ST. JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

II SEMESTER **BIOTECHNOLGY** TIME: 4 Hrs/Week

BTH-Ma-2-2751 (2) **MICRO BIOLOGY & CELL BIOLOGY** Max. Marks: 60

W.e.f. 2023-24 admitted batch (23AK)

PRACTICAL SYLLABUS

OBJECTIVES: To enable the students to –

1. Learn about preparation of media for culturing of various microorganisms.
2. Learn about isolation of microorganisms from different sources.
3. Get the knowledge about staining techniques and biochemical identification of bacteria.
4. Be proficient about different stages of cell division.

COURSE OUTCOMES: Students will

- **CO1:** Get hands on experience on bio-safety instruments
- **CO2:** Be proactive at characterization of microbes
- **CO3:** Be expert in quantification of nucleic acids

COURSE:-

1. Cleaning and preparation of glassware
2. Preparation of nutrient agar medium for bacteria
3. Preparation of PDA medium for fungi
4. Sterilization techniques (autoclave, hot air oven, filter)
5. Isolation of bacteria from soil
6. Simple staining technique
7. Differential staining technique
8. Microbial counting by Haemocytometer
9. Identification of different bacteria
10. Motility test by hanging drop
11. Biochemical identification of bacteria
12. Preparation of pure culture by slab, slant, streak culture
13. Study of stages of cell division
14. Extraction and Isolation of DNA from bacteria.

REFERENCES

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3. Textbook of Microbiology, Anantnarayan and Paniker (2017) 4.

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5. Genes XI, 11th edition, (2012), Benjamin Lewin; Publisher - Jones and Barlett Inc. USA 6.
6. Molecular Biology of the Gene, 6th Edition, (2008), James D. Watson, J. D., Baker T.A., Bell, S. P., Gann, A., Levine, M., and Losick, R.; Cold Spring Harbour Lab. Press, Pearson Pub. 7.
7. Molecular Biology, 5th Edition, (2011), Weaver R.; McGraw Hill Science. USA 8.
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9. Molecular Biology: Genes to Proteins, 4th edition (2011), Burton E Tropp Jones& Bartlett Learning, USA. 10.
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VI. CO-Curricular Activities

a) **Suggested Co-Curricular Activities**

1. Assignments
2. Seminars, Group Discussions on related topics
3. Charts on Replication, cell cycle, cell signaling.

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