RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL
OUTCOME BASED CURRICULUM

NAME OF THE PROGRAMME: REF&PETROCHEMICAL ENGG AND PLASTIC TECHNOLOGY

Name of Scheme :OCBC -2019 **COURSE CODE: 6805**

COURSE TITLE : APPLIED MECHANICS SEMESTER-I

Applied Mechanics

	COURSE OUTCOMES	CL	PO1	PO2	PO3	PO4	PO5	PO6	PO7
	Describe forces, couples, moments, centre of gravity, work, power and energy	R/U	3	3	3	2	2	1	2
	Calculate resultant force, moment and centre of gravity	A	3	3	2	3	1	1	2
	Calculate efficiency of simple lifting machines	A	3	3	2	3	1	1	2
	Discuss motion of particle and laws of motion	R/U	3	3	2	3	1	1	2
	Conceptualize friction and its laws	R/U	3	3	2	3	1	1	2

CONTENTS

Unit -1 **Force:**	1.1 Fundamentals: - Definitions of mechanics, statics, dynamics. Engineering Mechanics, body, rigid body, mass, weight, length, time, scalar and vector, fundamental units, derived units, S.I. units. 1.2 Force: - Definition of a force, unit force, Newton, S.I. unit of a force, representation of a force by vector and by Bow's notation method. Characteristics of a force, effects of a force, principle of transmissibility. 1.3 Resolution of a force: Definition, Method of resolution, Types of component forces, Perpendicular components and Non-perpendicular components.	

	1.4 Moment of a force: - Definition, measurement of moment of a force, S. I. unit, geometrical meaning of moment of a force, classification of moments according to direction of rotation, sign convention, law of moments Varignon's theorem of moment and it's use, couple – definition, S.I. unit, measurement of a couple, properties of couple. 1.5 Force system: - Definition, classification of force system according to plane and line of action 1.6 Composition of Forces: - Definition, Resultant force, methods of composition of forces I – Analytical method – (i) Trigonometric method (law of parallelogram of forces) (ii) Algebraic method (method of resolution), II – Graphical method: - Introduction, space diagram, vector diagram, polar diagram, and funicular polygon. Resultant of concurrent, non-concurrent and parallel force system by analytical and graphical method.	
Unit -2 **Equilibrium**	2.1 Definition, conditions of equilibrium, analytical and graphical conditions of equilibrium for concurrent, non-concurrent and parallel force system. 2.2 Lami's Theorem – statement and explanation, Application of Lami's theorem for solving various engineering problems. 2.3 Equilibrant – Definition, relation between resultant and equilibrant, equilibrant of concurrent and non-concurrent force system. 2.4 Beams – Definition, Types of beams (cantilever, simply supported, overhanging, fixed, continuous), Types of end supports (simple support, fixed, hinged , roller), classification of loads, point load, uniformly distributed load. Reaction's for a simply supported beamonly .	
Unit – 3 Centre of Gravity and	3.1 Centroid: Definition of centroid. Moment of an area about an axis.Centroid of basic geometrical figures such as square, rectangle, triangle, circle, semicircle and quarter	

Friction	circle.Centroid of composite figure. 3.2Center of gravity: Definition, centre of gravity of simple solids such as cylinder, sphere, hemisphere, cone, cube, and rectangular block. Centre of gravity of composite solids. 3.3 Definition of friction, force of friction, limiting frictional force, coefficient of friction, angle of friction, angle of repose, relation between angle of friction, angle of repose and coefficient of friction. Cone of friction, types of friction, laws of friction, advantages and disadvantages of friction. 3.4 Equilibrium of bodies on level plane –external force applied horizontal and inclined up and down. 3.5 Equilibrium of bodies on inclined plane – external forces is applied parallel to the plane, horizontal and incline to inclined plane.	
Unit – 4 SIMPLE LIFTIND MACHINE	4.1 Definitions of simple machine, compound machine , load , effort , mechanical advantage , velocity ratio , input on a machine ,output of a machine ,efficiency of a machine , expression for mechanical advantage , velocity ratio and efficiency of a machine. Ideal machine, ideal effort and ideal load, friction in machines, effort lost in friction and frictional load. 4.2 Law of machine, maximum mechanical advantage and maximum efficiency of a machine, reversibility of a machine, condition for reversibility of a machine, self locking machine. 4.3 Study of simple machines : Simple axle and wheel, differential axle and wheel, single purchase crab, double purchase crab, simple screw jack, pulleys : First, second and third system of pulleys.	
Unit – 5 Effect of force system, Work Power	5.1 Motion of particle - Definition of speed, velocity, acceleration, uniform velocity, uniform acceleration and variable acceleration . Motion under constant acceleration/ retardation (equations of motion) ,Motion under force of gravity ,Concept of relative	

Energy	velocity . Definition of projectile, velocity of projection , angle of projection, time of light, maximum height, horizontal range and their determination. Definition of angular velocity, angular acceleration and angular displacement . Linear angular motion analogy. Relation between linear and angular velocity of a particle moving in a circular path. Motion of rotation under constant angular acceleration 5.2 Laws of motion - Newton's Laws of motion and their applications 5.3 Work, Power and Energy- Definition unit and graphical representation of work. Definition and unit of power and types of engine power and efficiency of an engine.Definition and concept of Impulse.Definition, unit and types of energies.Total energy of a body falling under gravity.	

Contents (Practical)

Skills to be developed:

1 Intellectual Skill:

A. Calculate the forces on given structure

B. Interpret the results

2 Motor Skills:

A. Handle the equipment carefully

B. Draw graph

LIST OF EXPERIMENTS

Verification of law of parallelogram of forces.

Verification of law of polygon of forces

NAME OF THE PROGRAMME: REF&PETROCHEMICAL ENGG AND PLASTIC TECHNOLOGY

Name of Scheme :OCBC -2019 **COURSE CODE: 6805**

COURSE TITLE : APPLIED MECHANICS SEMESTER-I

Verification of laws of moments

Determination of forces in the members of Jib Crane

Determination of Centroid of plane lamina by graphical method

Determination of coefficient of friction for surfaces of different materials on horizontal plane

Determination of coefficient of friction for surfaces of different materials on an inclined plane

Determination of mechanical advantage, velocity ratio and efficiency of the following lifting machines

Simple wheel and axle

Differential wheel axle

Single purchase crab

Double purchase crab

Simple pulley block

Simple screw jack

REFERENCES

1. A text book of Applied Mechanics – R.S. Khurmi , S.C. Chand & Co. , New Delhi
2. Applied Mechanics – I.B. Prasad, Khanna Publishers, New Delhi
3. Applied Mechanics (Hindi) – R.S. Jog, Anand Publishers, Gwalior
4. Applied Mechanics (Hindi) – A.R. Page, Deepak Prakashan, Gwalior
5. अनुप्रयुक्त यांत्रिकी प्रायोगिक भाग सहित – दिलीप गांगिल, संजय पब्लिकेषन्स जयपुर ।

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

OUTCOME BASED CURRICULUM

NAME OF THE PROGRAMME: REF &PETROCHEMICAL ENGG AND PLASTIC TECH.

Name of Scheme :OCBC -2019 **COURSE CODE: 6808**

COURSE TITLE : ENGINEERING DRAWING SEMESTER –II

ENGINEERING DRAWING

COURSE OUTCOME:

COURSE OUTCOME		CL	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO.1	Prepare basic engineering drawing formats	A	3	3	3	2	1	3	2
CO.2	Translate geometrical details into engineering drawing	A	3	3	3	2	1	2	2
CO.3	Draw projections of points, lines, planes and solids	A	3	3	3	2	1	2	2
CO.4	Draw the development of surfaces and section of solids	A	3	3	3	2	1	2	2
CO.5	Draw isometric view /orthographic projection	U	3	3	3	2	1	2	2

COURSE CONTENTS

UNIT	CONTENTS	
UNIT I: INTRODUCTION, SCALE& ENGINEERING CURVES	Introduction:Introduction of drawing instruments, Designation and sizes of drawing sheet and drawing board Planning of drawing sheet as per I.S.: 696-1972 (SP 46: 1988).Introduction of type of lines and their applications. Single stroke vertical capital letters and numerals .Dimensioning:Elements of dimensioning,Dimensioning system. Dimensioning Different geometrical features Scale:Introduction of scales and their applications, Concept of reduced, enlarged and full size scale .Classification of scales – plain, diagonal. Definition of R.F. Construction of plain and diagonal scales Geometrical construction & curves:Divide a line into any number of equal parts by parallel line method, Bisecting the line and angle. Construction of triangles and polygons (upto hexagon) Introduction of conic sections (curves), Construction of Ellipse by Eccentricity and Concentric circles methods, Construction of Parabola by Eccentricity and Rectangle methods, Construction of Hyperbola by Eccentricity method, Construction of cycloid , Involute of circle and polygon. Construction of Archemedian spiral.	
UNIT II:THEORY OF PROJECTION AND PROJECTION OF POINTS, LINES ,PLANES	Definition of various term associated with theory of projection,Planes of projection, Quadrants, Introduction to first and third angle projection method. Projection of points in all the four quadrants. Projection of lines-	

AND SOLIDS (only first angle projection**)**	- 1. Parallel to HP and VP both. - 2.Perpendicular to one plane and parallel to other. - 3.Inclined to one plane and parallel to other. - 4. line inclined to both the planes Projection of planes circle and polygon (upto hexagon)– Plane - 1Perpendicular to HP and VP both - 2 Perpendicular to one plane and parallel to other - 3.Inclined to one plane and perpendicularto other. Projection of solids**:**Projection of cylinder, cone, prism (upto hexagonal base)and pyramid (upto hexagonal base). Under the following conditions: - 1. Axis parallel to HP and VP - 2. Axis perpendicular to HP and parallel to VP - 3. Axis perpendicular to VP and parallel to HP - 4. Axis inclined to HP and parallel to VP. - 5. Axis inclined to VP and parallel to HP.	
UNIT III: SECTION OF SOLIDS(only first angle projection)& DEVELOPMENT OF LATERAL SURFACES	Section of solids:-Section of cone, cylinder, prism (upto hexagonal base)and pyramid (upto hexagonal base). (Solid resting on its base in the HP i.e. the Axis perpendicular to HP and parallel to VP) in the following cases: 1 Section plane parallel to HP and perpendicular to VP 2 Section plane parallel to VP and perpendicular to HP 3 Section plane inclined to HP and perpendicular to VP. 4 Section plane inclined to VP and perpendicular to HP. - Drawing True shape of section. Development of lateral surface of solids: Introduction, Development of Cone, Cylinder, prism (upto hexagonal base)and pyramid (upto hexagonal base) (simple and truncated) under the condition solid resting on its base in the H.P. and axis perpendicular to H.P. and parallel to V.P.	
UNIT IV:ORTHOGRA---PHIC PROJECTIONS	Principles of orthographic projections, Selection of front view, Preparation of necessary orthographic views of simple objects from given pictorial views, Dimensioning orthographic viewsas per standard practice.	
UNIT V: ISOMETRIC PROJECTION AND FREE HAND SKETCHING	Isometric view and projection: Concept of isometric view and isometric projection (Isometric Drawing), Construction of isometric scale, Construction of isometric view and projection of polygon (up to hexagon) and circle.Construction of isometric view of cone, cylinder, prism (up to hexagonal base) and	

	pyramid (up to hexagonal base) and their combinations solids, Isometric view and projection of simple solids. Free hand sketching: Free hand sketching of orthographic and isometric views of simple objects	

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OUTCOME BASED CURRICULUM

NAME OF THE PROGRAMME: REF &PETROCHEMICAL ENGG AND PLASTIC TECH.

Name of Scheme :OCBC -2019 **COURSE CODE: 6808**

COURSE TITLE : ENGINEERING DRAWING SEMESTER –II

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL
OUTCOME BASED CURRICULUM

NAME OF THE PROGRAMME: COMMON TO ALL BRANCHES

Name of Scheme :OCBC -19 **COURSE CODE : 6806**

COURSE TITLE : ENVIRONMENTAL ENGG AND SAFETY SEMESTER-II

COURSE OUTCOMES (COs)

C102.1 Explore the components of biosphere and impact of human activity on environment.

C102.2 Summarize the causes and sources of pollutants, and their impact on global environment.

C102.3 Develop ethics and scientific awareness about waste generation and treatment.

C102.4 Identify sources and types of wastes and its management.

C102.5 Understand noise , noise pollution and control.

CO-PO MAPPING

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
C102.1	3	1	1	1	3	2	3
C102.2	3	2	2	2	3	1	3
C102.3	2	2	1	1	2	1	2
C102.4	2	2	1	2	2	1	2
C102.5	1	1	1	2	2	1	2

CONTENTS

Unit	topic	contents	
1	Introduction to environment	Definition, scope and importance of environmental studies. Ecosystem, types, structure and function of ecosystem. Energy flow in ecosystem. Biodiversity and its importance, threats to biodiversity and conservation of biodiversity. Natural resources and associated problems. Renewable and non renewable resources, forest resources- Description, benefits, Effects due to deforestation, Water resources –Use and conservation. Mineral resources–mining activity. Role and responsibility of engineer in environmental protection, health and safety. Fire hazards, prevention and precautions. Industrial hazards prevention and protection. Protection from air and noise pollution. Environment protection act Wild life protection act. Forest conservation act. Population growth aspects and importance and effects on environment. Human health and Human rights. Concept of carbon credits	

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OUTCOME BASED CURRICULUM

NAME OF THE PROGRAMME: COMMON TO ALL BRANCHES

Name of Scheme :OCBC -19 **COURSE CODE : 6806**

COURSE TITLE : ENVIRONMENTAL ENGG AND SAFETY SEMESTER-II

2	Air Pollution	Standard definition of air pollution ,Composition of natural air, Names of air pollutants, Classification of air pollutants, primary and secondary pollutants, Classification of source of air pollutants on different bases, Definition of different types of aerosols. Effect of air pollution on: human health, material properties, vegetation. Major toxic metals and their effects., Air (prevention and control of pollution)act. Major environmental phenomenon e.g., acid rain, global warming, green house effect, ozone layer depletion. Air quality standards, Brief description of air pollution laws. Meteorological parameters influencing air pollution Environmental lapse rate, temperature inversion. Role of national green tribunal in India, Function of Regulatory boards like CPCB and State Pollution Control Boards	
3	WATER POLLUTION and WASTE WATER TREATMENT METHOD	Water resources, Classification of water, Origin, composition and characteristics of domestic waste water as well as industrial waste water, Biochemical oxygen demand, Water pollution laws and standards. Water conservation ,watershed management, Rain water harvesting : Definition, methods and benefits. Water (prevention and control of pollution)act, Waste water, Classification of waste water, Chemical oxygen demand. basic processes of water treatment. Meaning of primary, secondary and tertiary treatment. Flow chart of a simple effluent treatment plant, Theory of industrial waste treatment, Volume reduction, neutralization and precipitation methods.	
4	Energy Environment Climate Change	An overview of Bureau of Energy Efficiency (bee), The National Action Plan on Climate Change (NAPCC), Schemes under The National Mission for Enhanced Energy Efficiency (**NMEEE**), Energy Conservation Building Code (ECBC), Bio diversity and its conservation, Sustainable development, Kyoto Protocol, Conference of Parties (CoP), Clean Development Mechanism (CDM).	

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NAME OF THE PROGRAMME: COMMON TO ALL BRANCHES

Name of Scheme :OCBC -19 **COURSE CODE : 6806**

COURSE TITLE : ENVIRONMENTAL ENGG AND SAFETY SEMESTER-II

5	SOLID WASTE MANAGEMENT& NOISE POLLUTION	Sources and classification of solid waste, Public health aspects, Disposal methods – open dumping , sanitary , land fill, Incineration , compositing, Potential methods of disposal ,Recovery and recycling of paper, glass, metal and plastic Sources of noise pollution ,Units of Noise pollution measurement, Allowable limits for different areas, Problems of noise pollution and measures to control it, Noise pollution control devices brief discussion	

LIST OF EXPERIMENTS

S.NO.	NAME OF THE EXPERIMENTS	HRS OF PRACTICAL
	NOISE POLLUTION 1 Determination of sound pollution in (a) Auditorium (b) Factories (c) Busy roads (d) Theatre (e) TV rooms (select any three situations) **INDUSTRIAL WASTE WATER** (Any Two experiment may be selected from this group) 2 Determination of pH and alkalinity/ acidity in industrial waste water. 3 Determination of solids in industrial waste water. 4 Determination of turbidity, colour and temperature of industrial waste water. 5 Determine the dissolved oxygen by DO Meter. **POLLUTION STANDARDS** 6 Study of drinking water standards. 7 Study of effluent standards for water disposal. 8 Study of air pollution standards.	**30**

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Name of Scheme :OCBC -19 **COURSE CODE : 6806**

COURSE TITLE : ENVIRONMENTAL ENGG AND SAFETY SEMESTER-II

LIST OF ASSIGNMENTS

1. Study of a simple ecosystem like pond, rivers, hill slopes etc
2. Visit a local area and document the environmental assets like rivers, forest, hills, grasslands etc.
3. Prepare a list of plastic articles used daily in our life. Estimate the amount of raw materials used and how does where does come from? What are the disposal methods and predict the impact on environment
4. Estimate water is needed for a person daily and estimate for your town and find the sources that cater the supply and how can we regulate the excess usage of water by changing our habits
5. List out the article that are renewable and non renewable and their impact on environment
6. List out energy sources that we use daily. How can we decrease their use and dependence on them
7. Write an essay on how carbon credit is helping in minimising the pollution
8. Write a note on rain water harvesting
9. Carbon credits and sustainable development
10. Compare the use of renewable and non renewable sources of energy
11. List out some novel methods t reduce solid waste
12. List out the advantages of biodiversity.

SUGGESTED SPECEFICATION FOR QUESTION PAPER DESIGN

UNIT NO	TITLE	TEACHING HRS	TENTATIVE DISTRIBUTION OF MARKS			
			R LEVEL	U LEVEL	A LEVEL	TOTAL
1	INTRODUCTION TO ENVIRONMENT	18	04	08	02	14
2	AIR POLLUTION	18	02	08	04	14
3	WATER POLLUTION and WASTE WATER TREATMENT METHOD	18	04	06	04	14
4	ENERGY ENVIRONMENT CLIMATE CHANGE	18	04	06	04	14
5	SOLID WASTE MANAGEMENT& NOISE POLLUTION	18	04	04	06	14

REFERENCES

1. Enviornmental pollution control Engineering by C.S. Rao
2. Air pollution and control by Seth
3. Air pollution by M.N Rao
4. Industrial waste and its treatment by Seth
5. Paryavaran Yantriki Hindi granth akadami
6. Sites to visit: Bureau of Energy Efficiency,Ministry of New and Renewable Energy Sources
7. पर्यावरण अभियांत्रिकी एवं सुरक्षा – डा0 शर्मिला जैन, संजय पब्लिकेषन जयपुर ।

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

OUTCOME BASED CURRICULUM

NAME OF THE PROGRAMME: **COMMON TO ALL**

Name of Scheme :OCBC -2019 COURSE CODE: 6807

COURSE TITLE : INTRODUCTION TO COMPUTERS SEMESTER-II

COURSE OUTCOMES

Course Outcomes		Mapping with POs
CO104.1	Explain computer system with its components, generations and i/o devices.	PO1,PO4,PO5,PO7
CO104.2	Describe storage devices with types of memory and data storage units.	PO1,PO4,PO7
CO104.3	Classify softwares, programming languages, language processors and number system.	PO1,PO2,PO3,PO7
CO104.4	Outline concept of operating system and office software.	PO1,PO2,PO3,PO4, PO5,PO6,PO7
CO104.5	Outline concept of system security and internet applications.	PO1,PO2,PO3,PO4, PO5,PO6,PO7

CO PO MAPPING

Course Outcomes	Program Outcomes						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO104.1	3	-	-	1	1	-	2
CO104.2	3	-	-	1		-	2
CO104.3	2	1	1	-	-	-	2
CO104.4	3	2	3	3	2	2	3
CO104.5	3	2	1	1	3	2	3
CO104	3	2	2	2	2	2	2

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

OUTCOME BASED CURRICULUM

NAME OF THE PROGRAMME**: COMMON TO ALL**

Name of Scheme :OCBC -2019 COURSE CODE: 6807

COURSE TITLE : INTRODUCTION TO COMPUTERS SEMESTER-II

COURSE CONTENTS

Unit	Topic	Contents	CO	Hrs
I	Basics of Computer System	Block Diagram of Computer System. Major Components of Computer System: Central Processing Unit, Memory Unit, ALU, Control Unit, Input Unit and Output Unit. Computer Generations and Classification of Computers, Applications of Computer System Computer System Characteristics and Capabilities: Speed, Accuracy, Reliability, Memory Capabilities, Repeatability Input Devices: Keyboard, mouse, joystick, scanner, OCR, OMR and webcam Output Device: Monitors, printers(dot matrix inkjet laser), Projectors	CO104.1	12
II	Storage Devices	Storage device fundamentals, Primary & Secondary Storage. Volatile and non volatile memory. Primary Memory - RAM, ROM and types of RAM and ROM. Difference between RAM and ROM. Secondary storage - Floppy Disk, CD-ROM, DVD, Hard Disk, Flash(Pen) Drive Data Storage unit - Bit, Byte, KiloByte, MegaByte, GigaByte, TeraByte, PetaByte.	CO104.2	14
III	Computer Software and languages	Classification of programming Languages - High Level Language and low level language. Language processor and its types- compiler, interpreter, assembler Software and its types - System software, application software and utility software. Number System - binary, octal, decimal, hexadecimal and their conversion	CO104.3	10
IV	Operating System and Office Software	Concept of BIOS, Booting process, POST, boot loader. Operating system and its features. Types of operating system - batch, time sharing, Real time, network, distributed Office management utilities - Word processing, presentations, spreadsheets. Features of Word processing. Uses of word processing. Description of various menu and sub menu items of word processing software example - file, edit, view etc.. Features of spreadsheet(ppt). Description of various menu and sub menu items of spreadsheet software example - file, edit, view etc..Writing conditional expressions using IF and logical operators(AND, OR, NOT). Features of presentation(ppt). Description of various menu and sub menu items of presentation software example -file, edit, view etc..	CO104.4	14
V	**Computer Networks and System security**	Introduction to computer networks and internet. Applications of internet. Concept of physical and IP-address. E-Mail and its utilities. Web-Browser and search engines. Malware and its types - viruses, worms, Trojans and anti malware software.	CO104.5	10

		Basics of bluetooth and wifi.		

SUGGESTED SPECEFICATION FOR QUESTION PAPER DESIGN

UNIT NO.	UNIT TITLE	DISTRIBUTION OF THEORY MARKS			
		R-LEVEL	U-LEVEL	A-LEVEL	TOTAL MARKS
1	Basic of computer system	5	6	3	14
2	Storage Devices	6	6	2	14
3	Computer Software and Languages	6	6	2	14
4	Operating System and Office Software	5	5	4	14
5	Computer Networks and System Security	5	5	4	14

SUGGESTED LIST OF EXPERIMENTS/TUTORIALS :

SNo	Name of experiment	CO
1	Perform basic operating system operations - start, shutdown, restart etc.	CO104.1

2	Identify system properties such as RAM, processor, harddisk size, system type, computer name, work group information.	CO104.1
3	Uses of following devices a. Input-output devices. b. Storage devices. c. Central processing unit.	CO104.1 CO104.2
4	Exploring the desktop. a. Start button and start menu b. File explorer - minimize, maximize, move, resize. c. Desktop icons handling.	CO104.1
5	Recognize file system. a. Storage and partitions. b. Folder and file - creating, deletion, renaming, moving, copy. c. Deletion process - temporary deletion and recovering those files, permanent deletion. d. File permission and attributes.	CO104.2 CO104.3
6	Use a file editor to edit a file.	CO104.4 CO104.3
7	Working with documents on office software. a. Creating, editing, formatting, saving a document. b. Cut, copy and paste text. c. Find and replace text inside a document. d. Insert, modify table. e. Formatting document - changing font color, type, size, bold, italics. f. Ways to indent a paragraph - Left, right, center indentation. g. Working with tables - Creating, adding row/columns, removing row/column.	CO104.4
8	Working with worksheets on office software. a. Creat, edit, format, save, preview and move worksheets. b. using formulas and functions. c. Sorting and filtering data d. Use of freeze pan.	CO104.4
9	Working with powerpoint slides on office software. a. Create, edit, insert and move slides. b. Insert picture, tables to the slide. c. Changing background.	CO104.4
10	Using internet. a. Using web browser for internet surfing. b. Using search engine to search contents on the internet. c. Basic email operations - creating, sending, receiving emails, saving to drafts. d. Sending an attachment with email.	CO104.5

(B) SOFTWARE INSTALLATION ASSIGNMENTS

For Computer Science and Engineering, Information Technology and Computer Hardware and Maintenance branches following tasks are included in the list of practicals. These tasks include downloading, installing/uninstalling free/open source software from the internet and perform basic settings in an operating system. For this any operating system can be used. Following is a tentative list of such software/tasks-

- Changing date/time of the operating system.
- Installation of Office software
- Installing fonts
- Experiments on wordprocessing, spread sheet(EXCEL) and powerpoint presentation
- Installation of Printer
- Installation of anti-virus software
- Installation of web browser
- Internet surfing
- Installation and use of Lightning Calendar
- Installation of photo and image editing software
- Installation of VLC Media Player
- Installation of PDFCreator PDF Converter Tools
- Creation of email-id, sending, receiving and printing mails
- Experience of online form filling – Hands on experience with RGPV students portal
- Use of notepad

To perform above practicals various free/paid operating systems and office management softwares are available which can be used. List of various open source softwares are available at aicte's website : http://www.old.aicte-india.org/downloads/Commercial%20Software.pdf

Above list of practical is tentative. Teachers are free to design new and innovative practical and give more opportunities for the students to learn practical skills

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OUTCOME BASED CURRICULUM

NAME OF THE PROGRAMME: REF&PETROCHEMICAL ENGG AND PLASTIC TECHNOLOGY

Name of Scheme : OCBC -2019

COURSE TITLE : WORKSHOP PRACTICE SEMESTER-II

COURSE OUTCOMES		CL	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO 1	Discuss general safety rules used in different shops	U	3	3	2	3	3	3	3
CO 2	Demonstrate making , measuring , cutting, holding, striking and planning tools and equipments	U	3	3	2	3	2	2	2
CO 3	Explain operations used in fitting , carpentry, smithy, sheetmetal, welding and plumbing shops	U	3	3	2	3	2	2	2
CO 4	Prepare simple jobs in different shops	A	3	3	2	3	2	2	2

COURSE CONTENTS

UNIT	CONTENTS	
UNIT-1	CARPENTRY SHOP 1-Introduction 2-Various types of woods. 3-Different types of tools, machines and accessories.	
UNIT-2	WELDING SHOP 1-Introduction 2-types of welding,ARC welding,Gas Welding,Gas Cutting. 3-welding of dissimilar materials, Selection of welding rod material Size of weldidng rod and work piece. 4-different types of flame. 5-Elementary Symbolic representation. 6-Safety precautions in welding safety equipments and its use in welding processes.	
UNIT-3	FITTING SHOP 1-Introduction 2-Various marking, measuring, cutting, holding and striking tools. 3-Different fitting operation like chipping,filing, right angle, marking, drilling, tapping etc.	
UNIT-4	PLUMBING SHOP 1-Introduction. 2-various marking, measuring, cutting, holding and striking tools. 3-Different G.I. pipes, PVC pipes, flexible pipes used in practice. 4-G.I. pipes and PVC pipes fittiang and accessories, adhesive solvents chemical action, piping layout.	
UNIT-5	SHEET METAL SHOP 1-Introduction.	

	2-Various types of tools, equipments and accessories. 3-Different types of operations in sheet metal shop. 4-Soldering and riveting. 5-Safety precautions.	

PRACTICALS

UNIT	PRACTICAL CONTENTS	
1	WOOD WORKING SHOP • Demonstration of different wood working tools/machines. • Demonstration of different wood working processes, like planning, marking, chiseling, grooving,turning of wood etc. • One job involving any one joint like mortise and tenon dovetail, bridle, half lap etc.	
2	WELDING SHOP • Demonstration of different welding tools/machines. • Demonstration on ARC Welding, Gas welding, Gas Cutting and rebuilding of broken parts with welding. • One job involving butt and lap joint.	
3	FITTING SHOP • Demonstration of different fitting tools and drilling machines and power tools. • Demonstration of different operations like chipping,filing, drilling, tapping, cutting etc. • One fitting job involving practice of chipping, filing, drilling, tapping, cutting etc.	
4	PLUMBING SHOP • Demonstration of different plumbing tools . • Demonstration of different operations in plumbing, observing different pipe joint and pipe accessories. Different samples of PVC pipes and PVC pipe fittings. • One job on pipe joint with nipple coupli9ng for standard pipe. Pipe threading using standard die sets.	
5	SHEET METAL SHOP • Demonstration of different sheet metal tools/machines. • Demonstration of different sheet metal operations like sheet cutting, bending, edgine, end curling,	

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	lancing,soldering and riveting. • One job involving sheet metal operations and soldering and riveting.	
6	SMITHY SHOP • Demonstration of different forging tools and Power Hammer. • Demonstration of different forging processes, likes shaping, caulking, fullering, setting down operations etc. • On e job like hook peg, flat chisel or any hardware item.	
7	**Demonstration of power tools and practice of utility items**. • Demonstration of advance power tools, pneumatic tools, electrical wiring tools and accessories. • Making of electrical switchboard with 2 sockets and piano buttons and with electrical wiring. • Any other item as per the requirement of college/Deptt.	

LIST OF BOOKS

S.K. Hajara Chauadhary.	Workshop Technology	Media Promoters and publishers, New Delhi.
B.S. Raghuwanshi.	Workshop Technology	Dhanpat Rai and sons, New Delhi.
R.K. Jain.	Production Technology	Khanna Publishers, New Delhi.
H.S. Bawa.	Workshop Technology	Tata McGraw Hill Publishers, New Delhi.
Kent's	Mechanical Engineering Hand book	John Wiley and Sons, New York.