

P.R.Govt.College (A), Kakinada

(Affiliated to Adikavi Nannaya University)

Department of chemistry

B.Sc. Chemistry Syllabus under CBCS

Board of studies

2017-18

6. One postgraduate meritorious alumnus to be nominated by the Principal.

The chairman, Board of Studies, may with the approval of the Principal of the College, Co-opt.

1. Sri. Nemani Ramam, M.Sc., M.Phil

II. Term.

The term of the nominated members shall be two years.

III. Meeting

The Principal of the College shall draw the schedule for meeting of the Board of Studies for different Departments. The meeting may be scheduled as and when necessary but at least once a year.

IV. Functions

The Board of Studies of a Department in the College shall:

- a) Prepare syllabus and various courses keeping in view the objectives of the College interest of the stakeholders and national requirement for consideration and approval of the Academic Council.
- b) Suggest methodologies for innovative teaching and evaluation techniques.
- c) Suggest panel of names to the Academic Council for appointment of examiners.
- d) Coordinate research, Teaching, Extension and other academic activities in the Department/College.

P.R.Govt. College (A), Kakinada
Recommended Composition of the Board of Studies of Chemistry
And it's Functions of an Autonomous College
April-2017-18

I Composition

1. Head of the Department concerned (Chairman):

Sri E.V.S. Subrahmanyam, M.Sc., M.Phil, B.Ed

2. The entire faculty of each specialization.

1. Dr. M. Mahaboob Pacha, M.Sc., M.Phil, PhD.
2. Sri T.Vara Prasad, M.Sc., M.Phil., M. Ed.,
3. Sri D.Rama Rao, M.Sc., B. Ed., M.Phil.
4. Sri V.Mallikarjuna Sarma, MSc, M.Phil, NET

3. Two experts in the subject from outside the college to be nominated by the Academic Council

1. Dr. V .Sambasivarao, Lecturer in Chemistry, Arts College,
Rajahmundry
2. Dr. K . Jhansi, Lecturer in Chemistry, Ideal Degree College,
Kakinada

4. One expert to be nominated by the Vice-Chancellor from a panel of six recommended by the College Principal

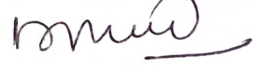
1. Prof. K. Deepti, Adikavi Nannaya University, Rajahmundry

5. One representative from industry/ Corporate Sector/ allied area relating to Placement.

1. Dr. N.Krishna Prakasam, Facility Manager, SAR CHANDRA
ENVIRON SOLUTIONS PVT.LTD.KAKINADA

Signatures of the members who attended the

Board of studies in Chemistry.

- | | | |
|-------------------------------|--|--|
| 1. Sri E. V. S. Subrahmanyam | Chairman & Lecturer in Charge |  |
| 2. Dr. K. Deepti, | University representative
Adikavi Nannaya University
Rajamahendravaram | 
13/4/17 |
| 3. Dr. N. K. Prakasam, | Facility Manager,
Industry representative
SAR Chandra Environ Solutions
Pvt. Ltd. | |
| 4. Dr. V. Sambasivarao, | Subject expert
Lecturer in Chemistry,
Govt. Arts College,
Rajamahendravaram | 
13/4/17 |
| 5. Dr. K. Jhansi Lakshmi | Subject expert
Lecturer in Chemistry.
Ideal Degree College, Kakinada | 
K. Jhansi Lakshmi |
| 6. Sri. N. Ramam | Alumnus, Principal. Retd. | |
| 7. Dr. M. Mahaboob Pacha | Member | |
| 8. Sri T. Vara Prasad | Member | 
13/4/17 |
| 9. Sri D. Rama Rao | Member |  |
| 10. Sri V. Mallikarjuna Sarma | Member |  |
| 11. Dr. D.S.V.N.M. Ramamurthy | Member | 
D.S.V.N.M. Ramamurthy |
| 12. K. Babu Rao. | Member | 
K. Babu Rao |

ACTION PLAN BOS MEETING -CHEMISTRY HELD ON 13 -4-2017.

1. Department activities for 2017-2018 academic year. Annexure I

Month	Activity proposed	Faculty member in charge
June-17	Departmental staff meeting to review results and class work allotment	E.V.S.Subrahmanyam
	Preparation of curricular plans, time-tables etc.,	
	Remedial coaching classes for II & III year supplementary exams	
July-17		
	Bridge classes for I year students	
	Student awareness programmes on ragging& eve teasing - consequences , self-discipline, career guidance, higher education opportunities etc.,	T.Vara prasad
August-17	Conference on prospects in pharmaceutical industries	E.V.S.Subrahmanyam
	Study tour / Field trips	
Sept-17	Ozone day	
Oct-17	MOLE Day	D.Ramarao
	Faculty development programme	Dr.M.M.Pacha
Nov-17	11th National Education Day – Out reach Programme to nearby school	
Dec-17	World AIDS Day	
	Chemistry day & Chem fest	V.Mallikarjuna sarma
Jan-18	10 days coaching for PG entrance examinations in chemistry Study tour / Field trips	V.Mallikarjuna sarma
Feb-18	NATIONAL SCIENCE DAY	V.Mallikarjuna sarma
March-18	Consumer awareness day	E.V.S.Subrahmanyam

**2. Organizing National/ State level seminars/Workshops/ Conferences/
Training programmes etc., with topics and other details.**

(Mandatory for each Department)

- i) Staff development programme
- ii) Training in the use of HPLC
- iii) Awareness on OZONE protection
- iv) National Chemistry day
- v) Chem. fest
- vi) National Science day 2018
- vii) Guest lectures
- viii) National seminar in chemistry
- ix) Training in Soil analysis
- x) Training in water analysis

3. Change of modules in the syllabus content.

Syllabus changed for first and second years as per university regulations.
CBCS introduced for final year w.e.f. 2017-18.

**4. Plan for utilization of funds for Autonomous/CPE/other grants
available for arranging guest lectures, faculty improvement
programmes, study tours, equipping laboratories, reference books &
other necessary teaching-learning material with ICT enabled
teaching.**

I. Study visits to:

Rs, 50,000

- 1. Visakha Steel Plant, Visakhapatnam
- 2. Hetero Laboratories, Nakkapally
- 3. Dr. Reddy's Laboratories, Yanam.
- 4. National Institute of Hydrology, Kakinada.
- 5. SAR Chandra Environ Solutions, Kakinada.
- 6. ONGC mini refinery, Tatipaka.
- 7. Soil analysis laboratory, Samalkot.
- 8. IICT, HYD
- 9. Venky parenterals, Yanam

II.

- | | |
|--|-----------|
| 1. Sophisticated version UV-Visible spectrophotometer- | 5.0 lakhs |
| 2. Other equipment | 1.0 lakhs |
| 3. Petrochemicals equipment | 1.0 lakhs |

5. Plan for organizing subject oriented community outreach programmes & allocation of necessary funds. (Mandatory for each Department)

- | | | | |
|-----|------------------------------|-----|--------|
| i) | Adoption of village | Rs. | 20,000 |
| ii) | Medical Awareness programmes | Rs. | 10,000 |

6. Institution of new medals/incentives/prizes etc., from alumni, philanthropists, parents, faculty etc., - Strategies to be recommended

7. Introduction of new programmes –PG/UG/Diploma and certificate courses.

New courses to be proposed.

S.No.	New course proposed	Justification	Employability
1	Under graduate course in Industrial chemistry	There is dearth of skilled persons to operate various instruments like uv visible spectrophotometer. Atomic absorption spectrophotometer, PH meter, flame photometer, rotavapour instrument, HPLC.GLC, distillation, etc which play as key role in any industry related to chemistry.	Technical assistants, Quality control managers, Plant supervisors etc.

8. Any other programme that enhances the learning capacity of students and their employable & knowledge skills.

Training in the use of instruments like AAS, UV-Vis, HPLC, flame photometer, uranium analyzer, soil and water analysis projects, air quality projects.

9. Change in internal assessment exams for conducting II mid Semester by way of Project work/Assignment.

Not possible as the number of students is more. However it is propose to give 33.3% weightage for competitive exam questions pertaining to the syllabus prescribed.

10. Suggest panel of examiners/paper setters & other experts/nominees for BOS deliberations.

Chemistry:

1. Sri N. Lakshmana Rao, SKBR College, Amalapuram.

2. Dr. D. Madhava Sarma, GDC, Tadepalligudem
3. Dr. V. Sambasiva Rao, Govt. Arts College, Rajahmundry.
4. Dr. K. A.R.S.S.Prasad, VS Krishna College, Visakhapatnam.
5. Sri S.V. Ramana, Arts College, Rajahmundry
6. Sri Machi Raju, Arts College, Rajahmundry
7. Smt. C. Jyoti, St. Theresa college, Eluru.
8. P. Krishna kumar, S.K.B.R. College, Amalapuram.
9. Dr. G. Venkatarao, GDC, Vijayavada
10. Shri B. Venkatarao, GDC, Tadepalligudem
11. Dr. Ramchadaraao, Y.N. College, Narasapuram

Department of Chemistry BOS Meeting Dt.13 - 4-2017

Resolutions:

Meeting of Board of studies in chemistry is convened on 13-4-17 in the guest room of the College. The Principal Dr. Chappidi Krishna, Dr.K.Deepthi, University Nominee, Dr. N.K.Prakasam, Facility Manager, SAR Chandra Environ Solutions Pvt. Ltd., Dr.V.Sambasiva Rao, Subject Expert, Govt. College, Rajahmundry, Dr. Jhansi, Lecturer in Chemistry, Ideal College, Kakinada, all members of the faculty of Chemistry and student representatives attended the meeting. Agenda items are discussed and resolutions are made.

1. It is resolved to continue Choice based credit system in the Chemistry combination programmes as per the directions of the CCE, Hyderabad to the first year and second year and final year students w.e.f. 2017-18
2. Enhance the internal assessment component from 30% to 40% in theory to first year (admitted batch).
3. It is resolved to allot project works for final year students who opt for project work in chemistry preferably industry based.
4. It is resolved to conduct departmental activities such as Ozone day, Chem fest, Chemistry day and Science day etc.
5. It is resolved to offer subject electives and skill based electives in the V and VI semesters respectively.
6. It is resolved to implement the recommended Pedagogy for the first semester 2017-18.
7. Resolved to conduct practical examinations semester wise.

The following paper setters are recommended.

- i. Dr. V.Sambasiva Rao, Govt.Arts College, Rajahmundry.
 - ii. K.A.R.S.S.Prasad, VS Krishna College, Visakhapatnam.
 - iii. Sri S.V.Ramana , Arts College, Rajahmundry
 - iv. Sri Machi Raju, Arts College, Rajahmundry.
 - v. U. Satyanarayana, GDC, Tuni
 - vi. R. Brahmaji, GDC, Ramachandrapuram
 - vii. N. V. Sudhakar, GDC, Tuni
8. It is resolved to organize Guest lectures by eminent professors.
9. Resolved to implement pass minimum for internal assessment for CBSE pattern students as the pattern is learner oriented.
10. NEW COURSES:
- It is resolved to explore the possibility of introducing a new course in B.Sc Pharmaceuticals/Industrial Chemistry as Restructured course.
11. Resolved to submit proposals to conduct a faculty development programme in instrumentation techniques/ advanced topics with the assistance of industry representatives and university representatives.
12. Resolve to assist the orphan children of below two years age being taken by department of Women and Child Welfare as an extension activity with the funds contributed by the faculty members of the department.
13. Resolved to change the syllabus components in semester I to semester II and vice versa. Sly. Semester III to IV and vice versa on par with the affiliating university.
14. It is proposed to give 33.3% weightage for competitive exam questions pertaining to the syllabus prescribed.

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15. Resolved to follow 75-25% External and internal w.e.f. 2017-18 admitted batch 2017-18 as per the directions of APSCTIE and ANUR.

X Sreepti
University
nominee.

P.R.Govt.College (A), Kakinada

(Affiliated to ADIKAVI NANNAYA UNIVERSITY)

(W.e.f. admitted batch 2017 – 2018)

Department of chemistry

B.Sc. Chemistry Syllabus under CBCS

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDITS
I	I	I	Inorganic and Organic Chemistry	100	03
			Practical – I	50	02
	II	II	Physical and General Chemistry	100	03
			Practical – II	50	02
II	III	III	Inorganic and organic Chemistry	100	03
			Practical – III	50	02
	IV	IV	Spectroscopy and Physical Chemistry	100	03
			Practical – IV	50	02
III	V	V	Inorganic ,Organic and Physical Chemistry	100	03
			Practical – V	50	02
		VI	Inorganic ,Organic and Physical Chemistry	100	03
			Practical – VI	50	02
		VII (A)*	Elective	100	03
			Practical - VII A	50	02
		VII (B)*	Elective	100	03
			Practical - VII B	50	02
	* Any one Paper from VII A, B and C	VII (C)*	Elective	100	03
			Practical - VII C	50	02

VI	** Any one cluster from VIII, A, B and C	VIII (A)**	Cluster Electives - I :	100	03
			VIII-A-1 ,	100	03
			VIII-A-2	100	03
			VIII-A-3	50	02
				50	02
				50	02
		VIII (B)**	Cluster Electives - II ::	100	03
			VIII-B-1	100	03
			VIII- B-2	100	03
			VIII-B-3	50	02
				50	02
				50	02
		VIII (C)**	Cluster Electives - III ::	100	03
			VIII-C-1	100	03
			VIII-C-2	100	03
			VIII-C-3	50	02
				50	02
				50	02

FINAL YEAR-2017-18
SEMESTER – VI
CHEMISTRY VI MODEL PAPER 2017-18
(INORGANIC, ORGANIC & PHYSICAL CHEMISTRY)

V(A)

Time: 3 Hrs.

Max. Marks: 70

PAPER III

OBJECTIVES:

1. Gains knowledge Labile and Inert complexes
2. Knowledge of Biological significance of inorganic elements
3. Structure of Carbohydrates
4. Synthesis of amino acids.

INORGANIC CHEMISTRY

Reactivity of metal complexes: Labile and inert complexes, Mechanism of ligand substitution reactions in octahedral complexes- SN^1 and SN^2 reactions, ligand substitution reactions in square planar complexes- Trans effect and applications of Trans effect.

Stability of metal complexes: Thermodynamic stability and kinetic stability- factors affecting the stability of complexes- chelate effect- determination of the composition of the complex by Job's method and mole-ratio method.

Hard and Soft acids and bases: Classification, Pearson's concept of hardness and softness- HSAB Principle and applications of HSAB Principle-stability of complexes, predicting the feasibility of a reaction.

Bioinorganic Chemistry: Essential elements- biological significance of Na, K, Mg, Ca, Fe, Co, Ni, Cu, Zn and Chloride (Cl^-). metalloporphyrins -hemoglobin, structure and function, chlorophyll, structure and role in photosynthesis.

ORGANIC CHEMISTRY

Carbohydrates: Monosaccharide's: All discussion to be confined to (+) glucose as an example of aldo hexoses and (-) fructose as example of ketohexoses. Chemical properties and structural elucidation: Evidences for straight chain pentahydroxy aldehyde structure (Acetylation, reduction to n-hexane, cyanohydrin formation, reduction of Tollen's and Fehling's reagents and oxidation to gluconic and saccharic acid). Number of optically active isomers possible for the structure, configuration of glucose based on D-glyceraldehydes as primary standard (no proof)

*Reduce the Composition of
units wherever
possible
of depth*

for configuration is required). Evidence for cyclic structure of glucose (some negative aldehydes tests and mutarotation). Cyclic structure of glucose. Decomposition of cyclic structure (Pyranose structure, anomeric Carbon and anomers). Proof for the ring size (methylation, hydrolysis and oxidation reactions). Different ways of writing pyranose structure (Haworth formula and chair conformational formula). Structure of fructose: Evidence of 2 – ketohexose structure (formation of penta acetate, formation of cyanohydrin its hydrolysis and reduction by HI to give 2-Carboxy-n-hexane). Same osazone formation from glucose and fructose, Hydrogen bonding in osazones, cyclic structure for fructose (Furanose structure and Haworth formula).

Interconversion of Monosaccharide: Aldopentose to aldo hexose – eg: Arabinose to D-Glucose, D-Mannose (Kiliani - Fischer method). Epimers, Epimerisation – Lobry de bruyn van Ekenstein rearrangement. Aldohexose to Aldopentose eg: Dglucose to D-arabinose by Ruff's degradation. Aldohexose (+) (glucose) to ketohexose (-) (Fructose) and Ketohexose (fructose) to aldohexose (Glucose).

Amino acids and proteins:

Introduction: Definition of Amino acids. classification of Amino acids into alpha. beta. and gamma amino acids. Natural and essential amino acids – definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples – Glycine, Alanine, valine and leucine) by following methods: a) from halogenated carboxylic acid b) Malonic ester synthesis c) strecker's synthesis. Physical properties: Optical activity of naturally occurring amino acids: L configuration, irrespective of sign rotation. Zwitterion structure – salt like character- solubility, melting points, amphoteric character, definition of isoelectric point. Chemical properties: General reactions due to amino and carboxyl groups – lactams from gamma and delta amino acids by heating peptide bond (amide linkage). Structure and nomenclature of peptides and proteins.

PHYSICAL CHEMISTRY;

1. Chemical kinetics: Rate of reaction, factors influencing the rate of a reaction concentration, temperature, pressure, solvent, light, catalyst. Experimental methods to determine the rate of reaction. Definition of order and molecularity. Derivation of rate constants for first, second, third and zero order reactions and examples. Derivation for time half change. Methods to determine the order of reactions. Kinetics of complex reactions (first order only): opposing reactions, parallel reactions, consecutive reactions and chain reactions. Effect of temperature on rate of

reaction, Arrhenius equation, concept of activation energy. Theories of reaction rates- collision theory-derivation of rate constant for bimolecular reaction. The transition state theory (elementary treatment).

2. Photochemistry: Difference between thermal and photochemical processes. Laws of photochemistry-Grothus-Draper's law and Stark-Einstein's law of photochemical equivalence.

Quantum yield. Ferrioxalate actinometry. Photochemical hydrogen- chlorine, hydrogen-bromine reaction. Jablonski diagram depicting various processes occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing). Photosensitized reactions- energy transfer processes (simple example)

P. R. GOVERNMENT COLLEGE (AUTONOMOUS COLLEGE), KAKINADA
III YEAR B.Sc (Examination at the end of VI Semester) Model Paper
PAPER-III (INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY)

Time: 3 Hrs.

Max. Marks: 70

Answer any **FOUR** questions choosing at least **ONE** question from each section.

SECTION-I

4 X 10 = 40 Marks

1. Explain the mechanism of the ligand substitution reactions (SN^1 and SN^2) in octahedral complexes.
2. Explain the determination of composition of complex by Job's method.
3. (i) Explain the biological significance of Mg and Fe.
(ii) Explain the structure of chlorophyll and its role in photosynthesis.

SECTION-II

4. Explain (i) Killiani-Fischer Synthesis (ii) Ruff degradation
5. What are amino acids? Write their classification. Give any two methods of preparation of amino acids.
6. Write the objections of open chain structure of glucose and explain the ring structure of glucose.

SECTION-III

7. (i) Derive an expression for the rate constant of a first order reaction.
(ii) In a first order reaction, 10% of the reactants are consumed in 30 minutes. Calculate the time required for 90% completion of the reaction.
8. Explain any three methods of determination of order of a reaction.
9. What is meant by "Quantum yield of a chemical reaction". The quantum yield for the reaction $H_2 + Cl_2 \rightarrow 2 HCl$ is very high. Explain.

SECTION-IV

Answer any **FIVE** of the following questions.

5 X 4 = 20 Marks

10. Explain any two factors affecting the stability of complexes.
11. Write HSAB principle and its applications.
12. Write the structure and biological functions of hemoglobin.
13. Write the equations of the osazone formation from glucose and fructose.
14. What is Zwitter ion? Write the salt like properties of amino acids.
15. Write a note on the structure of proteins.
16. Write a note on transition state theory.
17. Write a note on (i) Fluorescence and (ii) Phosphorescence
18. Explain any two factors influencing the rate of a reaction.

SECTION-V

Answer **ALL** the following questions.

19. What are hard acids? Give examples.
20. What is meant by Chelate effect?
21. What are epimers and anomers?
22. Define isoelectric point.
23. State Grothus-Draper law.

FINAL YEAR-2017-18
VI semester syllabus IV Paper 2017-18
ELECTIVE -1

Y B1

Unit I

1. DRUGS

10h

- a. Introduction:** Drug, disease (definition), Historical evolution, Sources – Plant, Animal synthetic, Biotechnology and human gene therapy
- b. Terminology:** Pharmacy, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics (ADME, Receptors – brief treatment) Metabolites and Anti metabolites.
- c. Nomenclature:** Chemical name and Generic name
- d. Classification:** Classification based on structures and therapeutic activity with one example each.
- e. Synthesis:** Synthesis and therapeutic activity of the following drugs, L-Dopa, Chloroquin, Omeprazole, Paracetamol, Sulphamethoxazole. ciproflaxacin., salbutamole
- f. Drug Development:** Pencillin, Separation and isolation, structures of different penicillin's.
- g. HIV-AIDS:** Immunity – CD-4 cells, CD-8 cells Retrovirus, replication in human body. Investigation available, prevention of AIDS. Drugs available – examples with clinical uses: PIS: Indinavir (Crixivan). Nelfinavir (Viracept). NNRTIS: Efavirenz (Susrtiva). Nevirapine Viramune) NRTIs: Abacavir (Ziagen). Lamivudine (Epivir, 3TC) Zidovudine (Retravir, AZT, ZDV)

2. Formulations:

2h

- 1. Need of conversion of drugs into medicine. Additives and their role (brief account only)
- 2. Different types of formulations Physico Chemical Methods of Analysis

UNIT - II

SEPARATION TECHNIQUES

10h

- 1. Solvent extraction: Principle and process, Batch extraction, continuous extraction and counter current extraction. Application – Determination of Iron (III)
- 2. Chromatography: Classification of chromatography methods, principles of differential migration adsorption phenomenon, Nature of adsorbents, solvent systems, Rf values, factors affecting Rf values.
 - a) Paper Chromatography: Principles, Rf values, experimental procedures, choice of paper and solvent systems, developments of chromatogram –ascending, descending and radial. Two dimensional chromatography, applications.
 - b) Thin layer Chromatography (TLC): Advantages. Principles, factors affecting Rf values. Experimental procedures. Adsorbents and solvents. Preparation of plates. Development of the chromatogram. Detection of the spots. Applications.
 - c) Column Chromatography: Principles, experimental procedures, Stationary and mobile Phases. Separation technique. Applications.

- d). High Performance Liquid Chromatography (HPLC): Principles and Applications.
e). Gas Liquid Chromatography (GLC): Principles and Applications.

UNIT - III

Catalysis:

4h

Homogeneous and heterogeneous catalysis, comparison with examples. Kinetics of specific acid catalyzed reactions, inversion of cane sugar. Kinetics of specific base catalyzed reactions, base catalyzed conversion of acetone to diacetone alcohol. Acid and base catalyzed reactions- hydrolysis of esters, mutarotation of glucose. Catalytic activity at surfaces. Mechanisms of heterogeneous catalysis. Langmuir-Hinshelwood mechanism. Enzyme catalysis: Characteristics and classification. Kinetics of enzyme catalyzed reactions- Michaelis-Menten Law.

Materials science:

4h

Nanomaterials- synthetic techniques, bottom-up-sol-gel method, top-down electrodeposition method. Properties and applications of nano-materials. Composites-definition, general characteristics, particle reinforce and fiber reinforce composites and their applications.

22

SEMESTER VI
PAPER IV
Elective – II
Analytical and Physical
PAPER – VIII-A-1 POLYMER CHEMISTRY
30 hrs (3 h / w)

VF B2

UNIT-II

10h

Techniques of Polymerization : Bulk polymerization , solution polymerization , suspension and Emulsion polymerization.

Molecular weights of polymers: Number average and weight average molecular weights
Determination of molecular weight of polymers by Viscometry , Osmometry and light scattering methods.

UNIT-III

6h

Kinetics of Free radical polymerization, Glass Transition temperature(Tg) and Determination of Tg:

Free volume theory, WLF equation, factors affecting glass transition temperature (Tg).

UNIT-IV

9h

Polymer additives:

Introduction to plastic additives – fillers, Plasticizers and Softeners , Lubricants and Flow Promoters, Anti aging additives , Flame Retardants , Colourants , Blowing agents , Cross linking agents .Photo stabilizers , Nucleating agents.

UNIT-V

5h

Polymers and their applications:

Preparation and industrial applications of Polyethylene. Polyvinyl chloride. Teflon.
Polyacrylonitrile, Terelene , Nylon6.6 silicones.

Reference Books:

1. Seymour, R.B. & Carraher, C.E. *Polymer Chemistry: An Introduction*, Marcel Dekker, Inc. New York, 1981.
2. Odian, G. *Principles of Polymerization*, 4th Ed. Wiley, 2004.
3. Billmeyer, F.W. *Textbook of Polymer Science*, 2nd Ed. Wiley Interscience, 1971.
4. Ghosh, P. *Polymer Science & Technology*, Tata McGraw-Hill Education, 1991.34
5. Lenz, R.W. *Organic Chemistry of Synthetic High Polymers*. Interscience Publishers, NewYork, 1967.

**SEMESTER VI
LABORATORY COURSE – VII**

Practical Paper – VII (at the end of semester VI)

30 hrs (2 h / W)

1. Preparation of Aspirin
2. Preparation of Paracetamol
3. Preparation of Acetanilide
4. Preparation of Barbutiric Acid
5. Preparation of Phenyl Azo β -naphthol

LABORATORY COURSE – VIII

Practical Paper – VII-(A) (at the end of semester VI) 30hrs (2 h / W) 50M

1. Identification of aminoacids by paper chromatography.
2. Colorimetry- Determination of KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$
3. Determination of Zn using EDTA
4. Determination of Mg using EDTA