

### Ability Enhancement Courses (AEC)

Course Code	Course Name	Level	L	T	P	C	CIE	SEE	Total	Pre-requisite
241EN001	Essential Cognitive Skills for Engineers	FC			1	1	100	-	100	-
241EN002 (or) 241UC005/ 241UC004/ 241UC006/ 241UC003	Advanced Cognitive Skills for Engineers (or) Proficiency in Foreign Language (Japanese/ German/ Spanish/ French)	FC			1	1	100	-	100	-
241UC007	Design Thinking	FC			1	1	100	-	100	-
241UC008	Universal Human Values	FC	2			2	100	-	100	-
241UC009	Technical Paper Publication	AC			2	2	100	-	100	-
241PT052	Student Activity-Based Learning	AC				2				
<b>Total</b>			<b>2</b>		<b>5</b>	<b>9</b>				

## Essential Cognitive Skills for Engineers

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

**Course Code: 241EN001**

<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

**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
<b>CO1</b>	-	-	-	-	-	-	-	-	3	-	-
<b>CO2</b>	-	-	-	-	-	-	-	-	3	-	-
<b>CO3</b>	-	-	-	-	-	-	-	-	3	-	-
<b>CO4</b>	-	-	-	-	-	-	-	-	3	-	-
<b>CO5</b>	-	-	-	-	-	-	-	-	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: *Protector of the sea and the woman who reinvented children's TV*, Interviews: *30-day challenge*, Article: *Tech free!*
- 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: <i>Lost at sea</i> , 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

Reading	on environmental problems 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, Herbert Puchta, Jeff Stranks, Peter Lewis – Jones. ISBN: 978-1107468726

**Suggested Software:**

- Cambridge Empower
- 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, 2013 ISBN: 9788120314955

**Web links:**

1. <https://www.cambridgeone.org/login>
2. <https://www.britishcouncil.in/english/online>
3. [www.englishmedialab.com](http://www.englishmedialab.com)

### Advanced Cognitive Skills for Engineers

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

**Course Code: 241EN002**

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**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	-	-

**Practice**

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

- 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>

## Design Thinking

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

	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Course Code:241UC007</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>

### 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.

### UNIT – III

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

## UNIT – IV

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

## 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.tuto2.u.net/business/presentations/. /Product lifecycle/default.html](http://www.tuto2.u.net/business/presentations/. /Product lifecycle/default.html)
2. [https://docs.oracle.com/cd/E11108\\_02/otn/pdf/. /E11087\\_01.pdf](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)

Course Code: 241UC008

**L T P C**  
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### Course Outcomes:

At the end of the course, the students will be able to

- CO1 Make use of Self-exploration, Continuous Happiness & prosperity, Right understanding and Relationship to live in Harmony principles at all levels
- CO2 Explore the Harmony in the Human-being and Harmony in Self
- CO3 Interpret the Harmony in the Family and Society & Harmony in Human-Human relationship using Justice, Truth, Respect, Prosperity and Co-existence
- CO4 Appraise the Harmony in Nature and Existence using Interconnectedness & mutual fulfilment, Co-existence and Holistic perception of harmony at all levels of existence
- CO5 Apply the principles of Holistic understanding of Harmony in Professional Ethics to improve Competence

### Mapping of Course Outcomes with Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	-	-	-	-	-	2	2	1	1	-	1
CO2	-	-	-	-	-	2	2	1	1	-	1
CO3	-	-	-	-	-	2	2	1	1	-	1
CO4	-	-	-	-	-	2	2	1	1	-	1
CO5	-	-	-	-	-	2	2	1	1	-	1

### UNIT 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Purpose and motivation for the course, recapitulation from Universal Human Values-I
2. Self-Exploration–what is it? - Its content and process; Personality Traits- Self Excellence, 'Natural Acceptance' and Experiential Validation- as the process for self-exploration, Adaptability, Belief and Understanding- Self discipline
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facility- the basic requirements for fulfilment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
6. Method to fulfil the above human aspirations: understanding and living in harmony at various levels.
7. Myers-Briggs Type Indicator (MBTI) Personality test

## **UNIT 2: Understanding Harmony in the Human Being - Harmony in Myself!**

1. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'
2. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility
3. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)-Habits and Hobbies, SWOT Analysis (Activity)
4. Understanding the characteristics and activities of „I“ and harmony in 'I' –Dalai Lamas“ Tibetan Personality Test – Dr. Menninger“s Psychometric Test.
5. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail
6. Programs to ensure Sanyam and Health.
7. Epidemiology- Definition of health, Social and Preventive Medicine, Personal hygiene and handling stress, WHO Guidelines

## **UNIT 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship**

1. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect as the foundational values of relationship
2. Understanding the meaning of Trust; Difference between intention and competence
3. Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship, Friends and Foes, Empathy, False Prestige.
4. Concept of an Ideal family- Marriage as an Institution
5. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals
6. Visualizing a universal harmonious order in society- Undivided Society, Universal Human Order- from family to world family.

## **UNIT 4: Understanding Harmony in the Nature and Existence - Whole existence as Coexistence**

1. Understanding the harmony in the Nature and its Equanimity, Respect for all, Nature as Teacher
2. Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature
3. Understanding Existence as Co-existence of mutually interacting units in all-pervasive space
4. A Holistic perception of harmony at all levels of existence.

## **UNIT 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics**

1. Natural acceptance of human values
2. Definitiveness of Ethical Human Conduct
3. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order

4. Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of people friendly and eco-friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above production systems.
5. Case studies of typical holistic technologies, management models and production systems
6. Vision for the Holistic alternatives, UHVs for entrepreneurship
7. Strategy for transition from the present state to Universal Human Order: (a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers  
(b) At the level of society: as mutually enriching institutions and organizations – Right understanding and dilemmas of professional ethics in today's world.

#### **Text Book**

1. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, ISBN No: 812-2415660, 978-8122415667.
2. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, ISBN No: 978-8174467812,978-8174467812.

#### **Reference Book:**

- 1.Hind Swaraj or Indian Home Rule - by Mohandas K. Gandhi, ISBN No:978-8172290063
- 2.Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, ISBN No: 8172290061
- 3.India Wins Freedom - Maulana Abdul Kalam Azad, ISBN No:978-8174762179

#### **Weblinks:**

1. [https://www.youtube.com/watch?v=OgdNx0X923I&list=PLYwzG2fd7hzc4HerTNkc3pS\\_IvcCfKznV](https://www.youtube.com/watch?v=OgdNx0X923I&list=PLYwzG2fd7hzc4HerTNkc3pS_IvcCfKznV)