

LESSON PLAN

Name of Faculty : Parvesh Kumar

Discipline : CHEMICAL ENGG

Semester : 5th

Subject : CACI

Work Load : Lab-3 hrs.

Lesson plan duration - 15 weeks (July 2018 to Nov 2018)

Week	PRACTICAL
PRACTICAL DAY	
1	Introduction to computers and its various parts, CPU, peripheral devices
2	Various Input and output devices
3	Hardware & Software
4	Various computer generations and their development
5	Machine, Assemble & High level language
6	Types of computers and super computer
7	concept of time sharing, Multiprogramming
8	Multi-testing and real time processing
9	MS-Word
10	MS-Excel
11	MS-Powerpoint
12	Programme of area of Heat exchange in excel
13	Programme of calculation of area of cylinder in excel
14	Programme of conversion of °F to °C in excel
15	Programme of calculation of velocity in excel, introduction to internet

LESSON PLAN

Name of Faculty : KULDEEP GULIA

Discipline : Chemical Engg.

Semester : 5th

Subject : Environmental Education (EE)

WORK LOAD: - 03 HRS.

Lesson Plan Duration :15 weeks (from July, 2018 November 2018)

Week	Lecture Day	Theory Topic
1	1	Rationale of the subject - E.E (A brief discussion)
	2	Introduction of subject - Syllabus in brief
	3	Unit- I Environmental Education - definition
2	4	Scope & Importance of Environmental Education
	5	Unit- 2 :- Basics of Ecology, Biodiversity
	6	Eco-system & Sustainable development
3	7	Checking of copies upto Unit- 2
	8	Unit- 3:- Sources of Pollution- Natural & Man-made
	9	Causes of Pollution & Effect of Pollution
4	10	Control measures of air & water pollution
	11	Control measure of noise, soil, radio active & nuclear pollution
	12	Unit of Measurement of Pollution
5	13	Test upto Unit- III
	14	Unit- IV:- Solid waste Management - Concept
	15	Causes of Solid waste & Effect of Solid waste
6	16	Control measures of Urban & Industrial waste
	17	Unit- V:- Definition of mining & deforestation
	18	Causes of mining & deforestation
7	19	Effect of Mining & deforestation
	20	Control measures of mining & deforestation
	21	Checking of copies upto Unit- V
8	22	Test of Unit- V
	23	Unit-VI :- Definition of Environmental legislation
	24	Water (Prevention & Control of Pollution) Act 1974
9	25	Air (Prevention & Control of Pollution) Act 1981
	26	Environmental Protection Act 1986
	27	Role of State Pollution Control Board
10	28	Function of State Pollution Control Board
	29	Environmental Impact Assessment (EIA)
	30	Test of Unit- VI
11	31	Unit- VII:- Role of Non-Conventional Energy Resource
	32	Solar Energy - Brief
	33	Wind Energy - In Brief
12	34	Bio- Energy & Hydro Energy
	35	Checking of copies upto Unit- VII
	36	Unit-VIII:- Current issues in environmental pollution- Global warning
13	37	Green-house effect, Depletion of Ozone layer
	38	Recycling of Materials
	39	Environmental Ethics
14	40	Rain water harvesting
	41	Maintenance of Ground Water
	42	Acid Rain & Carbon credits
15	43	Checking of copies
	44	Revision
	45	Revision

LESSON PLAN

Name of Faculty : Jasbir Singh

Discipline : CHEMICAL ENGG

Semester : 5th

Subject : Employability skills-I

Work Load : 02 Hrs

Lesson plan duration - 15 weeks (July 2018 to Nov 2018)

Week	PRACTICAL
PRACTICAL DAY	
1	Introduction about the subject and its requirement
2	Unit 1st writing skills
3	Official and business correspondence
4	Job application covering letter and resumes
5	Report writing -key features and kinds
6	Unit -2 oral communication skills
7	Giving advice and making comparisons
8	Agreeing and disagreeing
9	Taking turns in conversation
10	Fixing and cancelling appointments
11	Unit-3 Generic skills
12	Stess Management
13	Time Management
14	Negotiations and conflict resolution
15	Team work and leadership qualities

LESSON PLAN

Name of Faculty : Latish Chhabra

Discipline : CHEMICAL ENGG

Semester : 5th

Subject : Introduction to Engg. Materials (IEM)

Work Load : 04+1 (Remedial lecture)

Lesson plan duration - 15 weeks (July 2018 to Nov 2018)

Week	Lecture	Topic (Including assignments/tests)
1	1	Importance of Engg. Material
	2	Continue as above engg material in chemical engg
	3	Classification and uses of engg materials in chemical industries
	4	Fessous Metals- Important varieties of ironores
2	5	cast iron types of properties and uses
	6	continue as above
	7	continue as above
	8	continue as above
3	9	Pig iron types properties and uses
	10	continue as above
	11	wrought iron properties and uses
	12	continue as above
4	13	continue as above
	14	Steel: factor affecting physical properties of steel
	15	continue as above
	16	uses of steel
5	17	non fessous metal
	18	Aluminium properties and uses
	19	Copper properties and uses
	20	Load properties and uses
6	21	Nickel properties and uses
	22	Tin properties and uses
	23	Zinc properties and uses
	24	Alloys of Aluminium
7	25	Continue as above
	26	Continue as above
	27	Alloys of copper
	28	Continue as above
8	29	Continue as above
	30	Nickel Alloyes
	31	Nickel Alloyes
	32	Nickel Alloyes
9	33	Steel alloy
	34	Steel alloy
	35	Steel alloy
	36	Study phase dig Fe-c
10	37	Study phase dig Fe-c
	38	Study phase dig Fe-c

10	39	Classification of stainless steel properties and uses
	40	Classification of stainless steel properties and uses
11	41	Classification of stainless steel properties and uses
	42	Polymers Nylon 66 Nylon-6
	43	Polyesters
12	44	Polyesters
	45	Polyurethanes
	46	LDPE, HDPE
	47	PVC, Rubber
13	48	Polypropylene
	49	Ceramics-Definition clays. Properties of clays
	50	Earthen wares and stonewares, uses of stoneware
	51	Glass -Definition, classification, properties of glass
14	52	Composition of Glass and types
	53	Tensile, compressive and shear strength
	54	Methods of improving strength
	55	Ductility and Malleability, crystalline melting temperature
15	56	Thermal conductivity, dielectrical diffusivity
	57	power loss and electrical diffusivity
	58	Specification of materials according to BIS
	59	Specification of materials according to BIS
	60	Revision of old question paper and sessional exams

LESSON PLAN

Name of Faculty : Latish Chhabra

Discipline : CHEMICAL ENGG

Semester : 5th

Subject : Mass Transfer-II

Work Load : 04+1 (Remedial lecture)

Lesson plan duration - 15 weeks (July 2018 to Nov 2018)

Week	Lecture	Topic (Including assignments/tests)
1	1	Basic Introduction of contents of syllabus of Mass transfer-II
	2	Concept of distillation
	3	Vapour liquid equilibria
	4	Raoult's law, Dalton's law
2	5	Volatility : Relative Volatility
	6	Derivation to calculate vapour composition and liquid composition
	7	Methods of distillation :- Differential or simple distillation
	8	Rayleigh's Equation
3	9	Flash or Equilibrium distillation
	10	Material balance Flash or equilibrium distillation
	11	Fractionating column or Rectification column
	12	Material balance of functioning column
4	13	McCabe-Thiele method (only procedure)
	14	Feed plate
	15	Feed line, q line, effect of feed conditions
	16	Reflux ratio, minimum and optimum reflux ratio
5	17	Azeotropics extractive distillation
	18	Steam distillation
	19	Equipment for distillation plate column and packed column
	20	Concept of flooding & loading
6	21	concept of weeping and entrainment
	22	Unit-2 Extraction, definition and application of extraction
	23	Equipment :- Mixer settler, spray tower
	24	Packed Tower, perforated extraction tower
7	25	Agitated tower extractor
	26	Leaching: Definition and application
	27	Leaching: equipment stationary solid bed
	28	moving bed equipment
8	29	Ideal stages in counter current leaching
	30	Unit-III concept of crystallization
	31	Saturation and super saturation
	32	Solubility curves
9	33	Mechanism of crystallization/crystal formation
	34	Methods of super saturation -Miers saturation theory
	35	construction and working of agitated tank crystallizer
	36	draft tube & baffle tube crystallization
10	37	swenson and walker crystallizer
	38	vacuum crystallizer
	39	Unit-4 concept of absorption operation
	40	Types of Absorption and nature of adsorbent
11	41	Effect of temp on absorption and isotherms
	42	Industrial application
	43	Membrane separation introduction
	44	Types of membrane
	45	Membrane separation processes

12	46	Brief introduction reverse osmosis
	47	Microfiltration
	48	Ultra filtration
13	49	Dialysis
	50	Revision of Unit-I Concept of distillation
	51	Liquid equilibria, Raoult's law, Dalton's law
14	52	Volatility relative volatility, derivation V & C composition
	53	Methods of distillation differential or simple
	54	Flash or equilibrium fractionating column
	55	Material balance- Rayleigh's equation, Flash distillation and fractional column
15	56	Feed plate, q-line, feedline, effect of feed condition
	57	Reflux ratio minimum and optimum
	58	Azeotropic, Extractive and steam distillation
	59	Equipment-Plate and packed column
	60	Concept of flooding, loading, weeping & entrainment.

LESSON PLAN

Name of Faculty : Latish Chhabra

Discipline : CHEMICAL ENGG

Semester : 5th

Subject : MT-II

Work Load : 06 hrs.

Lesson plan duration - 15 weeks (July 2018 to Nov 2018)

Week	PRACTICAL
PRACTICAL DAY	
1	Introduction about various equipment used in the Mass Transfer-II
2	To separate a given mixture by bubble cap distillation
3	To separate a given mixture by bubble cap distillation
4	Calibration curve using refractive index
5	Calibration curve using refractive index
6	Extraction of oil from solids
7	Extraction of oil from solids
8	Experiment on crystallizer
9	Experiment on crystallizer
10	Reverse osmosis set up
11	Reverse osmosis set up
12	Separate a mixture of liquid using liquid extraction
13	Separate a mixture of liquid using liquid extraction
14	Verify Rayleigh's equation
15	Verify Rayleigh's equation

LESSON PLAN

Name of Faculty : Ajay Tyagi

Discipline : CHEMICAL ENGG

Semester : 5th

Subject : Plant safety

Work Load : (lecture-3hrs / Weak)

Lesson plan duration - 15 weeks (July 2018 to Nov 2018)

Week	Lecture	Topic (Including assignments/tests)
1	1	Introduction, OSHA and PSM
	2	Hazard analysis (HARA)
	3	Accident and their causes
2	4	Unsafe act, unsafe condition, multiple causes.
	5	Types of Hazards in Industries
	6	Heat & temperature Hazards
3	7	Pressure Hazards in industry
	8	Toxic material hazards in industry
	9	Fire explosion hazards in industry
4	10	Radiation hazards in industry
	11	Maximum allowable concentration
	12	Ceiling value
5	13	TLV & STEL
	14	Toxic chemical & their effect on human
	15	Risk management: Introduction
6	16	Personal protective equipment
	17	PPE for head, face and hand
	18	PPE for Arm, ear face
7	19	PPE for Eye, feet & leg
	20	PPE for lungs and Respiratory track
	21	Fire triangle and fire tetrahedron
8	22	Classification of fires
	23	Fire extinguishers and types
	24	Water and CO ₂ Fire extinguisher
9	25	Foam and dry powder fire extinguisher
	26	Fire escapes, fire tower, exits
	27	Travel distance, floor area ratio
10	28	Planning for emergencies
	29	Copy checking and revision
	30	Health and safety provision of factory act 1948
11	31	Cleanliness and disposal of waste
	32	Ventilation and temperature
	33	Dust and fumes
12	34	Artificial humidification
	35	Avoidance of over crowding, lighting
	36	Drinking water
13	37	Urinals and spittoons
	38	Safety provision of the act
	39	India boiler act 1923

14	40	Purpose of act
	41	Meaning of accident
	42	Function of central boilers, bore
15	43	Provision of act, refistecation of boiler
	44	Renewal of the certificate
	45	copy checking and revision of subject

LESSON PLAN

Name of Faculty : Samarpal Singh

Discipline : CHEMICAL ENGG

Semester : 5th

Subject : Petroleum and Petrochemical Technical

Work Load : 04 +1 (Remedial lecture) Hrs. Per week

Lesson plan duration- 15 weeks (July 2018 to Nov. 2018)

Week	Lecture	Topic (Including assignments/tests)
1	1	Introduction of Petroleum and petrochemical
	2	Petroleum industry in India
	3	origin of petroleum, exploration
	4	Drilling and production of petroleum crude
2	5	Transportation of crude and products
	6	crude pretreatment composition
	7	Classification of crude
	8	Class test of chapter 1
3	9	Method of evaluation : ASTM
	10	TBP & EFV distillation
	11	Definition and practical utility of cloud and pour point
	12	Pour point, Flash point, Fire point
4	13	Octane number and cetane number
	14	smoke point and Aniline point, API gravity
	15	specific gravity, properties and
	16	specification of petroleum products such
5	17	as LPG, Gasoline, naphtha, kerosene
	18	diesel oil, lubricating oil and waxes
	19	copy checking of chapter 1 and 2
	20	class test of chapter 2
6	21	Introduction of Thermal and catalytic process
	22	cracking process, types of cracking
	23	Reforming process, types of reforming
	24	Alkalylation process, types of alkalylation
7	25	polymerization process, types of polymerization
	26	Revision of chapter 3
	27	copy checking of chapter 3
	28	class test of chapter 3
8	29	operation of topping and vaccum distillation
	30	tube still eurnaces
	31	solvent extraction process for tube oil
	32	Revision of Unit 4

9	33	class test of unit 4
	34	copy checking of unit no-4
	35	Important petrochemical feed stock
	36	Name and uses of important chemicals
10	37	c ₁ compound (methanol and synthesis gas)
	38	c ₂ compound ethylene
	39	c ₂ compound acetylene
	40	c ₃ compound propylene
11	41	c ₄ compound butanes
	42	c ₄ compound butenes
	43	Revision of unit no-5
	44	class test of unit no 5
12	45	copy checking of unit no 5
	46	Introduction of petrochemicals
	47	Synthesis gas, flowsheet, process description
	48	Acetaldehyde, flowsheet, process description
13	49	Vinyl chloride, flowsheet, process description
	50	Ethylene oxide, flowsheet, process description
	51	Vinyl chloride, flowsheet, process description
	52	Styrene, flowsheet, process description
14	53	Cumene, flowsheet, process description
	54	Acetone, flowsheet, Process description
	55	Benzaldehyde, flowsheet, process description
	56	Acrylonitrile, butadiene
15	57	Butadiene
	58	Phenol from cumene
	59	Copy checking of unit no 6
	60	Class test of unit no 6

LESSON PLAN

Name of Faculty : Samarpal singh

Discipline : CHEMICAL ENGG

Semester : 5th

Subject : PPT

Work Load : 06 hrs.

Lesson plan duration- 15 weeks (July 2018 to Nov. 2018)

Week	PRACTICAL
PRACTICAL DAY	
1	Introduction about PPT lab
2	Discuss theory related work of lab equipment
3	To find out flash and fire point of given oil
4	To find out smoke point of given oil
5	To find out viscosity by redwood viscometer
6	Practical file check ex no 1,2,3
7	To find out cloud and pour point of given oil
8	To find out calorific value by usnig bomb calorimeter
9	To determine the softening of bitumen
10	Practical file check ex no 4,5,6
11	To determine the precentage moisture of given oil
12	To perform the ASTM distillation of gasoline
13	To determine the penetration number of grease sample
14	Practical file check ex no. 6,7
15	Practical file check ex no.9