective with roof projections/recesses , etc. - 8marks

C18-AA-306P

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING.
BOARD DIPLOMA END SEMESTER EXAMINATION, (C18)
C18-AA-306P, PERSPECTIVE DRAWING

Time: 3 hours Max. Marks: 40

Part A 4x4=16 marks

Instructions: 1.Answer all questions .
2.Each question carries four marks.

1. Define the following terms: 1. Picture plane 2. Vanishing points
2. Draw one point perspective of a cube of side 6 cms. in birds eye viewS
3. Sketch and explain different types of two point perspectives.
4.Sketch and explain shade and shadow with neat sketches.

Part B 24 marks

Instructions: 1.Answer the following questions .
2.Question no. 5 carries sixteen marks.
3. Question no. 6 carries eight marks.
4. Accuracy and neatness of drawing carries weightage of marks.

5. Draw two point perspective of the following building/garden pavilion/ given below: FIGURE 1. Given the position of PP with respect to the building, eye level, station point distance from PP, etc.

Note: Scale of drawing should be mentioned

Scheme of valuation :
Drawing plan, GL,HL,PP, SP, VP -3 marks
Drawing Visual rays, perpendiculars, vanishing lines -3 marks
Drawing Plinth, walls, portico / balcony/ roof projections, doors & windows , etc.- 12marks

6. Draw the sciography in elevation for the above problem considering the sun angle at 45degrees.

Note: Scale of drawing should be mentioned.

ARCHITECTURAL DESIGN

Course Title	**ARCHITECTURAL DESIGN**	Course Code	**18AA-307P**
Semester	**III**	Course group	**Core**
Teaching scheme in Hrs (L:T:P)	**1:0:2**	Credits	**1.5**
Type of Course	**Lecture +Studio**	Total Contact Hours	**45**
CIE	**60 marks**	SEE	**40 marks**

Pre requisites

This course requires the basic knowledge of basic architectural design, principles and elements of design.

Course Outcomes

CO1 :	Design a residential building
CO2 :	Design a commercial building
CO3 :	Describe the importance of orientation, circulation, cross ventilation and lighting.
CO4	Draw flow charts for various functional buildings

Time Schedule			
Unit No	**Unit Name**	**Hour**	**Assessment procedure**
1	Residential Buildings	23	• Floor plan • Front elevation • Section • Site plan • Schedule of openings
2	Commercial buildings	22	
	Total	45	

Course Contents

Unit 1: Residential buildings Duration: (L: T:)

Residential building with living room, dining room, bed rooms, kitchen, toilet, utility, store, pooja and other important functions. The student should prepare a portfolio of any one of the topics

a. Two bed room dwelling

b. Weekend cottage
c. Farm house
d. Duplex residence

Unit 2: Commercial buildings Duration: (L: T:)

Design commercial buildings of small scale. The student should prepare a portfolio of any one of the topics

a. Architect's office
b. Restaurant.

Note: Each topic should contain the following drawings

a. Flow chart
b. Schematic line drawing
c. Presentation drawing of the plan
d. A tracing of the plan
e. Furniture layout
f. Elevations
g. Sections
h. Site plan
i. Schedule of doors and windows

Specific Learning Outcomes

1.0 Residential buildings

1.1 Design and draft to make complete portfolios for double bedroom and duplex residential unit as per course contents.

1.2 Explain to understand planning techniques such as Orientation, proper circulation, cross ventilation and aesthetics.

1.3 Develop graphically the schematic line drawings.

1.4 Detailed working drawings for plan, section and elevation.

1.5 Prepare site plan showing location of building approach road/passage/ Drive away/parking etc.

2.0 Commercial Buildings

2.1 Prepare site plan showing location of Design and draft small Architect office/Restaurant.

2.2 Explain to understand planning Techniques such as Orientation, Proper Circulation, Cross Ventilation and Aesthetics

2.3 Prepare the general requirements for the above projects.

2.4 Prepare the detailed working drawings for plan, elevation and section of the above projects.

a. Building approach road/passage/drive away/parking etc.

Suggested Student Activities

1. The student should conduct a case study of a similar building
2. Student should analyze the design data based on the case study
3. Student should use Google to conduct a desktop study of buildings designed by famous architects.

Recommended Books:

1. Time Saver Standards- building types and design data by Joseph De Chiara
2. Time Saver Standards for Interior Design
3. Neufert's Architects data
4. Building drawing by Shaw, Kale and Patki
5. Principles and practice of Interior Design by PratapRao
6. Rendering with pen and Ink by Robert W Gill.

Suggested E learning Resources.:

1. https://**en.wikipedia.org**/wiki/**Architectural_drawing/**
2. https://www.bing.com/videos/search?q=architectural+drawing+of+an+apartment+&&view=detail&mid=8E657A1CAEBBAFE004AD8E657A1CAEBBAFE004AD&FORM=VRDGAR/

CO-PO Mapping Matrix

	COURSE OUTCOME	CL	Linked PO	Teaching hours
CO1	Design a residential building	R/U/A	1 TO 10	20
CO2	Design a commercial building	R/U/A	1 TO 10	20
CO3	Describe the importance of orientation, circulation, cross ventilation and lighting.	R/U/A	1 TO 10	5

CO /PO mapping

	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering tools	Engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Lifelong learning	
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	x	x	x	x	x	x	x	x	x	x	1 TO 10
CO2	x	x	x	x	x	x	x	x	x	x	1 TO 10
CO3	x	x	x	x	x	x	x	x	x	x	1 TO 10

Note: Student should submit two portfolios with colour rendering for internal evaluation.

EXAMINATION PATTERN				
MID SEM - I EXAM (Duration of exam : 3 Hours)				
		PART A	**PART B**	**Total Marks**
Marks/Question		4 Marks each	12 Marks	20 Marks
No. of Questions		2/2 Questions	1/1 Question	
S.No.	**Unit No.**	**U**	**A**	**Remarks**
1	UNIT I	1,2	3	Plan-08 marks Elevation-04 marks
Total Questions		2	1	
Total Marks		**8**	**12**	**20 Marks**
MID SEM - II EXAM (Duration of exam : 3 Hours)				
1	UNIT II	1,2	3	Plan-08 marks Elevation-04 marks
Total Questions		2	1	
Total Marks		**8**	**12**	**20 Marks**
SEMESTER END EXAMINATION (Duration of exam : 6 Hours)				
		PART A	**PART B**	**Total Marks**
Marks/Question		4 Marks each	24 Marks	40 Marks
No. of Questions		4 Questions	1/1 Question	
S.No.	**Unit No.**	**U**	**A**	**Remarks**
1	UNIT I	1,2	5	Plan-10 marks Elevation-04 marks
2	UNIT II	3,4		Section - 06 marks Site plan -04 marks
Total Questions		4	1	
Total Marks		**16**	**24**	**40 Marks**
For subjects18 AA- 307P, 407P				

C18-AA-307C

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM - I EXAMINATION (C-18)

C18 AA 307C - ARCHITECTURAL DESIGN

Time: 3 hours Max.Marks 20

Part A 2x4=8marks

Note : Answer all the questions. Each question carries four marks.

1. Draw a flowchart of a two bedroom residence
2. State the importance of cross ventilation in a residence with neat sketches.

Part B 12marks

3. Design of a duplex residence:

An architect wishes to build a residence for himself in a residential colony. The plot measures 25mx30m with a 12m wide road on short northern side. Design the residence as a duplex house reflecting the taste and style of the architect.

Functional requirements:

a. Ground floor:

1.	Portico for two cars		As per design requirements
2.	Living cum dining hall		4mx8m
3.	Kitchen		3mx3m
4.	Grandparents' bedroom		4mx4m
5.	Attached toilet		1.5mx2.4m
6.	Common toilet		1.5mx2.4m

b. First floor:

1.	Master bedroom		4mx4m
2.	Children's bedroom		3.5mx4.0m
3.	Attached toilets	2 nos	1.5mx2.4m each

Additional functions like sit outs, terraces, balconies, pooja room, study room, home theatre etc may be provided as per your concept.

Drawing requirements:

A.	Floor plans	1:50	8marks
B.	Front elevation	1:50	4marks.

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM - iI EXAMINATION (C-18)

C18 AA 307C - ARCHITECTURAL DESIGN

Time: 3 hours Max.Marks 20

Part A 2x4=8marks

Note : Answer all the questions. Each question carries four marks.

1. Draw a flowchart of a restaurant
2. State the importance of orientation in architecture with neat sketches.

Part B 12marks

3. Design of an architect's office:

An architect wishes to build a office for himself. The plot measures 25mx30m with a 12m wide road on short northern side. Design the office reflecting the taste and style of the architect.

Functional requirements:

1.	Portico for two cars	As per design requirements
2.	Reception with waiting	6mx8m
3.	Chief architect's room	4mx4m
4.	Attached toilet	1.5mx2.4m
5.	Common toilet	1.5mx2.4m
6.	Structural engineer's room	4mx4m
7.	Attached toilets	1.5mx2.4m
8.	CAD studio	8mx12m
9.	Printing room	3mx3m
10.	Dining room	3mx3m
11.	Kitchenette	2mx2m

Additional functions like sit outs, terraces, balconies, library room etc may be provided as per your concept.

Drawing requirements:

A.	Floor plan	1:50	8marks
B.	Front elevation	1:50	4marks.

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA END SEMESTER EXAMINATION (C-18)
C18 AA 307C - ARCHITECTURAL DESIGN

Time: 6 hours Max Marks:40

Part A 4x4=16marks

Note : Answer all the questions. Each question carries four marks.

1. Draw a flowchart of a two bedroom residence
2. State the importance of cross ventilation in a residence with neat sketches.
3. Draw the flowchart of a restaurant
4. State the importance of orientation in architecture.

Part B 24 marks

5. Design of a duplex residence:

An architect wishes to build a residence for himself in a residential colony. The plot measures 25mx30m with a 12m wide road on short northern side. Design the residence as a duplex house reflecting the taste and style of the architect.

Functional requirements:

a. Ground floor:

1.	Portico for two cars	As per design requirements
2.	Living cum dining hall	4mx8m
3.	Kitchen	3mx3m
4.	Grandparents' bedroom	4mx4m
5.	Attached toilet	1.5mx2.4m
6.	Common toilet	1.5mx2.4m

b. First floor:

1.	Master bedroom		4mx4m
2.	Children's bedroom		3.5mx4.0m
3.	Attached toilets	2 nos	1.5mx2.4m each

Additional functions like sit outs, terraces, balconies, pooja room, study room, home theatre etc may be provided as per your concept.

Drawing requirements:

A.	Floor plans	1:50	12marks
B.	Front elevation	1:50	4marks.
C.	Section	1:50	4marks
D.	Site Plan	1:100	4marks

MODEL MAKING LAB

Course Title	**Model Making Lab**	Course Code	**18 AA -308 P**
Semester	**III**	Course group	**core**
Teaching Scheme in Hrs (L:T:P)	**1:0:2**	Credit	**1.5**
Type of course	**Lecture + models preparation**	Total Contact Hours	**45**
CIE	**60 marks**	SEE	**40 marks**

Pre requisites

This course requires the basic knowledge of model making materials and craft skills.

Course Outcomes

Course Outcomes	
CO1 :	Interpret and select model making materials
CO2 :	Understand the basic geometrical models to relate with architectural forms
CO3:	Develop models of building components
CO4 :	Compose model space with various geometrical forms
CO5 :	Prepare scale down models to demonstrate skill, workmanship, preciseness to enhance visualization of drawings to reality (Model).

Time Schedule		
Unit No	**Unit Name**	**Hour**
1	Introduction	3
2	Tools and Materials	3
3	Geometrical Planes and Solids	6
4	Construction Models	12
5	Architectural Models	15
6	Block models	6
	Total	45

Course Contents

Unit 1: Introduction **Duration: 3 hours(L: Studio:**

Introduction to models and model making-clay, plaster of paris, plywood, veneer, thermocol, mount board, hard board, hand made sheets, etc.

Unit 2: Tools and materials **Duration: 3 hours(L: Studio:**

Different materials used for the representation of components and surroundings of building like
sticks, sponge, sand paper, cork sheets and any other available materials and tools. .

Unit 3: Geometrical planes and solids **Duration: 6 hours(L: Studio:**

Prepare models of Cube, Cylinder, Cone, Pyramid, Prism .

Unit 4: Construction models **Duration: 12 hours(L: Studio:**

Prepare the models of Building components like columns, decorative works, jail works, staircase, doors and windows.

Unit 5: Architectural models **Duration: 15 hours(L: Studio:**
Prepare models of architectural forms by combining more than three forms

Unit 6: Block models **Duration: 6 hours(L: Studio:**
Prepare scale down model of simple building (block model).

Specific Learning Outcomes

1. Recognize the importance of models in the field of architecture.
2. Understand and use the technique of model making.
3. Identify suitable tools and materials for different types of models.
4. Prepare models of artistic merit and crafts manship.
   Prepare models of geometrical shapes and Block model of simple building

Suggested Student Activities

1. Preparing models of various types as listed in the Exercises.

Assignments/ Exercises

1. Models of different Plane figures.
2. Models of solids like cube, cuboid, cone cylinder,etc
3. Models of multiple blocks.
4. Models of furniture pieces.
5. Models of component parts of a building.
6. Block model of a building.
7. A model of a small house.

Recommended Books

1. The Graphic arts studio Manual-Bert Braham
2. Architectural model making – Nick Dunn
3. Model Making: A Basic Guide – Martha Sutherland
4. Professional model making: A Handbook of Techniques& Materials – Norman Tru

Suggested E learning Resources.:

1. En.wikipedia.org/wiki/model_building
2. https://www.amazon.com/Architectural-Modelmaking-Nick-Dunn/dp/1780671717
3. https://www.amazon.com/Model-Making-Professional-Architects.../dp/0393730425

5. https://www.amazon.in/Model-Making-Architecture-Brief-Werner/dp/1568988702
6. https://www.amazon.com/slp/model-making/x9fwj7s56kqa3pa
7. ttps://www.amazon.in/Professional-Modelmaking-Techniques.../dp/0823040984

C18-AA-308P

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM -I EXAMINATION (C-18)
C18-AA-308P, MODEL MAKING LAB PRACTICE

Time : 1-1/2 hours Max.Marks: 20

Instructions: 1.Answer any one question .
2.Each question carries 20 marks.

1. Prepare a model of a cube of 6 cms.
2. Prepare a model of a cuboid of 8 cm.x 6 cm. x 5 cm.
3. Prepare a model of a pyramid of base 6 cm. side.
4. Prepare a cylinder of size 4 cm. radius base and 10 cm. height.

C18-AA-308P

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM II EXAMINATION (C-18)
C18-AA-308P, MODEL MAKING LAB PRACTICE

Time : 1-1/2 hours Max. Marks: 20

Instructions: 1.Answer any one of the questions .
2.Each question carries twenty marks.

Prepare models with suitable materials and scale of 1:25 any one of the following::

a) Ice cream parlour b) Exhibition Stalls
c) Watchman's cabin d) Compound wall
e) Garden pavilion f) Telephone Booth

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING.
BOARD DIPLOMA END SEMESTER EXAMINATION, (C18)
C18-AA-308P, MODEL MAKING LAB PRACTICE

Time: 3 hours Max. Marks: 40

Instructions: 1.Answer any one question .
2.Each question carries forty marks.

TYPICAL QUESTIONS FOR END EXAMINATION:

1. Prepare geometrical planes out of mount board, square, Rectangle, Regular polygon, Circle, Trapezium, Triangle, Parallelogram.

2. Prepare geometrical solids out of mount board, cube, cuboid, prism, core, cylinder, pyramid.

3. Prepare different types of brickbats out of mount board or chamanlal sheet.

4. Prepare an arranged layout of English Bond in brick wall, 1,3,5--- and 2,4,6--- courses Scale 1:10.

5. Prepare an arranged layout of Flemish bond in brick wall 1,3,5,--- and 2,4,6 --- courses, Scale 1:10.

6. Prepare a rat trap bond with mount board – Scale 1:10

7. Models with suitable materials and the scale of 1:25 any four

   a) Ice cream parlour b) Exhibition Stalls
   c) Watchman's cabin d) Compound wall
   e) Garden pavilion f) Telephone Booth.

8. Models with suitable materials and suitable scale

   a) Single bed roomed residence
   b) Double bed roomed residence
   c) A G+1 residential building.

9. Prepare trees out of Sponge, wire and suitable materials, which are available in the market.

10. Prepare models of cars, human figures, lampposts, railings, lawns, fountain, pools, Sculpture, furniture. Etc to be used together with architectural models.

Note: Materials –Foam sheet, Mount board, Ivory sheet, Thermo coal, Card – boards and any other suitable material.

SCHEME OF EVALUATION

S.no.	Performance	Max. Marks
1.	Development of given 2D sketch	5
2.	Preparing model	20
3.	Applying suitable texture	5
4	Viva-voce	10
	TOTAL	**40**

BASIC CAD LAB PRACTICE

Course Title	**BASIC CAD LAB PRACTICE**	Course Code	**18AA-309P**
Semester	**III**	Course group	**Core**
Teaching scheme in Hrs (L:T:P)	**0:0:3**	Credits	**1.5**
Type of Course	**Practice**	Total Contact Hours	**45**
CIE	**60 marks**	SEE	**40 marks**

Pre requisites

This course requires the basic knowledge of Basic knowledge of drawing and architectural design

Unit No	**Unit Name**	**Hour**	**Questions to be set for SEE**		**Assessment procedure**
			Short questions (1 mark each)	**Practical (30 marks)**	
1	AutoCAD Commands	18	10	1	1. Theory questions on commands used carry one mark each – 10marks 2. Actual drawing in a printout is evaluated for quality of presentation- 20 marks 3. Viva to assess the correct use of commands while executing the drawing- 10 marks 4. Internal assessment is based on the portfolio of works to be submitted at the end of the semester.
2	2D figures-engineering objects	09			
3	2D figures-architectural graphics	09			
4	2 D figures-architectural plans	09			
	Total	45	10	30	

Course Outcomes

Upon completion of the course the student will be able to

CO1 :	Use AutoCAD commands individually and in combination to generate simple graphics
CO2 :	Draw engineering objects 2D
CO3 :	Draw architectural graphics 2D
CO4	Draw architectural plans 2D

Course Contents

Unit 1: AutoCAD commands

Draw lines, arcs, circles, rectangles, ellipses, regular polygons, polylines, points, infinite lines, construction lines, x lines, single and multiline text

Layers, object properties, drafting settings dialogue box, modes, object snaps, control and function keys

Move, copy, multiple copy, single copy, offset, rotate, scale, fillet, chamfer, trim, extend, stretch, lengthen, array-rectangular and polar, mirror, text mirroring.

Grips, Design centre, zoom, pan, properties palette, match properties

Annotative objects, annotative scale, assigning annotative scales and properties, customizing annotative scale. Multiple annotative scales, text, edit text, tables

Need for dimensioning, dimension line, dimension text, arrow heads, extension lines, leader, centre mark, centerlines, alternate units, tolerances, limits, associative dimensions, definition points, dimension commands, ribbon, toolbar, command line usage, dimensioning many objects together.

Unit 2: Engineering objects

Draw simple engineering objects like 2D planes, orthographic projections of engineering objects

Unit 3: Architectural graphics

Draw architectural graphics like chairs, dining tables, sofas, wardrobes, dressing mirror, kitchen shelves, display shelves, etc

Unit4: Architectural plans

Draw architectural plans of single room, double room and multiple room buildings with furniture layouts.

Recommended Books:

1. Engineering drawing with AutoCAD , T. Teyapoovan
2. Inside AutoCAD, Parker, Daniel, Rice, Habert1. AutoCAD Reference Guide: Everything You Wanted to Know about AutoCAD--Fast! By Dorothy Kent
3. Arshad N Siddique, ZahidKhab, Mukhtar Ahmed- Engineering Drawing with CADD

Specific Learning Outcomes

1.0 AutoCAD Commands

1.1 Use all the draw commands in AutoCAD
1.2 Use layers concept in creation of drawings
1.3 Use object properties concept
1.4 Use drafting settings dialogue box
1.5 Use different modes and object snaps
1.6 Use Control and function keys
1.7 Use all the edit commands
1.8 Use of grips
1.9 Use of the Design centre
1.10 Use Zoom and pan
1.11 Use annotation scale and objects
1.12 Create and edit text
1.13 Insert and modify tables
1.14 Understand the concept of dimensioning in AutoCAD
1.15 Use the dimensioning styles
1.16 Edit dimensions

2.0 Engineering objects

2.1 Draw simple engineering objects like 2D planes,
2.2 Orthographic projections of engineering objects

3.0 Architectural graphics

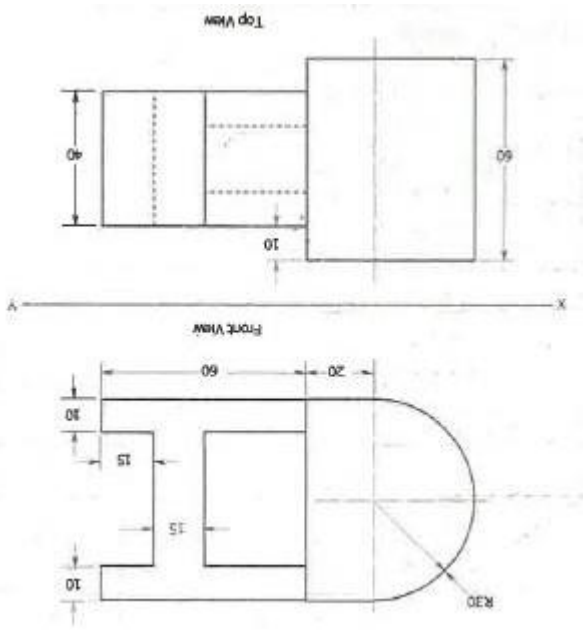
3.1 Draw architectural graphics like chairs,
3.2 Dining tables,
3.3 Sofas,
3.4 Wardrobes,
3.5 Dressing mirror,
3.6 Kitchen shelves,
3.7 Display shelves, etc

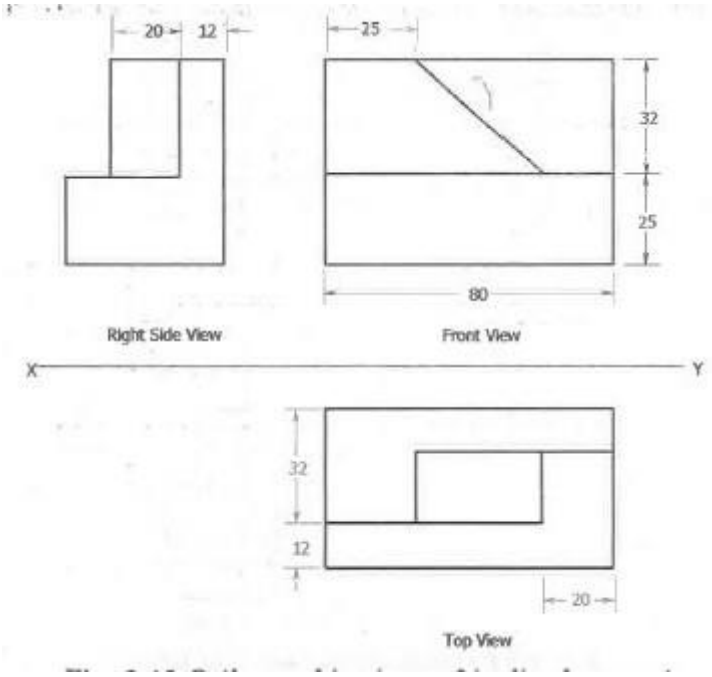
4.0 Architectural plans

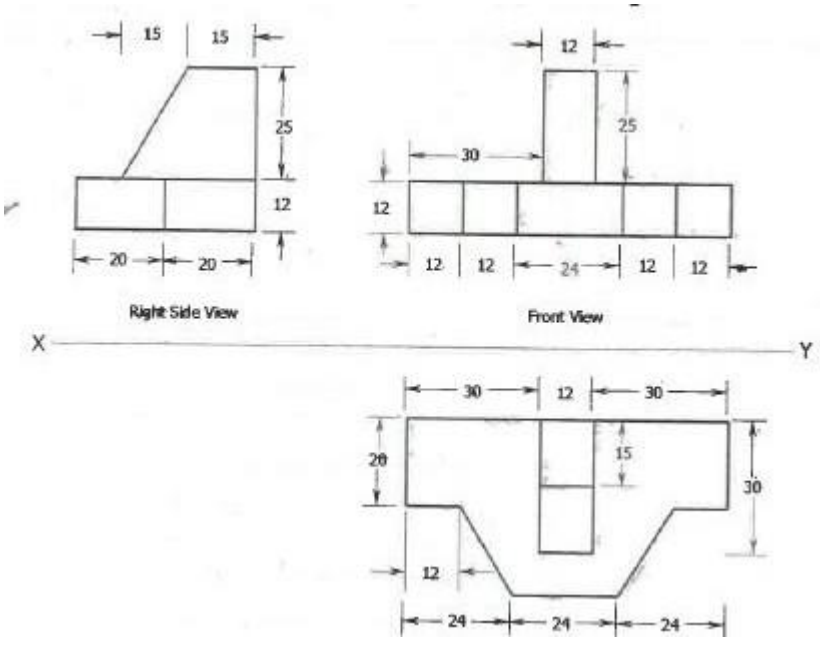
4.1 Draw architectural plans of single room,
4.2 Double room and
4.3 Multiple room buildings with
4.4 Furniture layouts.

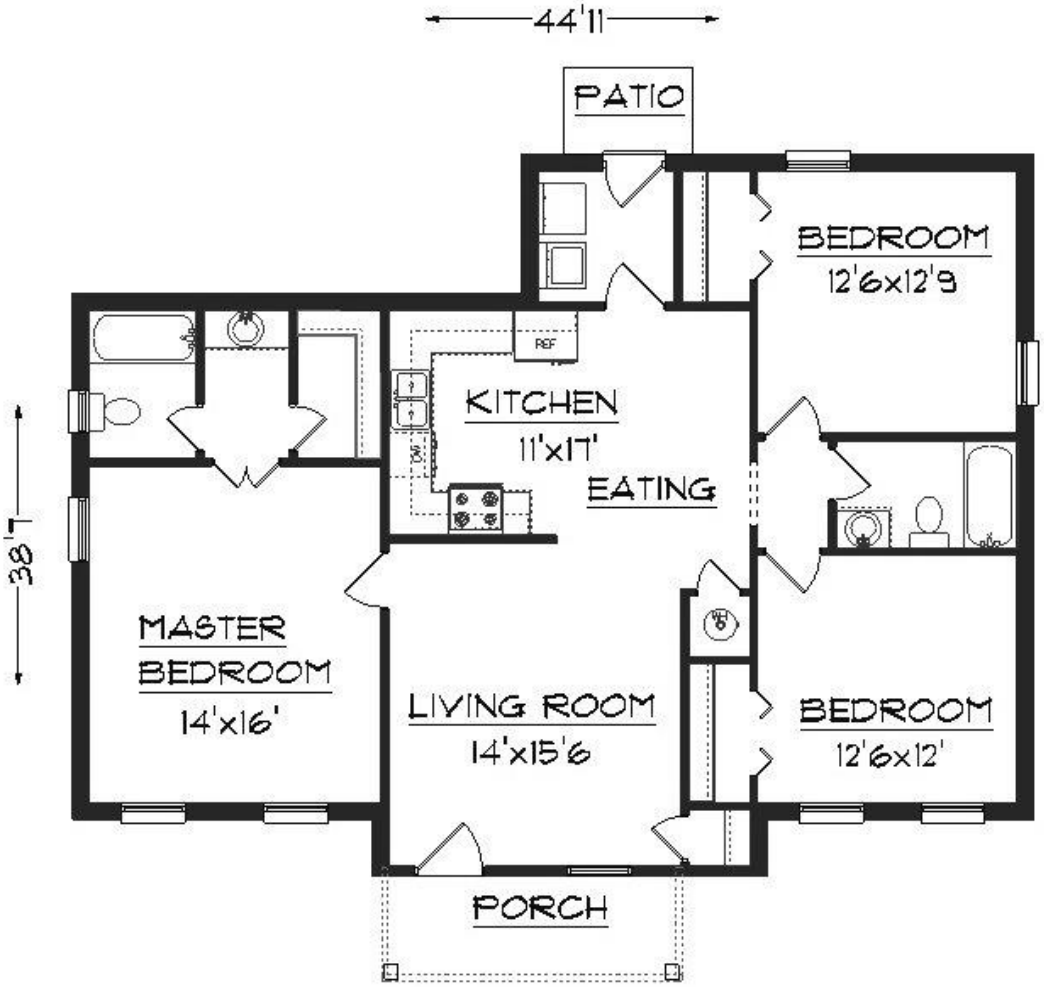
Suggested Student Activities

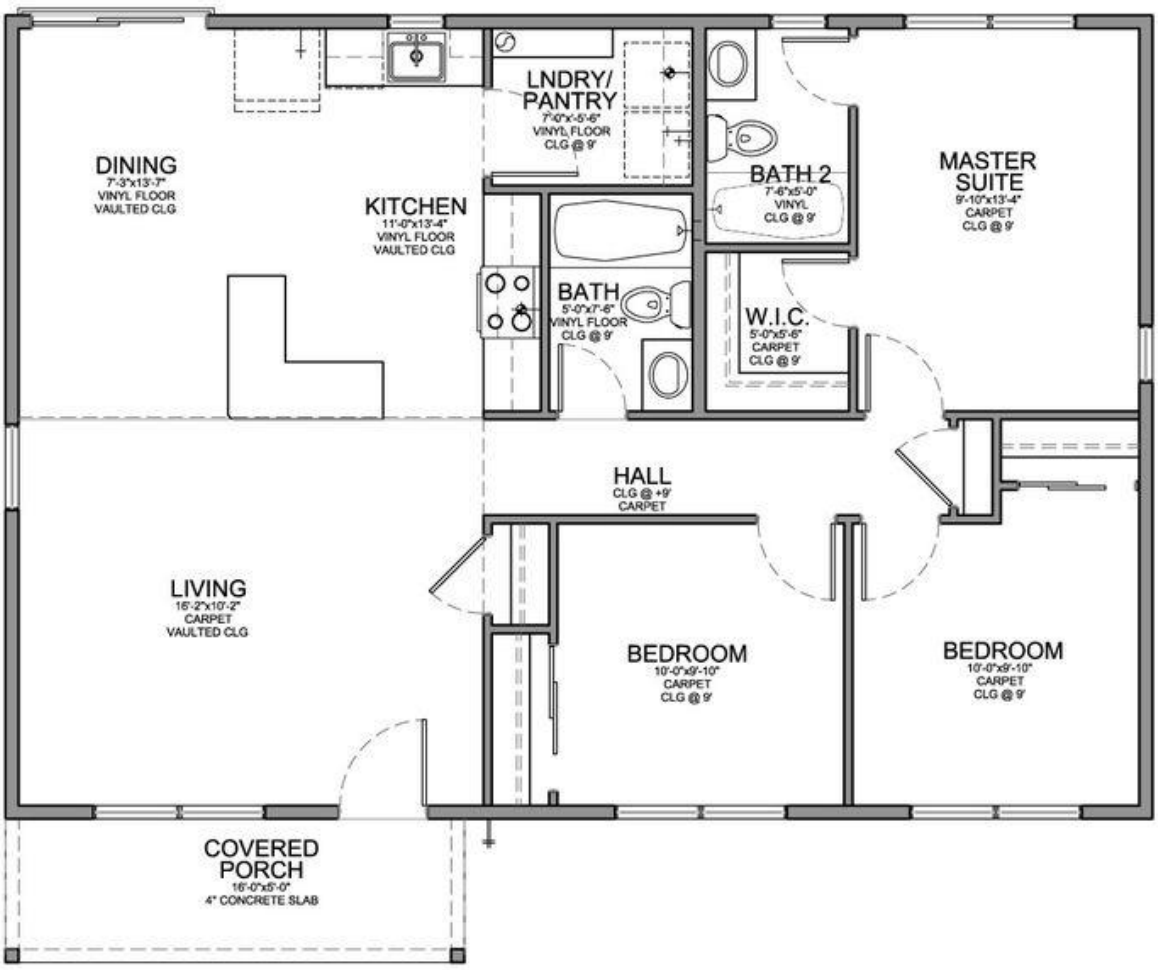
1. Refer to Google images and refer to drawings on internet
2. Refer to AutoDesk website for user forums.
3. Refer to design centre for library of drawings on furniture, landscape and interior design tools..




20
12
25
32
25
80
Right Side View
Front View
X
Y
32
12
20
Top View


15
15
25
12
20
20
Right Side View
12
25
30
12
12
12
24
12
12
Front View
X
Y
30
12
30
20
15
30
12
24
24
24


44'11
PATIO
BEDROOM
12'6x12'9
REF
KITCHEN
11'x17'
EATING
38'7
MASTER
BEDROOM
14'x16'
LIVING ROOM
14'x15'6
BEDROOM
12'6x12'
PORCH



Suggested E learning Resources.:

1. https://www.youtube.com/watch?v=BAiiV4PIiZ0/
2. https://www.bing.com/videos/search?q=AutoCAD+2010+Architecture&&view=detail&mid=D3C2F41AD2173F3F
3. BC1DD3C2F41AD2173F3FBC1D&FORM=VRDGAR/
4. www.cadtutor.net/tutorials/autocad/drawing-objects.php/
5. http://www.faveodesign.co.uk/CAD_Drawings.html
6. http://cad.about.com/od/Learn_CAD/a/The-Fundamentals-Of-Drafting.htm
7. http://transport.itu.edu.tr/PDF/iml332e/Fundamentals%20of%20CAD.pdf

CO-PO Mapping

	COURSE OUTCOME	CL	Linked PO
CO1	Use AutoCAD commands individually and in combination to generate simple graphics	R/U/A	1,2,3,4,8,9,10
CO2	Draw engineering objects 2D	R/U/A	2,3,4,8,9,10
CO3	Draw architectural graphics 2D	R/U/A	2,3,4,8,9,10
CO4	Draw architectural plans 2D	R/U/A	2,3,4,8,9,10

CO /PO Mapping Matrix

	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering tools	Engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Lifelong learning	
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
CO1	x	x	x	x				x	x	x	1,2,3,4,8,9,10
CO2		x	x	x				x	x	x	2,3,4,8,9,10
CO3		x	x	x				x	x	x	2,3,4,8,9,10
CO4		x	x	x				x	x	x	2,3,4,8,9,10

Note:

1. **A lab manual is to be prepared for students to do the exercises.**
2. **The lab should be equipped with all hardware including A4 black and white printer**
3. **The lab should have original software of AutoCAD latest release in all systems**

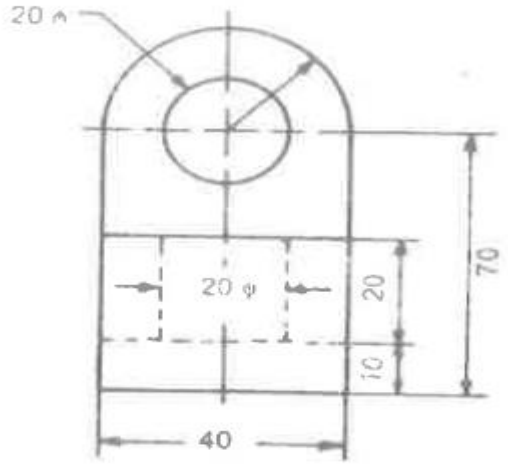
C18-AA-309P

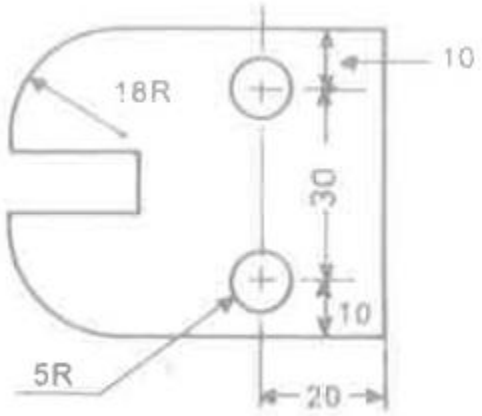
MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM - i EXAMINATION (C-18)
C18 AA 309P BASIC CAD LAB PRACTICE

Time: 1 ½ hours Max marks:20

1. Redraw the following figures in AutoCAD.





C18-AA-309P

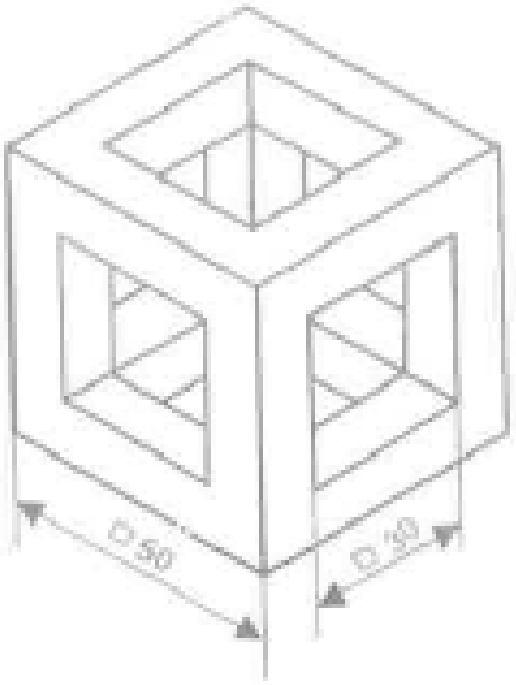
MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA MID SEM – II EXAMINATION (C-18)

C18 AA 309P BASIC CAD LAB PRACTICE

Time: 1 ½ hours Max marks:20

1. Redraw the following figures in AutoCAD.



C18-AA-309P

MODEL QUESTION PAPER

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
BOARD DIPLOMA END SEMESTER EXAMINATION (C-18)

C18 AA 309P BASIC CAD LAB PRACTICE

Time: 3 hours Max marks:40

1. Redraw the following figure in AutoCAD



Communication Skills and Life Skills

Course Title	**Communication Skills and Life Skills**	Course Code	**18AA- 310 P**
Semester	**III**	Course Group	**Foundation**
Teaching Scheme in Periods- L: T:P	**1:0:2**	Credits	**1.5**
Methodology	**Lecture + Practical**	Total Contact Hours	**45 Periods**
CIE	**60 Marks**	SEE	**40 Marks**

Rationale:

This course is designed to impart communication skills and life skills to the students of diploma which will help them a great deal in personal and professional fronts.

Prerequisites:

This course requires the basic knowledge of vocabulary, grammar, and four language learning skills, viz. Listening, Speaking, Reading and Writing.

Course Outcomes:

	At the end of the course the students will have the ability to:
Listening Skills	Identify the main or the central idea. Listen for specific details. Learn the pronunciation.
Communication Skills – I	Learn relevant vocabulary to make introductions. Learn to introduce oneself in formal and informal situations. Learn vocabulary and expressions useful for describing objects Describe objects
Communication Skills – II	Learn vocabulary to talk about the past Describe the incidents that happened in the past Learn the techniques of organising the matter / content for one-minute speech. Speak fluently and accurately using appropriate body language.

Life Skills – I	Think positively. Develop positive attitude. Overcome negative attitude. Know the importance of setting goals. Set the goals using SMART features.
Life Skills – II	Know the reasons for a problem. Learn to avoid problems. Learn the various techniques to solve the problems. Learn to make proper decisions on time. Think 'out of the box'. Learn to be creative. Think innovatively. Think critically.
Life Skills – III	Know how to be a leader. Learn the qualities of a good leader. Learn the qualities of a good team. Learn the advantages and disadvantages of a team. Manage time effectively. Learn the various time management techniques. Learn the importance of prioritisation.

Course Contents:

I. Listening Skills **Duration: 9**

1. Listening – I
    - Digital Camera
    - A Dialogue
    - Wild Animal / Human conflict
2. Listening – II
    - A Recipe
    - A Telephone conversation
    - An Interview

II. Communication Skills – I **Duration:6**

3. Introducing Oneself
4. Describing Objects

III. Communication Skills – II **Duration:6**

5. Talking About the Past
6. Just A Minute

IV. Life Skills – I **Duration:6**

7. Attitude
8. Goal Setting

V. Life Skills – II **Duration:9**

9. Problem Solving and Decision-Making Skills

10. Critical Thinking & Creativity

VI. Life Skills – III **Duration:9**

11. Leadership and Teamwork
12. Time Management

Suggested Student Activities:

1. Listening Comprehension
2. Seminars
3. Paper Presentations
4. Line ups for introducing oneself
5. Describing persons / places / things
6. Picture description
7. Role Plays
8. Dumb charades
9. What is in the bag? (Identify the objects)
10. Games using Online Dictionaries
11. Sharing the information using emails, chats and groups
12. Just A Minute
13. Writing diary events
14. Find a solution to the problem
15. Making innovative things through recycling
16. Creating advertisements
17. Five-minute activities on Life Skills
18. Watching videos on life skills and making presentations
19. Case studies

References:

Flint, Chrisand Jamie Flockhart*Listening: A2 (Collins English for Life: Skills)*Collins. 2013

Brown, Stephen E. English in Everyday Life. McGraw-Hill Education.2008

Mohanraj, Jayashree. *Let Us Hear Them Speak: Developing Speaking-Listening Skills in English*.Sage. 2015

Susan Earle – Carlin. *Q Skills for Success: Listening and Speaking 5: Student Book with Online Practice*. Oxford University Press. 2013

Kumar, Sanjay and Pushpa Latha. *Communication Skills: A Work Book*.Oxford University Press. 2018

Carnegie, Dale.*The Leader in You*. Simon & Schuster: 1995

Carnegie, Dale.*The Art of Public Speaking*. Prabhat Prakashan. NewDelhi.2013

Kaye, Martin. *Goal Setting (Workbook Included): Goals & Motivation: Introduction To A Complete & Proven Step-By-Step Blueprint For Reaching Your Goals (Goal Setting Master Plan 1).* Kindle Edition. MK Coaching.2016.

West, Steven. *Critical Thinking Skills: Practical Strategies for Better Decision making, Problem-Solving and Goal Setting.* Kindle Edition.2018

Tracy, Brain. *Goals*. Berret-Koehler PublishersInc. San Francisco. 2017

Tracy, Brain. *Master your Time Master your Life.* Penguin Random House Inc. New York. 2017

Sean Covey . *The 7 Habits of Highly Effective Teens.* Simon and Schuster,2011

E-Learning Resources:

http://www.bbc.co.uk/worldservice/learningenglish/youmeus/learnit/learnitv39.shtml

https://www.examenglish.com/leveltest/listening_level_test.htm

https://www.oxfordonlineenglish.com/listening?utm_referrer=https%3A%2F%2Fwww.google.co.in%2F

https://takeielts.britishcouncil.org/prepare-test/free-ielts-practice-tests/listening-practice-test-1

https://learnenglish.britishcouncil.org/en/listening

https://www.cambridgeenglish.org/learning-english/activities-for-learners/?skill=listening

https://www.businessenglishsite.com/business-english-listening.html

CO-PO Matrix

	Course Outcome		Linked PO
CO 1	Listening for main idea and specific details	**R/U/A**	**1, 2, 3, 4, 5,7,8, 9,10**
CO 2	Introduce oneself and Describe Objects	**R/U/A**	**1,2,3,8,9,10**
CO 3	Talk about the past and speak fluently for one minute	**R/U/A**	**1,2,3,7,8.9,10**
CO 4	Develop positive attitude and set short term and long term goals	**R/U/A**	**1,2,3,7,8,9,10**
CO 5	Learn to solve a problem, make decisions and think innovatively	**R/U/A**	**1,2,3,7,8,9,10**
CO6	Learn to become a good team member and leader	**R/U/A**	**1,2,3,7,8,9,10**

Evaluation Pattern:

I. Continuous Internal Examination: 60 Marks

a. **MidSem- I (Oral & Individual)** 20 marks
Syllabus:
i. Listening Skills
ii. Communication Skills - I

b. **Mid Sem – II (Written)** 20 Marks
Syllabus:
i. Communication Skills - II
ii. Life Skills - I

c. **Internal assessment**: 20 marks

i. Seminars: 10 marks
ii. Assignments and Lab record submission: 10 marks

II. Semester End Examination : 40 Marks

a. Listening: 5 Marks
b. *Viva Voce* or JAM or Role plays : 10 Marks
c. An activity on life skills topics : 25 Marks

BOARD DIPLOMA EXAMINATION (C-18)

THIRD SEMESTER 18 COMMON-310P

COMMUNICATION SKILLS AND LIFE SKILLS

MID SEM - I

Time : 1 Hour **Total Marks: 20 Marks**

Part – A **10 marks**

1. Listening Comprehension: 5 X 2 = 10

(Teacher should give the questions before reading the passage given below)

Florence Nightingale was an English social reformer and a statistician, and the founder of modern nursing. She was born in Florence, Italy, on May 12, 1820. Part of a wealthy family, Nightingale defied the expectations of the time and pursued what she saw as her God-given calling of nursing during the Crimean War. She and a team of nurses improved the unsanitary conditions at a British base hospital, greatly reducing the death count. Her writings sparked worldwide health care reform, and in 1860 she established St. Thomas' Hospital and the Nightingale Training School for Nurses. A revered hero of her time, she died on August 13, 1910, in London. Nightingale came to prominence while serving as a manager and trainer of nurses during the Crimean War, in which she organized care for wounded soldiers. She gave nursing a favourable reputation and became an icon of Victorian culture, especially in the persona of "The Lady with the Lamp" making rounds of wounded soldiers at night.

Questions:

1. Who was Florence Nightingale?
2. When and where was she born?
3. What does the passage convey?
4. When did she pass away?
5. Where did she establish nursing school?

PART- B **10 Marks**

Instruction: Answer any one of the questions in 150 words.

2. How do you introduce yourself formally in an interview?
3. Describe your polytechnic.

BOARD DIPLOMA EXAMINATION (C-18)

THIRD SEMESTER 18 COMMON-310P

COMMUNICATION SKILLS AND LIFE SKILLS

MID SEM - II

Time : 1 Hour **Total Marks: 20 Marks**

Part – A **10 marks**

Instruction: Answer any one of the following questions in 150 words.

1. Describe how you have spent your summer vacation.

2. What are the features of good JAM presentation? What precautions do you before speaking for one minute on the given topic?

Part – B **10 marks**

Instruction: Answer any one of the following questions in 150 words.

3. What is positive attitude? Give examples of positive attitude from your life.

4. Mention your long term goal with SMART features. How do you achieve it?

BOARD DIPLOMA EXAMINATION (C-18)
THIRD SEMESTER 18 COMMON-310P
COMMUNICATION SKILLS AND LIFE SKILLS
SEMESTER END EXAM

Time : 3 Hours **Total Marks: 40 Marks**

Part – A **10 marks**

1. Listen to the following passage and answer the questions give below it**. 5 X 2 = 10**

(Teacher should give the questions before reading the passage)

Answer the following questions after teacher reads the following paragraph.

Prof. Jayashankar was born to Mahalaxmi and Laxmi Kantha Rao on 6th August 1934 in Akkampet village, Warangal District. He was a Doctorate in Economics. He worked as a Vice-Chancellor of Kakatiya University. He worked in many capacities. He was popularly known as "Pedda Sir." He inspired many a people to fight for the cause of Telangana Statehood.

At the age of twelve, Jayashankar refused to sing songs in praise of the Nizam and insisted on singing Vande Mataram instead. As an intermediate student, in 1952, he protested against State Reorganization Committee plan to merge with the Andhra Rashtra. He took an active part in the agitations of "Non – Mulki go back" and " Idli Sambar go back." He took an active part in Telangana separate statehood agitation in 1969 too. In 1999, Prof. Jayashankar started the Telangana Development Forum in the USA which helped to propagate the injustice, discrimination and exploitation meted out to Telangana region and people in the aspects of employment, funds and water resources. He relentlessly put his efforts to end the struggle of Telangana people. He passed away on June 21, 2011. He was 76 years old at the time of his death.

Questions:

1. Where was Prof. Jayashankar born?
2. Why didn't he sing songs in praise of the Nizam?
3. Why did Jayashankar start the Telangana Development Forum in USA?
4. What are the two agitations in which he took an active part?
5. What is the meaning of 'relentlessly'?

Part – B **15 marks**

2. JAM / Role Plays

Part – C **15 marks**

3. Viva Voce on Life Skills topics