

**KARMAVEER BHAURAO PATIL COLLEGE, VASHI.**  
(Autonomous)

**Department of Information Technology**

**M. Sc. Information Technology**

**Program Outcomes (POs)**

PO-1	<b>Disciplinary Knowledge and Skills</b>	Acquire the comprehensive and in-depth knowledge of various subjects in sciences such as Physics, Chemistry, Mathematics, Microbiology, Bio-analytical Science, Computer Science, Data Science, Information Technology and disciplinary skills and ability to apply these skills in the field of science, technology and its allied branches
PO-2	<b>Communication and Presentation Skills</b>	Develop various communication skills including presentation to express ideas evidently to achieve common goals of the organization.
PO-3	<b>Creativity and Critical Judgment</b>	Facilitate solutions to current issues based on investigations, evaluation and justification using evidence based approach.
PO-4	<b>Analytical Reasoning and Problem Solving</b>	Build critical and analytical attitude in handling the problems and situations.
PO-5	<b>Sense of Inquiry</b>	Curiously raise relevant questions based on highly developed ideas, scientific theories and its applications including research.
PO-6	<b>Use of Digital Technologies</b>	Use various digital technologies to explore information/data for business, scientific research and related purposes.
PO-7	<b>Research Skills</b>	Construct, collect, investigate, evaluate and interpret information/data relevant to science and technology to adapt, evolve and shape the future.
PO-8	<b>Application of</b>	Develop a scientific outlook to create consciousness against the social



	<b>Knowledge</b>	myths and blind faith.
<b>PO-9</b>	<b>Moral and Ethical Reasoning</b>	Imbibe ethical, moral and social values to develop virtues such as justice, generosity and charity as beneficial to individuals and society at large.
<b>PO-10</b>	<b>Leadership and Teamwork</b>	Work cooperatively and lead proactively to achieve the goals of the organization by implementing the plans and projects in various field-based situations related to science, technology and society at large.
<b>PO-11</b>	<b>Environment and Sustainability</b>	Create social awareness about the environment and develop sustainability for betterment of the future.
<b>PO-12</b>	<b>Lifelong Learning</b>	Realize that pursuit of knowledge is a lifelong activity and in combination with determined efforts, positive attitude and other qualities to lead a successful life.

**Note :** Number in bracket() indicates cognitive levels of revised Bloom's Taxonomy as follows:(1):Remembering,(2):Understanding,(3):Applying,(4):Analyzing,(5):Evaluating, (6):Creating

  
**Program Coordinator**

  
**BOS Chairman**

  
**I/C PRINCIPAL**  
**KARMAVEER BHAI PATIL COLLEGE**  
**VASHI, NAVI MUMBAI-400 703.**



Rayat Shikshan Sanstha's

**KARMAVEER BHAURAO PATIL COLLEGE, VASHI.**

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**Department of Information Technology**

**M. Sc. Information Technology**

**Program Specific Outcomes (PSOs)**

<b>PSO-1</b>	Prepare highly qualified specialists for the IT industry in the field of information technology.
<b>PSO-2</b>	Develop interpersonal skills, teamwork skills, leadership skills, and project management skills.
<b>PSO-3</b>	Learn how to operate a professional IT practice.
<b>PSO-4</b>	Study a broad context of advanced contemporary IT issues.



**Program Coordinator**



**BOS Chairman**



**I/C PRINCIPAL**  
Principal  
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Department of Information Technology

M. Sc. Information Technology

Course Outcomes (COs)

Title of the specific program: MSc IT Part 1		
Course Outcomes (COs)		
Course Code	Course Title	Course Outcome
<b>MSc IT Part 1 Sem - I</b>		
PGIT101	Big Data Analytics	CO1. Understanding the basics of Big Data Analytics[2]* CO 2. Summarized Analytical Theory and Methods[5]* CO 3. Explain fundamental techniques and principles in achieving big data analytics with scalability and streaming capability. [3]* CO 4. Understand how Data Product Building Data Products[2]* CO 5. Implement and design Distributed Analysis and Patterns[3]*
PGIT102	Data Science	CO 1. Develop in depth understanding of the key technologies in data science and business analytics[2]* CO 2. Summarized data mining, machine learning, visualization techniques, predictive modeling, and statistics. [5]* CO 3. Explain Practise problem analysis and decision-making.[3]* CO 4. Implement and design hands-on experience with statistics programming languages and big data tools through coursework and applied research experiences. [3]* CO 5. Remembering Transform Superstep[1]*
PGIT103	Cloud Computing	CO 1. To Show the use Cloud Services.[2]* CO 2. To implement Virtualization.[3]* CO 3. To implement Task Scheduling algorithms.[3]* CO 4. Analyzing Map-Reduce concept to applications.[4]* CO 5. To Create Private Cloud.[6]*
PGIT104	Soft Computing Techniques	CO 1. Understanding basics of various Soft Computing TechniquesTest[2]* CO 2. Summarized Artificial Neural Network, Supervised



		<p>Learning Network and UnSupervised Learning Network[5]*</p> <p>CO 3. Explain Associative Memory Networks and Third Generation Neural Networks[3]*</p> <p>CO 4. Apply Genetic Algorithm works in real programs[3]*</p> <p>CO 5. Plan and design Fuzzy Set and Crisp Set algorithm[4]*</p>
<b>PGIT105A</b>	<b>Ethical Hacking</b>	<p>CO 1. Understanding Introduction To Ethical Hacking , Footprinting And Reconnaissance ,Scanning Networks, Enumeration [2]*</p> <p>CO 2. Evaluate System Hacking, Trojans And Backdoors, Viruses And Worms, Sniffing [4]*</p> <p>CO 3. Explain Social Engineering, Denial Of Service, Session Hijacking, Hacking Webservers [3]*</p> <p>CO 4. Analyze How Applications, Sql Injection, Hacking Wireless Networks, Hacking Mobile Platforms [4]*</p> <p>CO 5. Implement And Design Evading Ids, Firewalls And Honeypots, Buffer Overflows, Cryptography, Penetration Testing[5]*</p>
<b>PGIT105B</b>	<b>Image Processing</b>	<p>CO 1. Oragnize the fundamental concepts of a digital image processing system.[6]*</p> <p>CO 2. Analyze images in the frequency domain using various transforms.[4]*</p> <p>CO 3. Explain the techniques for image enhancement and image restoration.[3]*</p> <p>CO 4. Indicate various compression techniques.[2]*</p> <p>CO 5. State Image compression standards.[1]*</p>

<b>Course Code</b>	<b>Course Name</b>	<b>Course Outcomes</b>
<b>MSc IT Part 1 Sem - II</b>		
PGIT201	Research in Computing	<p><b>CO1:</b> solve real world problems with scientific approach. develop analytical skills by applying scientific methods.[6]*</p> <p><b>CO2:</b> recognize, understand and apply the language, theory and models of the field of business analytics[1]*</p> <p><b>CO3:</b> foster an ability to critically analyze, synthesize and solve complex unstructured business problems[4]*</p> <p><b>CO4:</b> understand and critically apply the concepts and methods of business analytics[2]*</p> <p><b>CO5:</b> identify, model and solve decision problems</p>



		in different settings interpret results/solutions and identify appropriate courses of action for a given managerial situation whether a problem or an opportunity[2]*
PGIT202	Microservices Architecture	<p><b>CO1:</b> Create web applications using Model View Control.[6]*</p> <p><b>CO2:</b> Create MVC Models and write code that implements business logic within Model methods, properties, and events.[6]*</p> <p><b>CO3:</b> Create Views in an MVC application that display and edit data and interact with Models and Controllers.[6]*</p> <p><b>CO4:</b> Understand the philosophy and architecture of .NET Core[2]*</p> <p><b>CO5:</b> Understanding packages, metapackages and frameworks Acquiring a working knowledge of the .NET programming model Implementing multi-threading effectively in .NET applications[2]*</p>
PGIT203	Modern Networking	<p><b>CO1:</b> Understand in-depth knowledge in the area of Computer Networking.[2]</p> <p><b>CO2:</b> Identify, formulate and solve a problem related to Computer Networks[2]</p> <p><b>CO3:</b> Prepare a technical document for the identified Networking System [6]</p> <p><b>CO4:</b> Analyze the identified research work in building Computer Networks[4]*</p> <p><b>CO5:</b> Understand how networking research is done[2]*</p>
PGIT204	Applied Artificial Intelligence	<b>CO1:</b> Understand of the history of artificial intelligence (AI) and its foundations.[2]*



		<p><b>CO2:</b> Apply basic principles of AI in solutions that require problem solving, inference, perception, Knowledge representation and learning.[4]*</p> <p><b>CO3:</b> Understand of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.[2]*</p> <p><b>CO4:</b> Tell What is AI?, its current scope and limitations, and societal implications[1]*</p> <p><b>CO5:</b> Apply scientific method to models of machine learning[3]*</p>
PGIT205A	Computer Forensic	<p><b>CO1:</b> State the concept of ethical hacking and its associated applications in Information Communication Technology (ICT) world.[1]*</p> <p><b>CO2:</b> Understand the need of computer forensic.[2]*</p> <p><b>CO3:</b> Explain the methodology of incident response and various security issues in ICT world[3]*</p> <p><b>CO4:</b> Identify computer forensic tools for data collection[4]*</p> <p><b>CO5:</b> Recognize the importance of computer forensic duplication and various tools for analysis to achieve adequate perspectives of computer forensic investigation in various applications.[1]*</p>
PGIT205B	Computer Vision	<p><b>CO1:</b> Implement fundamental image processing techniques required for computer vision[3]*</p> <p><b>CO2:</b> Understand Image formation process[2]*</p> <p><b>CO3:</b> Perform shape analysis[3]*</p> <p><b>CO4:</b> Select features form Images and do analysis of Images[5]*</p>



		<b>CO5: Produce 3D model from images[6]*</b>
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Course Outcomes(CO)		
Course Code	Course Name	Course Outcomes
<b>MSc IT Part 2 Semester III</b>		
PGIT301	Technical Writing and Entrepreneurship Development	<p><b>CO1:</b> Develop technical documents that meet the requirements with standard guidelines.[3]*</p> <p><b>CO2:</b> Understanding the essentials and hands-on learning about effective Website Development.[2]*</p> <p><b>CO3:</b> Write Better Quality Content Which Ranks faster at Search Engines. Build effective Social Media Pages.[6]*</p> <p><b>CO4:</b> Evaluate the essentials parameters of effective Social Media Pages.[5]*</p> <p><b>CO5:</b> Understand importance of innovation and entrepreneurship.[2]*</p>
PGIT302	Machine Learning	<p><b>CO1:</b> Understand the key issues in Machine Learning and its associated applications in intelligent business and scientific computing.[2]*</p> <p><b>CO2:</b> Examine the knowledge about classification and regression techniques where a learner will be able to explore his skill to generate data base knowledge using the prescribed techniques.[3]*</p> <p><b>CO3:</b> Understand and implement the techniques for extracting the knowledge using machine learning methods.[2]*</p> <p><b>CO4:</b> Summarize adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc.[2]*</p> <p><b>CO5:</b> Prepare the statistical approach related to machine learning. He will also Apply the algorithms to a real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models.[6]*</p>
PGIT303	Advanced IoT	<p><b>CO1:</b> Build smart IoT applications on Azure.[6]*</p> <p><b>CO2:</b> Use Microsoft cognitive APIs to build IoT applications.[3]*</p> <p><b>CO3:</b> Illustrate Block chain in IoT.[3]*</p> <p><b>CO4:</b> Explain and use micro services in IoT.[4]*</p> <p><b>CO5:</b> Build own IoT platform and use it in a</p>





PGIT304A	Malware Analysis	<p>customized way.[6]*</p> <p><b>CO1:</b> Understand various introductory techniques of malware analysis and creating the testing environment.[2]*</p> <p><b>CO2:</b> State advanced dynamic analysis and recognize constructs in assembly code.[1]*</p> <p><b>CO3:</b> Perform Reverse Engineering using OLLYDBG and WINDBG and study the behaviours and functions of malware[3]*</p> <p><b>CO4:</b> Explain data encoding, various techniques for anti-disassembly and anti-debugging.[4]*</p> <p><b>CO5:</b> Summarize various anti virtual machine techniques and perform shell code analysis of various languages along with x64 architecture.[5]*</p>
PGIT304B	Robotic Process Automation	<p><b>CO1:</b> Understand the mechanism of business process and can provide the solution in an optimize way.[2]*</p> <p><b>CO2:</b> Explain the features use for interacting with database plugins.[4]*</p> <p><b>CO3:</b> Use the plug-ins and other controls used for process automation.[3]*</p> <p><b>CO4:</b> Prepare and handle the different events, debugging and managing the errors.[6]*</p> <p><b>CO5:</b> Test and deploy the automated process.[6]*</p>
PGIT305	Internship	----

Course Outcomes(CO)		
Course Code	Course Name	Course Outcomes
MSc IT Part 2 Semester IV		
PGIT401	Blockchain	<p><b>CO1:</b> Understand the structure of a blockchain and why/when it is better than a simple distributed database.[2]*</p> <p><b>CO2:</b> Analyze the incentive structure in a blockchainbased system and critically assess its functions, benefits and vulnerabilities.[4]*</p> <p><b>CO3:</b> Evaluate the setting where a blockchain basedstructure may be applied, its potential and its limitations[4]*</p> <p><b>CO4:</b> Understand what constitutes a —smartl contract, its legal implications and what it can andcannot do, now and in the near future.[2]*</p> <p><b>CO5:</b> Create blockchain DApps.[6]*</p>

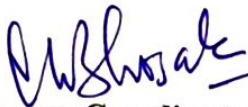


PGIT402	Deep Learning	<p><b>CO1:</b> Implement web applications using Model View Control.[3]*</p> <p><b>CO2:</b> Create MVC Models and write code that implements business logic within Model methods, properties, and events.[6]*</p> <p><b>CO3:</b> Create Views in an MVC application that display and edit data and interact with Models andControllers.[6]*</p> <p><b>CO4:</b> Understanding of the philosophy and architecture of .NET Core.[2]*</p> <p><b>CO5:</b> Understanding packages, metapack ages andframeworks.[2]*</p> <p><b>CO6:</b> Implementing multi-threading effectively in .NET applicationsCO1: [3]*</p>
PGIT403	Natural Language Processing	<p><b>CO1:</b> State different issues and challenge in Natural Language Processing and NLP applications.[1]*</p> <p><b>CO2:</b> Understanding of Computational techniquesand approaches for solving NLP problems and develop modules for NLP tasks and tools [2]*</p> <p><b>CO3:</b> Explain various grammar formalisms, whichthey can apply in different fields of study.[3]*</p> <p><b>CO4:</b> Explain algorithms for carrying out NLP tasks.[3]*</p> <p><b>CO5:</b> Summarized the different applications indifferent sectors.[5]*</p>
PGIT404A	Human Computer Interaction	<p><b>CO1:</b> Understanding of HCI principles that influence a system's interface design, before writing anycode.[2]*</p> <p><b>CO2:</b> Summarized evaluation techniques used forany of the proposed system.[5]*</p> <p><b>CO3:</b> Explain cognitive models and its design.[3]*</p> <p><b>CO4:</b> Understand how to manage the system resources and do the task analysis.[2]*</p> <p><b>CO5:</b> Implement and design a complete system.[3]*</p>



PGIT404B	Virtual Reality and Augmented Reality	<p><b>CO1:</b> Understand background of VR including a brief history of VR, different forms of VR and related technologies[2]*</p> <p><b>CO2:</b> Apply the concepts of VR and AR in real life.[3]*</p> <p><b>CO3:</b> Prepare the way users interact within the scenes they find themselves in.[6]*</p> <p><b>CO4:</b> State different use open source VR software.[1]*</p> <p><b>CO5:</b> Explain Walkthrough of VRTK, an open source project meant to spur on cross-platform development[4]*</p>
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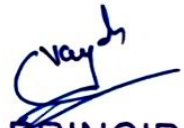
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