



# SENGUNTHAR ENGINEERING COLLEGE (AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)  
Recognized Under Section 2(f) & 12(B) of the UGC Act, 1956  
NAAC Accredited with 'A' Grade

**TIRUCHENGODE - 637 205 NAMAKKAL (Dt) TAMILNADU**



## Curricular Aspects - Web Links for Supporting Documents

Document	URL
Academic Council Meeting minutes	<a href="http://scteng.co.in/IQAC/Statutory/AcademicCouncil">http://scteng.co.in/IQAC/Statutory/AcademicCouncil</a>
Board of Studies Meeting minutes	<a href="http://scteng.co.in/IQAC/Statutory/BoardOfStudies">http://scteng.co.in/IQAC/Statutory/BoardOfStudies</a>
Curriculum and Syllabi R-2017 & R-2019 UG&PG	<a href="http://scteng.co.in/Academics/CurriculumAndSyllabi">http://scteng.co.in/Academics/CurriculumAndSyllabi</a>



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19ECJ601

MINI PROJECT

L T P C  
0 0 2 1

## OBJECTIVES

The main objective of this course is to:

- Design and fabrication of one or more components of a complete working model, which is designed by them.
- Ability to fabricate any components using different manufacturing tools.

## GUIDELINES FOR REVIEW AND EVALUATION

The students may be grouped into 2 to 4 and work under a project supervisor. The device/system/component(s) to be fabricated may be decided in consultation with the supervisor and if possible with an industry. A project report to be submitted by the group and the fabricated model, which will be reviewed and evaluated for internal assessment by a committee constituted by the Head of the Department. At the end of the semester examination the project work is evaluated based on oral presentation and the project report jointly by external and internal examiners constituted by the Head of the Department.

**TOTAL: 60 PERIODS**

## OUTCOMES

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

- Design and fabricate the machine element or the mechanical product.
- Demonstrate the working model of the machine element or the mechanical product.

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19EEEC101

**LIFE SKILLS FOR ENGINEERS**  
(Employability Enhancement Course)  
(Common to Civil,CSE,ECE,EEE & Mechanical)

**L T P C**  
**0 0 2 0**

## OBJECTIVES

To enable students to:

- Develop communication competence for engineers and enable them to convey thoughts and ideas with clarity and focus.
- Inculcate critical thinking process on problem solving.
- Have an overview on career skills required in their profession.
- Learn professional Ethics and Moral values.
- Lead a team with more responsibilities to be succeed in their endeavour.

### UNIT I: COMMUNICATION SKILL

6

Introduction to Communication, The Process of Communication, Barriers to Communication, Listening Skills, Non-verbal Communication and Body Language, Interview Skills, Group Discussion, Presentation Skills, Technology-based Communication- Technical Presentation

### UNIT II: CRITICAL THINKING & PROBLEM SOLVING

6

Creativity, Lateral thinking, Critical thinking, Multiple Intelligence, Problem Solving, Mind Mapping & Analytical Thinking.

### UNIT III: CAREER SKILLS

6

Introduction to Employability and Career Skills - developing a long - term career plan - making career changes -Time Management - General awareness of Current Affairs - Stress management - Leadership straits - Team work - Career planning.

### UNIT IV: ETHICS MORAL & PROFESSIONAL VALUES

6

Human Values, Civic Rights, Engineering Ethics, Engineering as Social Experimentation, Environmental Ethics, Global Issues.

### UNIT V: LEADERSHIP SKILLS

6

Leadership, Levels of Leadership, Making of a leader, Types of leadership, Transactions Vs Transformational Leadership, VUCA Leaders, DART Leadership, Leadership Grid & leadership Formulation.

**TOTAL: 30 PERIODS**

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## OUTCOMES

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


- Communicate effectively and make effective presentations.
- Write different types of reports.
- Face interview & group discussion.
- Critically think on a particular problem.
- Get success in all aspects and develop public skills.

## TEXT BOOKS

1. Life Skills for Engineers, McGraw Hill Education (India) Private Ltd., 2016.
2. E. Suresh Kumar et al. Communication for Professional Success. Orient Blackswan: Hyderabad, 2015.

## REFERENCES

1. Barun K. Mitra; (2011), "Personality Development & Soft Skills", 1<sup>st</sup> Edition; Oxford Publishers.
2. Kalyana; (2015) "Soft Skill for Managers"; 1<sup>st</sup> Edition; Wiley Publishing Ltd.

  
HEAD OF THE DEPARTMENT  
DEPARTMENT OF ELECTRONICS  
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**19EEEC203 HANDS ON TRAINING IN ELECTRICAL AND ELECTRONICS ENGINEERING**  
(Employability Enhancement Course)  
(For EEE and ECE Branches)

**L T P C**  
**0 0 2 0**

### OBJECTIVES

The main objective of this course is to:

- Gain practical experience on Electrical Appliances.
- Create awareness on non-conventional energy.

### LIST OF EXPERIMENTS:


1. Maintenance of UPS and Battery.
2. Earthing of Power Devices.
3. Repair & Maintenance of Home Appliances.
4. Change of Fuse Links.
5. Repair & Maintenance of Air Compressor.
6. Repair & Maintenance of RO System (filter, pump moter)
7. Study of Electronic Devices.
8. Residential house wiring using switches, fuse, indicator, lamp and energy meter.
9. Fluorescent lamp wiring.
10. Stair case wiring.
11. Soldering practice-components devices and circuits-using general purpose PCB.

**TOTAL: 20 PERIODS**

### OUTCOMES

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

- Repair and service the electrical appliances.

  
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19EEC301

COMMUNICATION SKILLS

L T P C  
0 0 2 0

## OBJECTIVES:

The purpose of learning this course is to:

- Improve fluency in English through well developed vocabulary.
- Improve the oral communication skills.
- Focus the effective reading of general and technical text.
- Improve writing skill.
- Communicate ideas in group discussion and interviews.

### Unit I: VOCABULARY

6

Vocabulary building - articulate ideas and thoughts; usage of palindromes, greetings, wishes, festival related words - homophones and homonyms- connotation - vocabulary words with sentences. - Idiomatic Expressions - One- word Substitutes.

**Activities:** Learn a word a week, Use newspaper to write unfamiliar words, Word association games.

### Unit II: LISTENING

6

Listening Skill- Its importance - Purpose- Process- Types- Barriers- Effective Listening strategies- Listening and note-taking - Listening to telephonic conversations - Ted talks - Watching Inspiring Speech videos on You tube- Listening native speaker's videos for pronunciation.

**Activities:** Listen and draw the different scenes in a story, Secret Message games, watching videos and listing difficult words.

### UNIT III: SPEAKING

6

JAM Talk - Role play - Debate - Conversational skills (formal and informal) - Conversation practice - group discussion and interview skills - Introducing oneself and others - Presentation skills - Making presentations (individual and group) through seminars / PPTs.

**Activities:** Picture Description, Giving Directions and Guidelines, Making a short speech- Extempore.

### UNIT IV: READING

6

Strategies for effective reading (Guessing meanings from contexts -Scanning, skimming, inferring meaning and critical reading)- Read and recognize different text types ranging from



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newspaper articles, magazines, books, Technical articles and Reading autobiographies -

**Activities:** Reading online sources like e-books, e-journals and e-newspapers, cloze exercises, Reading and answering questions.

### UNIT V: WRITING

6

Develop a paragraph: topic sentence, supporting sentences, concluding sentence - Writing simple Essays - argument, descriptive and comparative essays- Creative writing.

**Activities:** Write Essays with sub titles, Write a story that uses as many clichés and idioms, Write Paragraph.

**TOTAL : 30 PERIODS**

The following Practice Session will be conducted for the Communication Skills (CS) Lab sessions:

- Activities on Presentations Skills- Students make presentations on given topics.
- Activities on Group Discussion- Students participate in group discussions.
- Interview Skills- Students participate in Mock Interviews.
- Essay Writing - Students prepare their own paragraph and essay.

### Guidelines for conducting assessments as per 2019 regulations

- 30 hours - Two consecutive hours allotted for each class.
- Three Continuous assessments only conducted and no end semester exam.
- For the award of Continuous assessment the best three activities from Essay Writing, Oral Presentation, Extempore, Group Discussion and Mock Interview (one-on-one basis) can be taken.

### OUTCOMES:

At the end of this course, learners will be able to:

- Improve vocabulary and express the same contextually.
- Communicate to his peer group properly and make presentations.
- Comprehend the general and technical text.
- Write simple paragraph and essay in any topic.
- Participate in group discussions expressing ideas relevantly, coherently and cogently.

### TEXT BOOKS:

1. Gramer F. Margot and Colin S. Ward Reading and Writing (Level 3) Oxford University Press: Oxford, 2011.



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2. Brooks, Margret. Skills for Success. Listening and Speaking. Level 4 Oxford University Press, Oxford: 2011.

### REFERENCES:

1. Davis, Jason and Rhonda Liss. Effective Academic Writing (Level 3) Oxford University Press: Oxford, 2006.
2. E. Suresh Kumar and et al. Enriching Speaking and Writing Skills. 2<sup>nd</sup> Edition. Orient Black swan.
3. Anderson, Kenneth et al. Study Speaking: A Course in Spoken English for Academic Purposes. United Kingdom: Cambridge University Press 1992.
4. Technical communication by Asraf rezvi.

### E- RESOURCES :

1. [www.youglsh.com](http://www.youglsh.com)
2. [www.Newwellington University.com](http://www.Newwellington University.com)
3. [www.newsinlevels.com](http://www.newsinlevels.com)
4. [www.Britishcouncil.org](http://www.Britishcouncil.org)
5. [www.writeandimprove.com](http://www.writeandimprove.com)
6. [www.purdueonline.com](http://www.purdueonline.com)

  
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19EEEC501

## QUANTITATIVE APTITUDE LEARNING

(Common to all Branches)

LT P C

0 2 0 0

### OBJECTIVES

- Introduce the basic concepts and techniques of numbers, Highest common factor and Least common multiple.
- Develop the use of decimal fraction and problems on ages.
- Introduce basic concepts of time, work, distance, calendar and clock.
- Acquaint the student with the concept of simple and compound interest.
- Produced the knowledge of polynomial and quadratic equations.

### UNIT I NUMBERS, HIGHEST COMMON FACTOR AND LEAST COMMON MULTIPLE 9

Numbers and their basic classification – Types of number – Basic operations of numbers – Progression – Tests of divisibility – Highest common factor – Least common multiple.

### UNIT II DECIMAL FRACTION AND PROBLEMS BASED ON AGES 9

Decimal fraction – Types of fraction – Comparison of fractions – Inserting fractions in between two given fractions – Relation between decimal fraction and normal fraction – Conversion of a decimal fraction into a vulgar fraction – Types of decimals – Conversion of mixed recurring decimal into a vulgar fraction – Standard form of decimal – Problems based on ages.

### UNIT III TIME, WORK, DISTANCE, CALENDER AND CLOCK 9

General rule for time and work – General rule for work and wages – Speed – Unit of speed – Average speed – Some useful relations – Problems on Trains – Calenders and clocks – Odd days – Ordinary year – Leap year.

### UNIT IV SIMPLE INTEREST, COMPOUND INTEREST AND ELEMENTARY ALGEBRA 9

Simple interest – Compound interest – Some useful relations – Difference between compound interest and simple interest – Short cut methods to solve special types of problems – Elementary Algebra and averages.

### UNIT V POLYNOMIAL AND QUADRATIC EQUATIONS 9

Polynomial introduction – Degree of a polynomial – Types of polynomial – Operations on polynomial – Remainder and factor theorem – Quadratic equation – Pure Quadratic equation – Discriminant – Roots of the Quadratic equations – Solution of Quadratic equation – Framing of a Quadratic equation – Special types of roots.

TOTAL: 45 PERIODS  
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## OUTCOMES

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

- Use the basic concepts and techniques of the numbers, Highest common factor and Least common multiple.
- Apply the concept of decimal fraction and problems on ages.
- Apply the concept of time, work, distance, calender and clock.
- Acquire skills in simple interest, compound interest and elementary algebra.
- Be exposed to concepts and properties of polynomial and quadratic equations.

## TEXT BOOKS

1. Aggarwal R.S., "Quantitative Aptitude", S.Chand & Company Ltd, New Delhi, 2012.
2. Dinesh Khattar, "Quantitative Aptitude for competitive examinations ", Pearson India Education Services Pvt. Ltd, New Delhi, 2019.

## REFERENCES

1. Praveen R.V., "Quantitative Aptitude and Reasoning", PHI Learning Private Limited, Delhi, 2013.
2. Gupta P, "A unique Approach to Quantitative Aptitude ". Unique Publishers (I) Pvt. Ltd, New Delhi, 2017.

## E-RESOURCES

1. <https://youtube.com/playlist?list=RDQM5XI256aOq24>
2. <https://youtu.be/KE7tQf9spPg>

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19MDC301

LEADERSHIP ENHANCEMENT PROGRAMME

(Common to all branches)

L T P C

1 0 0 0

## OBJECTIVES

The objective of the course is enabling the students to:

- Find new, innovative ways of developing and managing people.
- Develop new business opportunities.
- Tackle the broader societal issues the face.
- Key benefits of leadership skills in different situations.
- Formulate and implement effective leadership strategies.

## TOPICS TO BE COVERED

1. Leadership for an Engineering students: Skills & Strategies
2. Qualities of good leaders and 21 irrefutable laws of Leadership.
3. Empowering Others and Managing People.
4. Leading Meetings
5. Leadership competencies and Leadership Styles
6. Difference between a boss and a leader.
7. Leadership and Assertiveness Skills: A Good Leader, Leadership Theories, Leadership Behaviour, Assertiveness skills.
8. Leadership development opportunities and suggestions.
9. Teamwork and Leadership: Concept of teams, Building Effective teams, Concept of leadership and sharpening leadership skills.
10. Teamwork and Leadership Activities: Group discussion, Solving Puzzle as a team, describing a leadership style.

## OUTCOMES

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

- Develop the capabilities needed to increase team's work productivity.
- Help to decrease employee turnover and increase engagement, creating a strong and united team.
- Develop communication skills, mastering the art of negotiation, influence and conflict management.
- More confident as a leader and find new ways of influencing the teams they lead.



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- Effectively connect to people, developing the ability to give constructive feedback, and critically seek the feedback of the team.

**TOTAL: 12 PERIODS**

## TEXT BOOK

1. John maxwell, "21 irrefutable laws of leadership" 2008
2. Sara n. King, David g. Altman, Robert j. Lee, "Discovering the leader in you"
3. Louis carter ,David ulrich , Marshall Goldsmith "Best practices in leadership development and Organization change".

## REFERENCE

1. Barry Benator, Albert Thumann, "Project Management and Leadership Skills for Engineering and Construction Projects" 2003.
2. Sydänmaanlakka Pentti. "Intelligent leadership and leadership competencies". Dissertation Series.

## E-RESOURCES

1. <https://nptel.ac.in/courses/122/105/122105021/>
2. [www.ccl.org/leadership/research/index.aspx](http://www.ccl.org/leadership/research/index.aspx).

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19MDC401

VALUE ADDED COURSE – I

L T P C

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## OBJECTIVES

- Being able to carry out simple numerical computations and analyses using MATLAB.
- The objective of the course makes students capable to design their own projects PCB upto industrial grade.
- To prepare students with latest knowledge in mobile technology.
- The purpose of the course is to help circuit designers better understand the operation of a SPICE circuit simulator and semiconductor device models with emphasis on Deep-Submicron (DSM) transistors.

## COURSE CONTENTS

1. MATLAB
2. PCB DESIGN
3. MOBILE HARDWARE TROUBLE SHOTTING
4. PSpice SIMULATION

## OUTCOMES

At the end of this course, the students are able to:

- Write simple programs in MATLAB to solve scientific and mathematical problems.
- Students are capable to produce PCB of their own circuit.
- Repair and Diagnose the Problem of all kinds of faults in Mobile Phone handsets in Hardware as well Software and rectify the faults using tools and equipment and various software.
- Analyze simple analog and digital circuits using PSpice software.

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19MDC501

VALUE ADDED COURSE – II

L T P C  
- - - -

## OBJECTIVES

- Program a group of similar microcontrollers of one manufacturer.
- Compatible with normal Python as possible to allow you to transfer code with ease from the desktop to a microcontroller or embedded system.

## EITHER ONE OF THE COURSE IN THE LIST:

- a. ARTIFICIAL INTELLIGENCE WITH IOT
- b. MIKRO C PRO
- c. MICROPYTHON

## OUTCOMES

At the end of this course, the students are able to :

- Provided with all data on internal architecture of these microcontrollers, operation of particular circuits, instruction set, names of registers, their accurate addresses, pin-outs etc.
- Adapt MicroPython for personal use, in education, and in commercial products.

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19MDC601

**CONSTITUTION OF INDIA**  
(Common to Civil, CSE, ECE, EEE & Mechanical)

L T P C  
3 0 0 0

## OBJECTIVES

The main objective of this course is to:

- Understand the meaning of the Constitution law and Constitutionalism.
- Realize the fundamental rights.
- Understand the execution powers of union and states.
- Be aware of the Constitutional powers.
- Acquaint with other Constitutional functionaries.

### UNIT I: INTRODUCTION

3

Meaning of the Constitution law and constitutionalism - Historical perspective of the Constitution of India - Preamble - Salient features and characteristics of the Constitution of India - Citizenship.

### UNIT II: FUNDAMENTAL RIGHTS

3

Scheme of the fundamental rights - The scheme of the fundamental duties and its legal status - The directive principles of state policy - Its importance and implementation.

### UNIT III: UNION AND STATE EXECUTIVE

3

Federal structure and distribution of legislative and financial powers between the Union and the States - Parliamentary form of Government in India - The Constitution powers and status of the President of India - Governor - Appointment, powers and functions.

### UNIT IV: CONSTITUTIONAL POWERS

3

Amendment of the Constitutional powers and procedure - The historical perspectives of the Constitutional amendments in India - Emergency provisions: National emergency, President rule, financial emergency.

### UNIT V: OTHER CONSTITUTIONAL FUNCTIONARIES

3

Election Commission of India: Organization, powers and functions, Union Public Service Commission, State Public Service Commission - Local Self Government.

**TOTAL: 15 PERIODS**

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## OUTCOMES

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

- Understand the salient features and characteristics of the Constitution of India.
- Analyze the scheme of the fundamental rights and duties.
- Evaluate in detail the powers between the Union and the States.
- Know the concept of Constitutional powers.
- Recognize other Constitutional functionaries.

## TEXT BOOKS

1. Introduction to the Constitution of India - Durga Das Basu.
2. Our Constitution by Subhash by C. Kashyap.

## REFERENCES

1. Indian Polity by Spectrum.
2. The Indian Constitution: Cornerstone of a Nation, by Granville Austin.

## E-RESOURCES

1. [https://www.youtube.com/watch?v=vq2Q1\\_v6TNU](https://www.youtube.com/watch?v=vq2Q1_v6TNU)
2. <https://www.india.gov.in/my-government/constitution-india/constitution-india-full-text>

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**19PVJ301**

**PROJECT WORK (PHASE- I)**

**L T P C**

**0 0 12 6**

## OBJECTIVE:

- To identify a specific problem for the current need of the society and collecting information related to the same through detailed review of literature.
- To develop the methodology to solve the identified problem.
- To train the students in preparing project reports and to face reviews and viva-voce examination.

## SYLLABUS:

- The student individually works on a specific topic approved by faculty member who is familiar in this area of interest. The student can select any topic which is relevant to his/her specialization of the programmed. The topic may be experimental or analytical or case studies. At the end of the semester, a detailed report on the work done should be submitted which contains clear definition of the identified problem, detailed literature review related to the area of work and methodology for carrying out the work. The students will be evaluated through a viva-voce examination by a panel of examiners including one external examiner.

**TOTAL: 180 PERIODS**

## OUTCOME:

- At the end of the course the students will have a clear idea of his/her area of work and they are in a position to carry out the remaining phase II work in a systematic way.





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**19PVJ401**

**PROJECT WORK (PHASE - II)**

**L T P C**

**0 0 24 12**

## OBJECTIVE:

- To solve the identified problem based on the formulated methodology.
- To develop skills to analyze and discuss the test results, and make conclusions.

## SYLLABUS:

- The student should continue the phase I work on the selected topic as per the formulated methodology. At the end of the semester, after completing the work to the satisfaction of the supervisor and review committee, a detailed report should be prepared and submitted to the head of the department.
- The students will be evaluated through based on the report and the viva-voce examination by a panel of examiners including one external examiner.

**TOTAL: 360 PERIODS**

## OUTCOME:

- On completion of the project work students will be in a position to take up any challenging practical problem and find better solutions.



**21PEE101**

**RESEARCH PAPER WRITING AND SEMINAR**

**L T P C**

**1 0 0 0**

In this course, students will develop their scientific and technical reading and writing skills that they need to understand and construct research articles. A term paper requires a student to obtain information from a variety of sources (i.e., Journals, dictionaries, reference books) and then place it in logically developed ideas. The work involves the following steps:

1. Selecting a subject, narrowing the subject into a topic
2. Stating an objective.
3. Collecting the relevant bibliography (at least 15 journal papers).
4. Preparing a draft outline of research work.
5. Studying the papers and understanding the authors contributions and critically analyzing each paper.
6. Linking the papers and preparing a draft of the paper.
7. Preparing conclusions based on the reading of all the papers.
8. Writing the Final Paper and giving final Presentation.
9. Maintaining a file for records of activities.

Activities to be carried out

Activity	Instructions	Submission week	Evaluation
Selection of area of interest and Topic	1. Select an area of interest and topic. 2. State the objectives.	2 <sup>nd</sup> week	<b>3%</b> Based on clarity of thought, current relevance and clarity in writing
Stating an Objective			
Collecting Information about the area & topic	1. List one special interest groups or professional society. 2. List two journals. 3. List two conferences, symposia or workshops. 4. List one thesis title. 5. List three web presences (mailing lists, forums, news sites) 6. List three authors who publish regularly in the area 7. Attach a call for papers (CFP) from the area.	3 <sup>rd</sup> week	<b>3%</b> (the selected information must be area specific and of international and national standard)

<p>Collection of Journal papers in the topic in the context of the objective - collect 20 &amp; then filter</p>	<ul style="list-style-type: none"> <li>• Provide a complete list of references based on the objectives</li> <li>• Search various digital libraries and Google Scholar</li> <li>• Collect recent papers related to research area so that to write a meaningful survey out of them,</li> <li>• Do a recent survey of the field.</li> <li>• Find relationships of base paper with respect to other literature concerned. (Classification scheme / categorization).</li> <li>• Mark in the hard copy of papers whether completes work or section/sections of the paper are being considered.</li> </ul>	<p>4<sup>th</sup> week</p>	<p>6% (the list of standard papers and reason for selection)</p>
<p>Reading and notes for first 5 papers</p>	<p>Reading Paper Process For each paper form a Table answering the following questions:</p> <ul style="list-style-type: none"> <li>• What is the main topic of the article?</li> <li>• What was/were the main issue(s) the author said they want to discuss?</li> <li>• Why did the author claim it was important?</li> <li>• How does the work build on other's work, in the author's opinion?</li> <li>• What simplifying assumptions does the author claim to be making?</li> <li>• What did the author do?</li> <li>• How did the author claim they were going to evaluate their work and compare it to others?</li> <li>• What did the author say were the limitations of their research?</li> <li>• What did the author say were the important directions for future research?</li> </ul>	<p>5<sup>th</sup> week</p>	<p>8% (the table given should indicate the understanding of the paper and the evaluation is based on the conclusions about each paper)</p>

	Conclude with limitations/issues not addressed by the paper (from the perspective of the survey)		
Reading and notes for next 5 papers	Repeat Reading Paper Process	6 <sup>th</sup> week	<b>8%</b> (the table given should indicate the understanding of the paper and the evaluation is based on the conclusions about each paper)
Reading and notes for final 5 papers	Repeat Reading Paper Process	7 <sup>th</sup> week	<b>8%</b> (the table given should indicate the understanding of the paper and the evaluation is based on the conclusions about each paper)
Draft outline 1 and Linking papers	Prepare a draft outline for survey goals, along with a classification / categorization diagram	8 <sup>th</sup> week	<b>8%</b> (this component will be evaluated based on the linking and classification among the papers)
Abstract	Prepare a draft abstract and give a presentation	9 <sup>th</sup> week	<b>6%</b> (Clarity, purpose and conclusion) <b>6%</b> Presentation & Viva Voce
Introduction Background	Write an introduction and background sections	10 <sup>th</sup> week	<b>5%</b> ( clarity)



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Sections of the paper	Write the sections of the paper based on the classification / categorization diagram in keeping with the goals of the survey.	11 <sup>th</sup> week	10% (this component will be evaluated based on the linking and classification among the papers)
Conclusions	Write conclusions and future work.	12 <sup>th</sup> week	5% (conclusions – clarity and ideas)
Final Draft	Complete the final draft of the paper.	13 <sup>th</sup> week	10% (formatting, English, Clarity and linking) 4% Plagiarism Check Report
Seminar	Prepare for Final Presentation.	14 <sup>th</sup> & 15 <sup>th</sup> week	10% (based on presentation and viva-voce)

**TOTAL: 30 PERIODS**



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21PEE201

MINI PROJECT

L T P C  
0 0 2 1

## OBJECTIVES

The main objective of this course is to:

- Design and fabrication of one or more components working model, which is designed by them.
- Ability to fabricate any components using different manufacturing tools.

## GUIDELINES

A student, under the supervision of a faculty member, shall collect literature on an allotted project topic of his / her choice, critically review the literature, carry out the mini project, and submit it to the department in a prescribed report form.

**TOTAL: 30 PERIODS**

## EVALUATION PROCEDURE

The method of evaluation will be as follows:

1. Internal Marks (Continuous Assessment):100 marks.

(Decided by review committee consist of HoD,Guide and senior faculty member conducting 3 reviews)

## OUTCOMES

- At the end of the course project the students will understand the formulated industry / technical / societal problems. Analyze and / or develop models for providing solution to industry / technical / societal problems. Interpret and arrive at conclusions from the project carried out. Demonstrate effective communication skills through oral presentation. Engage in effective written communication through project report.



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21PEE101

## RESEARCH PAPER WRITING AND SEMINAR

L T P C  
1 0 0 0

In this course, students will develop their scientific and technical reading and writing skills that they need to understand and construct research articles. A term paper requires a student to obtain information from a variety of sources (i.e., Journals, dictionaries, reference books) and then place it in logically developed ideas. The work involves the following steps:

1. Selecting a subject, narrowing the subject into a topic
2. Stating an objective.
3. Collecting the relevant bibliography (at least 15 journal papers).
4. Preparing a draft outline of research work.
5. Studying the papers and understanding the authors contributions and critically analyzing each paper.
6. Linking the papers and preparing a draft of the paper.
7. Preparing conclusions based on the reading of all the papers.
8. Writing the Final Paper and giving final Presentation.
9. Maintaining a file for records of activities.

Activities to be carried out

Activity	Instructions	Submission week	Evaluation
Selection of area of interest and Topic	1. Select an area of interest and topic. 2. State the objectives.	2 <sup>nd</sup> week	3% Based on clarity of thought, current relevance and clarity in writing
Stating an Objective			
Collecting Information about the area & topic	1. List one special interest groups or professional society. 2. List two journals. 3. List two conferences, symposia or workshops. 4. List one thesis title. 5. List three web presences (mailing lists, forums, news sites) 6. List three authors who publish regularly in the area 7. Attach a call for papers (CFP) from the area.	3 <sup>rd</sup> week	3% (the selected information must be area specific and of international and national standard)





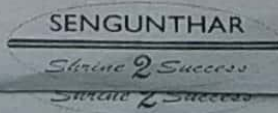
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<p>Collection of Journal papers in the topic in the context of the objective - collect 20 &amp; then filter</p>	<ul style="list-style-type: none"> <li>• Provide a complete list of references based on the objectives</li> <li>• Search various digital libraries and Google Scholar</li> <li>• Collect recent papers related to research area so that to write a meaningful survey out of them,</li> <li>• Do a recent survey of the field.</li> <li>• Find relationships of base paper with respect to other literature concerned. (classification scheme / categorization).</li> <li>• Mark in the hard copy of papers whether complete work or section/sections of the paper are being considered.</li> </ul>	<p>4<sup>th</sup> week</p>	<p>6% (the list of standard papers and reason for selection)</p>
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	Conclude with limitations/issues not addressed by the paper (from the perspective of the survey)		
Reading and notes for next 5 papers	Repeat Reading Paper Process	6 <sup>th</sup> week	8% (the table given should indicate the understanding of the paper and the evaluation is based on the conclusions about each paper)
Reading and notes for final 5 papers	Repeat Reading Paper Process	7 <sup>th</sup> week	8% (the table given should indicate the understanding of the paper and the evaluation is based on the conclusions about each paper)
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Abstract	Prepare a draft abstract and give a presentation	9 <sup>th</sup> week	6% (Clarity, purpose and conclusion) 6% Presentation & Viva Voce
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Sections of the paper	Write the sections of the paper based on the classification / categorization diagram in keeping with the goals of the survey.	11 <sup>th</sup> week	10% (this component will be evaluated based on the linking and classification among the papers)
Conclusions	Write conclusions and future work.	12 <sup>th</sup> week	5% (conclusions – clarity and ideas)
Final Draft	Complete the final draft of the paper.	13 <sup>th</sup> week	10% (formatting, English, Clarity and linking) 4% Plagiarism Check Report
Seminar	Prepare for Final Presentation.	14 <sup>th</sup> & 15 <sup>th</sup> week	10% (based on presentation and viva-voce)

**TOTAL: 30 PERIODS**

*[Handwritten Signature]*  
5/5.22

Head of the Department,  
Department of Civil Engineering,  
Sengunthar Engineering College (Autonomous),  
Tiruchengode- 637 205, Namakkal-Dt.



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21PEE201

MINI PROJECT

L T P C  
0 0 2 1

## OBJECTIVES

The main objective of this course is to:

- Design a structure using modern software tools available like ETABS, STAAD, STRAP etc. and present it in the form of complete detail drawing

## GUIDELINES

Students have to work individually with standard codes, computational tools and software packages for analyzing, designing and detailing a structure. A detailed report on the work done shall be submitted by individual student in the form of a report and presentation.

**TOTAL: 30 PERIODS**

## OUTCOMES

- At the end of the course project the students will have a clear idea of his/her area of work in Plan a layout of a structure, calculate loads using IS codes and various computational tools, Analyze the structure for various loads and load combination according to the relevant IS codes, design and detail structures using computer software/tools and check the correctness using manual approximate methods and prepare the complete structural drawings using computer software.

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19PSE301

PRACTICAL TRAINING - II (2 Weeks)

L T P C  
0 0 0 1

## OBJECTIVE:

- To train the students in the field work so as to have a firsthand knowledge of practical problems related to Structural Engineering in carrying out engineering tasks.
- To develop skills in facing and solving the field problems.

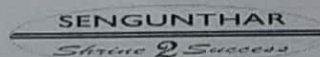
## SYLLABUS:

- The students individually undertake training in reputed Industries during the summer vacation for a specified period of two weeks. At the end of training, a detailed report on the work done should be submitted within ten days from the commencement of the semester. The students will be evaluated through a viva-voce examination by a team of internal staff.

## OUTCOME:

- They are trained in tackling a practical field/industry orientated problem related to Structural Engineering.

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19PSE302

SEMINAR

L T P C  
0 0 2 1

## OBJECTIVE:

- To work on a specific technical topic in Structural Engineering and acquire the skills of written and oral presentation.
- To acquire writing abilities for seminars and conferences.

## SYLLABUS:

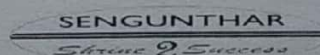
- The students will work for two hours per week guided by a group of staff members. They will be asked to give a presentation on any topic of their choice related to Structural Engineering and to engage in discussion with the audience. A brief copy of their presentation also should be submitted. Similarly, the students will have to present a seminar of not less than fifteen minutes and not more than thirty minutes on the technical topic.
- They will defend their presentation. Evaluation will be based on the technical presentation and the report and also on the interaction shown during the seminar.

**TOTAL: 30 PERIODS**

## OUTCOME:

- The students will be trained to face an audience and to tackle any problem during group discussion in the Interviews.

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19PSJ301

PROJECT WORK (PHASE - I)

L T P C  
0 0 12 6

## OBJECTIVE:

- To identify a specific problem for the current need of the society and collecting information related to the same through detailed review of literature.
- To develop the methodology to solve the identified problem.
- To train the students in preparing project reports and to face reviews and viva-voce examination.

## SYLLABUS:

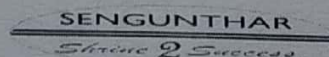
- The student individually works on a specific topic approved by faculty member who is familiar in this area of interest. The student can select any topic which is relevant to his/her specialization of the programmed. The topic may be experimental or analytical or case studies. At the end of the semester, a detailed report on the work done should be submitted which contains clear definition of the identified problem, detailed literature review related to the area of work and methodology for carrying out the work. The students will be evaluated through a viva-voce examination by a panel of examiners including one external examiner.

- **TOTAL: 180 PERIODS**

## OUTCOME:

- At the end of the course the students will have a clear idea of his/her area of work and they are in a position to carry out the remaining phase II work in a systematic way.

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19PSE401

PRACTICAL TRAINING – III ( 2 Weeks)

L T P C

0 0 0 1

## OBJECTIVE:

- To train the students in the field work so as to have a firsthand knowledge of practical problems related to Structural Engineering in carrying out engineering tasks.
- To develop skills in facing and solving the field problems.

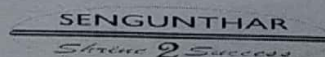
## SYLLABUS:

- The students individually undertake training in reputed Industries during the summer vacation for a specified period of two weeks. At the end of training, a detailed report on the work done should be submitted within ten days from the commencement of the semester. The students will be evaluated through a viva-voce examination by a team of internal staff.

## OUTCOME:

- They are trained in tackling a practical field/industry orientated problem related to Structural Engineering.

Head of the Department,  
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19PSJ401

PROJECT WORK (PHASE - II)

L T P C  
0 0 24 12

## OBJECTIVE:

- To solve the identified problem based on the formulated methodology.
- To develop skills to analyze and discuss the test results, and make conclusions.

## SYLLABUS:

- The student should continue the phase I work on the selected topic as per the formulated methodology. At the end of the semester, after completing the work to the satisfaction of the supervisor and review committee, a detailed report should be prepared and submitted to the head of the department.
- The students will be evaluated through based on the report and the viva-voce examination by a panel of examiners including one external examiner.

**TOTAL: 360 PERIODS**

## OUTCOME:

- On completion of the project work students will be in a position to take up any challenging practical problem and find better solutions.

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Department of Civil Engineering,  
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SEC - M.E - STRUCTURAL ENGINEERING - R2019 - JULY'19



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19EEEC302

## ENTREPRENEURSHIP DEVELOPMENT ACTIVITY (Common to Civil, CSE, ECE, EEE & Mechanical)

L T P C  
0 0 2 0

### OBJECTIVES

The objectives make students to:

- Evaluate social and civil responsibilities of business ownership.
- Describe typical behavioral characteristics of an effective entrepreneur.
- Develop a business plan, including identifying an executive summary; conducting a marketing and competitive analysis report; and developing a marketing, management, and financial plan.
- Determine career opportunities, responsibilities, and educational and credentialing requirements related to various entrepreneurship ventures.
- Interpret research data to determine market-driven problems faced by entrepreneurs.

### TOPICS TO BE COVERED

1. Should You Become an Entrepreneur?
  - Entrepreneurship: Present & Past.
  - Is Entrepreneurship Right for You.
  - Identify Business Opportunities & Set Goals.
2. What Skills Do Entrepreneurs Need
  - Communication Skills.
  - Math Skills.
  - Problem Solving Skills.
3. Entrepreneurs in a Market Economy
  - What is an Economy?
  - The Concept of Cost.
  - Government in a Market Economy.
4. Select a Type of Ownership
  - Run an Existing Business.
  - Own a Franchise or Start a Business.
  - Choose the Legal Form of Your Business.
5. Develop a Business Plan
  - Why Do You Need a Business Plan.
  - What Goes into a Business Plan.
  - Create an Effective Business Plan.
6. Identify and Meet a Market Need
  - The Value of Market Research.
  - How to Perform Market Research Entrepreneurship Syllabus.
  - Identify Your Competition.



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7. Finance, Protect, and Insure Your Business
  - Put Together a Financial Plan.
  - Obtain Financing for Your Business.
  - Protect Your Business.
8. Choose Your Location & Set Up for Business
  - Choose a Retail Business Location.
  - Choose a Location for a Nonretail Business.
  - Obtain Space and Design the Physical Layout.
  - Purchase Equipment, Supplies, and Inventory.
9. Market Your Business
  - The Marketing Mix.
  - Product, Price, Distribution, Price, and Promotion.
  - Set Marketing Goals.
10. Hire and Manage a Staff
  - Hire Employees.
  - Create a Compensation Package.
  - Manage your Staff.
11. Record- Keeping and Accounting
  - Set up a Record Keeping System.
  - Understand Basic Accounting.
  - Track Your Inventory.
12. Financial Management
  - Manage your Cash Flow.
  - Analyze Your Financial Performance.
  - Hire Experts.
13. Use Technology
  - Technology and Your Business.
  - Learn about the Interest.
  - Purchase Technology.
14. Intellectual property Rights
  - Patents.
  - Copyright.
  - Industrial design rights.
  - Trademarks.
  - Trade secrets.



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IAS-ANZ



ISO 9001 REGISTERED

## 15. Innovation Contest

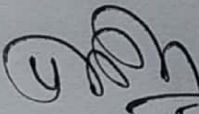
- Innovative Idea.
- Proof of Concept (PoC).
- Prototype Creation.
- The students may be grouped into 2 to 3 and work under a project supervisor. The Prototypes to be fabricated may be decided in consultation with the supervisor. A innovative report to be submitted by the group and the model, which will be reviewed and evaluated for internal assessment by a Committee constituted by the Head of the Department.

**TOTAL: 15 PERIODS**

## OUTCOMES

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

- Identify personal strengths and value systems.
- Recall important tenets of digital literacy.
- Discuss the essentials of matters pertaining to money.
- Prepare for employment and self-employment.
- Illustrate the basics of entrepreneurship and identify new business opportunities.

  
5/5-22

Head of the Department,  
Department of Civil Engineering,  
Sengunthar Engineering College (Autonomous),  
Tiruchengode- 637 205, Namakkal-Dt.



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19MDC301

**LEADERSHIP ENHANCEMENT PROGRAMME**  
(Common to Civil, CSE, ECE, EEE & Mechanical)

L T P C  
1 0 0 0

## OBJECTIVES

The objective of the course is enabling the students to:

- Find new, innovative ways of developing and managing people.
- Develop new business opportunities.
- Tackle the broader societal issues the face.
- Key benefits of leadership skills in different situations.
- Formulate and implement effective leadership strategies.

## TOPICS TO BE COVERED

1. Leadership for an Engineering students: Skills & Strategies.
2. Qualities of good leaders and 21 irrefutable laws of Leadership.
3. Empowering Others and Managing People.
4. Leading Meetings.
5. Leadership competencies and Leadership Styles.
6. Difference between a boss and a leader.
7. Leadership and Assertiveness Skills : A Good Leader, Leadership Theories, Leadership Behaviour , Assertiveness skills.
8. Leadership development opportunities and suggestions.
9. Teamwork and Leadership : Concept of teams , Building Effective teams, Concept of leadership and sharpening leadership skills.
10. Teamwork and Leadership Activities: Group discussion, Solving Puzzle as a team, describing a leadership style.

**TOTAL: 12 PERIODS**

## OUTCOME

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

- Develop the capabilities needed to increase team's work productivity.
- Help to decrease employee turnover and increase engagement, creating a strong and united team.
- Develop communication skills, mastering the art of negotiation, influence and conflict management.
- More confident as a leader and find new ways of influencing the teams they lead.
- Effectively connect to people, developing the ability to give constructive feedback, and critically seek the feedback of the team.



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## TEXT BOOKS

1. John maxwell, "21 Irrefutable Laws of Leadership" 2008.
2. Sara n. King, David g. Altman, Robert j. Lee, "Discovering the leader in you".
3. Louis carter ,David ulrich , Marshall goldsmith "Best practices in leadership development and Organization change".

## REFERENCES

1. Barry Benator, Albert Thumann, "Project Management and Leadership Skills for Engineering and Construction Projects" 2003.
2. Sydänmaanlakka Pentti. "Intelligent leadership and leadership competencies". Dissertation Series.

## E-RESOURCES

1. <https://nptel.ac.in/courses/122/105/122105021/>(Introduction to Leadership)
2. [www.ccl.org/leadership/research/index.aspx](http://www.ccl.org/leadership/research/index.aspx)(Centre for Creative Leadership)

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19EEEC301

COMMUNICATION SKILLS

L T P C  
0 0 2 0

## Course Objective (s):

The purpose of learning this course is to

- Improve fluency in English through well developed vocabulary.
- Develop the oral communication skills
- Focus the effective reading of general and technical text
- Enrich writing skill
- Communicate ideas in group discussion and interviews

6

## UNIT I: VOCABULARY

Vocabulary building – articulate ideas and thoughts; usage of palindromes, greetings, wishes, festival related words – homophones and homonyms – connotation – vocabulary words with sentences. – Idiomatic Expressions – One – Word Substitutes.

**Activities:** Learn a word a week, Use newspaper to write unfamiliar words, Word association games.

6

## UNIT II: LISTENING

Listening Skill- Its importance – Purpose- Process- Types- Barriers- Effective Listening strategies- Listening to telephonic conversations – Ted talks – Watching Inspiring Speech videos on You tube- Listening native speaker's videos for pronunciation - Listening to broadcast, messages, announcements - Listening to Instagram Videos.

**Activities:** Listen and draw the different scenes in a story, Secret Message games, watching videos and listing difficult words.

6

## UNIT III: SPEAKING

JAM Talk – Role play – Debate – Conversational skills (formal and informal) – Conversation practice – group discussion and interview skills – Introducing oneself and others – Presentation skills – Making presentations (individual and group) through seminars / PPTs.

**Activities:** Picture Description, Giving Directions and Guidelines, Making a short speech – Extempore.

## UNIT IV: READING

Strategies for effective reading (Guessing meanings from contexts – Scanning, skimming, inferring meaning and critical reading) – Read and recognize different text types ranging from newspaper articles, magazines, books, Technical articles and Reading autobiographies.

**Activities:** Reading online sources like e – books, e – journals and e – newspapers, cloze exercises, Reading and answering questions.

6



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6

## UNIT V: WRITING

Develop a paragraph: topic sentence, supporting sentences, concluding sentence – Writing simple Essays – argument, descriptive and comparative essays – Creative writing.

**Activities:** Write Essays with sub titles, Write a story that uses as many clichés and idioms, Write Paragraph.

**TOTAL: 30 PERIODS**

The following Practice Session will be conducted for the Communication Skills (CS) Lab sessions:

- Activities on Presentations Skills– Students make presentations on given topics.
- Activities on Group Discussion– Students participate in group discussions.
- Interview Skills– Students participate in Mock Interviews.
- Essay Writing – Students prepare their own paragraph and essay.

### Guidelines for conducting assessments as per 2019 regulations

- 30 hours – Two consecutive hours allotted for each class.
- Three Continuous assessments only conducted and no end semester exam.
- For the award of Continuous assessment the best three activities from Essay Writing, Oral Presentation, Power Point Presentation, Extempore, Group Discussion and Mock Interview (one-on-one basis) can be taken.

### **Course Outcomes:**

At the end of this course, learners will be able to:

- Improve vocabulary and express the same contextually
- Comprehend the general and technical text
- Communicate to his peer group properly and make presentations
- Write simple paragraph and essay in any topic
- Participate in group discussions expressing ideas relevantly, coherently and cogently

### **TEXT BOOK(S):**

1. Gramer F. Margot and Colin S. Ward "Reading and Writing (Level 3)" Oxford University Press: Oxford, 2011.
2. Brooks, Margret, Skills for Success "Listening and Speaking Level 4" Oxford University Press, Oxford: 2011.





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## REFERENCE(S):

1. Davis, Jason and Rhonda Liss. "Effective Academic Writing (Level 3)" Oxford University Press: Oxford, 2006.
2. E. Suresh Kumar and et al. "Enriching Speaking and Writing Skills", Second Edition. Orient Black swan.
3. Anderson, Kenneth et al. "Study Speaking: A Course in Spoken English for Academic Purposes", United Kingdom: Cambridge University Press 1992.
4. Asraf rezvi "Technical communication".

## E-RESOURCES

[youglish.com](http://youglish.com)

Newwellington University

[newsinlevels.com](http://newsinlevels.com)

[Britishcouncil.org](http://Britishcouncil.org)

[writeandimprove.com](http://writeandimprove.com)

[purdueonline](http://purdueonline)

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19MDC401

VALUE ADDED COURSE – I  
(SKETCHUP SOFTWARE)

L T P C  
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## OBJECTIVES

The main objective of this course is to:

- Draw shapes and lines for move the surfaces back and forth for turning them into 3D forms quickly and accurately.
- Apply drawing scales and insert dimensions, graphics, further to learn the sketch up for building design applications.
- View and presenting models in 3D and also to make everyday shapes, 2– D plans, elevations and sections.
- Create rectangles, circles, polygons, arcs for moving, scaling and rotating objects with the process of applying, creating and editing materials.

## COURSE CONTENTS

3D – modeling using sketch up software.

TOTAL: 15 PERIODS

## OUTCOMES

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

- Apply basic 3D modeling and concepts to create simple building models.
- Create everyday shapes, from 2D plans, elevations; create rectangles, circles, polygons and arcs.
- Move, scale and rotate objects with processes of applying, creating and editing materials.
- Export in 2D, 3D and Map textures on straight and curved objects.

## TEXT BOOKS

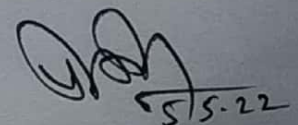
1. Marcus Ritland, "3D Printing with SketchUp".
2. Paul Lee, "Construction Documents Using SketchUp Pro 2020".

## REFERENCES

1. Robert Lang, "Building Blocks of SketchUp".
2. John Romeo, "Create Scenery & Props with SketchUp".

## E-RESOURCES

1. [https://www.iit.edu/sites/default/files/2021-02/google\\_sketchup.pdf](https://www.iit.edu/sites/default/files/2021-02/google_sketchup.pdf) (SketchUp Introduction)
2. <https://www.naukri.com/learning/design-your-room-using-sketchup-course-udeml724> (Design your Room Using Sketchup)

  
5/5.22

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19EEEC501

**QUANTITATIVE APTITUDE LEARNING**  
(Common to Civil, CSE, ECE, EEE & Mechanical)

**L T P C**  
**0 2 0 0**

## OBJECTIVES

The main objective of this course is to:

- Introduce the basic concepts and techniques of numbers, Highest common factor and Least common multiple.
- Develop the use of decimal fraction and problems on ages.
- Introduced basic concepts of time, work, distance, calender and clock.
- Acquaint the student with the concept of simple and compound interest.
- Produced the knowledge of polynomial and quadratic equations.

### **UNIT I: NUMBERS, HIGHEST COMMON FACTOR AND LEAST COMMON MULTIPLE** **6**

Numbers and their basic classification – Types of number – Basic operations of numbers – Progression – Tests of divisibility – Highest common factor – Least common multiple.

### **UNIT II: DECIMAL FRACTION AND PROBLEMS BASED ON AGES** **6**

Decimal fraction – Types of fraction – Comparison of fractions – Inserting fractions in between two given fractions – Relation between decimal fraction and normal fraction – Conversion of a decimal fraction into a vulgar fraction – Types of decimals – Conversion of mixed recurring decimal into a vulgar fraction – Standard form of decimal – Problems based on ages.

### **UNIT III: TIME, WORK, DISTANCE, CALENDER AND CLOCK** **6**

General rule for time and work – General rule for work and wages – Speed – Unit of speed – Average speed – Some useful relations – Problems on Trains – Calenders and clocks – Odd days – Ordinary year – Leap year.

### **UNIT IV: SIMPLE INTEREST, COMPOUND INTEREST AND ELEMENTARY ALGEBRA** **6**

Simple interest – Compound interest – Some useful relations – Difference between compound interest and simple interest – Short cut methods to solve special types of problems – Elementary Algebra and averages.

### **UNIT V: POLYNOMIAL AND QUADRATIC EQUATIONS** **6**

Polynomial introduction – Degree of a polynomial – Types of polynomial – Operations on polynomial – Remainder and factor theorem – Quadratic equation – Pure Quadratic equation – Discriminant – Roots of the Quadratic equations – Solution of Quadratic equation – Framing of a Quadratic equation – Special types of roots.

**TOTAL: 30 PERIODS**



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## OUTCOMES

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

- Use the basic concepts and techniques of the numbers, Highest common factor and Least common multiple.
- Apply the concept of decimal fraction and problems on ages.
- Apply the concept of time, work, distance, calendar and clock.
- Acquire skills in simple interest, compound interest and elementary algebra.
- Exposed to concepts and properties of polynomial and quadratic equations.

## TEXT BOOKS

1. Aggarwal R.S., "Quantitative Aptitude", S.Chand & Company Ltd, New Delhi, 2016.
2. Dinesh Khattar, "Quantitative Aptitude for competitive examinations", Pearson India Education Services Pvt. Ltd, New Delhi, 2019.

## REFERENCES

1. Praveen R.V., "Quantitative Aptitude and Reasoning", PHI Learning Private Limited, Delhi, 2013.
2. Gupta P, "A unique Approach to Quantitative Aptitude", Unique Publishers (I) Pvt. Ltd, New Delhi, 2017.

## E-RESOURCES

1. <https://youtube.com/playlist?list=RDQM5XI256aOq24>(Quantative Aptitude Learning)
2. <https://youtu.be/KE7tQf9spPg>(Quantative Aptitude Learning)

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19MDC501

VALUE ADDED COURSE – II  
(STAAD Pro)

L T P C  
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## OBJECTIVES

The main objective of this course is to:

- Train in Structural Modeling.
- Study about Loading.
- Understand about seismic load.
- Analyze frames and truss.
- Design the steel and concrete structures.

### UNIT I: MODELLING

Introduction to STAAD – Starting a project – Modeling a structure – Creating nodes & members geometry wizard – Property definition – Material definition – Support definition – Specifications.

### UNIT II: LOADING

Nodal load – Member loads – Uniform force and moment – Concentrated force and moment – Linear varying load – Trapezoidal load – Hydrostatic Load – Area load – Floor load.

### UNIT III: LOAD DEFINITIONS

Wind load – Creating load combination – Automatic load combination – Edit auto load rules – Moving load – Seismic load.

### UNIT IV: ANALYSIS

Frame analysis – Truss analysis.

### UNIT V: DESIGN

Concrete design – Steel design – Introduction to other softwares related to civil engineering.

TOTAL: 15 PERIODS

## OUTCOMES

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

- Create the models for different kinds of structures.
- Understand the concepts of loading in the structures.
- Learn the various loading patterns on the structures.
- Analyze the frame and truss type structures.
- Design the different types of structures.

## TEXT BOOKS

1. Sham Tickoo "Exploring Bentley STAAD.Pro CONNECT", 3<sup>rd</sup> Edition, 2017.
2. T. S. Sarma "Design of Industrial Steel and R C C Buildings Using Staad Pro: With Indian Examples 2020".



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## REFERENCES

1. T. S. Sarma "Staad Pro v8i for beginners", 3<sup>rd</sup> Edition, 2017.
2. C.S.Changeriya, "STAAD.Pro", Chetan Publication;, 2016.

## E-RESOURCES

1. [https://nptel.ac.in/noc/courses/noc17/SEM2/noc17 - ce21/\(Staad.Pro\)](https://nptel.ac.in/noc/courses/noc17/SEM2/noc17 - ce21/(Staad.Pro))
2. [https://nptel.ac.in/courses/105/106/105106149/\(Staad.Pro\)](https://nptel.ac.in/courses/105/106/105106149/(Staad.Pro))

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19MDC502

SURVEY CAMP

L T P C  
0 0 2 0

## OBJECTIVES

The main objective of this course is to:

- Give practical exposure on the application of various basic principles of survey in the field.
- Apply various simple surveying techniques, both in field and construction industries.
- Measure and draw the longitudinal and cross sectioning.
- Measure the horizontal and vertical angles for triangulation work.
- Provide experience for handle modern surveying equipments using total station.

## LIST OF EXPERIMENTS

Ten days survey camp using theodolite, leveling and total station. At the end of the camp, each student shall have plot the contour map and calculate the area. The camp record shall include all original field observations, calculations and plots.

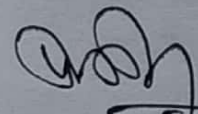
1. Triangulation.
2. Trilateration.
3. Contouring.
4. Co-ordinates and distance measurement with GPS.
5. Distance and angular measurement using total station.
6. Layout Preparation of field using total station.
7. Setting out works using total station.

(Ten Days Survey Camp will be conducted during 5<sup>th</sup> Semester winter vacation)

## OUTCOMES

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

- Calculate the area of various construction project sites.
- Estimate the volume of earthwork required and planned the layout of engineering projects.
- Prepare detailed topographical map of the area.
- Prepare the layout by using total station.
- Setting out curves by using total station.

  
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19CEJ601

**DESIGN PROJECT**  
(Activity Based –Subject Related)

**L T P C**  
**0 0 2 1**

## OBJECTIVE

- To use the knowledge acquired in Civil Engineering to do a mini project, which allows the students to come up with designs, fabrication or algorithms and programs expressing their ideas in a novel way.

## GUIDELINES

This course conceives purely a design problem in any one of the disciplines of Civil Engineering; e.g., Design of an RC structure, Design of a waste water treatment plant, Design of a foundation system, Design of traffic intersection etc. The design problem can be allotted to either an individual student or a group of students comprising of not more than four. At the end of the course the group should submit a complete report on the design problem consisting of the data given, the design calculations, specifications if any and complete set of drawings, prototype/ model which follow the design.

**TOTAL: 15 PERIODS**

## EVALUATION PROCEDURE

The method of evaluation will be as follows:

- Internal Marks (Continuous Assessment):40 marks.  
(Decided by review committee consist of HoD, Guide and senior faculty member conducting 3 reviews)
- End semester assessment (Evaluation of Project Report &Vivavoce examination) : 60 marks.  
(Evaluated by the internal & external examiner appointed by the CoE and approval by HoD)

## OUTCOME

- At the end of the course the students will have a clear idea of his/her area of work.

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19MDC601

**CONSTITUTION OF INDIA**  
(Common to Civil, CSE, ECE, EEE & Mechanical)

**L T P C**  
**3 0 0 0**

## OBJECTIVES

The main objective of this course is to:

- Understand the Meaning of the constitution law and constitutionalism.
- Realize the fundamental rights.
- Understand the execution powers of union and states.
- Be aware of the Constitutional powers.
- Acquaint with other Constitutional Functionaries.

### UNIT I: INTRODUCTION

9

Meaning of the constitution law and constitutionalism – Historical perspective of the Constitution of India – Preamble – Salient features and characteristics of the Constitution of India – Citizenship.

### UNIT II: FUNDAMENTAL RIGHTS

9

Scheme of the fundamental rights – The scheme of the Fundamental Duties and its legal status – The Directive Principles of State Policy – Its importance and implementation.

### UNIT III: UNION AND STATE EXECUTIVE

9

Federal structure and distribution of legislative and financial powers between the Union and the States – Parliamentary Form of Government in India – The constitution powers and status of the President of India – Governor – Appointment, Powers and Functions.

### UNIT IV: CONSTITUTIONAL POWERS

9

Amendment of the Constitutional Powers and Procedure – The historical perspectives of the constitutional amendments in India – Emergency Provisions: National Emergency, President Rule, Financial Emergency.

### UNIT V: OTHER CONSTITUTIONAL FUNCTIONARIES

9

Election Commission of India: Organization, Powers and Functions, Union Public Service Commission, State Public Service Commission – Local Self Government.

**TOTAL: 45 PERIODS**

## OUTCOMES

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

- Understand the Salient features and characteristics of the Constitution of India.
- Analyze the scheme of the Fundamental rights and Duties.
- Evaluate in detail about the powers between the Union and the States.
- Know the concept of Constitutional Powers.
- Recognize other constitutional functionaries.



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## TEXT BOOKS

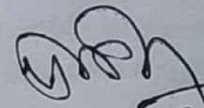
1. Introduction to the Constitution of India – Durga DasBasu.
2. Our Constitution by Subhash by C.Kashyap.

## REFERENCES

1. Indian Polity by Spectrum.
2. The Indian Constitution: Cornerstone of a Nation, by Granville Austin.

## E-RESOURCES

1. [https://www.youtube.com/watch?v=vq2Q1\\_v6TNU](https://www.youtube.com/watch?v=vq2Q1_v6TNU)
2. <https://www.india.gov.in/my-government/constitution-india/constitution-india-full-text>

  
5/5-22

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19CEPX02

CONSTRUCTION PLANNING AND SCHEDULING

L T P C  
3 0 0 3

## OBJECTIVES

The main objective of this course is to:

- Study the necessity of the planning in the diverse construction projects.
- Learn the appropriate techniques used for scheduling the resources.
- Execute various cost control methods and accounting.
- Study the quality control and monitoring techniques.
- Create awareness among the learners about management information system.

### UNIT I: CONSTRUCTION PLANNING

9

Basic concepts in the development of construction plans – Choice of Technology and Construction method – Defining Work Tasks – Definition – Precedence relationships among activities – Estimating Activity Durations – Estimating Resource Requirements for work activities – Coding systems – Overview of Primavera, Building Information Modeling and 3D Printing.

### UNIT II: SCHEDULING PROCEDURES AND TECHNIQUES

9

Relevance of construction schedules – Bar charts – The critical path method – Calculations for critical path scheduling – Activity float and schedules – Presenting project schedules – Critical path scheduling for Activity – on-node and with leads, Lags and Windows – Calculations for scheduling with leads, lags and windows – Resource oriented scheduling – Scheduling with resource constraints and precedence – Use of Advanced Scheduling Techniques – Scheduling with uncertain durations – Crashing and time/cost tradeoffs – Improving the Scheduling process – Introduction to application software.

### UNIT III: COST CONTROL MONITORING AND ACCOUNTING

9

The cost control problem – The project Budget– Forecasting for Activity cost control – Financial accounting systems and cost accounts – Control of project cash flows – Schedule control – Schedule and Budget updates – Relating cost and schedule information.

### UNIT IV: QUALITY CONTROL AND SAFETY DURING CONSTRUCTION

9

Quality and safety Concerns in Construction – Organizing for Quality and Safety – Work and Material Specifications – Total Quality control – Quality control by statistical methods – Statistical Quality control with Sampling by Attributes – Statistical Quality control by Sampling and Variables – Safety.

### UNIT V: ORGANIZATION AND USE OF PROJECT INFORMATION

9

Types of project information – Accuracy and Use of Information – Computerized organization and use of Information – Organizing information in databases – Relational model of Data bases – Other conceptual Models of Databases – Centralized database Management systems – Databases and application programs – Information transfer and Flow.

**TOTAL: 45 PERIODS**



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## OUTCOMES

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

- Understand basic concepts of construction planning.
- Schedule the construction activities.
- Forecast and control the cost in a construction.
- Understand about quality control and its safety during construction.
- Organize information in Centralized database Management systems.

## TEXT BOOKS

1. Chitkara, K.K. "Construction Project Management Planning", Scheduling and Control, Tata McGraw Hill Publishing Co., New Delhi, 2019.
2. Virendra Kumar Paul, "Construction Project Planning and Scheduling", Copal Publishing Group, 2018.

## REFERENCES

1. Abdul Razzak Rumane, "Construction Management – Scope, Schedule, and Cost Control", CRC Press, 2016.
2. Moder.J, Phillips. C. and Davis E, "Project Management with CPM", PERT and Precedence Diagramming, VanNostrand Reinhold Co., 3<sup>rd</sup> Ed., 2015.

## E-RESOURCES

1. <https://nptel.ac.in/courses/105/104/105104161/> (Principal of Construction Management)
2. <https://nptel.ac.in/courses/105/103/105103093/> (Construction Planning and scheduling)

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Department of Civil Engineering,  
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Tiruchengode- 637 205. Namakkal-Dt.



# SENGUNTHAR ENGINEERING COLLEGE (AUTONOMOUS)

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TIRUCHENGODE - 637 205 NAMAKKAL (Dt) TAMILNADU



21PSP103

## ADVANCES IN CONCRETE STRUCTURES

L T P C  
3 0 0 3

(IS456: 2000, IS 1893: 2002, IS5525: 1969 & SP34 are to be permitted)

### OBJECTIVES

The main objective of this course is to:

- Understand the basic concepts of reinforced concrete members.
- Design slender columns, R.C walls and Corbels.
- Describe the concept of shear reinforcement and edge beams.
- Apply plastic design in concrete structures.
- Design and detail the structures according to different codes.

### UNIT I: INTRODUCTION

9

Review of Basic Concepts – Behavior and Design of Reinforced Concrete members considering flexure, Torsion, combined with flexure and flexural shear, axial compression deflection and crack width as per IS 456: 2000.

### UNIT II: DESIGN OF SPECIAL R.C. ELEMENTS

9

Behavior and Design of Slender Columns – Design of R.C.Walls – Ordinary and Shear walls – Design of Corbels – Deep beams and grid floors

### UNIT III: FLAT SLABS AND FLAT PLATES

9

Design of flat slabs and flat plate according to ACI method – Design of shear – Reinforcement and Edge (Spandrel) beams – Yield line theory & Hiller borg method of design of slabs.

### UNIT IV: MOMENT REDISTRIBUTION

9

Limit Analysis of Concrete beams – Moment rotation curves – Moment redistribution in continuous beams – Baker's method of plastic design – Design of cast in-situ frames.

### UNIT V: DESIGN AND DETAILING OF STRUCTURES

9

Detailing for ductility – Fire Resistance of buildings – Field control of concrete – Strengthening of existing structures – Design and detailing of structures according to different codes

**TOTAL: 45 PERIODS**

### OUTCOMES

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

- Explain the behavior and design concept of reinforced concrete members.
- Design slender columns, R.C. walls and corbels.
- Develop flat slab and flat plates according to ACI methods.
- Apply moment redistribution in continuous beams.
- Design and detail Fire Resistant buildings.

④



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## TEXT BOOKS

1. N. K. Raju, "Advanced Reinforced Concrete Design", CBS PUB & DIST PVT Limited INDIA, 1<sup>st</sup> Edition, 2016.
2. Pillai.S.V and Menon.D, "Reinforced Concrete Design", Tata McGraw Hill Book Co., first Edition, 2016.

## REFERENCES

1. Macginley.T.J. and Choo B.S., Reinforced Concrete Design Theory and Examples, CRC Press, 1<sup>st</sup> Edition, 2018.
2. David A. Fanella, "Reinforced Concrete Structures: Analysis and Design", McGraw-Hill Education, 1<sup>st</sup> Edition, 2017.

## E-RESOURCES

1. <https://nptel.ac.in/courses/105/106/105106176/> (Advanced Concrete Technology)
2. [http://www.nptelvideos.in/2012/11/\(design of reinforced concrete structures.html\)](http://www.nptelvideos.in/2012/11/(design%20of%20reinforced%20concrete%20structures.html))

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5/5.22

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21PSP205

PRE-STRESSED CONCRETE STRUCTURES

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(IS 1343: 1980, IS 784: 2001, IS 784: 1959 & IS 15916: 2010 are to be permitted)

## OBJECTIVES

The main objective of this course is to:

- Get exposed to various systems of pre-stressing.
- Understand the design of flexural members for shear, bond and torsion and end blocks.
- Acquire knowledge on continuous beams and their design.
- Design the tension and compression members and the process of pre-stressing.
- Analyze and design pre-stressed concrete bridges.

### UNIT I: PRINCIPLES OF PRESTRESSING

9

Principles of Pre-stressing – Types and systems of pre-stressing, Constituent materials and their properties – Analysis methods – Losses – Deflection (short & long term) – Camber and cable layouts.

### UNIT II: DESIGN OF FLEXURAL MEMBERS

9

Behavior of flexural members – Determination of ultimate flexural strength – Code provisions – Design of flexural members – Design for shear – Bond and torsion – Design of end blocks.

### UNIT III: DESIGN OF CONTINUOUS BEAMS

9

Analysis and design of continuous beams – Methods of achieving continuity – Concept of linear transformations – Concordant cable profile and gap cables.

### UNIT IV: DESIGN OF TENSION AND COMPRESSION MEMBERS

9

Design of tension members – Application in the design of pre-stressed pipes and pre-stressed concrete cylindrical water tanks – Design of compression members with and without flexure – Application in the design of piles, flag masts and similar structures.

### UNIT V: DESIGN OF PRESTRESSED CONCRETE BRIDGES

9

Composite Beams – Analysis and design – Pre-stressed deck Slab Bridge – Composite sections – Ultimate strength – Application in pre-stressed concrete bridges – Design of pre-tensioned and post tensioned girder bridges – Partial pre-stressing – Advantages and applications.

**TOTAL: 45 PERIODS**



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## OUTCOMES

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

- Analyze the pre-stressed concrete element using various methods.
- Design pre-stressed concrete flexural members.
- Design profiles for pre-stressed continuous beams.
- Design pre-stressed tension and compression members as per codal recommendations.
- Design pre-stressed concrete bridges as per IRC specifications.

## TEXT BOOKS

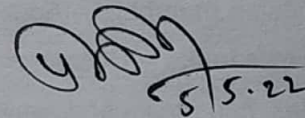
1. Karuna Mho Ghosh, "Pre-stressed Concrete", PHI Learning Private Limited, 2<sup>nd</sup> Edition, 2018.
2. Rajagopalan.N, "Pre-stressed Concrete", Narosa Publications, 2<sup>nd</sup> Edition, 2017.

## REFERENCES

1. Krishna Raju, "Pre-stressed Concrete", Tata McGraw-Hill Publishing Co, 6th Edition, 2018.
2. Muthu K.U and Azmi Ibrahim, "Pre-stressed Concrete", PHI Learning Private Limited, 1<sup>st</sup> Edition, 2011.

## E-RESOURCES

1. <https://nptel.ac.in/courses/105/106/105106118/> (Prestressing System)
2. <https://www.digimat.in/nptel/courses/video/105106118/L05.html> (Pre-Stressed Concrete Structures)

  
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21PSP209

COMPUTER AIDED DESIGN OF STRUCTURES

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## OBJECTIVES

The main objective of this course is to:

- Understand the basics of graphic primitives, transformations and 2-D drafting of computer graphics.
- Get practiced with computer methods of structural analysis.
- Understand the structural design concepts.
- Perform linear programming and CPM and PERT.
- Inculcate the students with Artificial Intelligence.

### UNIT I: COMPUTER GRAPHICS

9

Graphic primitives – Transformations – Basics of 2-D drafting – Modeling of curves and surfaces – Wire frame modeling – Solid modeling – Graphic standards – Drafting software packages and usage.

### UNIT II: STRUCTURAL ANALYSIS

9

Computer aided analysis of steel and RC Structural elements – Application of software.

### UNIT III: STRUCTURAL DESIGN

9

Computer aided design of steel and RC Structural elements – Detailed drawing – Bill of materials.

### UNIT IV: OPTIMIZATION

9

Application of linear programming – Simplex algorithm – Post-optimality analysis – Project scheduling – CPM and PERT applications.

### UNIT V: ARTIFICIAL INTELLIGENCE

9

Introduction – Heuristic search – knowledge based expert systems – Rules and decision tables – Inference mechanisms– Simple applications – Genetic algorithm and applications – Principles of Neural network – Architecture and applications of KBES – Expert system shells.

**TOTAL: 45 PERIODS**

## OUTCOMES

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

- Draft 2 D drawings using drafting software.
- Perform structural analysis using analysis package.
- Design the structures with computer methodologies.
- Optimize the structural design with various computer packages and graphics.
- Apply artificial intelligence to real life applications.

## TEXT BOOKS

1. Rao. S.S., "Engineering Optimization", Wiley Publishers, 5<sup>th</sup> Edition, 2019.
2. Groover M.P. and Zimmers E.W.Jr., "CAD/CAM, Computer Aided Design and Manufacturing", Prentice Hall of India Ltd, 1<sup>st</sup> Edition, 2016.



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## REFERENCE

1. Krishnamoorthy C.S and Rajeev S, "Computer Aided Design", Narosa Publishing House, 2<sup>nd</sup> Edition, 2018.
2. Srinivasa Prakash Regalla, "Computer Aided Analysis and Design", I.K. International Publishing House Pvt. Limited, 3rd Edition, 2017.

## E-RESOURCES

1. <https://nptel.ac.in/courses/106/106/106106090/> (Computer Graphics)
2. <https://nptel.ac.in/courses/106/102/106102220/> (An introduction to Artificial Intelligence)

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21PGO205

DIGITAL MARKETING

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## OBJECTIVES

This course will enable the students to,

- Acquaint the learners to create a structured digital marketing plan and budget.
- Identify the correct measures to set objectives and evaluate digital marketing.
- Review and prioritize the strategic options for boosting customer acquisition, conversion, and retention using digital marketing.
- Aware search engine optimizations.
- Understand the web analytics.

### UNIT I: INTRODUCTION & ORIGIN OF DIGITAL MARKETING

9

Traditional v/s Digital Marketing. Digital Marketing Strategy, The P-O-E-M Framework, Segmenting & Customizing Messages, The Digital landscape, Digital Advertising Market in India. Skills required in Digital Marketing. Digital Marketing Plan.

### UNIT II: SOCIAL MEDIA MARKETING

9

Meaning, Purpose, types of social media websites. Blogging: Types of blogs, Blogging platforms & recommendations. Social Media Engagement, Target audience, Sharing content on social media, Do's and don'ts of social media.

### UNIT III: SEARCH ENGINE OPTIMIZATION

9

Meaning, Common SEO techniques, Understanding Search Engines, basics of Keyword search, Google rankings, Link Building, Steps to optimize website. Basics of Email Marketing: Types of Emails, Mailing List, Email Marketing tools, Email Deliverability & Email Marketing automation.

### UNIT IV : FACEBOOK MARKETING

9

Introduction, Facebook for business. Anatomy of an Ad Campaign, Role of Adverts-Types & Targeting, Adverts Budget & Scheduling, Adverts Objective & Delivery. LinkedIn Marketing- introduction & importance, LinkedIn Strategies, Sales Leads Generation Using LinkedIn, Content Strategies. Mobile Marketing-Introduction, Mobile Usage, Mobile Advertising, Mobile Marketing tool Kit, Mobile Marketing Features.



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## UNIT V: UNDERSTANDING WEB ANALYTICS

9

Purpose, History, Goals & objectives, Web Analytic tools & Methods. Web Analytics Mistakes and Pitfalls. Basics of Content Marketing: Introduction, Content marketing statistics, Types of Content, Types of Blog posts, Content Creation, Content optimization, Content Management & Distribution, Content Marketing Strategy, Content creation tools and apps, Challenges of Content Marketing.

**TOTAL: 45 PERIODS**

### OUTCOMES

Upon completion of this course, the students should be able to

- Acquaint the learners to create a structured digital marketing plan and budget.
- Identify the correct measures to set objectives and evaluate digital marketing.
- Review and prioritize the strategic options for boosting customer acquisition, conversion, and retention using digital marketing.
- Aware of Search engine optimizations.
- Understand the web analytics.

### TEXT BOOKS

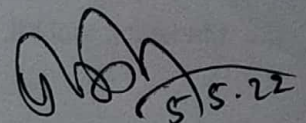
1. Rajendra Nargundkar and Romi Sainy "Digital Marketing: Cases from India", Notion Press, 2018.
2. Damian Ryan, "Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation", Kogan Page Publisher Marketing. 2008.

### REFERENCES

1. Hermawan Kartajaya, Philip Kotler and Iwan Setiawan, "Marketing 4.0 : Moving from Traditional to Digital", Wiley Publisher, 2018.
2. Seema Gupta, "Digital Marketing", 2<sup>nd</sup> Edition, McGraw Hill Education, 2019.

### E – RESOURCES

1. [https://onlinecourses.swayam2.ac.in/ugc19\\_hs26/preview](https://onlinecourses.swayam2.ac.in/ugc19_hs26/preview) (Digital Marketing)
2. <https://nptel.ac.in/courses/110/104/110104070/> (Web Analytics)

  
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19PSP302

DESIGN OF SUB STRUCTURES

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## OBJECTIVES:

- To gain familiarity with different types of foundation.
- To expose the students to the design of shallow foundations and deep foundations.
- To understand the concepts of designing well, machine and special foundations.

### UNIT I SHALLOW FOUNDATIONS

9 PERIODS

Soil investigation – Basic requirements of foundation – Types and selection of foundations.  
Bearing capacity of soil - plate load test – Design of reinforced concrete isolated, strip, combined and strap footings – mat foundation

### UNIT II PILE FOUNDATIONS

9 PERIODS

Introduction – Types of pile foundations – load carrying capacity - pile load test – structural design of straight piles – configuration of piles- different shapes of piles cap – structural design of pile cap.

### UNIT III WELL FOUNDATIONS

9 PERIODS

Types of well foundation – Grip length – load carrying capacity – construction of wells – Failures and Remedies – Design of well foundation – Lateral stability.

### UNIT IV MACHINE FOUNDATIONS

9 PERIODS

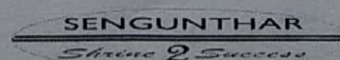
Introduction – Types of machine foundation – Basic principles of design of machine foundation – Dynamic properties of soil – vibration analysis of machine foundation – Design of foundation for Reciprocating machines and Impact machines – Reinforcement and construction details – vibration isolation.

### UNIT V SPECIAL FOUNDATIONS

9 PERIODS

Foundation on expansive soils – choice of foundation – under-reamed pile foundation.  
Foundation for concrete Towers, chimneys – Design of anchors- Reinforced earth retaining walls.

**TOTAL: 45 PERIODS**





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## OUTCOMES:

- On completion of this course students will be able to select appropriate foundation type based on available soil conditions.
- They will be in a position to determine the load carrying capacity of each type of foundation.
- They will gain thorough knowledge about the design of reinforced concrete shallow foundations, pile foundations, well foundations, and machine foundations.

## TEXT BOOKS:

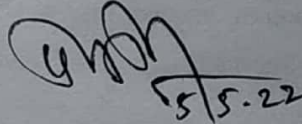
1. Bowles .J.E., "Foundation Analysis and Design", McGraw Hill Publishing co., New York, 1997.
2. Swamy Saran, Analysis and Design of substructures, Oxford and IBH Publishing Co. Pvt. Ltd., 2006.

## REFERENCES:

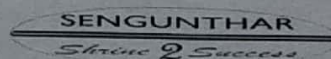
1. Tomlinson.M.J, "Foundation Design and Construction", Longman, Sixth Edition, New Delhi, 1995.
2. Varghese.P.C, "Design of Reinforced Concrete Foundations" – PHI learning private limited, New Delhi – 2009.

## E – RESOURCES

1. <https://pdfs.semanticscholar.org/bf55/16914e710ee50238cda79b54d18cb18d0bd2.pdf>
2. [cac.annauniv.edu/PhpProject1/aidetails/afpg\\_2017\\_fu/02.M.E.Struc.pdf](http://cac.annauniv.edu/PhpProject1/aidetails/afpg_2017_fu/02.M.E.Struc.pdf)

  
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19PSP304 DESIGN OF STEEL CONCRETE COMPOSITE STRUCTURES L T P C  
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## OBJECTIVE:

- To develop an understanding of the behaviour and design concrete composite elements and structures

### UNIT I INTRODUCTION 9 PERIODS

Introduction to steel - concrete composite construction - Codes - Composite action - Serviceability and Construction issues in design.

### UNIT II DESIGN OF COMPOSITE MEMBERS 9 PERIODS

Design of composite beams, slabs, columns, beam - columns - Design of composite trusses.

### UNIT III DESIGN OF CONNECTIONS 9 PERIODS

Shear connectors - Types - Design of connections in composite structures - Design of shear connectors - Partial shear interaction.

### UNIT IV COMPOSITE BOX GIRDER BRIDGES 9 PERIODS

Introduction - behaviour of box girder bridges - design concepts.

### UNIT V CASE STUDIES 9 PERIODS

Case studies on steel - concrete composite construction in buildings - seismic behaviour of composite structures.

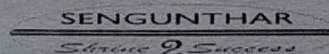
**TOTAL: 45 PERIODS**

## OUTCOME:

- At the end of this course students will be in a position to design composite beams, columns, trusses and box-girder bridges including the related connections.
- They will get exposure on case studies related to steel-concrete constructions of buildings.

## TEXT BOOKS:

- Johnson R.P., "Composite Structures of Steel and Concrete Beams, Slabs, Columns and Frames for Buildings", Vol.I, Blackwell Scientific Publications, 2004.
- Oehlers D.J. and Bradford M.A., "Composite Steel and Concrete Structural Members, Fundamental behaviour", Pergamon press, Oxford, 1995





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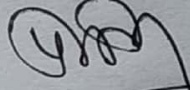


## REFERENCES:

1. Owens.G.W and Knowles.P, "Steel Designers Manual", Steel Concrete Institute(UK), Oxford Blackwell Scientific Publications, 1992.

## E – RESOURCES

1. [www.iosrjournals.org/iosr-jmce/papers/Conf15010/Vol-1/2.%2008-15.pdf](http://www.iosrjournals.org/iosr-jmce/papers/Conf15010/Vol-1/2.%2008-15.pdf)
2. [https://www.researchgate.net/.../34305603\\_Analysis\\_and\\_design\\_of\\_steel\\_deck-concret...](https://www.researchgate.net/.../34305603_Analysis_and_design_of_steel_deck-concret...)

  
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## SEMESTER II

19BAL208

DATA ANALYSIS AND BUSINESS MODELING

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### OBJECTIVES

- To have hands-on experience on decision modeling.  
[Business models studied in theory to be practiced using Spreadsheet / Analysis Software]

S.No.	Exp. No.	Details of experiments	Duration
		Name	
1	1	Descriptive Statistics	4
2	2	Hypothesis - Parametric	4
3	3	Hypothesis – Non-parametric	4
4	4	Correlation & Regression	4
5	5	Forecasting	4
6	-	Extended experiment – 1	4
7	6	Portfolio Selection	4
8	7	Risk Analysis & Sensitivity Analysis	4
9	8	Revenue Management	4
10	-	Extended experiment – 2	4
11	9	Transportation & Assignment	4
12	10	Networking Models	4
13	11	Queuing Theory	4
14	12	Inventory Models	4
15	-	Extended experiments – 3	4

- Spreadsheet Software and
- Data Analysis Tools

**TOTAL: 60 PERIODS**

### OUTCOMES

- Knowledge of spreadsheets and data analysis software for business modeling.

### TEXT BOOKS

- Hansa Lysander Manohar , " Data Analysis and Business Modelling using MS Excel ", PHI Learning private Ltd, 2017.
- David M. Levine et al, "Statistics for Managers using MS Excel' (6<sup>th</sup> Edition) Pearson, 2010





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## REFERENCES

1. Vikas Gupta, Comdex Business Accounting with Ms Excel, 2010 and Tally ERP 9.0 Course Kit, Wiley India, 2012
2. Kiran Pandya and Smriti Bulsari, SPSS in simple steps, Dreamtech, 2011

## E-RESOURCES

1. [https://en.wikipedia.org/wiki/Descriptive\\_statistics](https://en.wikipedia.org/wiki/Descriptive_statistics)
2. <https://study.com/academy/.../the-transportation-problem-features-types-solutions.html>

*S. Dharmaraj*

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19EEEC101

## LIFE SKILLS FOR ENGINEERS

(Employability Enhancement Course)  
(Common to Civil, CSE, ECE, EEE & Mechanical)

L T P C  
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### OBJECTIVES

To enable students to:

- Develop communication competence for engineers.
- Enable them to convey thoughts and ideas with clarity and focus
- Inculcate critical thinking process
- Prepare them on problem solving skills
- Provide symbolic, verbal, and graphical interpretations of statements in a problem description

### UNIT I COMMUNICATION SKILL

6

Introduction to Communication, The Process of Communication, Barriers to Communication, Listening Skills, Non-verbal Communication and Body Language, Interview Skills, Group Discussion, Presentation Skills, Technology-based Communication-Technical presentations.

### UNIT II CRITICAL THINKING & PROBLEM SOLVING

6

Creativity, Lateral thinking, Critical thinking, Multiple Intelligence, Problem Solving, Mind Mapping & Analytical Thinking.

### UNIT III CAREER SKILLS

6

Introduction to Employability and Career Skills - developing a long - term career plan - making career changes -Time Management - General awareness of Current Affairs - Stress management - Leadership traits - Team work - Career planning.

### UNIT IV ETHICS MORAL & PROFESSIONAL VALUES

6

Human Values, Civic Rights, Engineering Ethics, Engineering as Social Experimentation, Environmental Ethics, Global Issues.

### UNIT V LEADERSHIP SKILLS

6

Leadership, Levels of Leadership, Making of a leader, Types of leadership, Transactions Vs Transformational Leadership, VUCA Leaders, DART Leadership, Leadership Grid & leadership Formulation.

**TOTAL: 30 PERIODS**

### OUTCOMES

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

- Communicate effectively
- Make effective presentations
- Develop critical thinking.
- Face interview & group discussion.
- Critically think on a particular problem



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## TEXT BOOKS

1. Life Skills for Engineers, McGraw Hill Education (India) Private Ltd., 2016.
2. E. Suresh Kumar et al. Communication for Professional Success. Orient Blackswan: Hyderabad, 2015.

## REFERENCES

1. Barun K. Mitra; (2011), "Personality Development & Soft Skills", 1<sup>st</sup> Edition; Oxford Publishers.
2. Kalyana; (2015) "Soft Skill for Managers"; First Edition; Wiley Publishing Ltd.

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19EEC201

**TECHNICAL SKILL (AutoCAD)**  
(Employability Enhancement Course)  
(Common to Civil and Mechanical Engineering)

L T P C  
0 0 2 0

## OBJECTIVES

The objective of this course will enable students to:

- Develop skill to use software to create 2D and 3D models.

## LIST OF EXERCISES USING SOFTWARE CAPABLE OF DRAFTING AND MODELING

1. Study of capabilities of software for Drafting and Modeling - Coordinate systems (absolute, relative, polar, etc.) - Creation of simple figures like polygon and general multi-line figures.
2. Drawing of a Title Block with necessary text and projection symbol.
3. Drawing of curves like parabola, spiral, involutes using Bspline or cubic spline.
4. Drawing of front view and top view of simple solids like prism, pyramid, cylinder, cone, etc and dimensioning.
5. Drawing front view, top view and side view of objects from the given pictorial.
6. Views (eg. V-Block, Base of a mixie, Simple stool, Objects with hole and curves).
7. Drawing of a plan of residential building (Two bed rooms, kitchen, hall, etc.).
8. Drawing of a simple steel truss.
9. Drawing sectional views of prism, pyramid, cylinder, cone, etc.
10. Drawing isometric projection of simple objects.
11. Creation of 3D models of simple objects and obtaining 2D multi - view drawings from 3D model.

TOTAL: 20 PERIODS

## OUTCOMES

On successful completion of this course, The Students can able to:

- Understand develop skill to use software to create 2D and 3D models.

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19EEC302

## ENTREPRENEURSHIP DEVELOPMENT ACTIVITY (Common to Civil, CSE, ECE, EEE & Mechanical)

L T P C  
0 0 2 0

### OBJECTIVES

The objectives will make the students to :

- Evaluate social and civil responsibilities of business ownership.
- Describe typical behavioral characteristics of an effective entrepreneur.
- Develop a business plan, including identifying an executive summary; conducting a marketing and competitive analysis report; and developing a marketing, management, and financial plan.
- Determine career opportunities, responsibilities, and educational and credentialing requirements related to various entrepreneurship ventures.
- Interpret research data to determine market-driven problems faced by entrepreneurs.

### TOPICS TO BE COVERED

1. Should You Become an Entrepreneur?
  - Entrepreneurship: Present & Past
  - Is Entrepreneurship Right for You
  - Identify Business Opportunities & Set Goals
2. What Skills Do Entrepreneurs Need
  - Communication Skills
  - Math Skills
  - Problem Solving Skills
3. Entrepreneurs in a Market Economy
  - What is an Economy?
  - The Concept of Cost
  - Government in a Market Economy
4. Select a Type of Ownership
  - Run an Existing Business
  - Own a Franchise or Start a Business
  - Choose the Legal Form of Your Business
5. Develop a Business Plan
  - Why Do You Need a Business Plan
  - What Goes into a Business Plan
  - Create an Effective Business Plan



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6. Identify and Meet a Market Need
  - The Value of Market Research
  - How to Perform Market Research Entrepreneurship Syllabus
  - Identify Your Competition
7. Finance, Protect, and Insure Your Business
  - Put Together a Financial Plan
  - Obtain Financing for Your Business
  - Protect Your Business
8. Choose Your Location & Set Up for Business
  - Choose a Retail Business Location
  - Choose a Location for a Nonretail Business
  - Obtain Space and Design the Physical Layout
  - Purchase Equipment, Supplies, and Inventory
9. Market Your Business
  - The Marketing Mix
  - Product, Price, Distribution, Price, and Promotion
  - Set Marketing Goals
10. Hire and Manage a Staff
  - Hire Employees
  - Create a Compensation Package
  - Manage your Staff
11. Record-Keeping and Accounting
  - Set up a Record Keeping System
  - Understand Basic Accounting
  - Track Your Inventory
12. Financial Management
  - Manage your Cash Flow
  - Analyze Your Financial Performance
  - Hire Experts
13. Use Technology
  - Technology and Your Business
  - Learn about the Interest



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- Purchase Technology

## 14. Intellectual property Rights

- Patents
- Copyright
- Industrial design rights
- Trademarks
- Trade secrets

## 15. Innovation Contest

- Innovative Idea
- Proof of Concept (PoC)
- Prototype Creation
- The students may be grouped into 2 to 3 and work under a project supervisor. The Prototypes to be fabricated may be decided in consultation with the supervisor. A innovative report to be submitted by the group and the model, which will be reviewed and evaluated for internal assessment by a Committee constituted by the Head of the Department.

## OUTCOMES

At the end of this course, students can:

- Identify personal strengths and value systems.
- Recall important tenets of digital literacy.
- Discuss the essentials of matters pertaining to money.
- Prepare for employment and self-employment.
- Illustrate the basics of entrepreneurship and identify new business opportunities.

**TOTAL: 15 PERIODS**

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19EEC301

## COMMUNICATION SKILLS

### OBJECTIVES:

The purpose of learning this course is to:

- Improve fluency in English through well developed vocabulary.
- Develop the oral communication skills
- Focus the effective reading of general and technical text
- Enrich writing skill
- Communicate ideas in group discussion and interviews

### Unit I VOCABULARY

6

Vocabulary building – articulate ideas and thoughts; usage of palindromes, greetings, wishes, festival related words - homophones and homonyms- connotation - vocabulary words with sentences. - Idiomatic Expressions - One- word Substitutes.

**Activities:** Learn a word a week, Use newspaper to write unfamiliar words, Word association games.

### Unit II LISTENING

6

Listening Skill- Its importance – Purpose- Process- Types- Barriers- Effective Listening strategies- Listening to telephonic conversations – Ted talks – Watching Inspiring Speech videos on You tube- Listening native speaker's videos for pronunciation - Listening to broadcast, messages, announcements - Listening to Instagram Videos.

**Activities:** Listen and draw the different scenes in a story, Secret Message games, watching videos and listing difficult words.

### Unit III SPEAKING

6

JAM Talk - Role play – Debate - Conversational skills (formal and informal) - Conversation practice – group discussion and interview skills – Introducing oneself and others — Presentation skills -Making presentations (individual and group) through seminars / PPTs.

**Activities:** Picture Description, Giving Directions and Guidelines, Making a short speech-Extempore.

### Unit IV READING

6

Strategies for effective reading (Guessing meanings from contexts -Scanning, skimming, inferring meaning and critical reading)- Read and recognize different text types ranging from newspaper articles, magazines, books, Technical articles and Reading autobiographies -.

**Activities:** Reading online sources like e-books, e-journals and e-newspapers, cloze exercises, Reading and answering questions.



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6

## Unit V WRITING

Develop a paragraph: topic sentence, supporting sentences, concluding sentence - Writing simple Essays – argument, descriptive and comparative essays- Creative writing.

**Activities:** Write Essays with sub titles, Write a story that uses as many clichés and idioms, Write Paragraph.

**TOTAL: 30 PERIODS**

The following Practice Session will be conducted for the Communication Skills (CS) Lab sessions:

- Activities on Presentations Skills- Students make presentations on given topics
- Activities on Group Discussion- Students participate in group discussions
- Interview Skills- Students participate in Mock Interviews
- Essay Writing - Students prepare their own paragraph and essay

### Guidelines for conducting assessments as per 2019 regulations

- 30 hours – Two consecutive hours allotted for each class.
- Three Continuous assessments only conducted and no end semester exam.
- For the award of Continuous assessment the best three activities from Essay Writing, Oral Presentation, Extempore, Group Discussion and Mock Interview (one-on-one basis) can be taken.

### OUTCOMES

At the end of this course, learners will be able to:

- Improve vocabulary and express the same contextually
- Comprehend the general and technical text
- Communicate to his peer group properly and make presentations
- Write simple paragraph and essay in any topic
- Participate in group discussions expressing ideas relevantly, coherently and cogently

### TEXT BOOKS

1. Gramer F. Margot and Colin S. Ward Reading and Writing (Level 3) Oxford University Press: Oxford, 2011.
2. Brooks, Margret. Skills for Success. Listening and Speaking. Level 4 Oxford University Press, Oxford: 2011.

### REFERENCES

1. Davis, Jason and Rhonda Liss. Effective Academic Writing (Level 3) Oxford University Press: Oxford, 2006.



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2. E. Suresh Kumar and et al. Enriching Speaking and Writing Skills. Second Edition. Orient Black swan:
3. Anderson, Kenneth et al. Study Speaking: A Course in Spoken English for Academic Purposes. United Kingdom: Cambridge University Press 1992.
4. Asraf rezvi "Technical communication".

### E- RESOURCES

1. [www.youglissh.com](http://www.youglissh.com)
2. [www.Newwellington University.com](http://www.Newwellington University.com)
3. [www.newsinlevels.com](http://www.newsinlevels.com)
4. [www.Britishcouncil.org](http://www.Britishcouncil.org)
5. [www.writeandimprove.com](http://www.writeandimprove.com)
6. [www.purdueonline.com](http://www.purdueonline.com)

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19EEEC501

**QUANTITATIVE APTITUDE LEARNING**  
(Common to Civil, CSE, ECE, EEE and Mechanical)

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## OBJECTIVES

The main objective of this course is to:

- Understand the basics of the numbers, Highest common factor and Least common multiple.
- Develop the use of decimal fraction and problems on ages.
- Introduced basic concepts of time, work, distance, calendar and clock.
- Acquaint the student with the concept of simple and compound interest.
- Understand the knowledge of polynomial and quadratic equations.

### UNIT I: NUMBERS, HIGHEST COMMON FACTOR AND LEAST COMMON MULTIPLE 9

Numbers and their basic classification – Types of number – Basic operations of numbers – Progression – Tests of divisibility – Highest common factor – Least common multiple.

### UNIT II: DECIMAL FRACTION AND PROBLEMS BASED ON AGES 9

Decimal fraction – Types of fraction – Comparison of fractions – Inserting fractions in between two given fractions – Relation between decimal fraction and normal fraction – Conversion of a decimal fraction into a vulgar fraction – Types of decimals – Conversion of mixed recurring decimal into a vulgar fraction – Standard form of decimal – Problems based on ages.

### UNIT III: TIME, WORK, DISTANCE, CALENDER AND CLOCK 9

General rule for time and work – General rule for work and wages – Speed – Unit of speed – Average speed – Some useful relations – Problems on Trains – Calendars and clocks – Odd days – Ordinary year – Leap year.

### UNIT IV: SIMPLE INTEREST, COMPOUND INTEREST AND ELEMENTARY ALGEBRA 9

Simple interest – Compound interest – Some useful relations – Difference between compound interest and simple interest – Short cut methods to solve special types of problems – Elementary Algebra and averages.

### UNIT V: POLYNOMIAL AND QUADRATIC EQUATIONS 9

Polynomial introduction – Degree of a polynomial – Types of polynomial – Operations on polynomial – Remainder and factor theorem – Quadratic equation – Pure Quadratic equation – Discriminant – Roots of the Quadratic equations – Solution of Quadratic equation – Framing of a Quadratic equation – Special types of roots.

**TOTAL: 45 PERIODS**

## OUTCOMES

After successfully completing the course, the student will have a good understanding of the following topics and their applications.

- Understand the basic concepts and techniques of the numbers, Highest common factor and Least common multiple.



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- Apply the concept of decimal fraction and problems on ages.
- Understand and apply the concept of time, work, distance, calendar and clock.
- Acquire skills in simple interest, compound interest and elementary algebra.
- Be exposed to concepts and properties of polynomial and quadratic equations.

## TEXT BOOKS

1. Aggarwal R.S., "Quantitative Aptitude", S.Chand & Company Ltd, New Delhi, 2012.
2. Dinesh Khattar, "Quantitative Aptitude for competitive examinations ", Pearson India Education Services Pvt. Ltd, New Delhi, 2019.

## REFERENCES

1. Praveen R.V., "Quantitative Aptitude and Reasoning", PHI Learning Private Limited, Delhi, 2013.
2. Gupta P, "A unique Approach to Quantitative Aptitude ", Unique Publishers (I) Pvt. Ltd, New Delhi, 2017.

## E-RESOURCES

1. <https://youtube.com/playlist?list=RDQM5Xl256aOq24>
2. <https://youtu.be/KE7lQf9spPg>

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19MDC301

## LEADERSHIP ENHANCEMENT PROGRAMME (Common to Civil, CSE, ECE, EEE & Mechanical)

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### OBJECTIVES

The objective of the course is enabling the students to:

- Find new, innovative ways of developing and managing people.
- Develop new business opportunities.
- Tackle the broader societal issues the face.
- key benefits of leadership skills in different situations.
- formulate and implement effective leadership strategies.

### TOPICS TO BE COVERED

1. Leadership for an Engineering students: Skills & Strategies
2. Qualities of good leaders and 21 irrefutable laws of Leadership
3. Empowering Others and Managing People
4. Leading Meetings
5. Leadership competencies and Leadership Styles
6. Difference between a boss and a leader.
7. Leadership and Assertiveness Skills : A Good Leader, Leadership Theories, Leadership Behaviour , Assertiveness skills.
8. Leadership development opportunities and suggestions
9. Teamwork and Leadership : Concept of teams , Building Effective teams, Concept of leadership and sharpening leadership skills.
10. Teamwork and Leadership Activities : Group discussion, Solving Puzzle as a team, describing a leadership style.

### OUTCOMES

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

- Develop the capabilities needed to increase team's work productivity.
- Help to decrease employee turnover and increase engagement, creating a strong and united team.
- Develop communication skills, mastering the art of negotiation, influence and conflict management.
- More confident as a leader and find new ways of influencing the teams they lead.
- Effectively connect to people, developing the ability to give constructive feedback, and critically seek the feedback of the team.

TOTAL: 12 PERIODS



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### TEXT BOOKS

1. John maxwell, "21 irrefutable laws of leadership" 2008
2. Sara N. King, David G. Altman, Robert J. Lee, "Discovering the leader in you"
3. Louis carter, David ulrich , Marshall Goldsmith "Best practices in leadership development and Organization change".

### REFERENCES

1. Barry Benator, Albert Thumann, "Project Management and Leadership Skills for Engineering and Construction Projects" 2003.
2. Sydänmaanlakka Pentti. "Intelligent leadership and leadership competencies". Dissertation Series.

### E-RESOURCES

1. <https://nptel.ac.in/courses/122/105/122105021/> - ( Introduction to Leadership)
2. [www.ccl.org/leadership/research/index.aspx](http://www.ccl.org/leadership/research/index.aspx) - ( Centre for Creative Leadership)

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19MDC401

VALUE ADDED COURSES-I  
(SOLIDWORKS)

LT P C  
- - - -

## OBJECTIVES

The main objective of this course is to:

- Learn the individual features and functions of SOLIDWORKS, thereby emphasizing processes and procedures for completion of any task.
- Understand the principles of technical drawings to create different 3D models.
- Extend a knowledge of parametric 3D models to design and build mechanical parts and assemblies.
- Know the setup sheets for plotting with text, dimensions, and details.
- Familiar with Parametric Modeling to manufacturing and engineering concepts.

## COURSE CONTENTS

- a. 2D DRAFTING
- b. 3D-MODELLING
- c. SURFACE CREATIONS AND ASSEMBLY
- d. DRAFTING & DRAWING
- e. SHEET METAL FEATURES
- f. PHOTO WORKS
- g. PROJECT

## OUTCOMES

At the end of this course, learners will be able to:

- Demonstrate competency with multiple drawing and modification commands.
- Create three-dimensional solid models.
- Build three-dimensional assemblies incorporating multiple solid models.
- Apply industry standards in the preparation of technical mechanical drawings.
- Make simulation of the assemblies incorporating multiple solid models.

## TEXT BOOKS

1. John E Matsson, "An Introduction to Solidworks Flow Simulation 2020", SDC Publication, USA, 2020.
2. Prof. Sham Tickoo, "Solidworks 2020 for designers", Purdue University Northwest, USA, 2020.





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## REFERENCES

1. Alejandro Reyes, "Beginner's Guide to Solidworks 2020", SDC Publication, USA, 2019.
2. Matt Lombard, "Mastering SolidWorks", Wiley Publisher, 2018.

## E-RESOURCES

1. <https://mlc-cad.com/solidworks-online-resources/>
2. <https://www.cadimensions.com/video/solidworks-online-resources-webinar/>

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19MDC501

VALUE ADDED COURSE - II  
(ANSYS)

LT P C  
- - - -

## OBJECTIVES

The main objective of this course is to:

- Acquire skill in finite element simulations using commercially available software.
- Know the steps involved in discretization of the cad model using various elements.
- Learn the steps involved in solving structural problems with given specifications.
- Gain knowledge on modal and harmonic analysis.
- Understand the thermal analysis with given specifications.

## COURSE CONTENTS

- a. Analysis of a plate with a circular hole.
- b. Analysis of beams (Cantilever, Simply supported and Fixed ends).
- c. Analysis of truss component.
- d. Analysis of an Axi-symmetric component.
- e. Modal analysis of a component.
- f. Harmonic analysis of a component.
- g. Thermal mixed boundary conditions (Conduction and Convection).

## OUTCOMES

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

- Solve structural analysis problems using one dimensional and two dimensional elements.
- Determine numerical solution of problem using axi-symmetric condition.
- Evaluate various model of failure of a machine component using Modal analysis.
- Apply harmonic analysis to find the response of a structural system using simulation.
- Analyze engineering heat transfer problem under given boundary conditions.

## TEXT BOOKS

1. John E Matsson, "An Introduction to ANSYS Fluent 2020", SDC Publications, 1<sup>st</sup> Edition, 2020.
2. Huei-Huang Lee, "Finite Element Simulations with ANSYS Workbench 2020", SDC Publications.

## REFERENCES

1. Choudary R.B., "Introduction to ANSYS 16.0", 2<sup>nd</sup> Edition, IK International Publishing 2016.
2. Muralidhar K, Sundarajan T., "Computational Fluid Flow and Heat Transfer", 2<sup>nd</sup> Edition, Narosa Publishing House, 2014.

## E-RESOURCES

1. <https://nptel.ac.in/courses/105/103/105103140/> - (Structural Reliability)
2. <https://nptel.ac.in/courses/112/105/112105045/> - (Computational Fluid Dynamics)



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19MDC601

## CONSTITUTION OF INDIA (Common to Civil, CSE, ECE, EEE & Mechanical)

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### OBJECTIVES

The main objective of this course is to:

- Understand the meaning of the Constitution law and Constitutionalism.
- Realize the fundamental rights.
- Understand the execution powers of union and states about.
- Be aware of the Constitutional powers.
- Acquaint with other Constitutional functionaries.

### UNIT I: INTRODUCTION

3

Meaning of the Constitution law and constitutionalism – Historical perspective of the Constitution of India – Preamble – Salient features and characteristics of the Constitution of India – Citizenship.

### UNIT II: FUNDAMENTAL RIGHTS

3

Scheme of the fundamental rights - The scheme of the fundamental duties and its legal status - The directive principles of state policy - Its importance and implementation.

### UNIT III: UNION AND STATE EXECUTIVE

3

Federal structure and distribution of legislative and financial powers between the Union and the States - Parliamentary form of Government in India - The Constitution powers and status of the President of India - Governor - Appointment, powers and functions.

### UNIT IV: CONSTITUTIONAL POWERS

3

Amendment of the Constitutional powers and procedure - The historical perspectives of the Constitutional amendments in India - Emergency provisions : National emergency, President rule, financial emergency.

### UNIT V: OTHER CONSTITUTIONAL FUNCTIONARIES

3

Election Commission of India: Organization, powers and functions, Union Public Service Commission, State Public Service Commission - Local Self Government.

**TOTAL: 15 PERIODS**

### OUTCOMES

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

- Understand the salient features and characteristics of the Constitution of India.
- Analyze the scheme of the fundamental rights and duties.
- Evaluate in detail the powers between the Union and the States.
- Know the concept of Constitutional powers.
- Recognize other Constitutional functionaries.



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## TEXT BOOKS

1. Introduction to the Constitution of India - Durga Das Basu.
2. Our Constitution by Subhash by C. Kashyap.

## REFERENCES

1. Indian Polity by Spectrum.
2. The Indian Constitution: Cornerstone of a Nation, by Granville Austin.

## E-RESOURCES

1. [https://www.youtube.com/watch?v=vq2Q1\\_v6TNU](https://www.youtube.com/watch?v=vq2Q1_v6TNU)
2. <https://www.india.gov.in/my-government/constitution-india/constitution-india-full-text>

*M. Suresh*  
15/5/22

**Head of the Department**  
Department of Mechanical Engg.,  
SENGUNTHAR ENGINEERING COLLEGE  
TIRUCHENGODE - 637 205.



# SENGUNTHAR ENGINEERING COLLEGE

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19EEEC203

HANDS ON TRAINING IN ELECTRICAL AND ELECTRONICS ENGINEERING

L T P C

(Employability Enhancement Course)

0 0 2 0

(For EEE and ECE Branches)

## OBJECTIVES

The main objective of this course is to:

- Gain practical experience on Electrical Appliances.
- Create awareness on non-conventional energy.

## LIST OF EXPERIMENTS:

1. Maintenance of UPS and Battery.
2. Earthing of Power Devices.
3. Repair & Maintenance of Home Appliances.
4. Change of Fuse Links.
5. Repair & Maintenance of Air Compressor.
6. Repair & Maintenance of RO System (filter, pump motor)
7. Study of Electronic Devices.
8. Residential house wiring using switches, fuse, indicator, lamp and energy meter.
9. Fluorescent lamp wiring.
10. Stair case wiring.
11. Soldering practice-components devices and circuits-using general purpose PCB.
12. Study of simple home based LAN connection.

TOTAL: 20 PERIODS

## OUTCOMES

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

- Repair and service the home based electrical appliances.
- Establish home based LAN connection.

*Signature*  
11/5/2021



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19EEEC301

COMMUNICATION SKILLS LABORATORY

L T P C  
0 0 2 0

## OBJECTIVES:

The purpose of learning this course is

- Improve fluency in English through well developed vocabulary.
- To improve the oral communication skills
- To focus the effective reading of general and technical text
- To improve writing skill
- To communicate ideas in group discussion and interviews

### Unit I VOCABULARY

6

Vocabulary building – articulate ideas and thoughts; usage of palindromes, greetings, wishes, festival related words - homophones and homonyms- connotation - vocabulary words with sentences. - Idiomatic Expressions - One- word Substitutes.

**Activities:** Learn a word a week, Use newspaper to write unfamiliar words, Word association games.

### Unit II LISTENING

6

Listening Skill- Its importance – Purpose- Process- Types- Barriers- Effective Listening strategies- Listening and note-taking – Listening to telephonic conversations – Ted talks – Watching Inspiring Speech videos on You tube- Listening native speaker's videos for pronunciation.

**Activities:** Listen and draw the different scenes in a story, Secret Message games, watching videos and listing difficult words.

### Unit III SPEAKING

6

JAM Talk - Role play – Debate - Conversational skills (formal and informal) - Conversation practice – group discussion and interview skills – Introducing oneself and others – Presentation skills -Making presentations (individual and group) through seminars / PPTs.

**Activities:** Picture Description, Giving Directions and Guidelines, Making a short speech- Extempore.

### Unit IV READING

6

Strategies for effective reading (Guessing meanings from contexts -Scanning, skimming, inferring meaning and critical reading)- Read and recognize different text types ranging from newspaper articles, magazines, books, Technical articles and Reading autobiographies -

**Activities:** Reading online sources like e-books, e-journals and e-newspapers, cloze exercises, Reading and answering questions.

### Unit V WRITING

6

Develop a paragraph: topic sentence, supporting sentences, concluding sentence - Writing simple Essays –argument, descriptive and comparative essays- Creative writing.

**Activities:** Write Essays with sub titles, Write a story that uses as many clichés and idioms, Write Paragraph.



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The following Practice Session will be conducted for the Communication Skills (CS) Lab sessions:

- Activities on Presentations Skills- Students make presentations on given topics
- Activities on Group Discussion- Students participate in group discussions
- Interview Skills- Students participate in Mock Interviews
- Essay Writing - Students prepare their own paragraph and essay

### Guidelines for conducting assessments as per 2019 regulations

- 30 hours – Two consecutive hours allotted for each class.
- Three Continuous assessments only conducted and no end semester exam.
- For the award of Continuous assessment the best three activities from Essay Writing, Oral Presentation, Extempore, Group Discussion and Mock Interview (one-on-one basis) can be taken.

### OUTCOMES:

At the end of this course, learners will be able to:

- Improve vocabulary and express the same contextually
- Communicate to his peer group properly and make presentations
- Comprehend the general and technical text
- Write simple paragraph and essay in any topic
- Participate in group discussions expressing ideas relevantly, coherently and cogently

### TEXT BOOK(S):

1. Gramer F. Margot and Colin S. Ward Reading and Writing (Level 3) Oxford University Press: Oxford, 2011
2. Brooks, Margret. Skills for Success. Listening and Speaking. Level 4 Oxford University Press, Oxford: 2011

### REFERENCE(S):

1. Davis, Jason and Rhonda Llss. Effective Academic Writing (Level 3) Oxford University Press: Oxford, 2006
2. E. Suresh Kumar and et al. Enriching Speaking and Writing Skills. Second Edition. Orient Black swan:
3. Anderson, Kenneth et al. Study Speaking: A Course in Spoken English for Academic Purposes. United Kingdom: Cambridge University Press 1992.
4. Technical communication by Asraf rezvi

### e- Resources :

1. [www.youglish.com](http://www.youglish.com)
2. [www.Newwellington University.com](http://www.Newwellington University.com)
3. [www.newsinlevels.com](http://www.newsinlevels.com)
4. [www.Britishcouncil.org](http://www.Britishcouncil.org)
5. [www.writeandimprove.com](http://www.writeandimprove.com)
6. [www.purdueonline.com](http://www.purdueonline.com)



*Shah*  
06/05/2022



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19MDC301

LEADERSHIP ENHANCEMENT PROGRAMME

L P T C

(Common to all branches)

1 0 0 0

## OBJECTIVES

The objective of the course is to enable the students to :

- Find new, innovative ways of developing and managing people
- Develop new business opportunities
- Tackle the broader societal issues the face
- key benefits of leadership skills in different situations
- formulate and implement effective leadership strategies.

## TOPICS TO BE COVERED

1. Leadership for an Engineering students: Skills & Strategies
2. Qualities of good leaders and 21 irrefutable laws of Leadership
3. Empowering Others and Managing People
4. Leading Meetings
5. Leadership competencies and Leadership Styles
6. Difference between a boss and a leader.
7. Leadership and Assertiveness Skills : A Good Leader, Leadership Theories, Leadership Behaviour , Assertiveness skills.
8. Leadership development opportunities and suggestions
9. Teamwork and Leadership : Concept of teams , Building Effective teams, Concept of leadership and sharpening leadership skills.
10. Teamwork and Leadership Activities : Group discussion, Solving Puzzle as a team, describing a leadership style.

## OUTCOME

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

- Develop the capabilities needed to increase team's work productivity.
- Help to decrease employee turnover and increase engagement, creating a strong and united team.
- Develop communication skills, mastering the art of negotiation, influence and conflict management.
- More confident as a leader and find new ways of influencing the teams they lead.
- Effectively connect to people, developing the ability to give constructive feedback, and critically seek the feedback of the team.

Total: 12 Periods

## TEXT BOOK

1. John maxwell, "21 irrefutable laws of leadership" 2008
2. Sara n. King, david g. Altman, robert j. Lee, "discovering the leader in you"
3. Louis carter ,david ulrich , marshall goldsmithbest practices in leadership development and Organization change





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## REFERENCE

1. Barry Benator, Albert Thumann, "Project Management and Leadership Skills for Engineering and Construction Projects" 2003.
2. Sydänmaanlakka Pentti. "Intelligent leadership and leadership competencies". Dissertation Series

## E-SOURCES

1. <https://nptel.ac.in/courses/122/105/122105021/>
2. [www.ccl.org/leadership/research/index.aspx](http://www.ccl.org/leadership/research/index.aspx).



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06/05/2022



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19EEC302

ENTREPRENEURSHIP DEVELOPMENT ACTIVITY  
(Common to all Branches)

L T P C  
0 0 2 0

## OBJECTIVES

- Evaluate social and civil responsibilities of business ownership
- Describe typical behavioral characteristics of an effective entrepreneur
- Develop a business plan, including identifying an executive summary; conducting a marketing and competitive analysis report; and developing a marketing, management, and financial plan
- Determine career opportunities, responsibilities, and educational and credentialing requirements related to various entrepreneurship ventures.
- Interpret research data to determine market-driven problems faced by entrepreneurs

## TOPICS TO BE COVERED

16. Should You Become an Entrepreneur?
  - Entrepreneurship: Present & Past
  - Is Entrepreneurship Right for You
  - Identify Business Opportunities & Set Goals
17. What Skills Do Entrepreneurs Need
  - Communication Skills
  - Math Skills
  - Problem Solving Skills
18. Entrepreneurs in a Market Economy
  - What is an Economy?
  - The Concept of Cost
  - Government in a Market Economy
19. Select a Type of Ownership
  - Run an Existing Business
  - Own a Franchise or Start a Business
  - Choose the Legal Form of Your Business
20. Develop a Business Plan
  - Why Do You Need a Business Plan
  - What Goes into a Business Plan
  - Create an Effective Business Plan
21. Identify and Meet a Market Need
  - The Value of Market Research
  - How to Perform Market Research Entrepreneurship Syllabus
  - Identify Your Competition



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22. Finance, Protect, and Insure Your Business
  - Put Together a Financial Plan
  - Obtain Financing for Your Business
  - Protect Your Business
23. Choose Your Location & Set Up for Business
  - Choose a Retail Business Location
  - Choose a Location for a Nonretail Business
  - Obtain Space and Design the Physical Layout
  - Purchase Equipment, Supplies, and Inventory
24. Market Your Business
  - The Marketing Mix
  - Product, Price, Distribution, Price, and Promotion
  - Set Marketing Goals
25. Hire and Manage a Staff
  - Hire Employees
  - Create a Compensation Package
  - Manage your Staff
26. Record-Keeping and Accounting
  - Set up a Record Keeping System
  - Understand Basic Accounting
  - Track Your Inventory
27. Financial Management
  - Manage your Cash Flow
  - Analyze Your Financial Performance
  - Hire Experts
28. Use Technology
  - Technology and Your Business
  - Learn about the Interest
  - Purchase Technology
29. Intellectual property Rights
  - Patents
  - Copyright
  - Industrial design rights
  - Trademarks
  - Trade secrets
30. Innovation Contest
  - Innovative Idea
  - Proof of Concept (PoC)
  - Prototype Creation



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19EEEC501

## QUANTITATIVE APTITUDE LEARNING (Common to Civil, CSE, ECE, EEE and Mechanical)

L T P C  
0 2 0 0

### OBJECTIVES

The main objective of this course is to:

- Introduce the basics concepts and techniques of numbers, Highest common factor and Least common multiple.
- Develop the use of decimal fraction and problems on ages.
- Introduced basic concepts of time, work, distance, calender and clock.
- Acquaint the student with the concept of simple and compound interest.
- Produced the knowledge of polynomial and quadratic equations.

### UNIT I: NUMBERS, HIGHEST COMMON FACTOR AND LEAST COMMON MULTIPLE 9

Numbers and their basic classification - Types of number - Basic operations of numbers - Progression - Tests of divisibility - Highest common factor - Least common multiple.

### UNIT II: DECIMAL FRACTION AND PROBLEMS BASED ON AGES 9

Decimal fraction - Types of fraction - Comparison of fractions - Inserting fractions in between two given fractions - Relation between decimal fraction and normal fraction - Conversion of a decimal fraction into a vulgar fraction - Types of decimals - Conversion of mixed recurring decimal into a vulgar fraction - Standard form of decimal - Problems based on ages.

### UNIT III: TIME, WORK, DISTANCE, CALENDER AND CLOCK 9

General rule for time and work - General rule for work and wages - Speed - Unit of speed - Average speed - Some useful relations - Problems on Trains - Calendars and clocks - Odd days - Ordinary year - Leap year.

### UNIT IV: SIMPLE INTEREST, COMPOUND INTEREST AND ELEMENTARY ALGEBRA 9

Simple interest - Compound interest - Some useful relations - Difference between compound interest and simple interest - Short cut methods to solve special types of problems - Elementary Algebra and averages.

### UNIT V: POLYNOMIAL AND QUADRATIC EQUATIONS 9

Polynomial introduction - Degree of a polynomial - Types of polynomial - Operations on polynomial - Remainder and factor theorem - Quadratic equation - Pure Quadratic equation - Discriminant - Roots of the Quadratic equations - Solution of Quadratic equation - Framing of a Quadratic equation - Special types of roots.

**TOTAL: 45 PERIODS**



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## OUTCOMES

Upon completion of this course, the students will be able to :

- Use the basic concepts and techniques of the numbers, Highest common factor and Least common multiple.
- Apply the concept of decimal fraction and problems on ages.
- Apply the concept of time, work, distance, calender and clock.
- Acquire skills in simple interest, compound interest and elementary algebra.
- Be exposed to concepts and properties of polynomial and quadratic equations.

## TEXT BOOKS

1. Agarwal R.S., "Quantitative Aptitude", S.Chand & Company Ltd, New Delhi, 2012.
2. Dinesh Khattar, "Quantitative Aptitude for competitive examinations", Pearson India Education Services Pvt. Ltd, New Delhi, 2019.

## REFERENCES

1. Praveen R.V., "Quantitative Aptitude and Reasoning", PHI Learning Private Limited, Delhi, 2013.
2. Gupta P, "A unique Approach to Quantitative Aptitude ", Unique Publishers (I) Pvt. Ltd, New Delhi, 2017.

## E-RESOURCES

1. <https://youtube.com/playlist?list=RDQM5XI256aOq24>
2. <https://youtu.be/KE7tQf9spPg>



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19EEEC604

MINI PROJECT

LTPC  
0 0 2 1

**OBJECTIVES**

The main objective of this course is to:

- Design and fabrication of one or more components of a complete working model, which is designed by them.
- Ability to fabricate any components using different manufacturing tools.

**GUIDELINES FOR REVIEW AND EVALUATION**

The students may be grouped into 2 to 4 and work under a project supervisor. The device/system/component(s) to be fabricated may be decided in consultation with the supervisor and if possible with an industry. A project report to be submitted by the group and the fabricated model, which will be reviewed and evaluated for internal assessment by a committee constituted by the Head of the Department. At the end of the semester examination the project work is evaluated based on oral presentation and the project report jointly by external and internal examiners constituted by the Head of the Department.

**TOTAL: 60 PERIODS**

**OUTCOMES**

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

- Design and fabricate the machine element or the mechanical product.
- Demonstrate the working model of the machine element or the mechanical product.

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06/05/2021



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19MDC601

CONSTITUTION OF INDIA  
(Common to Civil, CSE, ECE, EEE & Mechanical)

L T P C  
3 0 0 0

## OBJECTIVES

The main objective of this course is to:

- Understand the meaning of the Constitution law and Constitutionalism.
- Realize the fundamental rights.
- Understand the execution powers of union and states bout.
- Be aware of the Constitutional powers.
- Acquaint with other Constitutional functionaries.

## UNIT I: INTRODUCTION

3

Meaning of the Constitution law and constitutionalism - Historical perspective of the Constitution of India - Preamble - Salient features and characteristics of the Constitution of India - Citizenship.

## UNIT II: FUNDAMENTAL RIGHTS

3

Scheme of the fundamental rights - The scheme of the fundamental duties and its legal status - The directive principles of state policy - Its importance and implementation.

## UNIT III: UNION AND STATE EXECUTIVE

3

Federal structure and distribution of legislative and financial powers between the Union and the States - Parliamentary form of Government in India - The Constitution powers and status of the President of India - Governor - Appointment, powers and functions.

## UNIT IV: CONSTITUTIONAL POWERS

3

Amendment of the Constitutional powers and procedure - The historical perspectives of the Constitutional amendments in India - Emergency provisions : National emergency, President rule, financial emergency.

## UNIT V: OTHER CONSTITUTIONAL FUNCTIONARIES

3

Election Commission of India: Organization, powers and functions, Union Public Service Commission, State Public Service Commission - Local Self Government.

TOTAL: 15 PERIODS

## OUTCOMES

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

- Understand the salient features and characteristics of the Constitution of India.
- Analyze the scheme of the fundamental rights and duties.
- Evaluate in detail the powers between the Union and the States.
- Know the concept of Constitutional powers.
- Recognize other Constitutional functionaries.



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## TEXT BOOKS

1. Introduction to the Constitution of India - Durga Das Basu.
2. Our Constitution by Subhash by C. Kashyap.

## REFERENCES

1. Indian Polity by Spectrum.
2. The Indian Constitution: Cornerstone of a Nation, by Granville Austin.

## E-RESOURCES

1. [https://www.youtube.com/watch?v=vq2Q1\\_v6TNU](https://www.youtube.com/watch?v=vq2Q1_v6TNU)
2. <https://www.india.gov.in/my-government/constitution-india/constitution-india-full-text>





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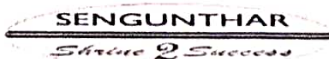
## FOURTH SEMESTER

Course Code	Name of the Subject	Category	Hours / Week			Credit	Maximum Marks		
			L	T	P		C	CIA	ESE
<b>EMPLOYABILITY ENHANCEMENT COURSES</b>									
19BAL401	Project Work	EEC	0	0	24	12	40	60	100
TOTAL CREDITS IN SEMESTER IV						12			

TOTAL NUMBER OF CREDITS: 86

*S. S. S.*

EEC :Employment Enhancement Courses, L : Lecture, T: Tutorial, P: Practical ,  
C : Credit Point , CIA : Continuous Internal Assessment, ESE : End Semester Examination, TOT : Total





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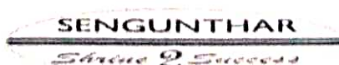


## THIRD SEMESTER

Course Code	Name of the Subject	Category	Hours / Week			Credit	Maximum Marks		
			L	T	P		C	CIA	ESE
<b>THEORY</b>									
19BAT301	International Business Management	PC	3	0	0	3	40	60	100
19BAT302	Strategic Management	PC	3	0	0	3	40	60	100
	Professional Elective I***	PE	3	0	0	3	40	60	100
	Professional Elective II***	PE	3	0	0	3	40	60	100
	Professional Elective III***	PE	3	0	0	3	40	60	100
	Professional Elective IV***	PE	3	0	0	3	40	60	100
	Professional Elective V***	PE	3	0	0	3	40	60	100
	Professional Elective VI***	PE	3	0	0	3	40	60	100
<b>EMPLOYABILITY ENHANCEMENT COURSES</b>									
19BAL303	Summer Training	EEC	0	0	2	1	40	60	100
<b>TOTAL CREDITS IN SEMESTER III</b>						<b>25</b>			

\*\*\*Chosen electives should be from two streams of management of three electives each.

PC: Professional Core, PE: Professional Elective, EEC: Employment Enhancement Courses, L : Lecture, T: Tutorial, P: Practical ,C :Credit Point , CIA : Continuous Internal Assessment, ESE : End Semester Examination, TOT : Total





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19BAL108

## SPOKEN AND WRITTEN COMMUNICATION

L T P C

0 0 4 2

### OBJECTIVE

- To familiarize learners with the mechanics of writing
- To enable learners to write in English precisely and effectively.
- To enable learners to speak fluently and flawlessly in all kinds of communicative contexts with all nationalities.

### UNIT I PERSONAL COMMUNICATION

12

Day-to-day conversation with family members, neighbours, relatives, friends on various topics, context specific - Journal writing, mails/emails, SMS, greeting cards, situation based - accepting/declining invitations, congratulating, consoling, conveying information, oral reports, extempore.

### UNIT II EMPLOYABILITY SKILLS

12

Interview skills - HR and technical - Types of interview, preparation for interview, mock interview, Group Discussion - Communication skills in Group Discussion, Structure of GD, GD process, successful GD techniques. Time management and effective planning - identifying barriers to effective time management, time management techniques, relationship between time management and stress management.

### UNIT III WORK PLACE COMMUNICATION

12

E-mails, minutes, reports of different kinds - annual report, status report, survey report, proposals, memorandums, presentations, interviews, profile of institutions, speeches, responding to enquiries, complaints, resumes, applications, summarizing, strategies for writing.

### UNIT IV RESEARCH WRITING

12

Articles for publication (Journals), developing questionnaire, writing abstract, dissertation, qualities of research writing, data (charts, tables) analysis, documentation.

### UNIT V WRITING FOR MEDIA AND CREATIVE WRITING

12

Features for publication (Newspapers, magazines, newsletters, notice board), case studies, short stories, travelogues, writing for children, translation, techniques of writing.

**TOTAL: 60 PERIODS**

Note: It is an activity based course. Student individually or as a group can organize event(s), present term papers etc. This will be evaluated by the faculty member(s) handling the course and the consolidated marks can be taken as the final mark.

No end semester examination is required for this course.

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## OUTCOMES

Learners should be able to

- Get into the habit of writing regularly.
- Express themselves in different genres of writing from creative to critical to factual writing.
- Take part in print and online media communication
- Read quite widely to acquire a style of writing
- Identify their area of strengths and weaknesses in writing.
- Speak confidently with any speakers of English, including native speakers.
- Speak effortlessly in different contexts - informal and formal.

## TEXT BOOKS

1. Raymond V Lesikar, John D Pettit, and Mary E Flatly, 2009. Lesikar's Basic Business Communication, 11<sup>th</sup> ed. Tata McGraw-Hill, New Delhi.
2. E.H. McGrath, S.J. 2012, Basic Managerial Skills for All. 9<sup>th</sup> ed. Prentice-Hall of India, New Delhi.

## REFERENCES

1. Richard Denny, 'Communication to Win; Kogan Page India Pvt. Ltd., New Delhi, 2008.

## E-RESOURCES

- Blogs : Seth Godwin, Guy Kawasaki, Kiruba Shankar  
Review : Harvard Business review  
Reports : Deloitte Netsis  
Magazines: Bloomberg Business week, Economist

*S. Shankar*

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SEC-M.B.A R2019- JULY 19



# SENGUNTHAR ENGINEERING COLLEGE (AUTONOMOUS)

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Recognized Under Section 2(f) & 12(B) of the UGC Act, 1956  
NAAC Accredited with 'A' Grade

TIRUCHENGODE - 637 205 NAMAKKAL (Dt) TAMILNADU



19EEC101

**LIFE SKILLS FOR ENGINEERS**  
(Employability Enhancement Course)  
(Common to Civil, CSE, ECE, EEE & Mechanical)

**L T P C**  
**0 0 2 0**

## OBJECTIVES

To enable the students to,

- Develop communication competence for engineers and enable them to convey thoughts and ideas with clarity and focus.
- Inculcate critical thinking process on problem solving.
- Have an overview on career skills required in their profession.
- Learn professional Ethics and Moral values.
- Lead a team with more responsibilities to be succeedin their endeavour.

### **UNIT I : COMMUNICATION SKILL** **6**

Introduction to Communication, The Process of Communication, Barriers to Communication, Listening Skills, Non-verbal Communication and Body Language, Interview Skills, Group Discussion, Presentation Skills, Technology-based Communication – Technical Presentation.

### **UNIT II : CRITICAL THINKING & PROBLEM SOLVING** **6**

Creativity, Lateral thinking, Critical thinking, Multiple Intelligence, Problem Solving, Mind Mapping & Analytical Thinking.

### **UNIT III : CAREER SKILLS** **6**

Introduction to Employability and Career Skills – developing a long-term career plan – making career changes – Time Management – General awareness of Current Affairs – Stress management – Leadership straits – Team work – Career planning.

### **UNIT IV : ETHICS MORAL & PROFESSIONAL VALUES** **6**

Human Values, Civic Rights, Engineering Ethics, Engineering as Social Experimentation, Environmental Ethics, Global Issues.

### **UNIT V : LEADERSHIP SKILLS** **6**

Leadership, Levels of Leadership, Making of a leader, Types of leadership, Transactions Vs Transformational Leadership, VUCA Leaders, DART Leadership, Leadership Grid & leadership Formulation.

**TOTAL : 30 PERIODS**



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19EEC201

**TECHNICAL SKILL (MULTIMEDIA)**  
(Employability Enhancement Course)

**L T P C**  
**0 0 2 0**

## OBJECTIVES

The main objective of this course is to,

- Explore the various multimedia editing tools like Flash and Photoshop.
- Know about the multimedia software tools and can interact with multimedia practically.
- Know the animation techniques in Flash.
- Enable to understand layers in Photoshop.
- Enhance the skills to do image processing.
- Exploit animations and games.

### LIST OF TECHNICAL SKILLS TO BE LEARNED

#### Flash:

1. To create an animation to represent the growing moon.
2. To create an animation to indicate a ball bouncing on steps.
3. To change a circle into a square using flash.
4. To display the background given(filename: tulip.jpg) through your name.
5. To draw the fan blades and to give proper animation.

#### Photoshop:

6. To Design a visiting card containing atleast one graphic and text information.
7. To prepare a cover page for the book in your subject area. plan your own design.
8. To adjust the brightness and contrast of the picture so that it gives an elegant look.
9. To use appropriate tool(s) from the toolbox, cut the objects from 3 files.  
(f1.jpg, f2.jpg & f3.jpg); organise them in a single file and apply feather effects.
10. Apply crop, canvas and clone tools in an image.

**TOTAL: 20 PERIODS**

## OUTCOMES

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

- Apply the tools on Photoshop.
- Create an application using Photoshop.
- Process the element using flash.
- Create animations.
- Understand the process of image processing.



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19EEC301

COMMUNICATION SKILLS

L T P C  
0 0 2 0

## OBJECTIVES

The purpose of learning this course is to

- Improve fluency in English through well developed vocabulary.
- Improve the oral communication skills.
- Focus the effective reading of general and technical text.
- Improve writing skill.
- Communicate ideas in group discussion and interviews.

## UNIT I : VOCABULARY

6

Vocabulary building – articulate ideas and thoughts; usage of palindromes, greetings, wishes, festival related words – homophones and homonyms – connotation – vocabulary words with sentences. – Idiomatic Expressions – One-word Substitutes.

Activities: Learn a word a week, Use newspaper to write unfamiliar words, Word association games.

## UNIT II : LISTENING

6

Listening Skill – Its importance – Purpose – Process– Types – Barriers – Effective Listening strategies – Listening and note-taking – Listening to telephonic conversations – Ted talks – Watching Inspiring Speech videos on You tube – Listening native speaker's videos for pronunciation.

Activities: Listen and draw the different scenes in a story, Secret Message games, watching videos and listing difficult words.

## UNIT III : SPEAKING

6

JAM Talk – Role play – Debate – Conversational skills (formal and informal) – Conversation practice – group discussion and interview skills – Introducing oneself and others – Presentation skills – Making presentations (individual and group) through seminars / PPTs.

Activities: Picture Description, Giving Directions and Guidelines, Making a short speech – Extempore.

## UNIT IV : READING

6

Strategies for effective reading (Guessing meanings from contexts – Scanning, skimming, inferring meaning and critical reading) – Read and recognize different text types ranging from newspaper articles, magazines, books, Technical articles and Reading autobiographies.



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19EEC302

**ENTREPRENEURSHIP DEVELOPMENT ACTIVITY**  
(Common to Civil,CSE,ECE,EEE & Mechanical)

**LT P C**  
**0 0 2 0**

## OBJECTIVES

The Objectives are enabling the students to,

- Evaluate social and civil responsibilities of business ownership.
- Describe typical behavioral characteristics of an effective entrepreneur.
- Develop a business plan, including identifying an executive summary; conducting a marketing and competitive analysis report; and developing a marketing, management, and financial plan.
- Determine career opportunities, responsibilities, and educational and credentialing requirements related to various entrepreneurship ventures.
- Interpret research data to determine market-driven problems faced by entrepreneurs.

## TOPICS TO BE COVERED

1. Should You Become an Entrepreneur?
  - Entrepreneurship: Present & Past
  - Is Entrepreneurship Right for You
  - Identify Business Opportunities & Set Goals
2. What Skills Do Entrepreneurs Need
  - Communication Skills
  - Math Skills
  - Problem Solving Skills
3. Entrepreneurs in a Market Economy
  - What is an Economy?
  - The Concept of Cost
  - Government in a Market Economy
4. Select a Type of Ownership
  - Run an Existing Business
  - Own a Franchise or Start a Business
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19MDC301

**LEADERSHIP ENHANCEMENT PROGRAMME**  
(Common to Civil, CSE, ECE, EEE & Mechanical)

**L T P C**  
**1 0 0 0**

## OBJECTIVES

The objective of the course is enabling the students to,

- Find new, innovative ways of developing and managing people.
- Develop new business opportunities.
- Tackle the broader societal issues the face.
- Key benefits of leadership skills in different situations.
- formulate and implement effective leadership strategies.

## TOPICS TO BE COVERED

1. Leadership for an Engineering students: Skills & Strategies.
2. Qualities of good leaders and 21 irrefutable laws of Leadership.
3. Empowering Others and Managing People.
4. Leading Meetings.
5. Leadership competencies and Leadership Styles.
6. Difference between a boss and a leader.
7. Leadership and Assertiveness Skills : A Good Leader, Leadership Theories, Leadership Behaviour , Assertiveness skills.
8. Leadership development opportunities and suggestions.
9. Teamwork and Leadership : Concept of teams , Building Effective teams, Concept of leadership and sharpening leadership skills.
10. Teamwork and Leadership Activities : Group discussion, Solving Puzzle as a team, describing a leadership style.

**TOTAL : 12 PERIODS**

## OUTCOMES

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

- Develop the capabilities needed to increase team's work productivity.
- Help to decrease employee turnover and increase engagement, creating a strong and united team.
- Develop communication skills, mastering the art of negotiation, influence and conflict management.
- More confident as a leader and find new ways of influencing the teams they lead.



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19EEC101

**LIFE SKILLS FOR ENGINEERS**  
(Employability Enhancement Course)  
(Common to Civil, CSE, ECE, EEE & Mechanical)

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19EEC201

**TECHNICAL SKILL (MULTIMEDIA)**  
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19EEC301

COMMUNICATION SKILLS

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19EEC302

**ENTREPRENEURSHIP DEVELOPMENT ACTIVITY**  
(Common to Civil,CSE,ECE,EEE & Mechanical)

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19MDC301

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## OBJECTIVES

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**TOTAL : 12 PERIODS**

## OUTCOMES

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

- Develop the capabilities needed to increase team's work productivity.
- Help to decrease employee turnover and increase engagement, creating a strong and united team.
- Develop communication skills, mastering the art of negotiation, influence and conflict management.
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19MDC401

## VALUE ADDED COURSE – I (PC HARDWARE AND TROUBLESHOOTING)

L T P C

- - - -

### OBJECTIVES

The main objective of the course is to,

- Explore the various hardware components on a computer.
- Know about graphics card and types of CPU.
- Enhance the knowledge in system diagnostics.
- Exploit the problem solving techniques.
- Learn the ways of assembling the PC.

### COURSE CONTENTS

1. Installation of Hardware Components and Identifying the Memory
2. Installing Graphics cards, USB and Configuring it for better performance
3. Virtual Memory Configuration
4. Registry Cleaner, Spyware Detector and Diagnosing Hardware failures
5. Configuring BIOS
6. Troubleshooting and Isolating Computer Problems
7. Working with Motherboard and CPU
8. Assembling Motherboard
9. Fault detection after assembling

### OUTCOMES

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

- Explore the various hardware components on a computer.
- Know the graphics card usage and types of CPU.
- Enhance the knowledge in system diagnostics.
- Exploit the problem solving techniques.
- Learn the ways of assembling the PC.



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**19PCJ301**

**PROJECT WORK (PHASE- I)**

**L T P C**

**0 0 12 6**

## OBJECTIVE:

- To identify a specific problem for the current need of the society and collecting information related to the same through detailed review of literature.
- To develop the methodology to solve the identified problem.
- To train the students in preparing project reports and to face reviews and viva-voce examination.

## SYLLABUS:

- The student individually works on a specific topic approved by faculty member who is familiar in this area of interest. The student can select any topic which is relevant to his/her specialization of the programmed. The topic may be experimental or analytical or case studies. At the end of the semester, a detailed report on the work done should be submitted which contains clear definition of the identified problem, detailed literature review related to the area of work and methodology for carrying out the work. The students will be evaluated through a viva-voce examination by a panel of examiners including one external examiner.

**TOTAL: 180 PERIODS**

## OUTCOME:

- At the end of the course the students will have a clear idea of his/her area of work and they are in a position to carry out the remaining phase II work in a systematic way.







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**19PCJ401**

**PROJECT WORK (PHASE - II)**

**L T P C**

**0 0 24 12**

## OBJECTIVE:

- To solve the identified problem based on the formulated methodology.
- To develop skills to analyze and discuss the test results, and make conclusions.

## SYLLABUS:

- The student should continue the phase I work on the selected topic as per the formulated methodology. At the end of the semester, after completing the work to the satisfaction of the supervisor and review committee, a detailed report should be prepared and submitted to the head of the department.
- The students will be evaluated through based on the report and the viva-voce examination by a panel of examiners including one external examiner.

**TOTAL: 360 PERIODS**

## OUTCOME:

- On completion of the project work students will be in a position to take up any challenging practical problem and find better solutions.





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19PCS201

TERM PAPER WRITING AND SEMINAR

L T P C  
0 0 2 1

In this course, students will develop their scientific and technical reading and writing skills that they need to understand and construct research articles. A term paper requires a student to obtain information from a variety of sources (i.e., Journals, dictionaries, reference books) and then place it in logically developed ideas. The work involves the following steps:

1. Selecting a subject, narrowing the subject into a topic
2. Stating an objective.
3. Collecting the relevant bibliography (atleast 15 journal papers)
4. Preparing a working outline.
5. Studying the papers and understanding the authors contributions and critically analysing each paper.
6. Preparing a working outline
7. Linking the papers and preparing a draft of the paper.
8. Preparing conclusions based on the reading of all the papers.
9. Writing the Final Paper and giving final Presentation

Please keep a file where the work carried out by you is maintained.

Activities to be carried out

Activity	Instructions	Submission week	Evaluation
Selection of area of interest and Topic	You are requested to select an area of interest, topic and state an objective	2 <sup>nd</sup> week	3 % Based on clarity of thought, current relevance and clarity in writing
Stating an Objective			