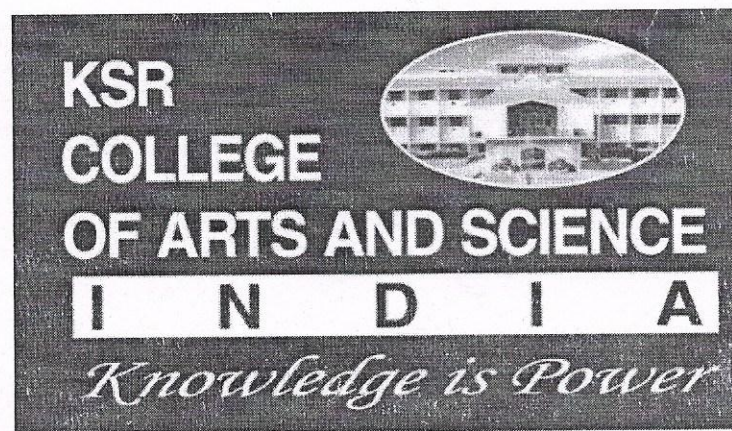



K.S.Rangasamy College of Arts and Science,
(Autonomous), Tiruchengode-637 215

DEPARTMENT OF MICROBIOLOGY

COURSES HAVING FOCUS ON EMPLOYABILITY/
ENTREPRENEURSHIP/ SKILL DEVELOPMENT PROGRAMME




PRINCIPAL
K. S. Rangasamy College of Arts & Science
(Autonomous)
TIRUCHENGODE - 637 215
Namakkal-Dt. Tamil Nadu, INDIA

**BACHELOR OF SCIENCE
(MICROBIOLOGY)**

K.S.Rangasamy College of Arts & Science, (Autonomous), Tiruchengode-637 215

Department of Microbiology

Courses having focus on Employability/ Entrepreneurship/ Skill Development Programme:

B.Sc., Microbiology

S.No.	COURSE CODE	COURSE NAME	Employability/ Entrepreneurship/ Skill Development	Content
1	18UMBMI01	Core I: Basics in Microbiology	Skill development	<p>II: Staining techniques: Staining types - Simple, Differential (Gram staining and Acid fast staining) and Special staining (Spore and Capsule staining).</p> <p>III: Culture techniques: Media preparation- culture media- types of media. Pure culture techniques - preservation of culture.</p> <p>Experiments (1 to 10): Handling, maintenance and care of bright field Microscope, glassware, Staining techniques, Media preparation, agar slants and agar deeps, culture techniques and Antibiotic sensitivity test.</p>
2	18UMBMP101	Core Practical I: Basics in Microbiology	Skill development	<p>II: DNA- DNA Hybridization - Protein sequencing - rRNA sequencing</p>
3	18UMBMP201	Core Practical II: Microbial Taxonomy and Physiology	Skill development	<p>Experiments (1 to 14): Measurement and motility of bacteria, Microscopic examination of cyanobacteria and fungi, biochemical test, effect of physical factors and Thermal Death Point and Thermal Death Time.</p>
4	18UMBMP201	Core Practical II: Microbial Taxonomy and Physiology	Skill development	<p>Experiments (1 to 08): Isolation of genomic DNA and plasmid DNA, DNA, RNA, Protein estimation, UV killing effect for bacteria, gradient and replica plate</p>
5	18UMBMP301	Core Practical III : Molecular Biology	Skill development	

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6	18UMBSB301	SBC I: Bioinstrumentation	Skill development	UNIT (1 to 5): Buffer, pH and Spectrometry, centrifugation, electrophoresis, chromatography and radioactivity. UNIT (2 to 5): Equipments and substrates in mushroom cultivation, Cultivation techniques, Storage of mushroom and Value added products from mushrooms. Experiments (1 to 10): ABO blood grouping, CRP, RA, ASO, RPR, WIDAL test, ELISA, Haemagglutination, Counter Immunoelectrophoresis and Double Immunodiffusion
7	18UMBAC301	Added on Course I: Mushroom Technology	Entrepreneurship	
8	18UMBMP401	Core Practical IV: Immunology	Skill development Employability	
9	18UMBSBP401	SBC Practical I: Bioinstrumentation	Skill development	Experiments (1 to 06): pH meter, Preparation of buffers, Estimation of chlorophyll pigment, Paper chromatography, bacterial pigment by Column chromatography and Thin Layer Chromatography
10	18UMBAC401	Add on Course II: Microbiology for Social Welfare	Entrepreneurship Employability	UNIT I: Antibiotics – Production of Streptomycin. Novel Microbial products- Production of human insulin. UNIT II: Algal fertilizers- Azolla as fertilizer. Composting – domestic waste, agricultural and industrial waste, vermi composting and organic farming. UNIT V: SCP production: Mushroom and Spirulina cultivation and its marketing. Probiotics and its use as animal feed.
11	18UMBAL401	Advance Learners Course I: Biofertilizer Technology	Employability Entrepreneurship	UNIT III: Isolation, purification, mass multiplication, formulation and crop response of inoculants - Rhizobium, Azotobacter and Azospirillum and phosphate solubilizer (Pseudomonas striata). UNIT IV: Isolation, purification, mass multiplication and application of cyanobacterial bioinoculants. Azolla - mass cultivation and its application.
12	18UMB502	Core VI: Environmental Microbiology	Employability	UNIT II: Potability of water quality – Indicator organisms – MPN index. Eutrophication. Waterborne diseases and their control measures. UNIT V: Mushroom, SCP. Biofuel production- bioethanol, biogas, hydrogen and algal fuel. Applications of GIS and RS in environmental monitoring. Microbial composting and Vermicomposting

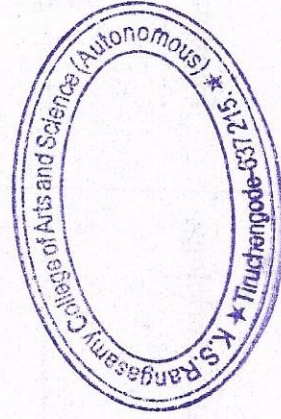
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13	18UMB503	Core VII: Soil and Agricultural Microbiology	Employability	<p>UNIT V: Mass multiplication, field application and crop response to Rhizobium, and Azospirillum. Mode of action, formulation and application methods of biopesticides Bacillus thuringensis and Breuvaria bassiana.</p> <p>UNIT II: Collection, transport, storage and processing of clinical samples: Blood, Urine, Sputum and Body fluids. Hospital acquired infection and their control.</p> <p>UNIT III: Diagnosis and control of Gram positive organisms.</p> <p>UNIT IV: Diagnosis and control of Gram positive organisms.</p> <p>UNIT V: Lab diagnosis of sexually transmitted organisms</p>
14	18UMB504	CORE VIII: Medical Bacteriology	Employability	<p>UNIT III: Laboratory diagnosis of intestinal amoebae, Blood and tissue flagellates and malarial parasite.</p> <p>UNIT V: Laboratory techniques in Parasitology: Examination of faeces - Direct and concentration methods. Blood smear examination - Cultivation of protozoan parasites, Serology and PCR techniques.</p>
15	18UMBEL501	Elective I: Medical Mycology and Parasitology	Skill development	<p>Experiments (1 to 13): Isolation of phages, egg inoculation, BOD, COD, MPN, phosphate solubilizing bacteria, Isolation of <i>Rhizobium</i> and <i>Azospirillum</i>, sputum, pus, urine, diarrhoeal and blood samples</p>
16	18UMBMP501	Core Practical V	Skill development	<p>UNIT III: Microbial Production: Biopolymers: Xanthan Gum. Adhesive biopolymer of yeast cell. Microbial synthesis of plant biopolymer. Human Interferon, Engineered human growth hormone and Insulin. Bioplastics.</p>
17	15UMBSBC501	SBC III: Microbial Technology	Employability	<p>UNIT IV: Microbial Production: Production of medicinal mushroom <i>Ganoderma lucidum</i>, <i>Cordyceps militaris</i>. Mold modified Foods- Soy Sauce, Miso, Hamanatto, Sufu, Tempeh. Probiotics.</p>
18	18UMB601	Core IX: Fermentation Technology	Entrepreneurship	<p>UNIT III: Recovery and purification of intra cellular and extracellular products.</p> <p>UNIT IV: Industrial production of alcoholic beverages: Preparation of substrate, fermentation and recovery of Wine and Beer.</p>

19	18UMBM603	Core XI: Food And Dairy Microbiology	Employability	<p>UNIT V: Industrial production of antibiotics: Inoculum preparation, fermentation and recovery of Penicillin and Streptomycin. Citric acid – Surface culture and submerged process using <i>Aspergillus niger</i>.</p> <p>UNIT V: Quality control of milk: MBRT, Litmus milk and Phosphatase tests. Quality assurance: Microbiological quality standards of food. Government regulatory practices and policies- HACCP and ISO.</p>
20	18UMBEL602	Elective II: Basic and Applied Botany	Entrepreneurship	<p>UNIT V: Entrepreneurial Botany: Production of biodiesel from <i>Jatropha</i>, Biocontrol agent production from <i>Neem</i>. Oyster Mushroom cultivation. Bee Keeping- Sericulture/Oriiculture. Plant breeding: Conventional plant breeding methods and its applications.</p>
21	18UMBMP601	Core Practical VI	Employability	<p>Experiments (4 to 8): Milk quality control, citric acid production, Amylase production</p>


HOD

HEAD
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Principal
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