CURRICULAM - 2018

C -18

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP

STATE BOARD OF TECHNICAL EDUCATION & TRAINING

TELANGANA STATE, HYDERABAD

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

FIRST SEMESTER

`	Course Code	Course Name	Teaching Scheme					Examination Scheme						
			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 Sem II	Sesionals	Max marks	Min marks		
		THEORY SUBJECTS												
1	18AA-101F	Basic English	3	1	0	60	3	20	20	20	40	15	100	35
2	18AA-102F	Basic Engineering Mathematics	3	1	0	60	3	20	20	20	40	15	100	35
3	18AA-103F	Basic Physics	3	1	0	60	3	20	20	20	40	15	100	35
4	18AA-104F	General Engineering Chemistry	3	1	0	60	3	20	20	20	40	15	100	35
5	18AA-105C	Building Materials	3	1	0	60	3	20	20	20	40	15	100	35
		DRAWING SUBJECTS												
6	18AA-106P	Engineering Drawing practice	1	0	2	45	1.5	20	20	20	40	20	100	50
7	18AA-107P	Basic Design	1	0	2	45	1.5	20	20	20	40	20	100	50
8	18AA-108P	Free Hand Drawing	1	0	2	45	1.5	20	20	20	40	20	100	50
		PRACTICAL SUBJECTS												
9	18AA-109P-A+B	Basic Science Lab Practice	1	0	2	45	1.5	20	20	20	40	20	100	50
10	18AA-110P	Computer Fundamentals Lab Practice	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	20	5	17	630	**25**	200	200	200	400	175	1000	425
	Activities: student performance is to be assessed through Rubrics													

Department of Technical Education

State Board of Technical Education & Training, Telangana

Course Title :Basic English	**Course Code : 18AA-101F**
Semester : I	**Course Group : Foundation**
Teaching Scheme in Periods (L:T:P:) : 36:24:0	**Credits : 3**
Type of Course : Communicative Language Teaching + Assignments	**Total Contact Hours : 60 periods**
CIE : 60 % Weightage	**SEE : 40 % Weightage**

Prerequisites: Basic knowledge of English Language

COURSE OUTCOMES

	At the end of the course the students will have the ability to:
101.1	acquire vocabulary for social interaction
101.2	listen and reciprocate appropriately
101.3	analyse and evaluate the written material
101.4	convey ideas in the form of letters
101.5	express feelings and make requests
101.6	speak and write grammatically correct sentences

CO-PO Matrix

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	Mapping POs
101.1	2	1	1	-	-	2	-	3	3	3	1,2,3,6,8,9,10
101.2	2	2	--	2	--	2	--	3	3	3	1,2,4,6,8,9,10
101.3	2	2	--	--	1	1	2	3	3	3	1,2,5,6,7,8,9,10
101.4	2	2	2	--	2	1	2	3	3	3	1,2,3,5,6,7,8,9,10
101.5	2	2	--	--	2	--	2	3	3	3	1,2,5,6,7,8,9,10
101.6	2	2	--	--	--	--	--	3	3	3	1,2,8,9,10

COURSE CONTENT AND BLUE PRINT OF MARKS FOR SEE

S.No	Unit Name	Period	Questions to be set for SEE			Marks Weightage	Weightage %
			R	U	A		
1	Speaking	8	3	1	0	11	10.00%
2	Listening	3	2	0	0	4	3.63%
3	Vocabulary	5	2	1	0	9	8.18%
4	Reading	6	0	2	0	10	9.09 %
5	Grammar	14	3	1	1	21	19.09%
6	Writing	24	0	1	5	55	50.00%
	Total	60	10	6	6	110 marks	100

Legend: R; Remembering, U: Understanding A: Applying

COURSE CONTENTS

UNIT – 1 SPEAKING **Duration: 8 Periods**

1. Need For English
2. Classroom English
3. Expressing Feelings
4. Expressing Likes & Dislikes
5. Making Requests

UNIT - 2: LISTENING **Duration: 3 Periods**

6. Describing Words

UNIT –3: VOCABULARY **Duration: 5 Periods** 7.

How to use a Dictionary

8 Words Often Confused

UNIT - 4: READING **Duration: 6 Periods**

9 The Mighty Mountain and Little Lads of Telangana

10 The Adventures of Toto

11 Tiller turns Engineer - An Innovation

UNIT -5: GRAMMARDuration: 14 Periods

12. Tenses

13. Basic Sentence Structures

14. Voice

15. Asking Questions

UNIT- 6: WRITINGDuration: 24 Periods

16. Paragraph Writing - I

17. Paragraph Writing - II

18. Letter Writing – I

19. Letter Writing – II

Suggested Learning Outcomes:

On completion of the course the students will be able to:

- express feelings, likes and dislikes and make requests
- use describing words, dictionary and distinguish confusing words.
- read, comprehend and answer the questions
- use appropriate tenses, voices, structures and ask questions
- write paragraphs and letters.
- communicate fluently

Internal evaluation

Test	Units	Marks	Pattern
Mid Sem 1	Speaking: 1,3 Listening: 0 Vocabulary:7 Reading:9	20	Part A 5 Short answer questions Part B 2 Essay questions out of 3 Questions Part C 2 Essay questions out of 3 Questions

	Grammar:12,15		
Mid Sem 2	Speaking: 2,4,5 Listening: 6 Vocabulary:8 Reading:10,11 Grammar:13,14	20	Part A 5 Short answer questions Part B 2 Essay questions out of 4 Questions Part C 2 Essay questions out of 3 Questions
Slip Test 1	Speaking: 1,3 Listening: 0 Vocabulary:7 Reading:9 Grammar:12,15	5	2 Essay Questions out of 3 Questions
Slip Test 2	Speaking: 2,4,5 Listening: 6 Vocabulary:8 Reading:10,11 Grammar:13,14	5	2 Essay Questions out of 3 Questions
Assignment	One assignment per one semester	5	Different group assignments of Higher order Questions that develop problem solving skills and critical thinking should be given
Seminars	One seminar per one semester	5	
	Total	60	

Suggested Student Activities

- Listen to a song and answer the questions
- Listen to a passage/conversations/dialogues/speeches and answer the questions
- Role Plays
- Quiz
- Self introduction
- Talking about routines
- Debates
- Elocution
- Selling a product with appropriate vocabulary
- Reading a selected text/news paper for specific purpose
- Using a dictionary
- Reading aloud with proper pronunciation and intonation
- Writing about routines
- Describing people
- Describing places
- Creating Advertisements
- Writing short messages

- Writing a recipe/process
- Interpreting advertisements/classified
- How to use google translate
- Surprise test
- Vocabulary games**:**
    - Cross words
    - Guessing the missing letter
    - Dumb charades

Textbook: English for Polytechnics

REFERENCES:

1. Practical English Grammar by A.J Thomson and A.V. Martinet

2. A Course in Phonetics and Spoken English by J. Sethi and P.V Dhamija

3. Word Power Made Easy by Norman Lewis

4. Games for Language Learning by Andrew Wright, David Betteridge and Michael Buckby

5. Five Minute Activities by Penny Ur

6. Englsh Dialogues by M. Martin

e-learning:

1.www.duolingo.com

2. www.bbc.co.uk

3. www.babbel.com

4. www.merriam-webster.com

5. www.ello.org

6. www.lang-8.com

7. youtube.com

8. Hello English(app)

9. mooc.org

10. https://onlinecourses.nptel.ac.in

Semester End Examination marks distribution

	Short answer	Essay	Marks
Part A	10	0	20
Part B	0	4/6	20
Part C	0	4/6	40
Total	10	8/12	80

Note: Semester end examination will be conducted for 80 marks but will be calculated for 40 marks.

State Board of Technical Education, Telangana State
C18-Semester End Examination (SEE)
Model Paper- 18Common-101F
(Basic English)

Time: 3 Hours **Total Marks: 80**

PART – A

Instructions: **10 Q X2 M = 20 Marks**

i) Answer all the following questions:

ii) Each question carries two marks

1. Write any two expressions used by the students in the classroom.
2. Fill the blanks with suitable expressions of feelings:
    a) I feel _____when I get a first class in diploma first semester.
    b) The teacher was _____ with me when I was late to class.
3. Change the following into requests:
    a) Switch on the fan.
    b) Give me your book.
4. Identify any four describing words in the following paragraph:

    We have a beautiful house near a long, muddy road. Our house is surrounded by rose plants. The tiny white roses shower snowy petals every day. My friends frequently visit our house to enjoy the greenery.
5. Fill the blanks with suitable describing words:
    a) As he is very _____(fat/fit) he cannot run fast.
    b) The tree is so ____(tall/high) that it is difficult to climb.
    c) The____(more/much) money one gets, the ____(less/little) one spends.
6. Use *raise* and *rise* in your own sentences.
7. Use *expect* and *except* in your own sentences**.**
8. Fill in the blanks with the suitable verb forms given in brackets:
    a. She _____ (drink/drinks/drunk) tea every morning.
    b. My parents _____(has been/have been/is been) looking after an orphanage for seven years.
9. Write one sentence each for the following structures:
    a. S V IO DO
    b. S V SC
10. Change the voice of the following sentences:
    a. He teaches English.
    b. He was served tea by his mother.

PART- B

GROUP-I ANSWER ANY TWO QUESTIONS 2x5=10

11. List any five problems you face in learning English and suggest solutions.
12. List at least five steps involved in finding the meaning of 'engineer' in a dictionary
13. Read the following passage and answer the questions that follow:

Subhas Chandra Bose was born in a Bengali Kayasth family on January 23, 1897 in Cuttack (OdiyaBaazar), Orissa, to Janakinath Bose, and Prabhavati Devi. He studied in an Anglo school at Cuttack (now known as Stewart School) until standard 6. He then shifted to Ravenshaw Collegiate School of Cuttack. Then he went to the prestigious Presidency College where he studied briefly. His nationalistic temperament came to light when he was expelled for assaulting Professor Oaten for his anti-India comments.

His high score in the Civil Service examinations meant an almost automatic appointment. He then took his first conscious step as a revolutionary and made up his mind not to jooin the government service. Meanwqhile, Indian nationalists were shocked and outraged because of the Amritsar massacre and the repressive Rowlatt legislation of 1919. Returning to India, Bose wrote for the newspaper Swaraj and took charge of publicity for the Bengal Provincial Congress Committee. His mentor was Chittaranjan Das, spokesman for aggressive nationalism in Bengal. Bose worked for Das when the latter was elected mayor of Calcutta in 1924. In a roundup of nationalists in 1925, Bose was arrested and sent to prison in Mandalay, where he contracted tuberculosis.

Questions:

a. Where was Subhas Chandra Bose born?
b. Who were his parents?
c. Why was Bose expelled from Presidency College?
d. What is the synonym of ‘outrage’?
e. Why was he arrested and sent to Mandalay?

GROUP-I **ANSWER ANY TWO QUESTIONS** **2x5=10**

14. Read the following passage and answer the questions that follow.

In the pond, we find that different organisms live in different regions. This is due to some conditions like availability of different amounts of food, air light, etc. We find organisms like dragonfly, mayfly and kingfisher living above the surface hovering above the pond and then resting over a bamboo pole or a stick jutting out of the surface of the pond. They get food from the surface of the pond.

Organisms like snail, whirling beetle and pond skater live on the surface. The larva of mayfly and dragonfly also live on the surface of the pond. Plants like pistia float on the surface completely while those like the lotus have roots going deep under. On the surface organisms are easily eaten up by others because there is little protection for them. However, there is plenty of food and air and this is why fish usually come to the surface to feed.

Great water boatman, leech and mosquito larva are found in midst of water. Fish and crabs also swim around this region. Pond margins have several grasses, frogs, cranes, crabs, etc. Fish usually lay eggs here. The bottom of the ponds has plants like Hydrilla and animals like mussels, flatworms and some maggots (larva of some insects). Light is minimum here, but food, in the form of dead and decaying matter is in plenty.

Questions:

a) Why do different organisms live in different regions?
b) Where do we find organisms like dragonfly, mayfly and kingfisher?
c) Why do fish usually come to the surface to feed?
d) Where do fish usually lay eggs?
e) Where do plants like Hydrilla grow?

15. Write a paragraph using the hints given below.

Library in our polytechnic – a big hall – several tables and chairs – newspapers – journals – visiting hours – two computers with internet – three cards to each student – 20000 books – many reference books

16. Frame five questions on the basis of the following passage.

Floods generally occur when there is very heavy rainfall. Most commonly, floods are caused when a river overflows its banks and the water spreads to the surrounding areas. Floods are also caused by collapse of a dam built across a river, blocking of river channel by landslides, cyclones, tsunamis, strong tides, storms and sudden melting of large amounts of snow on mountains. Floods are very common in India. They mostly occur in the plains of northern India. Floods cause damage to life, property and crops. It causes water-logging for several days. Diseases such as cholera, malaria and dengue generally spread in areas hit by the flood. Trees are very helpful in controlling floods. They stop the water from spreading fast. Special dams can also be built to slow down the speed of water.

PART-C

GROUP-I **ANSWER ANY TWO QUESTIONS** **2x10=20**

17. Write a paragraph in 120 words on a movie seen by you recently.
18. Write a letter to your uncle about your plan to visit his place during summer.
19. Write a letter to the Principal of your institute requesting him to provide you admission into hostel.

GROUP-2 **ANSWER ANY TWO QUESTIONS** **2x10=20**

20. Write a paragraph in 120 words about the importance of following traffic rules
21. Write a letter to Rama Publishers, Abids, Hyderabad requesting them to send you a catalogue of books published by them.
22. Write your routine using present simple tense.

Mid Sem Examination marks distribution

	Short answer	Essay	Marks
Part A	5	0	10
Part B	0	2/3	10
Part C	0	2/3	20
Total	5	4/6	40

Note: Mid sem examinations will be conducted for 40 marks but will be calculated for 20 marks.

State Board Of Technical Education
Basic English
18Common-101F
First Semester
Mid Sem -1 Model Paper

Time: 1 hour 30 minutes **Marks : 40**

PART-A

Instructions: 5 X 2 =10 marks

Answer all questions

Each question carries 2 marks

1. How do you feel in the following situations.
   a) You watched your favourite hero's movie.
   b) You stood first in the exam.
   .
2. Fill in the blanks with appropriate verb forms
   a) She ____(go) to her village every year.
   b) He _____(see) the Tajmahal in 2017.
3. Fill in the blanks with appropriate verb forms
   a) I _____(sing) for the last 10 years.
   b) He ____(travels) to the U.S.A. next week.
4. Rewrite the following as yes or no questions
   a) They wrote the exams.
   b) The train is late.
5. Write any 4 ways a dictionary can be used to improve language skills.

PART-B

Instructions: ***2*** X 5 =10 marks

Answer all questions

Each question carries 5 marks

6. What are the problems you faced in learning English?
7. Write a few suggestions to improve one's English.
8. How do you locate a word in a dictionary?

PART-C

Instructions: ***2*** X 10 =20 marks

Answer all questions

Each question carries 10 marks

9. Frame 10 wh questions for the given passage

Subhas Chandra Bose was born on 23 January 1897 in Cuttack, Orissa. He studied in Cuttack and then moved to Presidency College in Calcutta for further studies. He did his B.A. in Philosophy and went to England to appear for the Civil Services examination.He returned to India and started a newspaper called Swaraj. His mentor Chittaranjan Das was active and open in his criticism of British rule.Bose followed his footsteps and was arrested and sent to prison in Mandalay. He joined the Indian National Congress. Later he parted ways with the Congress. He revived the Indian National Army.

10. Read the passage given and answer the questions

It was way back in 1972 that NASA began developing a space shuttle that could launch like a rocket but fly and land like an airplane—a unique transportation system for deploying satellites and payloads into outer space. It was indeed a technological wonder as it was reusable unlike the earlier , one shot disposable rockets, which were used to place astronauts and equipment into the Earth's orbit. Basically , a space shuttle consists of an orbiter that carries astronauts and payload attached to solid rocket boosters and an external fuel tank.To lift the space shuttle , weighing about 2 million kg, from the launch pad to its orbit that is about 185 to 643 km above the Earth , the shuttle uses two poweful solid rocket boosters, which provide a thrust of about 11.7 million N. In addition the SRB's support the entire weight of the space shuttle orbiter and fuel tank on the launch pad.

a) Why is the space shuttle unique?
b) What are the parts of the space shuttle?
c) What are the functions of the solid rocket boosters?
d) What is the space shuttle used for?
e) Find one word in the passage that means throw away after use.

11. Write 10 sentences in the present continuous verb form describing what is going on around you as you write your exam.

State Board Of Technical Education
Basic English
C-18-Common-101F First Semester
Mid Sem –II
Model Paper

Time: 1 hour 30 minutes **Marks : 40**

PART-A

Instructions: 5 X 2 =10 marks

Answer all questions
Each question carries 2 marks

1. Write any four expressions used by teachers in the classroom.
2. Select appropriate words and fill in the blanks
   a) I am too _____ (weak/week) to do the work.
   b) She did not____ (except/accept)the award.
3. Write any four things that you like about your college.
4. Rewrite the following sentences as requests
   a) Give me your phone
   b) Buy me a cup of coffee
5. Write two sentences each in the given structure
   a) S.V.O.
   b) S.V.IO.DO.

PART—B

Instructions: 2 X5=10 marks

Answer any 2 questions.
Each question carries 5 marks

6. Change the voice for the following sentences.
   a) He is writing the exam.
   b) She has won the award.
   c) They were told a story by the teacher.
   d) She likes sweets.
   e) He was caught by the police.
7. Identify the structure of the given sentences
   a) Birds fly.
   b) I gave her a book.

c) She ate an apple.
d) They made him the class leader.
e) She is beautiful.

8. Write any ten expressions used by students in the classroom.

PART –C

Instructions: 2 X 10 = 20 marks

Answer any 2 questions

Each question carries 10 marks

9. Read the given passage and answer the questions given:

Subhash Chandra Bose was born on 23 January 1897 in Cuttack, Orissa. He studied in Cuttack and then moved to Presidency College in Calcutta for further studies. He did his B.A. in Philosophy and went to England to appear for the Civil Services examination Although he did well in the exam he soon resigned from the services because it meant working against the interests of his country. .He returned to India and started a newspaper called Swaraj. His mentor Chittaranjan Das was active and open in his criticism of British rule.Bose followed his footsteps and was arrested and sent to prison in Mandalay. He joined the Indian National Congress. Later he parted ways with the Congress. He revived the Indian National Army. He is believed to have coined the slogan Jai Hind.

a) Why did Bose go to England?
a) What was ChittaranjanDas's attitude towards the British?
b) How did Bose fight against the British??
c) Why did Bose resign from the Civil Services?
d) Pick the word from the passage which means trusted advisor or guide.

10. Describe your friend using appropriate descriptive words. Also write three things you like and three things that you dislike in him/ her.

11. Identify 10 words of description from the passage.

On hot summer nights, Julio and the other boys sleep out in the yard. They put up a tent in a dark corner, where the trees and the bushes are thick. that way the boys can easily imagine they are in wild , uninhabited country. One evening Mike suggested that they tell ghost stories or tales of bear hunts. After a particularly spine- tingling story, Mike couldn't sleep; he was too nervous. About midnight he saw something move in the shadows." Yeow !" he cried out. " There is a big bear! It is really huge!" In the sudden confusion , the small tent collapsed on top of the boys; each one seemed eager to go in a different direction . Anxious parents ran out of the nearby house. They found a coal-black dog. Like a bear , this animal was very curious.

Department of Technical Education - TELANGANA

State Board of Technical Education and Training - HYDERABAD

Course Title **: BASIC ENGINEERING MATHEMATICS**	Course Code **: 18AA-102F**
SEMESTER : **I**	Course Group **: COMMON**
Teaching Scheme (L : T : P) : **36 :24: 0 (** in periods))	Credits : **3 Credits**
Type of Course : **Lecture + Assignments**	Total Contact Periods : **60**
CIE : **60 Marks**	SEE : **40 Marks**
Programmes : **Common to all Engineering Diploma Programmes**	

Course Content and Blue Print of Marks for SEE

Unit No	Unit name	Periods	Questions for SEE			Marks weightage	Weightage %
			R	**U**	**A**		
1.	**Logarithms ,Partial Fractions:**	**6(2+4)**	**2(1+1)**	**0+1**	**0**	**09(2+7)**	**8**
2	**Matrices and Determinants**	**12**	**1**	**1**	**0**	**12(2+10)**	**11**
3	**Compound angles , Multiple and sub multiple angles**	**12(6+6)**	**2(1+1)**	**1(1+0)**	**1(0+1)**	**24(4+10+10)**	**22**
4.	**Properties of triangles, Hyperbolic functions, Complex Numbers**	**8(2+2+4)**	**3(1+1+1)**	**1(0+0+1)**	**0**	**11(6+5)**	**10**
5.	**Transformations , Inverse trigonometric functions**	**12(6+6)**	**1(1+0)**	**2(1+1)**	**2(1+1)**	**32(2+5+5+10 +10)**	**29**
6.	**Solution of Simultaneous equations using Matrices & Determinants , Solutions of triangles**	**10(6+4)**	**1(0+1)**	**2(1+1)**	**1(1+0)**	**22(2+5+5+10)**	**20**
	Total	**60**	**10**	**6**	**6**	**110**	**100**

R – Remembering : 20 M ; U – Understanding : 40 M ; A -- Application : 50 M

Pre requisites

This course requires the basic knowledge ofAlgegra, Trigonometry in Mathematics at Secondary school level

Course Outcomes

CO 1	Solve the problems on Logarithms
CO 2	Resolve a given fraction into Partial Fractions
CO 3	Find the Sum , Product of Matrices , Value of the determinant and Inverse of a Matrix .
CO 4	Solve simple problems using concepts of Trigonometric Functions
CO 5	Solve simultaneous Linear Equations using Matrices and Determinants
CO 6	Solve a Triangle and an Inverse Trigonometric Equation .

Course Content :

Algebra

Unit-I

Duration: 06Periods (L: 3.6 – T: 2.4)

1. **Logarithms:**

Definition of logarithm and its properties, natural and common logarithms; the meaning of e and exponential function, logarithm as a function and its graphical representation – Solve some simple problems.

2. **Partial Fractions:**

Rational, proper and improper fractions of polynomials. Resolving rational fractions in to their partial fractions covering the types mentioned below:

$$i) \quad \frac{f(x)}{(x+a)(x+b)(x+c)} \quad ii) \quad \frac{f(x)}{(x+a)^2(x+b)(x+c)}$$

$$iii) \quad \frac{f(x)}{(x^2+a)(x+b)} \quad iv) \quad \frac{f(x)}{(x+a)(x^2+b)^2}$$

Unit – II **Duration: 12Periods (L: 7.2 – T:4.8)**

3. **Matrices and Determinants :**Definition of matrix, types of matrices-examples, algebra of matrices-equality of two matrices, sum, difference , scalar multiplication and product of matrices. Transpose of a Matrix- Symmetric, Skew symmetric matrices- Minor, cofactor of an element-Determinant of a square matrix up to 3rd order -Laplace's expansion, properties of determinants. Singular and non-singular matrices-Adjoint and multiplicative inverse of a square matrix –related problems.

Trigonometry:

Unit-III **Duration: 12Periods (L: 7.2 – T: 4.8)**

4. **Compound angles**: Formulae of Sin (A±B), Cos (A±B), Tan (A±B), Cot(A±B), and related identities with problems - Derive the values of $\sin 15^0$, $\cos 15^0$, $\sin 75^0$, $\cos 75^0$, $\tan 15^0$, $\tan 75^0$ etc.-Derive identities like $\sin(A+B)\sin(A-B) = \sin^2 A - \sin^2 B$ etc.,

5. **Multiple and sub multiple angles:**Trigonometric ratios of multiple angles 2A,3A and submultiples angle A/2 with problems - Derive useful allied formulas like $\boldsymbol{Sin^2 A = \left(\frac{1-Cos2A}{2}\right)}$ etc., - Solve simple problems using the above formulae

Unit – IV **Duration: 08Periods (L: 4.2 – T:3.8)**

6. **Properties of triangles**: Statements of Sine rule, Cosine rule, Tangent rule and Projection rule

7. **Hyperbolic functions:** Definitions of hyperbolic functions - Sinh x, coshx ,tanh x etc., - identities of hyperbolic functions, inverse hyperbolic functions and expression of inverse hyperbolic functions in terms of logarithms.

8. **Complex Numbers:** Definition of a complex number, Modulus and conjugate of a complex number, Arithmetic operations on complex numbers, Modulus- Amplitude (polar) form, Exponential (Euler) form of a complex number.

Algebra & Trigonometry

Unit – V

Duration: 12Periods (L: 7.2 – T:4.8)

9 .**Transformations**: Transformation of products into sums or differences and vice versa - simpleproblems - Solve problems by applying these formulae to sum or difference or product of three or more terms.

10 **Inverse trigonometric functions:**Define inverses of six trigonometric functions along with their domains and ranges - Derive relations between inverse trigonometric functions so that given $A=\sin^{-1}x$, express angle A in terms of other inverse trigonometric functions - with examples - State various properties of inverse trigonometric functions and identities like $\sin^{-1}x+\cos^{-1}x = \frac{\pi}{2}$ etc - Derive formulae like $\tan^{-1}x + \tan^{-1}y = \tan^{-1}\left(\frac{x+y}{1-xy}\right)$ $where\ x \geq 0,\ y \geq 0,\ xy < 1$ etc., and solve simple problems.

Unit – VI

Duration: 10Periods (L: 6 – T: 4)

11.**Solution of Simultaneous equations using Matrices & Determinants.:** System of linear equations in 3 Variables-Solutions by Cramer's rule, Matrix inversion method – Examples- Elementary row operations on Matrices -Gauss-Jordan method to solve a system of equations in 3 unknowns .

12. **Solutions of triangles:**Solve a triangle when (i) three sides (SSS) (ii) two sides and an Included angle (SAS) (iii) one side and two angles are given (SAA) - Simple problems.

References

1. Text Book of Matrices – by Shanthi Narayan

2. Plane Trigonometry - by S.L.Loney

3. NCERT Mathematics Text Books Of Class XI , XII .

4. Intermediate Mathematics Text Books (Telugu Academy)

Suggested E-Learning references

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

2.E-books:www.mathebook.net

Suggested Learning Outcomes

Algebra

UNIT – I

1.0 Use Logarithms in engineering calculations

1.1 Define logarithm and list its properties.

1.2 Distinguish natural logarithms and common logarithms.

1.3 Explain the meaning of e and exponential function.

1.4 State logarithm as a function and its graphical representation.

1.5 Use the logarithms in engineering calculations.

2.0 Resolve Rational Fraction into sum of Partial Fractions in engineering problems

2.1 Define the following fractions of polynomials:

1. Rational,
2. Proper and
3. Improper

2.2 Explain the procedure of resolving rational fractions of the type mentioned below into partial fractions

$$i)\quad \frac{f(x)}{(x+a)(x+b)(x+c)} \qquad ii)\quad \frac{f(x)}{(x+a)^2(x+b)(x+c)}$$

$$iii)\quad \frac{f(x)}{(x^2+a)(x+b)} \qquad iv)\quad \frac{f(x)}{(x+a)(x^2+b)^2}$$

UNIT – II

3.0 Use Matrices for solving engineering problems

3.1 Define a matrix and order of a matrix.

3.2 State various types of matrices with examples (emphasis on 3rd order square matrices).

3.3 Compute sum, scalar multiplication and product of matrices.

3.4 Illustrate the properties of these operations such as associative, distributive, commutative properties with examples and counter examples.

3.5 Define the transpose of a matrix and write its properties.

3.6 Define symmetric and skew-symmetric matrices.

3.7 Resolve a square matrix into a sum of symmetric and skew- symmetric matrices with examples in all cases.

3.8 Define minor, co-factor of an element of a 3x3 square matrix with examples.

3.9 Expand the determinant of a 3 x 3 matrix using Laplace expansion formula.

3.10 Distinguish singular and non-singular matrices.

3.11 Apply the properties of determinants to solve problems.

3.12 Define multiplicative inverse of a matrix and list properties of adjoint and inverse.

3.13 Compute adjoint and multiplicative inverse of a square matrix.

Trigonometry :

UNIT – III

4.0 Solve simple problems on Compound Angles

4.1 Define compound angles and state the formulae of sin(A±B), cos(A±B), tan(A±B) and cot(A±B)

4.2 Give simple examples on compound angles to derive the values of $\sin 15^0$, $\cos 15^0$, $\sin 75^0$, $\cos 75^0$, $\tan 15^0$, $\tan 75^0$ etc.

4.3 Derive identities like $\sin(A+B)\sin(A-B) = \sin^2 A - \sin^2 B$ etc.,

4.4 Solve simple problems on compound angles.

5.0 Solve problems using the formulae for Multiple and Sub- multiple Angles

5.1 Derive the formulae of multiple angles 2A, 3A etc and sub multiple angles A/2 in terms of angle A of trigonometric functions.

5.2 Derive useful allied formulas like $\sin A = (1 - \cos 2A)/2$ etc.,

5.3 Solve simple problems using the above formulae

UNIT – IV

6.0 Appreciate Properties of triangles

6.1 State sine rule, cosine rule, tangent rule and projection rule.

7.0 Represent the Hyperbolic Functions in terms of logarithm functions

7.1 Define Sinh x, cosh x and tanh x and list the hyperbolic identities.

7.2 Represent inverse hyperbolic functions in terms of logarithms.

8.0 Represent Complex numbers in various forms

8.1 Define complex number, its modulus , conjugate and list their properties.

8.2 Define the operations on complex numbers with examples.

8.3 Define amplitude of a complex number

8.4 Represent the complex number in various forms like modulus-amplitude (polar) form, Exponential (Euler) form – illustrate with examples.

UNIT – V

9.0 Apply Transformations for solving the problems in Trigonometry

9.1 Derive the formulae on transforming sum or difference of two trigonometric ratios in to a product and vice versa- examples on these formulae.

9.2 Solve problems by applying these formulae to sum or difference or product of three or more terms.

10.0 Use Inverse Trigonometric Functions for solving engineering problems

10.1 Explain the concept of the inverse of a trigonometric function by selecting an appropriate domain and range.

10.2 Define inverses of six trigonometric functions along with their domains and ranges.

10.3 Derive relations between inverse trigonometric functions so that given A= $\sin^{-1}x$, express angle A in terms of other inverse trigonometric functions - with examples.

10.4 State various properties of inverse trigonometric functions and identities like $\sin^{-1}x+\cos^{-1}x = \frac{\pi}{2}$ etc.

10.5 Derive formulae like $\tan^{-1}x + \tan^{-1}y = \tan^{-1}\left(\frac{x+y}{1-xy}\right),\ \ where\ \ x \geq 0, y \geq 0, xy < 1$ etc., and solve simple problems.

UNIT – VI

11.0 Apply Matrices and Determinants in solving system of Linear Equations

11.1 Solve system of 3 linear equations in 3 unknowns using Cramer's rule.

11.2 Solve system of 3 linear equations in 3 unknowns by matrix inversion method

11.3 State elementary row operations.

11.4 Solve a system of 3 linear equations in 3 unknowns by Gauss- Jordan method

12.0 Apply Properties of Triangles to solve a triangle .

12.1 Solve a triangle when (i) three sides, (ii) two sides and an included angle, (iii) two sides and an opposite angle-case of two solutions and (iv) one side and two angles are given.

Suggested Student Activities

1. Student visits Library to refer Standard Books on Mathematics and collect related material .
2 .Quiz
3.Group discussion
4.Surprise test
5. Seminar

Question Paper Blue Print for SEE

Course: ENGG. MATHEMATICS –I CODE: 18COMMON102F

UNIT No./NAME		No. of Hours	PART – A 2 Marks	PART – B 5 Marks	PART– C 10 Marks	Marks weightage	Weightage (%)
1	a).Logarithms	02	01	----	----	09	08
	b).Partial Fractions	04	01	01	----		
2	Matrices and determinants	12	01	----	01	12	11
3	a).Compound Angles	06	01	----	01	24	22
	b)Multiple angles & Submultiple angles	06	01	----	01		
4	a).Properties of triangles	02	01	----	----	11	10
	b).Hyperbolic Functions	02	01	----	----		
	c).Complex numbers	04	01	01	----		
5	a).Transformations	06	01	01	01	32	29
	b).Inverse Trigonometric Functions	06	----	01	01		
6	a).Solutions of Simultaneous Equations	06	----	01	01	22	20
	b).Solutions of Triangles	04	01	01	----		
TOTAL		60	10	06	06	110	100
Questions to be Answered			10	04	04	80	

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Code: C18Common102F

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA

DIPLOMA EXAMINATIONS, MODEL PAPER ,I SEMESTER

BASIC ENGINEERING MATHEMATICS

SEMESTER END EXAMINATION

TIME : 3 Hours Max. Marks: 80

PART – A Marks: 10 X 2 = 20

*NOTE: 1) Answe r **ALL**questions and each question carries **Two** marks.*

*2) Answers should be brief and straight to the point and shall not exceed**three** simple sentences*

1. Find the value of $\log_8 2$

2. Define Proper fraction and give an example.

3. If A= $\begin{bmatrix} 1 & 2 \\ -2 & 3 \end{bmatrix}$ *and* $B = \begin{bmatrix} 4 & -1 \\ 3 & 2 \end{bmatrix}$ Compute 3A+ 5B.

4. Write the formulae for Sin (A + B) and Cos (A– B)

5. If TanA = 2, Find the valueof Sin2A.

6. Write the formula for Cosine rule.

7. State any two formulae from Hyperbolic Functions.

8. Find the Modulus of $\frac{2}{3-4i}$

9. Express Sin5A – Sin3A as a Product.

10. Find angle C in any ΔABC, if b = $\sqrt{2}$,c = $\sqrt{3}$, B = 45^0

PART – B

GROUP-1 **Answer any TWO questions** **2 x 5 = 10**

11 .Resolve $\frac{2x+3}{x^2-2x-3}$ into Partial Fractions.

12. Find the additive and multiplicative inverse of the complex number $\frac{9}{2+i\sqrt{5}}$

13. Show that $\frac{Cos17A + Cos7A}{Sin17A + Sin7A} = Cot\ 12A$

GROUP-2 **Answer any TWO questions** **2 x 5 = 10**

14.Prove that $\tan^{-1}\frac{3}{5} + \sin^{-1}\frac{3}{5} = \cot^{-1}\frac{11}{27}$.

15.Solve the following equations by Crammer's rule:

x + y + z = 2, x +2y + 3z = 1 and 3x +y – 5z = 4.

16.Solve the ΔABC, if a = 5, b = 13, c = 12

PART – C

GROUP-1 **Answer any TWO questions** **2 x 10= 20**

17. Prove that $\begin{vmatrix} a-b-c & 2a & 2a \\ 2b & b-c-a & 2b \\ 2c & 2c & c-a-b \end{vmatrix}$ = (a + b+ c)^3.

18. a) If TanA = 5/6 and TanB = 1/11, Show that A + B = π/4**.**

b) If A + B = π/4**,** Prove that (1– CotA)(1– CotB) = 2 .

19 .a)Show that $Sin5\theta = 16Sin^5\theta - 20Sin^3\theta + 5Sin\theta$.

b)Prove that Cos20^0 Cos30^0 Cos40^0 Cos80^0 = $\frac{\sqrt{3}}{16}$.

GROUP-2 **Answer any TWO questions** **2 x 10 = 20**

20a). If Cosx + Cosy = 3/5 and Cosx– Cosy = 2/7, then Prove that

$$21\tan\frac{x-y}{2}+10\cot\frac{x+y}{2}=0$$

b). Prove that $\sin^2 A + \sin^2(60^0 + A) + \sin^2(60^0 - A) = \frac{3}{2}$.

21a). If $Sin^{-1}x + Sin^{-1}y + Sin^{-1}z = \pi$, then Prove that $x\sqrt{1-y^2} + y\sqrt{1-x^2} = z$.

b) Solve: $Tan^{-1}(1+x) + Tan^{-1}(1-x) = Tan^{-1}\frac{1}{2}$.

22. Solve the following equations by Matrix Inversion method

x + y + z = 3, x +2y + 3z = 4 and x +4y + 9z = 6 .

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Code: C18-Common-102F

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA

BOARD DIPLOMA EXAMINATIONS

MID SEM –I , MODEL PAPER ,I SEMESTER

BASIC ENGINEERING MATHEMATICS

TIME : 1: 30 Hours Max. Marks: 40

PART – A Marks: 5 X 2 = 10

*NOTE: 1) Answer **ALL**questions and each question carries **Two** marks.*

*2) Answers should be brief and straight to the point and shall not exceed**three** simple sentences*

1. Find the value of $\log_8 2$

2. Define Proper fraction and give an example.

3. If A= $\begin{bmatrix} 1 & 2 \\ -2 & 3 \end{bmatrix}$ *and* $B = \begin{bmatrix} 4 & -1 \\ 3 & 2 \end{bmatrix}$ Compute 3A+ 5B.

4. Find the value of $\begin{vmatrix} 1 & 2 \\ 3 & 4 \end{vmatrix}$

5. Define a Singular matrix and give an example .

PART – B Marks : 2 X 5 = 10

*NOTE: 1) Answer**any two** questions and each question carries **Five** marks*

2) The answers should be comprehensive and the criteria for valuation is the content

but not the length of the answer.

6. Resolve : $\frac{x}{(x-1)(x-2)}$ in to partial fractions

7. If $\begin{pmatrix} 2 & 1 & 2 \\ 1 & 4 & 1 \\ 1 & 3 & 2 \end{pmatrix}$, then Compute $A^2 + 2A - 3I$, where I is a unit matrix of order 3 .

8. Find x , if $\begin{vmatrix} 2 & 3 & 5 \\ 2 & x & 5 \\ 3 & -1 & 2 \end{vmatrix} = 0$

PART – C

Marks : 2 X 10 = 20

NOTE : 1)Answer any **Two**questions and each question carries **Ten** marks
2)The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

9. Resolve **:** $\frac{9}{(x-1)(x+2)^2}$

10 . If $A = \frac{1}{3}\begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & -2 \\ -2 & 2 & -1 \end{bmatrix}$, *then show that* $A^{-1} = A^T$

11. Show that $\begin{vmatrix} b+c & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4abc$.

Code: C18-Common-102F

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA

BOARD DIPLOMA EXAMINATIONS

MID SEM –II , MODEL PAPER ,I SEMESTER

BASIC ENGINEERING MATHEMATICS

TIME : 1: 30 Hours Max. Marks: 40

PART – A Marks: 5 X 2 = 10

*NOTE: 1) Answe**ALL**questions and each question carries **Two** marks.*

*2) Answers should be brief and straight to the point and shall not exceed**three** simple sentences*

1. Write the formulae for Sin (A - B) and Cos (A – B)
2. If TanA = 2, Find the valueof Cos2A.
3. Write the formula for Cosine rule.
4. State any two formulae from Hyperbolic Functions.
5. Find the Modulus of $\frac{2}{3+2i}$

PART – B Marks : 2 X 5 = 10

*NOTE: 1) Answer**any two** questions and each question carries **Five** marks*

2) The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

6. Show that $\frac{Cos\,12+Sin12}{Cos12-Sin12}$ = Tan57 .
7. Prove that $Cos20^0\ Cos30^0\ Cos40^0\ Cos80^0 = \frac{\sqrt{3}}{16}$.
8. Find the modulus amplitude form of $z = \frac{1}{2+4i}$

PART – C

Marks : 2 X 10 = 20

NOTE : 1)Answer any **Two**questions and each question carries **Ten** marks
2)The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

9a) **.** If $TanA = \frac{1}{2} and Tan B = \frac{1}{3} then show that A + B = {}^{\pi}/_{4}$

b) If $A + B = 135^0$, $then prove that (1 + CotA)(1 + CotB) = 2$

10a) Prove that $\frac{SinA+Sin2A}{1+CosA+Cos2A} = TanA$

b) Prove that $Sin10.Sin50.Sin70 = \frac{1}{8}$.

11a) Find the additive and multiplicative Inverse of 4 + 3i

b) Express the complex number $\frac{1+i}{1-i}$ in Exponential form

CO / PO - MAPPING

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

Department of Technical Education

State Board of Technical Education & Training (TS)

Course Title	Basic Physics	**Course Code**	18AA-103F
Semester	Semester-I	**Course Group**	Core
Teaching Scheme in Pds/Hrs(L:T:P)	30:15:0 Hrs 40:20:00 Pds	**Credits**	3
Type of course	Lecture+Assignments	**Total Contact Hrs**	60Pds
CIE	60 Marks	**SEE**	40 Marks

Course Content and Blue Print of Marks for SEE

Unit No	Unit Name	Periods	Question to be set for SEE			Marks Weigh tage	Weightage (%)
			R	U	A		
1	UNITS, DIMENSIONS AND FRICTION	10	1(2M)	1(5M)	0	07	6.36
2	ELEMENTS OF VECTORS	10	1(2M)	1(5M)	1(10M)	17	15.46
3	MECHANICS	10	1(2M)	1(5M)	1(10M)	17	15.46
4	PROPERTIES OF MATTER	10	1(2M)	1(5M)	0	07	6.36
5	HEAT AND THERMODYNAMICS	10	3(2M+2M +2M)	1(5M)	2(10M+10M)	31	28.18
6	CONSERVATION LAWS AND ENERGY SOURCES	10	3(2M+2M +2M)	1(5M)	2(10M+10M)	31	28.18
	TOTAL	**60**	**10(20M)**	**06(30M)**	**06(60M)**	**110**	**100.00**

Cognitive levels: R=Remember, U=Understand, A=Apply

Pre requisites: Basic High school science, basic mathematics

Course Objectives: After studying this course, the student will be able to understand and appreciate the role of Engineering Physics in different areas of engineering and technology.

Course outcomes: On successful completion of the course, the student will have the ability to attain below Course outcomes (CO):

Course Outcomes		Linked POs	Teaching Hours
CO 1	Write the correct units and dimensions of physical quantities and know the concept of friction	PO1,PO2	10
CO 2	Apply knowledge of vectors as a tool to solve engineering problems	PO1, PO2	10
CO 3	Apply knowledge of mechanics to solve engineering problems	PO1, PO2	10
CO 4	Apply knowledge of properties of matter to understand engineering problems	PO1, PO2	10
CO 5	Apply Heat and thermodynamic processes to solve engineering problems	PO1, PO2	10
CO 6	Apply conservation laws to engineering problems and utilization of energy sources	PO1, PO2, PO3,PO6	10

BASIC PHYSICS

COURSE CONTENTS

1. UNIT – 1 UNITS, DIMENSIONS AND FRICTION

Duration: 10 periods (L: 6.0 – T: 4.0)

Physical quantity - Fundamental and derived quantities – Unit –definitions - S.I units - Advantages of S.I. units - Dimensions and dimensional formula - definitions-units and dimensional formula for physical quantities - Principle of homogeneity - Applications of dimensional analysis–Friction – causes - types of friction - Normal reaction - Laws of static friction - coefficients of friction - expression- rough horizontal surface - expressions for Acceleration, Displacement, Time taken to come to rest and Work done Advantages and disadvantages of friction - Methods to reduce friction – Problems on friction only.

2. UNIT – 2 ELEMENTS OF VECTORS Duration: 10 periods (L:6.0 – T: 4.0)

Scalar and vector quantities – definitions and examples – Graphical representation of a vector - Classification of vectors (Proper vector, Unit vector, Equal vector, Negative vector, Collinear vector and Position vector) Resolution of vector - Triangle law of vector addition – Parallelogram law of vectors – statement- expression for magnitude and direction of resultant vector –derivation- illustrations(working of sling and flying bird) - Representation of a vector in unit vectors **i**, **j** and **k** – Dot product of vectors-definition-

application to work done by force – properties of dot product - Cross product of vectors –definition – Right hand thumb rule and right hand screw rule - application to moment of force - properties of vector product - area of parallelogram and triangle in terms of cross product - - related problems

3. UNIT – 3 MECHANICS Duration: 10 periods (L:6.0 – T: 4.0)

Projectile motion – definition - examples - Horizontal projection – Time of flight and Horizontal range – derivations - Oblique projection – Expression for path of a projectile in oblique projection - derivation– Maximum height, Time of ascent, Time of descent, Time of flight and Horizontal range and maximum horizontal range - derivations – Circular motion, angular velocity, time period and frequency of revolutions–Definitions– Relation between linear velocity and angular velocity - derivation–centripetal force – centrifugal force – definitions and expressions only- application (banking of curved path) - angle of banking- expression only - related problems

4. UNIT – 4 PROPERTIES OF MATTER Duration: 10 periods (L:6.0 – T: 4.0)

Elasticity and plasticity- definitions - Stress and Strain – definitions and expressions - elastic limit - Hooke's law – statement - modulus of elasticity - Young's modulus – Derivation – Cohesive and adhesive forces - Surface tension - Illustrations - Capillarity – angle of contact – definition- examples for capillarity- Formula for Surface tension based on capillarity (no derivation) – Viscosity - Illustrations of viscosity - Newton's formula for viscous force – derivation - Coefficient of viscosity - Poiseuille's equation - Effect of temperature on viscosity of liquids and gases– streamlines - laminar flow-turbulent flow-Reynold's number- equation of continuity – statement - related problems.

5. **UNIT – 5 HEAT AND THERMODYNAMICS**
Duration: 10 periods (L:6.0 – T: 4.0)

Heat – expansion of gases - Boyle's law –concept of absolute zero - Absolute scale of temperature – Charles' laws - Ideal gas equation – derivation - value of universal gas constant 'R' – Isothermal and Adiabatic, processes - Differences between isothermal and adiabatic processes - Internal energy and external work done – Expression for work done – derivation – first law of thermodynamics –application of first law to isothermal, and adiabatic processes - second law of thermodynamics – specific heat of a gas – molar specific heat of a gas – definitions – derive relation between C_P and C_v- related problems.

6. UNIT – 6 CONSERVATION LAWS AND ENERGY SOURCES

Duration: 10 periods (L:6.0 – T: 4.0)

Work and Energy - Potential Energy and kinetic energy–examples – expressions for PE and KE-derivations - Work- Energy theorem – derivation – Law of conservation of energy – examples - Law of conservation of energy in the case of freely falling body – proof – Illustration of conservation of energy in the case of simple pendulum– Non renewable and renewable energy sources – definition and applications (solar cooker, wind mill and biogas) – Green house effect - related problems

References:

1. **Engineering. Physics by R.K. Gaur, S.L. Gupta, Dhanpatrai Publications, New Delhi.**
2. **ISC Physics, Book I&II, P. Vivekanandan, DK Banerjee, S Chand, New Delhi.**
3. **Intermediate Physics, Vol. I&II, Telugu Academy, TS, Hyderabad.**
4. **Fundamentals of Physics by Halliday and Resnick.**

Suggested learning outcomes:

Upon completion of the course the student shall be able to

1. know the concepts of units, dimensions and friction

1.1 Define Physical quantity, fundamental quantity and derived physical quantities
1.2 Define Unit.
1.3 List advantages of S.I. units
1.4 Define dimensions and dimensional formula.
1.5 Write dimensional formulae of physical quantities
1.6 State principle of homogeneity of dimensions.
1.7 State applications of dimensional analysis.
1.8 Define friction and state its causes.
1.9 State types of friction
1.10 Explain normal reaction.
1.11 State laws of friction.
1.12 Define coefficients of friction.
1.13 Derive expression for acceleration of a body moving on rough horizontal surface.
1.14 Derive expressions for displacement and time taken to come to rest and work done in the case of a body moving on a rough horizontal surface.
1.15 List the advantages and disadvantages of friction.
1.16 Solve related numerical problems in friction only.

2. know the concepts of Elements of Vectors

2.1 Define scalar and vector quantities with examples.
2.2 Represent a vector graphically.
2.3 Classify types of vectors – Proper vector, Unit vector, Equal vector, Negative vector, Collinear vector and Position vector.
2.4 Resolve a vector – Vector and Scalar components and relation between them.
2.5 State and explain Triangle law of vector addition
2.6 State Parallelogram law – derive expression for magnitude and direction of resultant vector.
2.7 Illustrations of parallelogram law – working of sling and flying bird.
2.8 Representation of vector in terms of unit vectors (**i,j,k**)
2.9 Define Dot product of vectors
2.10 Application of dot product for work done by force.
2.11 List the properties of dot product.
2.12 Define Cross product of vectors.
2.13 Apply cross product in the case of moment of force.
2.14 Explain Right hand screw rule and right hand thumb rule.
2.15 Expressions for area of parallelogram and triangle in terms of cross product.
2.16 List the properties of cross product.
2.17 Solve related problems

3. know the concepts of Mechanics

3.1 Define Projectile motion with examples
3.2 Define Horizontal projection – Derive expressions for (a) Time of flight (b) Horizontal range
3.3 Define Oblique projection- Derive expression for path of a projectile in oblique projection.
3.4 Derive expressions for (a) Maximum height (b) Time of ascent (c) Time of descent (d) Time of flight (e) Horizontal range and (f) maximum horizontal range in oblique projection.
3.5 Define circular motion.
3.6 Define angular velocity, time period and frequency of revolutions in circular motion.
3.7 Derive the relation between linear velocity and angular velocity.
3.8 Define centripetal and centrifugal forces.
3.9 Define angle of banking.
3.10 Explain banking of curved path and write the expression for angle of banking.
3.11 Solve related numerical problems.

4. know the concepts of Properties of matter

4.1 Define the terms Elasticity and Plasticity with examples
4.2 Define Stress and Strain and write their expressions.
4.3 Define elastic limit and state Hooke's law.
4.4 Define modulus of elasticity.
4.5 Define Young's modulus

4.6 Derive the formula for Young's modulus.
4.7 Define cohesive force and adhesive force.
4.8 Define Surface tension. Give illustrations of Surface tension
4.9 Define capillarity and angle of contact.
4.10 List the examples for capillarity.
4.11 Write the formula for Surface tension T = ½ hdgr based on capillarity.
4.12 Define Viscosity. Give illustrations of viscosity.
4.13 Derive Newton's formula for viscous force.
4.14 Define coefficient of viscosity.
4.15 Write Poiseuille's equation for coefficient of viscosity.
4.16 Discuss effect of temperature on viscosity of liquids and gases.
4.17 Define streamline flow, turbulent flow.
4.18 Define Reynold's number.
4.19 State equation of continuity and explain the terms with diagram.
4.20 Solve related problems

5. know the concepts of Heat and Thermodynamics

5.1 Explain expansion of gases.
5.2 State and explain Boyle's law and its limitations
5.3 Explain concept of absolute zero using the relations $P_t=P_0(1+t/273)$ and $V_t= V_0(1+ t/273)$
5.4 Define Absolute scale of temperature
5.5 State Charles' law in terms of absolute temperature
5.6 Define Ideal gas and derive ideal gas equation
5.7 Calculate the value of Universal gas constant (R)
5.8 State gas equation in terms of density
5.9 Define Isothermal and Adiabatic processes.
5.10 Distinguish between isothermal and adiabatic processes.
5.11 Explain the terms internal energy and external work done
5.12 Derive the expression for work done by the gas $[W=P(V_2-V_1)]$
5.13 State first law of thermodynamics.
5.14 Application of first law to isothermal and adiabatic processes.
5.15 State second law of thermodynamics.
5.16 Define specific heat a gas.
5.17 Define molar specific heat of a gas.
5.18 Derive the relation between C_P, C_v and R.
5.19 Solve related problems

6. know the concepts of conservation laws and energy sources

6.1 Define work and energy.
6.2 Define potential and kinetic energy with examples
6.3 Derive the expressions for Potential energy and Kinetic energy.
6.4 State and prove Work-Energy theorem.

6.5 State law of conservation of energy with example.
6.6 Derive the law of conservation of energy in the case of a freely falling body.
6.7 Illustrate law of conservation of energy in the case of simple pendulum.
6.8 Define non renewable and renewable energy sources. Give examples
6.9 Explain solar cooker, wind mill and biogas.
6.10 Explain briefly Green house effect.
6.11 Solve related numerical problems.

Internal evaluation

Test	Units	Marks	Pattern
Mid Sem 1	1 and 2	20	Part A-5 Short answer questions Part B-2 Essay questions out of 3 Questions Part C-2 Essay questions out of 3 Questions
Mid Sem 2	3 and 4	20	Part A-5 Short answer questions Part B-2 Essay questions out of 3 Questions Part C-2 Essay questions out of 3 Questions
Slip Test 1	1 and 2	5	2 Essay Questions out of 3 Questions
Slip Test 2	3 and 4	5	2 Essay Questions out of 3 Questions
Assignment	1	5	Different group assignments of Higher order Questions that develop problem solving skills and critical thinking should be given
Seminars	1	5	
	Total	60	

Suggested Student Activities

1. Student visits Library to refer Text books, reference books and manuals to find their specifications.
2. Student inspects the available equipment in the Physics Lab to familiarize with them.
3. Quiz
4. Seminar
5. Group discussion
6. Surprise test

Mid term Examination marks distribution

	Short Answer	Essay	Marks
Part A	5	0	10
Part B	0	2/3	10
Part C	0	2/3	20
Total	5	4/6	40

MODEL QUESTION PAPER (MID SEM-I)

BOARD DIPLOMA EXAMINATION, (C-18)

FIRST SEMESTER, 18 COMMON-103F

BASIC PHYSICS

Time: $1\frac{1}{2}$ Hours] [Max Marks: 40

PART-A

Answer **ALL** questions. Each question carries two marks. 5 x 2 = 10

1. Define fundamental quantity.
2. What is a unit? Give example.
3. Write the causes of friction.
4. Define vector quantity.
5. State whether dot product is a scalar or vector. Give reason.

PART-B

Answer any **TWO** questions. Each question carries five marks. 2 x 5 = 10

6. Define dimensions and dimensional formula. Give the general form of dimensional formula.
7. What is principle of homogeneity? Explain with an example.
8. State Right hand screw rule and right hand thumb rule. Why are these rules used?

PART-C

Answer any **TWO** questions. Each question carries ten marks. 2 x 10 = 20

9. (a) Write base and supplementary units of S.I. system along with symbols. (5)
   (b) State the advantages of S.I. units. (5)

10. (a) State the laws of friction. (5)
    (b) Write the methods of reducing friction. (5)

11.(a) Derive an expression for displacement, time taken to come to rest and work done in case of a body moving on a rough horizontal surface. (6)
   (b) Find the work done in moving a body of mass 80 kg through a distance of 60 m on a rough horizontal surface if the coefficient of friction is 0.25. (4)

MODEL QUESTION PAPER (MID SEM-II)
BOARD DIPLOMA EXAMINATION, (C-18)

FIRST SEMESTER, 18 COMMON-103F

BASIC PHYSICS

Time: $1\frac{1}{2}$ Hours] [Max Marks: 40

PART-A

Answer **ALL** questions. Each question carries two marks. 5 x 2 = 10

1. A body is projected into air with velocity of 19.6 m/s and $\theta = 30^0$. Find time of flight.
2. Define angular velocity and time period in case of circular motion.
3. Define cohesive force and adhesive force.
4. Write applications of capillarity.
5. Write how viscosity of gases and liquids changes with temperature.

PART-B

Answer any **TWO** questions. Each question carries five marks. 2 x 5 = 10

6. Define centripetal and centrifugal force. Write expression for angle of banking. (4+1)
7. Derive formula for maximum height and time of ascent in case of oblique projection.
8. Define the terms streamline flow, turbulent flow and Reynold's number.

PART-C

Answer any **TWO** questions. Each question carries ten marks. 2 x 10 = 20

9. (a) Define horizontal range and derive formula for it in case of oblique projection. (6)
   (b) When is range is maximum and derive formula for maximum height? (4)

10. (a) Show that path of oblique projection is a parabola. (6)
    (b) A body is projected into air with velocity 20 m/s at an angle 60^0 . Find its position after 1 second. (4)

11. (a) Derive formula for Young's modulus of a wire. (6)
    (b) A wire of length of 50 cm diameter 2 mm subjected to a force of 10 N. Find its elongation?($Y=2x10^8$) (4)

Semester End Examination marks distribution

	Short Answer	Essay	Marks
Part A	10	0	20
Part B	0	4/6	20
Part C	0	4/6	40
Total	10	8/12	80

18COMMON-103F

BOARD DIPLOMA EXAMINATION, (C-18)

MODEL PAPER

FIRST SEMESTER EXAMINATION

BASIC PHYSICS

Time: 3 Hours] **[Max Marks: 80**

PART-A **10 x 2 = 20**

Instructions: (1) Answer **ALL** questions.
(2) Each question carries **TWO** marks.

1. Define fundamental and derived physical quantities.
2. Define vector and give one example.
3. Define projectile and give one example.
4. State Hooke's law.
5. Define absolute zero and absolute temperature.
6. Define the term internal energy.
7. Define two types of specific heats.
8. Define kinetic energy and give one example.
9. Define renewable and non renewable energy sources.
10. Define potential energy and give one example.

PART-B

GROUP-1 **Answer any TWO questions** **2 x 5 = 10**

11. Derive formula for distance and time taken for a body come to rest on rough horizontal surface.
12. Define scalar product and write any three properties.
13. Derive formula for horizontal range and time taken in case of horizontal projection.

GROUP-2 **Answer any TWO questions** **2 x 5 = 10**

14. Define surface tension. Write formula for surface tension based on capillarity and explain the terms involved in it.
15. Write differences between isothermal and adiabatic processes.
16. Explain simple pendulum based on law of conservation of energy.

PART-C

GROUP-1 **Answer any TWO questions** **2 x 10 = 20**

17. (a) State parallelogram law of vectors and derive expression for resultant vector both in magnitude and direction. (7)
    (b) Find the area of triangle formed by two vectors $\mathbf{A}=2\mathbf{i}+\mathbf{j}-2\mathbf{k}$ and $B = 3\mathbf{i}-\mathbf{j}+2\mathbf{k}$ as sides. (3)

18. (a) Show that the path of oblique projection is parabola. (7)
    (b) An athelete throws a javelline obliquely with a velocity 20 m/s. Find maximum range reached by javelline. (3)

19. (a) Derive ideal gas equation. (6)
    (b) A gas of 2 lit at NTP is subjected to a process such that final pressure becomes 38 cm of Hg and temperature 27^0 C. Find its final volume. (4)

GROUP-2 **Answer any TWO questions** **2 x 10 = 20**

20. (a) State first law of thermodynamics. Apply it in case of isothermal and adiabatic processes. (2+4)
    (b) At constant pressure of 2×10^5 N/m^2, the volume of a gas changed from 20 cc to 60 cc. Find the work done by the gas. (4)

21. (a) State and prove work-energy theorem. (6)
    (b) A bullet of mass 100 gm moving with a velocity 72 kmph on piercing wooden block of thickness 20 cm, final velocity becomes 18 kmph. Find the resistance offered by block. (4)

22. (a) State and prove law of conservation of energy in the case of freely falling body.(7)
    (b) A body is falling freely from a height 10 m towards ground. Find its P.E. and K.E. at a position 3 m from ground level. (3)

Department of Technical Education

State Board of Technical Education & Training (TS)

Course Title:**General Engineering Chemistry**	Course Code: 18-**AA-104F**
Semester :**Semester I**	Course Group :
Teaching Scheme in Hrs(L:T:P) : 3**0:15:0**	Credits : **3**
Type of course : **Lecture + Assignments**	Total Contact Hours :**60Pds**
CIE : **60 Marks**	SEE : **40 Marks**

Course Content and Blue Print of Marks for SEE

Unit No	Unit Name	Period	Questions to be set for SEE			Marks Weightage	Weightage (%)
			R (Section A)	U (Section B)	A (Section C)		
1	Fundamentals of Chemistry	10	2M + 2M	5M	5M	14	12.73
2	Solutions and Colloids	10	2M	5M	5M	12	10.9
3	Acids and Bases	10	2M	5M	5M	12	10.9
4	Environmental Studies-I	10	2M +2M	5M	5M	14	12.73
5	Water Technology	10	2M+2M	5M	20M	29	26.37
6	Electro Chemistry	10	2M+2M	5M	20M	29	26.37
	Total	60	20	30	60	110	100

Prerequisite: Basic knowledge of chemistry in secondary education.

Course Objectives: After studying this course, the student will be able to understand and appreciate the role of Chemistry and environmental studies in different spheres of industries.

Course Outcome: On successful completion of of the course, the students will have ability to attain below Course Outcomes (CO):

CO	Course outcome	CL	Linked PO	Teaching periods
CO1	Explain Bohr's atomic model, the different types of chemical bonding in certain molecules and concept of oxidation, reduction and oxidation number	R/U/A	1,2,9	10

CO2	Understand and explain mole, molarity and normality and solve the problems and colloids and their applications.	R/U/A	1,2,9	**10**
CO3	Explain the different theories of acids and bases , concept of pH, buffer solutions and buffer action.	R/U/A	1,2,3,9	**10**
CO4	Compare the renewable and non renewable energy sources, to take measures to protect the biodiversity and also the environment.	R/U/A	1,2,5,6,7,9,10	**10**
CO5	Distinguish the temporary and permanent hardness, apply the different methods of softening of hard water and desalination.	R/U/A	1,2,3,9,10	**10**
CO6	Explain electrolysis and applications of electrolysis, Solve the problems on Faraday's laws of electrolysis	R/U/A	12,3, 4.	**10**
	Total Periods			**60**

Cognitive levels: R = Remember, U= Understand, A = Apply

GENERAL ENGINEERING CHEMISTRY

COURSE CONTENTS

UNIT-I: Fundamentals of Chemistry(10Periods)

Atomic Structure: Introduction – Atomic number – Mass number- Bohr's Atomic theory - Aufbau principle - Hund's rule - Pauli's exclusion Principle- Orbitals,shapes of s, p and d orbitals - Electronic configuration of elements

Chemical Bonding: Introduction – Electronic theory of valency - Types of chemical bonds - Ionic, covalent and co-ordinate covalent bond with examples - Properties of Ionic and Covalent compounds

Oxidation-Reduction: ElectronicConcepts of Oxidation-Reduction, Oxidation Number- calculations.

UNIT-II: Solutions andColloids(10 Periods)

Introduction-Classification of solutions based on physical state- Molecular weights ,Equivalent weights- Expression of concentration – Mole concept, Molarity, Normality, Numerical problems on Mole,molarityand normality - Colloids- Types of colloids- Lyophilic and Lyophobic- Industrial applications of colloids.

UNIT-III: Acids and Bases(10 Periods)

Introduction - theories of acids and bases and limitations - Arrhenius theory-Bronsted -Lowry theory - Lewis acid base theory - Ionic product of water - pH and related numerical problems - Buffer solutions- buffer action - Applications of buffer solution.

UNIT-IV: Environmental Studies-I(10 Periods)
Introduction - environment -scope and importance of environmental studies- important terms - renewable and non renewable energy sources - Concept of ecosystem, producers,consumers and decomposers - Biodiversity, definition and threats to Biodiversity- Forest resources- Over exploitation-Deforestation.

UNIT-V: Water Technology(10 Periods)
Introduction -soft and hard water - causes of hardness – types of hardness -disadvantages of hard water - degree of hardness (ppm) - softening methods - permutit process - ion exchange process - drinking water - municipal treatment of water for drinking purpose - Osmosis, Reverse Osmosis - advantages of Reverse osmosis – Desalination by Electro -dialysis – Defluoridation – Nalgonda technique.

UNIT-VI:Electrochemistry: (10 periods)

Conductors, insulators, electrolytes –Types of electrolytes - Arrhenius theory of electrolytic dissociation - Electrolysis –Electrolysis of fused NaCl and aqueous NaCl– applications of electrolysis- Faraday's laws of electrolysis- numerical problems.

Reference Books :

1. Engineering chemistry – Jain & Jain – DhanpatRai Publishing Company.
2. A Text book of Engineering Chemistry – S.S.Dara – S.Chand Publications.
3. Environmental Studies – A.K.De.
4. Environmental Studies, R. Rajagopalan, 2nd Edition, 2011, Oxford University Press
5. Intermediate Chemistry I and II – Telugu Academy TS

Suggested Learning Outcomes

Upon completion of the course, the student will have ability to

UNIT- I: FUNDAMENTALS OF CHEMISTRY

1.1 Explain the concept of atomic number and mass number
1.2 State the Postulates of Bohr's atomic theory and its limitations
1.3 Explain 1.Aufbau's principle, 2.Hund's rule and 3.Pauli's exclusion principle with examples.
1.4 Define Orbital.
1.5 Draw the shapes of s, p and d Orbitals.
1.6 Distinguish between Orbit and Orbital
1.7 Write the electronic configuration of elements up to atomic number 30
1.8 Define chemical bond.
1.9 Explain the Postulates of Electronic theory of valency.
1.10 Define and explain three types of Chemical bonding viz., Ionic, Covalent, Coordinate Covalent bond with examples.
1.11 Explain bond formation in NaCl and MgO.
1.12 List the Properties of Ionic compounds.
1.13 Explain covalent bond formation in Hydrogen molecule, Oxygen molecule, and Nitrogen Molecules using Lewis dot method.

1.14 List the Properties of Covalent compounds.
1.15 Distinguish between ionic compounds and covalent compounds.
1.16 Electronic concept of Oxidation and Reduction.
1.17 Define Oxidation Number
1.18 Calculate the Oxidation Number.

UNIT-II:SOLUTIONS AND COLLOIDS

2.1 Define the terms 1.Solution, 2.Solute and 3.Solvent.
2.2 Classify solutions based on physical state.
2.3 Calculate Molecular weight and equivalent weights of acids, bases and salts.
2.4 Define mole.
2.5 Explain Mole concept with examples.
2.6 Define Molarity and Normality.
2.7 Solve Numerical problems on Mole, Molarity and Normality.
2.8 Define Colloids .
2.9 Types of colloids- Lyophilic and Lyophobic.
2.10 Industrial applications of colloids.

UNIT-III:ACIDS AND BASES

3.1 Explain Arrhenius theory of Acids and Bases.
3.2 State the limitations of Arrhenius theory of Acids and Bases
3.3 Explain Bronsted - Lowry theory of acids and bases.
3.4 State the limitations of Bronsted - Lowry theory of acids and bases.
3.5 Explain Lewis theory of acids and bases.
3.6 State the limitations of Lewis theory of acids and bases.
3.7 Explain the Ionic product of water.
3.8 Define pH and explain Sorenson scale.
3.9 Solve the Numerical problems on pH (Strong Acids and Bases).
3.10 Define buffer solutions and give examples of acidic and basic buffers.
3.11 State the applications of buffer solutions.
3.12 Explain the buffer action of acidic and basic buffers.

UNIT-IV:ENVIRONMENTAL STUDIES-I

4.1 Define the term environment
4.2 Explain the scope and importance of environmental studies
4.3 Define and understand the following terms
1) Lithosphere, 2) Hydrosphere, 3) Atmosphere, 4) Biosphere, 5) Pollutant, 6) Contaminant
7) Pollution, 8)receptor, 9)sink, 10) particulates, 11) Dissolved oxygen (DO),
12) Threshold limit value (TLV),13).BOD and 14).COD
4.4 Explain the growing energy needs.
4.5 Explain renewable (non-conventional) and non renewable (conventional) energy sources with examples.
4.6 Define an Ecosystem. Understand biotic and abiotic components of ecosystem.
4.7 Define and explain the terms:
1) Producers, 2) Consumers and 3) Decomposers with examples.
4.8 Explain biodiversity and threats to biodiversity.
4.9 Explain the uses of forests and over exploitation of forest resources and deforestation..

UNIT V:WATER TECHNOLOGY

5.1 State the various Sources of water.

5.2 Define the terms soft water and hard water with examples
5.3 Define hardness of water.
5.4 Explain temporary and permanent hardness of water.
5.5 List the usual chemical compounds causing hardness (with Formulae)
5.6 Disadvantages of using hard water in industries.
5.7 Define Degree of hardness, units of hardness in ppm (mg/L) and numerical problems related to hardness.
5.8 Explain the methods of softening of hard water: a) permutit process b).Ion-Exchange process.
5.9 Essential qualities of drinking water.
5.10 Explain municipal treatment of water for drinking purpose.
5.11 Define Osmosis and Reverse Osmosis(RO).
5.12 List the applications and advantages of RO.
5.13 Desalination of sea water by Electro dialysis.
5.14 Defluoridation - Nalgonda Technique.

UNIT VI: ELECTROCHEMISTRY

6.1 Define the terms1. Conductor, 2. Insulator, 3.Electrolyte and 4.Non - electrolyte
6.2 Types of electrolytes.- strong and weak electrolytes with examples.
6.3 Distinguish between metallic conductors and Electrolytic conductors.
6.4 Arrhenius theory of electrolytic dissociation
6.5 Explain electrolysis of fused NaCl and aqueous NaCl
6.6 Applications of Electrolysis- Electroplating-Electrolytic refining of metal (Copper)
6.7 Explain Faraday's laws of electrolysis
6.8 Define Chemical equivalent, Electrochemical equivalent.
6.9 Relationship between chemical equivalent and electrochemical equivalent
6.10 Solve the Numerical problems based on Faraday's laws of electrolysis

Internal evaluation

Test	Units	Marks	Pattern
Mid Sem 1	1 and 2	20	Part A- 5 Short answer questions Part B- 2 Essay questions out of 3 Questions Part C- 2 Essay questions out of 3 Questions
Mid Sem 2	3 and 4	20	Part A 5 Short answer questions Part B 2 Essay questions out of 3 Questions Part C- 2 Essay questions out of 3 Questions
Slip Test 1	1 and 2	5	2 Essay Questions out of 3 Questions
Slip Test 2	3 and 4	5	2 Essay Questions out of 3 Questions
Assignment	1	5	Different group assignments of Higher order Questions that develop problem solving skills and critical thinking should be given
Seminars	1	5	
	Total	60	

Suggested Student Activities for Induction Program:

	Forenoon	Afternoon
Day1	Registration	Class work as per Time table Chemistry Lab practice classes may be conducted
Day2	Rules and Regulations	
Day3	Getting acquainted with Head and faculty	
Day4	Familiarization with Institutional facilities	
Day5	Interaction with Class teacher and Seniors	
Day6	Introducing the mentor	
Day7	Parent –Teacher meeting	

Suggested Student Activities

1.Student visits Library to refer to Text books, reference books and manuals to find their specifications

2.Student inspects the available equipment in the Chemistry Lab to familiarize with them.

3..Quiz

4.Group discussion

5. Seminar

6.Surprise test

E - learning links:

https://iupac.org/
https://www.youtube.com
https://www.khanacademy.org/
www.nptel.ac.in

Mid term Examination marks distribution

	Short answer	Essay	Marks
Part A	5	0	10
Part B	0	2/3	10
Part C	0	2/3	20
Total	5	4/6	40

Model Paper for Mid-I,

BOARD DIPLOMA EXAMINATION, (C-18)

FIRST SEMESTER, 18 COMMON-104F

GENERAL ENGINEERING CHEMISTRY

Time :**1** ½ HrsTotal Marks :40Marks

PART-A

Answer **all** questions,each carries **two** marks 5 X 2 = 10

1. Define mass number.
2. Draw the shapes of s and p orbitals.
3. Define oxidation..
4. Define Normality.
5. Define solute and solvent.

PART-B

Answer any **two** questions, each carries **five** marks 2 X 5 = 10

6. State Aufbau principle and Hund's rule and explain with examples.
7. List any five properties of covalent compounds.
8. Define Mole. Calculate the equivalent weights of HCl, H_2SO_4, Na_2CO_3 and $Al(OH)_3$.

PART-C

Answer any **two** questions, each carries **ten** marks 2 X 10 = 20

9. (a) Write about the anomalous electronic configuration of Cr and Cu.
   (b) Calculate the oxidation number of (i) S in H_2SO_4 (ii) Cr in K_2CrO_4.
10. (a) 10.6 grams of Na_2CO_3 is dissolved in one liter of solution. Calculate its molarity and normality.
    (b) Write any four industrial applications of colloids.
11. Compare the formation of chemical bonds in Sodium chloride and Hydrogen molecules.

Model Paper for Mid-II

BOARD DIPLOMA EXAMINATION, (C-18)

FIRST SEMESTER, 18 COMMON-104F

GENERAL ENGINEERING CHEMISTRY

Time :**1** ½ Hrs Total Marks :40Marks

PART-A

Answer **all** questions, each carries **two** marks 5 X 2 = 10

11. Define Lewis acid and base.
12. What is conjugate acid base pair? Give an example.
13. Define BOD.
14. What is Biodiversity.
15. Write any four forest resources.

PART-B

Answer any **two** questions, each carries **five** marks 2 X 5 = 10

16. Explain Arrhenius theory of acids and bases.
17. Define ionic product of water. What is its value at 25^{o}C.
18. What are producers, consumers and decomposers? Give examples.

PART-C

Answer any **two** questions, each carries **ten** marks 2 X 10 = 20

19. Calculate the pH value of a solution containing 2gms of NaOH in 500 ml of water.
20. (a) Explain renewable and non-renewable energy sources with examples.
    (b) write any four threats to Bio-diversity.

11.(a) What are the applications of buffer solutions.
(b) What is deforestation? What are its consequences?

Semester End Examination marks distribution

	Short answer	Essay	Marks
Part A	10	0	20
Part B	0	4/6	20
Part C	0	4/6	40
Total	10	8/12	80

SEE

BOARD DIPLOMA EXAMINATION, (C-18)

FIRST SEMESTER, 18 COMMON -104F

(SEMESTER END EXAM)

GENERAL ENGINEERING CHEMISTRY

Time :**3** Hrs Total Marks : 80Marks

PART-A

Answer **all** questions, each carries **two** marks 10 X 2 =20

1. Define atomic mass number.
2. State Hund's rule.
3. Define solute and solvent.
4. Define buffer solution.
5. Define the term environment.
6. Define pollutant.
7. Write the different sources of water.
8. List out the chemicals that cause temporary hardness.
9. Define conductor and insulator.
10. Define electrolyte. Give one example for it

PART-B

GROUP-1 Answer any TWO questions 2 x 5 = 10

11. Write the postulates of Bohr's atomic theory.
12. Classify the solutions based on Physical state.
13. Explain Bronsted – Lowry theory of acids and bases.

GROUP-2 Answer any TWO questions 2 x 5 = 10

14. Compare renewable and non renewable energy sources.
15. Explain any five disadvantages of using hard water in industries.
16. Explain Arrhenius theory of electrolytic dissociation **.**

PART-C

GROUP-1 Answer any TWO questions 2x10=20

17. (a) What type of chemical bond is formed between Na and Cl and explain the bonding.

(b) Calculate the volume of water to be added to change the molarity of HCl from 0.1M to 0.001M.

18. (a) Find out the pH and pOH of 0.001M HCl solution.
(b) Write any five resources of forests.

19. (a) Write any five applications of reverse osmosis.
(b) Explain the application of electro dialysis in desalination of water.

GROUP-2 Answer any TWO questions 2 x 10= 20

20. (a) Explain the process of softening of hard water by ion exchange method with a neat diagram and chemical equations.

21. (a) Explain the process of electrolysis of fused NaCl.

(b) Calculate the weight of copper deposited when 2 amperes of current is passed through $CuSO_4$ solution for two hours. (Atomic weight of Cu = 63.5)

22. Explain electroplating process and electrolytic purification of metal.

BUILDING MATERIALS

Course Title	**BUILDING MATERIALS**	Course Code	**18AA-105C**
Semester	**I**	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**

Course Content and Blue Print of Marks for SEE

Unit No	Unit Name	Hour	Questions to be set for SEE			Marks Weightage	Weightage (%)
			R	U	A		
1	Stones	12	2	1	1	19	17.3
2	Bricks	12	2	1	1	19	17.3
3	Sand	08	1	1	1	17	15.5
4	Clay Products	08	2	1	0	9	8.2
5	Timber and timber products	08	2	1	1	19	17.2
6	Cement, mortars and concrete	12	1	1	2	27	24.5
	Totals	60	10	6	6	110	100.0

Pre requisites

This course requires the basic knowledge of English at Secondary school level

Course Outcomes

CO1 :	: Identify and describe different types of building materials

CO2 :	: Describe the various properties, uses and market trends of different types of materials
CO3 :	Describe the suitability of different types of materials for different building parts and constructions.
CO4 :	Suggest materials for different types of construction activity
CO5 :	Ask relevant questions about a new material and find out the properties, uses and market trends of the new material by doing a market survey

Course Contents

Unit 1: Stones **Duration: 12 Hours** **(L: T:)**

Characteristics of good building stone, Common Varieties of stones, granites, marble, cuddapah-slabs, shahbad stones, sand stone, lime stone, dressing of stones - purpose and uses.

Unit 2: Bricks **Duration: 12 Hours** **(L: T:)**

ISI specifications of bricks IS-1077-1971, Characteristics of good bricks, Uses of bricks, Uses and properties of refractory bricks

Unit 3: Sand **Duration: 08 Hours** **(L: T:)**

River sand, Pit sand and Sea Sand.
Characteristics of the above sands, Uses of sand, Bulking of sand - Percentage of bulkage allowance to be permitted, Crushed stone powder as substitute of sand

Unit4: Clay Products **Duration: 08 Hours** **(L: T:)**

Tiles - Types of tiles - Roofing tiles (Mangalore tiles only) Floor
tiles - Ceiling tiles - Wall tiles, Characteristics of good tiles, Stoneware pipes – Uses, Porcelain and glazed tiles

Unit 5: Timber and Timber Products **Duration: 08 Hours** **(L: T:)**

Characteristics of good timber, Seasoning of timber - Importance, preservation of timber, common varieties of timber used for different works - Doors, Windows, Framework, Centering, Flooring and Cladding.
Wood Products - Veneer, Ply wood, Particle Board, Laminated
Board, Straw board, MDF, LDF and their uses

Unit 6: Cement, Mortars and Concrete **Duration: 12 Hours** **(L: T:)**

Ingredients of Cement, Classification of Cement - Ordinary Portland cement, quick -setting cement. Rapid hardening cement, White cement, coloured cement, Characteristics of ordinary Portland cement, Grades of cements , and their strength & uses, Blended cement.
Mortars and Concrete: Different types of mortars and concretes and their properties and uses, Properties of sand, water, cement and metal in proportioning of mortars and concrete

Recommneded Books:

1. Engineering Materials by S.C.Rangawala.
2. Engineering Materials by Sushil kumar.

3. Engineering Materials by G.J. Kulkarni.
4. Engineering Materials by P.C.Varghese.

Suggested Learning Outcomes

1.0 STONES

1.1 Characteristics of good building stone.
1.2 Common Varieties of stones - granites, Marble, Cuddaph-slabs, Shahbad stones, sand stone, lime stone.
1.3 Dressing of stones - purpose and uses.

2.0 BRICKS

2.1 ISI specifications of bricks IS-1077-1971.
2.2 Characteristics of good bricks.
2.3 Uses of bricks.
2.4 Uses and properties of refractory bricks, Fly ash bricks

3.0 SAND

3.1 River sand, Pit sand and Sea Sand.
3.2 Characteristics of the above sands.
3.3 Uses of sand.
3.4 Bulking of sand - Percentage of bulkage allowance to be permitted.
3.5 Crushed stone powder as substitute of sand.

4.0 CLAY PRODUCTS

4.1 Tiles - Types of tiles - Roofing tiles (Mangalore tiles only) Floor tiles - Ceiling tiles - Wall tiles.
4.2 Characteristics of good tiles.
4.3 Stoneware pipes - Uses.
4.4 Porcelain and glazed tiles.

5.0Timber and Timber Products:

5.1 Characteristics of good timber,
5.2 Seasoning of timber - Importance, preservation of timber,
5.3 common varieties of timber used for different works - Doors, Windows, Framework, Centering, Flooring and Cladding.
5.4 Wood Products - Veneer, Ply wood, Particle Board, Laminated Board, Straw board, MDF, LDF and their uses

6.0 CEMENT

6.1 Ingredients of Cement
6.2 Classification of Cement - Ordinary Portland cement, quick - setting cement. Rapid hardening cement, White cement, coloured cement.
6.3 Characteristics of ordinary Portland cement.
6.4 Grades of cements and their strength & uses.
6.5 Blended cement.

MORTARS

6.6 Classification of Mortars - Lime Mortar, Cement Mortar, Surkhi Mortar, Blended mortar, Gauged, Gypsum and Mud Motor.
6.7 Different proportions of ingredients in mortars for various works.
6.8 Preparation of cement Mortar.
6.9 Characteristics of good mortar.

CONCRETE:

6.10 State the proportions of plain and reinforced concrete for different building works.
6.11Define the terms Fine aggregate, Coarse aggregate and workability.
6.12Explain the importance of Hydration of cement and water cement ratio.
6.13Explain the method of preparing concrete.
6.14State the characteristics of Concrete.
6.15State the advantages of ready mix concrete

Suggested Student Activities

1.Student visits Library to refer to the National Building Code for standards in material specification

2.Students go on a material survey and collect information and brochures about different materials assigned to them

3.Visit nearby Industry to familiarize with manufacturing process of timber products

4.Student visits the material museum to get to see actual samples of materials

5.Quiz

6.Group discussion

7.Surprise test

8. Presentation of a seminar on material survey.

Suggested E learning Resources.:

1. https://en.wikipedia.org/wiki/Building_material
2. http://nptel.ac.in/courses/105102088/
3. http://www.journals.elsevier.com/construction-and-building-materials/
4. http://freevideolectures.com/Course/86/Building-Materials-and-Construction

Model question papers:

Mid Semester exam 1

Mid semester exam 2

Model Question Paper for End Examination:

BOARD DIPLOMA EXAMINATION (C18)
DAA FIRST YEAR EXAMINATION
18AA-105C BUILDING MATERIALS-I

MODEL QUESTION PAPER

Time: 3Hours Max Marks: 80

Part A 10x2=20marks

Note: Answer all questions. Each question carries 2 marks

1. State the meaning of dressing of stone
2. List any two common varieties of stone available in the state of Telangana
3. State any two uses of bricks
4. Draw a neat sketch of a brick and dimension it
5. Define bulking of sand
6. List any two types of tiles
7. State the uses of stoneware
8. Define seasoning of timber
9. List any two varieties of timber available in the state of Telangana
10. Write short notes on white cement

Part B 4x5=20marks

Note Answer any four questions. Each question carries five marks

11. State the characteristics of good building stone
12. Describe the quality tests done on brick.
13. State the characteristics of good sand
14. State the properties of porcelain tiles
15. Describe the properties of fibre board
16. Describe rapid hardening cement

Part C 4x10=40marks

Note: Answer any four questions. Each question carries ten marks

17. Describe the suitability of granite for a kitchen counter. Give reasons
18. State the composition of the good brick earth and how the variation in the composition affects the quality of brick
19. Differentiate between a veneer and plywood
20. Compare lime mortar with cement mortar
21. Prescribe the concrete mix for laying in foundation of a residence and state the reasons for it.
22. State the reasons for using dry sand in construction activity.

CO-PO Mapping Matrix

	COURSE OUTCOME	CL	Linked PO	Teaching hours
CO1	Identify and describe different types of building materials	R/U	1,2	05
CO2	Describe the various properties, uses and market trends of different types of materials	R/U/A	1,2	30
CO3	Describe the suitability of different types of materials for different building parts and constructions	R/U/A	1,2,5	10
CO4	Suggest materials for different types of construction activity	R/U/A	1,2,5,9	05
CO5	Ask relevant questions about a new material and find out the properties, uses and market trends of the new material by doing a market survey	R/U/A	1,2,10	10

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
Building Materials-I	3	3	1	1	2	1	2	3	2	3	1,2,3,4,5,6,7,8,9,10

Note:

1. A material museum is to be established for explaining the students, the characteristics, cost, availability of each material.

2. Students should be sent for market survey to collect information about the materials available in the market and update the product variations that the manufacturer has brought in.

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ENGINEERING DRAWING PRACTICE

Course Title	ENGINEERING DRAWING PRACTICE	Course Code	18AA-106P
Semester	I	Course group	Core
Teaching scheme in Hrs (L:T:P)	1:0:2	Credits	3
Type of Course	Lecture +Drawing Studio	Total Contact Hours	45
CIE	60 marks	SEE	40 marks

Course Content and Blue Print of Marks for SEE

Unit No	Unit Name	Hour	Questions to be set for SEE			Marks Weightage	Weightage (%)
			R	U	A		
1	Introduction	3					
2	Drawing instruments	3		1	1	15	18.75
3	Lines	6					
4	Lettering	6		-	1	10	12.5
5	Dimensioning	9		1	1	15	18.75
6	Geometrical Constructions	9		1	2	25	31.25
7	Conics	9		1	1	15	18.75
	Totals	45		4	6	80	100

Legend: R: Remembering, U: Understanding, A: Applying

Prerequisites: The student should have basic knowledge of English and Mathematics at Secondary School level. An interest and aptitude for drawing is preferable

Course Outcomes:

CO1 :	Comprehend the importance of drawing as a communication tool and its relation with architecture
CO2 :	Identify, describe and select different types of drawing instruments for various drawings

	and follow the methods to keep the drawing presentable.
CO3 :	Identify the different grades of pencils and select them according to the type of drawing
CO4 :	Identify and use different line types
CO5 :	Comprehend the importance, use different styles of dimensioning and lettering and follow the standards.
CO6 :	Construct geometrical forms
CO7	Apply the knowledge of drawing on practical problems

Course Content

Unit1: Introduction **Duration: 3 hours(L: Studio:)**

1.1 The importance of drawing in graphic communication.
1.2 Explanation of the scope and objectives of the subject of drawing
1.3 Role of drawing in architecture.

Unit2: Drawing Instruments **Duration: 6 hours(L: Studio:)**

2.1 Basic tools of drawing: Straight line, curved lines, distances, T- Square, setsquare, compass, Drawing board, French curves, inking pens ,Stencils, furniture templates, circles and ellipse templates, parallel bar, adjustable setsquare,
2.2 Selections of pencils,
2.3 Care and maintenance of drawing sheet and instruments.
2.4 Importance and contents of layout of sheet, title block

Unit3: Lines **Duration: 6 hours(L: Studio:)**

3.1 Lines ,definition, quality of line
3.2 Line types and their uses for different purposes
3.3 Line weights

Unit4: Lettering **Duration: 6 hours(L: Studio:)**

4.1 Purpose of lettering
4.2 Guidelines for lettering
4.3 Recommended size of letters and numbers.
4.4 Types of lettering- vertical, italics, etc
4.5 Purpose of lettering

Unit5: Dimensioning **Duration: 9 hours(L: Studio:)**

5.1 Purpose of dimensioning
5.2 Size description of engineering object
5.3 Definition of dimensioning, size description, locations of features, Surface finish, fully dimensioned drawing.

5.4 Notation and tools for dimensioning, dimension line, extension line, leader line, arrow, symbols, numbers and notes, rules to be observed.
5.5 Placing of dimension line- aligned, Unidirectional Arrangement of dimension- Chain, parallel, combined, by coordinate methods.
5.6 Rules for dimensioning circles ,arcs, angles, chamfer, taper
and narrow spaces.

Unit 6 : Geometrical Constructions **Duration: 9 hours(L: Studio:)**

6.1 Division of a line into given number of equal parts,
6.2 Bisectors, perpendiculars, parallel lines,
6.3 Tangents, tangential curves touching externally and internally, common exterior tangents, common interior tangents, arc touching the sides of an angle,
6.4 Polygon- using set squares, using compass, circles method, inscribing and circumscribing of polygon and circles.,
6.5 Conics in eccentricity method, concentric circles method, rectangle method, intersecting arcs method, parallelogram method, circles method
6.6 Non circular curves, involute, cycloid, helix,

Unit 7 : Conics **Duration: 9 hours(L: Studio:)**

7.1Applications of drawing the path of a falling stone,
7.2 Movement of a point when controlled by one and two centres,
7.3 Path of a point on a bicycle wheel,
7.4 Scroll, shape of a shell.
7.5 Open belt and crossed belt, pulley arrangements

Recommended Books:

1.K.R.Gopalakrishna"Fundamentals of Drawing" Subhas Publications, 2010.
2.K.R.Gopalakrishna"Engineering Drawing" (Vol 1.), Subhas Publications, 2014.
3. Geometrical Art and Drawing - I. H.Morris.
4. Engineering Drawing – N.D.Bhatt.

Suggested Learning Outcomes

1.0 Introduction
- 1.1 Comprehend the importance of drawing
- 1.2 Drawing as an communication tool
- 1.3 The link between drawing and other subjects of architecture

2.0 Drawing Instruments
- 2.1 Select correct drawing instrument to draw horizontal, vertical and angular lines
- 2.2 Select correct instrument to draw small and large circles and arcs

2.3 Select correct instruments to measure the distance on a drawing
2.4 Layout of a drawing sheet and title block

3.0 Lines
- 3.1 Draw correct line of definitive quality

3.2 Draw lines of specified line weight
3.3 Draw and use line types for different types of drawings

4.0 Lettering
4.1 Draw drawing titles using vertical and sloping letters
4.2 Select different types of lettering for a specified purpose in the drawing
4.3 Use lettering stencils for creating text in the drawing

5.0 Dimensioning
5.1 State the need for dimensioning a drawing according to specified standards
5.2 Define dimensioning
5.3 Select a dimensioning system
5.4 Dimensioning and notation of important features of the drawing

6.0 Geometrical Constructions
6.1 Construct divisors of lines,
6.2 Construct bisectors and tangents
6.3 Construct Parallel lines
6.4 Construct polygons
6.5 Construct conics
6.6 Construct non circular curves.

7.0 Conics
7.1 Trace the path of a falling stone
7.2 Path of a point controlled by one and two centres
7.3 Path of a point on bicycle wheel
7.4 Open belt arrangement of pulleys
7.5 Cross belt arrangement of pulleys

Suggested Student Activities

1. The student examines a bicycle and traces a point on the wheel
2. Student visits a grinding mill and studies the belt arrangements and present a seminar
3. Student visits the physics lab and studies the arrangement of pulleys and the cord connecting them.
4. Surprise tests
5. Quiz

Suggested E-Learning resources

1. www.engineeringdrawing.org/
2. https://en.wikipedia.org/wiki/Engineering_drawing/

Model question papers

Mid semester exam 1
Mid semester exam 2
End examination

Model Question Paper for End Examination:

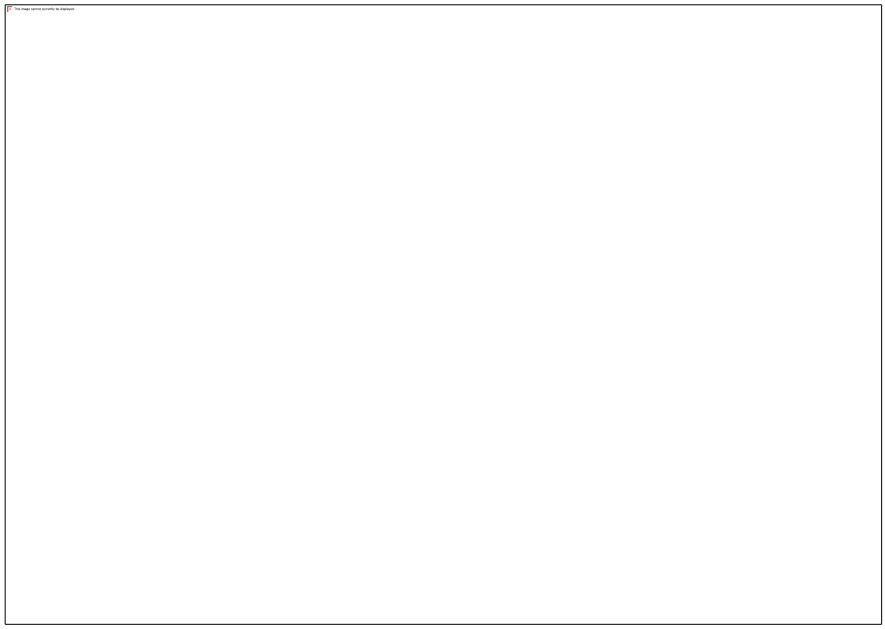
BOARD DIPLOMA EXAMINATION (C18)
DAA FIRST YEAR EXAMINATION
18AA-106C BASIC ENGINEERING DRAWING PRACTICE
MODEL QUESTION PAPER

Time: 3Hours Max Marks: 60

Part A 5x4=20marks

Note: Answer all questions. Each question carries 5 marks

1. Describe the drawing board with a neat sketch
2. Draw neat sketches and describe different types of lines and the purpose for which they are used
3. Rewrite the following statement in single stroke, vertical capital letters of 10mm height
   " State Board of Technical Education and Training"
4. Redraw the following figure and dimension it according to the standards.



Part B 10x4=40marks

Note Answer any four questions. Each question carries five marks

5. Describe the following instruments with neat sketches
   a. T Square b. Set Squares
6. Draw a square of 200mmx200mm and draw line weights of B pencil in uniform line weight,
7. Rewrite the following statement in 12mm high capital Italics
   " Form Follows Function- Frank Lloyd Wright"
8. Describe the different types of dimensioning and state which method is suitable for which purpose
9. Construct an ellipse using parallelogram method given that the major axis is 80mm and minor axis is 60mm and the angle between the axii is 45^0
10. Two pulleys are connected in an open arrangement. The radii are 25mm and 15mm. The centres are separated by a distance of 100mm. Draw the arrangement.

CO PO Mapping Matrix

	COURSE OUTCOME	CL	Linked PO	Teaching Hrs
CO1	: Comprehend and describe the importance of drawing as a communication tool and its relation with architecture.	R/U	1,2	3
CO2	Identify, describe and select different types of drawing instruments for various drawings and follow the methods to keep the drawing presentable.	R/U/A	1,2,3,4	6
CO3	Identify the different grades of pencils and select them according to the type of drawing	R/U/A	1,2,3,4,	6
CO4	Identify, describe and use different line types	R/U/A	1,2,3	6
CO5	Comprehend the importance, describe and use different styles of dimensioning and lettering following the standards	R/U/A	1,2,3,4,7	9
CO6	Comprehend the importance, describe and use different styles of dimensioning and lettering following the standards	R/U/A	1,2,3	1,2,3,4	9
CO7	Apply the knowledge of drawing on practical problems	R/U/A	1,2,3,4,5	6

CO /PO mapping

CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	Mapped POs
Engineerin											

g Drawing Practice	3	3	3	3	2		2	1		2	1,2,3,4,5,7,8,10

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BASIC DESIGN

Course Title	**BASIC DESIGN**	Course Code	18AA -107 P
Semester	I	Course group	core
Teaching Scheme in Hrs (L:T:P)	1:0:2	Credit	03
Type of course	Lecture + assignments	Total Contact Hours	45
CIE	60 marks	SEE	40 marks

Course Content and Blue Print of Marks for SEE

Course Content and Blue Print of Marks for SEE							
Unit No	**Unit Name**	**Hour**	**Questions to be set for SEE**			**Marks Weightage**	**Weightage (%)**
			R	**U**	**A**		
1	Introduction to Art & Design	3		1		5	`6.25
2	Elements of Design	6		1	2	15	18.75
3	Principles of Design	6		1		15	18.75
4	Society and Articulation	3		1		5	6.25
5	Color Theory	3		-	1	10	12.5
6	Scale & Measured Drawings	24		-	3	30	37.5
	Total	45		4	6	80	100
• **Legend: R: Remembering, U: Understanding, A: Applying**							

Pre requisites

This course requires the basic knowledge of drawing at Secondary school level

Course Outcomes

Course Outcomes

CO1 :	Understanding design as a new language by sensitizing the students to the conceptual, visual and perceptual issues involved in the design process
CO2 :	Develop understanding and skillful use of the elements and principles of visual design
CO3:	Learn to develop the skills to create solutions for simple elements of building in 2D/3D
CO4 :	Society and articulation
CO5 :	To know about color and its applications in design
CO6 :	Scaled drawings of simple objects like different furniture pieces.

Course Contents

Unit1: Introduction to Art & Design Duration: 9 hours(L: Studio:)

1.1 Meaning of the term art and design
1.2 Definition of Graphic design
1.3 Role of design in society

Unit2: Elements of Design Duration: 6 hours(L: Studio:)

2.1 Conceptual elements: points, lines, planes and solids
2.2 Visual elements: size, shape, colour and texture
2.3 Designs may be symmetrical or asymmetrical.
2.4 Design drawings should be concept based and a composition must be prepared either floral, Geometrical or abstract to bedone in colour.
2.5 Eg: prepare a design, using the following motifs in a rectangle
of 12 X18 cm.
1) 3 circles of different sizes.
2) Three triangles of equal size.
3) Two unequal squares.
4) 3 curved lines.

Unit3: Principles of Design **Duration: 6 hours(L: Studio:)**

3.1 Composition, Balance, Rhythm, Proportion, Harmony, Contrast
3.2 Understand the term composition.
3.3 Composition of geometrical and non-geometrical forms
3.4 Know the design concepts and terms focal design, harmonious design, contrast design and abstract design and their applications in building designs.
3.5 To draw different varieties of pattern designs with above concepts.

Note: Exercises to be done for the above by considering various Geometrical and non-Geometrical forms along with definition
and explanation of the terms.
3.6 Drawing of interior furniture, flooring Patterns, Ceiling Patterns and Wall Patterns.
3.7 Exterior Elements like masses, voids, door Patterns, Window Patterns, Grills in plan/ elevation.

Unit4: Society & Articulation **Duration: 6 hours(L: Studio:)**

1.1 Importance of architecture to society
1.2 Role of designer in changing Society
1.3 Meaning of the term Articulation
1.4 Articulation in Art & Architecture
1.5 Uses of Articulation

Unit5: Color Theory **Duration: 9 hours(L: Studio:)**

5.1 Draw color wheel practicing color mixes
5.2 Rendering with color pencil , water colors
5.3 Color Schemes

Unit 6 : Scale & Measured Drawing **Duration: 9 hours(L: Studio:)**

1. Principles of Two-Dimensional Design by Wucius Wong.

6.1 Students are expected to measure and draw to a suitable scale the following in plan, elevation and section.
6.2 Importance and purpose of measured drawings.
6.3 Table, chair, stool
6.4 Sofa, center table, side table
6.5 Dining Table and dining chair
6.6 A double cot, single cot, wardrobe
6.7 A compound wall
6.8 A gate
6.9 A railing

Recommended Books:

2. Design by Philip Rawson.
3. Design Basics by David Lauer.

4. Design through Discovery by Marjorie Elliott Bevlin

5. Basic principles of Design – Maier Manfired
6. Architecture: form, space and order
7. Decorative designs of Frank Lloyd Wright
8. The Elements of Color – Paratore, Philip Carlo

Suggested Learning Outcomes

1.0 Introduction to Art & Design

1.1 Importance of design

2.0 Elements of Design

2.1 To know the spatial elements (conceptual and visual elements)

2.2 To lgebraic the spatial elements

3.0 Principles of Design

3.1 To develop creative expression
3.2 To understand simple principles of design such as balance, proportion And rhythm.
3.3 To arrange multiple forms in a systematic and schematic manner
3.4 3.5 Application ofthe principles of composition in two dimensional compositions

4.0 Society & Articulation

4.1 To Know the social responsibility of Architects
4.2 To know Distinct articulation;s Continuity & articulation
4.3 Articulation & space, examples.

5.0 Color Theory

5.1 To know the color schemes
5.2 To create a sense of understanding of color harmony and its effect.

6.0 Scale & Measured Drawing

6.1 Students are expected to measure and draw to a suitable scale in plan, elevation and section various manmade objects like furniture; architectural elements like gates, grills, etc.
6.2 Importance and purpose of measured drawings.

Suggested Student Activities

1. Studio based learning
2. Assignments
3. Site visits

Suggested E learning Resources.:

1. http://www.designcoding.net/
2. https://www.youtube.com/watch?v=t3kEwrNiNCQ
3. https://www.youtube.com/watch?v=62r3UPrOS9k

Model Question Papers:

Mid Semester exam 1

Mid semester exam 2

Model Question Paper for End Examination:

Internal Evaluation.:

Test	Units	Marks	Pattern
Mid Sem 1	1 to 2	30 (To be reduced to 20 marks)	Part A 2 Short questions 5 m each Part B 2/3 Essay questions 10marks each
Mid Sem 2	3 to 4	30(To be reduced to 20 marks)	Part A 2 Short questions5 m each Part B 2/3 Essay questions 10marks each
Assignment 1	1 to 2	30(To be reduced to 20 marks)	Assignments
Assignment 2	3 to 4		Assignments
Assignment 3	5 to 6		Assignments
	Total	60	

Note:

1..As this subject is is a studio subject students are made to prepare a separate PORTFOLIO consisting of all assignments. This studio work should be supplemented with appropriate site visits.

End Examination Evaluation.:

BOARD DIPLOMA EXAMINATION (C18)

DAA FIRST YEAR EXAMINATION
18AA-107C BASIC DESIGN
MODEL QUESTION PAPER

Time: 3Hours Max Marks: 60

Part A 4x5=20marks

Note: Answer all questions. Each question carries 5 marks

1.
2.
3
4.

Part B 2x10=20marks

Note Answer any two questions. Each question carries ten marks

5.
6.
7 .

Part C 2x10=20marks

(To be set from chapters 5 & 6)

Note: Answer any two questions. Each question carries ten marks

8.
9.
10.

NOTE: 60 Marks of end examination to be reduced 40 marks

CO-PO Mapping Matrix

	COURSE OUTCOME	CL	Linked PO	Teaching hours
CO1	Understanding design as a new language by sensitizing the students to the conceptual, visual and perceptual issues involved in the design process	R/U		5
CO2	Develop understanding and skillful use of the elements and principles of visual design	R/U/A		15
CO3	Learn to develop the skills to create solutions for simple elements of building in 2D/3D	U/A		15
CO4	Society and articulation	U/A		5

CO5	To know about color and its applications in design	R/U/A		10
CO6	Scaled drawings of simple objects like different furniture pieces.	R/U/A		30

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	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 0	Mapped POs
Basic Design	2	2	2	2	3	1	0	1	2	2	

ASSIGNMENTS

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											
CO2											
CO3											
CO4											

CO5											
CO6											

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FREE HAND DRAWING

Course Title	Free Hand Drawing	Course Code	18 AA -108 P
Semester	I	Course group	core
Teaching Scheme in Hrs (L:T:P)	1:0:2	Credit	03
Type of course	Lecture + assignments	Total Contact Hours	45
CIE	60 marks	SEE	40 marks

Course Content and Blue Print of Marks for SEE

Course Content and Blue Print of Marks for SEE							
Unit No	**Unit Name**	**Hour**	**Questions to be set for SEE**			**Marks Weightage**	**Weightage (%)**
			R	**U**	**A**		
1	Introduction	6	-	2		5	6.25
2	Plane & Solid Geometry	9	-		1	15	18.75
3	Geometric patterns	6	-	1	1	10	12.5
4	Non-geometric patterns	9	-		1	15	18.75
5	Motifs	6	-	1	1	15	18.75
6	Manmade Objects - Furniture	9	-		2	20	25
	Total	45	-	4	6	80	100
• **Legend: R: Remembering, U: Understanding, A: Applying**							

Pre requisites

This course requires the basic knowledge of visual arts at Secondary school level and flair for sketching.

Course Outcomes

Course Outcomes

CO1 :	Emphasize visual literacy knowing the basics of two dimensional design (elements & principles of art)
CO2 :	Increase creativity, imagination and expressional skills through basic geometry
CO3 :	Identify and draw various geometric and non geometric forms and patterns.
CO4 :	Develop good free hand drawing skills and spatial awareness through form properties
CO5 :	Observe and render natural forms and motifs
CO6 :	Pay attention to detail of various forms sketching furniture pieces

Course Contents

Unit1: Introduction **Duration: 9 hours(L: Studio:)**

1.1 Purpose and importance of free hand drawing & its relation to Architecture
1.2 Sketch elements of design-
1.3 Visual elements (size, shape, color, texture)
1.4 Conceptual elements (points, lines, planes, solids);
1.5 Principles of design- Composition, balance, symmetry & assymmetry, proportion, rhythm, repetition, gradation, emphasis etc

Unit2: Plane & Solid Geometry **Duration: 6 hours(L: Studio:)**

2.1Sketch primary planes: square, triangle, circle, etc.
2.2 Sketch primary solids: polyhedral (cube, cuboid, pyramid, prism),
2.3 Sketch solids of revolution: (cone, cylinder and sphere)
2.4 Form: relational properties of elements- position and orientation
2.5 Form and space: foreground and background, Horizontal and vertical elements of form, Properties of enclosure
2.6 Types of forms: centralized, linear, radial and grid form.

Unit3: Geometric Patterns **Duration: 6 hours(L: Studio:)**

3.1 Meaning of the term modular design,
3.2 Know the application of design principles of symmetry , asymmetry, balance, repetition and Proportion in geometric patterns
3.3 Sketching repetitive geometric patterns for flooring, ceiling, walls, doors and windows, railings, gates and grills.
3.4 The medium of drawing is pencil

Unit4: Non Geometric Patterns **Duration: 6 hours(L: Studio:)**

4.1 Know the application of design principles in non geometric patterns.
4.2 The importance of 'proportion'
4.3 To draw a proportionate replica (enlarged/ reduced) of a given Ssymmetrical/ asymmetrical, traditional ornamental design
4.4 The medium of drawing is pencil

Unit5: Motifs **Duration: 9 hours(L: Studio:)**

5.1 Meaning of the term 'motif'
5.2 Sketch different types of motifs- checker, diaper, herringbone, scallop, .guilloche, dentil band, scroll, lotus, palmate,

Unit 6 : Manmade Objects -Furniture **Duration: 9 hours(L: Studio:)**

61 Know the application of geometry in various furniture pieces.
6.2 To observe and draw the detail elements of furniture
6.3 sketch various furniture pieces like tables, chair,center table, side table, sofa (3 and single seat), dining table and chais, a double cot, a shelf

Recommended Books:

1. Moris, I.H. Geometrical Drawing for Art Students.
2. Thoms, E. French. Graphic Science and Design, New York: MC Graw Hill.
3. Nichols, T.B. and Keep, Norman. - Geometry of Construction, 3rd ed. Cleaver - Hume Press Ltd., London, 1959.
4.Visual Thinking – De Sausmarez, Maurice
5. Wucius, Wong - Principles of two Dimensional Design. Van Nostrand Reinhold 1972.
6. Maier Manfired - Basic Principles of Design, Vol.1, 2, 3 & 4, Van Nostrand Reinhold, NY. (1977)
7.Robert.W.Gill – Rendering with Pen & Ink

Suggested Learning Outcomes

1.0 Introduction

1.1 To emphasize on basic design abilities, visual literacy and expressional skills
1.2 Introduction to design process

2.0 Plane & Solid Geometry

2.1 To be able to recognize the various forms
2.2 Free hand drawing of various geometrical shapes/ forms

3.0 Geometric Patterns

3.1 To develop the ability to use geometry for preparing patterns.
3.2 To explore the different geometrical patterns
3.3 To know modular design

4.0 Non Geometric Patterns

4.1 To develop the ability to use geometry for preparing patterns.
4.2 To explore the different non geometrical patterns
4.3 To know modular design

5.0 Motifs

5.1 To develop observation skill by sketching natural and manmade motifs

6.0 Manmade Objects- Furniture

6.1 To know how the basic knowledge of geometry is applied in the creation of furniture elements
6.2 To increase observation skill doing detailing of furniture elements.

Suggested Student Activities

2. Sketching indoor and outdoors
3. Literature study through e learning
4. Assignments on nature study

Suggested E learning Resources.:

1. www.visualartists.co
2. www.visual-arts-cork.com/definitions

Model Question Papers:

Mid Semester exam 1

Mid semester exam 2

Model Question Paper for End Examination:

INTERNAL EVALUATION

Test	Units	Marks	Pattern
Mid Sem 1	1 to 2	30 (To be reduced	Part A 2 Short questions 5 m each

		to 20 marks)	Part B 2/3 Essay questions 10marks each
Mid Sem 2	3 to 4	30(To be reduced to 20 marks)	Part A 2 Short questions5 m each Part B 2/3 Essay questions 10marks each
Assignment 1	1 to 2	30(To be reduced to 20 marks)	Sketching Assignments
Assignment 2	3 to 4		Sketching Assignments
Assignment 3	5 to 6		Sketching Assignments
	Total	60	

END EXAMINATION EVALUATION

BOARD DIPLOMA EXAMINATION (C18)

DAA FIRST YEAR EXAMINATION
18AA-108C FREE HAND DRAWING-I
MODEL QUESTION PAPER

Time: 3Hours Max Marks: 60

Part A 4x5=20marks

Note: Answer all questions. Each question carries 5 marks

1.
2.
3
4.

Part B 2x10=20marks

Note Answer any two questions. Each question carries ten marks

5.
6.
7 .

Part C 2x10=20marks

(To be set from chapters 5 & 6)

Note: Answer any two questions. Each question carries ten marks

8.
9.
10.

NOTE: 60 Marks of end examination to be reduced 40 marks

CO-PO Mapping Matrix

	COURSE OUTCOME	CL	Linked PO	Teaching

				hours
CO1	Emphasize visual literacy knowing the basics of two dimensional design (elements & principles of art)	R/U	1,2,4,5,6,9,10	6
CO2	Increase creativity, imagination and expressional skills through basic geometry	U/A	1,3,6,,9,10	9
CO3	Identify and draw various geometric and non geometric forms and patterns.	R/U/A	1,2,3,4,,5,9,10	6
CO4	Develop good free hand drawing skills and spatial awareness through form properties	U/A	1,2,3,5,6,9	9
CO5	Observe and render natural forms and motifs	U/A	1,2,3,6,9	6
CO6	Pay attention to detail of various forms sketching furniture pieces	U/A	1,2,3,6,9,10	9

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	Mapped POs
Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	
Free Hand Drawing -I	3	2	1	1	2	2	0	1	2	2	1,2,3,4,5,6,9,10

ASSIGNMENTS/ EXERCISES

1.

2.

3.

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15.

Note:

1.Craft technology is to be utilized for preparing various geometric and non geometric patterns.

2.As this subject is is a studio subject students are made to prepare a separate sketch book consisting of all assignments. This studio work should be supplemented with appropriate site visits.

3. PORTFOLIO SUBMISSION – Semester end submission of portfolio consisting of selected works (min. no. 20) produced during the semester. The works should be rich in terms of material exploration and visual impact

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			x	x	1,2,4,5,6,9,10

CO2	x		x			x			x	x	1,3,6,,9,10
CO3	x	x	x	x	x				x	x	1,2,3,4,,5,9,10
CO4	x	x	x		x	x			x		1,2,3,5,6,9
CO5	x	x	x			x			x		1,2,3,6,9
CO6	x	x	x			x			x	x	1,2,3,6,9,10
	6	5	5	2	3	5	0	0	6	4	

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Department of Technical Education
State Board of Technical Education & Training (TS)

Course Title	**Basic Science Lab Practice (Physics Lab)**	**Course Code**	**18AA-109P(A)**
Semester	**I**	**Course Group**	**Core**
Teaching Scheme in Pds/Hrs(L:T:P)	**0:1:2 periods**	**Credits**	**1.5/2**
Type of course	**Tutorial & practical**	**Total Contact Hrs**	**22.5Pds**
CIE	**30 Marks**	**SEE**	**20 Marks**

Pre requisites: Knowledge of basic concepts of basic High school science, basic mathematics

Course objectives: To provide practical knowledge about the basics of Physics instrumentation

and calculations/measurements.

Tutorial: 0.83 Hrs/Experiment:

1. Introduction Physics practical and its importance, safety precautions in maintenance of equipment in the laboratory.
2. Maintenance of apparatus and equipment.
3. Follow of Do's and Don'ts.
4. Maintenance of data in manual and record book.
5. Write the procedure of the experiment before the commencement of each experiment.
6. Strictly following of instructions given from time to time by the lecturer-in-charge.
7. Demonstration of each experiment by the lecturer in charge.

Conduct of an experiment: 3periods/experiment.

Course outcomes:

On successful completion of the course, the student will have ability to:

1. useVernier caliper to determine the volumes of objects like cylinder and sphere.
2: use Screw gauge to determine thickness /diameter of small objects like glass plate and wire.
3: prove Boyle's law employing Quill tube.
4: determine the viscosity of liquid using capillary method.
5: verify the parallelogram law and triangle law of forces.

References:

1. Basic Applied Physics – R.K. Gaur
2. Laboratory manual for class XI and XII - NCERT

PHYSICS PRACTICALS

List of experiments

Semester I

1. Vernier caliper- determine the volumes of a cylinder and sphere.
2. Screw gauge - determine thickness of a glass plate and cross section of a wire.
3. Boyle's law - verification using Quill tube.
4. Coefficient of viscosity of liquid - using capillary method.
5. Parallelogram law and Triangle law of forces – verification.

Course Delivery:

The course will be delivered through lectures, class room interaction, group discussions, graded exercises, demonstration and practice.

Conduction of experiments: 2 periods/Experiment.

Student must perform experiment individually under the supervision of the lecturer-in charge.

On successful completion of the course, the student will have the ability to attain below Course outcomes (CO):

Course Outcomes		CL	Linked experiments	Linked POs	Teaching Hours
CO 1	Hands on practice on Vernier Calipers	U/A		1,2,3,8,9	L:P::1:2
CO 2	Hands on practice on Screw gauge	U/A		1,2,3,8,9	L:P::1:2
CO 3	Boyle's law verification	U/A		1,2,3,8,9	L:P::1:2
CO 4	Coefficient of Viscosity by capillary method	U/A		1,2,3,8,9	L:P::1:2
CO 5	Verification of Parallelogram law of forces andTriangle law of forces	U/A		1,2,3,8,9	L:P::1:2
CO 6	Related the answers to the oral questions		Covered in all COs		

Cognitive levels: R=Remember, U=Understand, A=Apply

Scheme of Valuation of SEE		
S.No	Particulars	Marks
1.	Identification of apparatus/equipment/etc	01
2.	Writing procedure	04
3.	Conducting of experiment	10
4.	Results	01
5.	Viva-voce	04
	Total	20

Suggested learning outcomes

Name of the Experiment	Competencies	Key competencies
1. Hands on practice on Vernier Calipers – Cylinder and sphere	• Find the Least count • Fix the specimen in position • Read the scales • Calculate the volume of given object	• Read the scales • Calculate the volume of given object
2. Hands on practice on Screw gauge – Wire and glass plate	• Find the Least count • Fix the specimen in position • Read the scales • Calculate thickness of glass plate and cross section of wire	• Read the scales • Calculate thickness of given glass plate • Calculate cross section of wire
3. Boyle's law verification – Quill tube	• Note the atmospheric pressure • Fix the quill tube to retort stand • Find the length of air column • Find the pressure of enclosed air • Find and compare the calculated value P x l	• Find the length of air column • Find the pressure of enclosed air • Find the value P x l
4. Coefficient of viscosity by capillary Method - water	• Find the least count of vernier • Fix the capillary tube to aspiratory bottle • Find the mass of collected water • Find the pressure head • Calculate rate of volume of liquid collected • Find the radius of capillary tube • Calculate the viscosity of water using capillary method	• Find the pressure head • Calculate rate of volume of liquid collected • Find the radius of capillary tube • Calculate the viscosity of water

5. Verification of Parallelogram law of forces and Triangle law of forces	• Fix suitable weights • Note the positions of threads on drawing sheet • Find the angle at equilibrium point • Construct parallelogram • Compare the measured diagonal • Construct triangle • Find the length of sides • Compare the ratios	• Find the angle at equilibrium point • Constructing parallelogram • Construct triangle • Compare the ratios of force and length

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Department of Technical Education
State Board of Technical Education & Training (TS)

Course Title: **Basic Science Lab Practice (Chemistry Lab)**	Course Code: **18 AA-109(B)**
Semester: **I**	Core/Elective:
Teaching Scheme(L:P):**1:2**periods	Credits: **1.5/2**
Type of Course: **Lecture& practical**	Total Contact Hours: 22.5 periods
CIE: **30 Marks**	SEE: **20 Marks**

Prerequisite:
Knowledge of basic concepts of chemistry of secondary education.

Course Objectives:
To provide practical knowledge about the basics of preparation of chemical solutions and volumetric analysis of chemical compounds.

Course Outcomes:

On successful completion of the course, the student will have ability to attain CO:

Course Outcome		**CL**	**Linked PO**	**Teaching Hours**
CO1	Prepare the standard solution.	**U/A**	1,2,3,8	L:P ::1:2
CO2	Estimate the amount of the chemical substance in the given sample of solutions(HCl, NaOH& H_2SO_4).	**U/A**	1,2,3,8	L:P ::3:6
CO3	Determination of hardness of water in the given sample.	**U/A**	1,2,3,8	L:P ::1:2
CO4	Relate the answers to the oral questions	**U/A**		

U = Understand, A = Application

Course Delivery:

The course will be delivered through lectures, classroom interaction, group discussion, demonstration and practicals.

Conduction of experiments: Lecture 1 period + Experiment 2 periods..

Student must conduct experiment individually under the supervision of the staff-in-charge.

Tutorial:

1. Introduction of chemistry practical and its importance, safety precautions in maintenance of cleanliness and orderliness of chemicals in the laboratory.
2. Maintenance of apparatus and equipment.
3. Follow of DO's and Don'ts.
4. Maintenance of data in record book.
5. Write the procedure of the experiment before the commencement of each experiment.
6. Strict following of instructions given from time to time by the staff-in- charge.
7. Demonstration of each experiment by the staff in charge.

Course content

Volumetric Analysis: (22.5 Hrs)

Volumetric analysis by Titrimetric Method:-

Volumetric Analysis -Titration – Standard Solutions- Concentration of solutions- Indicators- acid base indicators- selection of indicators-endpoint of titration-Neutralization.

List of experiments:

1. Preparation of 0.05M sodium carbonate solution.
2. Estimation of hydrochloric acid present in 250 ml of solution by using Standard sodium carbonate solution.
3. Estimation of sodium hydroxide present in 250ml of solution by using standard hydrochloric acid solution.
4. Estimation of sulphuric acid present in 250ml of solution by using standard sodium hydroxide solution.
5. Determination of total hardness of water sample by 0.02N EDTA solution.

Suggested Learning Outcomes

Upon completion of the course, the student will have ability to

1. Prepare standard sodium carbonate solution.
2. Estimate hydrochloric acid present given volume of solution by using standard sodium carbonate solution.
3. Estimate sodium hydroxide present in the given volume of solution by using standard hydrochloric acid solution.
4. Estimate sulphuric acid present in the given volume of solution by using standard sodium hydroxide solution.
5. Determine the total hardness of water sample by using 0.02N EDTA solution.

Reference Books:

1. Vogel's Inorganic Qualitative and Quantitative Analysis.
2. Practical chemistry by O.P.Pande& others.
3. Qualitative and quantitative analysis by Alex.

Scheme of Valuation for MID I & II and SEE		
Sl. No.	**Particulars**	**Marks**
1	Identification of apparatus/equipment/chemical compounds/tools/etc.	2
2	Writing Procedure	5
3	Conducting of experiment	4
4	Observation and Results	6
5	Viva-voice	3
Total		20

COMPUTER FUNDAMENTALS LAB PRACTICE-I

Course Title : **COMPUTER FUNDAMENTALS LAB PRACTICE**	Course Code : **18 AA-110P**
Semester : **I**	Course Group : **Core**
Teaching Scheme in Hrs (L:T:P) :**7.5:0:37.5**	Credits : **3**
Type of course **: Tutorial + Practicals**	Total Contact Hours : **45 Pds**
CIE : **60 Marks**	SEE : **40 Marks**

Prerequisites

Knowledge of English comprehension , Basic Computer operation and IO devices.

Course Outcome

On successful completion of the course, the students will be able to attain below Course Outcome (CO):

Course Outcome		CL	Linked PO	Teaching Hours
CO1	Identify hardware and software components and work with DOS OS	**R,U, A**	**1,2,3,4,8,9,10**	**5**
CO2	Operate the computer system with Windows OS	**R,U, A**	**1,2,3,4,8,9,10**	**15**
CO3	Access the internet	**R,U, A**	**1,2,3,4,8,9,10**	**5**
CO4	Draft the documents using word processing software	**R,U, A**	**1,2,3,4,8,9,10**	**20**
		Total Sessions		**45**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

Course Contents

COMPUTER BASICS

1. Identify the various components of a Computer system
2. Differentiate between hardware and software
3. State the configuration of a computer system
4. Practice on DOS Internal and External commands.
5. Create and use Batch Files.
6. Know the usage of Editors.

WINDOWS Operating System

7. Exercise on creation of text Files using Notepad, WordPad
8. Exercise on creation of .jpeg, .bmp files using MS Paint
9. Exercise how to use calculator
10. Exercise on creation of folders and organizing files in different folders
11. Exercise on use of Recycle Bin, My Computer and My Documents

12. Exercise on creation of shortcut to files and folders (in other folders) on Desktop
13. Exercise on arranging of icons – name wise, size, type, Modified
14. Exercise on searching, accessing and organizing files / folders
15. Change resolution, colour, appearance, screen server options of Display, date and time

INTERNET

16. Importance of web browser software
17. Structure of URL
18. Create an E-mail account
19. Send & Receive an E-mail
20. Browse the Internet using various search engines

WORD Processing Software

21. Open MS-word and Identify the components on the screen
22. Create a document using MS-word and save it.
23. Create a table using MS-Word and save it.
24. Apply formulas in table & sort the table
25. Convert text into table & table into text.
26. Insertion of new rows and columns in the existing table and changing background colour in Table
27. Merge and split cells in a Table
28. Change the font of a text
29. Exercise with Headers and Footers, paragraph tool bar
30. Insert objects into the document like pictures, shapes, charts, and word-art.
31. Printing a document , page setting, different views of a document
32. Import & export files to & from Word.
33. Create a letter and send to multiple users using mail merge tool of MS-word
34. Create a Simple Newsletter with minimum three columns. Insert a Clip Art in the Newsletter.
35. Create a Resume for a Job Application.
36. Create the Cover Page of a Project Report (use Word Art, insert Picture Image).
37. Prepare the class time table of your class.

Resources:

1. Computer Fundamentals Concepts, Systems, Application, D.P.Nagapal, S.Chand Publication, RP-2014, ISBN: 81-219-2388-3
2. http://www.tutorialsforopenoffice.org/
3. http://www.libreoffice.org/get-help/documentation/

Software Tool

Any open source tool or equivalent proprietary tools

Composition of Educational Components:

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No.	Bloom's Category	%
1	Remembrance	20
2	Understanding	20
3	Application	60

Mapping Course Outcomes with Program Outcomes:
(Course Outcome linkage to Cognitive Level)

Course Outcome		Experiment Linked	Linked PO	CL	Lab Sessions
CO1	Identify hardware and software components and work with DOS OS	**1,2,3,4,5,6**	**1,2,3,4,8,9,10**	**R, U, A**	**5**
CO2	Operate the computer system with Windows OS	**7,8,9,10,11,12,13, 14,15**	**1,2,3,4,8,9,10**	**R, U, A**	**15**
CO3	Access the internet	**16,17,18,19,20**	**1,2,3,4,8,9,10**	**R,U, A**	**5**
CO4	Draft the documents using word processing software	**21,22,23,24,25,26, 27,28,29,30,31,32, 33,34,35,36,37**	**1,2,3,4,8,9,10**	**U, A**	**20**

U-Understanding; A-application/ Analysis; App-Application

Student Activity

1. Observe newspaper pattern of printing.
2. Submit a report of one page
3. Collection of data

Internal Assesment

Activity	Marks
Writing the experiment, record evaluation	30
Execution of the given experiment	20
Viva-voce	10
Total	60

Model Question Bank

1. Identify Physical components of a Computer System.
2. Demonstrate Internal and External DOS Commands and differentiate between them.
3. Create and Rename the file using DOS Commands.
4. Create a directory and copy a file inside the directory using DOS Commands.
5. Demonstrate the basic formatting features in Text Editors.
6. Create two file in a folder and place the shortcut of these files on the desktop.
7. Demonstrate how search engine may be used in browsing Internet.
8. Create an E-mail account
9. Create and Send an E-mail with a picture attachment.
10. Demonstrate how documents can be downloaded using Internet.
11. Using Word Processor Application create a Simple Newsletter with minimum of three columns. Insert a Clip art in the newsletter.
12. Using Word Processor Application create a Resume for a Job application.
13. Using Word Processor Application create the cover page of a Project Report (use Word Art, insert Picture Image).
14. Prepare the class time table for your class using Word Processor Application.