DDPA

Dhanwantari Drone Pilot Academy, Bangalore - 90.
In Association With
Remote Pilot Training Organisation
Centre for Aerospace Research,
MIT Campus, Anna University, Chennai

REMOTE PILOT HAND BOOK

Personal Information

Name : _____

Father's Name: _____

Mother's Name : _____

DOB : _____ Blood Group : _____

Mobile : _____ E-Mail : _____

Address : _____

_____

_____

State : _____ Nationality : _____

Date of Joining : _____ Batch No : _____

Category of Training: Small only ☐ Small & Medium ☐

In case this DOC is lost / misplaced, finder may please return to the owner.

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M.A.J. Foundation

DHANWANTARI GROUP OF INSTITUTIONS

M.A.J Foundation was founded in 2003 by Dr. Neelam Ahmed (Managing Trustee) and Mr. Arif Ahmed (Chairman). Our institution is dedicated to providing quality education to students of all backgrounds and equipping them to be excellent professionals. The institution is spread across a three-acre campus with easy access to railway, metro and airport. There are separate hostels for boys and girls, with modern facilities and a homely atmosphere.

The College has excellent infrastructure facilities and other features to cater the needs of student community in the competitive era. It aims at holistic development of the students with equal emphasis on co-curricular activities in order to develop the talent and mental ability of the students. The College is committed to providing "Education for the real world" that inspires students to realize their potential.

What makes us different is its outlook towards life, its values and beliefs. Its ever-evolving and open-minded system and quest for continued success and resilience, has made it one of the top universities in India.

Best Computer lab.

Computer lab is a place where students can brain storm to portray their programming and logical skills. Our laboratories are equipped to cater to the students requirement

Best Teachers.

Our concept of learning and teaching is a continuous one that focuses on preparing students to be industry ready along with providing quality and value based education.

Our Director,

Dr. Kishore is a renowned UAV Specialist with DACA licences of flying small and medium category drones. Flt. Lt. Kishore (Retd) has Aeronautical Engineering Expertise from I.A.F and is a contributing member of Beauro of Indian Standards for TED 32, sectional Committee that is creating India's UAV Standards for both civil and defense industries. Our department has two DGCA qualified instructors currently and growing

Best Library.

Our Library holds printed as well as Electronic – Resources, previous years question papers to meet the present and future information requirements of the User's.

New Campus.

Our DDPA (Dhanwantari Drone Pilot Academy) is located at our new campus at #7, Near Chikkabanavara Railway Station, Bangalore - 90, with excellent facilities for drone simulation, maintenance, Battery Charging along with green field (green zone) as per DGCA approvals. The campus is well connected with railway station & bus stand. We also run our college buses as per requirements.

We are proud to collaborate with prestigious CASR-RPTO, MIT Campus, Anna University, Chennai-44, for our DDPA activities.

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In the year 2000, Center for Aerospace Research (CASR) was established in Madras Institute of Technology, Anna University as an autonomous centre for research in the field of Aerospace. For the past two decades, the major focus of CASR has been towards research and development in the field of Unnamed Aerial Vehicles(UAV) and have proved itself to be a pioneer in various drones based societal applications.

CASR is extending its services in the field of unnamed Aeria Vehicles to various Central and State Government Agencies based on existing MoUs signed between Anna University and signed between Anna University and Agencies viz., ISRO (NESAC, NRSC), BEL, COAL INDIA, NDMA, AG AUDIT, DUMS, ODISHA FOREST DEPARTMENT etc., as well as with the state Government of Tamil Nadu and Kerala.

In the year 2012, CASR with its most stable designs, became the only Indian UAV to have dominated the alien skies competing against 153 participating international teams, during May 2012 technology demonstration at Fort Stewart Military base organized by Defense Advanced Research Projects Agency (DARPA), Department of Defense, USA.

A word record initiative for long endurance Multi Rotor Unmanned Aerial Vehicle was carried out on 11th July 2018 at Anna University, Chennai. The record was conducted under the umbrella of FEDERATION AERONATIQUE INTERNATIONALE (FAI) world records. The UAV has endure of 6 months 7min, and 45sec, for which the evidences were recorded and FAI has issued the certificate.

Notable laurels of CASR include Dr. APJ Abdul Kalam Award for contributions in the fields of development of Science, Humanities and welfare of students by the Government of Tamil Nadu during the Independence Day celebrations on 15th August 2018.

The team has received Best Flying Award in the International UAV Medical Express Challenge which was held at Dalby Model Aero Club, Queensland, Australia during September 2018.

The Team has participated in the Mehar baba competition on 3rd of October 2018 which was conducted by Air War Strategy cell, Indian Air force. The main aim of the competition was to use the Swarn Drone Technology for Indian Defense Forces and it was conducted in three phases with 154 participating teams out of these 54 teams were shortlisted for the first phase. Only 20 teams made it to the second phase and the 5 teams made it to the final stage. It is significant that the Anna University and its Drone manufacturing partner Dhaksha Unmanned Systems Pvt. Ltd won the Outstanding **"Winner-Drone Architecture Award"** on 25th october 2021, first of its kind in the world.

Directorate General of Civil Aviation, Government of India has approved CASR, Ann University to be a partner in Remote Pilot Training Organization (RPTO) for conducting UAV pilot training. CASR RPTO is the one and only RPTO offering Medium Class Drone training in the country. And also it is the India's first RPTO offering Medium Category. It will bring out vast benefits by way of enhancing the human capital of the country thereby creating educational and employment opportunities for at least 10,000 youth of the country in a year.

CASR is steping towards formation of Drone Corporation in Tamil Nadu an offshoot of the indigenous and proven capabilities of the CASR Anna University in the field of UAV research and implementation. On 3rd of December, 2021 the state government has given its G.O for establishing the Tamil Nadu Unmanned Aerial vehicles Corporation in partnership with CASR, Madras, Institute of Technology, Anna University. It is no exaggeration that such Drone Technology initiatives by the Government of Tamil Nadu will make the state the Drone capital of the world.

MISSION

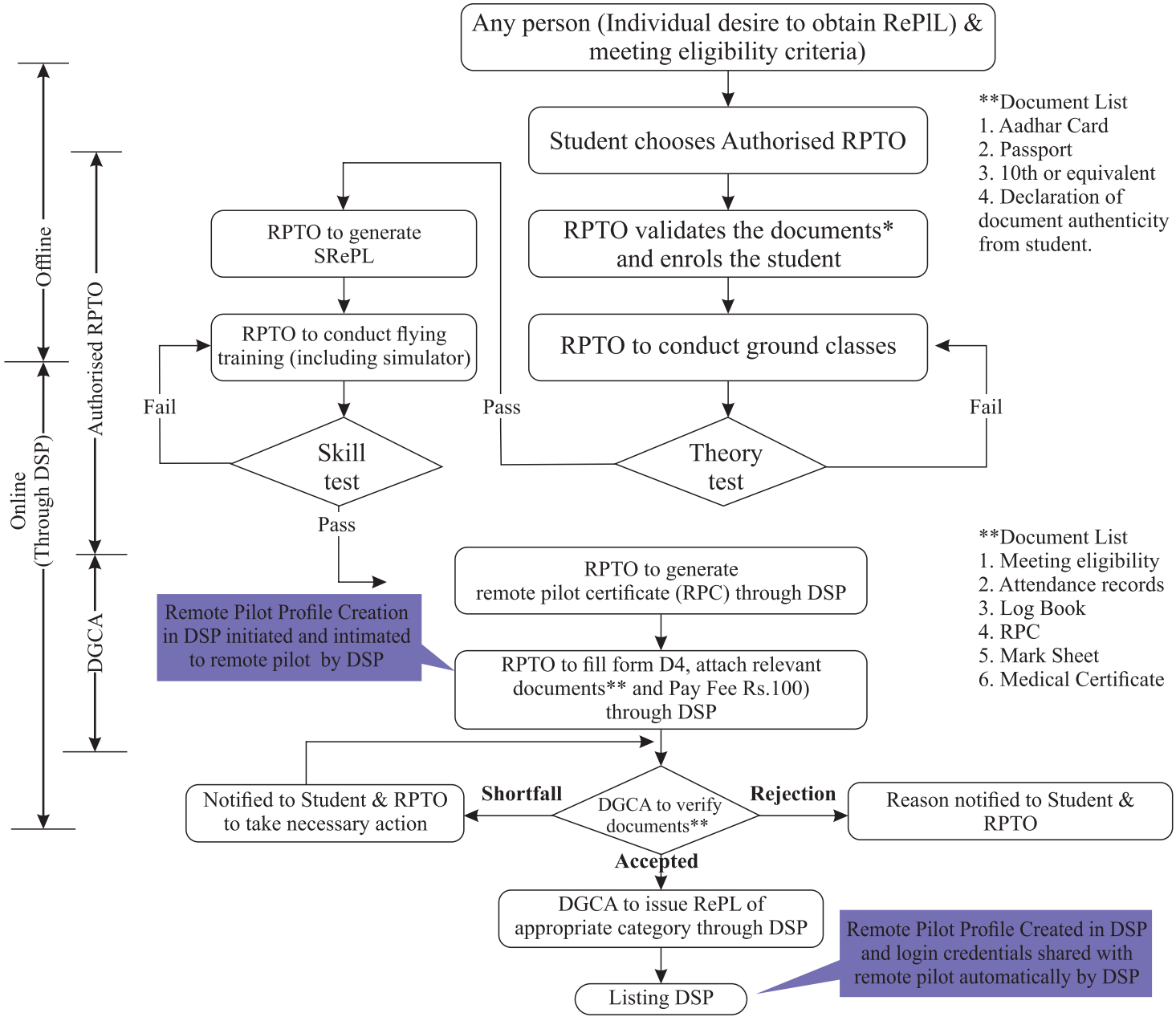
Our continuing mission is to generate best in the world Remote pilot Instructors and Remote Pilots via the safest and quality training by following the rules and regulations of DGCA, Ministry of Civil Aviation, Government of India.

VISION

To develop pioneering Drones technology and quality drone pilots to make India self-reliant for implementing the concept of "One Village One Drone System" thereby ensuring that the drone technology reaches the masses.

REMOTE PILOT LICENCES PROCESS FLOW CHART

(As per DGCA - Drone Rules 2021)



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2023 Calendar

January

S	M	T	W	T	F	S
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February

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March

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August

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November

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Small Category Unnamed Aircraft System (sUAS)

DH - Q4

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2024 Calendar

January

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February

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March

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April

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May

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June

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Medium Category Unmanned Aircraft System (mUAS)

DH - AG-H1

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Telephone & Address

Name	Tel	Mobile
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	E-mail	
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Theory Class

Stake holders & their Laws (Basic) Drone Rules 2021

- International Rules, Regulations, Standards & Practices.
- Civil Aviation Requirements, AIPs, NOTAM
- Classification & Categorization of Drones
- Types Certification of Drones
- Registration, Sales & De-Registration of Drones
- Operation of Drones
- Do's and Don'ts
- Remote Pilot Licensing

Basic Principles of Flight

- Fundamental of Flight
- Aerodynamics
- Take-off, Flight and Landing
- Maneuvers, Turns and Circuit Pattern

ATC Procedures & Radio Telephony

- Understanding ATC Operations
- Airspace Structure and Airspace
- Restrictions with Knowledge of No Drone Zones
- RT Phraseology & Communicating with ATC including Position and Altitude Reporting
- Flight Planning Procedures including Altimeter Setting Procedures
- Collision Avoidance
- Radio Telephony (RT) Techniques

Fixed-wing Operation and Aerodynamics

- Types of Fixed-wing Drones, make, Parts Terminology
- Operation and Maneuvers of Fixed-wing Drones, Flight Performance
- Intro to Mission Planning, Instrument Flying & Navigation (GCS)
- Application of Fixed wing UAVs
- Pros and Cons of Fixed-wing Drones

Rotorcraft Operation and Aerodynamics

- Basic Drone Terminology & Parts
- Types of Drones, Material used and size of Drones
- Drone Anatomy: Different parts of Drones
- Avionics & C2 Link
- Intro to Mission Planning, Instrument Flying & Navigation (GCS)
- Application and Operations of Multi rotor, Flight Performance
- Pros and Cons of Rotocraft Drones

Hybrid Operation and Aerodynamics

- Principles of Aerodynamics

- Types of Hybrid Drone & Parts
- Intro to Mission Planning, Instrument Flying & Navigation (GCS)
- Application of Hybrid UAVs
- Comparison with Rotocraft & Aeroplane

Weather and Metrology

- The Standard Atmosphere
- Measuring Air Pressure
- Heat and Temperature
- Wind
- Moisture, Cloud Formation, Icing and its Effects
- Effect of Atmosphere on RPAS operation & Hazardous Weather Avoidance
- Met Terminal Aviation Routine Weather report (METAR)

Drone Equipment Maintenance

- Maintenance of Drone, Flight Control Box, Ground Station
- Maintenance of Ground Equipment, Batteries and Payloads
- Scheduled Servicing
- Repair of Equipment
- Fault Finding and Rectification

Risk Assessment & Analysis - Safety Management / TEM

- Drone Emergency & Handling
- Loss of C2-Link
- Fly-aways (Straying)
- Loss of Power
- Other Emergencies
- Control Surface Failures
- Human Performance & Pilot In capitation
- Fail-Safe Features

Payload, Installation and Utilization

- Types of Payloads - What to Carry, What not to Carry
- Parts to Payloads
- Installation
- Features of Payloads Utilization

Intro to Drone Data & Analysis

- Principles of Observation
- Elements of Image & Video Interpretation
- Introduction to Photogrammetry
- Types of Image & Video Data
- Analysis

BVOLS Experiment & Night flying operations

- Concept of Operations
- Test Procedure & SORA

Final Test - Theory

Simulator & Hands-on Training

Introduction to Flight Simulator

- Introduction to Flight Simulator
- Sim Familiarization, Controls Check
- Pre-flight Checks, Take off, Cruise
- Approach, Go-arounf & Landing, post - flight Checks
- Cruise and Turns, Climbing and Climbing Turns
- Descend & Descending Turns
- Disorientation & Recovery Circuit Flying - Rectangle of 8
- Gimbal Controls(Pan, Tilt & Zoom)
- Night Flying
- Abnormal/Emergency Procedures

Simulator Test

Basic Assembly & Maintenance

- Assembling of Drone
- De-Assembling
- Integration of sub-sections/Modules
- Integration of Engine/Propulsion system
- Fault Finding and Rectification
- Repair Maintenance and Documentation

Practical Flying with Instructor / Solo Flying

- Intro to Digital Sky Platform
- RPAS Familiarization & Safety Briefing
- Introductory Flight Where the Student Experiences Sensitivity of Controls and learning the orientation of the RPA
- Take-off, Climbing, Descending and maintaining height
- Basic controls: Pitch, Roll and Yaw
- Disorientation & Recovery
- Progress Check-Multirotor
- Level turns in both directions
- Climbing and descending turns
- Left & Right square circuits patterns
- Flying in figure of 8
- Mission planning & instrument flying
- Auto mission & fight
- Night flying
- Abnormal/Emergency procedures

Simulator Exercise

Exercise No.	Duration (Min)	Progressive (Hrs)	Exercise
1	0:20	0:20	Introduction to flight simulator
2	0:15	0:35	Sim familiarization, controls check
3	0:15	0:50	Pre-flight checks, take off, Cruise
4	0:10	1:00	Approach, go-around & Landing post flight checks
5	0:15	1:15	Cruise and turns, Climbing and climbing turns
6	0:15	1:30	Descend & descending turns
7	0:10	1:40	Disorientation & Recovery
8	0:30	2:10	Circuit Flying - rectangle/ square / circle / orbit, flying-figure of 8
9	0:10	2:20	Gimbal Controls (Pan, till & zoom)
10	0:15	2:35	Night Flying
11	0:10	2:45	Abnormal / Emergency Procedures
12	0:15	3:00	Simulator Test

Note : Adequate practice would be facilitated, before commencement of Air exercise

Air Exercise

Exercise No.	Duration (Min)	Progressive (hrs)	Dual/ Solo	Exercise
1	0:20	0:20	Dual	Digital Sky Platform Fam.
2	0:15	0:35	Dual	RPAS Fam. & Safety Briefing
3	0:15	0:50	Dual	Introductory flight
4	0:15	1:05	Dual	Take-off Climb, Descent & Maintain Height
5	0:25	1:30	Dual	Basic Controls : Pitch, Roll and Yaw
6	0:15	1:45	Solo	
7A	0:05	1:50	Dual	Disorientation Recovery
7B	0:10	2:00	Solo	
8	0:15	2:15	Solo	Progress Check
9A	0:05	2:20	Dual	Level turns
9B	0:10	2:30	Solo	
10A	0:05	2:35	Dual	Climbing & Descent Turns
10B	0:10	2:45	Solo	
11A	0:10	2:55	Dual	Left & Right Square Circuits Patterns
11B	0:10	3:05	Solo	
12A	0:05	3:10	Dual	Flying in circles
12B	0:10	3:20	Solo	
13A	0:05	3:25	Dual	Figure of 8
13B	0:10	3:25	Solo	
14	0:10	3:45	Dual	Mission planning & Instrument Flying
15	0:05	3:50	Dual	Auto mission & Flight
16	0:10	4:00	Dual	Night Flying
17	0:10	4:10	Dual	Abnormal /Emergency Procedures
18	0:20	4:30	Solo	Final Test

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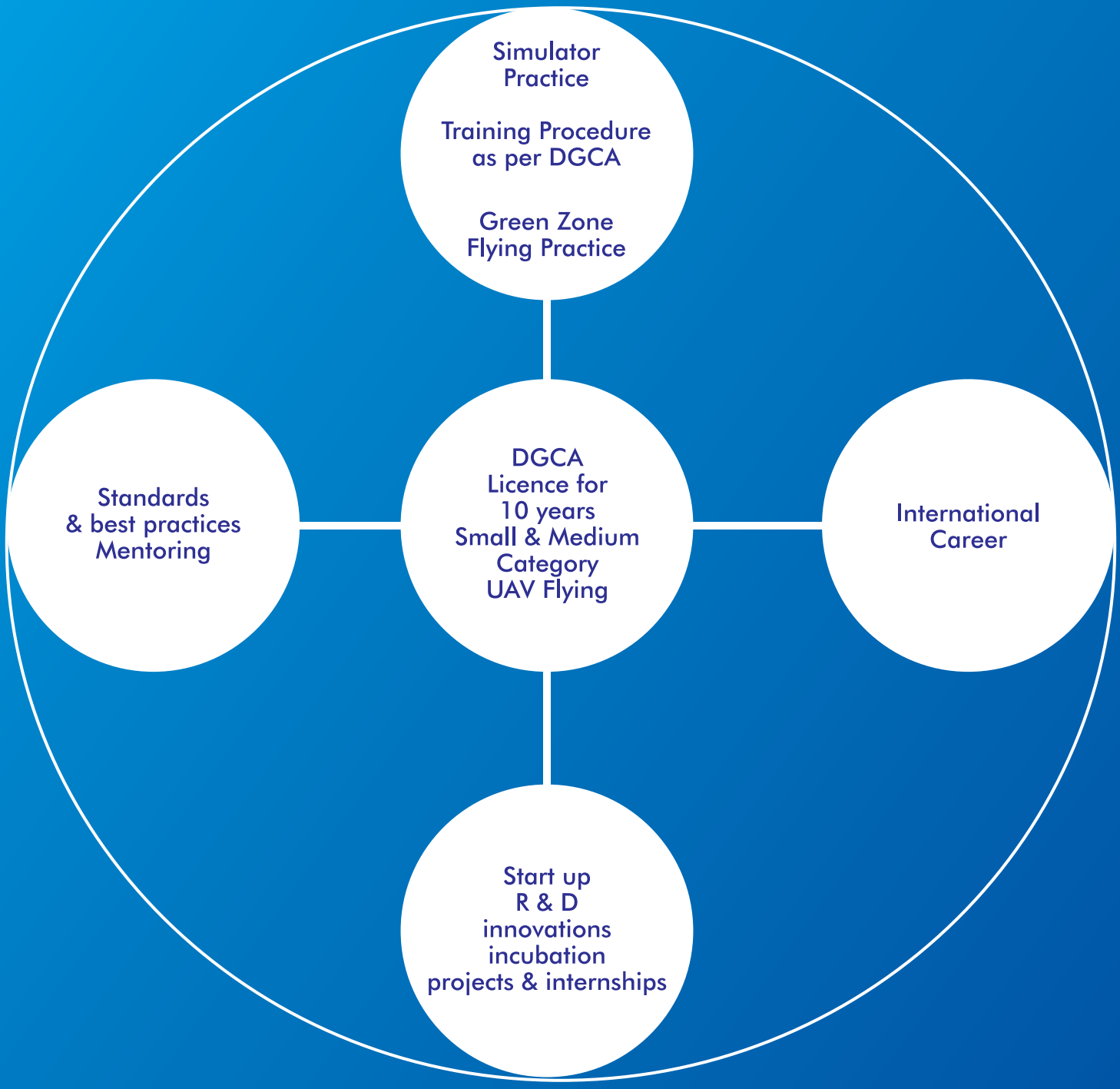
Date : ____/___/_____

OUR SPECIAL SUCCESS YANTRA



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