SRM UNIVERSITY
FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF CHEMICAL ENGINEERING
COURSE PLAN

Course Code : CH0455 **Course Title** : Petroleum Refining Technology
Semester : VII **Course Period** : June – December

REFERENCE BOOKS

- Bhaskara Rao B.K., *Modern Petroleum Refining Process*, 3rd Edn., Oxford & IBH, New Delhi, 1984
- Nelson W.L., *Petroleum Refinery Engineering*, 4th Edn., McGraw Hill, New York, 1958

PRE REQUIST
Organic chemical technology, Mass Transfer

ASSESSMENT DETAILS
Attendance : 5 marks
Surprise Test : 5marks
Cycle test I : 10marks
Cycle Test II : 10marks
Model Exam : 20marks

TEST SCHEDULE:

S.No	Test	Topics	Duration
1	Cycle Test-I	I & II unit	2 periods
2	Cycle Test-II	II & IV unit	2 periods
3	Model Exam	All units	3 hrs

OUTCOME
This course explains thermal cracking, catalytic cracking and multicomponent distillation operations involved with petroleum refining industries, in addition to storage and transportation of petroleum products.

Detailed Session plan:

THERMAL CRACKING AND THERMAL REFORMING
Origin occurrence of petroleum, elementary ideas of gas and liquid reservoirs. Petroleum refining processes, general processing, topping and vacuum distillations. Thermal cracking in vapor, liquid and mixed phase. Thermal reforming and polyforming.

Sess No.	Topics to be covered	Time (min)	Reference book	Teaching method	Testing method
1	Introduction to petrochemical industries	50	1,2	Power point presentation	Group Discussion
2	Origin occurrence of petroleum	50	2	Power point presentation	Group Discussion
3	Elementary ideas of gas and liquid reservoirs	50	2	Power point presentation	Group Discussion
4	Petroleum refining processes	50	2	Power point presentation	Group Discussion
5	Topping and vacuum distillations	50	2	Power point presentation	Group Discussion
6	Thermal cracking in vapor	50	2	Power point presentation	Group Discussion
7	Thermal cracking in liquid and mixed phase	50	2	Power point presentation	Group Discussion
8	Thermal reforming process	50	2	Power point presentation	Group Discussion
9	Polyforming	50	2	Power point presentation	Group Discussion

CATALYTIC CRACKING AND CATALYTIC REFORMING
Catalytic cracking - houdry fixed bed, fluidized bed, T.C.C. Houder flow etc.

Catalytic reforming - conversion of petroleum gases into motor fuel with special reference to alkylation, polymerization, hydrogenation and dehydrogenation Blending of petroleum products					
10	Catalytic cracking - houdry fixed bed	50	1,2	Power point presentation	Group Discussion
11	Catalytic cracking by , fluidized bed	50	1,2	Power point presentation	Group Discussion
12	Catalytic cracking by , , T.C.C. Houder flow	50	1,2	Power point presentation	Group Discussion
13	Catalytic reforming	50	1,2	Power point presentation	Group Discussion
14	conversion of petroleum gases into motor fuel with special reference to alkylation	50	1,2	Power point presentation	Group Discussion
15	Polymerization	50	1,2	Power point presentation	Group Discussion
16	hydrogenation and dehydrogenation	50	1,2	Power point presentation	Group Discussion
17	Blending of petroleum products	50	1,2	Power point presentation	Group Discussion
18	Some of the blending process in petrochemical	50	1,2	Power point presentation	Group Discussion
PRODUCTION OF FUELS Production of aviation gasoline, motor fuel, kerosene, diesel oil, tractor fuel and jet fuel, hydrodesulfurisation.					
19	Production of aviation gasoline	50	1,2	Power point presentation	Group Discussion
20	Production of aviation gasoline	50	1,2	Power point presentation	Group Discussion
21	Production motor fuel	50	1,2	Power point presentation	Group Discussion
22	Production of kerosene	50	1,2	Power point presentation	Problem solving
23	Production of aviation diesel oil	50	1,2	Power point presentation	Group Discussion
24	Production of tractor fuel	50	1,2	Power point presentation	Problem solving
25	Production of jet fuel	50	1,2	Power point presentation	Group Discussion
26	hydrodesulfurisation.	50	1,2	Power point presentation	Group Discussion
27	hydrodesulfurisation. in some industries.	50	1,2	Power point presentation	Group Discussion
LUBRICATING OIL Lubricating oil manufacture, vacuum distillation, solvent extraction and uses of lubricating oil. Petroleum waxes and asphalts. Elementary study of multi-component distillation as applied to petroleum industry.					
28	Lubricating oil manufacture	50	1,2	Power point presentation	Group Discussion
29	Process of vacuum distillation	50	1,2	Power point presentation	Group Discussion
30	solvent extraction process	50	1,2	Power point presentation	Group Discussion
31	uses of lubricating oil	50	1,2	Power point presentation	Group Discussion
32	Petroleum waxes and asphalts.	50	1,2	Power point presentation	Group Discussion
33	Introduction to multicomponent distillation	50	1,2	Power point	Group

				presentation	Discussion
34	Elementary study of multi-component distillation as applied to petroleum industry.	50	1,2	Power point presentation	Group Discussion
35	Application of multicomponenet distillation	50	1,2	Power point presentation	Group Discussion
36	Uses of multicomponent distillation	50	1,2	Power point presentation	Group Discussion
STORAGE AND TRANSPORTATION Octane number, cetane number, Diesel index, their determination and importance Storage of petroleum products: tanks, bullets, special types of spheres etc. Transportation of petroleum products: road, rail, sea and pipeline; Importance of pipeline transportation..					
37	Octane number, cetane number, Diesel index	50	1	Power point presentation	Group Discussion
38	Determination of octane number, cetane number, diesel index	50	1	Power point presentation	Group Discussion
39	Storage of petroleum products	50	1	Power point presentation	Problem solving
40	Special types of sphere	50	1	Power point presentation	Group Discussion
41	Transportation of petroleum products	50	1	Power point presentation	Group Discussion
42	Transportation of petroleum products: road, rail, sea and pipeline	50	1	Power point presentation	Group Discussion
43	Importance of pipe line transportation	50	1	Power point presentation	Group Discussion
44	Importance of pipe line transportation	50	1	Power point presentation	Group Discussion
45	Revision	50	1	Power point presentation	Group Discussion