STATE COUNCIL OF TECHNICAL EDUCATION AND VOCATIONAL TRAINING, ODISHA
TEACHING AND EVALUATION SCHEME FOR DIPLOMA IN ENGINEERING COURSES

DISCIPLINE: AERONAUTICAL ENIGINEERING										SEMESTER: 3RD	
SL NO	SUBJECT CODE	SUBJECT	PERIODS			EVALUATION SCHEME						
			L	T	P	INTERNAL EXAM			END SEM EXAM	TERM WORK	PRACTICAL EXAM	TOTAL MARKS
						TA	CT	Total				
THEORY												
1.	BST 301	ENGG. MATH - III	4	0	-	10	20	30	70			100
2.	ANT 301	AIRCRAFT HARDWARE	3	1	-	10	20	30	70			100
3.	ANT 302	WORKSHOP TECHNOLOGY	3	1	-	10	20	30	70			100
4.	MTT 321	METALLURGY	4	0	-	10	20	30	70			100
5.	MET 321	FLUID MECHANICS AND HYDRAULICS	3	1	-	10	20	30	70			100
PRACTICAL/TERM WORK												
6.	MEP 321	WORKSHOP PRACTICE	0	0	6					25	25	50
7.	MEP 322	FLUID MECHANICS & HYDRAULICS	0	0	3					25	25	50
8.	MEP 323	MACHINE SHOP	0	0	3					25	25	50
9.	MEP 324	WELDING SHOP	0	0	3					25	25	50
10.	ANP 301	TECHNICAL SEMINAR	-		2					25	-	25
11.	ANP 302	SOFT SKILL-1	-	-	2					25	-	25
GRAND TOTAL			17	3	19	50	100	150	350	150	100	750

Total Contact hours per week: 39
Abbreviations: L-Lecture, T-Tutorial, P-Practical, TA- Teacher's Assessment, CT- Class test
Minimum Pass Mark in each Theory Subject is 35% and in Practical subject is 50%

ENGINEERING MATHEMATICS – III
(COMMON TO ELECT/CSE/ETC, AE & I/CP/IT/MECH/AUTO)

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	BST 301	Semester	3rd
Total Period:	60	Examination	3 hrs
Theory periods:	4P / week	Class Test:	20
Tutorial:		Teacher's Assessment:	10
Maximum marks:	100	End Semester Examination:	70

A. RATIONALE:

The subject Engineering Mathematics-III, is a common paper for Engineering branches. This subject includes Matrices, Laplace Transforms, Fourier Series, Differential Equations and Numerical Methods etc. for solution of Engineering problems.

B. OBJECTIVE:

On completion of study of Engineering Mathematics-III, the students will be able to:
1.   Apply matrices in Engineering mechanics, electrical circuits and linear programming.
2.   Transform Engineering problems to mathematical models with the help of differential equations and familiarize with the methods of solving by analytical methods, transform method, operator method and numerical methods.
3.   Solve algebraic and transcendental equations by Iterative methods easily programmable in computers.
4.   Analysis data and develop interpolating polynomials through method of differences.

C. Topic wise distribution of periods:

Sl. No.	Topics	Period
1	Matrices	04
2	Differential equation	12
3	Laplace transform	14
4	Fourier series	14
5	Numerical methods	04
6	Finite difference & Interpolation	12
	Total:	**60**

D. COURSE CONTENTS

1.   MATRICES   04
   1.1   Define rank of a matrix.
   1.2   Perform elementary row transformation to determine the rank of a matrix.
   1.3   State Rouche's Theorem for consistency of a system of linear equations in 'n' unknowns.
   1.4   Solve equations in three unknowns testing consistency.

2.   Linear Differential Equations   12
   2.1   Define Homogeneous and non-homogeneous differential equations with constant coefficients with examples.
   2.2   Find general solution of linear equations in terms of C.F. and P.I.
   2.3   Derive rules of finding C.F. and P.I. in terms of operator D.
   2.4   Define Partial Differential equations(P.D.E.)
   2.5   Form partial differential equations by eliminating arbitrary constants and arbitrary functions.
   2.6   Solve partial differential equations of the form P.p+Q.q=R
   2.7   Solve Engineering problems on 2.1-2.6.

3.   LAPLACE TRANSFORMS   14
   3.1   Define Gamma function and $\Gamma(n+1) = n!$ and find $\Gamma(\frac{1}{2}) = \sqrt{\pi}$ (No problem)

3.2 Define Laplace transform of a function f(t) and inverse laplace transform.

3.3 Derive L.T. of standard functions and explain existence conditions of L.T.

3.4 Explain linear, shifting and Change of scale property of L.T.

3.5 Formulate L.T. of derivatives, integrals, multiplication by t^n and division by t.

3.6 Derive formula of inverse L.T.

3.7 Solve Linear Differential Equations with constant coefficients associated with initial conditions using Transform Method(upto 2nd order only).

3.8 Solve problems on 3.2- 3.7

4   FOURIER SERIES   14

4.1 Define periodic functions

4.2 State Dirichlet's conditions for the Fourier expansion of a function and its convergence.

4.3 Express periodic function $f(x)$ satisfying Dirichlet's conditions as a Fourier series.

4.4 State Euler's formulae.

4.5 Define Even and Odd functions and Obtain F.S. in $(0 \le x \le 2\pi \text{ and } -\pi \le x \le \pi)$

4.6 Obtain F.S. of continuous functions and functions having points of discontinuity in $(0 \le x \le 2\pi \text{ and } -\pi \le x \le \pi)$.

4.7 Solve problems on 4.1-4.6

5   NUMERICAL METHODS   04

5.1 Appraise limitations of analytic method of solution of algebraic and transcendental equations.

5.2 Derive Iterative formula for finding the solutions of algebraic and transcendental equations by:
a) Bisection method
b) Newton Raphson method

5.3 Solve problems on 5.2

6   FINITE DIFFERENCE and INTERPOLATION   12

6.1 Explain finite difference and form table of forward and backward difference.

6.2 Define shift operator(E) and establish relation between E and difference operator(Δ).

6.3 Derive Newton's forward and backward interpolation formula for equal interval.

6.4 State Lagrange's Interpolation formula for unequal intervals.

6.5 Explain numerical integration and state
6.5.1   Newton-Cote's formula(No derivation)
6.5.2   Trapezoidal Rule
6.5.3   Simpson's 1/3rd rule

6.6 Solve Problems on 6.1-6.5

Learning Resources:

Sl.No	Name of Authors	Title of the Book	Name of Publisher
Text Book:			
1	Dr.B.S. Grewal	Higher Engineering Mathematics	Khanna Publishers

AIRCRAFT HARDWARE

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	ANT 301	Semester	3RD
Total Period:	75	Examination	3 hrs
Theory periods:	4 P/W	Class Test:	20
Tutorial:	1 P/W	Teacher's Assessment:	10
Maximum marks:	100	End Semester Examination:	70

Objective:
> After completion of study of Aircraft Hardware the student will be able to:
> 1. Know the various types of hardware used in Aircraft.
> 2. Know how to use the hardware and their importance in Aviation industry
> 3. Know about their classification , types, appropriate use of A/C Hardware

Topic wise distribution of periods

Sr . No.	Topics	Periods	Marks
1	Fastener	06	08
2.	Bolt, Screw and Studs	08	12
3.	Locking Divice	06	08
4.	Aircraft rivets	08	12
5.	Pipes and unions	06	08
6.	Springs	05	06
7.	Bearings	05	06
8.`	Transmissions	06	08
9.	Control Cables	05	06
10.	Electrical Cable and Connector	05	06
	TOTAL	**60**	**80**

COURSE CONTENT
1.0   FASTENER
>   1.1   Screw threads
>   1.2   Screw nomenclature
>   1.3   Thread forms, dimension and tolerance for standard thread used in aircraft

2.0   BOLTS, STUDS AND SCREWS
>   2.1   Bolt types: Specification identification and making of aircraft bolts, international standards
>   2.2   Nuts: self locking, anchor, standard types;
>   2.3   Machine screws: aircraft specification;
>   2.4   Studs: type and uses, insertion and removal;

3.0   LOCKING DIVICES
>   3.1   Tab and spring washer, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.

4.0   AIRCRAFT RIVETS
>   4.1   Type of solid and blind rivets: specification and identification, heat treatment.

5.0   PIPES AND UNIONS
>   5.1   Identification of, and types of rigid and flexible pipes and their connectors used in aircraft;
>   5.2   Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.

6.0   SPRINGS
  6.1   Types of spring, materials, characteristics and application.

7.0   BEARING
  7.1   Purpose of bearing, loads, material construction;
  7.2   Types of bearing and their application.
8.0   TRANSMISSIONS
  8.1   Gear types and their applications;
  8.2   Gear rations, reduction and multiplication gear systems, driven and driving gear, idler gears, mesh patterns;
  8.3   Belts and pulleys, chains and sprockets.
9.0   CONTROL CABLES
  9.1   Types of cable
  9.2   End fittings, tumbuckles and compensation devices;
  9.3   Pulleys and cable system components;
  9.4   Bowden cables;
  9.5   Aircraft flexible control systems.
10.   ELECRTICAL CABLE AND CONNECTORS
  10.1   Cable types, construction and characteristics;
  10.2   High tension and co-axial cable;
  10.3   Crimping;
10.4   Connector type, pins, plugs, sockets

Learning Resources:[Text Books]
  1. Air frame &powerplant mechanics (General Hand book EA-AC 65-9A)
  2. Civil Aircraft Inspection Procedures (CAP 459-Part I, Basic)

WORKSHOP TECHNOLOGY

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	ANT 302	Semester	3RD
Total Period:	75	Examination	3 hrs
Theory periods:	4 P/W	Class Test:	20
Tutorial:	1 P/W	Teacher's Assessment:	10
Maximum marks:	100	End Semester Examination:	70

Rationale:

The phenomenal progress of technology in the 20th century has brought dramatic changes in human life styles. . Use of various tools, and their classification and their physical phenomenon are very much essential for any Aviation industry. Therefore the knowledge of Workshop Technology is necessary for the success in Aviation Industries.

Objective:

On completion of study of Workshop Technology the student will be able to:

1. Know the safe working practices in Workshop.
2. Know about the safety precaution to be taken when working with electricity, gases especially oxygen, oils & chemicals.
3. Know about the basic hand tools used in Aviation Industry.
4. Know how to handle the precession instrument.
5. Understand the concept and method of welding
6. Understand the concept and method of brazing &soldering.
7. Understand the concept and method of bonding.

Topic wise distribution of periods

Sr . No.	Topics	Periods	Marks
1	Workshop practices	08	08
2.	Tools	14	20
3.	Fit and clearances	06	10
4.	Bearing and Springs	06	06
5.	Transmissions	10	12
6.	Material handling and Sheet Metal	06	12
7.	Welding,Brazing,Soldering And Bonding	10	12
	TOTAL	**60**	**80**

COURSE CONTENT:

1.0   WORKSHOP PRACTICES

1.1 Cares and controls of tools

1.2 Uses of workshop material: dimensions, allowances and tolerance

1.3 Calibration of tools and equipment, calibration standard

2.0   TOOLS

2.1   Various types of tools, their classification & material

2.2   Hammer,screw driver.

2.3   Spanner,Hacksaw

  2.4 Punch,chisels

  2.5 Tab & Die

  2.6 Preession Instrument

3.0 FIT AND CLERANCE

  3.1 Drill sizes for bolt holes,classes of fit

  3.2 Common system of fits and clerances

  3.3 Schedule of fits and clearances for A/C and engine

  3.4 Limits for bow, twist and wear

4.0 BEARING AND SPRING

  4.1 Purpose of bearing,loads,material,construction

  4.2 Types of bearing and their application

  4.3 Types of spring,material,characterstics and application

  4.4 Applications of distribution law.

5.0 TRANSMISSIONS

  5.1 Gear types and their application

  5.2 Gear ratio,reduction and multiplication gear

  5.3 Driven and driving gears,idlergear,mesh patterns

  5.4 Belts and pulleys,chains and sprockets.

6.0 MATERIAL HANDLING AND SHEET METAL

  6.1 Marking out and calculation for bend allowance

  6.2 Sheet metal working,including bending and forming inspection of sheet metal work.

  6.3

7.0 WELDING,BRAZING,SOLDERING AND BONDING

  7.1 SOLDERING METHODS

  7.2 Inspection of solering joints.

  7.3   Welding and brazing methods

  7.4 inspection of welded joints and brazed joints.

  7.5 Bonding methods and inspection of bonding joints

Learning Resources:[Text Books]

Sl.No	Name of Authors	Title of the Book	Name of the publisher
1.	james Anderson Earl E.Tatro	Shop Theory	
2.		Airframe &powerplantMechanics(General Handbook EA-AC 65-9A)	

METALLURGY

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	MTT 321	Semester	3RD
Total Period:	60	Examination	3 hrs
Theory periods:	4 P/W	Class Test:	20
Tutorial:		Teacher's Assessment:	10
Maximum marks:	100	End Semester Examination:	70

Rationale:

Entire field of engineering deals with use of host of materials for making products for human consumption .These materials include wide spectrum of element,metals,alloys,polymers,ceramics and composites with diverse properties. It is imperative that an engineer from any field should have agood knowledge of such materials and their properties.

Topic wise distribution of periods

Sr . No.	Topics	Periods	Marks
1	Material classification	03	05
2.	Imperfection in crystal	10	15
3.	Iron carbon system	10	12
4.	Heat treatment	10	15
5.	Nonferrous metals &alloys	10	12
6.	Bearing material	04	05
7.	Spring material	03	05
8.	Polymers	05	05
9.	Composites & Ceramics	05	06
	TOTAL	**60**	**80**

1.0   MATERIAL CLASSIFICATION
1.1 Classify material into ferrous and non-ferrous & alloys.

1.2 Understand factors affecting the section of materials for engineering purpose such as: properties of materials; performance requirements; Materials reliability; safety ; physical attributes; Environmental conditions   ; Availability;   Disposability;   Economic factors.

2.0   IMPERFECTION IN CRYSTALS
2.1 Explain crystal,ideal crystal and crystal imperfection.

2.2 Classify crystal imperfections or defects such as point defects,linedefects,surface or gain boundry defects & volume defects.

2.3 Explain types of point defects such as vacancies,interstitialies& impurities.

2.4 Explain types of line defects such as dislocation & screw dislocation.

2.5 State various causes of dislocation.

2.6 Explain effect of imperfection on metal properties.

2.7 Explain deformation by slip

2.8 Explain deformation by twisting

2.9 Explain property changes by deformation

3.0 IRON CARBON SYSTEM
3.1 Understand basic concept of phase diagram cooling curves.

3.2 Explain the iron –carbon equilibrium diagram with salient micro constituents of iron & steel.

4.0 HEAT TREATMENT
4.1 Explain purpose of heat treatment

4.2 Describe processes of Heat treatment and elaborate the methods of Annealing,normalizing,hardening,tempering,martempering,age hardening & surface hardening methods.

4.3 List effects of heat treatment on the properties of steel.

4.4 Explain hardenability of steel.

5.0 NON-FERROUS ALLOYS

5.1 Describe composition ,properties and their uses of

i. Aluminum alloys such as duralumin, Y-alloy

ii. Copper alloys such as: a) copper-aluminum   b) copper-tin-antimony c)copper-tin(tin bronzes), d) copper-tin –phosphorous, e) copper-zinc, f) copper- nickel (cupro-nickells)

5.2 predominating elements of lead alloys

5.3 predominating elements of zinc alloys

5.4 predominating elements of nickel alloys

6.0   BEARING MATERIAL

6.1 Classify bearing metals

6.2 Describe composition, properties and use of copper-base bearing metal,tin-base bearing metal,lead-base bearing metal and cadmium-base bearing metal.

7.0 SPRING MATERIAL

7.1   List properties and application of iron-base material.

7.2   List properties and application of copper-base material.

8.0 POLYMERS

8.1   List properties and application of Thermo-plastic and thermo setting plastic

8.2   List properties of elastomers.

9.0 COMPOSITES AND CERAMICS

9.1 Classify composite material

9.2 Explain particle-reinforced & fiber reinforced composites and their properties.

9.3 classify and state application of ceramics

Learning Resources:[Text Books]

Sl.No	Name of Authors	Title of the Book	Name of the publisher
1.	S.K. HazraChoudhury	material science & process	
2.	ChinmayaMohapatra,JJPP	introduction to Engineering Materials	
3.	Titterton	Aircraft Materials & Processes	

FLUID MECHANICS AND HYDRAULICS

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING				
Course code:	MET 321	Semester		3RD
Total Period:	75	Examination		3 hrs
Theory periods:	4 P/W	Class Test:		20
Tutorial:	1 P/W	Teacher's Assessment:		10
Maximum marks:	100	End Semester Examination:		70

Rationale:

Use of fluids in various engineering field is of great importance.it is therefore necessary to stuc the physical properties &characterstics and governing principles of fluids which have very important us application in mechanical and aeronautical engineering.

Topic wise distribution of periods

Sr . No.	Topics	Periods	Marks
1	Properties of fluid	08	08
2.	Flotation and buoyancy	08	12
3.	Hydrostatic pressure	08	12
4.	Types of flow	04	06
5.	Bernoulli's equation & its application	08	12
6.	Flow through orifices & notches	08	10
7.	Flow through pipes	08	10
8.`	Impect of jet	08	10
	TOTAL	**60**	**80**

1. PROPERTIES OF FLUID
1.1 Define & classify of fluids.
1.2 Define various fluid properties such as density,specificweight,specificgravity,viscosity&surface tension & state the units.
1.3 Define & classify fluid pressure.
1.4 Explain working of various measuring devices for pressure.

2.0 FLOTATION AND BUOYANCY

2.1 Floatation: its meaning
2.2 Archimedes principles
2.3 Buoyancy & centre of Buoyancy.
2.4 Tilting of a floating body in a liquid through slight angular displacement. 2.5 Metacentre & metacentric height.
2.6 Analytical determination of metacentric height.

3.0 HYDROSTATIC PRESSURE
3.1 Meaning of hydrostatic pressure.
3.2 Meaning of total pressure & centre.
3.3 Total pressure & centre Of pressure on a vertically immersed surface
3.4 Total pressure & depth of centre Of pressure on a horizontally immersed surface

4.0 TYPES OF FLOW
4.1 Steady flow & unsteady flow.
4.2 Uniform flow & non –uniform flow.

4.3   Laminar flow & non-laminar flow
4.4   Compressible flow & incompressible flow.
4.5   Rotational flow &irrotational flow.

5.0   BERNOULLI'S EQUATION & ITS APPLICATION
5.1   State & prove equation of continuity for one dimensional flow.
5.2   State various energies of fluid.
5.3   State & prove Bernoulli's equation & its limitations.
5.4   Specify application of Bernoulli's equation.
5.5 Explain the working of venture meter,pitot tube.
5.6   Derive equation of flow rate & velocity with respect to venture meter &pitot tube respectively.
5.7   Explain the working of flow meter, current meter
5.8   Solve numerical problem on above.

6.0   FLOW THROUGH ORIFICES & NOTCHES
6.1   Define and classify orifices
6.2   Define orifice coefficient such as Cc,Cv,Cd.
6.3   Establish the relation between orifice coefficents.
6.4   Define weir &notch.
6.5   State the types of weir & notch.
6.6   Differentiate between weir & notch.
6.7   Derive formula for the discharge over triangular notches & weir.
6.8   solve numerical problems on above.

7.0   FLOW THROUGH PIPE
7.1   Define a pipe.
7.2   State laws of fluid friction.
7.3   Mention the equation of loss of lead through pipe through pipe due to friction.
7.4   State Darcy's formula &Chezy's formula.
7.5   Explain hydraulic gradient & total energy line.
7.6   Define nozzle & state its application.
7.7   Derive the expression of power transmission through nozzle.
7.8   Compute the condition of maximum power transmission through nozzle.
7.9   State the expression for diameter of nozzle for maximum power transmission.

8.0   IMPECT OF JET
8.1   Estimate impact of jet on flat surface.
8.2   Estimate impact of jet & work done on moving flat plates
        a) Estimate impact of jet & work done on series of flat plates fixed on rim of acylinder.   b) Derive the condition for maximum hydraulic efficiency
8.3   Draw velocity triangle for jet preparing transantally in curved vane.
8.4   Estimate work done & efficiency of above system
8.5   Solve numerical problem on above.

Learning Resources:[Text Books]

Sl.No	Name of Authors	Title of the Book	Name of the publisher
1.	A.R Basu	Fluid mechanics & Hydraulic Machines	
2.	JagdishLal	Hydraulics & fluid Mechanics	
3.	Modi& Seth	Hydraulics & Hydraulic Machines	
4.	A.K Jain	Fluid mechanics	

WORKSHOP PRACTICE

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	MEP 321	Semester	3rd
Total Period:	90	Examination	4 hrs
Lab. periods:	6 P/W	Term Work	25
Maximum marks:	50	End Semester Examination:	25

Objectives
Students will develop an ability towards
- Practicing fitting, carpentry, smithy and machining
- Understanding the tools and equipment used in the practices
- Realize the time and resource utilization in the practices

1.   Fitting practices
   1.1   Preparation of caliper
   1.2   Preparation of try square
   1.3   Preparation of hammer
   1.4   Preparation of male-female joint

2.   Smithy Practices
   2.1   Preparation of door ring with hook
   2.2   Preparation of hexagonal head bolt
   2.3   Preparation of octagonal flat chisel

3   Carpentry Practices
   3.1   Cutting of slot, botch, mortise and Tenon
   3.2   Preparation of single dove tail joint

4   Metal Machining practices
   4.1   Plain turning
   4.2   Step turning
   4.3   Taper turning
   4.4   Grooving
   4.5   Chamfering
   4.6   External threading

FLUID MECHANICS & HYDRAULICS LAB.

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	MEP 322	Semester	3rd
Total Period:	45	Examination	4 hrs
Lab. periods:	3 P/W	Term Work	25
Maximum marks:	50	End Semester Examination:	25

Course Objectives:

Students will develop an ability towards

- Measure pressure using different pressure measuring instruments
- Experimentally verify Bernoulli's theorem
- Determination of hydraulic coefficients

Performance evaluation in hydraulic machines

Sr No	Content
1	Study of pressure measuring devices (manometer, Bourdon tube pressure gaguge)
2	Verification of Bernoulli's theorem
3	Determination of Cd from venturimeter
4	Determination of Cc, Cv, Cd from orifice meter
5	Determine of Darcy's coefficient from flow through pipe
6	Performance test in impulse turbine
7	Study of dissected models of turbines and pumps
8.	Performance test in reaction turbine
9.	Performance test in centrifugal pump
10.	Performance test in reciprocating pump

MACHINE SHOP

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	MEP 323	Semester	3rd
Total Period:	45	Examination	4 hrs
Lab. periods:	3 P/W	Term Work	25
Maximum marks:	50	End Semester Examination:	25

1) Familiarization with the machines in the machine shop with
   a) Lathe machine
   b) Drilling machine
   c) Sharpening of tool bits

2) practice of plane turning facing of a M.S.Rod.
3) step turning of rod
4) thread cutting external
5) taper turning
6) internal turning procedure
7) cutting thread internal
8) knurling practices

WELDING SHOP

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	MEP 324	Semester	4th
Total Period:	45	Examination	4 hrs
Lab. periods:	3 P/W	Term Work	25
Maximum marks:	50	End Semester Examination:	25

1)Familiarization with tools, equipments used in the welding shop and precautions.

2)oxygen and acetylene cylinder

3) acetylene regulator for law pressure

4) gas cutting equipment and welding tips.

5) pressure regulators, hose and hose fitting, welding torch, goggles, spark.

Exercise

1) Practice of lighting the gases.
2) Oxidizing, neutral and reducing flames
3) Practice in making head welding.
4) Practice a line brazing
5) Practice a seam soldiering
6) Practice a butt welding.

TECHNICAL SEMINAR

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	ANP 301	Semester	3rd
Total Period:	30	Examination	
Lab. periods:	2 P/W	Term Work	25
Maximum marks:	25	End Semester Examination:	

1.0   Classes should be divided into smaller groups of not more than four in each   group. One group should be assigned a topic for the Seminar. The topic should be usually related to their course of studies or should be of general interest. Every student of the group should prepare on a particular aspect of the main topic with active support and guidance from a teacher guide. The student should be encouraged to extensively use the library facilities and also to collect relevant material from different Technical magazines and journals. Each student should be usually asked to present his paper on the topic of the Seminar within 15 minutes after which a question answer session may follow for 5 minutes. Sr. faculty member should preside over the Seminar and ensure its smooth conduct. The student should be encouraged to use Audio-Visual Aids and other modern teaching methods during presentation of the topics in the Seminar.   The Chairman should give the valedictory address and offer suggestions for quality improvement of the Seminar. Each student should at least speak for a minimum of three times during the year.

2.0   The students should be encouraged to collect newspaper clippings and magazine cuttings on emerging technology to be displaced on the date of the seminar.

3.0   The Sessional records should be maintained and evaluated by a team of faculty members and the final marks awarded by the team.

SOFT SKILL-1

Name of the Course: Diploma in AERONAUTICAL ENIGINEERING			
Course code:	ANP 302	Semester	3rd
Total Period:	30	Examination	
Lab. periods:	2 P/W	Term Work	25
Maximum marks:	25	End Semester Examination:	

Rationale :

The demand for and reliance on soft skills is on increase due to constant change in work environment, customer driven market, information based on economy and globalization. Soft skills are not replacement for hard or technical skill. In fact they are complimentary to each other and served to unlock the potential of people blessed with hard skill. A chemical engineer will work in plants as process engineer, market the chemical product as marketing executive and in many other new areas which require soft skills. Therefore, knowledge of the soft skill, information about soft skill requirementand acquiring soft skills are essential for a student to deal with competition in job market and development in his professional career.

Objective:

On completion of Practice of Soft skill-1 the student should be able to:
1. Understand meaning of soft skill and importance of it in their life.
2. Identify the strength, weakness, opportunity and treat to self.
3. Develop a positive attitude
4. Understand thecore value of life and improve perception
5. Develop the art of listening and art of reading
6. Learn about time management

Topic wise distribution of periods

Sl. No.	Topics	Periods
1	Concept of soft skill	02
2.	Self-discovery	04
3.	Developing positive attitude	04
4.	Art of listening	06
5.	Time management	04
6.	Art of reading	06
7.	Improving perception	02
8.	Forming of values	02
	Total	30

COURSE CONTENT:

Classes should be divided into smaller groups of not more than twenty in each group

1.0 Concept of Soft Skill

1.1 Importance of Soft skill

1.2 Identifying your soft skill

1.3 Improving your soft skill

Assignment- Write about your own soft skill, objective of your life, list of soft skill required for improvement.

2.0 Self Discovery and SWOT analysis

2.1 Importance of knowing yourself

2.2 Using SWOT analysis and its benefits

Assignment- Do SWOT analysis of self and discuss the result with the teacher.

3.0 Developing Positive Attitude

3.1 Attitude and behavior

3.2 Developing positive attitude and overcoming negative attitude

Assignment- Study the life story of two great personality from different areas like politics, film, music, writing ,scientist community, social sector, medicine, engineering, sports, arts and explain how positive attitude changed their life.

4.0 Art of Listening

4.1 Benefits of active listening

4.2 Tips for improvement in listening

Assignment- Practice test on listening and answering questions. Attend a seminar or guest lecturer, listen it carefully and note down the important points and prepare a report of the same.

5.0 Time Management

5.1 Realizing the value of time and secret of time management

5.2 Time management tips for students

Assignment- Plan your time management and discuss the result with the teacher.

6.0 Art of Reading

6.1 Tips for reading

6.2 Activities for improving reading rates

Assignment- Practice test on reading and answering questions. Read an article from a magazine and list the important points in 500 words.

7.0 Improving perception

7.1 Meaning and factor influencing perception

7.2 Improving perception

Assignment- Test your perception and discuss the result with the teacher.

8.0 Forming Values

    8.1 Types of Value

    8.2 Importance of value

Assignment- Group Discussion on the importance of moral value in our life.

Reference Book: Soft Skills- Dr K. Alex Second Edition, S. Chand Publication