Amrita University's Amrita Values Programme (AVP) is a new initiative to give exposure to students about richness and beauty of Indian way of life. India is a country where history, culture, art, aesthetics, cuisine and nature exhibit more diversity than nearly anywhere else in the world.

Amrita Values Programmes emphasize on making students familiar with the rich tapestry of Indian life, culture, arts, science and heritage which has historically drawn people from all over the world.

Post-graduate students shall have to register for any one of the following courses, second semester, which may be offered by the respective school.

**Courses offered under the framework of Amrita Values Programme**

**Art of Living through Amma**

Amma’s messages can be put to action in our life through pragmatism and attuning of our thought process in a positive and creative manner. Every single word Amma speaks and the guidance received in on matters which we consider as trivial are rich in content and touches the very inner being of our personality. Life gets enriched by Amma’s guidance and She teaches us the art of exemplary life skills where we become witness to all the happenings around us still keeping the balance of the mind.

**Insights from the Ramayana**

Historical significance of Ramayana, the first Epic in the world – Influence of Ramayana on Indian values and culture – Storyline of Ramayana – Study of leading characters in Ramayana – Influence of Ramayana outside India – Misinterpretation of Ramayana by Colonial powers and its impact on Indian life - Relevance of Ramayana for modern times.

**Insights from the Mahabharata**

Historical significance of Mahabharata, the largest Epic in the world – Influence of Mahabharata on Indian values and culture – Storyline of Mahabharata – Study of leading characters in Mahabharata – Kurukshetra War and its significance – Importance of Dharma in society – Message of the Bhagavad Gita - Relevance of Mahabharata for modern times.

**Insights from the Upanishads**

Introduction: Sruti versus Smriti - Overview of the four Vedas and the ten Principal Upanishads - The central problems of the Upanishads – Ultimate reality - the nature of Atman - the different modes of consciousness - Sanatana Dharma and its uniqueness - The Upanishads and Indian Culture – Relevance of Upanishads for modern times – A few Upanishad Personalties: Nachiketas, Satyakama Jabala, Aruni, Shvetaketu.

**Insights from Bhagavad Gita**


**Swami Vivekananda and his Message**

Brief Sketch of Swami Vivekananda’s Life – Meeting with Guru – Disciplining of Narendra - Travel across India - Inspiring Life incidents – Address at the Parliament of Religions – Travel in United States and Europe – Return and reception India – Message to Indians about our duties to the nation.

**Great Spiritual Teachers of India**

Sri Rama, Sri Krishna, Sri Buddha, Adi Shankaracharya, Sri Ramanujacharya, Sri Madhvacharya, Sri Ramakrishna Paramahamsa, Swami Vivekananda, Sri Ramana Maharshi, Mata Amritanandamayi Devi

**Indian Arts and Literature:**

The aim of this course is to present the rich literature and culture of Ancient India and help students appreciate their deep influence on Indian Life - Vedic culture, primary source of Indian Culture – Brief introduction and appreciation of a few of the art forms of India - Arts, Music, Dance, Theatre, Paintings, Sculpture and architecture – the wonder language, Sanskrit and ancient Indian Literature

**Importance of Yoga and Meditation in Life:**

The objective of the course is to provide practical training in YOGA ASANAS with a sound theoretical base and theory classes on selected verses of Patanjali’s Yoga Sutra and Ashtanga Yoga. The coverage also includes the effect of yoga on integrated personality development.

**Appreciation of Kerala’s Mural Art Forms:**

A mural is any piece of artwork painted or applied directly on a wall, ceiling or other large permanent surface. In the contemporary scenario Mural painting is not restricted to the permanent structures and are being done even on canvas. A distinguishing characteristic of mural painting is that the architectural elements of the given space are harmoniously incorporated into the picture. Kerala mural paintings are the frescos depicting mythology and legends, which are drawn on the walls of temples and churches in South India, principally in Kerala. Ancient temples, churches and places in Kerala, South India, display an abounding tradition of mural paintings mostly dating back between the 9th to 12th
Practicing Organic Farming
Life and nature are closely linked through the healthy practices of society for maintaining sustainability. When modern technological knowhow on microorganisms is applied in farming using the traditional practices we can avoid damage to the environment. The course will train the youth on modern practices of organic farming. Amma says “we have to return this land to the coming generations without allowing even the slightest damage to happen to it”. Putting this philosophy to practice will bring about an awakening and enthusiasm in all to strive for good health and to restore the harmony in nature.

Ancient Indian Science and Technology
Science and technology in ancient and medieval India covered all the major branches of human knowledge and activities, including mathematics, astronomy, physics, chemistry, medical science and surgery, fine arts, mechanical, civil engineering, architecture, shipbuilding and navigation. Ancient India was a land of sages, saints and seers as well as a land of scholars and scientists. The course gives an awareness on India’s contribution to science and technology.

15CSA701

RESEARCH METHODOLOGY

Course Description: The research methodology module is intended to assist students in planning and carrying out research projects. The students are exposed to the principles, procedures and techniques of implementing a research project. The course starts with an introduction to research and carries through the various methodologies involved. It continues with finding out the literature using computer technology and ends with knowing the tools used for data analysis in various systematical way, and writing the report, paper using LaTeX s/w.

Course Learning Outcome: Define research and describe the research process and research methods; Understand and apply basic research methods including research design, data analysis, and interpretation.

Unit 1

Introduction - meaning of research - objectives of research - motivation in research - types of research - research approaches - significance of research - research methods versus methodology - research and scientific method - importance of knowing how research is done - research processes - criteria of good research - defining research problem - selecting the problem - necessity of defining the problem - techniques involved in defining a problem - research design - meaning of research design - need for research design - features of good design - different research designs - basic principles of experimental design.

Unit 2

Resources for research - research skills – time management - role of supervisor and scholar - interaction with subject experts. Thesis Writing: The preliminary pages and the introduction - the literature review - methodology - the data analysis - the conclusions - the references (IEEE format).

Unit 3


Unit 4


Unit 5

LaTeX and Beamer: Writing scientific report - structure and components of research report - revision and refining' - writing project proposal - paper writing for international journals, submitting to editors - conference presentation – preparation of effective slides, pictures, graphs - citation styles.

TEXTBOOKS:

REFERENCE BOOKS
5. Ranjit Kumar, Research Methodology – A step by step guide for beginners, Second edition, Pearson

Arts and Sciences
Amrita Vishwa Vidyapeetham
SYLLABUS
15CSA702
ADVANCED COMPUTING TECHNIQUES

Course Description: This paper gives insights into the fundamental and emerging technologies in Computer Science.

Course Learning Outcome: Creating awareness of the new research arenas and open problems.

Unit 1
Advanced Operating Systems: Virtual memory management, Synchronization and communication, Distributed Operating System.

Unit 2

Unit 3

Unit 4

Unit 5

* Subjected to change based on recent trends.

TEXTBOOKS:
2. Fradeep K. Sinha, Distributed Operating Systems PHI, 2004

RECOMMENDED READINGS:

15CSA731
CLOUD COMPUTING TECHNIQUES

Unit 1

Unit 2

Unit 3

Unit 4

Unit 5

TEXTBOOKS/ REFERENCES:
15CSA732 DATA ANALYTICS 3 0 2 4

Prerequisites: This course requires that you are familiar with high-school level linear algebra, and calculus. Knowledge of probability theory, statistics, and programming is desirable.

Unit 1
Introduction to data analytics (DA), data preparation, data cleaning. Data types and measures of similarity, Data Preprocessing and numerosity reduction, Data Governance.

Unit 2


Unit 4
Supervised Learning with Regression and Classification Techniques 1: Bias-Variance Dichotomy, Model Validation Approaches, Logistic Regression, Linear Discriminant Analysis, Quadratic Discriminant Analysis, Regression and Classification Trees, Support Vector Machines.

Supervised Learning with Regression and Classification techniques 2: Ensemble Methods: Random Forest, Neural Networks, Deep learning.

Unit 5
Unsupervised Learning and Challenges for Big Data Analytics: Clustering, Associative Rule Mining, Challenges for big data analytics.

Prescriptive analytics: Creating data for analytics through designed experiments, Creating data for analytics through Active learning, Creating data for analytics through Reinforcement learning. (R, Weka or any tool)

REFERENCES:

15CSA733 MOBILE AND WIRELESS TECHNOLOGIES 3 0 2 4

Objectives: The purpose of this course is to provide an introduction to modern digital mobile and wireless communication systems.

Unit 1
GSM – Mobile services, system architecture, Radio interface, protocols, Localization and calling, Handover, security – 27 - 31 GPRS, HSCDC.

Unit 2
Wireless LAN: IEEE 802.11, system architecture – IEEE - 802.11

Unit 3
Protocol architecture, physical layers, medium access control layers, MAC management 802.11b, 802.11a, Hiper LAN.

Unit 4
Bluetooth, Adhoc network, sensor network - Mobile IP, DHCP.

Unit 5

TEXTBOOKS:
1. Mobile Communications by Jochen Schiller, Pearson Education 2nd Edition
2. Wireless communications & Networks by William stallings.

15CSA734 SCIENCE COMMUNICATION TECHNIQUES 3 0 2 4

Objective: This course is for those who want to train as professional science communicators. Academic components provide a broad overview of the professional science communication landscape. The course includes print journalism, new media work, broadcast television or radio production and presentation.
Unit 1
Science Communication - an introduction - Professional scientific communication - History of science and technology communication theory, laws and ethics.

Unit 2
Need for science communication - Importance and use of science communication - Sources of scientific information - books, scientific reports, scientific journals, magazines, feature syndicates, leaflets, tabloids, wall magazines, speeches, seminars, press releases, databases, encyclopedias on science, etc - Comparative study of science sections and supplements carried in Indian/foreign newspapers and science magazines.

Unit 3

Unit 4

Unit 5
Science Broadcasting - New Media and Science Communication - Internet - Blogs - Alternative Media and Science Communication.

TEXTBOOKS:
• Anthony Wilson, "Handbook of Science Communication", IOP
• Kahlor, Lee Ann, Communicating Science, Routledge Publishers

REFERENCES:
• Dubas O and Martel L, "Media Impact. A Research Study on Science Communication"

Unit 1
Artificial Intelligence - a Brief Review - Pitfalls of Traditional AI - Need for Computational Intelligence - Importance of Tolerance of Imprecision and Uncertainty - Constituent Techniques - Overview of Artificial Neural Networks - Fuzzy Logic - Evolutionary Computation.

Unit 2

Unit 3
Neural Networks as Associative Memories - Hopfield Networks, Bidirectional Associative Memory. Topologically Organized Neural Networks – Competitive Learning, Kohnen Maps,

Unit 4

Unit 5
Evolutionary Computation - Overview of other Bio-inspired Algorithms - Swarm Intelligence Algorithms

TEXTBOOKS/REFERENCES:

Unit 1
SYLLABUS

M. Phil. in Computer Science

2016 admissions onwards

Unit 2

Unit 3

Unit 4

Unit 5

TEXTBOOK:

15CSA737

VISUAL COMMUNICATION

3 0 2 4

Unit 1
Necessity and importance of Human and Visual Communication, Communication as expression, skill and process, Understanding Communication: SMRC-Model.

Unit 2
Communication as a process- Message, Meaning, Connotation, Denotation Culture/Codes etc., Levels of communication: Technical, Semantic, and Pragmatic. The semiotic landscape: language and visual communication, narrative representation.

Unit 3

Unit 4
Principles of Visual and other Sensory Perceptions - Color psychology and theory (some aspects) Definition, Optical/Visual Illusions, etc. Various stages of design process - problem identification, search for solution refinement, analysis, decision making, and implementation.

Unit 5
Basics of Graphic Design - Definition, Elements of GD, Design process-research, a source of concept, the process of developing ideas-verbal, visual, combination & thematic, visual thinking, associative techniques, materials, tools (precision instruments etc.) design execution, and presentation.

REFERENCES: