Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	24UAMVAC1	Value Added Course - I	30	-	-	100	100

Course Title		Drone Piloting

SYLLABUS		
Unit	**Contents**	**Hours**
I	**Introduction to UAV and Aeromodelling:** ● <u>History of UAVs:</u> Early developments, Milestones in UAV technology. ● <u>Categories and Types of UAVs:</u> Classification based on size and range, Types: Fixed-wing, rotary-wing, hybrid, etc. ● <u>Principles of UAV Operation:</u> Aerodynamics and flight mechanics, Propulsion systems. ● <u>Components and Anatomy of UAVs:</u> Airframe, Power source, Control systems. ● <u>Drone components and power plant</u> - Airframe, Propulsion System, Control Systems, Power plant. ● <u>Configuration and Control Motion of UAVs:</u> Primary control surfaces, Centre of gravity and stability principles.	6
II	**Drone Applications and Stakeholder Regulations:** ● <u>Drone-Based Applications</u> -Surveillance and security, Filmmaking and photography, Search and rescue operations. ● <u>Stakeholders and Regulations</u> - Government bodies and regulatory agencies, Laws and compliance requirements. ● <u>Digital Sky Overview</u> - Introduction to Digital Sky platform, Registration and permissions.	6
III	**Drone Operation and Flight Planning:** ● <u>Modes, Fail-Safe, and Flight Checks</u> - Flight modes: Manual, semi-autonomous, autonomous; Fail-safe mechanisms, Pre-flight checks and procedures. ● <u>Airspace Map and Regulations</u> - Understanding airspace classification, Restricted zones and no-fly areas. ● <u>Type Certificate and Licensing of Drones</u> - Certification process, Licensing requirements for pilots. ● <u>ATC, Zones, and Drone Regulation Categories</u> - Air Traffic Control procedures, Restricted flight zones, Categorization of drone regulations. ● <u>Basic Human Factors Affecting Drone Piloting</u> - Situational Awareness, Cognitive Load, Fatigue, Stress and Anxiety, Environmental Factors.	6
IV	**Drone Assembly and Integration:** ● <u>Simulator Flying Introduction</u> - Basics of flight simulation software, Hands-on session. ● <u>Assembly of Drones</u>- Step-by-step assembly process, Hands-on practice. ● <u>Integration of Drones</u> - Installing propulsion systems, Connecting control systems. ● <u>Introduction to Drone Software</u>- Overview of drone control software, Software simulation hands-on session.	6

V	**Advanced Drone Applications and Design:** ● Agriculture Drone Introduction -Precision agriculture applications, Sensor integration for crop monitoring. ● Agri-Drone Software and Applications -Analysis tools for agricultural data, Crop health assessment algorithms. ● Designing and Analysis of Drones - Introduction to CAD software (e.g., Tinkercad), Structural analysis and optimization. ● 3D Mapping Applications -Principles of aerial mapping, Software tools for creating 3D maps. ● Drone Piloting - Basic flight maneuvers, Hands-on piloting practice.	**6**

Text Book (s):
1. "Introduction to Unmanned Aircraft Systems" by Douglas M. Marshall and Richard K. Barnhart", CRC Press, Taylor and Francis Group Publications, 18th November 2011.
Reference Book (s):
1. "Drone Pilot's Handbook: The Knowledge, the Skills, the Rules" by Adam Juniper, Ilex Press Publications, 1st Edition, 5th May 2016 2. "Aeromodelling Made Easy: Siddharth M. Sharma, Big food Publications, 3rd April 2023
Web Resource (s):
1. Directorate General of Civil Aviation (DGCA) India: The official website provides information on drone regulations, licensing, and registration procedures in India. (https://dgca.gov.in/) 2. Ministry of Civil Aviation (MoCA): Offers updates on policies, guidelines, and initiatives related to civil aviation in India, including drone regulations. (https://www.civilaviation.gov.in/) 3. National Aerospace Laboratories (NAL): Conducts research and development in aerospace and provides resources and publications related to UAV technology. (https://www.nal.res.in/) 4. Drone Federation of India (DFI): A platform for drone enthusiasts and professionals in India, offering news, events, and resources related to drones and UAVs. (https://dfi.in/) 5. India Flying Labs: A community-driven initiative focusing on using drones for social good and capacity building in India, offering workshops, training, and resources. (https://indiaflyinglabs.org/)

Course Coordinator: Captain Srikanth Chandrasekaran

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
V	24UAMVAC2	Value Added Couse - II	30	-	-	100	100

Course Title	Comprehensive Placement Training

SYLLABUS		
Unit	Contents	Hours

I	**Professional Development and Personal Branding:**
	● Building a Personal Brand
	   ● Understanding personal branding and its importance
	   ● Crafting an elevator pitch and personal mission statement
	● Resume Building and LinkedIn Profile Optimization
	   ● Creating a professional resume tailored for aviation industry roles
	   ● Optimizing LinkedIn profile for networking and job search
	● Effective Communication Skills
	   ● Verbal and non-verbal communication techniques
	   ● Active listening skills and empathy in communication
	● Dressing for Success
	   ● Dress code etiquette for interviews and professional settings
	   ● Grooming and personal presentation tips
		6

II	**Airline Interview Preparation:**
	● Understanding the Interview Process
	   ● Types of interviews: behavioral, technical, group discussions, etc.
	   ● Common interview questions and how to approach them
	● Mock Interview Sessions
	   ● Conducting mock interviews with feedback sessions
	   ● Practicing responses to typical aviation industry interview questions
	● Role-play Scenarios
	   ● Simulating real-life interview scenarios, such as handling difficult questions or conflict resolution situations
	● Body Language and Confidence Building
	   ● Techniques to project confidence through body language
	   ● Managing nervousness and stress during interviews
		6

III	**Rounds in Airline Interviews:**
	● Group Discussion and Team Exercises
	   ● Participating effectively in group discussions
	   ● Collaborative problem-solving exercises
	● Technical Round Preparation
	   ● Reviewing technical knowledge relevant to aviation industry roles
	   ● Practicing technical interview questions and case studies
	● Customer Service and Scenario-based Rounds
	   ● Handling customer service scenarios and role-playing exercises
	   ● Dealing with challenging customer situations with empathy and professionalism
	● Assessment Centre and Psychometric Tests
	   ● Understanding assessment centre activities and psychometric tests used in airline interviews
	   ● Strategies for performing well in group activities and individual assessments
		6

IV	**Personality Development and Soft Skills Enhancement:**
	● Leadership Skills and Team Management
	  ● Developing leadership qualities and effective team management skills
	  ● Leading by example and fostering teamwork
	● Problem-solving and Decision-making Skills
	  ● Analytical thinking and problem-solving techniques
	  ● Making effective decisions under pressure
	● Adaptability and Resilience
	  ● Cultivating adaptability in dynamic work environments
	  ● Building resilience to overcome challenges and setbacks
	● Time Management and Prioritization
	  ● Techniques for managing time efficiently and prioritizing tasks
	  ● Balancing work responsibilities and personal commitments
		6	

V	**Final Mock Interview and Feedback Session**
	● Final Mock Interview Simulation
	  ● Conducting a full-length mock interview simulating real airline interview scenarios
	  ● Integration of all learned skills and knowledge
	● Individual Feedback and Improvement Plan
	  ● Providing personalized feedback on performance during the mock interview
	  ● Developing an action plan for continuous improvement and skill enhancement
		6	

Text Book (s):
1. The Power of STAR Method: How to succeed at Behavioral job interview, Martha Gage, Amazon Digital Services LLC Publications, 29th August 2022.
Reference Book (s):
1. "The Art of the Interview: Lessons from a Master of the Craft" by Lawrence Grobel, Crown Publishers, 31st August 2004. 2. "Perfect Phrases for the Perfect Interview: Hundreds of Ready-to-Use Phrases That Succinctly Demonstrate Your Skills, Your Experience and Your Value in Any Interview Situation" by Carole Martin, McGraw Hill Professional, 16th April 2005.
Web Resource (s):
1. LinkedIn Learning: Offers courses on interview preparation, communication skills, and personal branding. 2. Glassdoor: Provides insights into company reviews, interview experiences, and salary information. 3. InterviewBit: Offers coding interview preparation and practice sessions for technical roles in the aviation industry. 4. TED Talks: Inspirational talks on topics related to personal development, leadership, and career success. 5. The Muse: Provides articles, resources, and tools for job seekers, including interview tips and resume advice.

Course Coordinator: Captain Srikanth Chandrasekaran