Academic Council 25/05/2011
Item No. 4.50

UNIVERSITY OF MUMBAI

Ordinances, Regulations & Syllabus for
F.Y.B.Sc.
Program: B.Sc.
Course : Aviation

(Credit Based Semester and Grading System with effect from the academic year 2011–2012)

ORDINANCES AND REGULATIONS RELATING TO DEGREE OF BACHELOR OF SCIENCE (AVIATION)

The existing O.5091 is read as under:-

O.5091: - A candidate for being eligible for admission to B.Sc (Aviation) must have passed the Higher Secondary School Certificate (Standard XII) Examination conducted by the Maharashtra State Board of Secondary Education, Pune or an examination of any other Government recognized board as equivalent thereto, with the subjects English, Physics and Mathematics

The O.5091is amended to read as under:-

O.5091: - A candidate for being eligible for admission to B.Sc (Aviation) must have passed the Higher Secondary School Certificate (Standard XII) Examination conducted by the Maharashtra State Board of Secondary Education, Pune or an examination of any other Government recognized board as equivalent thereto, with the subjects English, Physics and Mathematics

OR

A candidate who has passed post SSC, Three year Engineering / Technology diploma course with Mathematics and Physics

OR

A candidate who has passed post HSC diploma (one year after twelfth standard) of Maharashtra Board of Technical education or AICTE approved or any other recognized government body in Information Technology / Computer Technology / Computer Engineering / Computer Science / Electrical, Electronics & Video Engineering & allied branches / Mechanical & allied branches / Chemical & allied branches / Civil & allied branches.

R.8388:- B. Sc. Degree in Aviation will be awarded to the student only after submitting verified Commercial Pilot Licence (obtained from DGCA / ICAO / FAA / JAR / CASA / TPT.CANADA) to the examination section of the University of Mumbai.

R.8389:- For every 40 hours of flying done by the student, 4 credits will be given in each Semester. Students already holding Commercial Pilot License (CPL) will be eligible for full credits in practical.

R.8390:- The Students will have to complete minimum 200 hrs of flying training to obtain CPL (Commercial Pilot License) which is the requirement of the DGCA. To obtain B.Sc. Degree (Aviation) it is mandatory for the student to obtain CPL (Commercial Pilot License) and submit the copy to the examination section of the Mumbai University, through concerned college.

FLYING

The Students will have to complete minimum 200 hrs of flying training to obtain CPL (Commercial Pilot Licence) which is the requirement of the DGCA. **To obtain B.Sc Degree (Aviation) it is mandatory for the student to obtain CPL (Commercial Pilot Licence) and submit the copy to the examination section of the Mumbai University, through concerned college.**

The Candidates shall be examined in the following subjects:-
In each Semester

Subject	Credits
Navigation (General)	5
Air Regulations	3
Meteorology (General)	3
Aircraft & Engines (General)	5
Flying Experience / Flying Check (Practical Upto Fifth Semester)	4

Note: In Sixth Semester there is no flying. Flying is replaced by project work.

B.SC (Aviation Course Structure) – SEMESTER I

Class	Class room instruction Face to Face									Notional			Total			Credits
F.Y.B.Sc.	per week			per sem			per sem hours									
Aviation	L	P	T	L	P	T	L	P	T	L	P	T	L	P	T	
USAV 101 Air Navigation I	4	-	-	60	-	-	48	-	48	102	-	-	150	-	-	5
USAV 102 Air Regulation I	3	-	-	45	-	-	36	-	36	54	-	-	90	-	-	3
USAV 103 Meteorology I	3	-	-	45	-	-	36	-	36	54	-	-	90	-	-	3
USAV 104 Aircraft & Engine I	3	-	-	45	-	-	36	-	36	114	-	-	150	-	-	5
USAV 105 Flying	-	3	Briefing and Debriefing 3	-	45	45	-	36	36	-	36	12	120	-	-	4
Total	13	3	3	195	45	45	156	36	36	324	36	12	600	-	-	20

B.SC (Aviation Course Structure) – SEMESTER II

Class	Class room instruction Face to Face									Notional			Total			Credits
F.Y.B.Sc.	per week			per sem			per sem hours									
Aviation	L	P	T	L	P	T	L	P	T	L	P	T	L	P	T	
USAV 201 Air Navigation II	4	-	-	60	-	-	48	-	48	102	-	-	150	-	-	5
USAV 202 Air Regulation II	3	-	-	45	-	-	36	-	36	54	-	-	90	-	-	3
USAV 203 Meteorology II	3	-	-	45	-	-	36	-	36	54	-	-	90	-	-	3
USAV 204 Aircraft & Engine II	3	-	-	45	-	-	36	-	36	114	-	-	150	-	-	5
USAV 205 Flying	-	3	Briefing and Debriefing 3	-	45	45	-	36	36	-	36	12	120	-	-	4
Total	13	3	3	195	45	45	156	36	36	324	36	12	600	-	-	20

L – One Lecture / period of 48 minutes, P – Practical, T – Tutorial
Notional includes time spent in library / home / other institutions for preparation and writing of assignment, quizzes, Open book test, journal, case studies

F.Y.B.Sc. Aviation Syllabus
Restructured for Credit Based and Grading System
To be implemented from the Academic year 2011-2012

Semester I

Course Code	Title	Credits
USAV101	**Air Navigation I**	**5 Credits (60 lectures)**
Unit I **1) Shape of Earth:** - Form of Earth, its Axis and Poles, Equator, Parallels of Latitude, Meridians of Longitude. **2) Position of Earth:** - Prime Meridian, Position expressed in Latitudes and Longitude Co-ordinates, Great and Small Circles, Departure, Great Circle Track and Distances, Rhumb Line Track and Distances. **3) Earth Magnetism:** - True, Magnetic, Compass Directions, Variation, Deviation, Cardinal and Quadrantal points, Degrees, Minutes and Seconds. 4) **Units of Measurement:** - Nautical Mile, Statute Mile, Kilometer etc, Conversion of Units. **Projections**: - Distortions in presenting a spheroidal surface on a plane surface, Methods of indicating scale, Methods of showing relief on Maps, Orthomorphism and its requirements		**18 Lectures**
Unit II 1) **Navigation Computer:** - Slide rule Face, Distance, Speed, Time and Conversions, TAS and Altitude Conversions, Triangle of velocities, Calculation of Track and Ground Speed. Wind finding and calculation of Hdg. 2) Exercises in preparation of Flight Plans 3) The 1 in 60 Rule: - Use in navigation and other applications.		**24 Lectures**
Unit III **1) Mercator Chart**: - Construction, Scale expansion, Measurement of Tracks and Distances, Properties and Uses. **2) Air Speed Indicator**: - Static Pressure, Pitot Pressure, Dynamic Pressure, IAS, CAS, EAS, TAS, Square Law compensation, Limiting Speeds, ASI Errors. **3) Altimeters**: - Principle of Construction, Rate of pressure change with Altitude, Sensitive Altimeter Construction, Subscale setting, Servo assisted Altimeter, Altimeter errors **4) Radio Wave Propagation**: - Cycle, Amplitude, Frequency, Wavelength Frequency relationship, Phase and Phase Difference, Polari$zation, Modulation, Sidebands, Designation and classification of emissions, Properties of Radio waves, Radio Spectrum. **5) Communications:** - VHF, Factors Affecting VHF Range, Duct Propagation, Atmospheric Attenuation.		**18 Lectures**

REFERENCE BOOKS

TITLE	PUBLISHER
1. Air Pilot's Manual Vol 3 & 5	Peter D Godwin
2. Flight Performance & Planning	Nordian AS
3. General Navigation: ATPL JAR	Nordian AS
4. GSP : Plotting & Flight Planning	Underdown
5. GSP : Radio Aids	Underdown
6. GSP : Flight Instr. & Auto Flt.	Underdown
7. GSP : Navigation	Underdown
8. Radio Navigation ATPL JAR	Nordian AS

Course Code	Title	Credits
USAV102	**Air Regulation I**	**3 Credits (45 lectures)**
Unit I **Indian Aircraft Act 1934** Rules 1, 2, 8, 10, 11 & 12 **Indian Aircraft Rules 1937** Part I – Extent & Definitions Part II – General Flying Conditions Rules – 4 to 20 Part III – General Safety Conditions Rules – 21, 24, 24A, 24C Part IV – Registration and marking of Aircraft Change in ownership Rules – 33 & 34 Part V – Personnel of Aircraft Rules – 38, 38 A(1) (a), 38 A(5), 38 A(6),38 A(7), 42 A & 47.		**15 Lectures**
UNIT II Part VI – Airworthiness Rules 52, 53 & 55 Part VII – Radio Telegraphic Apparatus Rule 63 Schedule I – Prohibited Areas Schedule II – Private Pilots Licence, Validity, Renewal & Privileges, General Requirements Schedule III – Instrument Rating – Validity, Renewal & Privileges, General Requirements		**11 Lectures**
UNIT III Schedule IV – Rules of the Air (Excluding water operations & Sea Planes) Relevant Contents of Aeronautical Information publication Relevant notices to Airmen Aeronautical Information circular Civil Aviation Requirements		**19 Lectures**

REFERENCE BOOKS

	TITLE	PUBLISHER
1.	Aviation Act 1934	Ministry of Civil Aviation
2.	Indian Aircraft Rules	Ministry of Civil Aviation
3.	Aeronautical Information Publication	Ministry of Civil Aviation
4.	Aircraft Manual	India

Course Code	Title	Credits
USAV103	**Meteorology I**	**3 Credits (45 lectures)**

Unit I — **14 Lectures**

a) The Atmosphere : Composition, Extent, Vertical Division

b) Temperature :

- Vertical distribution of Temperature
- Transfer of heat
- Solar and Terrestrial Radiation
- Conduction
- Convection
- Advection and Turbulence
- Lapse rate, Stability and Instability
- Development of Inversions, Types of Inversions
- Temperature near the earth's surface, Surface effects, Diurnal variation,
  Effect of Clouds, Effect of wind.

c) Atmospheric Pressure

- Barometric pressure, Isobars
- Pressure variation with height, Contours (Isohypses)
- Reduction of Pressure to mean sea level
- Surface Low / Upper – Air low, Surface high / Upper – Air High

Unit II — **14 Lectures**

a) Atmospheric Density : Interrelationship of Pressure, Temperature and Density

b) International Standard Atmosphere (ISA)

- International Standard Atmosphere

c) Altimetry

- Pressure Altitude, True Altitude
- Height, Altitude, Flight Level
- Altimeter Settings, QNH, QFE, 1013.25hpa

WIND

a) Definition and measurement

b) Primary cause of Wind

- Primary cause of wind, Pressure Gradient, Coriolis Force, Gradient Wind
- Relationship between Isobars and Wind
- Effects of Convergence and Divergence

Unit III	**17 Lectures**
a) General Circulation : • General Circulation around the Globe b) Turbulence • Turbulence and Gustiness, Types of Turbulence • Origin and Location of Turbulence c) Variation of Wind with Height • Variation of Wind in the friction layer • Variation of the Wind caused by fronts d) Local Winds • Anabatic and Catabatic Winds, Land and Sea breezes e) Vertical Movements, Mountain Waves, Windshear, Turbulence, Ice Accretion f) Visibility Reducing Phenomena • Reduction and visibility caused by Mist, Smoke, Dust, Sand and Precipitation • Reduction of visibility caused by low drifting and blowing snow	

REFERENCE BOOKS

	TITLE	PUBLISHER
1)	Ground Studies for pilots	R. B. Underdown & John Standan
2)	Meteorology for Pilots	Mike Wickson
3)	Meteorology for Pilots	Mudge
4)	Meteorology for Pilots	Mcgraw Hill
5)	Weather	R.S.Scorer
6)	Meteorology for Aviators	Sutcliffe
7)	Elementary Note on Indian Climatology	India Met Dept.
8)	Handbook of Aviation Meteorology	HMSO
9)	Meteorology for Airmen Dept.	Parts I & II Met.
10)	Climatological Atlas for Airmen	India Met Dept.
11)	Meteorological Glossary	HMSO.
12)	Weather Study	Brunt
13)	The Weather Map	HMSO.
14)	Ground Study for Pilots	Taylor & Parmar

Course Code	Title	Credits
USAV104	**Aircraft & Engines I**	**5 Credits (45 lectures)**
Unit I • Gas Laws, work, power, moment , momentum, non-linear motion, ISA, Pressure Altitude, Speed of sound , Mach number , Bernoulli equations. • Aerodynamics: Aerofoil, Aerofoil parameters, Lift , Drag, Laminar flow, Turbulent flow, Stall, Reynolds Number, C.G- computation, Forces on aircraft in Cruise • Types of drag, drag-Speed relation • Flight controls: Axes of rotation, six degree freedom , Basic primary and secondary flight controls, Trim control, tabs, powered controls, artificial feel, load factor , stability and controllability, • Piston engine : working on 4-Stroke Otto Cycle, Modified Valve timing, Carburation, Supercharging, Mixture control, Ignition system, Lubrication system, Fuel injection system, Mag-drop check, Detonation, Kick-back, Octane value of fuel, Ignition systems, Magneto, Auxiliary starting systems • Propeller: Principle and construction , CSU, Feathering, Reverse Thrust		**20 Lectures**
Unit II • Electrical Power: Alternator , Battery, Inverter, Rectifier, TR unit, CSD, Voltage regulator, Volt, Ampere, Ohm, Watts, Power factor, AC & DC Current, Poly phase system, Electrical power distribution in small light aircraft and heavy jet aircraft, Paralleling of alternators & batteries, Synchronisation concept, Infinite Bus Bar, Electrical system protection , fuse, CB • Hydraulic system : Reservoir, EDP, ADP, RAT, PTU, Electric pumps, Accumulator , Distribution, Redundancy, Indications • L.G: components, gear tilt, Normal Operation, Alternate extension, indication and warnings, Air Ground sensing, Antiskid, auto brake , brake system, Parking Brake, Nose wheel steering system		**10 Lectures**
Unit III • Aircraft environment control system: Pressurisation system, out flow valves, Air Cycle Machines, • Crew & Pax Oxygen systems, Chemical Generation of Oxygen in aircraft • Ice and Rain Protection: Anti ice and Deice systems • Light single engine performance: T/O, CLB, CRS, Range, Endurance, Landing Performance • AFM, Operations Manual, POH, Maintenance Manual, MEL, MMEL, check list		**15 Lectures**

REFERENCE BOOKS

TITLE	PUBLISHER
1) Flight Without Formula	Kermode
2) Aero Engines for students	Allen and Unwin
3) Gas Turbine and Jet Propulsion	Smith
4) Handbook of Aeronautics	Royal Aeronautical Society
5) Civil Aviation Requirements	DGCA India
6) Principles of Flight	Bert A Shield
7) Performance of Civil Aircraft	Barker
8) From the Ground Up	Sandy A. F. Macdonald
9) Manual of Flying (AP 129)	Air Ministry UK

Semester II

Course Code	Title	Credits
USAV201	**Air Navigation II**	**5 Credits (60 lectures)**
Unit I **Communications**: - HF, Ionospheric Layers, Conditions of Refraction, Skip Distance and Dead Space, Fading, Ranges Available, SELCAL. **ADF:** - Loop Theory, Resolution of Ambiguity, ADF Control unit, BFO or CW / RT, Uses of ADF, Homing and Tracking away from the station, Factors affecting range and accuracy of ADF. **Vertical Speed Indicator**: - Principle of Operation, Instantaneous Vertical Speed Indicator, Errors		**18 Lectures**
UNIT II **Gyroscope:** - Gyro Fundamentals, Rigidity, Precession Free Gyro, Tied Gyro, Gyroscopic Drift and Topple, Real Drift, Apparent Drift, Transport Drift, Ring Laser Gyro. **Direction Gyro Indicator:** Construction and Principle of Operation, Erection System, Gimbal error, Drift calculations, Drift compensation. **Artificial Horizon:** - Construction and Principle of Operation, Erection Mechanism, Acceleration Errors. **Turn and slip Indicator:** - Construction and Principle of Operation, Turn Co-ordinator.		**20 Lectures**
Unit III **Lamberts Conical Orthomorphic Projection:** - Modification of Simple Conic Projection, Orthomorphism, Scale Errors, Chart Convergence, Properties, Advantages and Disadvantages. **VOR**: - Principle of Operation, Derivation of Phase Difference, Airborne Equipment, OBS, To/From and Left / Right Deviation Indicator, VOR Frequencies, Use of VOR, Cone of Confusion, Factors affecting VOR Range and Accuracy, Advantages / Disadvantages as a Navigational Aid, TVOR, DVOR, Exercises on use of VOR indications and RBI. **RMI:** - QDM's and Relative Bearing Indications, Discrepancies in VOR and ADF Indications, Advantages of RMI, VOR – NDB – RMI Exercises.		**22 Lectures**

REFERENCE BOOKS

TITLE	**PUBLISHER**
1. Air Pilot's Manual Vol 3 & 5	Peter D Godwin
2. Flight Performance & Planning	Nordian AS
3. General Navigation: ATPL JAR	Nordian AS
4. GSP : Plotting & Flight Planning	Underdown
5. GSP : Radio Aids	Underdown
6. GSP : Flight Instr. & Auto Flt.	Underdown
7. GSP : Navigation	Underdown
8. Radio Navigation ATPL JAR	Nordian AS

Course Code	Title	Credits
USAV202	**Air Regulation II**	**3 Credits (45 lectures)**
Unit I **Air Traffic Services** • Objectives & Divisions • Aerodrome Control Service • General Procedure • Control of Traffic in Circuit • Control of Traffic on Maneuvering Area • Light & Ground Signals		**15 Lectures**
Unit II • Distress & Urgency Signals • Navigation Lights to be displayed by the Aircraft • ATS Routes Designators • Semi Circular system of Cruising levels • Altimeter setting procedures		**13 Lectures**
Unit III • Search & Rescue Organisation and procedures in India • Indian Aircraft Rules 1920 • Rules 53, 54, 56, 60, 61 & 62 • Indian Aircraft (Public Health) • Rules1954, Part I, Part II – General, Part III, Part IV		**17 Lectures**

REFERENCE BOOKS

	TITLE	PUBLISHER
1.	Aviation Act 1934	Ministry of Civil Aviation
2.	Indian Aircraft Rules	Ministry of Civil Aviation
3.	Aeronautical Information Publication	Ministry of Civil Aviation
4.	Aircraft Manual	India

Course Code	Title	Credits
USAV203	**Meteorology II**	**3 Credits (45 lectures)**
Unit I : JET STREAMS • Description and location of Jet Streams • Names, Heights and Seasonal Occurrence of Jet Streams • Jet Stream Recognition • CAT: Cause, Location and Forecasting **STANDING WAVES** • Origin of Standing Waves **THERMODYNAMICS** • Humidity • Water Vapour in the Atmosphere • Temperature / Dew Point, Mixing Ratio, Relative Humidity		**17 Lectures**
Unit II : a) Change of State : Condensation, Evaporation, Sublimation, Freezing and Melting, Latent Heat b) Adiabatic processes **CLOUDS AND FOG** a) Cloud Formation and description • Cooling by Adiabatic Expansion and by Advection • Cloud Types, Cloud Classification • Influence of Inversions on Cloud Development • Flying conditions in each cloud Type		**15 Lectures**
a) Fog, Mist, Haze • Radiation Fog • Advection • Steaming Fog • Frontal Fog • Orographic Fog b) Precipitation • Development of Precipitation • Types of Precipitation c) Relationship with Cloud Types		**13 Lectures**

REFERENCE BOOKS

TITLE	PUBLISHER
1) Ground Studies for pilots	R. B. Underdown & John Standan
2) Meteorology for Pilots	Mike Wickson
3) Meteorology for Pilots	Mudge
4) Meteorology for Pilots	Mcgraw Hill
5) Weather	R.S.Scorer
6) Meteorology for Aviators	Sutcliffe
7) Elementary Note on Indian Climatology	India Met Dept.
8) Handbook of Aviation Meteorology	HMSO
9) Meteorology for Airmen Dept.	Parts I & II Met.
10) Climatological Atlas for Airmen	India Met Dept.
11) Meteorological Glossary	HMSO.
12) Weather Study	Brunt
13) The Weather Map	HMSO.
14) Ground Study for Pilots	Taylor & Parmar

Course Code	Title	Credits
USAV204	**Aircraft & Engines II**	**5 Credits (45 lectures)**
Unit I : Principle of Operation and construction of Gas turbine engine working on Brayton Cycle • EPR, N1, N2, N3 EGT indications, Thrust measurement, Flat rated thrust, Thrust setting • Jetengine oil and fuel systems, Engine surge, surge control systems • Auto Pilot, Control wheel steering system, Flight Director system, Yaw Damper, Auto Throttle system.		**15 Lectures**
Unit II • APU: starting, and control , Auto shutdown , Pneumatic and electrical power from APU • Multi engine performance : speeds, weights gradients, RTOW, T/O, CLB, CRS, Descent, holding , Landing performance • Fire protection Systems: Classification of fire , fire generation logic, Detection of fire smoke, Extinguishing agents, Extinguishing system, Squib		**15 Lectures**
Unit III • Flight instruments: Glass cockpit concept, EFIS, CRT, LCD displays, PFD, ND, MFD • Explosive Decompression • Engine fire on ground, Inflight		**15 Lectures**

REFERENCE BOOKS

TITLE	**PUBLISHER**
1) Flight Without Formula	Kermode
2) Aero Engines for students	Allen and Unwin
3) Gas Turbine and Jet Propulsion	Smith
4) Handbook of Aeronautics	Royal Aeronautical Society
5) Civil Aviation Requirements	DGCA India
6) Principles of Flight	Bert A Shield
7) Performance of Civil Aircraft	Barker

Paper Pattern & Evaluation Criteria for Semester I & II is as Follows

(a) Internal assessment - 40 %

Sr No	Evaluation type	Marks
1	Two Assignments/Case study/Project	20
2	One class Test (multiple choice questions objective)	10
3	Active participation in routine class instructional deliveries(case studies/ seminars//presentation)	05
4	Overall conduct as a responsible student, manners, skill in articulation, leadership qualities demonstrated through organizing co-curricular activities, etc.	05

Practicals (Flying Training)

For every 40 hours of flying done by the student, 4 credits will be given in each Semester.

Students already holding Commercial Pilot Licence (CPL) will be eligible for full credits in practical.

(b) External Theory examination - 60 %

i) **Duration – 2 Hours**

ii) **Marks - 60**

iii) **Theory Question Paper Pattern**:-

- There shall be four questions each of 15 marks. On each unit there will be one question and the fourth one will be based on entire syllabus.
- All questions shall be compulsory with internal choice within the questions. (Each question will be of 20 to 23 marks with options.)
- Question may be subdivided into sub-questions a, b, c… and the allocation of marks depend on the weightage of the topic.

Illustration: -

Q. No	Unit No	Max Marks with internal options
1	1	20 to 23
2	2	20 to 23
3	3	20 to 23
4	1, 2 & 3	20 to 23

The following tables illustrate part (a) and (b) described above.

Air Navigation I

		Assignment									
Course	Cr	A1	A2	Unit Test 10	Seminar / Case Studies Active Participation and responsible student		Internal 40	External 60	Total	Grade Point	Letter grade
		10	10	10	5	5	16/40	24/60	100		
USAV101	5	7	6	6	3	4	26	35	61	6	A

Air Regulation I

		Assignment									
Course	Cr	A1	A2	Unit Test 10	Seminar / Case Studies Active Participation and responsible student		Internal 40	External 60	Total	Grade Point	Letter grade
		10	10	10	5	5	16/40	24/60	100		
USAV102	3	7	6	6	3	4	26	35	61	6	A

Meteorology I

		Assignment									
Course	Cr	A1	A2	Unit Test 10	Seminar / Case Studies Active Participation and responsible student		Internal 40	External 60	Total	Grade Point	Letter grade
		10	10	10	5	5	16/40	24/60	100		
USAV103	3	7	6	6	3	4	26	35	61	6	A

Aircraft & Engines I

		Assignment									
Course	Cr	A1	A2	Unit Test 10	Seminar / Case Studies Active Participation and responsible student		Internal 40	External 60	Total	Grade Point	Letter grade
		10	10	10	5	5	16/40	24/60	100		
USAV104	5	7	6	6	3	4	26	35	61	6	A

B. Sc. (Aviation) Fees Structure

Particulars	Sem. I	Sem. II	Sem. III	Sem. IV	Sem. V	Sem. VI
Tuition Fees	25000	25000	25000	25000	25000	25000
Library Fees	1500	1500	1500	1500	1500	1500
Gymkhana Fees	100	100	100	100	100	100
Other fees/ Extra Curricular Activity	125	125	125	125	125	125
Exam Fees	1000	1000	1000	1000	1000	1000
Enrolment Fees	220	0	220	0	220	0
Disaster relief Fund	10	0	10	0	10	0
Adm. Processing	200	200	200	200	200	200
Utility Fees	125	125	125	125	125	125
Magazine fees	100	0	100	0	100	0
ID Card & Library Fees	50	0	50	0	50	0
Group Insurance Fees	250	250	250	250	250	250
Student Welfare fund	25	25	25	25	25	25
Development fees	2000	2000	2000	2000	2000	2000
Vice Chancellor's Fund	20	0	20	0	20	0
Uni. Sports & Culture	30	0	30	0	30	0
E-Suvidha	50	0	50	0	50	0
E-Charges	20	0	20	0	20	0
(A)	30825	30325	30825	30325	30825	30325
Laboratory Fees						
(B)						
Total of (A) & (B)						
Refundable						
Caution Money	1500	1500				
Library Deposit	1000	1000				
Laboratory Deposit						
(C)	2500	2500				
Total of A& B &C	33325	32825	30825	30325	30825	30325
Wherever Applicable						
Transcript	1000	1000	1000	1000	1000	1000
Admin Form	100	100	100	100	100	100
Transfer Certificate	100	100	100	100	100	100
Bonafide Certificate	20	20	20	20	20	20
No Objection Certificate	20	20	20	20	20	20
Alumni Association Fees	25	25	25	25	25	25
Document Verification Fees	400	400	400	400	400	400
Project Fees	400	400	400	400	400	400
	2065	2065	2065	2065	2065	2065

Note: The students will have to bear additional Flying Training expenses at the existing rates of the reputed Flying schools to obtain the Commercial Pilot Licence.