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## Critical Thinking Skills

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What is critical thinking – 21st century skills – collaboration and teamwork discussions – focus on creativity and Imagination – problem solving (oral and written communication activities) - importance of thinking critically - multiple intelligences

**SUGGESTED ACTIVITIES:**
- Interpretation of texts from different perspectives (samples to be provided)
- Small Group Work (analysis of the inherent messages in the text)
- Short essays (e.g. Expressing views on the current educational system)

**SUGGESTED EVALUATION METHODS:**
- Essay Writing (e.g. benefits of collaboration and team work)
- Quizzes

### Module II:

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Fostering critical thinking - statement of facts and opinions – inference of assumptions & evidences - logical reasoning – deductive & inductive reasoning – changing perspectives – (choice of appropriate words & expressions, perceived logical linkages, avoidance of irrelevance)

**SUGGESTED ACTIVITIES:**
- Think – pair – share activities (with sample reading texts)
- Relevant talks (listening comprehension exercises)

**SUGGESTED EVALUATION METHODS:**
- Writing short factual essays
- Reading comprehension (focus on diction)

### Module III:

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Claims, issues & arguments – (Content analysis)– Ambiguities in argument – jargon, emotional barriers and their influence on reasoning - Semantic disagreements (Vocabulary specific to the linguistic acts of disagreeing & disputing) – Inconsistencies in an argument - Discourse rules in group discussion

**SUGGESTED ACTIVITIES:**
- Group Discussion Activities (selected topics)
- Debates (uncontroversial topics)
  - (Taboos, hostile audience, physical & technical disabilities, differences in perspective & viewpoint)

**SUGGESTED EVALUATION METHODS:**
- Group Discussion
- Debate
- Case Study Presentation

### Module IV:

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Detecting Fallacies (Hasty Generalizations, Circular argument, Red herring) – Types of Fallacies – Making inferences – Drawing conclusions – Conceptualization of ideas - Analysis & synthesis of ideas - Evaluating information - Scientific reasoning (thinking about many dimensions at the same time)

**SUGGESTED ACTIVITIES:**
• Fallacy check exercises (with suitable reading texts)
• Jigsaw reading

SUGGESTED EVALUATION METHODS:
• Mini presentation on given topics
• Assignment (Analytical Essay writing)
• Quizzes

MODULE V:

Internet & critical thinking (using the internet as a resource) – Collaborative problem solving –
Creative critical thinking (analyzing, synthesizing, reflecting, evaluating) - Media & critical thinking

SUGGESTED ACTIVITIES:
• Flipped Class room (Performance Appraisal)
• Discussion threads (on an online forum)
• Critical review writing (Stress on the positive side)

SUGGESTED EVALUATION METHODS:
• Quizzes
• Mini projects (SGW)

REFERENCE BOOKS:

AE6391 THEOREY OF FLIGHT

OBJECTIVE:
To introduce the concepts of flying, International standard atmosphere, structural aspects of airplanes, brief description of systems of instruments used in airplanes and power plants used.

UNIT I HISTORY OF FLIGHT
Balloon flight-ornithopers-Early Airplanes by Wright Brothers - biplanes and monoplanes - Developments in aerodynamics, materials, structures and propulsion over the years.

UNIT II TYPES AND CONTROL OF AIRPLANES
Different types of flight vehicles, classifications-Components of an airplane and their functions- Conventional control, powered control- Basic instruments for flying-Typical systems for control actuation.
UNIT III  FUNDAMENTALS OF AERODYNAMICS  10

UNIT IV  FUNDAMENTALS OF AIRBREATHING PROPULSION  9
Basic ideas about piston, turboprop and jet engines – use of propeller and jets for thrust production – Aircraft performance estimation using engine performance parameters

UNIT V  FUNDAMENTALS OF SPACE FLIGHT  9
Principle of operation of rocket - types of rocket and typical applications - Exploration into space-equation for space flight – two dimensional rocket motion - rocket trajectories – multistaging – rocket performance

TOTAL :45 PERIODS

OUTCOMES:
On completion of the course, the students will understand the basic concepts of airplane aerodynamics, control of airplanes, air-breathing propulsion and rocket flight.

TEXT BOOKS

REFERENCES

AU6391  FUNDAMENTALS OF AUTOMOBILE ENGINEERING  L T P C
3 0 0 3

OBJECTIVE:
To understand the basics and working principles of various systems of an automobile.

UNIT I  VEHICLE STRUCTURE AND ENGINE  9

UNIT II  TRANSMISSION SYSTEM  9
UNIT III  STEERING, BRAKE AND SUSPENSION SYSTEMS

UNIT IV  AUTOMOTIVE ELECTRICAL AND ELECTRONICS

UNIT V  SAFETY AND EMERGING TRENDS IN AUTOMOTIVE VEHICLES

TOTAL: 45 PERIODS

OUTCOME:
The students able to identify the different components in an automobile and have clear understanding on working principle of different systems of an automobile.

TEXT BOOK:

REFERENCES: