CVM UNIVERSITY
Aegis: Charutar Vidya Mandal (Estd.1945)

# FACULTY OF ENGINEERING & TECHNOLOGY

## Effective from Academic Batch: 2026-27

**Programme:** **Bachelor of Technology**

**Semester:** **I**

**Course Code:** **1MEC01002**

**Course Title:** **Engineering Visualization**

**Course Group:** **Engineering Science Course**

**Course Objectives:**

**Teaching & Examination Scheme:**

| Contact hours per week | | | Course Credits | Examination Marks (Maximum / Passing) | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Theory | | J/V/P* | | Total |
| Lecture | Tutorial | Practical | | Internal | External | Internal | External | |
| 0 | 0 | 4 | 2 | -- | -- | 50 / 18 | 50 / 18 | 100/36 |

* **J**: Jury; **V**: Viva; **P**: Practical

**Detailed Syllabus: List of Practicals / Tutorials:**

| Sr. | Contents | Hours |
|---|---|---|
| 1 | Practice sheet (sketch book): Use of drawing instruments, engineering drawing dimensioning methods and standards. | 02 |
| 2 | Engineering Curves (sketch Book): (1) Ellipse, (2) parabola, (3) hyperbola, (4) cycloid, (5) involute, (6) spirals. | 06 |
| 3 | **Fundamentals of Orthographic Projections:** Fundamental of projection along with classification, Projections from the pictorial view of the object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method, full sectional view. | 02 |
| 4 | Orthographic drawing of components using drawing instruments in sketch book. | 04 |
| 5 | **Fundamentals of Projections of Planes:** Projections of planes (polygons, circle and ellipse) with its inclination to one reference plane and with two reference planes. | 04 |
| 6 | Projections of planes using drawing instruments in sketch book. | 02 |
| 7 | **Fundamentals of Projections of Solids:** Classification of solids. Projections of solids (Cylinder, Cone, Pyramid, Prism) along with frustum with its inclination to one reference plane and with two reference planes. | 04 |
| 8 | Projection of solids using drawing instruments in sketch book. | 04 |



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**Detailed Syllabus: List of Practicals / Tutorials:**

| Sr. | Contents | Hours |
|---|---|---|
| 1 | Use of elements of 2D drawing in modeling/drafting software. | 02 |
| 2 | Drawing of engineering curves using drafting software. | 04 |
| 3 | Orthographic drawing of components using drafting software. | 04 |
| 4 | Draw, Modify and Annotations toolbar using drafting software. | 04 |
| 5 | Projection of solids using drafting software. | 04 |
| 6 | To Generate Isometric and Perspective Views from 2D Sketches – Develop 3D representations from 2D sketches using CAD tools. | 06 |

**Reference Books:**


| | |
|---|---|
| 1 | A Text Book of Engineering Graphics by P.J.Shah S.Chand & Company Ltd., New Delhi |
| 2 | Elementary Engineering Drawing by N.D.Bhatt Charotar Publishing House, Anand |
| 3 | Engineering Drawing by B. Agrawal and C M Agrawal, Tata McGraw Hill, New Delhi |
| 4 | Engineering Graphics and Design by T Jeyapoovan, S Chand, Noida |
| 5 | AutoCAD 2024 Instructor by James Leach, Shawna Lockhart, SDC Publications |
| 6 | AutoCAD 2024 for Beginners by Cadfolks, Independently Published |
| 7 | AutoCAD 2023: A Problem-Solving Approach by Sham Tickoo, CADCIM Technologies |


**Pedagogy:**

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Industrial/ Field visits
- Course Projects

**Internal Evaluation:**

The internal evaluation comprised of written exam (40% weightage) along with combination of various components such as Certification courses, Assignments, Mini Project, Simulation, Model making, Case study, Group activity, Seminar, Poster Presentation, Unit test, Quiz, Class Participation, Attendance, Achievements etc. where individual component weightage should not exceed 20%.

**Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):**

| Distribution of Theory Marks in % | | | | | | **R**: Remembering; **U**: Understanding; **A**: Applying; **N**: Analyzing; **E**: Evaluating; **C**: Creating |
|---|---|---|---|---|---|---|
| **R** | **U** | **A** | **N** | **E** | **C** | |
| 10% | 20% | 50% | 20% | -- | -- | |

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.



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**Course Outcomes (CO):**

| Sr. | Course Outcome Statements | %weightage |
|---|---|---|
| **CO-1** | Apply the conventions and the methods of engineering drawing also interpret engineering drawings | **20** |
| **CO-2** | Construct basic and intermediate geometry and comprehend the theory of projection. | **20** |
| **CO-3** | Dissect the objects in three dimensions with different orientation. | **40** |
| **CO-4** | Make use of computer software for engineering drawings. | **20** |

| **Curriculum Revision:** | |
|---|---|
| Version: | 2 |
| Drafted on (Month-Year): | April-2025 |
| Last Reviewed on (Month-Year): | -- |
| Next Review on (Month-Year): | |



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