

# VIDYASAGAR UNIVERSITY

Midnapore, West Bengal



*PROPOSED CURRICULUM&SYLLABUS (DRAFT) OF*

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**B. Sc. (HONOURS/ HONOURS WITH RESEARCH)**  
**MAJOR IN INDUSTRIAL CHEMISTRY**

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**4-YEAR UNDERGRADUATE PROGRAMME**

*(w.e.f. Academic Year 2023-2024)*

*Based on*

**Curriculum & Credit Framework for Undergraduate Programmes**  
**(CCFUP), 2023& NEP, 2020**

**VIDYASAGAR UNIVERSITY**  
**BACHELOR OF SCIENCE (HONOURS/ HONOURS WITH RESEARCH) MAJOR IN INDUSTRIAL CHEMISTRY**  
**(under CCFUP, 2023)**

| Level                                          | YR.             | SEM                                                                                                      | Course Type        | Course Code | Course Title                                                      |                                    | Credit | L-T-P | Marks                     |     |       |      |
|------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------|--------------------|-------------|-------------------------------------------------------------------|------------------------------------|--------|-------|---------------------------|-----|-------|------|
|                                                |                 |                                                                                                          |                    |             |                                                                   |                                    |        |       | CA                        | ESE | TOTAL |      |
| B.Sc.<br>(Hons./<br>Hons.<br>with<br>Research) | 4 <sup>th</sup> | VII                                                                                                      | SEMESTER-VII       |             |                                                                   |                                    |        |       |                           |     |       |      |
|                                                |                 |                                                                                                          | Major-14           | INCHMJ14    | T: Polymer Chemistry; P: Practical                                |                                    | 4      | 3-0-1 | 15                        | 60  | 75    |      |
|                                                |                 |                                                                                                          | Major-15           | INCHMJ15    | T: Chemistry of paint & coatings; P: Practical                    |                                    | 4      | 3-0-1 | 15                        | 60  | 75    |      |
|                                                |                 |                                                                                                          | CRM                | INCHCRM     | T: Research Methodology and Ethics;                               |                                    | 4      | 3-1-0 | 15                        | 60  | 75    |      |
|                                                |                 |                                                                                                          | Major Elective-03  | INCHDSE03   | T: Pesticide Chemistry; P: Practical                              |                                    | 4      | 3-0-1 | 15                        | 60  | 75    |      |
|                                                |                 |                                                                                                          | Minor-07 (Disc.-I) | INCMIN07    | T: <i>To be decided<br/>(To be taken by the other Discipline)</i> |                                    | 4      | 3-0-1 | 15                        | 60  | 75    |      |
|                                                |                 | Semester-VII Total                                                                                       |                    |             |                                                                   |                                    |        | 20    |                           |     |       | 375  |
|                                                |                 | VIII                                                                                                     | SEMESTER-VIII      |             |                                                                   |                                    |        |       |                           |     |       |      |
|                                                |                 |                                                                                                          | Major-16           | INCHMJ16    | T:; Pharmaceutical Chemistry; P: Practical                        |                                    | 4      | 3-0-1 | 15                        | 60  | 75    |      |
|                                                |                 |                                                                                                          | Major Elective-04  | INCHDSE04   | T: Chemistry of Cosmetics & Perfumes; P: Practical                |                                    | 4      | 3-0-1 | 15                        | 60  | 75    |      |
|                                                |                 |                                                                                                          | Major Elective-05  | INCHDSE05   | T: Forensic Science;                                              | FOR HONOURS STUDENTS               | 4      | 3-1-0 | 15                        | 60  | 75    |      |
|                                                |                 |                                                                                                          | Major Elective-06  | INCHDSE06   | T Chemicals for Common Industrial processes;                      |                                    | 4      | 3-1-0 | 15                        | 60  | 75    |      |
|                                                |                 |                                                                                                          | Research           | INCHRD      | DISSERTATION:                                                     | FOR HONOURS WITH RESEARCH STUDENTS | 8      | 0-0-8 | -                         | 150 | 150   |      |
|                                                |                 |                                                                                                          | Minor-8 (Disc.-II) | INCMIN08    | T: <i>To be decided<br/>(To be taken by the other Discipline)</i> |                                    | 4      | 3-0-1 | 15                        | 60  | 75    |      |
|                                                |                 | Semester-VIII Total                                                                                      |                    |             |                                                                   |                                    |        | 20    |                           |     |       | 375  |
|                                                |                 | YEAR-4                                                                                                   |                    |             |                                                                   |                                    |        | 40    |                           |     |       | 750  |
|                                                |                 | To be awarded <i>Bachelor of Science (Honours / Honours with Research) Major in Industrial Chemistry</i> |                    |             |                                                                   |                                    |        | 166   | Marks (Year: I+II+III+IV) |     |       | 3075 |

MJ = Major, MI = Minor Course, DSE = Discipline Specific Elective Course, CRM= Compulsory Research Methodology, CA= Continuous Assessment, ESE= End Semester Examination, T = Theory, P= Practical, L-T-P = Lecture-Tutorial-Practical

# SEMESTER-VII

## MAJOR (MJ)

### **MJ-14: Polymer Chemistry**

**Credits 04 (Full Marks: 75)**

*MJ-14T: Polymer Chemistry (Theory)*

*Credits 03 (45 hrs.)*

### **Course Content:**

#### **Unit-I: Types of Polymers and Polymerization**

Thermoplastics and thermosetting, functionality concept, Concept of cross-linking-linear, Branched and cross-linked polymers. Mechanism of Addition Polymerization (Initiation, propagation and termination processes), Initiators, Inhibitors; Mechanism of Condensation polymerization; Mechanism of Ionic polymerization.

#### **Unit-II: Method of Polymerization**

Bulk, Suspension, Emulsion, Solution polymerization. Necessity of co-polymers and co-polymerization, blocks and graft co-polymers.

#### **Unit-III: Properties of Polymers**

Viscosity, Solubility, Optical, Electrical, Thermal and mechanical properties of polymers.

**Crystallization and crystallinity:** Determination of crystalline melting point and degree of crystallinity, Morphology of crystalline polymers, Factors affecting crystalline melting point.

**Polymer Degradation-** Thermal, oxidative, hydrolytic and photodegradation

#### **Unit-IV: Industrial Thermosetting polymers**

Study of the following thermosetting polymers with respect to Chemistry and applications:

- Phenol formaldehyde resins
- Amino resins- urea-formaldehyde and melamine-formaldehyde reaction.
- Epoxy resins –grades of epoxy resins, curing process and its importance
- Polycarbonates and silicones.
- Elastomers- polyisoprene, Polybutadiene, Neoprene

#### **Unit-V: Industrial Thermoplastic polymers**

Study of the following thermoplastic polymers with respect to chemistry and applications:

- Polyolefins- Polyethylenes, Polypropylene, Ethylene-Propylene Copolymers.
- Polyvinyl Chlorides- Grades of PVC, Teflon, Polyvinyl acetates and polyacetals.

- c) Polystyrene- Homopolymers, copolymers such as SBR, ABS, SAN.
- d) Polyamines- Nylon-6, Nylon-66.
- e) Polyethers and polyesters- Terephthalates, Crown ethers.

*MJ-14P: Polymer Chemistry (Practical)*

*Credits 01 (30 hrs)*

**Course Outline:**

Polymer Synthesis

- a) Free radical solution polymerization of styrene (St) / Methyl Methacrylate (MMA) / Methyl Acrylate (MA).
- b) Preparation of nylon 6,6
- c) Preparation of urea-formaldehyde resin
- d) Preparations of novalac resin/resold resin.
- e) Microscale Emulsion Polymerization of Poly (methacrylate).

Polymer Synthesis

- a) Solubility tests of common polymers
- b) IR studies of polymers
- c) DSC (Differential Scanning Calorimetry) analysis of polymers
- d) TG-DTA (Thermo-Gravimetry-Differential Thermal analysis) of polymers

## **MJ-15: Chemistry of paint & coatings**

**Credits 04 (Full Marks: 75)**

*MJ-15T: Chemistry of paint & coatings (Theory)*

*Credits 03 (45 hrs.)*

### **Course Content:**

#### **Unit-I: Introduction to Surface Coatings & Raw Materials**

- Definition of paints, varnishes, enamels, lacquers, and industrial vs. architectural coatings.
- Surface Chemistry: Interfacial tension, free energy changes, wetting, dispersion, and adhesion.
- Film Formers (Resins & Binders): Natural and synthetic resins, alkyds, polyesters, epoxies, urethanes, and acrylics.
- Solvents, Thinners & Diluents: Classification, evaporation rates, solubility parameters, and dilution shock.
- Additives: Driers, plasticizers, surfactants, flow agents, anti-settling agents, and biocides.

#### **Unit-II: Chemistry and Technology of Pigments & Extenders**

- Inorganic Pigments: White pigments (TiO<sub>2</sub>, ZnO, lithopone), yellow/red iron oxides, chrome yellow, cadmium pigments, and ultramarine/Prussian blue.
- Organic Pigments: Azo pigments, phthalocyanine blues and greens, and high-performance pigments (HPPs).
- Specialty & Effect Pigments: Metallic pigments (aluminum, bronze), pearlescent, anti-corrosive, IR-reflective, and thermochromic pigments.
- Extenders (Fillers): Calcium carbonate, talc, barytes, kaolin, and their impact on Pigment Volume Concentration (PVC) and Critical Pigment Volume Concentration (CPVC).

#### **Unit-III: Paint Formulation and Manufacturing Processes**

- Formulation Parameters: Pigment-to-Binder (P/B) ratio, PVC, CPVC, volume solids, and theoretical coverage calculations.
- Manufacturing Steps: Pre-mixing, wetting, dispersion, media milling (ball mills, bead mills, attritors), let-down, and filtration.
- Specialized Systems: Powder coatings, UV-cured coatings, waterborne and high-solid coatings.

#### **Unit-IV: Testing, Evaluation, and Quality Control**

- Liquid Paint Testing: Viscosity (Ford cup, Brookfield), density, fineness of grind, and pH.
- Film Properties & Evaluation: Adhesion tests (cross-hatch), hardness (pencil/Buchholz), flexibility, gloss, and impact resistance.

- Durability & Corrosion Testing: Salt spray (fog) testing, humidity resistance, UV/weather-ometer accelerated aging, and chemical resistance.
- Standards: Compliance testing as per BIS (Bureau of Indian Standards), ASTM, and ISO guidelines.

*MJ-15P: Chemistry of paint & coatings (Practical)*

*Credits 01 (30 hrs.)*

Pigment Particle Analysis:

- Determination of oil absorption value (oil demand for complete wetting).
- Measurement of particle size distribution, moisture content, and matter soluble in water.

Testing of Binders & Solvents:

- Acid value, hydroxyl value, and saponification value of oils/resins.
- Specific gravity, refractive index, and volatile matter content of solvents

Liquid Paint Testing:

- Viscosity (Ford cup, Brookfield), density and pH.

Film Properties Evaluation:

- Adhesion tests (cross-hatch), hardness (pencil/Buchholz), flexibility, gloss

**COMPULSORY RESEARCH METHODOLOGY (CRM)**

*[for both Hons. and Hons. with Research students]*

## **CRM: Research Methodology and Ethics**

**CRM (T): Research Methodology and Ethics (Theory)**

**Credits 04**

**Course Content:**

**Planning of Research:** Essentials of a Good Research Problem, Sources of Research Problem, Factors Affecting Selection of Research Problem, Hypothesis, Features of Good Hypothesis, Types of Hypotheses, Role of Hypothesis, Sources of Hypothesis

**Sample design/Sampling:** What is sampling? Advantages/merits of Sampling, Methods or Techniques of Sampling, Steps in Sample Design, Principles/essentials of Sampling, Process of Sample Survey,

**Research Design:** Introduction, Meaning and Definitions, Essentials of Good Research Design, Steps of Research Design, Evaluation of Research Design.

**Processing and Analysis of data:** Introduction, Stages of Processing of Data, Analysis of Data, Interpretation of Data, Transcription of Data.

**Preparation of Report:** What is Research Report? Types of Report, contents of Report, Layout of the Research Report, Principles of Report Writing, Steps in Report Writing, Steps Involved in Drafting a Research Report, Documentation, Footnotes, Bibliography.

**Ethics and Research:** Importance of Ethics in Research, Principles of Research Ethics. Intellectual Honesty and Research Integrity, Integrity of the Individual Scientist, Integrity at Institutional Level, Scientific Misconduct.

**Publication Ethics:** Definition and Importance of publication ethics, Regulatory Organisations for Publication Ethics, Best Practices/Standards Setting Initiative and Guidelines, Guidelines for

Authors, Editors and Reviewers, set by COPE, Conflict of Interests, Publication Misconduct, Types of Publication Misconduct, Plagiarism.

**Databases:** Definition and Types of Databases, Indexing, Benefits of Indexing, Citation Index Database, Major Citation Indexing Services, Web of Science, Scopus, Google Scholar, PubMed Central (PMC) Database, Indian Citation Index (ICI) Database

**Research Metrics:** Bibliometrics, Journal Metrics, Journal Impact Factor, Cite Score, Difference between Cite Score and Impact Factor, Source Normalised Impact Per Paper (SNIP), Scimago Journal Rank (SJR), Impact Per Publication (IPP), Author Metrics, H-Index, Advantages of H-Index, Drawbacks of H-Index, i10/20 Index.

**MAJOR ELECTIVE (DSE)**

**Major Elective – 03:**

**MJDSE-03: Pesticide Chemistry**

**Credits 04 (Full Marks: 75)**

*MJDSE-03T: Pesticide Chemistry (Theory)*

*Credits 03 (45 hrs)*

**Course Content:**

**Unit-I: Introduction to Pesticide Chemistry:**

Classification, synthesis, structure activity relationship (SAR), mode of action, uses and adverse effects of representative pesticides in the following classes: Organochlorines (DDT, Gammexene); Organophosphates (Malathion, Parathion); Carbamates (Carbofuran and Carbaryl); Quinones (Chloranil), Anilides (Alachlor and Butachlor)

**Unit-II: Botanical insecticides:**

Alkaloids (Nicotine); Pyrethrum (natural and synthetic pyrethroids); Azadirachtin; Rotenone and Limonene

**Unit-III: Pesticide formulations**

Pesticide formulations (Wettable powders, Surfactants, Emulsifiable concentrates, Aerosols, Dust and Granules)

*MJDSE-03P: Pesticide Chemistry (Practical)*

*Credits 01 (30 hrs)*

**Practical:**

1. To carryout market survey of potent pesticides with details as follows:
  - a) Name of pesticide b) Chemical name, class and structure of herbicide c) Type of formulation available and Manufacturer's name d) Useful information on label of packaging regarding: Toxicity, LD 50 ("Lethal Dose, 50%"), e) Side effects and Antidotes
2. To calculate acidity/alkalinity in given sample of pesticide formulations as per BIS specifications.
3. To calculate active ingredient in given sample of pesticide formulations as per BIS specifications.

*MINOR (MI)*

***TO BE DECIDED (SELECTED FROM OTHER DECIPLINES)***

## SEMESTER-VIII

### MAJOR (MJ)

#### **MJ-I 6: Pharmaceutical Chemistry**

**Credits 04 (Full Marks: 75)**

*MJ-I 6T: Pharmaceutical Chemistry (Theory)*

*Credits 03 (45 hrs.)*

#### **Course Content:**

##### **Unit-I: Introduction**

Drug discovery, Design and development: Sources of drugs: biological, marine, minerals and plant tissue culture, Physio-chemical aspects (optical, geometric and bioisosterism) of drug molecules and biological action, drug receptor interaction, Basic Retro-synthetic approach for development of drug. Cause of side effect of drugs like ibuprofen, cetirizine, thalidomide, etc. Difference between drug and poison.

##### **Unit – II: Drugs and Pharmaceuticals**

Study of pharmaceutical aids like talc, diatomite, kaolin, bentonite, gelatin and natural colours.

Synthesis of the representative drugs of the following classes: analgesics agents, antipyretic agents, anti-inflammatory agents (Aspirin); antibacterial and antifungal agents (Sulphonamides; Sulphanethoxazole, Sulphacetamide, Trimethoprim); antiviral agents (Acyclovir), Central Nervous System agents (Phenobarbital, Diazepam), Cardiovascular (Glyceryl trinitrate), antileprosy (Dapsone), HIV-AIDS related drugs (AZT-Zidovudine).

##### **Unit – III: Fermentation and Pharmaceuticals**

Aerobic and anaerobic fermentation. Production of (i) Ethyl alcohol and citric acid, (ii) Antibiotics; Penicillin, Cephalosporin, Chloramphenicol and Streptomycin, (iii) Lysine, Glutamic acid, Vitamin B<sub>2</sub>, Vitamin B<sub>12</sub> and Vitamin C.

*MJ-I 6P: Pharmaceutical Chemistry (Practical)*

*Credits 01 (30 hrs.)*

#### **Practical**

- Preparation of Aspirin and its analysis.
- Preparation of paracetamol and its analysis.
- Determination of alcohol contents in liquid drugs/galenicals.
- Analysis of commercial vitamin C tablets by iodometric and coulometric titrimetry etc.

**MAJOR ELECTIVE (DSE)**

**Major Elective – 04:**

**MJDSE-04: Chemistry of Cosmetics & Perfumes**

**Credits 04 (Full Marks: 75)**

*MJDSE-04T: Chemistry of Cosmetics & Perfumes (Theory)*

*Credits 03 (45 hrs)*

**Course Content:**

**Unit-I: Cosmetics:**

Definition, History, Classification, Ingredients, Nomenclature, Regulations

**Unit-II: Chemistry of Face preparation products:**

Structure of skin, Face powder, Compact powder, Talcum powder

**Unit-III: Chemistry of Skin preparation products**

Face cream, vanishing cream, cold cream, suntan cream, lather shaving cream

**Unit-IV: Chemistry of Hair preparation products**

Structure of hair, classification of hair, Hair dye- classification – temporary, semi-permanent, permanent, formulation, hair sprays, shampoo- types of shampoo, conditioners

**Unit-V: Chemistry of Nail preparation products**

Nail preparation Structure of nail, Nail lacquers, Nail polish remover Lipsticks

**Unit-VI: Personal Hygiene products**

Antiperspirants and Deodorants, Oral hygiene products, Flavors and Essential oils

*MJDSE-04P Chemistry of Cosmetics & Perfumes (Practical)*

*Credits 01 (30 hrs)*

1. Preparation of talcum powder.
2. Preparation of face cream.
3. Preparation of nail polish and nail polish remover.
4. Preparation of hand Wash
5. Preparation of hand sanitizer
6. Preparation of soap
7. Preparation of tooth paste

**MAJOR ELECTIVE- 05**  
*[to be studied by Honours students only]*

**MJDSE-05: Applied Chemistry in Forensic Science**

**Credits 04 (Full Marks: 75)**

*MJDSE-05T: Applied Chemistry in Forensic Science (Theory)*

*Credits 03 (45 hrs)*

**Course Content:**

**UNIT-I Introduction:**

History, Development and Scope of applied Chemistry in Forensic Science. Chemical Laboratory set up for Forensic Science and analysis.

**UNIT-II Analytical Tools:**

Basic Principles, theory and application of spectroscopy (U.V., I.R., Atomic Absorption Emission and Mass) and its forensic applications.

Electrophoresis (Immuno and Iso-electrofocusing) theory, principle and techniques. X-ray (Hard and Soft) techniques and their forensic applications.

**UNIT-III: Forensic Chemistry:**

Introduction, Conventional methods of chemical analysis, presumptive tests (colour & spot); Drugs of Abuse: Introduction and classification; Forensic Toxicology: Introduction and general methods of chemical analysis for alcohol, Classification of poisons.

**UNIT-IV Fingerprint Identification:**

History and development, biological basis of fingerprints, pattern types, scene of crime prints, methods of processing latent/fingerprints, ridge characteristics, comparison of fingerprints for establishing complete identity.

*MJDSE-05P: Applied Chemistry in Forensic Science (Practical)*

*Credits 01 (30 hrs)*

1. Practical / Audio visual demonstration of forensic chemical testing (in reference to the above)
2. Demonstration of fingerprint identification methods (in reference to the above)

**MAJOR ELECTIVE- 06**  
*[to be studied by Honours students only]*

**MJDSE-06: Chemicals for Common Industrial processes    Credits 04 (Full Marks: 75)**

*MJDSE-06T: Chemicals for Common Industrial processes (Theory)    Credits 03 (45 hrs)*

**Course Content:**

**Unit I:**

**Dairy Chemistry:** Composition and structure of milk, milk proteins, enzymes, vitamins, minerals, density and viscosity of milk, effect of heat on milk, milk processing, basic milk categories, butter, ghee and clarified butter.

**Soil Chemistry:** Introduction, formation, classification and reactions of soil, soil acidity, alkalinity, productivity and fertility, chemical fertilizers and their effect, organic manures, micronutrients, bio-fertilizers.

**Unit II:**

**Dyes and Pigments:** Classification of Dyes, Methods of preparation of commercial dyes of different classes with suitable examples. Typical manufacturing processes of few dyes, Fluorescent brightening agents.

**Oils, Soaps and Detergents:** Refining of edible oils, Manufacturing of soaps, Detergents, Liquid Soaps. Manufacturing of fatty Acids and glycerol, greases from fatty acids, turpentine –red oil.

**Unit III:**

**Food Chemistry:** Food preservation and processing, food deterioration, methods of preservation and processing by heat, cold, chill storage, deep freezing, drying, concentration, fermentation, and radiation.

Permitted food additives and their role; Antioxidants, coloring agents, flavours, emulsifiers, curating agents, non-curative sweeteners, flour improvers, leavening agents, stabilizers, thickness and preservatives.

**Unit IV:**

**Glass and Refractory materials:** Raw materials, Soda glass, borosilicate glass, Lead Glass, Colored Glass, Refractory: Raw materials, clay pots, Zeolites.

**Leather Chemistry:** Constituents of animal skin, manufacture and preparation of hides, cleaning, soaking, limiting and degreasing, finishing and sharing, tanning; leather, vegetable, chrome,

tanning effluents; pollution and control.

**Unit V:**

**Cane sugar industry:** Manufacture of white crystalline sugar, extraction of the juice, clarification (lime defecation process, by sulphate ion and by carbonation), evaporation, crystallization and refining of sugar, uses of bagasse.

**Pulp and paper industry:** Manufacture of pulp and paper and their uses.

*MJDSE-06P: Chemicals for Common Industrial processes (Practical)*

*Credits 01 (30 hrs)*

1. Visit to the industries
2. Report on industry visit with process flow and process description
3. Presentation & Viva- voce

## PROJECT / DISSERTATION (RD)

*[to be undertaken by students opting for and eligible for Hons. with Research]*

### **DISSERTATION: Credit: 8; Full Marks: 150**

#### Structure of the dissertation

##### **Preliminary Pages**

- Title Page: Includes name of the student, university, degree, and submission date.
- Certificate/Declaration: Signed statement of originality and supervisor's approval
- Abstract: A 250-350 word summary covering research problem, methodology, and core findings.
- Acknowledgements: To supervisors and others, if any.
- Table of Contents: Clear hierarchical mapping of chapters with page number
- List of Abbreviations: Specialized terms, if any

##### **Introduction**

- Background & Context: Situates the topic in historical or theoretical context.
- Research Problem & Objectives: The specific question or gap the research is addressing.
- Thesis Statement/Hypothesis: The core argument the dissertation intends to prove.
- Scope and Significance: Why the study matters.
- Literature Review & Theoretical Framework

**Literature Review:** Analyzes existing scholarly works to show the gap the study fills.

- Theoretical Framework: Identifies the philosophers, critics, or schools of thought shaping the analysis in the dissertation.

##### **Methodology**

- Describes *how* the research was conducted - Anyone or a combination of textual analysis/ archival research/ conducting interviews/ ethnographic/semi-ethno-graphic research involving both textual analysis and field visit etc.
- Thematic or Analytical Chapters

**The Core Body:** Usually 3 to 4 chapters focusing on the core concerns of the study.

- Structure: Each chapter introduces its specific theme, analyzes primary and secondary sources, and contributes to the overarching thesis.

##### **Conclusion**

- Summary & Synthesis: Recaps your main points without simply repeating them.

**Final Verdict:** Answers the research questions posed in the introduction.

**Future Scope:** Suggests how future scholars can build upon your work.

- **Works Cited/ Reference, and/or Bibliography:** A comprehensive list of all primary and secondary sources cited as per the latest MLA style.

**Appendices:** Transcripts, interview logs, or raw archival data, if any.

**Marks distribution-**

| Sl. No       | Particulars                                        | Marks      |
|--------------|----------------------------------------------------|------------|
| 1            | Research Project / Dissertation Report             | 70         |
|              | ▪ Proposal and Abstract (along with some keywords) | 10         |
|              | ▪ Literature Review & Theoretical Framework        | 10         |
|              | ▪ Methodology and Research design                  | 10         |
|              | ▪ Thematic Analysis (Chapter-wise)                 | 20         |
|              | ▪ Report Quality                                   | 20         |
| 2            | Seminar Presentation                               | 30         |
| 3            | Viva-Voce                                          | 50         |
| <b>Total</b> |                                                    | <b>150</b> |

**MINOR (MI)**

**TO BE DECIDED (SELECTED FROM OTHER DECIPLINES)**

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