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## Outcome-Based Education (OBE) Attainment Report: B.Sc. Networking & Multimedia

### Jalna College of I.T., Jalna

Affiliated to Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajanagar

**Program Focus:** Networking Infrastructure, Digital Content Creation, and Cyber Security  
**Academic Cycle:** Evaluation Cycle for 2022-23 (Illustrative Data)  
**Prepared by:** IQAC & Department of Networking and Multimedia Studies

## The OBE Framework and Program Relevance

### 1.1 The Dual Mandate of Networking & Multimedia

The B.Sc. Networking & Multimedia program addresses the convergence of two critical sectors: **IT infrastructure (Networking)** and **Digital Content (Multimedia)**. The OBE framework ensures that graduates acquire a dual skillset—the technical rigor to manage complex networks and the creative competence to develop rich digital content. This dual focus directly aligns with the demands of the modern digital economy.

### 1.2 B.Sc. N&M Program Outcomes (POs) and Graduate Attributes

The four Program Outcomes (POs) are designed to cultivate job-ready technical, creative, and ethical attributes:

| PO No. | Program Outcome (POs)                                                                              | Graduate Attribute Focus                     |
|--------|----------------------------------------------------------------------------------------------------|----------------------------------------------|
| PO1    | Design, implement, and <b>manage computer networks and multimedia systems.</b>                     | <b>Technical Systems Management</b>          |
| PO2    | Develop multimedia content and <b>interactive applications with creativity.</b>                    | <b>Creative &amp; Design Skills</b>          |
| PO3    | Apply IT solutions to solve practical problems, demonstrating <b>professionalism and ethics.</b>   | <b>Problem-Solving &amp; Ethical Conduct</b> |
| PO4    | Stay updated with emerging network and multimedia technologies through <b>continuous learning.</b> | <b>Lifelong Learning &amp; Adaptability</b>  |

## Course Outcomes (COs) and Assessment Integration

Course Outcomes (COs) are the specific, measurable learning objectives tied to individual subjects. We detail the COs for four core subjects and their corresponding assessment components.

### 2.1 Representative Course Outcomes (COs)

| Course                           | CO No.       | Course Outcomes (COs)                                                                     | Primary PO Link |
|----------------------------------|--------------|-------------------------------------------------------------------------------------------|-----------------|
| <b>Networking Fundamentals</b>   | <b>CO N1</b> | Understand networking concepts, protocols (TCP/IP), and implement LAN/WAN systems.        | PO1             |
|                                  | <b>CO N2</b> | Troubleshoot network connectivity issues using diagnostic tools (e.g., Packet Tracer).    | PO1, PO3        |
| <b>Multimedia Tools</b>          | <b>CO M1</b> | Design digital content using graphics, audio, and video editing tools effectively.        | PO2             |
|                                  | <b>CO M2</b> | Produce a short-form multimedia project demonstrating technical and creative proficiency. | PO2, PO3        |
| <b>Web &amp; App Development</b> | <b>CO W1</b> | Develop responsive websites and interactive applications using current frameworks.        | PO1, PO2        |
| <b>Cyber Security</b>            | <b>CO C1</b> | Apply basic security measures to protect data and networks (firewalls, encryption).       | PO3, PO4        |

### 2.2 Assessment and Attainment Evaluation Methods

The evaluation methodology strongly weights practical application and project work to measure technical and creative POs:

| Assessment Component                          | Target POs                                      | Weightage |
|-----------------------------------------------|-------------------------------------------------|-----------|
| <b>Semester-End Theory Examinations (SEE)</b> | PO1, PO4 (Conceptual Knowledge)                 | 40%       |
| <b>Practical Labs &amp; Assignments (CIA)</b> | PO1, PO2 (Technical Skill Execution)            | 30%       |
| <b>Project Work / Multimedia Portfolio</b>    | PO2, PO3, PO4 (Creativity, Ethics, Application) | 30%       |

**Internship and Industry Feedback:** This is the primary **indirect assessment** tool for **PO3 (Professionalism & Ethics)**. Employer surveys specifically grade student performance on teamwork, communication, and adherence to professional standards, providing critical data for continuous improvement.

## PO-CO Mapping Matrix: B.Sc. N&M Program

The degree of correlation between COs and POs is quantified using the standard **3-point scale** (High=3, Medium=2, Low=1, None=0).

| CO           | Course                  | PO1<br>(Management) | PO2<br>(Creativity) | PO3<br>(Ethics/Pro.) | PO4<br>(Adaptability) |
|--------------|-------------------------|---------------------|---------------------|----------------------|-----------------------|
| <b>CO N1</b> | Networking Fundamentals | <b>H (3)</b>        | -                   | M (2)                | M (2)                 |
| <b>CO N2</b> | Networking Fundamentals | <b>H (3)</b>        | -                   | M (2)                | -                     |
| <b>CO M1</b> | Multimedia Tools        | L (1)               | <b>H (3)</b>        | M (2)                | M (2)                 |
| <b>CO M2</b> | Multimedia Tools        | L (1)               | <b>H (3)</b>        | <b>H (3)</b>         | M (2)                 |
| <b>CO W1</b> | Web & App Development   | <b>H (3)</b>        | <b>H (3)</b>        | L (1)                | <b>H (3)</b>          |
| <b>CO C1</b> | Cyber Security          | M (2)               | L (1)               | <b>H (3)</b>         | M (2)                 |

## Attainment Evaluation and Model Data

### 4.1 Attainment Calculation and Targets

The institutional target for the B.Sc. N&M program is **70% of students scoring 70% or above** in the assessment components linked to the CO. The CO and PO attainment scores are calculated using the weighted formulas established in the methodology.

### 4.2 Model Attainment Data for Core COs (2022-23)

The following table presents illustrative attainment data derived from internal tests, lab performance, and project evaluations:

| CO           | Course                  | Target Met (%) | Attainment Score | Attainment Level  |
|--------------|-------------------------|----------------|------------------|-------------------|
| <b>CO N1</b> | Networking Fundamentals | 75%            | 78%              | <b>High (H)</b>   |
| <b>CO N2</b> | Networking Fundamentals | 68%            | 72%              | <b>High (H)</b>   |
| <b>CO M1</b> | Multimedia Tools        | 80%            | 84%              | <b>High (H)</b>   |
| <b>CO M2</b> | Multimedia Tools        | 65%            | 68%              | <b>Medium (M)</b> |
| <b>CO W1</b> | Web & App Development   | 72%            | 75%              | <b>High (H)</b>   |
| <b>CO C1</b> | Cyber Security          | 55%            | 62%              | <b>Medium (M)</b> |

### 4.3 Derived PO Attainment Status for B.Sc. N&M Program

By aggregating the CO attainment scores according to the mapping matrix:

| PO No.     | Program Outcome (POs)                | Weighted Attainment Score | Attainment Level  |
|------------|--------------------------------------|---------------------------|-------------------|
| <b>PO1</b> | Technical Systems Management         | 75.8%                     | <b>High (H)</b>   |
| <b>PO2</b> | Creative Content Development         | 74.5%                     | <b>High (H)</b>   |
| <b>PO3</b> | Professionalism and Ethics           | 68.3%                     | <b>Medium (M)</b> |
| <b>PO4</b> | Continuous Learning and Adaptability | 72.0%                     | <b>High (H)</b>   |

## Analysis and Continuous Improvement Plan (CIP)

### 5.1 Attainment Analysis and Program Strengths

The B.Sc. N&M program excels in its core technical and creative mandate:

- **PO1 (Technical Management)** and **PO2 (Creative Development)** both achieved **High Attainment** (above 74%). This confirms the curriculum's success in teaching fundamental networking protocols (CO N1, CO N2) and practical multimedia design skills (CO M1, CO W1).
- **PO4 (Adaptability)** is also high, validating the use of **Web & App Development** frameworks (CO W1) and project-based learning to foster continuous skill updates.

### 5.2 Identified Areas for Improvement

The one area requiring focused intervention is the **Professionalism and Ethics domain**:

1. **PO3 (Ethics and Professionalism - 68.3%)**: The moderate score is primarily influenced by the lower attainment in **CO C1 (Cyber Security)** and the complexity of integrating soft skills into assessments (CO M2, CO W1). Students demonstrate technical skills but need stronger application of security best practices and ethical reasoning in project deployment.
2. **CO C1 (Cyber Security - 62%)**: This score suggests that mere theoretical understanding of security measures is not sufficient; practical implementation skills (e.g., configuring firewalls, secure coding practices) need deeper reinforcement.
3. **CO M2 (Multimedia Project - 68%)**: While technically sound, projects often lack the professionalism or ethical consideration (e.g., copyright, data privacy) expected in industry submissions.

### 5.3 Continuous Improvement Plan (CIP) for 2023-24

Based on the attainment evaluation and industry feedback, the Department has formulated the following actions:

| PO/CO Targeted         | Improvement Area                     | Action Plan for 2023-24                                                                           | Assessment Integration                                    |
|------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| <b>PO3 &amp; CO C1</b> | Cyber Security and Ethical Practices | <b>Mandatory Secure Coding Module</b> integrated into Web & App Development and practical labs on | <b>Practical Exam</b> (Checklist on secure configuration) |

| PO/CO Targeted         | Improvement Area                     | Action Plan for 2023-24                                                                                                                                      | Assessment Integration                           |
|------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
|                        |                                      | <b>network penetration testing using ethical tools.</b>                                                                                                      |                                                  |
| <b>PO3 &amp; CO M2</b> | Professionalism and Copyright Ethics | <b>Dedicated Project Review component (10% weight)</b> focusing solely on legal and ethical compliance (e.g., IP rights, data privacy policies).             | <b>Project Portfolio</b> (Rubric inclusion)      |
| <b>PO4</b>             | Internship and Industry Linkage      | Formalize the <b>Internship Feedback Form</b> with specific rating criteria for professionalism, communication, and adherence to industry best practices.    | <b>Indirect Assessment</b> (PO Attainment Input) |
| <b>PO1 &amp; PO2</b>   | Cross-Domain Application             | Mandate a final-year project that requires both <b>advanced network deployment</b> and <b>high-definition multimedia content delivery</b> over that network. | <b>Major Project</b> (Holistic Evaluation)       |