



# The Javery Engineering College

(Approved by AICTE, New Delhi & Affiliated to Anna University)  
Mecheri, Mettur Tk. Salem Dt - 636 453.

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## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### PROGRAMME: B.E. COMPUTER SCIENCE AND ENGINEERING

#### VISION

- ❖ To cultivate creative and disciplined computing professionals with the spirit of benchmarking educational system.

#### MISSION

- ❖ To provide academic environment for the development of skilled professionals with adequate knowledge in computer science.
- ❖ To cultivate research culture that contributes sustainable development of the society.
- ❖ To enhance academic collaboration for entrepreneurship development.

#### PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- ❖ Apply their technical competence in computer science to solve real world problems, with technical and people leadership.
- ❖ Conduct cutting edge research and develop solutions on problems of social relevance.
- ❖ Work in a business environment, exhibiting team skills, work ethics, adaptability and lifelong learning.

#### PROGRAM OUTCOMES (POs)

- ❖ Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- ❖ Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- ❖ Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal,



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and environmental considerations.

- ❖ Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- ❖ Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- ❖ The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- ❖ Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- ❖ Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- ❖ Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- ❖ Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- ❖ Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- ❖ Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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## PROGRAM SPECIFIC OUTCOMES (PSOs)

- ❖ Exhibit design and programming skills to build and automate business solutions using cutting edge technologies.
- ❖ Strong theoretical foundation leading to excellence and excitement towards research, to provide elegant solutions to complex problems.
- ❖ Ability to work effectively with various engineering fields as a team to design, build and develop system applications.

## COURSE OUTCOMES (COs)

<b>Regulation</b>	2021
<b>Sem</b>	01
<b>Subject Code</b>	HS3151
<b>Subject Name</b>	Professional English - I
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To listen and comprehend complex academic texts To read and infer the denotative and connotative meanings of technical texts</li><li>• To write definitions, descriptions, narrations and essays on various topics</li><li>• To speak fluently and accurately in formal and informal communicative contexts</li><li>• To express their opinions effectively in both oral and written medium of communication</li></ul>

<b>Regulation</b>	2021
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<b>Sem</b>	01
<b>Subject Code</b>	MA3151
<b>Subject Name</b>	Matrices And Calculus
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use the matrix algebra methods for solving practical problems. Apply differential calculus tools in solving various application problems.</li><li>• Able to use differential calculus ideas on several variable functions.</li><li>• Apply different methods of integration in solving practical problems.</li><li>• Apply multiple integral ideas in solving areas, volumes and other practical problems.</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	01
<b>Subject Code</b>	PH3151
<b>Subject Name</b>	Engineering Physics



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<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand the importance of mechanics. Express their knowledge in electromagnetic waves.</li><li>• Demonstrate a strong foundational knowledge in oscillations, optics and lasers.</li><li>• Understand the importance of quantum physics</li><li>• Comprehend and apply quantum mechanical principles towards the formation of energy bands.</li></ul>
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<b>Regulation</b>	2021
<b>Sem</b>	01
<b>Subject Code</b>	CY3151
<b>Subject Name</b>	Engineering Chemistry
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water. To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications.</li><li>• To apply the knowledge of phase rule and composites for material selection requirements.</li><li>• To recommend suitable fuels for engineering processes and applications.</li><li>• To recognize different forms of energy resources and apply them for suitable applications in energy sectors.</li></ul>

<b>Regulation</b>	2021
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<b>Sem</b>	01
<b>Subject Code</b>	GE3151
<b>Subject Name</b>	Problem Solving And Python Programming
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Develop algorithmic solutions to simple computational problems.</li><li>• Develop and execute simple Python programs.</li><li>• Write simple Python programs using conditionals and loops for solving problems.</li><li>• Decompose a Python program into functions.</li></ul>
<b>Regulation</b>	2021
<b>Sem</b>	01
<b>Subject Code</b>	GE3171
<b>Subject Name</b>	Problem Solving And Python Programming Laboratory
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Develop algorithmic solutions to simple computational problems</li><li>• Develop and execute simple Python programs.</li><li>• Implement programs in Python using conditionals and loops for solving problems.</li><li>• Deploy functions to decompose a Python program.</li><li>• Process compound data using Python data structures.</li><li>• Utilize Python packages in developing software applications.</li></ul>



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<b>Regulation</b>	2021
<b>Sem</b>	01
<b>Subject Code</b>	BS3171
<b>Subject Name</b>	Physics Laboratory
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Understand the functioning of various physics laboratory equipment.</li><li>• Use graphical models to analyze laboratory data.</li><li>• Use mathematical models as a medium for quantitative reasoning and describing physical reality.</li><li>• Access, process and analyze scientific information.</li><li>• Solve problems individually and collaboratively.</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	01
<b>Subject Code</b>	BS3171
<b>Subject Name</b>	Chemistry Laboratory



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<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To analyze the quality of water samples with respect to their acidity, alkalinity, hardness and DO.</li><li>• To determine the amount of metal ions through volumetric and spectroscopic techniques</li><li>• To analyze and determine the composition of alloys.</li><li>• To learn simple method of synthesis of nanoparticles</li><li>• To quantitatively analyze the impurities in solution by electro analytical techniques</li></ul>
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<b>Regulation</b>	2021
<b>Sem</b>	02
<b>Subject Code</b>	HS3251
<b>Subject Name</b>	Professional English - II
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• To compare and contrast products and ideas in technical texts. To identify cause and effects in events, industrial processes through technical texts</li><li>• To analyze problems in order to arrive at feasible solutions and communicate them orally and in the written format.</li><li>• To report events and the processes of technical and industrial nature.</li><li>• To present their opinions in a planned and logical manner, and draft effective resumes in context of job search.</li></ul>





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<b>Regulation</b>	2021
<b>Sem</b>	02
<b>Subject Code</b>	MA3251
<b>Subject Name</b>	Statistics And Numerical Methods
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Apply the concept of testing of hypothesis for small and large samples in real life problems.</li><li>• Apply the basic concepts of classifications of design of experiments in the field of agriculture.</li><li>• Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.</li><li>• Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.</li><li>• Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	02
<b>Subject Code</b>	PH3256
<b>Subject Name</b>	Physics For Information Science



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<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Gain knowledge on classical and quantum electron theories, and energy band structures.</li><li>• Acquire knowledge on basics of semiconductor physics and its applications in various devices.</li><li>• Get knowledge on magnetic properties of materials and their applications in data storage, have the necessary understanding on the functioning of optical materials for optoelectronics understand the basics of quantum structures and their applications and basics of quantum computing</li></ul>
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<b>Regulation</b>	2021
<b>Sem</b>	02
<b>Subject Code</b>	BE3251
<b>Subject Name</b>	Basic Electrical And Electronics Engineering
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Compute the electric circuit parameters for simple problems</li><li>• Explain the working principle and applications of electrical machines Analyze the characteristics of analog electronic devices</li><li>• Explain the basic concepts of digital electronics</li><li>• Explain the operating principles of measuring instruments</li></ul>

<b>Regulation</b>	2021
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<b>Sem</b>	02
<b>Subject Code</b>	GE3251
<b>Subject Name</b>	Engineering Graphics
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use BIS conventions and specifications for engineering drawing.</li><li>• Construct the conic curves, involutes and cycloid.</li><li>• Solve practical problems involving projection of lines.</li><li>• Draw the orthographic, isometric and perspective projections of simple solids.</li><li>• Draw the development of simple solids.</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	02
<b>Subject Code</b>	CS3251
<b>Subject Name</b>	Programming In C
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Demonstrate knowledge on C Programming constructs</li><li>• Develop simple applications in C using basic constructs</li><li>• Design and implement applications using arrays and strings C Develop and implement modular applications in C using functions.</li><li>• Develop applications in C using structures and pointers.</li><li>• Design applications using sequential and random access file processing.</li></ul>



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<b>Regulation</b>	2021
<b>Sem</b>	02
<b>Subject Code</b>	GE3271
<b>Subject Name</b>	Engineering Practices Laboratory
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.</li><li>• Wire various electrical joints in common household electrical wire work.</li><li>• Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts;</li><li>• Assemble simple mechanical assembly of common household equipments; Make a tray out of metal sheet using sheet metal work. Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	02
<b>Subject Code</b>	CS3271
<b>Subject Name</b>	Programming In C Laboratory



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<b>Regulation</b>	2021
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Demonstrate knowledge on C programming constructs.</li> </ul>
<b>Sem</b>	02
<b>Subject Code</b>	GE3272
<b>Subject Name</b>	Communication Laboratory
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Develop programs in C using basic constructs.</li> <li>• Develop programs in C using arrays.</li> <li>• Develop applications in C using strings, pointers, functions.</li> <li>• Develop applications in C using structures.</li> <li>• Speak effectively in group discussions held in formal/semi formal context.</li> <li>• Develop applications in C using file processing.</li> <li>• Write emails and effective job applications.</li> </ul>

<b>Regulation</b>	2021
<b>Sem</b>	03
<b>Subject Code</b>	MA3354
<b>Subject Name</b>	Discrete Mathematics
<b>Course Outcome</b>	<ul style="list-style-type: none"> <li>• Have knowledge of the concepts needed to test the logic of a program.</li> <li>• Have an understanding in identifying structures on many levels.</li> <li>• Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.</li> <li>• Be aware of the counting principles.</li> <li>• Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.</li> </ul>



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<b>Regulation</b>	2021
<b>Sem</b>	03
<b>Subject Code</b>	CS3352
<b>Subject Name</b>	Foundations Of Data Science
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Define the data science process</li><li>• Understand different types of data description for data science process</li><li>• Gain knowledge on relationships between data</li><li>• Use the Python Libraries for Data Wrangling</li><li>• Apply visualization Libraries in Python to interpret and explore data</li></ul>



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<b>Regulation</b>	2021
<b>Sem</b>	03
<b>Subject Code</b>	CS3301
<b>Subject Name</b>	Data Structures
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Define linear and non-linear data structures.</li><li>• Implement linear and non-linear data structure operations.</li><li>• Use appropriate linear/non-linear data structure operations for solving a given problem.</li><li>• Apply appropriate graph algorithms for graph applications.</li><li>• Analyze the various searching and sorting algorithms.</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	03
<b>Subject Code</b>	CS3391
<b>Subject Name</b>	Object Oriented Programming
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Apply the concepts of classes and objects to solve simple problems.</li><li>• Develop programs using inheritance, packages and interfaces</li><li>• Make use of exception handling mechanisms and multithreaded model to solve real world problems</li><li>• Build Java applications with I/O packages, string classes, Collections and generics concepts</li><li>• Integrate the concepts of event handling and JavaFX components and controls for developing GUI based applications</li></ul>



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<b>Regulation</b>	2021
<b>Sem</b>	03
<b>Subject Code</b>	CS3311
<b>Subject Name</b>	Data Structures Laboratory
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Implement linear data structure algorithms.</li><li>• Implement applications using Stacks and Linked lists</li><li>• Implement Binary Search tree and AVL tree operations.</li><li>• Implement graph algorithms.</li><li>• Analyze the various searching and sorting algorithms.</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	03
<b>Subject Code</b>	CS3381
<b>Subject Name</b>	Object Oriented Programming Laboratory
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Design and develop java programs using object oriented programming concepts</li><li>• Develop simple applications using object oriented concepts such as package, exceptions</li><li>• Implement multithreading, and generics concepts</li><li>• Create GUIs and event driven programming applications for real world problems</li><li>• Implement and deploy web applications using Java</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	03





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<b>Subject Code</b>	CS3361
<b>Subject Name</b>	Data Science Laboratory
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Make use of the python libraries for data science</li><li>• Make use of the basic Statistical and Probability measures for data science.</li><li>• Perform descriptive analytics on the benchmark data sets.</li><li>• Perform correlation and regression analytics on standard data sets</li><li>• Present and interpret data using visualization packages in Python.</li></ul>

<b>Regulation</b>	2021
<b>Sem</b>	03
<b>Subject Code</b>	GE3361
<b>Subject Name</b>	Professional Development
<b>Course Outcome</b>	<ul style="list-style-type: none"><li>• Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding</li><li>• Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.</li></ul>



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