

## Economics for Engineers

### General Course Information

<p>Course Code: HSMC301-T</p> <p>Course Credits: 2</p> <p>Type: Humanities and Social Sciences including Management courses</p> <p>Contact Hours: 2 hours/week</p> <p>Mode: Lectures (L)</p> <p>Examination Duration: 3 hours</p>	<p><b>Course Assessment Methods (internal: 30; external: 70)</b></p> <p>Two minor examinations (20 marks), Class Performance measured through percentage of lectures attended (4 marks), assignments (6 marks), and the end- semester examination (70 marks).</p> <p>For the end semester examination, nine questions are to be set by the examiner. A candidate is required to attempt 5 questions in all. All questions carry equal marks. Question number 1 will be compulsory and based on the entire syllabus. It will contain seven parts of 2 marks each. Question numbers 2 to 9 will be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt the remaining four questions by selecting one question from each of the four units.</p>
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**Pre-requisites:** None

**About the Course:** This course is designed to provide the elementary and essential knowledge of economics relevant to their profession as engineers. The graduating engineers will learn about the basic principles of economics and cost benefit analysis for various economic alternatives. The course also gives an initial exposure to issues and challenges for sustainable development.

**Course Outcomes:** By the end of the course students will be able to:

- CO1. **outline** the principles of economics in general and economics in Indian context. (LOTS: Level 1: Remember)
- CO2. **discuss** concepts related to economics in general and particularly relevant to Indian scenario. (LOTS: Level 2: Understand)
- CO3. **apply** the principles of economics for solving problems related to Engineering sector. (LOTS: Level 3: Apply)
- CO4. **carry out** cost/benefit, life cycle and breakeven analyses on one or more economic alternatives. (HOTS: Level 4: Analyse)
- CO5. **judge** the issues and challenges of sustainable development. (HOTS: Level 5: Evaluate)

### Course Content

#### Unit I

Definition of Economics- various definitions, Nature of economic problem, Production possibility curve, Economics laws and their nature, Relation between Science, Engineering, Technology and Economics, Concepts and measurement of utility, Law of Diminishing Marginal Utility, Law of equi-marginal utility - its practical applications and importance.

#### Unit II

Meaning of Demand, Individual and Market demand schedules, Law of demand, shape of demand curve, Elasticity of Demand, measurement of elasticity of demand, factors affecting elasticity of demand, practical importance and applications of the concept of elasticity of demand.  
Meaning of production and factors of production; Law of variable proportions, Returns to scale, Internal and External economies and diseconomies of scale.

### Unit III

Various concepts of cost- Fixed cost, variable cost, average cost, marginal cost, money cost, real cost, opportunity cost. Shape of average cost, marginal cost, total cost etc. in short run and long run both.  
Meaning of Market, Types of Market - Perfect Competition, Monopoly, Oligopoly, Monopolistic Competition (Main features of these markets)  
Issues, Strategies and challenges for sustainable development for developing economies

### Unit IV

Elements of Business/Managerial Economics and forms of organizations, Cost & Cost Control Techniques, Types of Costs, Lifecycle Costs, Budgets, Break Even Analysis, Capital Budgeting, Application of linear Programming. Investment Analysis- NPV, ROI, IRR, Payback Period, Depreciation, Time Value of Money (present and future worth of cash flows).  
Business Forecasting- Elementary techniques. Statements- Cash Flows, Financial. Case Study Method. Nature and Characteristics of Indian Economy (brief and elementary introduction). Privatization - meaning, merits, and demerits. Globalisation of Indian economy- merits and demerits.  
WTO and TRIPs agreements.

### Text and Reference Books:

1. Alfred William Stonier, D. C. Hague, *A text book of Economic Theory*, 5<sup>th</sup> edition, Longman Higher Education, 1980.
2. K. K. Dewett, M. H. Navalur, *Modern EconornicTheory*, S. Chand, 2006.
3. H. L. Ahuja, *Modern Microeconomic: Theory and Applications*, S. Chand, 2017.
4. N. Gregory Mankiw, *Principles of Economics*, 7<sup>th</sup> edition, South-Western College Publishing, 2013.
5. Ruddar Dutt & K. P. M. Sundhram, *Indian Economy*, S. Chand, 2004.
6. V. Mote, S. Paul, G. Gupta, *Managerial, Economics*, McGraw Hill Education, 2017.
7. Saroj Pareek, *Text book of Business Economics*, Neha Publishers and Distributors, 2013.
8. William McDonough and Michael Braungart, *Cradle to Cradle Remaking the Way We Make Things*, North Point Press, New York, 2002.
9. Sustainable Development Challenges, *World Economic and Social Survey*, United Nations Publication, 2013.

## ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE

Group A (ECE, EE, EEE, PT, PKG, P&P, ME, Agri, Aero, Auto) : 4<sup>th</sup> Semester

Group B (CSE, IT, BME, FT, Civil) : 5<sup>th</sup> Semester

General Course Information	
Course Code: MC301-T	Course Assessment Methods; Max. Marks: 100 (Internal: 30; External: 70) Two minor tests each of 20 marks, Class Performance measured through percentage of lectures attended (4 marks) Assignments (4 marks) and class performance (2 marks), and end semester examination of 70 marks.  For the end semester examination, nine questions are to be set by the examiner. Question number one will be compulsory and based on the entire syllabus. It will contain seven short answers type questions. Rest of the eight questions is to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt any other four questions selecting one from each of the remaining four units. All questions carry equal marks.
Course Credit: 0	
Contact Hours: 2/week, (L-T-P:2-0-0)	
Mode: Lectures	
Examination Duration: 3 Hours	


**About the Course:** This course is designed to acquaint students with Indian knowledge traditions It introduces students to Vedic period, Post Vedic period, Sufi and Bhakti Movement in India, the ancient scientists of India and social reform movements of 19<sup>th</sup> century in India.

**Course Outcomes:** By the end of the course students will be able to:

- CO1. Recognize the forms and sources of Indian traditional knowledge. (LOTS: Level 1: Remember)
- CO2. Identify the contribution of the great ancient Indian scientists and spiritual leaders to the world of knowledge. (LOTS: Level 2: Understand)
- CO3. Apply the reasoning based on objectivity and contextual knowledge to address the social and cultural issues prevalent in Indian society. (LOTS: Level 3: Apply)
- CO4. Differentiate the myths, superstitions from reality in context of traditional knowledge to protect the physical and social environment. (LOTS: Level 4: Evaluate)
- CO5. Suggest means of creating a just and fair social environment that is free from any prejudices and intolerance for different opinions and cultures. (LOTS: Level 6: Create)

### UNIT-I

**Introduction to Indian Tradition Knowledge:** Defining traditional knowledge, forms, sources and dissemination of traditional knowledge. Vedic Period: Vedas and Upanishads, Yogsutras of Patanjali. Post Vedic Period: Buddhism, Janism and Indian Materialism: Bhartiya Darshan



  
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## UNIT-II

Sufi and Bhakti Movement (14<sup>th</sup> to 17<sup>th</sup> century): सगुण-निर्गुण भक्ति, Sufism and Sufi saints, Kabir, Dadu, Soordas, Tulsidas, Nanak and Guru Jambheshwar ji Maharaj etc., Composite Culture of Indian sub-continent.

## UNIT-III

Jyotirao Phule, Savitri Bai Phule, Arvind, Vivekanand and other 18<sup>th</sup> & 19<sup>th</sup> Century Social Reform Movements; India's cultural heritage.

## UNIT-IV

India's Contribution to the world of knowledge: प्राचीन भारत के महान वैज्ञानिक: वौधायन, चरक, कौमारभृत्यजीवन, सुश्रुत, आर्यभट्ट, ब्राह्मिहिर, ब्रह्मगुप्त, नागार्जुन, वारुभट्ट; Astrology and Astronomy, Myths and Reality

### Text and Reference Books:

1. A. L. Bhansari, *The Wonder That was India, A Survey of the Culture of the Indian Sub-Continent before, the Coming of the Muslims*, Vol 1, Groove Press, New York, 1959.
2. S. A. A. Rizvi, *Wonder That was India, A Survey of the History and Culture of the Indian Sub-Continent from the Coming of the Muslims to the British Conquest 1200-1700*, Vol 2, Rupa and Co. 2001.
3. Jambhvani Mool Sanjivini Vyakhya
4. *प्रतियोगितादर्पण अतिरिक्तांकसूरीज-5 भारतीयकलाएवंसंस्कृति*,
5. गुणाकरमूले, *प्राचीनभारतकेमहानवैज्ञानिक*, ज्ञानविज्ञानप्रकाशन, नईदिल्ली, 1990.
6. B. V. Subbarayappa, *A Historical Perspective of Science in India*, Rupa Publications, New Delhi, 2013.
7. KR Bishnoi, NR Bishnoi, *Religion and Environment*, Vol 1,2 & 3
8. ThichNhat Hanh, Nguyen Thi Hop, MobilHo, *Old Path White Clouds: Walking in the Footsteps of the Buddha*, Parallax Press, 1991.
9. Hermann Hesse, *Siddhartha*, Simon & Brown, 2017.
10. सावित्रीचंद्रशोभा, *हिन्दीभक्तिसाहित्यमेंसामाजिकमूल्यएवंसहिष्णुतावाद*, नेशनलबुकट्रस्ट, इंडिया, 2007.
11. Rosalind O' Hanlon, *Caste Conflict and Ideology, Mahatma JyotiraoPhule and low caste protest in nineteenth century, Western India*, Cambridge University Press, 2009.
12. Melanie P. Kumar, SavitribaiPhule: *Forgotten liberator*, Infochange, 2009.
13. Leah Verghese, Ranjna, and MedhaSundar, *Savitribai, Journey of a Trailblazer*, A- Prem Ji University, 2014.

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Course code	HSMC/1-P
Category	Humanities and Social Sciences including Management courses
Practical Course title	English
Contact Hours	02
Credits	1.0
Course Assessment Methods	<p>Internal: 30 Marks; External: 70 Marks</p> <p>The internal and external assessment is based on the level of participation in laboratory Sessions, timely submission of experiments/assignments, the quality of solutions designed for the assignments, the performance in VIVA-VOCE, the quality of laboratory file and ethical practices followed.</p> <p>There will be a continuous process for laboratory course evaluation. Two internal examinations (each of 50 marks) for the laboratory courses (Minor Laboratory Evaluations: MLE I and MLE II) will be conducted in the week before or after the internal examinations for the theory courses. The overall internal marks will be calculated as the average of the two minor laboratory course evaluations. The course coordinator will conduct these minor evaluations in the slots assigned to them as per their timetable. The Chairperson of the Department will only notify the week for the internal laboratory course evaluations. The marks for MLE I and MLE II must be submitted within a week of the conduct of these laboratory course evaluations.</p> <p>The external examination will be conducted by external examiner appointed by the Controller of Examination along with the internal examiner, preferably the laboratory course coordinator, appointed by the Chairperson of the Department. The final practical examination of duration three hours will be conducted only in groups of 20-25 students.</p> <p>The Course Coordinator/Internal Examiners/External Examiners will maintain and submit the bifurcation of marks obtained by the students in internal as well as external evaluations in the proformas (attached herewith as Annexures I and II) to the respective departments in addition to submitting and uploading of overall marks on the university portal as per the requirement of the result branch. The laboratory course coordinator will also conduct laboratory course exit survey and compute and submit the attainment levels of the laboratory course based on direct and indirect evaluation components and submit it to the Chairperson office along with the internal assessment marks.</p>

**Pre-requisites:** The students should be able to read, write and understand.

**About the Course:**

The objective of the lab course is to train the students to understand the basic concepts of grammar and pronunciation. The lab course will enable the students to enhance their vocabulary and implement the same in day-to-day conversations. The activities like mock interviews, debates and presentations would provide them the platform to improvise their communication.

S. No.	Course Outcomes: By the end of the lab course a student would be able to:	RBT Level
CO-1	Apply the practical knowledge of using action words in sentence construction	(LOTS: Levels 3: Apply)
CO-2	Analyze the right kind of pronunciation with appropriate speech sounds	(HOTS: Level 4: Analyse)

CO-3	Apply the concepts of accurate English in using good vocabulary and communication skills.	(HOTS: Level 5: Evaluate)
CO-4	Understand the importance of pronunciation and apply the same day to day conversation.	(HOTS: Level 6: Create)
CO-5	Enable to spot the common grammatical errors related to sentence structure, preposition, concord, relative and conditional clauses and parallel structures.	(HOTS: Level 6: Create)
CO-6	Enable to spot the common grammatical errors related to sentence structure, preposition, concord, relative and conditional clauses and parallel structures.	(LOTS: Level 3: Apply)

### List of Assignments/Activities

1. Two activities of role play based on the content in the syllabus.
2. Two assignments associated with topics of grammar and phonetics.
3. Two activities based on presentation, debates and speech.
4. Mock interview for development of confidence.

### Note:

The actual experiments/assignments will be designed by the course coordinator. One assignment should be designed to be done in groups of two or three students. The assignments must meet the objective of the course and the levels of the given course outcomes. The list of assignments and schedule of submission will be prepared by the course coordinator at the beginning of the semester.

### CO-PO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1.	-	-	-	-	-	-	-	1	1	3	-	3
CO2.	-	-	-	-	-	-	-	1	1	3	-	3
CO3.	-	-	-	-	-	-	-	1	1	3	-	3
CO4.	-	-	-	-	-	-	-	1	1	3	-	3
CO5.	-	-	-	-	-	-	-	1	1	3	-	3
CO6.	-	-	-	-	-	-	-	1	1	3	1	3

3 -High 2-Medium 1-Low

Course code	HSMC/I-T		
Category	Humanities and Social Sciences including Management courses		
Course title	English		
Scheme and Credits	1.	Tu	Credits
	2	0	2.0
Course Assessment Methods	<p><b>Internal Examination (30 marks):</b></p> <p>Three minor tests each of 20 marks including third minor in open book mode will be conducted. The average of the highest marks obtained by a student in the any of the two minor examinations will be considered.</p> <p>Class Performance will be measured through percentage of lectures attended (04 marks)</p> <p>Assignments, quiz etc. will have weightage of 06 marks</p> <p><b>End semester examination (70 marks):</b></p> <p>Nine questions are to be set by the examiner. Question number one will be compulsory and based on the entire syllabus. It will contain seven short answers type questions. Two questions are to be set from each unit. All questions will carry equal marks.</p> <p>A candidate is required to attempt 05 questions in all, one compulsory and remaining four questions selecting one from each of the four units.</p>		

### Course Outcomes

By the end of the course students will be able to:

- CO1. Choose and use the appropriate vocabulary, phrases in different concepts
- CO2. Provide knowledge about basics of grammar
- CO3. Construct sentences using proper grammatical sentence structures
- CO4. Inculcate and improve writing skills and develop coherence in writing
- CO5. Write letters, e-mails, resume and press report etc. which are need of the present times in various professions
- CO6. Develop effective listening skills for better comprehension of English spoken in different social and workplace contexts

### Course content

#### UNIT I

##### Vocabulary Building

Concept of Word Formation, Acquaintance with prefixes, suffixes and derivational constructions  
Synonyms, antonyms, and homophones.

#### UNIT II

##### Basic Writing Skills

Sentence Structures, creating coherence in writing, Art of paragraph writing, Techniques for writing precisely, Precis Writing

#### UNIT III

##### Identifying Common Errors in Writing

Subject-verb agreement and related errors, Noun-pronoun agreement and related errors, Errors in usage of articles, Errors in usage of prepositions

#### UNIT IV

##### Technical Writing

Business letter writing and its format, Email writing, Resume writing, Press report writing

### Suggested Readings:

1. Practical English Usage. Michael Swan. OUP. 1995.
2. Remedial English Grammar. F.T. Wood. Macmillan.2007 (iii)On Writing Well. William Zinsser. Harper Resource Book. 2001
3. Study Writing. Liz Hamp-Lyons and Ben Heasley. Cambridge University Press. 2006.
4. Communication Skills. Sanjay Kumar and Pushp Lata. Oxford University Press. 2011.
5. Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press
6. Common Errors in English. Abul Hashem, Ramesh Publishing House