

**VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD**  
**DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES**

**COURSE NAME-CRITICAL THINKING**  
 (Credit Course) SYLLABUS FOR B.E. 2/4 – III & IV SEMESTERS

**W.E.F-2025-2026**

<b>Instruction: 2 (1+1)Hours</b>	<b>SEE: 40</b>	<b>Course code: U25HS310EH</b>
<b>Credits: 1</b>	<b>CIE: 30</b>	<b>Duration of SEE: 2 Hours</b>
<b>COURSE OBJECTIVES</b> <b>The course will enable the learners to:</b> <ol style="list-style-type: none"> <li>1. Understand the basics of logic, reasoning, and identifying biases.</li> <li>2. Learn to evaluate evidence and differentiate between facts and opinions.</li> <li>3. Introduce frameworks like SWOT and root cause analysis for problem-solving.</li> <li>4. Develop critical thinking skills through case studies and ethical debates.</li> </ol>		<b>COURSE OUTCOMES</b> <b>At the end of the course the learners will be able to:</b> <ol style="list-style-type: none"> <li>1. Students will identify assumptions, biases, and logical fallacies in real-world scenarios.</li> <li>2. Learn to evaluate evidence and differentiate between facts and opinions.</li> <li>3. Students will apply structured methods to analyze problems and propose actionable solutions.</li> <li>4. Students will demonstrate critical thinking through group discussions and case study analyses.</li> </ol>

**OVERVIEW:**

In a world where automation and AI are rapidly transforming the workforce, critical thinking has become a vital human skill that sets professionals apart. This course empowers engineering students to think independently, evaluate information logically, and make well-reasoned decisions. Through engaging with real-world problems, ethical dilemmas, and structured problem-solving tools, students will develop the ability to question intelligently, respond thoughtfully, and contribute meaningfully in AI-assisted environments.

**UNIT 1: Fundamentals of Critical Thinking**

Introduces the foundations of logical thinking and the importance of recognizing faulty reasoning.

- 1.1 Logic and Reasoning
- 1.2 Identifying Assumptions
- 1.3 Bias and Fallacies


Learning Outcomes:

- Understand and apply the basics of logical thinking and structured reasoning
- Identify personal and systemic assumptions in real-world and technical contexts
- Detect common biases and fallacies in digital content and AI-generated outputs

**UNIT 2: Analytical Thinking**

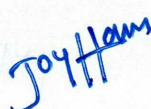
Equips students to analyze information critically and draw conclusions based on solid evidence.

- 2.1 Evaluating Evidence
- 2.2 Drawing Logical Conclusions
- 2.3 Differentiating Facts from Opinions

  
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Learning Outcomes:

- Evaluate the reliability and relevance of data from human and AI sources
- Draw logical conclusions from complex and sometimes incomplete datasets
- Differentiate between subjective opinions and objective, verifiable information

### UNIT 3: Problem-Solving Frameworks

Builds practical decision-making skills using structured, human-driven analytical tools.

3.1 Root Cause Analysis (5 Whys)

3.2 Decision Trees

3.3 SWOT Analysis

Learning Outcomes:

- Break down problems systematically to identify core issues beyond surface symptoms
- Use structured tools to support decision-making in multidisciplinary and tech-enabled environments
- Integrate strategic thinking with ethical judgment when proposing solutions

### UNIT 4: Applications of Critical Thinking

Applies critical thinking to real-life contexts through discussions, debates, and case studies.

4.1 Case Studies

4.2 Group Discussions on Ethical Dilemmas

4.3 Critical Thinking in Action: Debating Complex Engineering Issues

Learning Outcomes:

- Apply critical thinking to analyze real-world problems in engineering, business, and society
- Collaborate effectively and respectfully in group settings, including diverse viewpoints
- Demonstrate ethical reasoning and informed argumentation in AI-influenced scenarios

### ADDITIONAL READING:

- Martha Nussbaum Not for Profit: Why Democracy Needs the Humanities (2010).
- The Invisible Man : Ralph Ellison
- Thinking, Fast and Slow by Daniel Kahneman
- The McKinsey Mind: Understanding and Implementing the Problem-Solving Tools and Management Techniques of the World's Top Strategic Consulting Firm by Ethan M. Rasiel and Paul N. Friga

### LEARNING RESOURCES

learn.talentsprint.com

The break-up of CIE: Internal Tests + Assignments + Quizzes

1 No. of Internal tests

:

1

Max. Marks

:

20

*any any 25/6/2018*  
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*all*

*Joy Ham*

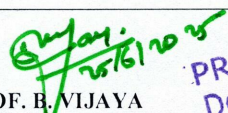
*Dr*



2	No. of assignments	:	<input type="text" value="1"/>	Max. Marks	:	<input type="text" value="5"/>
3	No. of Quizzes	:	<input type="text" value="1"/>	Max. Marks	:	<input type="text" value="5"/>

Duration of Internal Tests : 90 Minutes

**SIGNATURES:-**

 <b>Dr. JACQUELINE AMARAL</b> HEAD-HSS CHAIRMAN-BOS, HSS VCE	 <b>PROF. B. VIJAYA</b> HEAD, DEPARTMENT OF ENGLISH, OSMANIA UNIVERSITY & DIRECTOR, ENGLISH LANGUAGE TEACHING CENTRE (ELTC), OSMANIA UNIVERSITY
<b>Dr. JOY ANURADHA</b> SUBJECT EXPERT UNIVERSITY OF HYDERABAD	<b>DR. JOY HANS</b> CORPORATE REPRESENTATIVE
<b>MS.VATHSALA NARASIMMAN</b> DIRECTOR- DELIVERY, TALENT SPRINT	
MEMBERS OF HSS, VCE :-  <b>Dr. G. MEENA</b>  <b>Dr. K. JHANSI RANI</b>	MEMBERS OF HSS, VCE :-  <b>Dr. B. SHEELA RANI SIMON</b>  <b>Dr. T. SUNAND EMMANUEL</b>