

Annual Report

Team Onyx India (2017-2018)

K. J. Somaiya College of Engineering, Mumbai-77
(Autonomous College Affiliated to University of Mumbai)

Name of the organization/chapter/project: Team Onyx India
List of Members/Details of Committee- 2017-2018

Sr. No.	Name of the Faculty advisor/ in-charge	Department	Portfolio
1	Professor Prashant Jain	Mechanical	Adviser

Sr. No.	Name of Student	Department	Portfolio
1.	Samruddha Gawande	Mechanical	Captain
2.	Vishal Thakkar	Mechanical	Marketing Lead
3.	Parth Gabani	Mechanical	Aerodynamics Lead
4.	Burhanuddin Bhavnagarwala	Mechanical	Structural Lead
5.	Mayur Nandu	EXTC	Propulsion Lead
6.	Adhiraj Pimpalkar	Mechanical	Manufacturing Lead
7.	Dhanesh Pamnani	Mechanical	Aerodynamics
8.	Tushar Patil	Mechanical	Aerodynamics
9.	Prathamesh Chine	Mechanical	Aerodynamics
10.	Arpit Shah	Mechanical	Structures
11.	Punit Bhanushali	Mechanical	Structures
12.	Saurabh Shetake	Mechanical	Structures
13.	Rasika Jadhav	Mechanical	Manufacturing
14.	Nadeem Noor Mohammed	Mechanical	Manufacturing
15.	Raj Mandal	Mechanical	Manufacturing
16.	Akshay Bhanushali	Mechanical	Propulsion
17.	Sangram Hande	Mechanical	Propulsion
18.	Devarsh Rawal	Mechanical	Propulsion

Photo of members/committee – 2017-2018

Team Onyx India



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Details of events/activities held during academic year 2017-2018

Sr. No. of Event / Activity	Day/Date	Year	Month	Time	Venue	Description of Activity
1.	9 th - 10 th September	2017	September	--	SPCE,Andheri	Aero-Modelling Workshop : An Aero-modelling workshop was conducted to teach students about 'Basics of Design and fabrication of RC Aircrafts'
2.	22 nd - 23 rd September	2017	September	--	KJSCE	Aero-Design Workshop : A Aero-Design workshop was conducted to teach students about 'Designing of Aircrafts and applications'
3.	28 th December	2017	December	--	IIT,Bombay	Boeing National Aeromodelling Competition: Participation in Boeing National Aeromodelling Competition.It was held at IIT Bombay
4.	12 th -13 th January	2018	January	--	KJSCE	Multi Blade-Drone Competition : A Drone competition open to public was conducted to show the portability and utility of a drone.It was conducted during Abiyantriki.
5.	13 th - 16 th July	2018	July	--	Chennai	SAE Aero-Design Challenge : Participation at SAE Aero-Design Challenge held at Anna University, Chennai

Reports of event/activity

Sr. No. of Event / Activity	Day/Date	Year	Month	Time	Venue	Description of Activity
1	9 th - 10 th September	2017	September	--	SPCE,Andheri	Aero-Modelling Workshop : An Aero-modelling workshop was conducted to teach students about ‘Basics of Design and fabrication of RC Aircrafts’

Details of participation in the event/activity
(Fill wherever is applicable or information is available. At least total need to fill)

No of students / faculty	COMP	ETRX	EXTC	IT	MECH	Total no of participants
FY						36
SY						
TY						
LY						
No of Faculty						

Report of event/activity

Aero-Modelling Workshop

Team Onyx India conducted an Aero-modelling workshop in Sardar Patel College of Engineering on the topic “Basics of Aero-modelling” that involved design and fabrication of glider aircraft. This was done with a view to spreading knowledge regarding this field of aviation and aeronautics among fellow students. It was a 2-Day workshop where the first day was spent to teach students about Aerodynamics and operations of an aircraft and the second day was used to help students build their own glider aircraft.

Sample Photographs of the Event/Activity



Sr. No. of Event / Activity	Day/Date	Year	Month	Time	Venue	Description of Activity
2	22 nd - 23 rd September	2017	September	--	KJSCE	Aero-Design Workshop : A Aero-Design workshop was conducted to teach students about ‘Designing of Aircrafts and applications’

Details of participation in the event/activity
(Fill wherever is applicable or information is available. At least total need to fill)

No of students / faculty	COMP	ETRX	EXTC	IT	MECH	Total no of participants
FY						32
SY						
TY						
LY						
No of Faculty						

Report of event/activity

Aero-Design Workshop

Team Onyx India conducted an Aero-Design workshop in the college premises on the topic “Basics of Aero-Design” that involved basics of aerospace and aeronautical engineering and designing of an aircraft on an analysis tool software, followed by an Air Show on 23rd September. The program was initiated with a motive of briefing the participants about the basics of aerodynamics, flight performance, controls and stability in the simplest manner, so that even the common person can follow and learn the subject with just sheer passion for the field.

Sample Photographs of the Event/Activity



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Sr. No. of Event / Activity	Day/Date	Year	Month	Time	Venue	Description of Activity
3	28 th December	2017	December	--	IIT,Kanpur	Boeing National Aeromodelling Competition: Participation in Boeing National Aeromodelling Competition.It was held at IIT Kanpur

Details of participation in the event/activity
(Fill wherever is applicable or information is available. At least total need to fill)

No of students / faculty	COMP	ETRX	EXTC	IT	MECH	Total no of participants
FY						9
SY						
TY						
LY						
No of Faculty						

Report of event/activity

Competition: Boeing National Aeromodelling

Overview

Team Onyx India participated in Boeing National Aero-modelling Competition that is held at IIT Kanpur from 28th-30th December 2017.It was a competition for undergraduate Aero-Modelling Enthusiasts to test their fabrication and designing skills at a basic level. The aircraft built in this competition have gliding as their primary function and had certain design constraints.

Preparations

We had started preparing for the competition in the month of September. As we had an influx of new members, we wanted to teach them the very basics of fabrication, designing and also wanted them to experience the environment in a competition to help them in the long run.We started to design and choose our parameters while simultaneously using ideas and innovations from the new recruits. We then moved on to the stage of fabrication after the month of September ended. The fabrication went relatively quicker as material selection was done to make the process quick while making the cost as less as possible. The fabrication process ended and the flying practices was started to ensure that pilots are ready for the competition. These practices honed the skills of the pilot to the point where they can fly the aircrafts at relative ease.

Competition

The competition started with procession by the organisers about the sport of Aero-Modelling and encouraging thorough participation in the future as well.This was followed by the test of thrust-to-weight ratio, in which every aircraft goes through with inspection on intricate details. This was followed by flights of the aircraft and each aircraft was given 2 turns of flight.The scoring was based on the the glide time of each aircraft.The day concluded as winners with highest glide time were announced and awarded respectively.

Conclusion

The Competition was a very good experience for the new recruits and will definitely prove useful in future ordeals as they will have experienced the environment of a real competition. The pilots also did a professional job as they learned flying and maneuvering at a very fast rate, paving the way for great future potential.

Details of prizes (wherever applicable fill all the entries)

Sr. No.	Name of the student	Department	Details of prize won	Remarks
1	Team Onyx India 2017-2018	MECH	--	

Sample Photographs of the Event/Activity



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Sr. No. of Event / Activity	Day/Date	Year	Month	Time	Venue	Description of Activity
4	12 th -13 th January	2018	January	--	KJSCE	Multi Blade-Drone Competition : A Drone competition open to public was conducted to show the portability and utility of a drone. It was conducted during Abiyantriki.

Details of participation in the event/activity
(Fill wherever is applicable or information is available. At least total need to fill)

No of students / faculty	COMP	ETRX	EXTC	IT	MECH	Total no of participants
FY						257
SY						
TY						
LY						
No of Faculty						

Report of event/activity

Overview :

Multi-Blade was an event created by us in order to let people and students alike experience the feeling of flying a drone. We received heavy participation from people of various age groups with the count going over 250 people. The event was also a competition in which participants had to complete a track with the drone. Prizes were offered to the best performers who had completed the track in the least amount of time. The event was conducted with the help of Drona Aviation and Interview Buddy. The event was organised during MakerMela 2018 in association with Riidl.

Sample Photographs of the Event/Activity



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Sr. No. of Event / Activity	Day/Date	Year	Month	Time	Venue	Description of Activity
5	13 th - 16 th July	2018	July	--	Chennai	SAE Aero-Design Challenge : Participation at SAE Aero-Design Challenge held at Anna University, Chennai

Details of participation in the event/activity
(Fill wherever is applicable or information is available. At least total need to fill)

No of students / faculty	COMP	ETRX	EXTC	IT	MECH	Total no of participants
FY						14
SY						
TY						
LY						
No of Faculty						

Report of event/activity

Competition: SAE Aero-Design Challenge

Overview

SAE Aero-Design Challenge is a national level competition where Aero-modelling teams from all over the country participate to be the best. The competition is held at Anna University, Chennai and managed by numerous officials from SAE and DRDO alike. The competition is divided into two parts, Micro and Regular Class. Micro class focuses on a smaller aircraft while Regular Class focuses on a much larger aircraft with high payload lifting capability. We took part in both the classes as we believed we had enough experience and support to compete in both the classes.

Preparations

We had set our goals at the start of new term in the month of July. From the start we always worked keeping it as the main priority. Analysing the problem statement we made many prototypes, we then finalised the design decisions and fabricated a real prototype by the end of November. By this time we already were in the optimization of performance stage and were in constant talks with our pilot if we can further optimize it to suit his needs. The final aircraft was ready by the end of the month of February. The team then started to focus on the creation of Design report and the preparation of Technical Presentation for both the classes respectively. At the end of the month of April both the aircrafts were ready for the competition and the team was ready for the stage of packing and then commuting to the competition.

Competition

The first day of the competition was mainly focused for preparing and informing the participants about the schedule and rules of the competition. The first day was for technical inspections and an opening ceremony for the students. The day was concluded with a speech by the chairman of SAE India.

The second day was heavily focused on the technical presentations and formal reports. The team was ready for the presentations and by the end of the day both the classes had finished their presentations. The team finalised some fabrication changes and was ready for the flights the next

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day.

On the third day, the team was scheduled for flights in the afternoon. The team was observing how other teams were faring and communicated with numerous other teams to get new ideas that they can use for their future designs. Unfortunately due to unruly winds, our Micro Aircraft did not have a successful flight. Our Regular Class Aircraft on the other hand a very good flight round thus boosting our flight score.

Conclusion

The competition ended with the distribution of prizes for the respective winners. We were able to secure 1st and 3rd rank for Technical Presentation and Design Report respectively. The team had tasted victory for the first time in the past few years and this motivated us to go higher than ever before.

Details of prizes (wherever applicable fill all the entries)

Sr. No.	Name of the student	Department	Details of prize won	Remarks
1	Team Onyx India 2017-2018	MECH	1) 1 st in Technical Presentation (Micro Class). 2) 3 rd in Design Report (Micro Class). 3) 9 th Overall (Regular Class)	

Sample Photographs of the Event/Activity

