



JSS MAHAVIDYAPEETHA
JSS COLLEGE FOR WOMEN

DOUBLE ROAD, CHAMARAJANAGAR : 571 313

Affiliated to the University of Mysuru

Reaccredited by NAAC with 'A' Grade.

UG	BCA
	BSC – Computer Science

Program Outcomes and Course Outcomes

Choice Based Credit System – 2019

Bachelor of Computer Applications (BCA): (3 Years) Degree

Curriculum

Sem	Core Courses	Hour / Week		DS Elective Courses / SEC
		Theory	Lab	
1	i. Computer Concepts & C Programming ii. Digital Electronics & Computer Organization iii. Discrete Transformations iv. LAB: C Programming v. LAB: Digital Electronics & Computer Organization	4 4 4	4 4	
2	i. Data Structures & File Processing ii. System Software & Operating Systems iii. Fundamentals of Information Technology iv. LAB: Data Structures using C v. LAB: System Software & FIT	4 4 4	4 4	
3	i. Object Oriented Programming with JAVA ii. Operation Research iii. Accounting iv. LAB: Programming using JAVA v. LAB: Tally	4 4 4	4 4	
4	i. Database Management Systems ii. Numerical & Statistical Analysis iii. Data Communication & Computer Networks iv. LAB: DBMS lab v. LAB: Numerical & Statistical Lab	4 4 4	4 4	
5	i. Elective I ii. Elective II iii. Elective III iv. SEC – I v. SEC – II	4 4 4 1 1 3	4 2 2	(a) Network Security (b) Software Testing (c) Cloud computing & Big Data Analytics (d) Digital Image Processing (e) SEC -I DTP (f) SEC – II LATEX
6	i. Elective I ii. Elective II iii. SEC – III iv. SEC – IV v. Project	4 4 1 1	4 2 2 4	(g) Software Engineering (h) .NET Programming (i) Computer Graphics & Animation (j) Web Technology (k) SEC - III Python (l) SEC – IV Android

Program Outcomes:

- Work effectively both as an individual and a team leader on multi-disciplinary projects.
- Inculcates the ability to analyze, identify, formulate and develop computer applications using modern computing tools and techniques.
- Improve communication skills to effectively present technical information in oral and written reports.
- Create design innovative methodologies for solving complex/ real life problems for the betterment of the society.
- Integrate ethics and values in designing computer application.
- Promote the use of open-source technology.
- Become an educated, ethical and responsible citizens
- Develop competence to write competitive examinations
- Demonstrate skill of Computer Applications in Data Structures and Programming Languages, Databases, Software Engineering, Computer Networking, Cyber Security, Web designing, Image Processing, Big data analysis, etc.

Course Outcomes:

Semester I :

Course: Computer Concepts & C Programming (DSC – 1)

Course Outcomes (COs):

After completing this course satisfactorily, a student will be able to:

- Understand, analyze and apply computing knowledge to develop appropriate solution.
- Learn to develop algorithms.
- Learn and enhance Programming skills.
- Learn to develop IT based solutions to meet the user need.

Course: Digital Electronics & Computer Organization (DSC – 2)

Course Outcomes (COs):

After completing this course satisfactorily, a student will be able to:

- Understand basics of digital electronics and various number systems.
- Understand the functioning of various IC circuits.
- Understand the functional organization of a computer system.

Course: Discrete Transformation (DSC – 3)

Course Outcomes (COs):

After completing this course satisfactorily, a student will be able to:

- Learn the concepts of Set theory.
- Understand the concepts of graph theory and apply to solve real time problems.
- Learn the concepts of Trees, Tree Traversal, Spanning Trees, Minimum Spanning Trees.
- Understand Mathematical Induction & Recursion

Semester II:

Course: Data structures and file processing (DSC – 4)

Course Outcomes (COs):

After completing this course satisfactorily, a student will be able to:

- Understand the basic data structure, classification, applications and memory representation.
- Learn the implementation of trees as non-primitive data structure using linked list representation.
- Learn to develop programs to illustrate operations as creation, insertion, deletion, display, searching, sorting, traversing etc on data structure.
- Understand the characteristics of storage devices.

Course: System Software and Operating System (DSC – 5)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn and understand the machine architecture, assembler and Loaders.
- Differentiate software and their functions.
- Learn about the functions of operating system.
- Learn scheduling and deadlock concepts.
- Understand various memory management techniques.

Course: Fundamentals of Information Technology (DSC – 6)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn basic components of a digital computer and their functions using block diagram.
- Learn about the generations of digital computers.
- Understand the various input and output devices.
- Understand the primary and secondary storage devices.
- Differentiate hardware, software.
- Learn the basics of computer network, types of network as LAN, WAN, MAN
- Functioning of Internet, WWW, E-Mail, E-commerce, EDI, etc.
- Understand Cyber law, cyber crime & Cyber banking.

SEMESTER III:

Course: Object Oriented Programing Using Java (DSC – 7)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn java features and the evolution of Java.
- Understand the java support systems, java environment, java virtual machine.
- Learn to develop java program to solve various problems.
- Learn to develop java programs using decision statements, looping statements.
- Learn to develop java program to implement class, interfaces, inheritance, Multithreading, using various packages.
- Develop programs using Applets and the GUI components of JAVA.

Course: Operation Research (DSC – 8)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Understand the term operation research, basic concepts of operation research, its principles of modeling, features.
- Using LPP to solve problems and obtain optimum solutions.
- Learn to use simplex method, graphical method to solve LPP.
- Learn to solve problems using two-Phase method, Big-M method.
- Learn various methods to solve transportation problems and assignment problems.
- Learn the basic concepts and methods of game theory.

Course: Accounting (DSC – 9)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Understand basic concepts, principles and conventions of accounting.
- Learn about Various methods of book keeping.
- Learn to prepare final accounts.
- Solve problems of financial management, fund flow statement and budgetary control.

SEMESTER IV:

Course: Database management systems (DSC-10)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basics concepts of database systems and architecture.
- Understand the various data models, schemas and instances.
- Learn about the transaction, its states etc.
- Understand relational data model, constraints and relational algebra
- Learn the Codd's Rules.
- Learn to develop SQL statements to implement the database functions.

Course: Numerical and statistical analysis (DSC-11)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn about the computer arithmetic and how numbers is represented using floating point representation.
- Learn the concept and importance of normalization and its consequences.
- Learn to find roots using iterative methods such as bisection method, newton Raphson, secant method.
- Using gauss Jordon, gauss elimination and gauss seidel method to solve simultaneous linear equations.
- Solving ordinary diferenttial equations using euler's method, runge kutta 2nd and 4th order.
- Learn the statistical methods as mean, median, mod, standard deviation etc.

Course: Data Communication and Computer Networks (DSC-12)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basics of data communication and networking.

- Understand the different mods of communication, guided and unguided media.
- Differentiate digital and analog signals using various transmission methods.
- Using hamming code for error detection.
- Learn about different layers of protocols as IP, FIP, TELNET, POP3, IPV\$, IPV6 etc.
- Understand the usage of Routers, gateway services for inter-networking and intra-networking.

SEMESTER V:

Course: Cloud Computing & Big Data Analytics (Elective -I)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Understand the need and benefits of cloud computing.
- Learn about the cloud solutions and how the cloud service provider designs the cloud infrastructure to match the client needs.
- Learn about how the client can choose the appropriate cloud to satisfy his business needs.
- Understand cloud and virtualization.
- Learn about various cloud deployment models, cloud services etc.
- Understand big data, the big data acquisition, big data management, sources of big data.
- Learn the data preprocessing and analytics techniques with some real world examples.

Course: Digital Image Processing (Elective -II)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Understand the fundamentals of digital image, its representation on digital computers.
- Learn the image enhancement techniques.
- Learn image restoration and color image processing concepts as noise models, filtering etc.
- Understand the color fundamentals, segmentation models and transmission.
- Lean the different techniques of image compression.

Course: Network Security (Elective -III)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Understand the basics of security over network.
- Learn the different Cryptographic Attacks, Services and Mechanism.
- Learn the usage of traditional symmetric key ciphers.
- Understand the use of Encipherment using Modern Symmetric-Key Ciphers
- Learn the cryptography hash functions, digital signature, symmetric key distributions etc.

Course: DTP (SEC-1)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basics page layout, tools and workspace.
- Learn to create labels, pamphlets, bill books, greeting cards etc.
- Learn different drawing shapes and graphics.

Course: Latex (SEC-2)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn to install latex software.
- Understand the basics of latex.
- Learn to create documents using latex.

SEMESTER VI:

Course: .NET Programming (Elective -IV)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basic concepts of object oriented programming and the features of C#.
- Implementing the oops concepts using C#.
- Develop program to implement expressions, operators, decisions, looping statements, string handling, array list.
- Learn to develop program to implement inheritance and polymorphism, overloading.
- Understand the usage of delegates and events and exception handling.
- Learn to develop programs using the GUI component of C# to create web pages.
- Learn to develop programs to link C# program and the database.

Course: Web Technology (Elective -V)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basics of web, internet, WWW, web browsers, web servers.
- Learn XHTML syntax and components and to develop web pages.
- Understand the CSS.
- Learn to program web page using javascript.
- Learn how to link javascript and html documents to create web pages.
- Understand and learn the PHP.
- Using the HTML, XHTML, JavaScript, PHP, the student can learn to develop a web site of his own.

Course: Project

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the necessary skills to understand and analyze the needs to develop a project in Computer Science as a team work.
- Learn about literature survey techniques and its implementation in the project.
- Improve communication skills and effective presentations.
- Learn to write reports.

Course: Python (SEC-3)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basic concepts of Python language.
- Learn to write program using python datatypes, user defined functions, decision and looping statements, conditional and unconditional statements.
- Learn to develop python program using fruitful functions, strings, lists, tuples and dictionaries.

Course: Android (SEC-4)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basics of mobile technology.
- Learn the features of android as an open platform to develop mobile applications.
- Learn to write android program to develop simple calculator, quiz gaming, etc.

Bachelor of Computer Science (BSc): (3 Years) Degree Curriculum

Sem	Core Courses	Hour / Week		DS Elective Courses / SEC
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2	iii. Data Structures & File Processing iv. LAB: Data Structures using C	4	4	
3	v. Object Oriented Programming with JAVA vi. LAB: Programming using JAVA	4	4	
4	vii. Database Management Systems viii. LAB: DBMS lab	4	4	
5	ix. Elective I x. LAB : Elective I xi. SEC – I xii. LAB: SEC - I	4 1	4 2	<ul style="list-style-type: none"> Numerical and statistical analysis Computer graphics and animations System software and operating systems SEC -I DTP SEC – II LATEX
6	vi. Elective II vii. LAB : Elective II viii. SEC – II ix. LAB: SEC – II	4 1	4 2	<ul style="list-style-type: none"> Web Programming .Net Programming Data Communication and computer networks SEC - III Python SEC – IV Android

Program Outcomes:

- Conduct himself as a responsible citizen.
- Apply fundamental knowledge of Physics, Mathematics and Computer Science to solve real life problems in their chosen domain.
- Understand, analyze, identify, formulate and design computer based solution to solve the real world problems using modern computing tool and techniques
- Demonstrate skill of Computer Science in Data Structures and Programming Languages, Databases, Software Engineering, Computer Networking, Cyber Security.
- Develop competence to write competitive examinations.

- Work as a member of a team and communicate effectively across team members.
- Inherent skills with absolute focus to function as a successful entrepreneur.

Course Outcomes:

Semester I :

Course: Computer Concepts & C Programming (DSC – 3 A)

Course Outcomes (COs):

After completing this course satisfactorily, a student will be able to:

- Understand, analyze and apply computing knowledge to develop appropriate solution using C programming language.
- Learn to develop algorithms and design flowchart.
- Learn and enhance Programming skills.
- Learn to develop IT based solutions to meet the user need.

Semester II:

Course: Data structures and file processing (DSC – 3 B)

Course Outcomes (COs):

After completing this course satisfactorily, a student will be able to:

- Understand the basics of data structures, classification, applications and memory representation in computer system.
- Learn the implementation of trees as non-primitive data structure using linked list representation and the basic operations to be performed on trees.
- Learn to develop programs to illustrate operations as creation, insertion, deletion, display, searching, sorting, traversing etc on data structure.
- Understand the characteristics of primary and secondary storage devices.

SEMESTER III:

Course: Object Oriented Programing Using Java (DSC – 3 C)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn java features and the evolution of Java programming language as a pure OOP language.
- Understand the java support systems, java environment, java virtual machine and its importance.

- Learn to develop java program to solve various problems.
- Learn to develop java programs using decision statements, looping statements.
- Learn to develop java program to implement class, interfaces, inheritance, Multithreading, using various packages and other java components.
- Develop programs using Applets and the GUI components of JAVA.

SEMESTER IV:

Course: Database management systems (DSC-3 D)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basics concepts of database systems and architecture.
- Understand the various data models, schemas and instances.
- Learn about the transaction, its states etc.
- Understand relational data model, constraints and relational algebra
- Learn the Codd's Rules.
- Learn to develop SQL statements to implement the database functions.

Semester V:

Course: System Software and Operating System (DSC – 5)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn and understand the machine architecture, assembler and Loaders.
- Differentiate software and their functions.
- Learn about the functions of operating system.
- Learn scheduling and deadlock concepts.
- Understand various memory management techniques.

Course: DTP (SEC-1)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basics page layout, tools and workspace.
- Learn to create labels, pamphlets, bill books, greeting cards ets.
- Learn different drawing shapes and graphics.

Semester VI:

Course: Web Programming (Elective -II)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basics of web, internet, WWW, web browsers, web servers.
- Learn XHTML syntax and components and to develop web pages.
- Understand the CSS.
- Learn to program web page using javascript.
- Learn how to link javascript and html documents to create web pages.
- Understand and learn the PHP.
- Using the HTML, XHTML, JavaScript, PHP, the student can learn to develop a web site of his own.

Course: Python (SEC-2)

Course Outcomes (Cos):

After completing this course satisfactorily, a student will be able to:

- Learn the basic concepts of Python language.
- Learn to write program using python datatypes, user defined functions, decision and looping statements, conditional and unconditional statements.
- Learn to develop python program using fruitful functions, strings, lists, tuples and dictionaries.