

**Physics Group (Sem-I)**

**COURSE WISE DETAILED  
CURRICULUM**

## FY101 Engineering Physics

**Lectures** : 3 Hrs/Week

**Credit** : 3

**Evaluation Scheme**

**ISE** : 40 Marks

**ESE** : 60 Marks

<b>Course Objectives:</b> The objective of the course is to		
1) provide the useful fundamental concepts of Physics to all Engineering disciplines. 2) make the student aware of new techniques in Physics applicable to engineering practices. 3) encourage them to understand engineering and technical development.		
<b>Course Outcomes:</b>		
<b>COs</b>	<b>At the end of successful completion of the course, the student will be able to</b>	<b>Blooms Taxonomy</b>
CO1	Summarize the knowledge of basic quantum mechanics to understand wave particle dualism and uncertainty principle.	Understand
CO2	Demonstrate the different crystal structure and their properties by understanding crystal physics.	Understand
CO3	Apply the theory and phenomenon of nanophysics to produce nanomaterials	Apply
CO4	Define the basic requirements of Architectural Acoustics	Remember
CO5	Illustrate the different phenomenon of light.	Understand
CO6	Explain the concepts and applications of LASER and necessary tools for nuclear power plant.	Understand

<b>Description:</b>		
Engineering Physics course is offered as the basic science course. This course contains crystal structures and their properties, Approaches and techniques of nanomaterial and nanotechnology, Basic concepts of Architectural acoustics, Different phenomenon's of light, wave –particle dualism and uncertainty principle and nuclear energy. These are useful fundamental concepts of Physics to all Engineering disciplines and to make the student aware of new techniques in Physics applicable to engineering practices.		
<b>Prerequisites:</b>	1:	Fundamentals of properties of wave and particle and types of the solid.
	2:	Different phenomenon of light and sound.
	3:	Basics of Atomic Physics and Nuclear energy

Section – I		
Unit 1	<b>Wave Mechanics</b>	
	Introduction, Wave-particle dualism (De-Broglie's Hypothesis -light and matter), De-Broglie's wavelength in terms of Kinetic Energy, Potential Difference and Temperature, Properties of matter waves, Heisenberg's uncertainty principle for position and momentum, Compton Effect (statement, explanation and formula), Photoelectric Effect, Numerical.	06 Hrs
Unit 2	<b>Crystallography</b>	
	Introduction, Basics of crystal structure -Space Lattice, Basis, crystalline solid and Unit cell (geometry and types), Seven crystal system, Properties of unit cell for SC, BCC and FCC (number of atoms per unit cell, coordination number, atomic radius and packing density), Relation between density and lattice constant, Miller indices (procedure and sketches for planes), Bragg's x-ray spectrometer, Numerical.	07 Hrs
Unit 3	<b>Nanoscience and Nanotechnology</b>	
	Introduction, Nanomaterials, Nanoscience and Nanotechnology, Top down and bottom up approaches, Production techniques - Ball milling and Colloidal, Types of nanomaterial, Properties of material at nanoscale (Surface to Volume ratio and Quantum confinement effect), Applications of nanomaterials, Characterizations - Scanning Tunneling Microscope and Atomic Force Microscope.	06 Hrs
Section – II		
Unit 4	<b>Architectural Acoustics</b>	
	Introduction, Reverberation, Reverberation time, Absorption coefficient, Average absorption coefficient, Sabine's formula for reverberation time (no derivation), Factors affecting architectural acoustics and their remedy, Numerical.	06 Hrs
Unit 5	<b>Wave Optics</b>	
	Introduction, Theories of light, Interference of light and types, Diffraction of light and types, Construction of diffraction grating, Theory of fraunhofer diffraction by double slit, Resolving power of plane transmission grating, Polarization of light, double refraction, Huygens' theory of double refraction, Specific Rotation, Quarter wave plate and half wave plate, Laurent's half shade polarimeter, Numerical.	07 Hrs

<b>Unit 6</b>	<b>LASER and Nuclear Physics</b>														
	<b>LASER:</b> Introduction, Absorption, spontaneous emission and stimulated emission of radiations, Population inversion, Pumping energy, Characteristics of laser beams, Ruby laser. <b>Nuclear Physics:</b> Introduction, Nuclear Fission, Energy released by 1 Kg of U235, Nuclear fission reactor, Nuclear fusion, Thermonuclear reactions (proton-proton chain and Carbon Nitrogen cycle), Numerical.													<b>07 Hrs</b>	

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1	2	1													
CO2	2	1	1									1			
CO3	2	1	1									1			
CO4	2	1	1									1			
CO5	2	1	1									1			
CO6	2	1										1			

### References:

Text Books	
1	M. N. Avadhanulu and P. G. Kshirsagar, "A Text book of Engineering Physics", S.Chand and Company, New Delhi.
2	R. K. Gaur and S. L. Gupta "Engineering Physics", Dhanpat Rai Publications, New Delhi.
Reference Books	
1	R. K. Gaur & Gupta S. L, Engineering Physics –Dhanapat Rai Publication
2	B. L. Theraja -Modern Physics - S. Chand & Company Ltd., Delhi
3	Subramanyam & BrijLal, A Text Book of Optics –S. Chand & Company (P.) Ltd.
4	M. N. Avadhanulu & P. G. Kshirsagar - A Text Book of Engineering Physics -S. Chand Publication.
5	B. K. Pandey and S. Chaturvedi- Engineering Physics, Cengage Learning

**Web Links/ Video Lectures**

<b>Sr. No</b>	<b>Unit No./Topic</b>	<b>Web Links/ Video Lectures</b>
1	Unit No. 1	<a href="https://nptel.ac.in/courses/115/101/115101010/">https://nptel.ac.in/courses/115/101/115101010/</a>
2	Unit No. 2	<a href="https://nptel.ac.in/courses/115/104/115104109/">https://nptel.ac.in/courses/115/104/115104109/</a>
3	Unit No. 2	<a href="https://nptel.ac.in/courses/115/105/115105099/">https://nptel.ac.in/courses/115/105/115105099/</a>
4	Unit No. 3	<a href="https://nptel.ac.in/courses/115/101/115101007/">https://nptel.ac.in/courses/115/101/115101007/</a>
5	Unit No. 5	<a href="https://nptel.ac.in/courses/115/105/115105083/">https://nptel.ac.in/courses/115/105/115105083/</a>
6	Unit No. 6	<a href="https://nptel.ac.in/courses/115/102/115102124/">https://nptel.ac.in/courses/115/102/115102124/</a>
7	Unit No. 6	<a href="https://nptel.ac.in/courses/115/104/115104043/">https://nptel.ac.in/courses/115/104/115104043/</a>
8	Physics	<a href="http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html">http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html</a>
9	Physics	<a href="https://en.wikipedia.org/wiki/Fundamentals_of_Physics">https://en.wikipedia.org/wiki/Fundamentals_of_Physics</a>

## FY103 Engineering Mathematics-I

**Lectures** : 3 Hrs/Week

**Credit** : 3

**Evaluation Scheme**

**ISE** : 40 Marks

**ESE** : 60 Marks

**Course Objectives:** The objective of the course is to

- 1) provide detailed of matrices which is applied for solving system of linear equations and useful in various fields of technology
- 2) learn the concept of imaginary numbers and gives awareness about algebra of complex numbers which helps in understanding of engineering subjects like electrical circuits, Electromagnetic wave theory, and complex analysis etc.
- 3) build ability to solve numerically system of linear equations, algebraic and transcendental equations.
- 4) This course enables to provide an overview of partial derivatives and its applications which is used for solving optimization problems and concepts is needed in study of wave, heat equation of various orders and also in calculation of errors in various engineering subjects.

**Course Outcomes:**

COs	At the end of successful completion of the course, the student will be able to	Blooms Taxonomy
CO1	Find rank of matrix and solve system of linear equations.	Remember, Understand
CO2	find characteristic equation and use it to find eigen value, eigen vector, higher power and inverse (if it exists) of square matrix.	Understand Apply
CO3	Use De Moivre's Theorem to find roots of complex numbers and express $\sin n\theta$ and $\cos n\theta$ in powers of $\sin\theta$ and $\cos\theta$	Apply
CO4	estimating the value of a function for the given value of the independent variable	Evaluating
CO5	Solve system of linear equations using numerical methods	Apply
CO6	Calculate partial derivative and apply it to find extreme values of function of two variable	Understanding, Evaluation

**Description:**

Engineering Mathematics-I course is offered as the basic science course. This course contains Mathematical methods and techniques that are typically used in engineering to solve complex engineering problems. This course has six units namely i) Matrices and Solution of Linear System Equations ii) Eigen Values and Eigen vectors, iii) Complex Numbers, iv) Numerical Solution of linear simultaneous equations, v) Finite Differences, vi) Partial Differentiation and its Application

<b>Prerequisites:</b>	1:	Determinant, Matrix algebra
	2:	Basic knowledge of complex numbers
	3:	Differentiation and integration formulae.
<b>Section – I</b>		
<b>Unit 1</b>	<b>Matrices and Solution of Linear System Equations</b>	
	Rank of matrix: Definition, Normal form and echelon form, System of linear homogeneous equations, System of linear Non-homogeneous equations	<b>06 Hrs</b>
<b>Unit 2</b>	<b>Eigen Values and Eigen vectors</b>	
	Eigen Values , Properties of Eigen Values, Eigen vectors, Properties of Eigen vectors, Cayley-Hamilton's theorem (Without proof)	<b>06 Hrs</b>
<b>Unit 3</b>	<b>Complex Numbers</b>	
	De Moivre's Theorem (Without proof), Roots of complex numbers by using De Moivre's Theorem, Expansion of $\sin n\theta$ and $\cos n\theta$ in powers of $\sin\theta$ and /or $\cos\theta$ , Circular functions of a complex variable, Hyperbolic and Inverse Hyperbolic Functions- definitions .	<b>07Hrs</b>
<b>Section – II</b>		
<b>Unit 4</b>	<b>Finite Differences</b>	
	Forward & Backward difference operator, Shift operator, Interpolation & Extrapolation Methods , Newton's formulae (Equal intervals), Lagrange's formulae (Unequal intervals).	<b>06Hrs</b>
<b>Unit 5</b>	<b>Numerical Solution of linear simultaneous equations</b>	
	Gauss elimination method, Gauss-Jordan method, Jacobi's iteration method, Gauss-Seidel iteration method.	<b>06 Hrs</b>
<b>Unit 6</b>	<b>Partial Differentiation and its Application</b>	
	Partial derivatives: Introduction, Total derivatives, Euler's theorem on homogeneous function of two variables, Jacobian and its Properties, Maxima and Minima of functions of two variables	<b>08 Hrs</b>

**Note-**Minimum 06 Assignments should be given covering all units

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1	2	1													
CO2	2	1													
CO3	2	1													
CO4	2	1													
CO5	2	1													
CO6	2	1													

### References:

Text Books	
1	Higher Engineering Mathematics by Dr. B. S. Grewal, Khanna Publishers, Delhi.
2	A text book of Engineering Mathematics by N. P. Bali, Iyengar, Laxmi Publications (P) Ltd., New Delhi.
3	Engineering Mathematics I , G. V. Kumbhojkar, H. V. Kumbhojkar, C. Jamnadas & Co.
Reference Books	
1	A text book of Applied Mathematics, Vol.I, Vol. II, Vol. III by P. N. Wartikar& J. N. Wartikar, Pune Vidyarthi Griha Prakashan, Pune.
2	Numerical methods by Dr. B. S. Grewal, Khanna Publishers, Delhi.
3	Advanced Engineering Mathematics by Erwin Kreyszig, Wiley India Pvt. Ltd.
4	Advanced Engineering Mathematics by H. K. Dass, S. Chand, New Delhi.
5	A text book of Engineering Mathematics Volume I by Peter V. O'Neil and Santosh K.Sengar, Cengage Learning.

### Web Links/ Video Lectures

Sr. No	Unit No.	Web Links/ Video Lectures
1	1	<a href="https://nptel.ac.in/courses/111/107/111107112/">https://nptel.ac.in/courses/111/107/111107112/</a>
2	2	<a href="https://nptel.ac.in/courses/111/105/111105121/">https://nptel.ac.in/courses/111/105/111105121/</a>
3	5	<a href="https://nptel.ac.in/courses/111/107/111107105/">https://nptel.ac.in/courses/111/107/111107105/</a>
4	5	<a href="https://nptel.ac.in/courses/111/106/111106101/">https://nptel.ac.in/courses/111/106/111106101/</a>
5	6	<a href="https://nptel.ac.in/courses/111/107/111107108/">https://nptel.ac.in/courses/111/107/111107108/</a>



## FY105 Basic Electrical and Electronics Engineering

**Lectures** : 2 Hrs/Week

**Credit** : 2

**Evaluation Scheme**

**ISE** : 40 Marks

**ESE** : 60 Marks

<b>Course Objectives:</b> The objective of the course is to		
Provide the Knowledge with an introductory and broad treatment in the field of Electrical and Electronics Engineering.		
<b>Course Outcomes:</b>		
<b>COs</b>	<b>At the end of successful completion of the course, the student will be able to</b>	<b>Blooms Taxonomy</b>
CO1	Define and describe the various Parameters of Electrical and Electronics circuits.	Knowledge
CO2	Distinguish similarities and dissimilarities between Electric and magnetic circuit.	Compression
CO3	Apply the Kirchhoff's Law to the DC circuits for identifying the currents and voltage drops across each element.	Apply Analysis
CO4	Analyze the nature of AC Series circuits by determining various parameters like Impedance, power and power factor.	Analysis
CO5	Differentiate the Star and Delta connection in Three phase AC system in terms of Line and phase quantities.	Analysis
CO6	Determine the voltage and currents at primary and secondary levels to identify the various applications of Transformer.	Evaluation

<b>Description:</b>		
Basic Electrical & Electronics Engineering course is offered as the engineering science course. This course contains. Basic knowledge of Electrical & Electronics engineering and its advantages, applications. This course has six units namely i) Analysis of D.C. Circuits, ii) Magnetic circuits, iii) Fundamentals of electronics iv) Single phase AC circuits, v) Three phase AC circuits, vi). Single phase Transformer		
<b>Prerequisites:</b>	1:	Battery, Potential difference and current flow concept.
	2:	Few basic electrical and Electronics components identification
	3:	Difference between AC & DC circuits
<b>Section – I</b>		
<b>Unit 1</b>	<b>Analysis of D.C. Circuits</b>	
	Concept of EMF, Potential difference, current, Power, Energy, Resistance, Ohms law,	



**References:**

<b>Text Books</b>	
1)	P.V.Prasad and S.Shivan Raju – Electrical Engineering Concepts and applications – cenagage learning.
2)	B.H.Deshmukh, Electrical Engineering Concepts and applications
3)	Robert L.Boysted and Louis Nashelsky ,Electronics devices and circuit theory – Pearson education
<b>Reference Books</b>	
1)	B.L.Theraja – Electrical Technology Vol.1.- S.Chand publications.
2)	Nagarath I.J. and D.P.Kothari – Basic Electrical Engineering (2001) – Tata McGraw Hill.
3)	Bharati Dwivedi and Anurasg Tripathi – Fundamentals of Electrical engineering – Willey Precise.

**Web Links/ Video Lectures**

Sr. No	Unit No.	Web Links/ Video Lectures
1	1	<a href="https://nptel.ac.in/courses/108/106/108106172/">https://nptel.ac.in/courses/108/106/108106172/</a>
2	2	<a href="https://nptel.ac.in/courses/108/106/108106172/">https://nptel.ac.in/courses/108/106/108106172/</a>
3	3	<a href="https://nptel.ac.in/courses/108/108/108108122/">https://nptel.ac.in/courses/108/108/108108122/</a>
4	4	<a href="https://nptel.ac.in/courses/108/105/108105053/">https://nptel.ac.in/courses/108/105/108105053/</a>
5	5	<a href="https://nptel.ac.in/courses/108/105/108105053/">https://nptel.ac.in/courses/108/105/108105053/</a>
6	6	<a href="https://nptel.ac.in/courses/108/105/108105017/">https://nptel.ac.in/courses/108/105/108105017/</a>

## FY106 Basic Civil Engineering

**Lectures** : 2 Hrs/Week

**Credit** : 2

**Evaluation Scheme**

**ISE** : 40 Marks

**ESE** : 60 Marks

**Course Objectives:** The objective of the course is to

1. learn the brief introduction of all aspects under civil engineering
2. understand basic concepts of Surveying, Transportation Engineering

**Course Outcomes:**

COs	At the end of successful completion of the course, the student will be able to	Blooms Taxonomy
CO1	Demonstrate basic knowledge in different fields of Civil Engineering	Knowledge
CO2	Apply principles of planning, building Bye laws	Applying
CO3	Explain various uses and properties of building materials and also types of loads acting on building	Understand
CO4	Illustrate linear and angular measurements by considering principles and significance of Surveying	Analyzing
CO5	Identify nature of ground by using methods of leveling	Evaluating
CO6	List components of pavements, railway track and water supply scheme	Understand

**Description:**

This course include principles of building planning, building components and their functions, building materials, surveying and its principles, leveling transportation engineering, irrigation

<b>Prerequisites:</b>	1:	Properties of materials
	2:	Measurements
	3:	Principles

### Section – I

<b>Unit 1</b>	<b>Introduction to Civil Engineering and Building Planning</b>	
	Introduction, branches of civil engineering , Relevance of civil engineering in the overall development of the country, Principles of planning, Introduction to Bye-Laws regarding building line, height of building, open	<b>05Hrs</b>



**References:**

<b>Text Books</b>	
1	Basic Civil Engineering by G. K. Hiraskar, Dhanpat Rai Publication
2	Basic Civil Engineering by S. S. Bhavikatti, New Age International Publications
3	Building Construction by S P Arora & S P Bindra, Dhanpat Rai Publications
<b>Reference Books</b>	
1	Surveying by N. Basak, Tata Mc-Graw Hill Publication
2	Surveying Vol.I, Vol.II, Vol.III by B.C. Punmia, Laxmi Publication
3	Civil Engineering Materials - Technical Teacher's Training Institute, Chandigarh
4	Irrigation Engineering by B. C. Punmia, Dhanpat Rai Publications

**Web Links/ Video Lectures**

<b>Sr. No</b>	<b>Unit No.</b>	<b>Web Links/ Video Lectures</b>
1	1	<a href="https://nptel.ac.in/courses/105/103/105103093/">https://nptel.ac.in/courses/105/103/105103093/</a>
2	2	<a href="https://nptel.ac.in/courses/105/102/105102088/">https://nptel.ac.in/courses/105/102/105102088/</a>
3	3	<a href="https://nptel.ac.in/courses/105/102/105102088/">https://nptel.ac.in/courses/105/102/105102088/</a>
4	4	<a href="https://nptel.ac.in/courses/105/107/105107122/">https://nptel.ac.in/courses/105/107/105107122/</a>
5	5	<a href="https://nptel.ac.in/courses/105/107/105107122/">https://nptel.ac.in/courses/105/107/105107122/</a>
6	6	<a href="https://nptel.ac.in/courses/105/101/105101087/">https://nptel.ac.in/courses/105/101/105101087/</a>

## FY107 Computer Aided Engineering Drawing

**Lectures** : 2 Hrs/Week

**Credit** : 2

**Evaluation Scheme**

**ISE** : 40 Marks

**ESE** : 60 Marks

<b>Course Objectives:</b> The objective of the course is to		
1) Provide the basic knowledge of engineering drawing to visualize the objects. 2) Deliver the basic commands for drawing using AutoCAD.		
<b>Course Outcomes:</b>		
<b>COs</b>	<b>At the end of successful completion of the course, the student will be able to</b>	<b>Blooms Taxonomy</b>
CO1	Demonstrate drawings on AutoCAD	Understand
CO2	Draw the neat drawings of various curves, points, straight lines and planes.	Knowledge
CO3	Classify Solids and Projection of solids at different Positions.	Evaluation
CO4	Visualize and construct orthographic projection to represent in two-dimensional views.	Knowledge, Application
CO5	Creating neat Sketch isometric drawings of regular planes and solids.	Knowledge, Creating
CO6	Construct the objects by developing surfaces of solids with cutting planes.	Knowledge

<b>Description:</b>		
Computer Aided Engineering Drawing Course consists of engineering drawing of Projections of Planes and Solids, Sections of solids & Development of surfaces, Orthographic Projections, Isometric projections along with introduction to computer aided sketching		
<b>Prerequisites:</b>	1:	Knowledge of Geometry at SSC Level
	2:	Knowledge of free hand sketch
<b>Section – I</b>		
<b>Unit 1</b>	<b>Fundamentals of Engineering Drawing and Introduction to Computer Aided Sketching</b>	
	A) Introduction, Instruments for drawing, sheet sizes, Types of different types of lines, Dimensioning. Construction of regular polygons (Up to hexagon). Ellipse, Parabola and hyperbola.  B) Graphical user interface of the CAD software, standard tool bars/menus and description of most commonly used tool bars, navigational tools. Study and use of drawing and modify commands.	<b>05Hrs</b>

<b>Unit 2</b>	<b>Projection of planes (1st Angle Projection only)</b>	
	Orthographic projection system, First and Third angle projection methods, Concept of Projection – points, lines Projection of planes (regular polygons and circle) inclined to both HRP and FRP	<b>05Hrs</b>
<b>Unit 3</b>	<b>Projections of Solids</b>	
	Projection of Solids such as Prisms, pyramids, cylinder and cone with their axis inclined to both the reference planes.(Only rest on HP)	<b>04Hrs</b>
<b>Section – II</b>		
<b>Unit 4</b>	<b>Orthographic Projections</b>	
	Orthographic views: Lines used, Selection of views, spacing of views, dimensioning and sections. Required views from given pictorial views (Conversion of pictorial view into orthographic view) including sectional orthographic view.	<b>04Hrs</b>
<b>Unit 5</b>	<b>Isometric Projections</b>	
	Introduction to isometric, Isometric scale, Isometric projections and Isometric views / drawings. Circles in isometric view. Isometric views of simple solids and objects.).	<b>04Hrs</b>
<b>Unit 6</b>	<b>Sections of solids &amp; Development of surfaces</b>	
	Sections of solids (Simple positions and axis inclined to one plane and parallel to other) and Development of plane and curved lateral surfaces: Prisms, Pyramids, Cylinders and Cones (cutting planes specified).	<b>04Hrs</b>

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1	3	2								2					
CO2	2	2								1					
CO3	3	2								2					
CO4	2	1								1					
CO5	2	1								1					
CO6	3	2								2					



**References:**

Text Books	
1	Engineering Drawing by N. D. Bhatt, Charotar Publication House, Bombay
2	Machine Drawing by N. D. Bhatt, Charotar Publication House, Bombay.
3	Engineering Drawing and Graphics Using AutoCAD by T. Jeyapoovan, Vikas Publication.
4	A text book of Engineering Drawing by R. K. Dhawan, S. Chand and Co.
Reference Books	
1	Engineering Graphics with AutoCAD - D. M. Kulkarni, A. P. Rastogi, A. K. Sarkar, (PHI) Publisher 2010.
2	Machine Drawing by K. L. Narayana, New Age Publication
3	Engineering Drawing by N. B. Shaha and B. C. Rana, Pearson Education.
4	Engineering Drawing by Prof. Amar Pathak, WILEY India Publication.

**Web Links/ Video Lectures**

Sr. No	Unit No.	Web Links/ Video Lectures
1	1	<a href="http://nptel.ac.in/courses/112/104/112104172/">http://nptel.ac.in/courses/112/104/112104172/</a>
2	2	<a href="http://nptel.ac.in/courses/112/104/112104172/">http://nptel.ac.in/courses/112/104/112104172/</a>
3	3	<a href="http://nptel.ac.in/courses/112/104/112104172/">http://nptel.ac.in/courses/112/104/112104172/</a>
4	4	<a href="http://nptel.ac.in/courses/112/104/112104172/">http://nptel.ac.in/courses/112/104/112104172/</a>
5	5	<a href="http://nptel.ac.in/courses/112/104/112104172/">http://nptel.ac.in/courses/112/104/112104172/</a>
6	6	<a href="http://nptel.ac.in/courses/112/104/112104172/">http://nptel.ac.in/courses/112/104/112104172/</a>
7	4	<a href="http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php">http://vlabs.iitb.ac.in/vlabs-dev/labs/mit_bootcamp/egraphics_lab/labs/index.php</a>

## FY104 Professional Communication

**Lectures** : 01 Hrs/Week

**Evaluation Scheme**

**Credit** : 1

**ISE** : 50 Marks

**ESE** : NA

**Course Objectives:** The objective of the course is to

- 1) acquaint students with basic English Grammar and help students in improving language skills
- 2) familiarize students with concept, various types, barriers and filters of communication
- 3) assist students in developing Vocabulary
- 4) aid them in understanding corporate meetings
- 5) train the students to compose and write the business letters effectively

**Course Outcomes:**

COs	At the end of successful completion of the course, the student will be able to	Blooms Taxonomy
CO1	formulate grammatical sentences correctly	Understand
CO2	Classify and compare types of communication.	Understand
CO3	Use various communicative techniques to participate in several activities	Apply
CO4	Understand and use vocabulary effectively	Understand Apply
CO5	Use interpersonal skills with precision and competence in different scenario.	Apply
CO6	Display standard writing skills while composing business letters	Create

**Description:**

In the era of globalization, the most commonly used medium to express oneself is English language, especially in the industry, where almost all the service manuals, installation and commissioning manuals of the various equipment are in English and the technologist has to interpret them correctly. English is the dire need, not only for the Indian industry, but also worldwide, where the Engineering Graduates have the opportunity to take up jobs. Therefore, the basic English reading and writing skills have become almost mandatory for employment in the industry. Hence, English language has become quite a necessity for engineering students. This course is therefore designed to help the students to learn the correct grammatical structures and use the relevant vocabulary while reading and writing. Also introduce the communication theory, report writing & business correspondence to them.

<b>Prerequisites:</b>	1:	Basic Knowledge of English Grammar
	2:	Reading and Listening Comprehension
	3:	Basic knowledge of Writing Skills

<b>Unit 1</b>	<b>Rapid Review of English Grammar</b>	
	Parts of Speech Types of Sentences, Tenses / Verbal forms	<b>02 Hrs</b>
<b>Unit 2</b>	<b>Introduction to Communication</b>	
	Nature, Importance and Process of Communication Basic Types: Verbal- Non- verbal Communication Barriers & Filters to Communication	<b>02 Hrs</b>
<b>Unit 3</b>	<b>Organizational Communication</b>	
	Nature of Communication.-Formal & Informal Directions of Communication: Upward, Downward, Horizontal, Internal, External Levels of Communication	<b>02 Hrs</b>
<b>Unit 4</b>	<b>Vocabulary Building</b>	
	Synonyms & Antonyms, Prefixes and Suffixes Words often Confused: Homonym & Homophone Idioms and Phrases	<b>02 Hrs</b>
<b>Unit 5</b>	<b>Corporate Meetings</b>	
	Significance and Types of Meeting Strategies of Conducting and Attending Meeting Effectively Record Keeping: Notice, Agenda and Minutes	<b>02 Hrs</b>
<b>Unit 6</b>	<b>Business Correspondence</b>	
	Importance of Correspondence & Elements of Letter Writing Structure or Layouts (American & British) Letter Writing: Simple application letters (Applications for various occasions etc.), Letters: Inquiry, Order Placement, Complaint and its Adjustment, Invitation Letter	<b>04 Hrs</b>

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1							2								
CO2						2	2			2					
CO3							2			2					
CO4						2	2			2		2			
CO5							2								
CO6							2								

**References:**

Recommended Books	
01	Communication Skills by Meenakshi Raman and Sangeeta Sharma, Oxford University Press 2016 1st Edition.
02	Communication Skills for Engineers by S. Mishra & C. Muralikrishna (Pearson)
03	Basic Communication Skills for Technology by Rutherford, Andrea J. (2002).. Delhi: Pearson Education Asia
04	Mastering Communication by Nicky Stanton, Palgrave Master Series
05	Comfort, Jeremy, et al. (2011) Speaking Effectively: Developing Speaking Skills for Business English. Cambridge: Cambridge University Press. (Reprint)
06	Sharma, R. C. and Krishna Mohan, Basic Correspondence and Report Writing: A Practical Approach to Business and Technical Communication, Tata McGraw-Hill Publishing Company Limited, India ,5th Edition, 2017
07	Written Communication in English by Saran Freeman (Orient Longman)
08	Seely, J. The Oxford Guide to Writing and Speaking, Oxford University Press, India 3rd Edition , 2013
09	High School English Grammar and Composition by Wren and Martin, Blackie, 2000
10	Essential English Grammar (Elementary & Intermediate) Raymond Murphy (CUP)
11	Sethi, J. and Dhamija P.V. A Course in Phonetics and Spoken English Prentice-Hall of India 2nd Edition, 2006
12	English Language Laboratories, by Nira Konar, PHI Learning, 2014
13	Perspective of Communication and Communicative Competence, M.V. Rodrigues, Concept Publishing Company, New Delhi-10059

**Web Links/ Video Lectures**

Sr. No	Unit No.	Web Links/ Video Lectures
1	1	<a href="https://ismailabdi.files.wordpress.com/2018/02/basic-english-grammar.pdf">https://ismailabdi.files.wordpress.com/2018/02/basic-english-grammar.pdf</a> <a href="https://2qdocg2za8g336a8w21fo83z-wpengine.netdna-ssl.com/wp-content/uploads/2014/06/Free-English-Grammar-Book-Level-1.pdf">https://2qdocg2za8g336a8w21fo83z-wpengine.netdna-ssl.com/wp-content/uploads/2014/06/Free-English-Grammar-Book-Level-1.pdf</a>
2	2	<a href="https://www.toppr.com/guides/business_studies/directing/communication/">https://www.toppr.com/guides/business_studies/directing/communication/</a>
3	3	<a href="https://www.manage.gov.in/studymaterial/ec.pdf">https://www.manage.gov.in/studymaterial/ec.pdf</a> <a href="http://aditi.du.ac.in/uploads/econtent/communication_flows1.pdf">http://aditi.du.ac.in/uploads/econtent/communication_flows1.pdf</a>
4	4	<a href="https://www.teachingenglish.org.uk/article/vocabulary-activities">https://www.teachingenglish.org.uk/article/vocabulary-activities</a>
5	5	<a href="https://www.managementstudyguide.com/meeting-etiquette.html">https://www.managementstudyguide.com/meeting-etiquette.html</a>
6	6	<a href="https://bcastudyguide.wordpress.com/unit-4-business-letters-reports/">https://bcastudyguide.wordpress.com/unit-4-business-letters-reports/</a>

## FY101T Engineering Physics Lab

**Practical** : 2 hr/week

**Credit** : 1

**Evaluation Scheme**

**ISA** : 25 Marks

**POE** : NA

**Course Objectives:** The objective of the course is to

- 1) furnish the conceptual understanding of the basic principles.
- 2) make the students gain practical knowledge to co-relate with the Physics theory.
- 3) encourage them to understand engineering and technical development.
- 4) achieve perfectness in experimental skills and the study of practical applications will bring more
- 5) confidence and ability to develop the skills needed to set up the equipment.

**Course Outcomes:**

COs	At the end of successful completion of the course, the student will be able to	Blooms Taxonomy
CO1	Explain the need for precise measurement practices for data recording.	Understand
CO2	Interpret the principle, concept, working and applications of relevant technologies and compare the results with theoretical calculations.	Understand
CO3	Build basic communication skills through working in groups in performing the Engineering Physics laboratory experiments and by interpreting the results.	Apply
CO4	Assume the techniques and skills associated with modern scientific tools.	Analyze

**Description:**

The aim of this course is to make the students gain practical knowledge to co-relate with the theoretical studies and to use the principle in the right way to implement the modern technology.

The experiments are selected from various areas of Physics like Measurements, Wave Optics, Lasers, Solid state physics and Basic Electronics. Engineering Physics Laboratory manual is written in a simple scientific language with aim, apparatus, theory, diagrams, formula, graph and questions. These experiments will help the students to expertise in the analysis of various concepts in Optics, measurements, crystallography and Electronics related topics.

<b>Prerequisites:</b>	1:	Higher secondary level Physics
	2:	Fundamentals of wave optics and crystal.

**Practical/ Experiment Topic**  
**(Minimum 8 experiments should be completed)**

<b>Number</b>	<b>Practical/ Experiment/Tutorial Topic</b>	<b>Hrs.</b>	<b>Cognitive levels of attainment as per Bloom's</b>
1	Measurements in Physics	02	Remember
2	Resistor and Capacitor Code	02	Remember
3	Measurement of Band Gap Energy	02	Understand
4	Study of seven Crystal Structure, Bravais Lattice and Properties of unit cell	02	Apply
5	Study of Symmetry Elements of Cubic Crystal	02	Apply
6	Determination of Interplaner distance using XRD pattern	02	Analyze
7	Miller Indices	02	Analyze
8	Divergence of LASER Beam	02	Apply
9	Resolving power of Telescope	02	Apply
10	Specific rotation by Polarimeter	02	Apply
11	Wavelength of different spectral lines of mercury using grating.	02	Analyze
12	Determination of wavelength of LASER using diffraction grating.	02	Analyze
13	Grating constant of diffraction grating	02	Apply
14	Determination of $e/m$ of an electron	02	Apply
15	Resolving power of diffraction grating	02	Apply

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1	2									1		1			
CO2	2	1								1		1			
CO3	2									2		1			
CO4	2	1										1			

### References:

Text Books	
1	Engineering Physics Lab Manual, TKIET Warananagar
2	Madhusudhan Rao, Engineering Physics Lab Manual, Scitech Publication
3	O.P. Singh, Vipin Kumar, R.P. Singh, Engineering Physics Practical Manual, Ram Prasad Publication
Reference Books	
1	Resnick Halliday, Physics Volume-I, Krane -John Wiley & Sons Pub.
2	Resnick Halliday, Physics Volume-II, Krane -John Wiley & Sons Pub.

### Virtual Lab Link :

- Experiment name-** Diffraction Grating (**Lab Name-** Optics virtual lab)  
<http://vlab.amrita.edu/?sub=1&brch=281&sim=334&cnt=1>
- Experiment name-** Crystal Structure (**Lab Name-** solid state physics virtual lab )  
<http://vlab.amrita.edu/?sub=1&brch=282&sim=370&cnt=1>
- Experiment name-** Laser beam divergence and spot size (**Lab Name-** laser optics virtual lab)  
<http://vlab.amrita.edu/?sub=1&brch=189&sim=342&cnt=1>
- Experiment name-** Numerical Aperture of Optical Fiber (**Lab Name-** laser optics virtual lab)  
<http://vlab.amrita.edu/?sub=1&brch=189&sim=343&cnt=1>
- Experiment name-** B-H Curve (**Lab Name-** solid state physics virtual lab )  
<http://vlab.amrita.edu/?sub=1&brch=282&sim=1507&cnt=1>
- Experiment name-** Photoelectric effect (**Lab Name -** modern physics virtual lab )  
<http://vlab.amrita.edu/?sub=1&brch=195&sim=840&cnt=1>

## FY103T- ENGINEERING MATHEMATICS – I Tutorial

**Tutorial/Practical** : 1 hr/week

**Credit** : 1

**Evaluation Scheme**

**ISA** : 25 Marks

**POE** : NA

<b>Course Objectives:</b> The objective of the course is to		
1) Find rank of matrix and use it to solve system of linear equations 2) Find and solve characteristic equations and use it properly to find inverses and higher powers of square matrices. 3) Use De Moivre's theorem 4) Numerical techniques to interpolate values and solve equations.		
<b>Course Outcomes:</b>		
<b>COs</b>	<b>At the end of successful completion of the course, the student will be able to</b>	<b>Blooms Taxonomy</b>
CO1	Find rank of matrix and solve system of linear equation.	Remember
CO2	Calculate inverse and higher powers of matrix and eigen values, eigen vector	Apply
CO3	Apply basic mathematical operations (arithmetic, powers, roots) with complex numbers	Apply
CO4	Interpolate values and solve equations using numerical techniques.	Knowledge, Apply

<b>Description:</b>		
Engineering Mathematics-I tutorial is dedicated to solve more problems in each unit. In this section, more problems will be practiced so that students can use mathematical methods and numerical techniques to solve engineering problems.		
<b>Prerequisites:</b>	1:	Determinant, Matrix algebra
	2:	Basic knowledge of complex numbers
	3:	Differentiation and integration formulae.



### Tutorials

Number	Practical/ Experiment/Tutorial Topic	Hrs.	Cognitive levels of attainment as per Bloom's
1	Rank by Normal form & Echelon form	1	Knowledge
2	Solution of system of linear equation	1	Apply
3	Eigen values & Eigen Vectors	1	Understanding
4	Cayley Hamilton's Theorem	1	Apply
5	De Moivre's Theorem & Roots of complex number	1	Apply
6	Newton's & Lagrange's Interpolation	1	Apply
7	Gauss elimination method & Gauss Jordan method	1	Apply
8	Jacobi Iteration & Gauss Seidel Iteration Method	1	Application
9	Partial Derivative, Euler's Theorem	1	Knowledge
10	Jacobian, Maxima & minima	1	Application

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--
CO2	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--
CO3	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--
CO4	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--

### References:

Text Books	
1	A text book of Engineering Mathematics by N. P. Bali, Iyengar, Laxmi Publications (P) Ltd., New Delhi.
2	Higher Engineering Mathematics by Dr. B. S. Grewal, Khanna Publishers, Delhi.
Reference Books	
1	A text book of Applied Mathematics, Vol.I, Vol. II, Vol. III by P. N. Wartikar & J. N. Wartikar, Pune Vidyarthi Griha Prakashan, Pune.
2	Numerical methods by Dr. B. S. Grewal, Khanna Publishers, Delhi.
4	Advanced Engineering Mathematics by H. K. Dass, S. Chand, New Delhi.

## FY105T- Basic Electrical and Electronics Engineering Lab

**Practical** : 2 hrs/week

**Credit** : 1

**Evaluation Scheme**

**ISA** : 25 Marks

**POE** : NA

**Course Objectives:** The objective of the course is to

- 1) Introduce fundamental concepts and techniques to analyse the behaviour of electrical & electronics circuits.
- 2) Provide the details regarding principle of operation and methods to evaluate the performance of electrical apparatus.
- 3) Impart an over view about electrical wiring and protection mechanisms for domestic applications

**Course Outcomes:**

Cos	At the end of successful completion of the course, the student will be able to	Blooms Taxonomy
CO1	Make electrical connection for different circuits	Understanding
CO2	Apply the different laws	Apply
CO3	Analyze V-I characteristics of Bridge circuits	Analyze
CO4	Determine the efficiency of transformer	Evaluate

**Description:**

This course contains. Basic knowledge of Electrical & Electronics engineering and its advantages, applications

<b>Prerequisites:</b>	1:	Battery, Potential difference and current flow concept.
	2:	Few basic electrical and Electronics components identification
	3:	Difference between AC & DC circuits

**Practical**

**Minimum 8 Experiments from the following list should be performed**

Number	Practical/ Experiment/Tutorial Topic	Hrs.	Cognitive levels of attainment as per Bloom's
1	Laboratory sessions covering, general introduction to electrical engineering laboratory, experimental setups,	2	Knowledge

	Instruments etc. Electrical symbols		
2	Electric shocks & precautions against shocks	2	Knowledge
3	Study of Ohm's law	2	Analysis
4	Verification of Kirchhoff's Voltage law & Kirchhoff's Current law	2	Analysis
5	B-H Curve for magnetic material	2	Knowledge
6	Study of Half wave Rectifier	2	Analysis
7	Study of Full wave Rectifier	2	Analysis
8	Determination of Reactance's for series R-L-C circuit	2	Analysis
9	Demonstration of Power factor Improvement by static capacitor.	2	Analysis
10	Polarity & Ratio test for Single phase Transformer	2	Evaluation
11	Load tests on single phase transformer	2	Evaluation
12	Study of Basic method of Earthing, Use of Fuse & MCB	2	Application
13	Study of different luminaries including Mercury Vapour lamp, fluorescent tube, CFL & LED lamp	2	Application

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-
CO3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-

### References:

Text Books	
1	P.V.Prasad and S.Shivan Raju – Electrical Engineering Concepts and applications – cenagage learning.
2	Robert L.Boysted and Louis Nashelsky ,Electronics devices and circuit theory – Pearson education
Reference Books	
1	B.L.Theraja – Electrical Technology Vol.1.- S.Chand publications.
2	Nagarath I.J. and D.P.Kothari – Basic Electrical Engineering (2001) – Tata McGraw Hill.

## FY106T- Basic Civil Engineering Lab

**Tutorial/Practical** : 2 hr/week

**Evaluation Scheme**

**Credit** : 1

**ISA** : 25 Marks

**POE** : NA

<b>Course Objectives:</b> The objective of the course is to		
1. To learn the brief introduction of all aspects under civil engineering 2. To understand basic concepts of Surveying, Transportation Engineering		
<b>Course Outcomes:</b>		
<b>COs</b>	<b>At the end of successful completion of the course, the student will be able to</b>	<b>Blooms Taxonomy</b>
CO1	Identify and apply different distance measurement tools	Application
CO2	Determine positions of an object by compass	Evaluating
CO3	find the elevations of given points	Evaluating
CO4	Illustrate principle of planning	Understand

<b>Description:</b>		
This course include principles of building planning, building components and their functions, building materials, surveying and its principles, leveling transportation engineering, irrigation		
<b>Prerequisites:</b>	1:	Distance measurement
	2:	Directions with respect to North
	3:	Nature of ground

<b>Number</b>	<b>Practical/ Experiment/Tutorial Topic</b>	<b>Hrs.</b>	<b>Cognitive levels of attainment as per Bloom's</b>
1	Measurement of Distances	2	Application
2	Traversing by Compass	2	Application
3	Reduction of levels by Collimation Plane Method	2	Application, Analysis
4	Finding out gradient of line by Rise & fall method	2	Application, Analysis
5	Site visit for study of various construction processes and building planning	2	Application
6	Drawing a line plan of residential building by applying principles of planning	2	Application
7	Drawing sheet showing various building components	2	Application

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1	1	2													
CO2	1	2													
CO3	1	2													
CO4	1	1													

### References:

Text Books	
1	Basic Civil Engineering by G. K. Hiraskar, Dhanpat Rai Publication
2	Basic Civil Engineering by S. S. Bhavikatti, New Age International Publications
3	Building Construction by S P Arora & S P Bindra, Dhanpat Rai Publications
Reference Books	
1	Surveying by N. Basak, Tata Mc-Graw Hill Publication
2	Surveying Vol.I, Vol.II, Vol.III by B.C. Punmia, Laxmi Publication
3	Civil Engineering Materials - Technical Teacher's Training Institute, Chandigarh
4	Irrigation Engineering by B. C. Punmia, Dhanpat Rai Publications

## FY107P Computer Aided Engineering Drawing

**Tutorial/Practical** : 2 hr/week

**Credit** : 1

**Evaluation Scheme**

**ISA** : 25 Marks

**POE** : 25 Marks

<b>Course Objectives:</b> The objective of the course is to		
1. Communicate information by graphical means.		
2. Understand and read drawing and present the same		
<b>Course Outcomes:</b>		
<b>COs</b>	<b>At the end of successful completion of the course, the student will be able to</b>	<b>Blooms Taxonomy</b>
CO1	Draw the neat drawings of engineering curves, straight lines, Plane, Solid.	Knowledge
CO2	Use AutoCAD for drawing orthographic projection.	Knowledge Application
CO3	Creating neat Sketch isometric drawings of regular planes and solids.	Knowledge, Creating
CO4	Visualize and developing surfaces of solids with cutting planes.	Knowledge Application

<b>Description:</b>		
Computer Aided Engineering Drawing Course consists of drawings on each unit. Students solve the more problems and draw drawings so they can Visualize and construct objects.		
<b>Prerequisites:</b>	1:	Knowledge of Geometry at SSC Level
	2:	Knowledge of free hand sketch

### Practical

<b>Number</b>	<b>Practical/ Experiment/Tutorial Topic</b>	<b>Hr s.</b>	<b>Cognitive levels of attainment as per Bloom's</b>
1	Fundamentals of Engineering Drawing and Construction of Engineering Curves	2	Knowledge Application
2	Draw the Projection of planes (1st Angle Projection only)	4	Knowledge Application
3	Draw the Projections of Solids	4	Knowledge Application

4	Study of Graphical user interface of the CAD software, standard tool and commands. Use and practice of basic CAD software commands	4	Knowledge
5	Draw the orthographic views, (One simple orthographic & one Sectional Orthographic) by using CAD. Four problems on drawing sheet.	4	Knowledge Application
6	Draw the isometric view of solid Four problems of isometric view on drawing sheet.	4	Knowledge Application
7	Draw the sectional view of solid & development of the surfaces of the solids in given conditions of the planes Four problems on drawing sheet.	2	Knowledge Application

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1	3	2								2					
CO2	2	2								1					
CO3	3	2								2					
CO4	2	1			2					1					

### References:

Text Books	
1	Engineering Drawing by N. D. Bhatt, Charotar Publication House, Bombay
2	Machine Drawing by N. D. Bhatt, Charotar Publication House, Bombay.
3	Engineering Drawing and Graphics Using AutoCAD by T. Jeyapoovan, Vikas Publication.
4	A text book of Engineering Drawing by R. K. Dhawan, S. Chand and Co.
Reference Books	
1	Engineering Graphics with AutoCAD - D. M. Kulkarni, A. P. Rastogi, A. K. Sarkar, (PHI) Publisher 2010.
2	Machine Drawing by K. L. Narayana, New Age Publication
3	Engineering Drawing by N. B. Shaha and B. C. Rana, Pearson Education.
4	Engineering Drawing by Prof. Amar Pathak, WILEY India Publication.

### FY104P Professional Communication Lab

**Tutorial/Practical** : 02 hr/week

**Credit** : 1

**Evaluation Scheme**

**ISA** : 25 Marks

**POE** : 25 Marks

<b>Course Objectives:</b> The objective of the course is to		
1) acquaint students with basic English Grammar and help students in improving language skills 2) assist students in developing Vocabulary and phonetic drill 3) aid them in understanding corporate meetings 4) train the students to compose and write the business letters effectively		
<b>Course Outcomes:</b>		
<b>COs</b>	<b>At the end of successful completion of the course, the student will be able to</b>	<b>Blooms Taxonomy</b>
CO1	formulate grammatical sentences and communicate effectively	Create
CO2	Understand and use vocabulary effectively	Understand Apply
CO3	Compose business letters and prepare report	Create
CO4	Demonstrate pronunciation and communicate	Understand

<b>Description:</b>		
This course is designed to help the students to practice the correct grammatical structures and use the relevant vocabulary while reading and writing. Also give them practical experience of corporate meetings, Phonetics, Intonation and articulation Drill. Similarly provide them with basic structure and lay out of report writing & business correspondence.		
<b>Prerequisites:</b>	1:	Basic Knowledge of English Grammar
	2:	Reading and Listening Comprehension
	3:	Basic knowledge of Writing Skills



### Practical

Number	Practical/ Experiment/Tutorial Topic	Hrs	Cognitive levels of attainment as per Bloom's
01	Star of Life: Introducing Yourself	02	Applying
02	Vocabulary Building Exercises	02	Remembering
03	Lab Module on Phonetics Drill	02	Understanding
04	Lab Session on Intonation & Pronunciation drill	02	Understanding
05	Grammar Activities – Irregular verb list	02	Understanding
06	Conducting & Attending Meeting	04	Applying
07	Practice on writing General Applications	02	Applying
08	Practice on Business Correspondence	02	Applying

### Mapping of POs & COs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	If applicable		
													PSO1	PSO2	PSO3
CO1							2	1	1	1					
CO2							2	1	1	2					
CO3							2	1	1	1					
CO4							2	1	1	1					

### References:

Recommended Books	
01	Communication Skills by Meenakshi Raman and Sangeeta Sharma, Oxford University Press 2016 1st Edition.
02	Communication Skills for Engineers by S. Mishra & C. Muralikrishna (Pearson)
03	Basic Communication Skills for Technology by Rutherford, Andrea J. (2002).. Delhi: Pearson Education Asia
04	Mastering Communication by Nicky Stanton, Palgrave Master Series
05	Comfort, Jeremy, et al. (2011) Speaking Effectively: Developing Speaking Skills for Business English. Cambridge: Cambridge University Press. (Reprint)

06	Sharma, R. C. and Krishna Mohan, Basic Correspondence and Report Writing: A Practical Approach to Business and Technical Communication, Tata McGraw-Hill Publishing Company Limited, India ,5th Edition, 2017
07	Written Communication in English by Saran Freeman (Orient Longman)
08	Seely, J. The Oxford Guide to Writing and Speaking, Oxford University Press, India 3rd Edition , 2013
09	High School English Grammar and Composition by Wren and Martin, Blackie, 2000
10	Essential English Grammar (Elementary & Intermediate) Raymond Murphy (CUP)
11	Sethi, J. and Dhamija P.V. A Course in Phonetics and Spoken English Prentice-Hall of India 2nd Edition, 2006
12	English Language Laboratories, by Nira Konar, PHI Learning, 2014
13	Perspective of Communication and Communicative Competence, M.V. Rodriques, Concept Publishing Company, New Delhi-10059

Sr. No	Unit No.	Web Links/ Video Lectures
1	1	<a href="https://ismailabdi.files.wordpress.com/2018/02/basic-english-grammar.pdf">https://ismailabdi.files.wordpress.com/2018/02/basic-english-grammar.pdf</a> <a href="https://2qdocg2za8g336a8w21fo83z-wpengine.netdna-ssl.com/wp-content/uploads/2014/06/Free-English-Grammar-Book-Level-1.pdf">https://2qdocg2za8g336a8w21fo83z-wpengine.netdna-ssl.com/wp-content/uploads/2014/06/Free-English-Grammar-Book-Level-1.pdf</a>
2	2	<a href="https://www.toppr.com/guides/business studies/directing/communication/">https://www.toppr.com/guides/business studies/directing/communication/</a>
3	3	<a href="https://www.manage.gov.in/studymaterial/ec.pdf">https://www.manage.gov.in/studymaterial/ec.pdf</a> <a href="http://aditi.du.ac.in/uploads/econtent/communication_flows1.pdf">http://aditi.du.ac.in/uploads/econtent/communication_flows1.pdf</a>
4	4	<a href="https://www.teachingenglish.org.uk/article/vocabulary-activities">https://www.teachingenglish.org.uk/article/vocabulary-activities</a>
5	5	<a href="https://www.managementstudyguide.com/meeting-etiquette.html">https://www.managementstudyguide.com/meeting-etiquette.html</a>
6	6	<a href="https://bcastudyguide.wordpress.com/unit-4-business-letters-reports/">https://bcastudyguide.wordpress.com/unit-4-business-letters-reports/</a>

## FY108T Workshop Practice Lab

**Tutorial/Practical** : 2 hr/week

**Credit** : 1

**Evaluation Scheme**

**ISA** : 50 Marks

**POE** : NA

<b>Course Objectives:</b> The objective of the course is to		
1) develop a skill in dignity of labour, precision, safety at work place, team working and development of right attitude 2) acquire skills in basic engineering practice 3) develop general machining skills in the students and develop small products		
<b>Course Outcomes:</b>		
<b>Cos</b>	<b>At the end of successful completion of the course the student will be able to</b>	<b>Blooms Taxonomy</b>
CO1	Use the techniques, skills, and modern engineering tools necessary in smithy, welding and sheet metal working and apply them practically.	Understand Apply
CO2	Learn the techniques, skills, and modern engineering tools necessary for fitting and carpentry operations and Possess knowledge of measurement and measuring instrument.	Understand Apply

<b>Description:</b>		
<p><b>Workshop practice</b> is the backbone of the real industrial environment which helps to develop and enhance relevant technical hand skills required by the technician working in the various <b>engineering</b> industries and workshops.</p>		
<b>Prerequisites:</b>	1:	General safety Measures should be taken
	2:	Safety rules regarding each machine or equipment should be followed
	3:	Use of Personal protective equipment.

Number	Practical/ Experiment/Tutorial Topic	Hrs.	Cognitive levels of attainment as per Bloom's
1	Safety precautions while working in workshop. Introduction to tools	02	Understand
2	Introduction to smithy operations like, bending, forming upsetting, drawing Smithy tools hammer, hot & cold chisel flatters, tongs, anvil etc, Preparation of job as per the drawing	02	Understand and Apply
3	Preparation of smithy job as per drawing	02	Apply
4	Types of welding likes Gas Welding, arc welding, Welding equipment's, welding of various metals electrode classification and coding, welding joints, and preparation of welding component.	02	Understand and Apply
5	Preparation of welding job as per drawing	02	Understand and Apply
6	Specifications of metal sheets working tools, sheet metal and operations, and prepare the job as per drawing.	02	Understand and Apply
7	Preparation of sheet metal component as per drawing.	02	Understand and Apply
8	Preparation of sheet metal component as per drawing.	02	Understand and Apply
9	Study of various tools ,files, Drills, Taps, Die & Fitting operations to complete small product in fitting shop	02	Understand and Apply
10	Operations to develop small product.	02	Understand and Apply
11	Introduction, Classifications of wood. carpentry joints. carpentry tools to develop carpentry product.	02	Understand and Apply

### Mapping of POs & COs:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	If applicable		
													PSO 1	PSO 2	PSO 3
CO 1						1			2						2
CO 2									2						2

### References:

TextBooks	
1	Elements of Workshop Technology, Vol – I by Hajara Chaudhari, Media Promoters.
ReferenceBooks	
1	Workshop Technology, Vol – I by Gupta and Kaushik, New Heights.
2	Workshop Technology, Vol – I by Chapman, The English Language Book Society
3	Workshop Technology, Vol.-I by H.S. Bawa, TMH Publications, New Delhi

**Web Links/ Video Lectures are to be provided to Theory and Practical /Experiments**

**Practical 1.** <http://nptel.ac.in/courses/>

## FY113A Democracy, Election & Good Governance

**Course Objectives:** The objective of the course is to

The rationale of the study is to make the pupils aware of the importance of democracy. What constitute democracy, what is its importance from the point of view of the role of individual and what exactly can a individual get if he performs his role well in the society. This module also aims to make the individual understand the different aspects of democracy and its implications in the overall development of the state. The syllabus is introduced from the point of view that all students upon entering into the college, enroll themselves as voters and encourage and enthuse other members of the society to participate not only in election process but also electoral and political process in general.

<b>Unit 1</b>	<b>Democracy in India</b>
	Dimensions of Democracy: Social, Economic and Political, Decentralization: Grassroots Level Democracy – Challenges before, Challenges before Democracy: women and marginalized sections of the society
<b>Unit 2</b>	<b>Election to Local Self Government Bodies</b>
	73rd and 74th Constitutional Amendment Acts: Institutions at the local level and Role of State Election commission, Local Body Elections: Urban & Rural, Duties of an Individual towards electoral process
<b>Unit 3</b>	<b>Good Governance</b>
	Meaning and concept, Government and Governance, Good Governance initiatives in India.

**Study Material:**

<http://tkietwarana.ac.in/dpthumanities/details.aspx?title=Democracy,%20Election%20and%20Good%20Governance>