

Goa Vidyaprasarak Mandal's  
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE & ECONOMICS  
FARMAGUDI, PONDA-GOA  
PROGRAMME AND COURSE OUTCOME

**Bachelor of Computer Applications (B.C.A.) : National Education Policy(NEP) 2020**

**Programme Outcome**

At the end of the three-year degree in Bachelor of Computer Applications (B.C.A.) Programme, the students will be able to:

**PO1:** Demonstrate the ability to analyze complex problems, think critically, and apply logical reasoning to develop innovative solutions in the field of computer applications.

**PO2:** Impart knowledge required for planning, designing and building complex Application Software Systems as well as provide support to automated systems or applications.

**PO3:** Integrate knowledge from multiple disciplines, such as mathematics, business, and computer science, to address real-world challenges and opportunities.

**PO4:** Be aware of ethical issues in technology and demonstrate a commitment to responsible and ethical use of computer applications, considering societal implications.

**PO5:** Work effectively both as an individual and a team leader on multi-disciplinary projects while effectively communicating technical information to both technical and non-technical audiences through written and oral communication, presentations, and documentation.

**PO6:** Adapt to emerging technologies, learn continuously, and stay updated with the evolving field of computer applications throughout their careers.

Course	Course Code and Course Title	Course Outcomes(CO)
<b>Semester I</b>		
<b>Major-1 (4 Credits)</b>	<b>CSA-100: Problem Solving and Programming</b>	<b>CO1:</b> Understand the ways and stages of Problem Solving. <b>CO2:</b> Understand basic computing concepts, algorithm design, flowchart design, programming constructs and debugging. <b>CO3:</b> Apply the problem solving & programming concepts in designing solutions to simpler problems. <b>CO4:</b> Code and implement a well-structured programming logic using a suitable programming language.
<b>Minor-1 (4 Credits)</b>	<b>MAT-111: Elementary Mathematics</b>	<b>CO1:</b> Identify the truth and falsity of a statement. <b>CO2:</b> Comprehend the concept of Sets, Relations and Functions. <b>CO3:</b> Evaluate basic limits, Identify discontinuous functions and Apply the techniques of differentiation. <b>CO4:</b> Construct the polar form of complex numbers. <b>CO5:</b> Compute the gradient, curl and divergence. <b>CO6:</b> Formulate and Solve differential Equations.
<b>Multidisciplinary Course (MC -1) (3 Credits)</b>	<b>COM-133: Marketing for Beginners</b>	<b>CO1:</b> Explain the concepts of marketing. <b>CO2:</b> Develop the skills to analyze marketing mix. <b>CO3:</b> Familiarize about the current trends in marketing. <b>CO4:</b> Discuss ethical and legal issues in marketing.
<b>Ability Enhancement Course (AEC-1) (2 Credits)</b>	<b>ENG-151: Communicative English: Spoken and Written</b>	<b>CO1:</b> Elicit and show respect for the views of others as well as be culturally sensitive. <b>CO2:</b> Display emotional stability and self-confidence. <b>CO3:</b> Apply critical thinking skills through decision-making and problem solving. <b>CO4:</b> Demonstrate effective written communication for an intended purpose and audience that follows genre/disciplinary conventions that reflect creation, organization, precision, and revision.
<b>Skill Enhancement Course (SEC-1) (3 Credits)</b>	<b>CSA-142: Python Programming</b>	<b>CO1:</b> Describe the datatypes, various Control Structures used in Python. <b>CO2:</b> Decompose a Python program into functions and recursive functions. <b>CO3:</b> Represent compound data using Python lists, tuples and dictionaries. <b>CO4:</b> Understanding use of files and packages in Python Programs.
<b>Value Added Course (VAC-1)</b>	<b>VAC-101: Environmental</b>	<b>CO1:</b> Distinguish between renewable and non-renewable resources.

<b>(2 Credits)</b>	<b>Studies - I</b>	<p><b>CO2:</b> Understand different ways to manage resources sustainability.</p> <p><b>CO3:</b> Appreciate the value of biodiversity and its management.</p>
<b>Value Added Course (VAC-2) (2 Credits)</b>	<b>VAC-105: Constitutional Values and Obligations</b>	<p><b>CO1:</b> Explain the relevance of the Constitution of India in a democratic setup.</p> <p><b>CO2:</b> Describe the Fundamental Rights and Fundamental Duties.</p> <p><b>CO3:</b> Explain the policy of governance.</p> <p><b>CO4:</b> Develop ability to apply the Values and State policy enshrined in the Constitution in national life.</p>
	<b>VAC-107: NCC and Nation Building(Army)</b>	<p><b>CO1:</b> inculcate a spirit of adventure, explorative inquisitiveness.</p> <p><b>CO2:</b> develop stamina, endurance, discipline, courage, determination, comradeship.</p> <p><b>CO3:</b> Develop leadership leading to development of self-confidence, team spirit and spirit-de- corps amongst NCC cadets.</p>
	<b>VAC-119: Health and Physical Education</b>	<p><b>CO1:</b> know the difference and relationship among physical activity, fitness, and health and describe the physiological and psychological benefits of physical activity.</p> <p><b>CO2:</b> analyze the theoretical foundations of motor development and learning, cognitive and affective dimensions of physical activity, and physical activity interventions for mental health conditions.</p> <p><b>CO3:</b> evaluate the components of physical fitness, how to measure them, and develop skills in the prescription of physical activity for different populations while also considering safety.</p> <p><b>CO4:</b> demonstrate practical skills in a range of exercises including cardiovascular, resistance, core strengthening, flexibility, circuit training, low intensity interval training, sports and recreational activities, yoga, and Pilates.</p> <p><b>CO5:</b> apply knowledge of basic nutrition and hydration practices, stress management techniques, injury prevention, and fitness assessment and goal setting to promote health and wellness.</p> <p><b>CO6:</b> develop personalized fitness plans and evaluate and adjust them to meet individual goals.</p>

Course	Course Code and Course Title	Course Outcomes(CO)
<b>Semester II</b>		
<b>Major-2 (4 Credits)</b>	<b>CSC-100: Computer Organisation</b>	<b>CO1:</b> Explain the theory and architecture of central processing unit, I/O and memory organization. <b>CO2:</b> Analyze some of the design issues in terms of speed, technology, cost, performance, CPU architecture. <b>CO3:</b> Describe the concepts of parallel processing, pipelining and interprocessor communication. <b>CO4:</b> Represent different number systems, and perform various binary operations.
<b>Minor-2 (4 Credits)</b>	<b>MAT-112: Elementary Statistics</b>	<b>CO1:</b> Interpret data and graphically represent it. <b>CO2:</b> Calculate measures of central tendencies and variations. <b>CO3:</b> Analyze correlation and regression. <b>CO4:</b> Solve problems in Probability theory. <b>CO5:</b> Understand different data sampling techniques. <b>CO6:</b> Apply statistical quality control.
<b>Multidisciplinary Course (MC -2) (3 Credits)</b>	<b>COM-137: Tourism and Hospitality Management</b>	<b>CO1:</b> Develop awareness about the concept of Tourism. <b>CO2:</b> Explain various forms of Tourism. <b>CO3:</b> Identify the challenges for tourism development. <b>CO4:</b> Identify the latest developments in Tourism and Hospitality industry.
<b>Ability Enhancement Course (AEC-2) (2 Credits)</b>	<b>ENG-152: Digital Content Creation in English</b>	<b>CO1:</b> Create and deliver individual presentations using a variety of digital software. <b>CO2:</b> Compose and present a digital story. <b>CO3:</b> Identify and distinguish between different genres of writing. <b>CO4:</b> Write a book/ film review. <b>CO5:</b> Interpret graphic data to arrive at an informed conclusion.
<b>Skill Enhancement Course (SEC-2) (3 Credits)</b>	<b>CSA-143: Data Analytics using Spreadsheets</b>	<b>CO1:</b> Understand the basics of spreadsheets and advanced functions. <b>CO2:</b> Apply data analysis and data visualization using charts and pivot tables. <b>CO3:</b> Apply the knowledge of power query and DAX in spreadsheets. <b>CO4:</b> Apply data analysis tools and solve simple real life data analysis applications.
<b>Value Added Course (VAC-3)</b>	<b>VAC-102: Environmental</b>	<b>CO1:</b> Understand the impact of pollution on human welfare

<b>(2 Credits)</b>	<b>Studies - II</b>	<p><b>CO2:</b> Appreciate ethical issues of environmental rights and duties.</p> <p><b>CO3:</b> Undertake preliminary field analysis of environmental damage.</p>
	<b>VAC-112: E-Waste Management</b>	<p><b>CO1:</b> Understand the environmental impacts of e-waste.</p> <p><b>CO2:</b> Describe the process recycling of e-waste.</p> <p><b>CO3:</b> Distinguish the role of various national and internal act and laws applicable for e-waste management and handling.</p> <p><b>CO4:</b> Analyse the e – waste management measures proposed under national and global legislation.</p>
<b>Value Added Course (VAC-4) (2 Credits)</b>	<b>VAC-115: Health and Wellness</b>	<p><b>CO1:</b> Comprehend the models and dimensions of Health and Wellness.</p> <p><b>CO2:</b> Understand the prevalence of Lifestyle diseases and the urgency for change.</p> <p><b>CO3:</b> Analyze the nature of Mental Health and Stress and ways to manage the same.</p> <p><b>CO4:</b> Elucidate on Management of Health and Wellness through mechanisms of Nutrition, Fitness and Rational decisions.</p>
	<b>VAC-119: Health and Physical Education</b>	<p><b>CO1:</b> know the difference and relationship among physical activity, fitness, and health and describe the physiological and psychological benefits of physical activity.</p> <p><b>CO2:</b> analyze the theoretical foundations of motor development and learning, cognitive and affective dimensions of physical activity, and physical activity interventions for mental health conditions.</p> <p><b>CO3:</b> evaluate the components of physical fitness, how to measure them, and develop skills in the prescription of physical activity for different populations while also considering safety.</p> <p><b>CO4:</b> demonstrate practical skills in a range of exercises including cardiovascular, resistance, core strengthening, flexibility, circuit training, low intensity interval training, sports and recreational activities, yoga, and Pilates.</p> <p><b>CO5:</b> apply knowledge of basic nutrition and hydration practices, stress management techniques, injury prevention, and fitness assessment and goal setting to promote health and wellness.</p> <p><b>CO6:</b> develop personalized fitness plans and evaluate and adjust them to meet individual goals.</p>