SRMUNIVERSITY
Faculty of Engineering
andTechnology

DEPARTMENT OFEIE

CourseCode	:	EI1111
CourseTitle	:	INSTRUMENTATION & CONTROL INPROCESS INDUSTRIES
Year&Semester	:	VIIsemester
Courseduration	:	ODD semester (JUlY-OCTOBER 2016)
Location	:	TECHPark

FacultyDetails:

Name of thestaff	Office	OfficeHours	MailID
Mrs.S.INDIRANI	Tech park	8.50am-5.00 pm	indirani.s@ktr.srmuniv.ac.in

Required TextBooks:

- Dr. Ram Prasad, *Petroleum Refining Technology*, Khanna Publisher, 1st Edition,2000
- Liptak B.G., *Instrumentation in Process Industries*, Chilton Book Company,1973
- Considine M. and Ross S.D., *Handbook of Applied Instrumentation*, McGraw Hill,1962

WebResource:

www.en.wikipedia.org/wiki/Petrochemical_engineering
http://en.wikipedia.org/wiki

- http://en.wikibooks.org
- www.automation.com

Objective:

The students will be ableto

- It deals with various equipments involved in the PetrochemicalIndustries
- It deals Distillation Column, Reactor, Heat exchangers,Evaporators
- It deals with performance of the pumpsalso
- Tounderstandtheprocess stepscarriedoutin iron and steel processingindustries.

Tentative test details andportions:

Cycle Test – I:	01.08.2016	Unit I &II
Cycle Test –II:	01.09.2016	Unit III &IV
Model Exam :	20.10.2016	All fiveunits

Assessmentdetails

Cycle testI	10marks
Cycle testII	10marks
Modeltest	20marks
Surprisetest	5marks
Attendance	5marks
TOTAL	50marks

Outcomes

Students who have successfully completed thiscourse

Courseoutcome	Programoutcome
❖ Will know the complete operationof PetrochemicalIndustries ❖ Will acquire basic understanding ofreaction & control of thisIndustries ❖ Need for Iron and Steel Industriesin Civilizedworld ❖ Identification of various processparameters inIndustry. ❖ Special applications forcontrols. ❖ Evolution of computer applications inthe Industry.	❖ The students will be able to understand thebasis of petrochemicalindustries. ❖ The Students will be able to understandthe working of chemical Reactors, ControlHeat Exchangers andEvaporators, ❖ The students will have a broad knowledgein working of various instruments that are usedin petrochemicalindustries. ❖ The Students will be able to acquireknowledge about Control of pumps, Effluent andWater TreatmentControl ❖ Student will be able to understandthevarious unit operations in theIndustry. ❖ Student will be able to find theappropriatesensors and transducers and to evolvetheappropriate controls and schematicsforspecificapplications. ❖ Students will be able to understandtheimportance

Detailed SessionPlan:

Day	Name of thetopics	Reference
DAY 1	Introduction: Petroleum Exploration	Dr. Ram Prasad Petroleum refining technology
DAY 2	Petroleum production	Dr. Ram Prasad Petroleum refining technology
DAY 3	Petroleum Refining , Constituents of Crude Oil	Dr. Ram Prasad Petroleum refining technology
DAY 4	P & I diagram of petroleum refinery	Dr. Ram Prasad Petroleum refining technology
DAY 5	Atmospheric Distillation of Crude oil	Dr. Ram Prasad Petroleum refining technology
DAY 6	Vacuum Distillation process	Dr. Ram Prasad Petroleum refining technology
DAY 7	Thermal Conversion process	Dr. Ram Prasad Petroleum refining technology
DAY 8	Control of Distillation Column	Dr. Ram Prasad Petroleum refining technology
DAY 9	Temperature Control	Dr. Ram Prasad Petroleum refining technology
DAY 10	UNIT II- Controls of chemical Reactors .	Dr. Ram Prasad Petroleum refining technology
DAY11	Temperature Control, Pressure Control	Dr. Ram Prasad Petroleum refining technology
DAY 12	Control of Dryers, Batch Dryers	Dr. Ram Prasad Petroleum refining technology

DAY13	Atmospheric Dryer, Vacuum Dryers	Dr. Ram Prasad Petroleum refining technology
DAY14	Continuous Dryers.	Dr. Ram Prasad Petroleum refining technology
DAY 15	Liquid to Liquid Heat Exchangers	Dr. Ram Prasad Petroleum refining technology
DAY 16	Steam Heaters, Condensers	Dr. Ram Prasad Petroleum refining technology
DAY 17	Re boilers and Vaporizers	Dr. Ram Prasad Petroleum refining technology
DAY 18	Evaporators: Types of Evaporators.	Dr. Ram Prasad Petroleum refining technology
DAY 19	UNIT III Centrifugal pump: On-Off level control	LiptakBelaG
DAY 20	Pressure control, Flow control	LiptakBelaG
DAY 21	Throttling control.	LiptakBelaG
DAY 22	Rotary pumps: On-Off pressure control	LiptakBelaG
DAY 23	Reciprocating Pumps: On-Off control & Throttling control.	LiptakBelaG
DAY 24	Effluent and Water Treatment Control:Chemical Oxidation	LiptakBelaG
DAY 25	chemical Reduction	LiptakBelaG
DAY 26	Naturalization - Precipitation	LiptakBelaG
DAY 27	Biological control	LiptakBelaG
DAY28	UNIT-IV Introduction- Raw materialpreparation	LiptakBelaG
DAY 29	Blastfurnace, Basic oxygenfurnace	LiptakBelaG
DAY30	Basic oxygenfurnace, Electricfurnace	LiptakBelaG
DAY31	Temperature &Pressure measurement,	LiptakBelaG
DAY32	Flow , level & Density measurement	LiptakBelaG
DAY33	Shape & thickness measurement & graphic Display alarms	LiptakBelaG
DAY 34	Shape & thickness measurement & graphic Display alarms	LiptakBelaG

DAY35	Gas and water control in basic oxygen furnace	LiptakBelaG
DAY36	Sand casting	LiptakBelaG
DAY37	UNIT 1V- Review of data logging	LiptakBelaG
DAY38	Surprise test, Quiz	
DAY39	SCADA	**LiptakBelaG**
DAY40	Direct digital control	**LiptakBelaG**
DAY 41	Distributed control system	**LiptakBelaG**
DAY42	system Steel rolling mill control	**LiptakBelaG**
DAY43	Annealing process control	**LiptakBelaG**
DAY44	Utilities Management with computer systems	**LiptakBelaG**
DAY45	Question paper discussion	**LiptakBelaG**