DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAM OUTCOME

B.Sc. Information Technology programs make the students employable and impart industry oriented training. The students will learn:

PO1: To think analytically, creatively and critically in developing robust, extensible and highly maintainable technological solutions to simple and complex problems.

PO2: To apply their knowledge and skills to be employed and excel in IT professional careers and/or to continue their education in IT and/or related post graduate programmes.

PO3: To be capable of managing complex IT projects with consideration of the human, financial and environmental factors.

PO4: To work effectively as a part of a team to achieve a common stated goal.

PO5: To adhere to the highest standards of ethics, including relevant industry and organizational codes of conduct.

PO6: To communicate effectively with a range of audiences both technical and non-technical.

PO7: To develop an aptitude to engage in continuing professional development.

PROGRAMME SPECIFIC OUTCOMES

This program covers industry relevant courses. The students will be ready for the jobs available in different fields like:

- Software Development (Programming)
- Website Development
- Mobile app development
- Internet of Things
- Software Testing
- Networking
- Database Administration
- System Administration
- Cyber Law Consultant
- GIS (Geographic Information Systems)
- IT Service Desk
- Security
- Technical communication skills
- Green IT and many others

COURSE OUTCOMES:

F.Y.B.Sc. IT (SEM I)		
Course name	**Number**	**Outcome**
Paper 1 – Imperative Programming	CO1	Learn the basic principles of programming.
	CO2	Develop logic using algorithms and flowchart.
	CO3	Acquire the information about data types.
	CO4	Understanding of input and output functions.
	CO5	Enhance advanced concepts using programs.
Paper 2 – Digital Electronics	CO1	Apply number conversion techniques in real digital systems
	CO2	Solve boolean algebra expressions
	CO3	Derive and design logic circuits by applying minimization in SOP and POS forms
	CO4	Design and develop Combinational and Sequential circuits
	CO5	Understand and develop digital applications
Paper 3 – Operating System	CO1	Understand operating system and its types.
	CO2	Learn about memory management.
	CO3	Learn input output hardware and software and deadlock.
	CO4	Understand virtualization & multiprocessors
	CO5	Case studies on linux, android & widows
Paper 4 – Discrete Mathematics	CO1	Use logical notation and Perform logical proofs
	CO2	Apply recursive functions and solve recurrence relations

	CO3	Use graphs and trees
	CO4	Apply basic and advanced principles of counting
	CO5	Define sets and Relations
	CO6	Calculate discrete probabilities.
Paper 5 – Communication Skills	CO1	Analyze, synthesize and utilize the process and strategies from delivery to solving communication problems.
	CO2	Learn the communication methodologies at the workplace and learn about the importance of team collaboration.
	CO3	Learn about different technical communication such as presentations and interviews.
	CO4	Understand and apply the art of written communication in writing reports, proposals.
	CO5	Ground rules of ethical communication and MIS.
	CO6	Understand the functions of graphs, maps, charts.

F.Y.B.Sc. IT (SEM II)		
Course name	**Number**	**Outcome**
Paper 1 – Object oriented Programming	CO1	Understand the concept of OOPs, features of C++ language.
	CO2	Understand and apply various types of Datatypes, Operators, Conversions while designing the program.
	CO3	Understand and apply the concepts of Classes & Objects, friend function, constructors & destructors in program design.
	CO4	Design & implement various forms of inheritance, String class, calling base class constructors.
	CO5	Apply & Analyze operator overloading, runtime polymorphism, Generic Programming.
	CO6	Analyze and explore various Stream classes, I/O operations and exception handling.
Paper 2 – Microprocessor Architecture	CO1	Understand the basic concepts of Micro Computer Systems
	CO2	Understand the architecture and hardware aspects of 8085
	CO3	Write assembly language programs in 8085
	CO4	Design elementary aspects of Micro Controller based systems
	CO5	Interfacing peripherals using Microcontroller
Paper 3 – Web Programming	CO1	Analyze the working of the Internet.
	CO2	Gain an insight into designing web pages.
	CO3	Use different ways of styling web pages using CSS.
	CO4	Implement basic and complex functionalities of JavaScript in a web page.

	CO5	Employ PHP Scripts to execute dynamic tasks in a web page.
	CO6	Perform various database tasks using PHP.
Paper 4 – Numerical and Statistical Methods	CO1	Understand numerical techniques to find the roots of nonlinear equations and solution of systems of linear equations.
	CO2	Understand the difference operators and the use of interpolation.
	CO3	Understand numerical differentiation and integration and numerical solutions of ordinary and partial differential equations.
	CO4	Find fast and accurate solutions to simple and complex numerical problems using different techniques.
Paper 5 – Green Computing	CO1	Understand the concept of Green IT and problems related to it.
	CO2	Know different standards for Green IT.
	CO3	Understand how power usage can be minimized in Technology.
	CO4	Learn about how the way of work is changing.
	CO5	Understand the concept of recycling.
	CO6	Know how information systems can stay Green Information systems.

S.Y.B.Sc. IT (SEM III)		
Course name	**Number**	**Outcome**
Paper 1 – Python Programming	CO1	Learn about python programming and its structure.
	CO2	Learn implementation of function
	CO3	Understand different datatypes in python
	CO4	Implementation of OOP concepts in python
	CO5	Learn about GUI using python language
	CO6	Learn how to make database connectivity in python
Paper 2 – Data Structures	CO1	Learn about Data structures, its types and significance in computing
	CO2	Explore about Abstract Data types
	CO3	Abstract Data types implementation
	CO4	Ability to program various applications using different data structure
	CO5	Ability to various applications
Paper 3 – Computer Networks	CO1	Learn basics of computer network and its OSI model. Study Physical layer and its services.
	CO2	How does transmission occur? Its medium ad switching.
	CO3	Working of Data link layer, MAC & Virtual LAN
	CO4	Learn various services of network layer with routing/ router.
	CO5	Study transport and application layer through FTP, Email, Telnet, DNS.
Paper 4 – Database Management Systems	CO1	Define and describe the fundamental elements of relational database management systems.
	CO2	To relate the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.

	CO3	Design ER-models to represent simple database application scenarios.
	CO4	Transform the ER-model to relational tables, populate relational databases and formulate SQL queries on data.
	CO5	Improve the database design by normalization
	CO6	Understand basic database storage structures and access techniques: file and page organizations, indexing methods and hashing.
Paper 5 – Applied Mathematics	CO1	Solve Matrices and Complex Numbers
	CO2	Calculate Equation of the first order and of the first degree
	CO3	Understand The Laplace Transform and Inverse Laplace Transform
	CO4	Calculate Multiple Integrals and Applications of integration
	CO5	Understand Beta and Gamma Functions and DUIS

S.Y.B.Sc. IT (SEM IV)		
Course name	**Number**	**Outcome**
Paper 1 – Core Java	CO1	Understand about its history and structure of core java and its datatypes.
	CO2	How to implement control flow statement and iteration in core java
	CO3	Implementation of OOP concepts in core java
	CO4	GUI implements using core java
Paper 2 – Introduction to Embedded Systems	CO1	Understand the concept of embedded systems. Study hardware and software attributes of ES.
	CO2	Examples of Embedded systems. Improve knowledge about memory units used in any Embedded system.
	CO3	Study architecture of 8051 and programming in Embedded C.
	CO4	Understand the structure of Embedded programs and find the factors to be considered for selecting a controller.
	CO5	Learn about RTOS. Develop the knowledge about designing and development process of ES.
Paper 3 – Computer Oriented Statistical Techniques	CO1	Calculate The Mean, Median, Mode, and Other Measures of Central Tendency
	CO2	Perform The Standard Deviation and Other Measures of Dispersion
	CO3	Learn about Elementary Probability Theory
	CO4	Learn about Statistical Decision Theory
	CO5	Learn about The Chi-Square Test and Small Sampling Theory
	CO6	Understand about Curve Fitting and the Method of Least Squares

Paper 4 – Software Engineering	CO1	Plan a software engineering process life cycle, including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements
	CO2	Analyze and translate a specification into a design, and then realize that design practically, using an appropriate software engineering methodology.
	CO3	Know how to develop the code from the design and effectively apply relevant standards and perform testing, and quality management and practice
	CO4	Able to use modern engineering tools necessary for software project management, time management and software reuse.
	CO5	Able to develop software
Paper 5 – Computer Graphics and Animation	CO1	Understand computer graphics and scan conversion techniques.
	CO2	Learn 2D and 3D transformations.
	CO3	Understand viewing in 3D , Colour and Light
	CO4	Learn techniques for visible surface determination.
	CO5	Understand computer animation.

T.Y.B.Sc. IT (SEM V)		
Course name	**Number**	**Outcome**
Paper 1 – Software Project Management	CO1	To learn and understand the Concepts of Software Project Management, Understand the project evaluation and programme management
	CO2	To learn and understand selection of an Appropriate Project Approach and choosing right methodology
	CO3	To apply the project management and analysis principles to software project development
	CO4	To learn and understand the Concepts of monitoring and controlling project
	CO5	Understand the concepts of project teams and quality
Paper 2 – Internet of Things	CO1	Take an overview of IoT. Understand the principles of connected devices and basics of internet system.
	CO2	Visualize the prototype making process of IoT product and the Embedded system
	CO3	Get started with prototyping online components for IoT.
	CO4	Study different software for writing embedded coding. Understand the business model in manufacturing and producing an IoT product
	CO5	Movement from conceptualization to production. Understand the ethics during the business process of an IoT product.
Paper 3 – Advanced Web Programming	CO1	Introduction to .NET and learn C# language.
	CO2	Understanding web form fundamentals.
	CO3	Learn Error handling and tracing , how to create master pages , skins and themes.
	CO4	Understanding ADO.NET fundamentals and data controls.
	CO5	Understand XML and AJAX.

Paper 4 – Linux System Administration	CO1	Learn about linux based operating system and its architecture
	CO2	To configure different network server in linux
	CO3	To configure different file sharing server in linux
	CO4	Understand how to manage users in linux operating system
Paper 5 – Enterprise Java	CO1	Understand the concepts related to Java Technology
	CO2	Explore and understand use of Java Server Programming
	CO3	Knowledge of input, its processing and getting suitable output.
	CO4	To develop JPA application
	CO5	To develop Hybernate application

T.Y.B.Sc. IT (SEM VI)		
Course name	**Number**	**Outcome**
Paper 1 – Software Quality Assurance	CO1	Understand Historical Perspective of Quality
	CO2	To learn and understand the concepts of testing
	CO3	To learn unit testing and table based testing
	CO4	To learn and understand software verification and validation model
	CO5	To learn special tesitng and level of testing
Paper 2 – Security in Computing	CO1	Identify required security Methodology in any organization and risk analysis
	CO2	Understand the concepts of authentication and authorization, encryption in storing of data and its access
	CO3	Introduction to Secure Network Design, and study of hardware and software components used in it
	CO4	Learn about Intrusion Detection and Prevention Systems, VoIP and PBX.
	CO5	Understand Virtual Machines and Cloud Computing. Identify Secure Application Design and physical security.
Paper 3 – Business Intelligence	CO1	Understand the core concept of Business intelligence and Decision support systems
	CO2	Decide about the mathematical model used for decision making. Learn about data mining and data preparation
	CO3	Classify and cluster the methods for problem solving
	CO4	Understand different business intelligence applications.

	CO5	Study knowledge management in BI. Understand the benefits of using Artificial Intelligence in business.
Paper 4 – Enterprise Networking	CO1	Learn General network design and network design models.
	CO2	Learn Enterprise LAN design and data center design.
	CO3	Understand WAN design & WAN Technologies.
	CO4	Learn IPV4 and IPV6 design
	CO5	Understand how to manage security and related protocols.
Paper 5 – Cyber Laws	CO1	Study of power of arrest without warrant under the IT act 2000.
	CO2	To learn contracts in the infotech world.
	CO3	To study copyright protection in the cyber world.
	CO4	Understand e-commerce, digital signature, E-governance.
	CO5	Study the Indian Evidence Act of 1872 vs. Information Technology Act 2000.

Satyajit

HOD IT

PRINCIPAL
Smt. Indirabai G.Kulkarni Arts,
J. B. Sawant Science and
Sau.Jenabhai Dhondo Kunte Commerce
College, Alibag-402 201, Dist. Raigad