Department of Chemistry **Session 2021-22**



EXPECTED LEARNING OUTCOMES

D.Sc. (Subject - Industrial Chemistry)
PROGRAM OUTCOMES
☐ Students will have a basic knowledge of fundamentals and application of current chemical and
scientific theories.
□ Students will be able to record and applying the Control of the
☐ Students will be able to record and analyze the results of experiments.
Student will know about material balance, metal and alloys. manufacturing process important for industries.
☐ Students will learn about chemical processes and industrial economics.
☐ Students will be skilled in problem solving, critical thinking and analytical.
☐ Students will understand the central role of chemistry in our society.
☐ Students will become aware of the ethical behavior in issues facing chemists.
PROGRAM SPECIFIC OUTCOME
The purpose of the B.Sc. (Industrial Chemistry) program at Govt. Digvijay PG Autonomous college is to
provide the key knowledge, base and laboratory resources to prepare students for achieving their career
goals as professionals in the field of chemistry, biological chemistry and related fields. They will be able
to work as chemists and technicians in different laboratories, industries, pollution control agencies, etc.
B.Sc. I (INDUSTRIAL CHEMISTRY)
PAPER- I : INDUSTRIAL ASPECTS OF ORGANIC & INORGANIC CHEMISTRY
☐ Student will learn by this unit chemical name and chemical composition or structure of any raw
material or products.
☐ Student know about crude material of petroleum and coal.
☐ Natural resource of products, student know about extraction of raw chemical and its metallurgical
process.
☐ Extraction process of earth metals.

☐ Industrial important raw material

PAPER- II: INDUSTRIAL ASPECTS OF PHYSICAL CHEMISTR

ENERGY BALANCE	रपशास
☐ Study about atom, molecule, product surface nature and its activity use for shop, shampoo, degel productions.	letergent,
☐ Student will learn about catalyst type material and its use in production.	
Industrially physical working process.	
☐ Industrially physical working process of material and separation of pure material in industry.	
☐ Students know standard and dimensions unit about material balancing in final production pro☐ Material composition changes between process one to another phase.	cess.
PAPER- III: UNIT OPERATION IN CHEMICAL INDUSTRY AND UTILITIES,	
- IMANOPURI IN INDIGEDAL	
☐ Student will know about all type of distillation and absorptions equipments, working and hand	
process.	ling
☐ Student learn about many type dryers, evaporators, filters equipments and workings benefits in industries.	
☐ What is utility role in plants and its products handling process.	
The type of pumps and fluid flow pumps working process.	
☐ Heat exchanger process and its device working properties in industries.	
LABORATORY COURSE	
Students will learn by the	
☐ Students will learn by this year practical haw to doing any simple laboratory techniques like	
	utions
and calibration of machine chromatography techniques, surface tensions process and refractive incorress mainly safety process.	lex
B. Sc. II (INDUSTRIAL CHEMISTRY)	
PAPER- I: MATERIAL SCIENCE AND ENVIRONMENTAL	
Material of construction and use in industry, cement, ceramic materials	
process in industries and natural polyments	
orders manufacturing in industries and corrosion process in metal or other	1
Pollution and its pollutants.	1
☐ Advance knowledge about air pollutions.	

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PAPER- II : ORGANIC CHEMICALS MANUFACTURING AND WASTE MANAGEMENT
Nitration process in industries for manufacturing of nitro aromatic chemical, explosive other ele.
Important industrial uses of radicals halogenations process include direct chlorination and allelic
chlorination.
Sulfonation process used in electrophilic aromatic substitution used for detergents, dye and drugs.
Water treatment plant process and aerobic and anaerobic type treatment process.
Multiple instrument using in industries and industrials shifty process.
PAPER- III: ORGANIC SYNTHESIS AND INDUSTIAL INSTRUMENTATIONS
Student will learn how to catalytic oxidation done remediation of pollutants, production of valuable chemicals used in water treatment.
☐ Hydrocarbons used in food industry like unsaturated vegetable oils and fats.
Esterification used in polymer manufacturing industry, soaps, synthetic rubber, paints, varnishes,
medicines, dyes.
Student will learn real time measurement and control of process such as level, flow, pressure,
temperature, ph, humidity.
Pressure transmitter determine liquid level in a tank, many type equipments process in industries.
LABORATORY COURSE
☐ Student will learn by this year practical unit process like nitration polymerization process, many type
instrument methods uses in industry, material testing, process of any instrument work in plant and water
treatment process.
B. Sc. III (INDUSTRIAL CHEMISTRY)
PAPER- 1 : CHEMICAL PROCESS AND INDUSTRIAL ECONOMICS
☐ Student will know chemical estimation and cost accounting.
☐ Student will learn marketing policy, cost value, taxes on export or imports on material.
☐ Industrial sampling purchasing, raw material, collection data from area to area, particle and material
determination, student know about quality assurance department and management about QA & QC.
☐ Industrial application, planning for material production or quality parameter control location for setup
any industries.
Safety management, welfare the human resources.

PAPER- II: PHARMACEUTICALS

Student will learn the pure history about Pharmaceuticals parameter, type for using routes of
administration.
□ It will help in nursing and sterilization process, and Parma industry and additives in medicine.
Student will know about packaging and quality control process for raw material. F.D.A. process.
Crude product for manufacturing pharmacy. all type chromatography process.
☐ Instruments handling on laboratory for analysis of material raw & final.
PAPER- III : DRUGS
Student will know about effluent handling ,collection and cultivation of photochemical plants.
Chemical constitution about isolation procedures for ingredients of medicine.
☐ Student will know about antimicrobial, analgesic, steroidal hormones drug.
☐ Student know about vitamin, barbiturates, blockers, cardiovascular, antihistamines medicine, role of in
metabolism of medicine.
Student know how to manufacturing of penicillin, vitamins, steroidal drug, its use or microbial effect.
fermentation process.
LABORATORY COURSE
☐ Student will know how to manufacturing industrials compound like Benzes amide, aldehyde, alcohol,
fatty oil and acid. determination of material packaging material.
☐ Limit test heavy metals & two representing bulk drug.
☐ Acidimetric and alkalimetry formulation of this type analysis. microbiological and antimicrobial
testing zone and cup method.
Know about TLC method for determination of few drug.
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