

Ability Enhancement Courses (AEC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
2501EN01	Essential Cognitive Skills for Engineers	FC			1	1	100	-	100	-
2501UC07	Design Thinking using AI	FC			1	1	100	-	100	-
2501EN02	Advanced Cognitive Skills for Engineers (or) Proficiency in Foreign Language (Japanese/German/ Spanish/ French)	FC			1	1	100	-	100	ECSE-I
2501UC05										
2501UC04										
2501UC03										
2501UC06										
2501UC08	Universal Human Values	FC	2			2	100	-	100	-
2501UC09	Technical Paper Publication	AC			2	2	100	-	100	-
2501CS72	Student Activity Based Learning	AC				2	100	-	100	-
Total			2		7	9				

Essential Cognitive Skills for Engineers

(Common to all branches)

Course Code: 2501EN01

L	T	P	C
0	0	1	1

Course Outcomes:

At the end of the course, student will be able to:

- CO1:** Recognize the different aspects of the English language proficiency with emphasis on LSRW skills.
- CO2:** Apply communication skills through various language learning activities.
- CO3:** Analyze the English speech sounds, stress, intonation and syllable division for better listening and speaking comprehension.
- CO4:** Enable them to learn and apply fundamentals of English grammar concepts for improved language
- CO5:** Make use of various types of vocabulary in different academic and professional careers

Mapping of Course Outcomes with Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	-	-	-	-	-	-	-	3	-	-
CO2	-	-	-	-	-	-	-	-	3	-	-
CO3	-	-	-	-	-	-	-	-	3	-	-
CO4	-	-	-	-	-	-	-	-	3	-	-
CO5	-	-	-	-	-	-	-	-	3	-	-

Practice:

Unit – 1 Outstanding people A/B/C/D

Listening	Conversation about Jocelyn Bell- Burnell, Podcast: The 30-day challenge, Starting a new job, Conversation about technology
Speaking	Discussing inspiring people, Asking and answering questions about challenges, Explaining a process; Checking understanding, Discussing technology.
Reading	Articles: <i>Protector of the sea</i> and <i>The woman who reinvented children's TV</i> , Interviews: <i>30-day challenge</i> , Article: <i>Tech free!</i>
Writing	Article Organizing an article
Grammar	Review of Tenses, Questions
Vocabulary	Character adjectives, trying and succeeding
Pronunciation	The letter e; Word stress, Rapid speech

Unit – 2 Survival A/B/C/D

Listening	Conversation about a survival situation, Interview: The Tiger, Cooking for a friend, Talking about getting lost
Speaking	Telling a survival story, Giving advice; Asking questions, Giving compliments and responding, Discussing the natural environment

Reading	Article: Lost at sea, Leaflet: <i>How to survive...an animal attack</i> , Leaflet: <i>Be wise and survive</i>
Writing	Guidelines, organizing guidelines in a leaflet
Grammar	Narrative tenses, Future time clauses and conditionals
Vocabulary	Expressions with <i>get</i> , Animals and the environment
Pronunciation	Sound and Spelling: <i>g</i> , Intonation in question tags
Unit – 3 Talent A/B/C/D	
Listening	Conversation: learning experiences, Radio Programme: The sports gene, Making wedding plans, Interviews about sport
Speaking	Talking about something you have put a lot of effort into, Discussing sport and ways to improve performance, planning a party, Talking about popular sports
Reading	Text about learning; <i>Learning to learn</i> , Article: <i>Born to be the best</i> ; Three articles about athletes, Article: <i>Fitness: Seattle snapshot</i>
Writing	Article describing data
Grammar	Multi-word verbs, Present perfect and present perfect continuous
Vocabulary	Ability and achievement, word connected with sport
Pronunciation	Word stress, sound and spelling consonant sounds
Unit – 4 Life Lessons A/B/C/D	
Listening	Interview: Psychology of money; Two monologues: Life-changing events, Two monologues; training for a job, Presenting photos, Three monologues; living in different places
Speaking	Talking about how your life has changes, Discuss experiences of training and rules, Describing photos: Expressing careful disagreement, Discussing living in a different country
Reading	Two texts about life-changing events that helped people become rich, Article: <i>Training for the emergency frontline</i> , Advert for being an international student ‘buddy’
Writing	Job application, Giving a positive impression
Grammar	<i>Used to</i> and <i>would</i>
Vocabulary	Cause and result, Talking about difficulty
Pronunciation	Sound and spelling: <i>u</i>
Unit – 5 Chance A/B/C/D	
Listening	Monologue: What are your chances?, Conversation: Talking about work, Money problems, News reports: environmental problems
Speaking	Discussing possible future events, Role Play: job interview, Explaining and responding to an idea for a café, Giving opinions on environmental problems
Reading	Quiz: <i>Are you an optimist or a pessimist?</i> ; Article: <i>Why we think we’re going to have a long and happy life</i> , Quiz: <i>The unknown continent</i> ; Article: <i>Cooking in Antarctica</i> , Essay about protecting the environment
Writing	For and against essay, Arguing for and against an idea
Grammar	Future probability, Future perfect and future continuous
Vocabulary	Adjectives describing attitude, The natural world
Pronunciation	Sound and spelling : <i>th</i> , Intonation groups

Text Book:

- Cambridge Empower – Second Edition B2 Level - Adrian Doff, Craig Thaine,
1 Herbert Puchta, Jeff Stranks, Peter Lewis – Jones, ISBN: 978-1107468726

Suggested Software:

- 1 Cambridge Empower
- 2 Soft X (K-Van Solutions)

Reference Books:

- 1 M Ashraf Rizvi: Effective Technical Communication, ISBN: 9352605780
- 2 Raymond Murphy: English Grammar in Use, Cambridge University Press. Fifth Edition, ISBN: 978-3125354241
- 3 J. Sethi & P.V. Dhamija. A Course in Phonetics and Spoken English, (2nd Ed), Kindle, ISBN: 9788120314955

Web Links:

- 1 www.cambridgeone.org
- 2 <https://www.britishcouncil.in/english/online>
- 3 www.englishmedialab.com

Design Thinking using AI
(Common to CE,ME,ECE,CSE,IT,AI ML,CSE(DS),PT&Min.E)

Course Code: 2501UC07	L	T	P	C
	0	0	1	1

Course Outcomes:

At the end of the course, student will be able to:

- CO1:** Appreciate various design process procedure
- CO2:** Generate and develop design ideas through different technique
- CO3:** Identify the significance of reverse Engineering to Understand products
- CO4:** Draw technical drawing for design ideas
- CO5:** Illustrate design teams to create feasible and user-focused solutions to complex problems in design.

Mapping of Course Outcomes with Program Outcomes:

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11
CO1								2	2		
CO2										2	
CO3										3	
CO4								1	1	2	
CO5										3	

UNIT – I

Process of Design Understanding Design thinking: Shared model in team-based design – Theory and practice in Design thinking – Explore presentation signers across globe – MVP or Prototyping.

UNIT – II

Tools for Design Thinking: Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space – Empathy for design – Collaboration in distributed Design

Practice using any AI tool:

Students are advised to use any AI tool like Otter AI etc for Transcribe interviews automatically and summarize user insights.

UNIT – III

Design Thinking in IT: Design Thinking to Business Process modelling – Agile in Virtual collaboration environment – Scenario based Prototyping

Practice using any AI tool:

Students are advised to use any AI tool like ChatGPT,Claude, Perplexity etc to define, synthesize, ideate and prototype.

UNIT – IV

DT For strategic innovations: Growth – Story telling representation – Strategic Foresight - Change – Sense Making - Maintenance Relevance – Value redefinition - Extreme Competition – experience design.

Practice using any AI tool:

Students are advised to use any AI tool like looka,logomkr,canva and figma etc for logo,prototyping and sketching.

UNIT – V

Design thinking workshop: Design Thinking Work shop Empathize, Design, Ideate, Prototype and Test.

Text Books:

- 1 Engineering Design by John. R. Karsnitz, Stephen O’Brien and John P. Hutchinson, Cengage learning (International edition) Second Edition. ISBN: 9781133708766
- 2 The Design of Business: Why Design Thinking is the Next Competitive Advantage Roger Martin by Harvard Business Press. ISBN: 9781422177808

Reference Books:

- 1 Engineering Design Process by Yousef Haik and Tamer M. Shahin, Cengage Learning, Second Edition. ISBN: 978-8131529041
- 2 Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business School Publishing) Hardcover – Jeanne Liedtka (Author), Andrew King (Author), Kevin Bennett (Author). ISBN: 978-0231163569

Web Links:

- 1 www.tutor2u.net/business/presentations/. /Product lifecycle/default.html
- 2 https://docs.oracle.com/cd/E11108_02/otn/pdf/. /E11087_01.pdf

Universal Human Values

(Common to CE, EEE, ME, ECE, CSE, IT, AIML, CSE(DS), PT & Min.E)

	L	T	P	C
Course Code: 2501UC08	1	1	0	2

Pre Requisites: Universal Human Values (UHV-I) (desirable).

Course Objectives:

This course input is intended

1. To help the students appreciate the complementarity between 'VALUES' and 'SKILLS' and understand how ethical foundations enhance technical competence to achieve sustainable happiness, prosperity, and responsible professional growth.
2. To develop a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a right understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Universal Human Values (UHV) and movement towards value-based living in a natural way.
3. To highlight real-world implications of Holistic understanding of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature.
4. To encourage the students to realise their full potential and act accordingly.
5. To assist the students to live with a feeling of relationship, harmony and co-existence.

Thus, this course is intended to provide a much-needed input in value education to the young enquiring minds.

UNIT I INTRODUCTION TO VALUE EDUCATION

Lecture 1: Holistic Development and the Role of Education (Right Understanding, Relationship and Physical Facility)

Lecture 2: Understanding Value Education

Tutorial 1: Practice Session PS1 - Sharing about Oneself

Lecture 3: Self-Exploration as the Process for Value Education

Lecture 4: Continuous Happiness and Prosperity – the Basic Human Aspirations

Tutorial 2: Practice Session PS2 - Exploring Human Consciousness

Lecture 5: Happiness and Prosperity – Current Scenario

Lecture 6: Method to Fulfill the Basic Human Aspirations

Tutorial 3: Practice Session PS3 - Exploring Natural Acceptance.

UNIT II HARMONY IN THE HUMAN BEING

Lecture 7: Understanding Human being as the Co-existence of the self and the body

Lecture 8: Distinguishing between the Needs of the self and the body

Tutorial 4: Practice Session PS4 - Exploring the difference of Needs of self and body

Lecture 9: The body as an Instrument of the self

Lecture 10: Understanding Harmony in the self

Tutorial 5: Practice Session PS5 - Exploring Sources of Imagination in the self

Lecture 11: Harmony of the self with the body

Lecture 12: Programme to ensure self-regulation and Health

Tutorial 6: Practice Session PS6 - Exploring Harmony of self with the body.

UNIT III HARMONY IN THE FAMILY AND SOCIETY

Lecture 13: Harmony in the Family – the Basic Unit of Human Interaction

Lecture 14: 'Trust' – the Foundational Value in Relationship

Tutorial 7: Practice Session PS7 - Exploring the Feeling of Trust

Lecture 15: 'Respect' – as the Right Evaluation

Tutorial 8: Practice Session PS8 - Exploring the Feeling of Respect

Lecture 16: Other Feelings, Justice in Human-to-Human Relationship

Lecture 17: Understanding Harmony in the Society

Lecture 18: Vision for the Universal Human Order

Tutorial 9: Practice Session PS9 - Exploring Systems to fulfil Human Goal

UNIT IV HARMONY IN THE NATURE/EXISTENCE

Lecture 19: Understanding Harmony in Nature

Lecture 20: Interconnectedness, self-regulation and Mutual Fulfilment among the Four Orders of Nature

Tutorial 10: Practice Session PS10 - Exploring the Four Orders of Nature

Lecture 21: Realizing Existence as Co-existence at All Levels

Lecture 22: The Holistic Perception of Harmony in Existence

Tutorial 11: Practice Session PS11 - Exploring Co-existence in Existence.

UNIT V IMPLICATIONS OF THE HOLISTIC UNDERSTANDING A LOOK AT PROFESSIONAL ETHICS

Lecture 23: Natural Acceptance of Human Values

Lecture 24: Definitiveness of (Ethical) Human Conduct

Tutorial 12: Practice Session PS12 - Exploring Ethical Human Conduct

Lecture 25: A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order

Lecture 26: Competence in Professional Ethics

Tutorial 13: Practice Session PS13 - Exploring Humanistic Models in Education

Lecture 27: Holistic Technologies, Production Systems and Management Models-Typical Case Studies

Lecture 28: Strategies for Transition towards Value-based Life and Profession

Tutorial 14: Practice Session PS14 - Exploring Steps of Transition towards Universal Human Order

Course Outcomes:

Upon successful completion of the course, students will be able to

CO1: Demonstrate an understanding of basic human aspiration and the concept of Natural Acceptance and apply them in personal and professional decision-making.

CO2: Develop self-awareness and practice self-regulation.

CO3: Recognize human-human relationship (Justice) and identify human goals in society.

CO4: Appreciate the harmony in nature and existence.

CO5: Develop as socially and ecologically responsible engineers in handling problems with sustainable solutions (user-friendly and eco-friendly).

Text Books:

1. R R Gaur, R Asthana, G P Bagaria, *A Foundation Course in Human Values and Professional Ethics*, 3rd Revised Edition, UHV Publications, Sarva Shubha Nyas, Kanpur, 2023. ISBN: 978- 81-957703-7-3 (Printed Copy) ISBN: 978-81-957703-6-6 (e-book)
2. R R Gaur, R Asthana, G P Bagaria, *Teachers' Manual for a Foundation Course in Human Values and Professional Ethics*, 3rd Revised Edition, UHV Publications, Sarva Shubha Nyas, Kanpur, 2023.

Reference Books:

1. *Jeevan Vidya: Ek Parichaya*, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999
2. *Human Values*, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004.
3. *The Story of Stuff* (Book), Annie Leonard, Free Press, 2010.
4. *The Story of My Experiments with Truth*, Mohandas Karamchand Gandhi, Fingerprint! Publishing
5. *Small is Beautiful* - E. F Schumacher, Random House, 2011.
6. *Slow is Beautiful* - Cecile Andrews, New Society Publishers, 2006
7. *Economy of Permanence* - J C Kumarappa
8. *Vivekananda* - Romain Rolland

Online Resources

1. <https://fdp-si.aicte-india.org/index.php>
2. https://onlinecourses.swayam2.ac.in/aic22_ge23/preview
3. <https://uhv.org.in/>
4. <https://www.youtube.com/@UniversalHumanValues/playlists>

Advanced Cognitive Skills for Engineers
(Common to all branches)

Course Code: 2501EN02

L T P C
0 0 2 1

Course Outcomes:

At the end of the course, student will be able to:

- CO1:** Recognize the basics of communication and summarize formal and informal language expressions in all aspects.
- CO2:** Establish and maintain interpersonal relationships and transmit the message through different language activities.
- CO3:** Use language effectively to prepare and demonstrate proficiency in facing various types of interviews.
- CO4:** Demonstrate and exhibit professionalism in participating in various public speaking activities like debates, group discussions and presentation skills.
- CO5:** Identify the basic elements of writing and apply the fundamentals to compose e-mails catering to different professional needs.

Mapping of Course Outcomes with Program Outcomes:

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	-	-	-	-	-	-	-	-	3	-
CO2	-	-	-	-	-	-	-	-	-	3	-
CO3	-	-	-	-	-	-	-	-	-	3	-
CO4	-	-	-	-	-	-	-	-	-	3	-
CO5	-	-	-	-	-	-	-	-	-	3	-

List of the Topics

Unit – 1

Around the globe A/B/C/D

Listening	Two monologues about sightseeing tours, Interview: disappearing languages, Asking for a favour, conversation: a trip to the Grand Canyon
Speaking	Comparing different tourist destinations, Agreeing and disagreeing, Asking for a favour, Discussing local tourist destinations.
Reading	Website about four tourist destinations; Website: <i>Where to go?</i>
Writing	Travel blog, Using descriptive language
Grammar	Infinitives and <i>-ing</i> forms
Vocabulary	Travel and tourism, Describing changes
Pronunciation	Consonant clusters, Consonant sounds

Unit – 2

City living A/B/C/D

Listening	Interview: 'Smart' cities: Two monologues talking about 'smart' cities, Two monologues: house renovations, Flat hunting, Interviews about a new shopping centre
Speaking	Discussing good and bad points about a city
Reading	Article: <i>Quick-slow down!</i> , Article: <i>Who puts the 'real' in</i>

Writing	reality TV? Email: Complaining about an important issue.
Grammar	Email of complaint, Using formal language
Vocabulary	<i>Too/enough; so/such</i> , Causative <i>have/get</i>
Pronunciation	Describing life in cities, Film and TV; Houses Sound and spelling: o, Stress in compound nouns

Unit – 3 **Dilemmas A/B/C/D**

Listening	Radio programme: person finance, Three monologues about honesty, Going to the bank, Conversation about a TV programme
Speaking	Giving opinions on financial matters, Discussing moral dilemmas, Talking about hopes and worries Discussing programmes about crime
Reading	Article: <i>Is it time to give up on cash?</i> , Newspaper article: <i>The honesty experiment</i> , Review: <i>Crime with a smile</i>
Writing	Review, Organising a review
Grammar	First and second conditionals, Third conditional; <i>should have+past participle</i>
Vocabulary	Money and finance, Crime
Pronunciation	Stressed and unstressed words; Sound and spelling: <i>l</i> , Word groups

Unit – 4 **Discoveries A/B/C/D**

Listening	Conversation about inventions, Conversation about an email hoax, Finding the perfect flat, Four monologues about alternative medicine
Speaking	Talking about inventions, Describing a hoax or a scam or a case of fraud, Giving and receiving surprises
Reading	Article: <i>Too good to be true?</i> , Article: <i>The rise and fall of Barry Minkow</i> , Essay: <i>The Value of alternative medicine</i>
Writing	Opinion essay, Presenting a series of arguments
Grammar	Relative clauses, Reported speech; Reporting verbs
Vocabulary	Health, Verbs describing thought and knowledge
Pronunciation	Sound and spelling : <i>ui</i> , Linking and intrusion

Unit – 5 **Possibilities A/B/C/D**

Listening	Interview about Dan Cooper, Two monologues: pursuing a dream, Celebrating good news, conversation about goals
Speaking	Telling stories about coincidences, Describing and comparing brave or amazing people, Telling an important piece of news, Talking about performing
Reading	Story: The man who disappeared; Blog: <i>The Wreck of the Titan</i> , Article: <i>Dream to help</i> , Story: Rosa’s diary: <i>The ultimate goal</i>
Writing	Story, Making a story interesting
Grammar	Past modals of deduction, Wishes and regrets
Vocabulary	Adjectives with prefixes, Verbs of effort
Pronunciation	Word stress, Linking, Consonant clusters

Text Book:

1. Cambridge Empower – Second Edition B2 Level - Adrian Doff, Craig Thaine, Herbert Puchta, Jeff Stranks, Peter Lewis – Jones. ISBN: 978-1107468726

Suggested Software:

- Cambridge Empower
- Soft X (K-Van Solutions)

Reference Books:

- 1 Raman Meenakshi, Sangeeta-Sharma. Technical Communication. Oxford University Press.2018. ISBN: 9789354972256
- 2 Michael Swan- Practical English Usage ISBN: 9780194202466
- 3 Taylor Grant: English Conversation Practice, Tata McGraw-Hill Education India,2016 ISBN: 978-0070996038

Web Links:

- 1 <https://www.cambridgeone.org/login>
- 2 <https://www.coursera.org/>
- 3 <https://www.skillshare.com/>
- 4 <https://www.mindtools.com/cawh8bu/communication-tools>