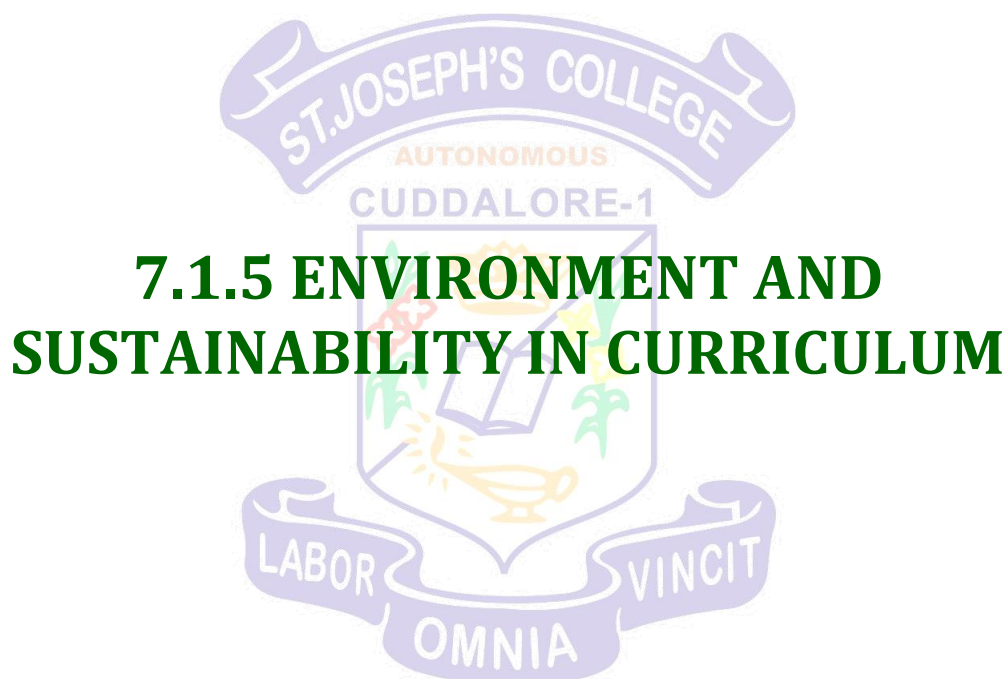




St. Joseph's College of Arts & Science (Autonomous)
Cuddalore – 607 001, Tamil Nadu.

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Institution integrates cross-cutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability and other value framework enshrined in Sustainable Development Goals and National Education Policy – 2020 into the Curriculum

COURSES FOCUS ENVIRONMENT AND SUSTAINABILITY

| Programme Name | Course Code | Name of the Course | Activities/Content with a direct bearing on Employability/ Entrepreneurship/ Skill development |
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| B.B.A. | 19BB301 | Production Management | Factors influencing Plant Location – Plant Layout and its kinds - Store Keeping |
| B.B.A. | 19BB603 | Strategic Management | Environmental scanning and analysis |
| B.Sc. Biochemistry | 19EBC51B | Toxicology & Phytomedicine | Environmental Impact of Pesticides. |
| B.Sc. Computer Science | ECS616B | Advance Computer Technologies | Understand the basic need and ways of Computer Technologies. Understanding the basics of Smart Devices |
| B.Sc. Computer Science | 19ECS52A | Data Communication Networks | Basics of Networks and Internetworks-Known about different transmission medium with error correction and detection-internetworking devices and routing algorithm |
| B.Sc. Computer Science | 19ECS52B | Electronic Commerce | Electronic Payment-various security policies-About the Internet Applications for E-commerce |
| M.Sc. Computer Science | 19EPCS35A | Cyber Forensics | Appropriate Forensic Tools and Techniques are used to extract relevant digital evidence for preserving its integrity. |



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| M.Sc. Computer Science | 19EPCS35B | E-Business | Understand the challenges and dynamics of each E-Learning process education and industries help better to Manage Operations |
| M.Sc. Computer Science | PCS913P | Cloud Computing | To Design & develop backup strategies for cloud data based on features and also to understand the concept of security and key components of AWS |
| M.Sc. Computer Science | 21PCS912 | Basics of Machine Learning | To understand fundamentals of Machine Learning and to utilization Machine Learning in building dynamics of Research Applications |
| B.Com. Commerce | EPCM705A | Managerial Economics | Helps Students to understand Circular Economy and take Business Decisions in India. |
| B.A. History | HI102S | Tourism: Concepts and Principles | Eco Tourism, Government Policies and Programme. Elements of Tourism. Tourism Organizations: Objective and role of ITDC,TIDC,ASI,TFCI |
| B.Sc. Microbiology | 19EMB51A | Environmental Microbiology | Microbiology of air –Droplet, droplet nuclei, aerosols - air sanitation - airborne diseases- Microflora of water - lakes, ponds, rivers, ocean, estuary, ground water - Waterborne diseases - Eutrophication, Waste water treatment - primary, secondary (anaerobic and aerobic - trickling, activated sludge, oxidation pond) - Sludge digestion - Disposal - Drinking water treatment - chlorination - Microbiological standards of water, Water pollution – indicators of water pollution – BOD, COD; techniques for the study of water pollution; Composting; Bioremediation - types, importance, advantages and applications, bioleaching, Microbial biofilm |



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| B.Sc. Microbiology | 19EMB51B | Algal Technology | Biofuel from algae - <i>Haematococcus</i> and <i>Botryococcus</i> . |
| B.Sc. Microbiology | 19SMB51A | Bioremediation | Pollution - Types of pollution; Pollutants - Types of pollutants; Acid mine drainage; Bioaccumulation and biomagnifications; Bioremediation - definitions, different strategies, Types of bioremediation, advantages and limitations, Phytoremediation, Bioremediation of soil and effluents; Bioreactors - Advantages and disadvantages; Biodegradation of oil spill in marine environment; Biosorption of heavy metals, Anaerobic bioremediation of Hydrocarbons, Phenols, Chlorinated phenolic compounds, Polycyclic Aromatic Hydrocarbon (PAH), Dyes and Radioactive wastes. |
| B.Sc. Microbiology | 19SMB51D | Entrepreneurial Microbiology | Chemical fertilizers versus biofertilizers, organic farming |
| B.Sc. Microbiology | 19MB613 | SOIL AND AGRICULTURAL MICROBIOLOGY | Soil – physical and chemical properties; soil microorganisms, Role of microbes in soil fertility, Microbial interactions with plants - Mycorrhizae, Rhizosphere, Phyllosphere, Organic matter decomposition - humus formation - Biodegradation of pesticides in the soil, Biogeochemical cycles - carbon, phosphorus, sulphur, Iron and nitrogen cycles; Nitrogen fixation – symbiotic and free living; Biofertilizers - Types (bacterial and algal), Examples and advantages; Biopesticides - types (bacterial, fungal and viral), Examples and advantages, |



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| B.Sc. Microbiology | 19MB616 | BIOTECHNOLOGY | Biofuel, Biodiesel. |
| B.Sc. Microbiology | 19MBP603 | APPLIED MICROBIOLOGY PRACTICAL | Enumeration of bacteria from water sample ,Coliform count in water (MPN Technique) ,Presence/Absence test for coliforms in water , |
| B.Sc. Microbiology | 20EZ513A | BIOFERTILIZER TECHNOLOGY | Microbial interactions in soil- positive and negative interactions |
| M.Sc. Applied Microbiology | 21PMB14 | Microbial Ecology | Atmosphere - Microbiology of air, droplet nuclei, aerosols, enumeration of microorganisms in air, air sanitation, Laboratory hazards, airborne diseases, Interaction of microorganisms with their physical and chemical environments; marine ecosystem - mangroves, estuaries, deep seas and hydrothermal vents; fresh water ecosystem - lakes, rivers, ponds; terrestrial ecosystem - rock and soil, prairie, forest, tundra; extreme environments - hot springs, glaciers and acid-mine drainage; interaction of microorganisms with plants, animals and microorganisms, Biogeochemical cycles - carbon, nitrogen, sulfur, iron, and phosphorus cycles; adaptation of microorganisms to toxic pollutants; biodegradation of xenobiotics (pesticides, heavy metals, hydrocarbons) – mechanisms, Waste water treatment - primary, secondary (anaerobic and aerobic - trickling, activated sludge, oxidation pond), Sludge digestion, Disposal; Drinking water treatment – chlorination; Microbiological standards of water; Water pollution - indicators of water pollution - BOD – COD - techniques |



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| | | | for the study of water pollution; Waterborne diseases, Composting – landfills; Bioleaching of metals; Biodeterioration of paint, textile and leather; biofouling; Biofilms; Microbial enhanced oil recovery. |
| M.Sc. Applied Microbiology | 21PMBP11 | Lab Course-I | Enumeration of total coliform by MPN method, Enumeration of faecal coliform by MPN method, Membrane filter technique, Biochemical oxygen demand, Nitrogen cycle, ammonification, nitrification, denitrification |
| M.Sc. Applied Microbiology | 21EPM26A | Methods in Biology | Methods of estimating population density of animals and plants, ranging patterns through direct, indirect and remote observations, sampling methods in the study of behavior, habitat characterization-ground and remote sensing methods. |
| M.Sc. Applied Microbiology | 21PMB31 | Soil and Agricultural Microbiology | Soil- Chemical and physical properties of soil -Types- Soil as a habitat for microbes - Microflora of various soil types-Influence of soil and environmental factors on soil microflora - Role of microorganisms in soil fertility- Interaction among soil microorganisms- Interaction between plants and microorganisms - Rhizosphere, Phyllosphere, Microorganisms in soil process - Carbon cycle, Nitrogen cycle, Iron cycle, Phosphorus cycle - Nitrogen fixation, Problems associated with chemical pesticides |
| M.Sc. Applied Microbiology | 21PMP33 | Lab Course-III | Enumeration of bacteria from soil, Enumeration of fungi from soil, Isolation and enumeration of Azospirillum from soil, Isolation and enumeration of Azotobacter from soil |



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| M.Sc. Applied Microbiology | 21PMB41 | Microbial Biotechnology | Biotechnological methods for environmental monitoring – Recalcitrant xenobiotics - Biodegradation (hydrocarbons, pesticides, herbicides); Bioremediation – contaminated soils and water; marine oil pollutants; Microbes in mining, Ore leaching. |
| B.C.A. | CA407A | Internet Technologies | Discuss the features of World wide website, Electronic Payment system and identify various security issues related to Internet and E-commerce |
| B.C.A. | 19GCA52A | Organization Behaviour | Study various types of environments like Social environment, Physical environment, Cultural environment, Political environment and Economical environment that affects human behaviour within an organization. |
| B.C.A. | 19GCA52B | Entrepreneurial Development | Relates with the study of how the environment affects and influences the enterprise. |
| B.A., B.Sc., B.C.A., B.Com., B.B.A. | VE101A | Value Education | Attitude introduction, attitude formation, social factors, Learning Theory of Attitude Change |
| B.A., B.Sc., B.C.A., B.Com., B.B.A. | EPD201A | Dynamics of Personality | Physical Environment, familial determinants, cultural factors, pro-social behavior and altruism, ways to enhance mental health |
| M.Sc. Information Technology | 18PIT12 | Introduction to Information Technology | Introduction to computers, Computers softwares, Network communications, Network applications. |
| M.Sc. Information Technology | PIT13 | Web Technologies | Understanding the basic concepts of HTML, CSS, JavaScript, ASP.net along with ADO.net |



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| M.Sc. Information Technology | 18PIT21 | Object Oriented Programming using JAVA | Understanding the OOP concepts, AWT packages, technical relating to RMI and Servlets |
| M.Sc. Information Technology | 18PIT22 | Relational Database Management System | RDBMS basics, Query language basics, PL/SQL concepts |
| M.Sc. Information Technology | 18EPIT24 | Cloud Computing | Knowledge on basics of cloud computing, developing cloud services, cloud security and challenges. |
| M.Sc. Information Technology | 18EPIT24A | Big Data Analytics | Gaining proficiency in the basics of big data, hadoop architecture, hadoop ecosystem and yarn, basics of Hive, hiveQL and HBASE |
| M.Sc. Information Technology | EPIT24B | Data Mining | Essentials of Data mining and data warehousing, techniques of data mining, cluster and outlier detection. |
| M.Sc. Information Technology | 19EPIT33 | Internet of Things | Understanding the basics of Internet of Things, IOT market perspectives, IOT technologies, state of Art architecture, and knowledge in commercial building automation. |
| M.Sc. Information Technology | 18EPIT33A | Ethical Hacking | Basics knowledge in the basic of information security, hacking, attacks on information highway, defenses in information highway, concepts of ethical hacking |
| M.Sc. Information Technology | 18EPIT33B | Digital Image Processing | Knowledge on Digital images and techniques, image enhancement ideas, image restoration techniques, degrees of image resolution and compression methods, image representation and recognition. |
| M.Sc. Information Technology | 18EPIT34 | Distributed Operating Systems | Understanding the basics of distributed operating systems, inter-process communications, synchronization |



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| | | | in distributed systems, processor allocation and real time systems, file system and shared memory. |
| M.Sc. Information Technology | 18EPIT34A | Artificial Intelligence | Understanding the essentials of artificial intelligence, heuristic search techniques, using predicate logic, natural language processing, perception and action. |
| M.Sc. Information Technology | 18EPIT34B | Machine Learning | Knowledge about machine intelligence and machine learning applications, strengths and weakness of machine learning approaches, supervised and unsupervised machine learning paradigms. |
| B.Sc. Physics | 18EPPH45 | Astronomy and Astrophysics | Helps to understand the Cosmology and the Universe |
| B.Sc. Physics | 19EPH52A | Geophysics | This course is designed to know the information about the Earth and Solar System, the interpretation of Mathematical functions in Geographical fields, the Magnetic field on Earth and the concepts of Seismology. |
| B.Sc. Physics | 19PH614 | Astrophysics | All the contents of the course explains the History of Astronomy, Celestial Mechanics, the concepts of Astronomical Instrumentation, acquire knowledge of Stellar Magnitudes, Colors and Structure |
| B.Sc. Physics | 19EPH63B | Energy Physics | Study about the Conventional Energy Sources, learn about the Non-Conventional Energy Source, acquire knowledge of Biomass Energy, be familiar with the Geothermal Energy, apply the knowledge of Energy Storage and impacts of Non-Conventional Energy |



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| B.Sc. Physics | 19SSPH52 | Physics in Everyday life | This course develops a Scientific thirst among students also helps to understand the concepts of nature |
| M.Sc. Physics | EPPH24A | Physics of nanomaterials | This course explore the environmental impact of material usage and nanotechnology, stressing the importance of sustainable practices in scientific research and application. |
| M.Sc. Physics | 18EPPH43 | Materials Science | The course address the role of physics in developing sustainable technologies and practices to mitigate environmental challenges. |
| B.Sc. Physics | 19PH203 | Thermal Physics | This course discuss about the physical processes affecting the environment, such as energy flow, climate change, and pollution. |
| M.Sc. Physics | 18PPH33 | Condensed Matter Physics | Describes the materials science applications in renewable energy during lectures on semiconductor physics or crystallography. |
| B.Sc. Physics | 19PH101 | Properties of matter | The study of material properties is directly relevant to environmental sustainability. Understanding the properties of materials such as thermal conductivity, strength, and durability is crucial for developing sustainable materials and technologies. |
| B.Sc. Physics | 19PH102 | Mechanics | The application of mechanics in the development of sustainable technologies, like wind turbines, solar panels, and energy-efficient transportation systems. |
| B.Sc. Physics | 19PH204 | Waves and Oscillations | The principles of waves and oscillations are applied in real-world scenarios, such as disaster management, telecommunications, and medical imaging. Include |



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| | | | analyses of the societal, environmental, and ethical dimensions of these applications. |
| B.Sc. Physics | 19PH305 | Electricity and Magnetism | Analyze the environmental impact of electromagnetic fields (EMFs) from power lines, telecommunications, and other sources. |
| B.Sc. Physics | 19PH509 | Optics & Spectroscopy | Optics and spectroscopy have significant applications related to environmental monitoring and sustainability: Spectroscopic techniques are widely used for analyzing air and water quality, detecting pollutants, and monitoring environmental changes |
| B.Sc. Physics | 19PH613 | Nuclear & Radiation Physics | The role of nuclear energy in providing low-carbon electricity and its potential benefits for climate change mitigation. Discussions may include the advantages and challenges of nuclear power, including safety, waste management, and environmental impact. Radiation Protection: The study of radiation protection and safety protocols to minimize environmental and health impacts from radiation. |
| M.Sc. Physics | 18EPPH25 | Medical Physics | Medical physics involves the use of radiation and imaging technologies that have environmental impacts. |
| M.Sc. Physics | 18EPPH44 | Electronic Instrumentation | Consideration of the environmental impact of biomedical devices, including material usage, energy consumption, and disposal. |
| B.Sc. Biochemistry | 19EBC51B | Toxicology & Phytomedicine | Environmental Impact of Pesticides. |



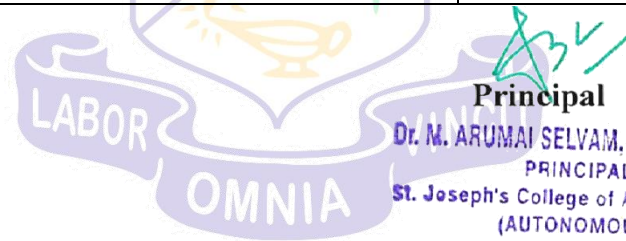
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| B.Com. Commerce | CM409A | Banking Law and Practice | Innovation of Banking Technologies |
| B.A. Tamil | 19ATA305 | Sithar Ilakkiyam | Sithargal Aruliya Maruthuvam |
| B.A. Tamil | 17TA407 | Kaapiyangal | Seeraa Puranam- Vudumbu Pesiya Padalam, Kamba Ramayanam-Kumbakarnan Vadhai Padalam |
| B.A. Tamil | 19TA407 | Samaya Ilakkiyam | Veeramamuni- Thembavani- Neer Varam Adaindhadhu |
| B.A. Tamil | 19ATA101 | Tamizhaga Varalaarum Makkal Panpaadum | Sindhuveli Agazhvaraichi- Pandaya Thamizharin Ayal Naattu Thoderbugal, Pandaya Thamizharin Vazhkkai Nerigal, Perarusugalin Valarchi -Veezhchi |
| B.A. Tamil | 19TA101 | Ikala Ilakkiyam | Barathiyar, Barathidasan, Sirukathai Jayakanthan |
| B.A. Tamil | 19ETA512 | Natupuraviyal | Pirapu Muthal Irapu Varai, Sagunam, Thalatu |
| B.A. Tamil | 19TA615 | Sanga Ilakkiyam | Nartinai, Kurinji Patu, Purananooru |
| B.A. Tamil | 19ATA202 | Tamizhaga Varalaarum Makkal Panpaadum | Solargal, Pandiyargal, Irubatham Noortandu |
| M.S.W. | PSW11A | Social Work Profession | Ecology and Environment - Disaster or Crisis Management and Rehabilitation |



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| M.S.W. | 19PSW14 | Community Organization and Social Action | Community Organization In Emergencies Like Fire, Famine, Flood, Drought, Earthquake And War |
| M.S.W. | 21PSW23 | Social Policy and Social Legislation | Policies and Programmes in India: Environment |
| M.S.W. | EPSW25A | Sociology for Social Works | Environment Issues: Climate Change, protection of water bodies |
| M.S.W. | EPSW25B | Disaster Management | Types and Effects Of Disaster |
| M.S.W. | EPSW25C | Environmental Social Work | Introduction To Environment And Environmental Studies, Natural Resources, Biodiversity and its conservation, Social Issues and the Environment from unsustainable to sustainable development |
| M.S.W. | 19PSW31A | Rural And Tribal Community Development | Problems related to agriculture |
| M.S.W. | 22PSW32A | Urban Community Development | Environmental issues |
| M.S.W. | 19PSW42A | Community Development Management | Water shed Management, Waste Land Development |
| M.S.W. | 20PSW42C | Community Health | Environmental Protection Act 1986 |
| M.A. English | PEN31A | Feminist Theory and Practice | All the contents of the course helps to understand feminist theories and get familiar with the major concepts and theories of gender studies. Also to |



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| | | | Develop a critical understanding of gender inequalities and social injustice. This course relates theory and practice through deep insight that frame a new outlook and skill for a better change in the society. |
| M.A. English | PEN34A | Subaltern Literature | This course comprehends the problems of marginalized people and how to take care of indigenous people around the world. It helps to perceive complicatedness of Women and how they are suppressed doubly. Inculcates the students to raise their voice for Women and against Gender Discrimination. |
| M.A. English | EEN512A | Commonwealth Literature | The course contents helps to develop Human character, Emphasize the equal relationship as independent nations. |
| M.A. English | EN509A | Eco Literature | The course delves into the part of literature that deals with nature and its sources in order to nurture and learn from it. |



Principal

Dr. M. ARUMAI SELVAM, M.Sc., M.Phil., Ph.D.,

PRINCIPAL

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