



**Shrimathi Devkunvar Nanalal Bhatt Vaishnav  
College for Women (Autonomous)**

Owned and Managed by Cork Industries Charities Trust  
Affiliated to University of Madras - Re-Accredited with 'A+' Grade by NAAC  
Chromepet Chennai-600044



**PG DEPARTMENT OF CHEMISTRY**

**M.Sc., Chemistry**

**CHOICE BASED CREDIT SYSTEM (CBCS)**

**&**

**LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF)**

**Batch 2024-2026**



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### PROGRAMME OUTCOMES (PO)

After completion of the programme, the student will be able to

|             |  |
|-------------|--|
| <b>PO 1</b> | To identify and analyze the complex problem searching substantiated conclusions domain knowledge   |
| <b>PO 2</b> | To apply investigative research , specialize in problem identification , formulate research design , utilize analytical tools , draw valid inferences and provide suggestions leading to nation building initiatives . |
| <b>PO 3</b> | To strengthen professional ethics and career planning with systematic building of intrapersonal and interpersonal skills to participate in the intellectual diasporas .  |
| <b>PO 4</b> | To establish oneself as a self - reliant, empowered individual for an inclusive , healthy and compassionate understanding towards life and society .   |
| <b>PO 5</b> | To equip with technical / managerial expertise to innovate and critically analyze various attributes which constitute pivotal issues in a multidisciplinary scenario .   |
| <b>PO 6</b> | To emerge as innovators and pioneers to create new avenues of employment catering to the global trends as well as demands  |

### PROGRAMME SPECIFIC OUTCOMES (PSO)

The students at the time of graduation will

|             |  |
|-------------|--|
| <b>PSO1</b> | Build up a broad knowledge, understanding of advanced concepts and execute critical thinking in different areas of Chemistry and also in interdisciplinary fields. |
| <b>PSO2</b> | Enhance skills in handling scientific instruments, and interpret analytical data for structure elucidation using characterization techniques.                      |
| <b>PSO3</b> | Execute professional skills as chemists, entrepreneurs or in higher education with the available opportunities in the field of research and Industries.            |



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| SE<br>M | PART | COURSE TYPE                            | COURSE<br>CODE            | COURSE TITLE  | CRE<br>DITS | HR<br>S | CI<br>A | ES<br>E | TOT<br>AL  |
|---------|------|--|---------------------------|---|-------------|---------|---------|---------|------------|
| I       | I    | Core Theory I                          | 22PCHCT1001               | Basic Principles of Organic Chemistry                                     | 4           | 90      | 40      | 60      | 100        |
|         |      | Core Theory II                         | 22PCHCT1002               | Structural Inorganic Chemistry and Photochemistry                         | 4           | 90      | 40      | 60      | 100        |
|         |      | Core Theory III                        | 22PCHCT1003               | Chemical Kinetics and Thermodynamics                                      | 4           | 90      | 40      | 60      | 100        |
|         |      | Elective Theory I Classroom/Coursera   | 24PCHET1A01 / 24PCHET1B01 | Analytical Techniques in Chemistry/Introduction to Forensic Science       | 3           | 75      | 40      | 60      | 100        |
|         |      | Core Practical I                       | 22PCHCP1001               | Inorganic Chemistry Practical I   | 4           | 90      | 40      | 60      | 100        |
|         | II   | Skill Based Elective                   | 22PSSCS1001               | Cyber Security  | 3           |         | 50      | ---     | 100        |
|         |      |  |                           | <b>Total</b>  | <b>22</b>   |         |         |         | <b>600</b> |
| II      | I    | Core Theory IV                         | 22PCHCT2004               | Organic Reaction Intermediates and its Mechanism                          | 4           | 90      | 40      | 60      | 100        |
|         |      | Core Theory V                          | 22PCHCT2005               | Co-ordination Chemistry: Bonding, Reaction and Spectra                    | 4           | 90      | 40      | 60      | 100        |
|         |      | Core Theory VI                         | 22PCHCT2006               | Group Theory and Quantum Chemistry  | 4           | 90      | 40      | 60      | 100        |
|         |      | Core Practical II                      | 22PCHCP2002               | Organic Chemistry-Practical   | 4           | 90      | 40      | 60      | 100        |
|         |      | Elective Theory II/Courera             | 24PCHET2 A02/24PCH ET2B02 | Heterocyclics and Natural Products/Organic Solar Cells: Theory & Practice | 3           | 75      | 40      | 60      | 100        |
|         | II   | Soft skill                             | 18MOOC2002                | SWAYAM (MOOC)   | 4           |         | 50      | ---     | 100        |
|         |      |  |                           | <b>Total</b>  | <b>23</b>   |         |         |         | <b>600</b> |
| III     | I    | Core Theory VII                        | 22PCHCT3007               | Retro synthetic Analysis and Pericyclic Reactions                         | 4           | 90      | 40      | 60      | 100        |
|         |      | Core Theory VIII                       | 22PCHCT3008               | Molecular Spectroscopy and its Applications                               | 4           | 90      | 40      | 60      | 100        |
|         |      | Core Theory IX                         | 22PCHCT3009               | Electro and Computational Chemistry                                       | 4           | 90      | 40      | 60      | 100        |
|         |      | Core Practical III                     | 22PCHCP3003               | Physical Chemistry Practical  | 4           | 90      | 40      | 60      | 100        |
|         |      | Elective Theory III classroom/Coursera | 24PCHET3A03 / 24PCHET3B03 | Green Chemistry and Sustainable Development/ Drug Chemistry               | 3           | 75      | 40      | 60      | 100        |
|         | II   | Skill Based Elective                   | 18PSSRS3003               | Research Skills   | 3           |         | 50      | ---     | 100        |
|         | II   | Internship                             | 17PCSIP3001               | Internship  | 2           |         | 40      | 60      | 100        |



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|                    |   |                    |                             |  |           |    |    |    |             |
|--------------------|---|--------------------|-----------------------------|--|-----------|----|----|----|-------------|
|                    |   |                    |                             | <b>Total</b>   | <b>24</b> |    |    |    | <b>700</b>  |
|                    |   |                    |                             |  |           |    |    |    |             |
| IV                 | I | Core Theory X      | 22PCHCT4010                 | Advanced Inorganic Chemistry   | 4         | 90 | 40 | 60 | 100         |
|                    |   | Elective Theory IV | 24PCHET4A04<br>/24PCHET4B04 | Research Methodology/<br>Introduction to Sustainability                  | 3         | 75 | 40 | 60 | 100         |
|                    |   | Elective Theory V  | 24PCHET4A05<br>/24PCHET4B05 | Introduction to material<br>science/ Nanotechnology: A<br>Maker's Course | 3         | 75 | 40 | 60 | 100         |
|                    |   | Core Practical IV  | 23PCHCP4004                 | Inorganic Chemistry<br>Practical II                                      | 4         | 90 | 40 | 60 | 100         |
|                    |   | Core Project I     | 20PCHPR4001                 | Project  | 4         |    | 40 | 60 | 100         |
|                    |   | Soft Skill         | 23PSECR4004                 | Skill Enhancement –Course<br>era   | 4         |    | 50 |    | 100         |
| <b>Total</b>       |   |                    |                             |  | <b>22</b> |    |    |    | <b>600</b>  |
| <b>Grand Total</b> |   |                    |                             |  | <b>91</b> |    |    |    | <b>2500</b> |