



## BACHELOR OF SCIENCE (AVIATION)

### PROGRAM OUTCOMES (PO)

**PO1: Knowledge:** Students will gain the knowledge and skills required to meet the commercial Pilot License, Practical Test Standards and operate as safe and proficient professional pilots.

**PO2: Core Competence:** Students will equip with the navigation system with increase the flight safety and decrease the pilot's workload during air navigation. In order to rapid growth in air transportation to understand the technologies related to communication, navigation and surveillance activities

**PO3 : Ethics of individual:** Discuss the impact of national and international aviation law regulations and labour issues on aviation operations.

**PO4: Environment and sustainability:** Explain meteorological phenomena at various scales in terms of basic physical and dynamic processes including radioactive forcing, thermodynamics, micro-physics, electricity and optics. Students will understand the impact of meteorology and environment issues on aviation operations.

**PO5: Technology Skill:** Students and competent in the uses of technology in modern organizational operations. To make decisions and to apply it for appropriate quantitative and qualitative techniques in solving aviation technical problems.

### PROGRAM SPECIFIC OUTCOMES (PSO)

**PSO1:** To gain knowledge about the skills required to successfully pass the DGCA Knowledge exam for validation of commercial pilot license.

**PSO2:** To understand and execute radio communications in accordance with industry guidelines.

**PSO3:** To describe the use and control of modern aircraft, navigation systems and navigation aids.

**PSO4:** To be able to understand and analyse the basic international aviation regulatory bodies and utilizes Indian aviation industry regulations..

**PSO5:** To apply the knowledge of modern aircraft technology, aerodynamics and meteorology to maintain safe operation of aircraft.

**PSO6:** To involve in research projects related to different areas covered the principles of aircraft design, performance and operating characteristics. To understand and evaluate the aviation safety and its impact of human factors on safety.





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## SEMESTER I

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### CO OF SEM I

**COURSE NAME – Air Navigation I**

**COURSE CODE – USAV101**

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**CO1:** Understand the concept of navigation latitude and longitude the concepts of and be able to perform calculations using them.

**CO2:** Define basic parameters required during the flight navigations.

**CO3:** Apply the knowledge of concepts of which segment of the flight and in what purpose the air navigation systems are used through Mercator charts.

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### CO OF SEM I

**COURSE NAME – Air Regulation I**

**COURSE CODE – USAV102**

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**CO1:** Describe the objectives of ICAO

**CO2:** Understand basic concepts of different type of licences and different regulation relating to registration, license of personnel, airworthiness and log books processes.

**CO3:** Understand the Indian A/c Rules 1934 and Indian A/c Rules 1937 and remember the rules for Prohibited Areas.

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### CO OF SEM I

**COURSE NAME - Meteorology I**

**COURSE CODE – USAV103**

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**CO1:** Familiarize the students with the basic concepts of meteorology and weather events.

**CO2:** Understand the basic composition and arrangements.

**CO3:** To familiarize with the heating of earth's surface and atmosphere and how it affects the performance of aircraft.







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## CO OF SEM I

**COURSE NAME – Aircraft and Engines I**

**COURSE CODE – USAV104**

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**CO1:** Understand and can perform calculations utilizing ohm's law.

**CO2:** Efficiently use the proper use of electrical system test equipment.

**CO3:** Understand the current flow in an alternating current circuit and develop practical knowledge to measure volts, amps, and resistance using a DMM.





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## SEMESTER II

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### CO OF SEM II

**COURSE NAME - Air Navigation II**

**COURSE CODE – USAV201**

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**CO1:** Recognize concepts about Aviation Code Communications.

**CO2:** Learn basic regulations of radio communications.

**CO3:** Understand the basic knowledge of radio waves and its propagation.

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### CO OF SEM II

**COURSE NAME - Air Regulation II**

**COURSE CODE – USAV202**

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**CO1:** Analyse the complexities associated with global regulation and convention.

**CO2:** Develop the knowledge about regulations followed during visual and metrological conditions while flying.

**CO3:** Understand the rules followed by aircraft to avoid collision in the air.

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### CO OF SEM II

**COURSE NAME - Meteorology II**

**COURSE CODE – USAV203**

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**CO1:** Develop the knowledge of meteorological variables (e.g. temperature, atmospheric, pressure)

**CO2:** Understand the importance of visibility in aviation and factors this affects it.

**CO3:** Understand the importance of modern methods of weather forecasting .

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### CO OF SEM II

**COURSE NAME - Aircraft and Engines II**

**COURSE CODE – USAV204**

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**CO1:** Explain basic piston engine parts functions and engine working principle.

**CO2:** Recognize basic engine parts.





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**CO3:** Demonstrate knowledge and understanding of essential facts, concepts, theories and principles of aircraft.







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## SEMESTER III

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### CO OF SEM III

**COURSE NAME – Air Navigation III**

**COURSE CODE – USAV 301**

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**CO1:** Learners will be able to analyse the new air traffic applications of transverse and oblique Mercator charts to increase flight safety.

**CO2:** Explain the working principles of the navigation system with the help of Directional Gyro Indicator (DGI)

**CO3:** Understand the new concepts.

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### CO OF SEM III

**COURSE NAME – Air Regulation III**

**COURSE CODE – USAV302**

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**CO1:** Analyse the complexities associated with global; regulation and convention.

**CO2:** Develop the knowledge about regulations followed during visual and metrological conditions while flying.

**CO3:** Explain general principles and application of the convention.

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### CO OF SEM III

**COURSE NAME – Meteorology III**

**COURSE CODE – USAV 303**

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**CO1:** Understand the basic flow pattern of winds.

**CO2:** Acquire the capability of hazards icing for aviation.

**CO3:** Explain basic concepts of icing and freezing level and index of icing..





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## CO OF SEM III

**COURSE NAME – Aircraft and Engines III**

**COURSE CODE – USAV304**

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**CO1:** Learner will be able to describe and discuss the knowledge and understanding of various engine systems.

**CO2:** Examine the effects of various lubrication, ignition on different engine system

**CO3:** Evaluate the function of the combustion chamber.







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## SEMESTER IV

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### CO OF SEM IV

**COURSE NAME – Air Navigation IV**

**COURSE CODE – USAV 401**

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**CO1:** Develop the skill is secondary radar system and the usage of distance measuring equipment

**CO2:** Improve the knowledge of surveillance radar used in aviation and its developments.

**CO3:** Understand the functions and importance of airborne weather radar.

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### CO OF SEM IV

**COURSE NAME – Air Regulation IV**

**COURSE CODE – USAV 402**

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**CO1:** Understand the rules followed by aircraft to avoid collision in the air.

**CO2:** Understand kinds of Communication Contingencies the different Emergencies, Failure & Contingencies

**CO3:** Stipulate the parameters for determining airworthiness, maintenance of aircraft, general conditions for flying and safety, registration of aircraft.

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### CO OF SEM IV

**COURSE NAME – Meteorology IV**

**COURSE CODE – USAV 403**

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**CO1:** Understand the importance of interpreting the general characteristics of weather maps.

**CO2:** Acquire the capability of hazards of sand storms for aviation.

**CO3:** Understand the evolution of tropical and extra tropical weather systems.







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## CO OF SEM IV

**COURSE NAME – Aircraft and Engines IV**

**COURSE CODE – USAV 404**

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**CO1:** Explain basic gas turbine parts

**CO2:** Analyse the requirements of engine systems.

**CO3:** Gain knowledge of the function of compressors.





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## SEMESTER V

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### CO OF SEM V

**COURSE NAME – Air Navigation V**

**COURSE CODE – USAV 501**

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**CO1:** Understand the concepts of GPWS and use in flight management systems.

**CO2:** Define basics of satellite positioning and navigation.

**CO3:** Apply the Knowledge of flight management system for fuel planning as per navigation plan.

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### CO OF SEM V

**COURSE NAME – Air Regulation V**

**COURSE CODE – USAV 502**

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**CO1:** Understand the Aircraft Act 1934, The Aircraft Rules 1937, Flight Rules, Types of flight rules, etc.

**CO2:** Understand basic concepts of the international Airports Authority of India Act 1972 (43 of 1972) and The Carriage by air act, 1972 (69 of 1972).

**CO3:** Understand the procedure about Indian a/c rule about minimum safety from bird safety and oxygen supply.

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### CO OF SEM V

**COURSE NAME – Meteorology V**

**COURSE CODE – USAV 503**

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**CO1:** Familiarize the students with the basic concepts about weather phenomenon.

**CO2:** Understand basic atmospheric phenomena such as the nature and variability of the wind, temperature, cloud and precipitation as well as the earth's energy budgets.

**CO3:** Familiarize with the different charts and interpretation of data with its validity.

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## CO OF SEM V

**COURSE NAME – Aircraft and Engines V**

**COURSE CODE – USAV 504**

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**CO1:** Understand the performance of Jet Engine with its controls.

**CO2:** Understand the different types of engine and ignition processes.

**CO3:** Understand the emergency and its impact in different condition like engine failure, force landing etc.



COLLEGE

RESEARCH CELL OF SHREE L. R. TIWARI DEGREE



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## SEMESTER VI

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### CO OF SEM VI

**COURSE NAME – Air Navigation VI**

**COURSE CODE – USAV 601**

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**CO1:** Understand and recognize the low visibility concepts and Low Visibility Operations at Aerodromes

**CO2:** Describe the minimum navigation performance and understand search and rescue.

**CO3:** Understand the basic knowledge of performance of aircraft with inertial navigation systems.

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### CO OF SEM VI

**COURSE NAME – Air Regulation VI**

**COURSE CODE – USAV 602**

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**CO1:** Analyse the complexities associated with drugs and alcohol carriage.

**CO2:** Develop the knowledge about regulations followed during flight safety situations and awareness.

**CO3:** Understand the rules followed during aircraft accidents.

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### CO OF SEM VI

**COURSE NAME – Meteorology VI**

**COURSE CODE – USAV 603**

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**CO1:** Develop the knowledge of meteorological changes based on heights.

**CO2:** Understand the importance of weather charts and its interpretation.

**CO3:** Understand the aeronautical codes.







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## CO OF SEM VI

COURSE NAME – Aircraft and Engines VI

COURSE CODE – USAV 604

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CO1: Students will be able to explain basic concepts of noise and reducing technique.

CO2: Understanding the controllability of flying higher.

CO3: Demonstrate knowledge of concepts of reducing power take off of aircraft.

