DEPARTMENT OF BIOTECHNOLGY
GOVT. DEGREE COLLEGE BARAMULLA

SEMESTER 8th (NEP) **MAJOR COURSE**

SUBJECT: BIOTECHNOLOGY

TITLE: BIOTECH COMMUNICATION: FROM LAB TO PUBLIC

Credit: (4+2: Theory-04; Practical-02) **Contact Hours:** 64 (T) + 64 (L)

Course Learning Objective: *This course aims to develop students' ability to communicate biotechnology concepts, research findings and implications effectively to diverse audiences using appropriate scientific, media, and digital tools with ethical responsibility.*

Course outcomes: *At the end of the course, students should be able to:*

1. *Explain key concepts and principles of biotechnology communication.*
2. *Interpret and present scientific information for both scientific and general audiences.*
3. *Develop communication materials using written, oral, and digital formats.*
4. *Apply ethical practices in scientific communication and address misinformation.*

UNIT I: (16 Hours)

Types of communication: scientific and public, verbal and non-verbal; Evolution of science communication models; Definition, scope, and importance of biotechnology communication; Role of biotech communication in public health, agriculture and environment; Principles of effective communication (7 C's: clarity, conciseness, concreteness, correctness, coherence, completeness, courtesy along with accuracy, transparency, and audience awareness); Audience segmentation (scientists, policymakers, industry, media, general public) and communication strategies.

UNIT II: (16 Hours)

Types of scientific literature (research papers, review articles, scientific reports); Structure and components of research papers; Reading, interpreting, and summarizing scientific papers; Scientific writing: abstracts, lay summaries, research briefs and research proposals (basic format); Popular Science writing; Presentations: designing posters, oral presentations; Use of digital tools (PowerPoint, Canva, etc); Visual communication: graphs, figures, info-graphics, data storytelling, Press releases and media kits for biotech discoveries.

UNIT III: (16 Hours)

Types of media (print and digital); Media writing (News/magazine articles, blogs, op-eds, features, FAQs); Audio-visual communication (podcasts, short videos for platforms like YouTube, Instagram); Use of social media platforms (X/Twitter, LinkedIn, Threads) for scientific communication; Role of media in biotechnology communication and its influence

in shaping biotech narratives (case examples: GMOs, vaccines); Development of social media strategies for scientists and researchers; Identification and prevention of misinformation and fake news (Example: GMOs, vaccine misinformation during Covid 19); Handling sensationalism and controversy.

UNIT IV: (16 Hours)

Professional etiquette and ethics in scientific communication; Ethical issues in biotech communication: sensationalism, bias, data integrity and responsible reporting; Personal branding and Professional profile building – resume/CV, interview preparation, professional email writing and LinkedIn basics; Science outreach and public engagement; Building public trust and engagement through effective messaging; Science-policy interface (communication with policymakers, regulators like DBT, ICMR); Writing policy briefs, position papers and concept notes. Industry communication: translation of research into applications.

PRACTICALS (2-Credits: 64 hours) Maximum Marks: 50, Minimum Marks: 20

1. Convert a Research Paper into: Lay summary, Infographic (manual and digital), Short video script or 2 min explainer.
2. Design a scientific poster and deliver oral presentation/flash talk
3. Group project to design a campaign around a biotech issue (e.g., vaccine awareness, GMOs, antimicrobial resistance). Draft a Press release or media brief.
4. Write a review paper/ research proposal.
5. Write Op-ed or blog post (800–1000 words)/ Policy brief or fact sheet on a biotech topic (e.g., CRISPR regulation in India).
6. Analyze biotech communication tools from companies or research institutes: brochures, websites, public announcements.

BOOKS RECOMMENDED

1. Burns, T. W., O'Connor, D. J., & Stocklmayer, S. M. (2003). *Science Communication: A Contemporary Definition*. Public Understanding of Science.
2. Fischhoff, B. (2013). *The Sciences of Science Communication*. Proceedings of the National Academy of Sciences (PNAS).
3. Baram-Tsabari, A., & Osborne, J. (2015). *Bridging Science Education and Science Communication Research*. Public Understanding of Science.
4. Day, R. A., & Gastel, B. (2012). *How to Write and Publish a Scientific Paper* (7th Edition). Cambridge University Press.
5. Alley, M. (2013). *The Craft of Scientific Presentations* (2nd Edition). Springer.
6. Bowater, L., & Yeoman, K. (2012). *Science Communication: A Practical Guide for Scientists*. Wiley-Blackwell.
7. **Online platforms**:
    - The Conversation (Science section)
    - Scientific American blogs
    - India Bioscience (Communication section)
    - Science Media Centre India