

**NCC Credit Course Level 3\***

|  |   |                |
|--|---|----------------|
| <b>NX3653</b>  | <b>(AIR FORCE WING) NCC Credit Course Level - III</b>     | <b>L T P C</b> |
|  |   | <b>3 0 0 3</b> |
| <b>PERSONALITY DEVELOPMENT</b> <span style="float: right;">9</span>    |   |                |
| PD 3   | Group Discussion: Team Work                               | 2              |
| PD 4   | Career Counselling, SSB Procedure & Interview Skills      | 3              |
| PD 5   | Public Speaking   | 4              |
| <b>BORDER &amp; COASTAL AREAS</b> <span style="float: right;">4</span> |   |                |
| BCA 2  | Security Setup and Border/Coastal management in the area  | 2              |
| BCA 3  | Security Challenges & Role of cadets in Border management | 2              |
| <b>AIRMANSHIP</b> <span style="float: right;">1</span>                 |   |                |
| A 1  | Airmanship  | 1              |
| <b>BASIC FLIGHT INSTRUMENTS</b> <span style="float: right;">3</span>   |   |                |
| FI 1   | Basic Flight Instruments                                  | 3              |
| <b>AERO MODELLING</b> <span style="float: right;">3</span>             |   |                |
| AM 1   | Aero Modelling Capsule                                    | 3              |
| <b>GENERAL SERVICE KNOWLEDGE</b> <span style="float: right;">2</span>  |   |                |
| GSK 4  | Latest Trends & Acquisitions                              | 2              |
| <b>AIR CAMPAIGNS</b> <span style="float: right;">6</span>              |   |                |
| AC 1   | Air Campaigns   | 6              |
| <b>PRINCIPLES OF FLIGHT</b> <span style="float: right;">6</span>       |   |                |
| PF 1   | Principles of Flight                                      | 3              |
| PF 2   | Forces acting on Aircraft                                 | 3              |
| <b>NAVIGATION</b> <span style="float: right;">5</span>                 |   |                |
| NM 1   | Navigation  | 2              |
| NM 2   | Introduction to Met and Atmosphere                        | 3              |
| <b>AERO ENGINES</b> <span style="float: right;">6</span>               |   |                |
| E 1  | Introduction and types of Aero Engine                     | 3              |
| E 2  | Aircraft Controls   | 3              |

**TOTAL : 45 PERIODS**

|               |                                |                |
|---------------|--------------------------------|----------------|
| <b>GE3791</b> | <b>HUMAN VALUES AND ETHICS</b> | <b>L T P C</b> |
|               |                                | <b>2 0 0 2</b> |

**COURSE DESCRIPTION**

This course aims to provide a broad understanding about the modern values and ethical principles that have evolved and are enshrined in the Constitution of India with regard to the democratic, secular and scientific aspects. The course is designed for undergraduate students so that they could study, understand and apply these values in their day to day life.

**COURSE OBJECTIVES:**

- To create awareness about values and ethics enshrined in the Constitution of India
- To sensitize students about the democratic values to be upheld in the modern society.
- To inculcate respect for all people irrespective of their religion or other affiliations.
- To instill the scientific temper in the students' minds and develop their critical thinking.
- To promote sense of responsibility and understanding of the duties of citizen.

**UNIT I            DEMOCRATIC VALUES**

6

Understanding Democratic values: Equality, Liberty, Fraternity, Freedom, Justice, Pluralism, Tolerance, Respect for All, Freedom of Expression, Citizen Participation in Governance – World Democracies: French Revolution, American Independence, Indian Freedom Movement.

Reading Text: Excerpts from John Stuart Mills' *On Liberty*

**UNIT II            SECULAR VALUES**

6

Understanding Secular values – Interpretation of secularism in Indian context - Disassociation of state from religion – Acceptance of all faiths – Encouraging non-discriminatory practices.

Reading Text: Excerpt from *Secularism in India: Concept and Practice* by Ram Puniyani

**UNIT III            SCIENTIFIC VALUES**

6

Scientific thinking and method: Inductive and Deductive thinking, Proposing and testing Hypothesis, Validating facts using evidence based approach – Skepticism and Empiricism – Rationalism and Scientific Temper.

Reading Text: Excerpt from *The Scientific Temper* by Antony Michaelis R

**UNIT IV            SOCIAL ETHICS**

6

Application of ethical reasoning to social problems – Gender bias and issues – Gender violence – Social discrimination – Constitutional protection and policies – Inclusive practices.

Reading Text: Excerpt from *21 Lessons for the 21<sup>st</sup> Century* by Yuval Noah Harari

**UNIT V            SCIENTIFIC ETHICS**

6

Transparency and Fairness in scientific pursuits – Scientific inventions for the betterment of society - Unfair application of scientific inventions – Role and Responsibility of Scientist in the modern society.

Reading Text: Excerpt from *American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer* by Kai Bird and Martin J. Sherwin.

**TOTAL: 30 PERIODS**

**REFERENCES:**

1. The Nonreligious: Understanding Secular People and Societies, Luke W. Galen Oxford University Press, 2016.
2. Secularism: A Dictionary of Atheism, Bullivant, Stephen; Lee, Lois, Oxford University Press, 2016.
3. The Oxford Handbook of Secularism, John R. Shook, Oxford University Press, 2017.

4. The Civic Culture: Political Attitudes and Democracy in Five Nations by Gabriel A. Almond and Sidney Verba, Princeton University Press,
5. Research Methodology for Natural Sciences by Soumitro Banerjee, IISc Press, January 2022

### **COURSE OUTCOMES**

Students will be able to

- CO1 : Identify the importance of democratic, secular and scientific values in harmonious functioning of social life
- CO2 : Practice democratic and scientific values in both their personal and professional life.
- CO3 : Find rational solutions to social problems.
- CO4 : Behave in an ethical manner in society
- CO5 : Practice critical thinking and the pursuit of truth.

**CS3711**

**SUMMER INTERNSHIP**

**L T P C**

**0 0 0 2**

### **COURSE OBJECTIVES:**

**To enable the students to**

- Get connected with reputed industry/ laboratory/academia / research institute
- Get practical knowledge on Product Development / Services and operations / Software Design and Development / Testing / Analytics/ research/ startups/ professionalism / business processes and insights / domain knowledge/ Industry Practices/ and other related aspects and develop skills to solve related problems
- Develop technical, soft, team skills to cater to the needs of the industry / academia / businesses / research / organizations in the core aspects of Automation, Digitalization

The students individually undergo training in reputed firms/ research institutes / laboratories for the specified duration. After the completion of training, a detailed report should be submitted within ten days from the commencement of next semester. The students will be evaluated as per the Regulations.

**No. of Weeks: 04**

### **COURSE OUTCOMES:**

**On completion of the course, the student will know about**

- CO1: Industry Practices, Processes, Techniques, technology, automation and other core aspects of software industry
- CO2: Analyze, Design solutions to complex business problems
- CO3: Build and deploy solutions for target platform
- CO4: Preparation of Technical reports and presentation.

**CS3811**

**PROJECT WORK/ INTERNSHIP<sup>#</sup>**

**L T P C**

**0 0 20 10**

**COURSE OBJECTIVES:**

**To train the students**

- For gaining domain knowledge, and technical skills to solve potential business / research problems
- Gather requirements and Design suitable software solutions and evaluate alternatives
- To work in small teams and understand the processes and practices in the 'industry'.
- Implement, Test and deploy solutions for target platforms
- Preparing project reports and presentation

The students shall individually / or as group work on business/research domains and related problems approved by the Department / organization that offered the internship / project.

The student can select any topic which is relevant to his/her specialization of the programme. The student should continue the work on the selected topic as per the formulated methodology. At the end of the semester, after completing the work to the satisfaction of the supervisor and review committee, a detailed report which contains clear definition of the identified problem, detailed literature review related to the area of work and methodology for carrying out the work, results and discussion, conclusion and references should be prepared as per the format prescribed by the University and submitted to the Head of the department. The students will be evaluated based on the report and viva-voce examination by a panel of examiners as per the Regulations.

**TOTAL: 300 PERIODS**

**COURSE OUTCOMES:**

**At the end of the project, the student will be able to**

- CO1: Gain Domain knowledge and technical skill set required for solving industry / research problems
- CO2: Provide solution architecture, module level designs, algorithms
- CO3: Implement, test and deploy the solution for the target platform
- CO4: Prepare detailed technical report, demonstrate and present the work

**PROGRESS THROUGH KNOWLEDGE**