

**Programme Matrix: Bachelor of Science - Computer Science, Electronics [2023 Batch]**



# Kristu Jayanti College

**AUTONOMOUS** Bengaluru

Reaccredited 'A++' Grade by NAAC | Affiliated to Bengaluru North University

## FACULTY OF SCIENCES

**Programme Matrix: Bachelor of Science - Computer Science, Electronics [2023 Batch]**

### Programme Outcomes

After successful completion of B.Sc. honours in Computer Science and Electronics, a student will be able to:

PO1: integrate scientific temper; spirit of enquiry, humanism and reform

PO2: apply scientific knowledge and skills ethically for societal development and entrepreneurship

PO3: design, execute and interpret the results of experiments in Computer Science and Electronics involving programming concepts, electronic circuits and designing techniques

PO4: appraise programming skills by implementing the structure and development methodologies of software systems.

PO5: infer a modern scientific IT tool and techniques to solve problems in the area of computer science

PO6: analyse the problems of the circuits by conducting experimental investigations.

PO7: design and develop the electronics circuits to meet the desired needs considering public health, safety and environmental considerations

Date of Approval: 10/2/23

DEAN

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K. Narayanapura, Kothanur PO  
Bengaluru - 560077





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<b>I Semester</b>			
<b>Course Type</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Course Outcomes</b>
DSC	21CSC2T411	Programming in C	<ol style="list-style-type: none"> <li>1. Design flowchart and algorithms for C programs</li> <li>2. Construct sequential, iterative problems and input/output operations on text files</li> <li>3. Differentiate between decision control structures and loop control structures</li> <li>4. Distinguish between data representation through arrays, functions, function using pointers, structures and unions</li> </ol>
DSC	21CSC2L211	Programming in C Practical	<ol style="list-style-type: none"> <li>1. Develop C programs using sequential conditional and iterative constructs</li> <li>2. Design programs using user defined and derived data types, string operations and functions in C language</li> <li>3. Use structures, files and pointers as per the requirement</li> </ol>
DSC	21ELE2T411	Electronic Devices and Circuits	<ol style="list-style-type: none"> <li>1. Study and analyze basic networks using network theorems in a systematic manner</li> <li>2. Describe the behavior of basic semiconductor devices</li> <li>3. Construct simple voltage regulators used in various applications.</li> <li>4. Design the circuit to understand the VI characteristics of diode/BJT devices</li> <li>5. Measure the voltage gain of BJT amplifiers at different frequencies</li> <li>6. Explain the behavior, characteristics and applications of Varactor diode, Schottky diode, Tunnel diode, LED, LCD and solar cells.</li> <li>7. Apply standard device models to explain/calculate critical internal parameters of semiconductor devices.</li> </ol>
DSC	21ELE2L211	Electronic Devices and Circuits Practical	<ol style="list-style-type: none"> <li>1. Demonstration of the working of Multimeter, CRO and LCR meter.</li> <li>2. Construct current and voltage-based circuit theorems.</li> <li>3. Construct and understand the working of Transistor.</li> <li>4. Construct and understand the working of Voltage regulators</li> </ol>
AECC	22ENG1T312	Musings in English Literature	<ol style="list-style-type: none"> <li>1. Articulate the relevant issues of society through the imbibed knowledge of prose</li> <li>2. Identify and appreciate nuances of poetry</li> <li>3. Implement the basic concepts of grammar and its usage.</li> </ol>

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AECC	21KANIT312	Saahithya Sangama I	<p>1: ಸಾಹಿತ್ಯದಲ್ಲಿ ಅಡಗಿರುವ ವಿವಿಧ ಸಾಮಾಜಿಕ ಮೌಲ್ಯ ಮತ್ತು ಜವಾಬ್ದಾರಿಗಳನ್ನು ಅರಿಯುವರು.</p> <p>2: ಭಾಷಾ ಕೌಶಲವನ್ನು ಅಭಿವೃದ್ಧಿ ಪಡಿಸಿಕೊಳ್ಳುವರು.</p> <p>3: ವಿದ್ಯಾರ್ಥಿಗಳು ತಮ್ಮ ಜೀವನದ ಸೃಜನಶೀಲತೆಯ ಮಹತ್ವವನ್ನು ಚರ್ಚಿಸುವರು.</p> <p>4: ಹದಿಹರೆಯ ವಯಸ್ಸಿನ ಸಮಸ್ಯೆಗಳು ಹಾಗೂ ಪರಿಹಾರಗಳನ್ನು ವಿಶ್ಲೇಷಿಸುವರು.</p>
AECC	21HINIT312	Hindi Kahani aur Prayajanmulak Hindi	<p>1: हिन्दी कहानी विधा का ज्ञान ग्रहण करने की क्षमता का विकास।</p> <p>2: विद्यार्थियों में सामाजिक यथार्थ और मुल्यांकन करने का विकास।</p> <p>3: विद्यार्थियों में कहानी विधा का वर्णन करने की क्षमता का विकास।</p> <p>4: विद्यार्थियों में कहानी का विश्लेषण और भाषा कौशल में प्रवीणता।</p>
AECC	22AENIT311	Listening and Comprehension in English	<p>1. identify the barriers to listening and describe the key components that contribute to effective listening</p> <p>2. use their grammatical knowledge to refine their speech and writing</p> <p>3. analyse complex human situations and challenges that emerge from the prescribed texts.</p>

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<b>II Semester</b>			
<b>Course Type</b>	<b>Course Code</b>	<b>Course Title</b>	<b>Course Outcomes</b>
DSC	21CSC2T421	Data Structures	<ol style="list-style-type: none"> <li>1. Understanding the fundamental analysis of data structures, dynamic memory management, recursive procedures and usage of pointer variables</li> <li>2. Applying suitable sorting and searching algorithms for data structure applications</li> <li>3. Articulate non-linear data structures of stack and queue and legal operations permitted on them</li> <li>4. Understanding the concepts, operations of linked list and its application</li> <li>5. Comprehend the basic data structures of tree terminologies with its application.</li> </ol>
DSC	21CSC2L221	Data Structures Practical	<ol style="list-style-type: none"> <li>1. Execute recursive functions for tower of Hanoi and binomial coefficient</li> <li>2. Develop programs for searching and sorting techniques</li> <li>3. Write programs explaining the data structures operations</li> </ol>
DSC	21ELE2T421	Analog and Digital Electronics	<ol style="list-style-type: none"> <li>1. Measure the VI characteristics of various JFET and MOSFET devices.</li> <li>2. Perform experiments for studying the behaviour of semiconductor devices</li> <li>3. Measure various device parameters values from their VI characteristics.</li> <li>4. Estimate the experimental data for better understanding the device behaviour.</li> <li>5. Understand basic logic gates, concepts of Boolean algebra and techniques to reduce/simplify Boolean expressions.</li> <li>6. Apply standard device models to explain/calculate critical internal parameters of semiconductor devices.</li> <li>7. Analyze combinatorial and sequential circuits.</li> </ol>
DSC	21ELE2L221	Analog and Digital Electronics Practical	<ol style="list-style-type: none"> <li>1. develop mathematical operational circuits with inverting and non-inverting amplifier</li> <li>2. design filters and oscillators electronic circuits using operational amplifier</li> <li>3. build the circuit with basic logic gates and universal gates</li> <li>4. design combinational and sequential circuits using logic gate</li> <li>5. develop the circuit with IC 555</li> </ol>

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AECC	22ENG1T322	Glimpses: Readings from English Literature	<ol style="list-style-type: none"> <li>1. Identify the themes and relevant issues through the study of prose and poetry</li> <li>2. Develop the skill to identify the pertinent themes and characters in the novel</li> <li>3. Implement new approaches in speaking and writing skills.</li> </ol>
AECC	21KANIT322	Saahithya Sangama II	<ol style="list-style-type: none"> <li>1: ಸಾಹಿತ್ಯದಲ್ಲಿ ವ್ಯಕ್ತವಾಗಿರುವ ಮಾನವೀಯ ಮೌಲ್ಯಗಳನ್ನು ಅರಿಯುವರು.</li> <li>2: ಸಾಹಿತ್ಯದಲ್ಲಿ ಅಡಗಿರುವ ಸಾಮಾಜಿಕ ಮೌಲ್ಯಗಳನ್ನು ಅರಿಯುವರು.</li> <li>3: ಯುದ್ಧದಿಂದಾಗುವ ಅನಾಹುತಗಳನ್ನು ಅರಿಯುವರು.</li> <li>4: ಮಾನ್ಯವಿಲ್ಲದ ಜಾತಿ ಬೇಧಭಾವಗಳ ಬಗ್ಗೆ ಅರಿಯುವರು.</li> <li>5: ಜೀವನ ಕೌಶಲವನ್ನು ಅಭಿವೃದ್ಧಿ ಪಡಿಸಿಕೊಳ್ಳುವರು.</li> </ol>
AECC	21HINIT322	Hindi Kavitha aur Anuvaad Koushal	<ol style="list-style-type: none"> <li>1: हिन्दी कविता का विश्लेषण एवं समझने की योग्यता का विकास।</li> <li>2: विद्यार्थियों में सामाजिक यथार्थ और मूल्यांकन करने का विकास।</li> <li>3: कविता में वर्णित कथा का वर्णन एवं काव्य सृजन करने का विकास।</li> <li>4: अनुवाद एवं भाषा कौशल में प्राविण्यता।</li> </ol>
AECC	22AENIT321	Conversation Practice in English	<ol style="list-style-type: none"> <li>1. Identify the barriers to listening and describe the key components that contribute to effective listening</li> <li>2. Use their grammatical knowledge to refine their speech and writing</li> <li>3. Analyse complex human situations and challenges that emerge from the prescribed texts.</li> </ol>
AECC	21EVSIT321	Environmental Studies	<ol style="list-style-type: none"> <li>1. Understand the concept of Environment and ecosystems</li> <li>2. Gain knowledge on various components controlling the stability of ecosystem</li> <li>3. Understand the Policies and laws pertaining to the welfare of life forms.</li> </ol>

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III Semester			
Course Type	Course Code	Course Title	Course Outcomes
DSC	21CSC2T431	Programming in JAVA	<ol style="list-style-type: none"> <li>1. Understand Procedural and Object-oriented Programming Paradigms and compare java programming with C and C++</li> <li>2. Implement the basic programming constructs in java to develop simple java programs</li> <li>3. Design and Analyze reusable programs using the concepts of inheritance, interfaces and packages</li> <li>4. Identify and Design the concepts of Multithreading and Exception handling to develop efficient and error free codes</li> <li>5. Apply the concept of event driven GUI and create applications using applets and AWT</li> </ol>
DSC	21CSC2L231	Programming in JAVA Practical	<ol style="list-style-type: none"> <li>1. Build sequential, decision making and iterative Java programs</li> <li>2. Develop Java programs using Object oriented programming concepts</li> <li>3. Design GUI based applications using frames.</li> </ol>
DSC	21ELE2T431	Digital Design Using Verilog and VHDL Programming	<ol style="list-style-type: none"> <li>1. Identify different keywords, commands and operators used in Verilog and VHDL Language</li> <li>2. Construct digital circuits using Verilog programming</li> <li>3. Apply the knowledge of Verilog for modeling and functional verification of digital circuits</li> <li>4. Apply the knowledge of VHDL for modeling and functional verification of Digital circuits.</li> <li>5. Construct digital circuits using VHDL programming.</li> </ol>
DSC	21ELE2L231	Digital Design Using Verilog and VHDL Programming Practical	<ol style="list-style-type: none"> <li>1. Identify language elements and keywords used in Verilog and VHDL</li> <li>2. Interpret Verilog programs in structural and dataflow modeling levels of Abstraction</li> <li>3. Demonstrate Verilog programs in behavioural modeling levels of Abstraction</li> <li>4. Compare VHDL programs in structural and dataflow modeling levels of Abstraction with Verilog program</li> <li>5. Evaluate VHDL programs in behavioural modeling levels of Abstraction with Verilog program.</li> </ol>
AECC	21ENG1T332	Symphony of English Literature	<ol style="list-style-type: none"> <li>1. Identify the themes and relevant issues through the study of prose and poetry</li> <li>2. Develop the skill to identify the pertinent themes and characters in the novel</li> <li>3. Implement new approaches in speaking and writing skills.</li> </ol>

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AECC	21KANIT332	Saahithya Sangama III	<p>1: ಸಾಹಿತ್ಯದಲ್ಲಿ ಅಡಗಿರುವ ವಿವಿಧ ನಾಮಾಚರಣೆ ಮೌಲ್ಯ ಮತ್ತು ಜವಾಬ್ದಾರಿಗಳನ್ನು ಅರಿಯುವರು.</p> <p>2: ಭಾಷಾ ಕೌಶಲವನ್ನು ಅಭಿವೃದ್ಧಿ ಪಡಿಸಿಕೊಳ್ಳುವರು.</p> <p>3: ವಿದ್ಯಾರ್ಥಿಗಳು ತಮ್ಮ ಜೀವನದ ವರ್ತಮಾನದ ಘಟನೆಗಳ ಕುರಿತು ಚರ್ಚಿಸುವರು.</p> <p>4: ಹದಿಹರೆಯ ವಯಸ್ಸಿನಲ್ಲಿ ಅರಿಯಬೇಕಾಗಿರುವ ಶಾಂತಿ-ನೌಹಾರ್ದತೆಯ ಕುರಿತು ವಿಶ್ಲೇಷಿಸುವರು.</p> <p>5: ಜೀವನದಲ್ಲಿ ಮಾನವನು ಬೆಳೆಸಿಕೊಳ್ಳಬೇಕಾದ ಬಹುಮುಖ್ಯ ಅದರ್ಶ. ತತ್ವಗಳ ಕುರಿತು ಚರ್ಚಿಸುವರು.</p>
AECC	21HINIT332	Hindi Natak Sahitya aur Sanchar Maadhyam evam Hindi	<p>1:हिन्दी नाटक विधा को समझना और अभिनय करने की योग्यता का विकास।</p> <p>2:विद्यार्थियों में सामाजिक यथार्थ और मुल्यांकन करने का विकास।</p> <p>3: नाटक लेखन और पठन में रुचि एवं सृजनात्मक कौशल्य का विकास।</p> <p>4: संचार माध्यम कला में प्राविण्यता।</p>
AECC	21AENIT331	Essential English Reading	<p>1. Recognize the techniques of effective reading and demonstrate their competence in comprehension.</p> <p>2. Articulate their thoughts and structure written compositions as needed in official contexts</p> <p>3. Formulate their responses to contemporary challenges that emerge from the prescribed texts.</p>

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IV Semester			
Course Type	Course Code	Course Title	Course Outcomes
DSC	21CSC2T441	Internet Technology	<ol style="list-style-type: none"> <li>1. Understand the basic internet technologies and protocols involve in internet and service rendered by internet</li> <li>2. Write Standards/Compliant HTML code and CSS code to present HTML pages in different attractive ways</li> <li>3. Develop dynamic web pages by using java script (client side programming) and write well/valid XML documents.</li> <li>4. Quote examples related to JavaScript functions</li> <li>5. Apply knowledge to work on XML with DTD an XML schemas</li> </ol>
DSC	21CSC2L241	Internet Technology Practical	<ol style="list-style-type: none"> <li>1. Create basic HTML tags</li> <li>2. Design and webpages using java script and CSS</li> <li>3. Manages webpages using XML Tags.</li> </ol>
DSC	21ELE2T441	Communication Systems	<ol style="list-style-type: none"> <li>1. Describe the noise, transmission and radio wave propagation</li> <li>2. Demonstrate analog modulation techniques-AM &amp; FM</li> <li>3. Explain AM &amp; FM receiving function of analog modulation techniques</li> <li>4. Illustrate the concept of resonant and non-resonant antennas</li> <li>5. Summarize the block diagram of monochrome and colour televisions.</li> </ol>
DSC	21ELE2L241	Communication Systems Practical	<ol style="list-style-type: none"> <li>1. Experiment the working of preemphasis, deemphasis and crossover networks</li> <li>2. Explain the elimination filters, mixers and multipliers</li> <li>3. Demonstrate AM generators, AGC circuits, detectors</li> <li>4. Construct modulator and IF amplifier circuits</li> <li>5. Measure sensitivity, selectivity and fidelity property of radio receiver.</li> </ol>
AECC	21ENG1T342	Ruminations of English Literature	<ol style="list-style-type: none"> <li>1. Articulate the relevant social issues and thematic representation in prose and poetry</li> <li>2. Analyse the characters, plot, setting and themes of novel</li> <li>3. Acquire vital employability skills and employment opportunities with in-depth knowledge of writing skills.</li> </ol>
AECC	21KAN1T342	Saahithya Sangama IV	<ol style="list-style-type: none"> <li>1: ಸಾಹಿತ್ಯದಲ್ಲಿ ಅಡಗಿರುವ ವಿವಿಧ ಸಾಮಾಜಿಕ ಮೌಲ್ಯ ಮತ್ತು ಜವಾಬ್ದಾರಿಗಳನ್ನು ಅರಿಯುವರು.</li> <li>2: ಭಾಷಾ ಕೌಶಲವನ್ನು ಅಭಿವೃದ್ಧಿ ಪಡಿಸಿಕೊಳ್ಳುವರು.</li> <li>3: ವಿದ್ಯಾರ್ಥಿಗಳು ತಮ್ಮ ಜೀವನದಲ್ಲಿ ಧಾರ್ಮಿಕ ಸಹಿಷ್ಣುತೆಯ ಮಹತ್ವವನ್ನು ಚರ್ಚಿಸುವರು.</li> <li>4: ಶ್ರೀಸಾಮಾನ್ಯನ ಬದುಕಿನ ಸಮಸ್ಯೆಗಳು, ಬವಣೆಗಳು ಹಾಗೂ ಪರಿಹಾರಗಳನ್ನು ವಿಶ್ಲೇಷಿಸುವರು.</li> <li>5: ದಮನಿತ ಲೋಕದ ಶೋಷಣೆಯ ಭಿನ್ನ ರೂಪಗಳ ಕುರಿತು ಚರ್ಚಿಸುವರು.</li> </ol>

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AECC	21HINIT342	Hindi Laghu Upanyas aur Bhasha Ke Vividh Roop	1: हिंदी उपन्यासों का ज्ञान ग्रहण और समझने की योग्यता का विकास। 2: विद्यार्थियों में सामाजिक यथार्थ और मुल्यांकन करने का विकास। 3: लघु उपन्यास की कथा का वर्णन और विश्लेषण करने की क्षमता का विकास। 4: भाषा के विविध रूपों एवं भाषा कौशल में प्राविण्यता।
AECC	21AENIT341	Fundamentals of English Written Communication	1. Examine the features of effective writing and demonstrate their skills in complex, non-formulaic writing 2. Identify and fix common stylistic errors in written English 3. Analyze the representation of cross-cutting issues in literary works.
AECC	21INCIT341	India and Indian Constitution	1. Evaluate the philosophy of the Constitution and its structure 2. Appraise the powers and functions of various offices under the Constitution 3. Analyze the Indian values, Ideals and the role of Constitution in a Democracy.

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