



Hindi Vidya Prachar Samiti's
**Ramniranjan Jhunhunwala College of Arts, Science
& Commerce (Autonomous), Ghatkopar (W)**



Affiliated to
University of Mumbai

**Mapping of the courses to Employability/
Entrepreneurship/ Skill Development**

**Program: M.Sc. Information Technology
Program Code: RJSPIT**

Choice Based Credit System Syllabus

(With effect from the academic year 2021-22)

Mapping of the courses to Employability/ Entrepreneurship/ Skill Development

Course Name	Course Code	Topic focusing on Employability/ Entrepreneurship/skill development	Employability / Entrepreneurship / Skill development
Foundation of Data Science	RJPIT101 & RJSPIT1L1	Skill Development Unit I: Introduction to Data Science, Data Pre-processing, Exploratory Data Analysis. Unit II: Exploring Binary and categorical data, Data Transformation and Quality Analysis, Data and Sampling Distributions. Unit III: Distributions, Probability and Terms, Advanced Statistics Unit IV: Machine Learning Essentials, Predictions.	1. Technical skill in data preparation and model building using machine learning algorithms. 2. Analytical skills in evaluating the models/ ML algorithms.
Cloud Computing	RJSPIT102 & RJSPIT1L2	Skill Development Unit I: Introduction to Cloud Computing, Principles of Parallel and Distributed Computing, Virtualization, Cloud Infrastructure Mechanism Unit II: Cloud Computing Architecture, Cloud Platforms in Industry, Specialized Cloud Mechanisms, Cloud Management Mechanisms. Unit III: Fundamental Cloud Architectures, Advanced Cloud Architectures. Unit IV: Cloud Security Mechanisms, Cloud Delivery Model Considerations, Cost Metrics and Pricing Models, Service Quality	1. Technical skills in utilising the open-source tools to configure various cloud services 2. Employability skills in providing overview of various Cloud service platforms and services.

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		Metrics and SLAs.	
Advanced Artificial Intelligence	RJSPIT103	Skill Development Unit I: Introduction, Problems, Problem Spaces and Search, Heuristic Search Techniques Unit II: Knowledge Representation Issues, Using Predicate Logic, Representing Knowledge Using Rules Unit III: Symbolic Reasoning Under Uncertainty, Statistical Reasoning, Weak Slot-and-Filler Structures, and Strong Slot-and-Filler Structures. Unit IV: Knowledge Representation Summary, Game Playing, Planning, Understanding.	1. Technical skills in developing and implementing various search techniques and reinforcement learning. 2. Technical skills in Artificial Intelligence language - Prolog
Microservice Architecture	RJSPIT1P1a	Skill Development Unit I: Microservices, Microservices Value Proposition, Designing Microservice Systems, Establishing a Foundation. Unit II: Service Design, System Design and Operations, Adopting Microservices in Practice. Unit III: Building Microservices with ASP.NET Core, Delivering Continuously, Backing Services. Unit IV: Creating Data Service, Event Sourcing and CQRS, Building an ASP.NET Core Web Application, Service Discovery.	1. Technical skills in understanding and developing the ASP.NET core ,Web API and MVC application using visual studio IDE and Docker. 2. Enterprise skills is achieved in designing and implementing web API using ASP.NET core framework and using Docker container to push and pull images.
Modern Networking	RJSPIT1P1b	Skill Development, Employability	1. Technical skills in functional network

		<p>Unit I: Elements of Modern Networking, Requirements and Technology.</p> <p>Unit II: SDN: Background and Motivation, SDN Data and OpenFlow, SDN Control Plane, SDN Application Plane.</p> <p>Unit III: Network Functions Virtualization: Concepts and Architecture, Network Virtualization</p> <p>Unit IV: Defining and Supporting User Needs</p> <p>Quality of Service, QoE: User Quality of Experience.</p>	<p>configuration using WiFi 4G/5G for different applications.</p> <p>2. Employability skills in setting up software defined networks and VLAN.</p>
Cyber Security – I & II	RJSPIT1C1 & RJSPIT2C2	<p>Skill Development, Employability</p> <p>Cyber Security - I</p> <p>Unit I: Introduction to Security Breaching, Evaluation Security of IT Organisation.</p> <p>Unit II: Network Scanning, Enumeration.</p> <p>Unit III: Analysis of Vulnerability, Breaching System Security.</p> <p>Unit IV: Threads due to malware, Network Sniffing.</p> <p>Cyber Security – II</p> <p>Unit I: Social Engineering, Denial of service and distributed Denial of service.</p> <p>Unit II: Hijacking an active session, Evasion of IDS, Firewalls and Honeypots.</p> <p>Unit III: Compromising web servers, Compromising web Applications.</p> <p>Unit IV: Performing</p>	<p>1. Technical skills in different cyber security methods in detecting and preventing attacks.</p> <p>2. Employability skills in setting up software and network security parameters.</p>

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		SQL Injection, Compromising wireless networks.	
Big Data Analytics	RJSPIT201 & RJSPIT2L3	Skill Development, Employability Unit I: Introduction to Big Data Unit II: Hadoop Framework Unit III: Data Analysis Unit IV: Mining Data Streams, Big Data Framework	<ol style="list-style-type: none"> 1. Technical skills in processing and analysing data using big data frameworks. 2. Employability skills in big data analysis using various BDA tools.
Virtualization	RJSPIT202 & RJSPIT2L4	Skill development, Employability Unit I: Understanding Virtualization, Understanding Hypervisors, Understanding Virtual Machines, Introducing VMware vSphere. Unit II: Planning and Installing VMware ESXi, Configuring vCenter Server, vSphere Update Manager and the vCenter Support Tools, Creating and Configuring Virtual Networks. Unit III: Creating and Configuring Storage Devices, Ensuring High Availability and Business Continuity, Securing VMware vSphere, Using VM, Templates and vApps. Unit IV: Managing Resource Allocation, Balancing Resource Utilization, Monitoring VMware vSphere Performance, and Automating VMware vSphere.	<ol style="list-style-type: none"> 1. Technical skills in understanding and configuring VMware vSphere client and server. 2. Employability skill used in server virtualization
Image and Vision	RJSPIT203	Skill Development	3. Technical skills in

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Processing		Unit I: Introduction to Image Processing Unit II: Intensity transformations Unit III: Color Image Processing Unit IV: Morphological Image Processing Unit V: Content-Based Image Retrieval, Motion from 2D Image Sequences, Image Segmentation	utilizing the open-source tools for Image Processing and Image transformations techniques. 4. Technical skills for pursuing a research career in object recognition, pattern matching and computer vision.
Blockchain Technology	RJSPIT2P2a	Skill Development, Employability Unit I: Blockchain, Working of Blockchain, Working of Bitcoin Unit II: Ethereum, The Mist browser, Solidity Programming. Unit III: Smart Contracts and Tokens, Mining Ether, Crypto economics. Unit IV: Blockchain Application Development, DApp deployment, Use Cases.	1. Technical skills in understanding various technical factors involved in block chain technology 2. Employability skill is achieved in designing the smart contract and block chain platform for various problem statement
Soft Computing	RJSPIT2P2b	Skill Development, Employability Unit I: Introduction of soft computing, Artificial Neural Network. Unit II: Supervised Learning Network, Associative Memory Networks. Unit III: Unsupervised Learning Networks, Special Networks. Unit IV: Introduction to Fuzzy logic, Classical Sets and Fuzzy sets, Classical Relation and Fuzzy Relations, membership Function,	1. Technical skills in understanding various theoretical aspects of soft computing, supervised and unsupervised learning with neural networks. 2. Employability skill is achieved in designing the networks for an application.

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		Defuzzification.	
Deep Learning & Natural Language Processing	RJSPIT301 & RJSPIT3L5	Skill Development Unit I: Basics, Feed forward Networks, Deep Neural Networks, Better Training of Neural Networks. Unit II: Recurrent Neural Networks, Convolutional Neural Networks, Recent trends. Unit III: Introduction, Practical Understanding of a Corpus and Dataset. Unit IV: Understanding the Structure of a sentences, Pre-processing, Feature Engineering and NLP Algorithms.	1. Technical skills in designing, building the learning networks. 2. Technical skills in optimizing the performance of various neural networks.
Cloud Solution Architect	RJSPIT302 & RJSPIT3L6	Skill Development Unit I: Introduction to AWS, Amazon Simple Storage Service (Amazon S3) and Amazon Glacier, Amazon Elastic Compute Cloud (Amazon EC2) and Amazon Elastic Block Store (Amazon EBS), Elastic Load Balancing, Amazon Cloud Watch, and Auto Scaling. Unit II: Amazon Virtual Private Cloud (Amazon VPC), AWS Identity And Access Management (IAM), Databases and AWS. Unit III: SQS, SWF, and SNS, Domain Name System (DNS) and Amazon Route 53, Amazon ElasticCache, Additional Key Services. Unit IV: Security on	1. Technical skills in AWS cloud for user creation, security polices and groups, DynamoDB, API gateway, Key Management Services, S3 bucket storage handling. 2. Employability skills in AWS Cloud Architect Solution.

		AWS, AWS Risks and Compliance, Architecture Best Practices.	
Robotics Process Automation	RJSPIT303 & RJSPIT3L7	<p>Skill Development</p> <p>Unit I: Robotic Process Automation, Record and Play, Sequence, Flowchart, and Control Flow.</p> <p>Unit II: Data Manipulation, Taking Control of the Controls.</p> <p>Unit III: Tame that Application with Plugins and Extensions, Handling User Events and Assistant Bots.</p> <p>Unit IV: Exception Handling, Debugging, and Logging, Managing and Maintaining the Code, Deploying and Maintaining Bot.</p>	<ol style="list-style-type: none"> 1. Technical skills in Robotic Process Automation and using respective tools. 2. Employability skills in Robotic Process Automation domain.
Computer Hacking Forensics Investigation	RJSPIT3P3a & RJSPIT3L8a	<p>Skill Development, Employability</p> <p>Unit I: Computer forensics</p> <p>Unit II: Setting up a lab for Computer Forensics</p> <p>Unit III: Recovery of deleted files and partitions</p> <p>Unit IV: Capturing logs and correlating to the events, Network Forensics</p>	<ol style="list-style-type: none"> 3. Technical skills in installing and using forensics tools. 4. Employability skills in investigating and analysing the evidence using forensic tools.
Advanced IOT	RJSPIT3P3b & RJSPIT3L8b	<p>Skill Development, Employability</p> <p>Unit I: The Artificial Intelligence 2.0.</p> <p>Unit II: Cognitive APIs.</p> <p>Unit III: Implementing Blockchain.</p> <p>Unit IV: IOT and Microservices, Building</p>	<ol style="list-style-type: none"> 1. Technical skills in tending technologies like artificial intelligence, Cognitive API, Implementing Blockchain, IOT

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		Critical components.	and Micro services. 2. Employability skills in Advanced IOT.
Virtual & Augmented Reality	RJSPIT3C3	Skill Development Unit I: Introduction to Virtual and Augmented Reality. Unit II: Perception Unit III: Content Creation Unit IV: Design and Art Virtual Reality Toolkit	1. Technical skills in understanding the design process of Virtual and Augmented Systems. 2. Technical skills used in unity 3D development studio.
Dissertation (Major Project)	RJSPIT4D1	-	1. Technical skills in requirement analysis, designing and implementing the application, perform testing and evaluation of the product.
Industrial Internship	RJSPIT4D2	-	2. Technical and employability skills with the industry experience.