



Bharatiya Vidya  
**Bhavan**

**BHAVAN'S VIVEKANANDA COLLEGE OF SCIENCE, HUMANITIES AND  
COMMERCE, SAINIKPURI, SECUNDERABAD.**

**Autonomous College**

**Affiliated to OSMANIA UNIVERSITY, Hyderabad.**

**(Accredited with 'A' grade by NAAC)**

**Department of Chemistry**

**Structure of Academic planner (2018-19)**

SEM	PAPER	CODE	COURSE TITLE	NAME OF THE FACULTY
I	I	CT135	INORGANIC AND GENERAL CHEMISTRY -I	1.Ms.Prerana Loomba 2.Ms.Moumita
II	II	CT235	PHYSICAL AND ORGANIC CHEMISTRY -I	1.Ms.Prerana Loomba 2.Ms.Moumita
III	III	CT325	ORGANIC AND GENERAL CHEMISTRY -II	1.Ms.D Rajeshwari 2. Ms.Prerana
IV	IV	CT435	INORGANIC AND PHYSICAL CHEMISTRY -II	1.Ms.D Rajeshwari 2. Ms.Prerana Loomba
V	V	CT535	ORGANIC, PHYSICAL AND GENERAL CHEMISTRY-III	1.Mr.GV Ramana Murthy 2.Ms.Mary Nygi Kurian
V	VI	CT535A	PHYSICO CHEMICAL METHODS OF ANALYSIS,SPECTROSCOPY AND CATALYSIS	Dr.Madhumita B
VI	VII	CT635A	ORGANIC, PHYSICAL AND GENERAL CHEMISTRY-IV	1.Mr.GV Ramana Murthy 2.Ms.Mary Nygi Kurian
III*	I	SE335	SAFETY IN CHEMISTRY LABORATORY AND PREPARING LAB REAGENTS	Mr.GV Ramana Murthy
IV*	II	SE435	GREEN METHODS IN CHEMISTRY	Ms.Prerana Loomba
V*	III	SE535	BASIC ANALYTICAL CHEMISTRY	Ms.D Rajeshwari
VI*	IV	SE635	CHEMINFORMATICS	IICT-CSIR, HYD
V*	I	GE535	ORGANIC FARMING	Ms.Mary Nygi Kurian
VI*	II	GE635	CHEMISTRY OF COSMETICS AND PERFUMES	Ms.Mary Nygi Kurian

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**Academic Planner: 2018-19**

**Department Of Chemistry**

**Program: B Sc (MbGC, BtGC, MbBcC)  
Course Title: CT135: Inorganic and General chemistry**

**Year: I**

**No. of classes per week: 4**

**Semester: 1**

**PAPER I**

MONTH	TOPIC	NO.OF CLASSES	TOTAL CLASSES
JUNE(7)	Principles of Inorganic qualitative analysis Structural inorganic chemistry	6 1	7
JULY(21)	Structural inorganic chemistry Hydrogen Bonding s-block elements p-block elements	5 2 3 11	21
AUGUST(12)	p-block elements Organometallic chemistry Atomic structure and elementary quantum mechanics	4 4 4	12
SEPTEMBER(15)	Atomic structure and elementary quantum mechanics Chemical Bonding Structural theory in Organic Chemistry	3 8 4	15
OCTOBER(4)	Structural theory in Organic Chemistry	4+1Extra class	4+1

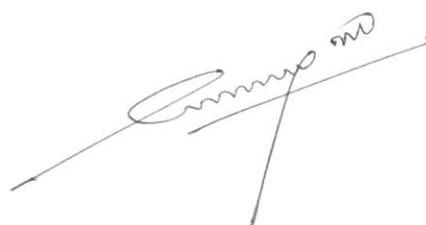
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**Name of the Faculty:**

1. Ms.Prerana Loomba



2. Ms. Moumita .B



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**Academic Planner: 2018-19**

**Department Of Chemistry**

**Program: B Sc (MbGC, BtGC, MbBcC)**

**Course Title: CT235: Organic and Physical chemistry**

**Year: I**

**No. of classes per week: 4**

**Semester: II**

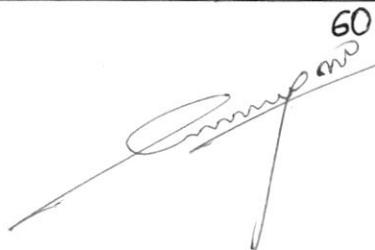
**PAPER II**

MONTH	TOPIC	NO.OF CLASSES	TOTAL CLASSES
NOVEMBER(6)	Gaseous state Liquid state	5 1	6
DECEMBER(18)	Liquid state Solid state Solutions	3 9 6	18
JANUARY (16)	Colloids and surface Chemistry Stereochemistry of carbon compounds	6 10	16
FEBRUARY(18)	Acyclic hydrocarbons Alicyclic hydrocarbons Benzene and its Reactivity	8 4 6	18
MARCH(2)	Polynuclear hydrocarbons	2	2

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**Academic Planner: 2018-19**

**Department Of Chemistry**

**Program: B Sc (MbGC, BtGC, MbBcC)**

**Course Title: CT335: Organic and Generalchemistry**

**Year: II**

**No. of classes per week: 4**

**Semester: III1**

**PAPER III1**

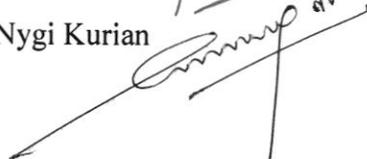
MONTH	TOPIC	NO.OF CLASSES	TOTAL CLASSES
JUNE (10)	Theory of Quantitative analysis Evaluation of Analytical data	5 5	10
JULY(20)	Molecular symmetry Nuclear Chemistry Stereoselectivity in Chemistry Introduction to Pericyclic reactions	5 5 5 5	20
AUGUST(11)	Halogen Compounds Hydroxy compounds Ethers and Epoxides	4 6 1	11
SEPTEMBER(15)	Ethers and Epoxides Carbonyl Compounds Carboxyl acids and Derivatives	8 10 4	15
OCTOBER(4)	Carboxyl acids and Derivatives Active Methylene compounds ,Interconversions	1 3	4

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**Name of the Faculty:**

1. Ms.Prerana Loomba

2. Ms. Mary Nygi Kurian

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**Department Of Chemistry**

**Program: B Sc (MbGC, BtGC, MbBcC)**

**Course Title: CT435: Inorganic and Physical chemistry**

**Year: I**

**No. of classes per week: 4**

**Semester: IV**

**PAPER IV**

<b>MONTH</b>	<b>TOPIC</b>	<b>NO.OF CLASSES</b>	<b>TOTAL CLASSES</b>
NOVEMBER(6)	Chemistry of d-block elements	6	6
DECEMBER(14)+ Extra	Chemistry of d-block elements Chemistry of f-block elements Theories of bonding in metals	3 8 3	14
JANUARY (18)	Theories of bonding in metals metal carbonyls & related compounds Phase rule Dilute solutions	3 7 5 3	18
FEBRUARY(19)	Dilute solutions Electrochemistry	5 14	19
MARCH(2)	Electrochemistry	2	2

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**Name of the Faculty:**

1. Ms.Prerana Loomba

2. Ms. D.Rajeshwari



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**Academic Planner: 2018-19**

**Department Of Chemistry**

**Program: B Sc (MbGC, BtGC, MbBcC)**

**Course Title: CT535: Organic, Inorganic and Physical chemistry**

**Year: III**

**No. of classes per week: 3**

**Semester: V**

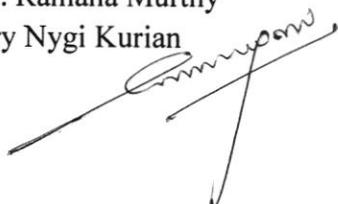
**PAPER V**

MONTH	TOPIC	NO.OF CLASSES	TOTAL CLASSES
JUNE (6)	Nitrogen Compounds	6	6
JULY(12)	Nitrogen Compounds Heterocyclic compounds Co-ordination Compounds	5 6 1	12
AUGUST(12)	Co-ordination Compounds Spectral and magnetic properties of metal complexes	10 2	12
SEPTEMBER(12)	Spectral and magnetic properties of metal complexes Thermodynamics	3 9	12
OCTOBER(3)	Thermodynamics	3	3

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**Name of the Faculty:**

1. Mr.G.V. Ramana Murthy
2. Ms.Mary Nygi Kurian



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**Academic Planner: 2018-19**

**Department Of Chemistry**

**Program: B Sc (MbGC, BtGC, MbBcC)**

**Course Title: CT535A: Physico-chemical methods, Molecular spectroscopy and Catalysis**

**Year: III**

**No. of classes per week: 3**

**Semester: V**

**PAPER VI**

MONTH	TOPIC	NO.OF CLASSES	TOTAL CLASSES
JULY(11)	Separation techniques	11	11
AUGUST(12) + extra classes	Spectrophotometry Mass Spectrophotometry Molecular Spectroscopy	5 6 6	12 + extra classes
SEPTEMBER(15)	Molecular Spectroscopy Catalysis	6 9	15
OCTOBER(4)	Catalysis	2	4

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**Name of the Faculty:**

1. Dr.Madhumita .B



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**Department Of Chemistry**

**Program: B Sc (MbGC, BtGC, MbBcC)**

**Course Title: CT635: Organic, Inorganic and Physical chemistry**

**Year: III**

**No. of classes per week: 3**

**Semester: VI**

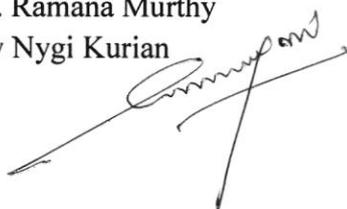
**PAPER VII**

MONTH	TOPIC	NO.OF CLASSES	TOTAL CLASSES
NOVEMBER(5)	Chemical Kinetics	5	5
DECEMBER(14)+	Chemical Kinetics Photochemistry Carbohydrates	5 4 5	14
JANUARY (14)	Carbohydrates Amino acids Stability of Metal complexes Reactivity of metal complexes	2 4 4 4	14
FEBRUARY(11)	Bio-inorganic chemistry Hard and soft acids bases Synthetic strategies	3 4 4	11
MARCH(1)	Synthetic strategies	1	1

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**Department Of Chemistry**

**Program: B Sc (MbGC, BtGC, MbBcC)**

**Course Title: CT635A: Drugs, Macromolecules, Pesticides, Material science**

**Year: III**

**No. of classes per week: 3**

**Semester: VI**

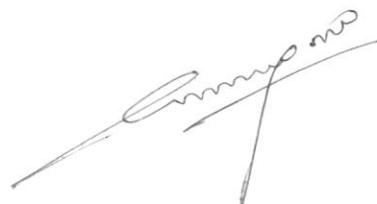
**PAPER VII**

<b>MONTH</b>	<b>TOPIC</b>	<b>NO.OF CLASSES</b>	<b>TOTAL CLASSES</b>
NOVEMBER(3)	Macromolecules	3	3
DECEMBER(10)	Macromolecules	8	
	Pharmaceutical drugs	2	10
JANUARY (10)	Pharmaceutical drugs	10	10
FEBRUARY(14)	HIV and AIDS	5	
	Formulations	3	
	Pesticides-I	3	11
MARCH(1)	Synthetic strategies	1	1

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Academic planner for SEM III (2018-19)**

**SEC- SE 335: SAFETY RULES IN CHEMISTRY LABORATORY AND PREPARING LAB  
REAGENTS**

**Year II**

**No.of classes per week: 2**

**Sem III**

<b>MONTH</b>	<b>TOPIC</b>	<b>NO.OF CLASSES</b>	<b>TOTAL CLASSES</b>
<b>JUNE</b>	<b>INTRODUCTION</b>	<b>4+Extra classes</b>	<b>4</b>
<b>JULY</b>	<b>SAFETY RULES AND REGULATIONS</b>	<b>4+Extra classes</b>	<b>4</b>
<b>AUGUST</b>	<b>SAFETY RULES AND REGULATIONS PREPARATION OF REAGENTS</b>	<b>4+Extra classes</b>	<b>4</b>
<b>SEPTEMBER</b>	<b>PREPARATION OF REAGENTS</b>	<b>10+Extra classes</b>	<b>10</b>

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**Academic planner for SEM IV (2018-19)**

**SEC: 435: GREEN METHODS IN CHEMISTRY**

**Year: II**

**No.of classes per week: 2**

**Sem:IV**

<b>MONTH</b>	<b>TOPIC</b>	<b>NO.OF CLASSES</b>	<b>TOTAL CLASSES</b>
<b>DECEMBER</b>	<b>INTRODUCTION</b>	<b>8+Extra classes</b>	<b>8</b>
<b>JANUARY</b>	<b>GREEN ENERGY AND SUSTAINABILITY</b>	<b>6+Extra classes</b>	<b>6</b>
<b>FEBRUARY</b>	<b>GREEN ENERGY AND SUSTAINABILITY LAB COURSE</b>	<b>4+Extra classes</b>	<b>4</b>

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**Name of the Faculty:**

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**SEC- Code: SE 535: BASIC ANALYTICAL CHEMISTRY**

**Year: III**

**No.of Classes per week: 2**

**Sem: V**

<b>MONTH</b>	<b>TOPIC</b>	<b>NO.OF CLASSES</b>	<b>TOTAL CLASSES</b>
<b>JUNE</b>	<b>INTRODUCTION</b>	<b>4+Extra classes</b>	<b>4</b>
<b>JULY</b>	<b>INTRODUCTION ANALYSIS OF SOIL</b>	<b>4+Extra classes</b>	<b>4</b>
<b>AUGUST</b>	<b>ANALYSIS OF SOIL ANALYSIS OF WATER</b>	<b>6+Extra classes</b>	<b>6</b>
<b>SEPTEMBER</b>	<b>ANALYSIS OF WATER ANALYSIS OF COSMETICS</b>	<b>6+Extra classes</b>	<b>6</b>

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**Name of the Faculty:**

**Ms. D.Rajeshwari** *D. Rajeshwari*



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**Academic planner (2018-19)**

**GE: GE535: ORGANIC FARMING**

**Year: III**

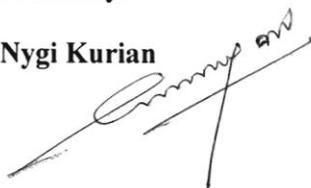
**No.of classes per week: 2**

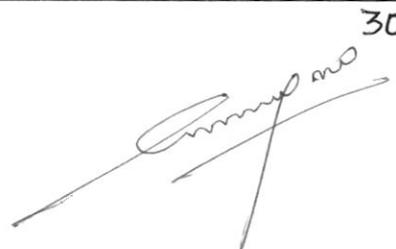
**Sem: V**

MONTH	TOPIC	NO.OF CLASSES	TOTAL CLASSES
JUNE	CONCEPT OF ORGANIC FARMING	2+Extra classes	2
JULY	ORGANIC PLANT NUTRIENT MANAGEMENT	8+Extra classes	8
AUGUST	ORGANIC PLANT PROTECTION	6+Extra classes	6
SEPTEMBER	ORGANIC CROP PRODUCTION PRACTICES ORGANIC CERTIFICATION	6+Extra classes	6

**Name of the faculty:**

**Ms.Mary Nygi Kurian**



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**Academic planner for (2018-19)**

**GE: GE635: Chemistry of Cosmetics and Perfumes**

**Year: III**

**No.of classes per week: 2**

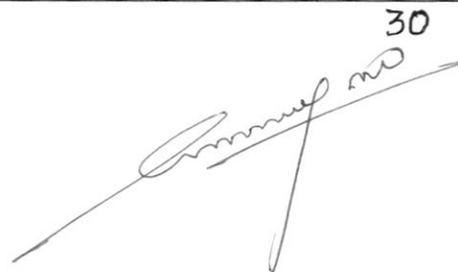
**Sem: VI**

MONTH	TOPIC	NO.OF CLASSES	TOTAL CLASSES
JULY	PREPERATION AND USES OF HAIR DYE, HAIR SPRAY,SHAMPOO ,SUNTAN LOTION	4+Extra classes	4
AUGUST	PREPERATION AND USES OF FACE POWDER LIPSTICKS TALCUM POWDER CREAMS.	4+Extra classes	4
SEPTEMBER	ANTI PERSPIRANTS AND ARTIFICIAL FLAVOURS	4+Extra classes	4
OCTOBER	ESSENTIAL OILS	6+Extra classes	6

**Name of the Faculty:**

**Ms.Mary Nygi Kurian**



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## CHEMINFORMATICS (Credits:02) (30Hours)

### **INTRODUCTION TO CHEMINFORMATICS:-**

History and evolution of cheminformatics, use of cheminformatics, prospects of cheminformatics, molecular modelling, structure elucidation. (2h)

**REPRESENTATION OF MOLECULES AND CHEMICAL REACTIONS:-** Chemical Nomenclature – (development, representation of elements and molecular formulas), types of notations, SMILES coding, matrix representation, structure of Molfiles and Sdfiles, libraries and tool kits, reaction classification. (7h)

### **SEARCHING CHEMICAL STRUCTURES:-**

Full structure search, sub-structure search, basic ideas, similarity search, 3D search methods, Basics of computation of physical and chemical data and structure descriptors. (9h)

**APPLICATIONS:-** Prediction of properties of compounds : Linear free energy relations, Quantitative Structure –Property Relations, Descriptor analysis, model building, modelling toxicity.

### **COMPUTER ASSISTED SYNTHESIS DESIGN.**

**DRUG DESIGN** – introduction, Drug discovery process (Target identification and validation, Lead finding and optimization), Application of cheminformatics in drug design (Analysis of HTS data, virtual screening, design of combinatorial libraries, ligand based and structure based drug design). (12h)

### **REFERENCE BOOKS:**

1. Andrew R. Leach & Valerie, J. Gillet (2007) An introduction to Cheminformatics.
2. Gasteiger, J. & Engel, T. (2003) Cheminformatics : A text book . Wiley-VCH