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ShriAcharyaratnaDeshbhooshanShikshanPrasarakMandal, Kolhapur

MahavirMahavidyalaya, Kolhapur (Autonomous)

Affiliated to Shivaji University, Kolhapur

Syllabus for Choice Based Credit System (CBCS)
Advance Diploma (B. Voc.) Programme

Programme	**Advance Diploma in AUTOMOBILE.**
Part	**II**
Semester	**III**
Course Code	**ADC31**
Course Name	
Course Title	**--**
Paper No.	**--**

Under the Faculty of Interdisciplinary Studies

(To be introduced from Academic Year 2022 – 23 onwards)

Subject to the revisions& modifications made from time to time

MahavirMahavidyalaya, Kolhapur(Autonomous)

Affiliated to Shivaji University, Kolhapur

(New syllabus under Autonomy to be introduced from June, 2022 onwards)

A) Primary Information:			
Programme	**Advance Diploma (B. Voc.) AUTOMOBILE.**		
Part	**II**	Semester	**III**
Course	Thermodynamics	Course Code	**ADC31**
Paper No.	**--**	Course Type	**Semester**
Total Marks	**50 Marks**	Implementation	**2022 – 23**
Total Credits	**03**	Contact Hours	**04 / Week**
Course Title	**--**		

B) Course Objectives:	
i)	This course deals with the fundamentals of Thermodynamics including thermodynamic systems and properties.
ii)	Relationships among the thermos-physical properties, the laws of thermodynamics.
iii)	Applications of these basic laws in thermodynamic systems.
iv)	This course will provide the essential tools required to study thermodynamic systems.

C) Course Syllabi:
(CR = Credits / IH: Instructional Hours)

Units	**CR**	**IH**
Unit I: Fundamentals of Thermodynamics.	0.75	12
1.1.Define fundamental concepts of Thermodynamics, first law of thermodynamic, Second law of thermodynamic and their limitations		
1.2.Concepts of pure substance, types of systems , properties of systems, flow and non-flow process.		
1.3. Thermodynamic definition of work & heat, Difference between heat and work.		
1.4.Laws of Thermodynamics-Zeroth Law, principle of law of conservation of energy First law of Thermodynamics, Second Law of Thermodynamics- Kelvin Planks, Clausius statement		
Unit II :Ideal Gases	0.75	12
2.1.Concept of Ideal gas- Charle's law, Boyle's law,Avogadro's law		
2.2.equation of state, characteristic gas constant and universal gas Constant.		
2.3.Ideal gas processes: - Isobaric, Isochoric, Isothermal,Isentropic, Polytropic, and their representation on P-V and T-S diagram		

Unit III: Steam and Steam Boiler.		
3.1. Generation of steam at constant pressure with representation on various charts such as T-S, H-S.	0.75	12
3.2.Properties of steam and use of steam table, Dryness fraction, Degree of superheat.		
3.3. Processes:-Constant pressure, constant volume, constant enthalpy, constant entropy process, Rankine Cycle.		
3.4. Steam Boilers:-Classification, Construction and working , water tube Boiler:- Classification, Construction and working, Boiler draught. Indian Boiler Regulation (IBR) Boiler mountings and accessories		
Unit IV : Cooling Towers, Steam Turbines&Steam Condensers	0.75	12
4.1. Cooling Towers:--Construction and working of forced, natural andinduced draught cooling tower.		
4.2.Steam turbine: - Classification of turbines, Construction and working of Impulse and Reaction turbine. Compounding of turbines and its types.		
4.3.Dalton's law of partial pressure, function and classification of Condensers, construction and working of surface condensers.		

D) Reference Materials	
D1) Text Books for Reading	
1.	"Thermal Engineering", Kumar and Vasandani,D. S . Publisher Metropolitan Book Co,Delhi, 3rd Edition.
2.	"Thermal Engineering", Mathur and Mehta, Jain Bros. Publishers,Delhi,3rd Edition
3.	Thermal Engineering", Ballaney P.L, Khanna Publishers, New Delhi, 27th Edition.
D2) Books for Reference	
1.	"Fundamentals of Thermodynamics", Claus Borgnakke, Sonntag R. E., John Wiley and Sons.
2.	"Thermodynamics",Holman, , McGraw Hill, London.
3.	"Principles of Engineering Thermodynamics", Moran,Shapiro,Boetnner, Wiley, 8thEdition.

E) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Seminars

F) Course Outcomes:		Blooms Taxonomy
CO1	Explain fundamental concepts relevant to thermodynamics.	
CO2	Explain the first law andsecond law of thermodynamic including with turbines, compressors, nozzles, diffusers, heat exchangers, and throttling devices.	
CO3	Determine thermodynamic properties of pure substances.	
CO4	Explain the concepts of work, power, and heat in thermodynamics	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	**Total Marks**	**50**

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)		
1.	Home assignments	
2.	Group discussion	
3.	Unit test ,Online test	
4.	Industrial Visit	
5.	**Total Marks**	**10**

I) Question Paper Pattern (40 Marks)		
Q. No.	**Nature / Type of Question**	**Marks**
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	**Total Marks**	**40**

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MahavirMahavidyalaya, Kolhapur(Autonomous)

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(New syllabus under Autonomy to be introduced from June, 2022 onwards)

A) Primary Information:			
Programme	**Advance Diploma (B. Voc.) AUTOMOBILE.**		
Part	**II**	Semester	**III**
Course	**Manufacturing of Automotive Component**	Course Code	**ADC32**
Paper No.	**--**	Course Type	**Semester**
Total Marks	**50 Marks**	Implementation	**2022 – 23**
Total Credits	**03**	Contact Hours	**04 / Week**
Course Title	**--**		

B) Course Objectives:	
i)	To acquire basic knowledge of the Casting processes used for automotive components manufacturing.
ii)	To acquire basic knowledge of the Forming and Powder metallurgy processes used for automotive components manufacturing.
iii)	To acquire basic knowledge ofthe Processes used for automotive components manufacturing
iv)	To acquire basic knowledge ofthe Conventional and Unconventional Machining processes

C) Course Syllabi:
(CR = Credits / IH: Instructional Hours)

Units	**CR**	**IH**
Unit I:Casting Processes.	0.75	12
1.1Foundry layouts and mechanization, casting as manufacturing Process, moulding machines and core making.		
1.2 Components of gating system, functions and importance of runners and risers, solidification control devices		
1.3 Casting Melting practices and Metallurgical control in Cupola furnace, oil/gas fired furnaces, Induction and Arc Furnace -Metal pouring equipment's, fettling and inspection of casting		
Unit II:Forming Processes.	0.75	12
2.1 Rolling, Hot and cold Rolling, Rolling Mil Classification, Defectsin Rolling		
2.2.Forging, Hand Forging Operations, Forging Machines		
2.3. Open andClosed Die Forging.		
2.4. Defects in Forging Extrusion, Direct, Indirect, Tube, Impact		

and Hydraulic Extrusion.		
2.5.Defects in ExtrusionDrawing Types of Wire, rod and pipe drawing, Defects in Drawing		
Unit III: Plastic Shaping & Machine Tools for Metal Cutting I.		
3.1. Introduction to blow moulding, injection moulding, extrusion, calendaring and thermo forming	0.75	12
3.2. Introduction to lathe, Types of lathes, Working principle, types,specifications, principle parts, accessories, attachments, and various lathe operations,		
3.3. Introduction to Boring Machines-Horizontal and vertical boring machine, Construction and operation, Introduction to Drilling Machines - Classification of drilling machines, Construction and working.		
Unit IV : Machine Tools for Metal Cutting II		
4.1. Shaping Machine - Types-crank shaper, hydraulic shaper, Crank and slotted link quick return mechanism.		
4.2. Table feed mechanism, Various operations.		
4.3. Introduction to Planning Machine, principle parts, table drive and feed mechanism, Various operations		
4.4. Introduction Milling Machine, Classification of milling machines, gear shaping, Gear hobbing. Gear finishing processes – Gear shaving, Gear burnishing and gear rolling.		

D) Reference Materials	
D1) Text Books for Reading	
1.	"Elements of Workshop Technology Vol. II", S. K HajraChoudhury , Media Promoters and Publishers, Mumbai.
2.	Text Book of Production Engineering", P.C. Sharma, S. Chand Publication, 11thEdition
3.	"Machine Tool Engineering" G.R. Nagarpal, Khanna Publication
4.	"Principles of Modern Manufacturing", Groover, Wiley Publication., 5thEdition
D2) Books for Reference	
1.	"Production Technology", HMT –Tata McGraw-Hill Publishing Ltd,. ISBN
2.	"Metal Cutting Theory and Tool design" Mr. Arshinnov, MIR Publication

E) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Seminars

F) Course Outcomes:		Blooms Taxonomy
CO1	Understand the Casting processes used for automotive components manufacturing	
CO2	Understand the Forming and Powder metallurgy processes used for automotive components manufacturing	
CO3	Understand the Processes used for automotive components manufacturing	
CO4	Understand the Conventional and Unconventional Machining processes used for automotive components manufacturing	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	**Total Marks**	**50**

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)		
1.	Home assignments	
2.	Group discussion	
3.	Unit test, Online test	
4.	Industrial Visit	
5.	**Total Marks**	**10**

I) Question Paper Pattern (40 Marks)		
Q. No.	**Nature / Type of Question**	**Marks**
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	**Total Marks**	**40**

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MahavirMahavidyalaya, Kolhapur(Autonomous)

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(New syllabus under Autonomy to be introduced from June, 2022 onwards)

A) Primary Information:			
Programme	**Advance Diploma (B. Voc.) AUTOMOBILE**		
Part	**II**	Semester	**III**
Course	**Strength of Material**	Course Code	**ADC33**
Paper No.	**--**	Course Type	**Semester**
Total Marks	**50 Marks**	Implementation	**2022 – 23**
Total Credits	**03**	Contact Hours	**04 / Week**
Course Title	**--**		

B) Course Objectives:	
i)	To acquire basic knowledge of the concepts of stress and strain.
ii)	To acquire basic knowledge ofbeamsthe of different cross sections for shear force and bending moment.
iii)	To acquire basic knowledge of the beams of different cross sections for slope and deflection.

C) Course Syllabi:

(CR = Credits / IH: Instructional Hours)

Units	**CR**	**IH**
Unit I : Mechanical Properties of Materials	0.75	12
1.1. Define Stress, Strains. Relation between stress- strains, Stress-strain diagram for tensile& brittle materials Elasticity, Plasticity, Plastic flow, Ductility, Malleability, Stiffness & Strength.		
1.2.Types of loads, stresses- tensile, compressive, Shear, single & double shear, concept of plain strain –tensile ,compressive, direct shear strain, torsional shear strain, lateral strain, Hooke's law, Poisson ratio		
1.3. Modulus of elasticity & modulus of rigidity.	0.75	12
1.4. Volumetric Strain, Bulk modulus, relation between modulus of elasticity & modulus of rigidity.		
Unit II:Principal stresses and planes.		
2.1.Specific Objectives. Concept of Principal stresses and Principal planes.		
2.2. Stresses on an oblique section of a bodysubjected to Direct stresses on one plane. Direct stresses on mutually perpendicular planes. Direct and Shear stress on one plane.		
2.3 Direct and Shear stress on mutually Perpendicular plane	0.75	12

Unit III :Bending Moment & Shear Force		
3.1Relation between rates of loading, shears force & bending moment.		
3.2 Shear force & bending moment diagrams for cantilevers, simply supported beam & over hanging beam subjected to point loads &uniformly distributed load		
Unit IV : Direct and Bending Stresses	0.75	12
4.1Assumptions in the theory of bending, moment of resistance, Section modulus, neutral axis.Stress distribution diagram for Cantilever & simply supported beam.		
4.2 Concept of Axial load, eccentric load, direct stresses, bending Stresses, maximum & minimum stresses.		

D) Reference Materials	
D1) Text Books for Reading	
1.	Dr. R. K. Bansal Strength of material, Laxmi publication Pvt. Ltd., New Delhi
D2) Books for Reference	
1.	Dr. R. K. Bansal Strength of material, Laxmi publication Pvt. Ltd., New Delhi

E) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Seminar.

F) Course Outcomes:		**Blooms Taxonomy**
CO1	Understand the concepts of stress and strain	
CO2	Analyze the beams of different cross sections for shear force and bending moment	
CO3	Analyze the beams of different cross sections for slope and deflection.	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	**Total Marks**	**50**

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)		
1.	Home assignments	
2.	Group discussion	
3.	Unit test ,Online test	
4.	Industrial Visit	
5.	**Total Marks**	**10**

I) Question Paper Pattern (40 Marks)		
Q. No.	**Nature / Type of Question**	**Marks**
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	**Total Marks**	**40**

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MahavirMahavidyalaya, Kolhapur(Autonomous)

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(New syllabus under Autonomy to be introduced from June, 2022 onwards)

A) Primary Information:			
Programme	**Advance Diploma (B. Voc.) AUTOMOBILE**		
Part	**II**	Semester	**III**
Course	**Theory of Machine**	Course Code	**ADC34**
Paper No.	**--**	Course Type	**Semester**
Total Marks	**50 Marks**	Implementation	**2022 – 23**
Total Credits	**03**	Contact Hours	**04 / Week**
Course Title	**--**		

B) Course Objectives:	
i)	To acquire basic knowledge of the basic concept of mechanisms.
ii)	To acquire basic knowledge of the gear train.
iii)	To acquire basic knowledge of the cams & belts.
iv)	To acquire basic knowledge of the screws & governors.

C) Course Syllabi:
(CR = Credits / IH: Instructional Hours)

Units	**CR**	**IH**
Unit I : Basic Concept of Mechanisms	0.75	12
1.1. Links, kinematic pair (lower and higher), Kinematic chain, Mechanism, inversion		
1.2. Types of constraints, Inversions of slider crank chain		
1.3. Double slider crank chain, four bar Steering gear mechanisms.		
Unit II:Gear Trains.	0.75	12
2.1. Types of Gear trains - Simple, Compound, Reverted, Epicyclic gear train		
2.2. Epicyclic gear train, Overdrive Epicyclical gear train.		
2.3. Differential gear box.		
Unit III: Cams & Belts	0.75	12
3.1Types of cams and followers, Profiles of cams for specified motion of different followers		
3.2 Types of belt drives		
3.3Actual tension in a running belt, Centrifugal and initial Tension in belt, Slip and creep of belt.		
Unit IV : Screws & Governors	0.75	12
4.1Forms of threads, Terminology of threads, Torque requirement (lifting and lowering load) Self-locking and overhauling properties		

4.2 Efficiency of square threaded, Self-locking screw, Trapezoidal and Acme thread		
4.3. Types of governors.		

D) Reference Materials	
D1) Text Books for Reading	
1.	"Theory of Machines", Rattan S.S. Tata McGraw Hill, 3rd Edition.
D2) Books for Reference	
1.	"Theory of Machines and Mechanisms" Shigley, Tata McGraw Hill.

E) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Seminar.

F) Course Outcomes:		**Blooms Taxonomy**
CO1	To understand the basic concept of mechanisms	
CO2	To understand the gear train	
CO3	To understand the cams & belts	
CO4	To understand the screws & governors.	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	**Total Marks**	**50**

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)		
1.	Home assignments	
2.	Group discussion	
3.	Unit test, Online test	
4.	Industrial Visit	
5.	**Total Marks**	**10**

I) Question Paper Pattern (40 Marks)		
Q. No.	**Nature / Type of Question**	**Marks**
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	**Total Marks**	**40**

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MahavirMahavidyalaya, Kolhapur (Autonomous)

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(New syllabus under Autonomy to be introduced from June, 2022 onwards)

A) Primary Information:			
Programme	**Advance Diploma (B. Voc.) AUTOMOBILE.**		
Part	**II**	Semester	**III**
Course	**Thermodynamics**	Course Code	**Practical ADC31**
Paper No.	**--**	Course Type	**Semester**
Total Marks	**50 Marks**	Implementation	**2022 – 23**
Total Credits	**04**	Contact Hours	**06 / Week**
Course Title	**--**		

B) Course Objectives:	
i)	This course deals with the fundamentals of Thermodynamics including thermodynamicsystems and properties.
ii)	Relationships among the thermos-physical properties, the laws of thermodynamics.
iii)	Applications of these basic laws in thermodynamic systems.
iv)	This course will provide the essential tools required to study thermodynamic systems.

C) Course Syllabi:
(CR = Credits / IH: Instructional Hours)

Practicals	**CR**	**IH**
1.Study and Demonstration of water tube and fire tube boilers.	04	75
2. Study of lubrication properties and systems.		
3. Test on Grease penetrometer and dropping point apparatus.		
4. Test on Red wood viscometer and Aniline point apparatus.		
5. Determination of flash and fire point of a lubricating oil.		
6. Report on industrial visit to a steam power plant.		

D) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	visits

E) Course Outcomes:		Blooms Taxonomy
CO1	Explain fundamental concepts relevant to thermodynamics.	
CO2	Explain the first law andsecond law of thermodynamic including with turbines, compressors, nozzles, diffusers, heat exchangers, and throttling devices.	
CO3	Determine thermodynamic properties of pure substances.	
CO4	Explain the concepts of work, power, and heat in thermodynamics	

F) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	**Total Marks**	**50**

G) Question Paper Pattern (40 Marks)		
Q. No.	**Nature / Type of Question**	**Marks**
1.	Practical (Lab-work)	25
2.	Submission Practical record book & project report	15
3.	Viva-voce	10
4.	**Total**	**50**

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MahavirMahavidyalaya, Kolhapur(Autonomous)

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(New syllabus under Autonomy to be introduced from June, 2022 onwards)

A) Primary Information:			
Programme	**Advance Diploma (B. Voc.) AUTOMOBILE.**		
Part	**II**	Semester	**III**
Course	**Theory of Machines**	Course Code	**Practical ADC32**
Paper No.	**--**	Course Type	**Semester**
Total Marks	**50 Marks**	Implementation	**2022 – 23**
Total Credits	**04**	Contact Hours	**06 / Week**
Course Title	**--**		

B) Course Objectives:	
i)	To acquire basic knowledge of the basic concept of mechanisms
ii)	To acquire basic knowledge of the gear train
iii)	To acquire basic knowledge of the cams & belts
iv)	To acquire basic knowledge of the screws & governors.

C) Course Syllabi:

(CR = Credits / IH: Instructional Hours)

Practicals	**CR**	**IH**
1.Study of basic mechanisms. (Demonstration of models, Actual mechanisms, etc.).	04	75
2.Experiments on types different shafts and joints.		
3.Experiment on gear Trains.		
4.Experiment on Power Screw.		
5.Verification of ratio of angular velocities of shafts connected by Hooks joint.		
6.Experiment on belt.		
7.Experiment on selection of chains.		

D) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Visits.

E) Course Outcomes:		Blooms Taxonomy
CO1	To understand the basic concept of mechanisms	
CO2	To understand the gear train	
CO3	To understand the cams & belts	
CO4	To understand the screws & governors.	

I) Question Paper Pattern (40 Marks)		
Q. No.	**Nature / Type of Question**	**Marks**
1.	Practical (Lab-work)	25
2.	Submission practical record book & project report	15
3.	Viva-voce	10
4.	**Total**	**50**

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(New syllabus under Autonomy to be introduced from June, 2022 onwards)

A) Primary Information:			
Programme	**Advance Diploma (B. Voc.) AUTOMOBILE.**		
Part	**II**	Semester	**III**
Course	**Machine Shop I**	Course Code	**Practical ADC33**
Paper No.	**--**	Course Type	**Semester**
Total Marks	**50 Marks**	Implementation	**2022 – 23**
Total Credits	**04**	Contact Hours	**06 / Week**
Course Title	**--**		

B) Course Objectives:	
i)	Identify and select various tools for holding, assembling or dismantling the work piece.
ii)	Carry out basic workbench such asmarking and lathe operations.
iii)	To acquire basic knowledge of the drilling and boring

C) Course Syllabi:

(CR = Credits / IH: Instructional Hours)

Practicals	**CR**	**IH**
1. To prepare process sheets with working drawings of all components.	04	75
2. To manufacture the components as per the drawing requiring following operations a) Turning: -Plain turning, step turning, taper turning. b) Boring c) Drilling		

D) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Visits.

E) Course Outcomes:		Blooms Taxonomy
CO1	Use of appropriate method, Tools and machine tools for performing Lathe operations.	
CO2	Use of appropriate method, Tools and machine tools for performing drilling operations	
CO3	Use of appropriate method, Tools and machine tools for performing boring operations	

F) Question Paper Pattern (40 Marks)		
Q. No.	**Nature / Type of Question**	**Marks**
1.	Practical (Lab-work)	25
2.	Submission practical record book & project report	15
3.	Viva-voce	10
	Total	**50**

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MahavirMahavidyalaya, Kolhapur(Autonomous)

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(New syllabus under Autonomy to be introduced from June, 2022 onwards)

A) Primary Information:			
Programme	**Advance Diploma (B. Voc.) AUTOMOBILE.**		
Part	**II**	Semester	**III**
Course	**Computer Aided Drafting**	Course Code	**Practical ADC34**
Paper No.	**--**	Course Type	**Semester**
Total Marks	**50 Marks**	Implementation	**2022 – 23**
Total Credits	**04**	Contact Hours	**06 / Week**
Course Title	**--**		

B) Course Objectives:	
i)	To acquire basic knowledge of the basic concept of CAD
ii)	To acquire basic knowledge of the 2-D objects.
iii)	To acquire basic knowledge of the 3-D modelling.
iv)	To acquire basic knowledge of the assembly and drafting.

C) Course Syllabi:
(CR = Credits / IH: Instructional Hours)

Practical's	**CR**	**IH**
1. Basic command to draw 2- D objects like line, point, circle, arc, ellipse, polygon, polyline, spline etc.	04	75
2. Edit Commands: Erase, extension, break, fillet, chamfer, trim, scale, etc.		
3.Commands like line type, Dimension, text style etc.		
4. Viewing and other: Zoom, pan, mirror, rotate, move objects, arrange blocks, offset etc.		
5. Hatching of sections, Use of layers in drawing.		
6. Plotting of drawing.		
7. Introduction to 3- D modelling – sketcher, part design, assembly and drafting workbenches.		

D) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Visits.

E) Course Outcomes:		Blooms Taxonomy
CO1	To understand the basic concept of CAD	
CO2	To understand the 2-D objects.	
CO3	To understand the 3-D modelling.	
CO4	To understand the basic knowledge of the assembly and drafting.	

I) Question Paper Pattern (40 Marks)		
Q. No.	**Nature / Type of Question**	**Marks**
1.	Practical (Lab-work)	25
2.	Submission practical record book & project report	15
3.	Viva-voce	10
4.	**Total**	**50**

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