

DAV UNIVERSITY, JALANDHAR

DAV UNIVERSITY JALANDHAR



**Scheme & Syllabus
For
Common For all B. Tech 1st Year**

**1ST & 2ND SEMESTER
Examinations 2014–2015 Session**

Syllabi Applicable For Admissions in 2014

DAV UNIVERSITY, JALANDHAR

Instruction for candidates (Theory Paper)

- The question paper for end-semester examination will have a weightage of 25%. It will consist of 100 objective questions of equal marks. All questions will be compulsory.
- Two preannounced test will be conducted having a weightage of 25% each. Each preannounced test will consist of 20 objective type, 5 short questions/problems on the UGC-NET (objective type) pattern as well as one long answer type question. The student is expected to provide reasoning/solution/working for the answer. The candidates will attempt all question. Choice will be given only in long answer type. The question paper is expected to contain problems to the extent of 40% of total marks.
- Four objective/MCQ type surprise test will be taken. Two best out of four objective/MCQ type surprise test will be considered towards final each of 12.5% weightage to the final. Each surprise test will include 20-25 questions.
- The books indicated as text-book(s) are suggestive However, any other book may be followed.

* Wherever specific instructions are required these are given at the starting of that particular subject/paper

Instruction for candidates (Practical Paper)

- Total marks of practical will include 20% weightage of Continuous Assessment and 80% end semester exam including Notebook / Viva / Performance/ written test.

This syllabus has been designed as per national syllabus suggested by UGC and covers 20% extra syllabus as per requisite of honors degree.

DAV UNIVERSITY, JALANDHAR

Scheme of Courses B.Tech-2014 Common For all B. Tech 1st Year

Semester 1

S.No	Paper Code	Course Title	L	T	P	Cr	% Weightage				E
							A	B	C	D	
1	MTH151/ MTH152	Mathematics-I (For odd Sem)/ Mathematics -II For (even semester)	4	1	0	4	25	25	25	25	100
2	CHE151	Chemistry	4	0	0	3	25	25	25	25	75
3	CSE101	Computer fundamentals and programming	4	0	0	4	25	25	25	25	100
4	EVS101	Environment Education, Road Safety and Legal Awareness	4	0	0	4	25	25	25	25	100
5	SGS101	Human Values & Ethics	2	0	0	2	25	25	25	25	50
6	SGS 104	Stenography	3	0	0	1	25	25	25	25	25
7	MEC101	Engineering Drawing	2	0	4	4	25	25	25	25	100
8	CSE102	Computer fundamentals and programming -Lab	0	0	4	2	-	-	-	-	50
9	CHE152	Chemistry-Lab	0	0	2	1	-	-	-	-	25
10	SGS 105	Stenography Lab	0	0	1	1					25
			23	1	8	26					650

- A: Continuous Assessment: Based on Objective Type Tests
 B: Mid-Term Test-1: Based on Objective Type & Subjective Type Test
 C: Mid-Term Test-2: Based on Objective Type & Subjective Type Test
 D: End-Term Exam (Final): Based on Objective Type Tests
 E: Total Marks
L: Lectures T: Tutorial P: Practical Cr: Credits

DAV UNIVERSITY, JALANDHAR

Scheme of Courses B.Tech Common For all B. Tech 1st Year

Semester 2

S.No	Paper Code	Course Title	L	T	P	Cr	% Weightage				E
							A	B	C	D	
1	MTH151/ MTH152	Mathematics-I (For odd Sem)/ Mathematics -II For (even semester)	4	1	0	4	25	25	25	25	100
2	PHY151	Engineering Physics	4	0	0	3	25	25	25	25	75
3	MEC102	Fundamentals of Mechanical Engineering	4	0	0	4	25	25	25	25	100
4	ELE101	Electrical & Electronics Technology	4	0	0	4	25	25	25	25	100
5	ENG151	Basic Communication Skills	3	0	0	3	25	25	25	25	75
6	SGS102	General knowledge & Current affairs	2	0	0	2	25	25	25	25	50
7	MGT151	Fundamentals of Management	2	0	0	2	25	25	25	25	50
8	MEC104	Manufacturing Practice	0	0	4	2	-	-	-	-	50
9	ELE102	Electrical & Electronics Technology -Lab	0	0	2	2	-	-	-	-	50
10	ENG152	Basic Communication Skills -Lab	0	0	2	1	-	-	-	-	25
11	PHY152	Physics-Lab	0	0	2	1	-	-	-	-	25
			23	2	10	28					700

- A: Continuous Assessment: Based on Objective Type Tests
 B: Mid-Term Test-1: Based on Objective Type & Subjective Type Test
 C: Mid-Term Test-2: Based on Objective Type & Subjective Type Test
 D: End-Term Exam (Final): Based on Objective Type Tests
 E: Total Marks
L: Lectures T: Tutorial P: Practical Cr: Credits

DAV UNIVERSITY, JALANDHAR

Course Title: Engineering Mathematics-I

Paper Code: MTH 151

L	T	P	Credits	Marks
4	1	0	4	100

Objective: The aim of this course is to familiarize the students with the theory of matrices which are used in solving equations in mechanics and the other streams. This course also provides a comprehensive understanding of the origin and development of ideas to exhibit the techniques origin and development of ideas to exhibit the techniques of solving ordinary differential equations.

UNIT-A

15 HOURS

Rank of matrices, Inverse of Matrices, Gauss Jordan Method, reduction to normal form, Consistency and solution of linear algebraic system of equations, Gauss Elimination Method Eigen values and Eigen vectors, Diagonalisation of Matrix, Cayley Hamilton theorem. Orthogonal, Hermit ion and unitary matrices.

UNIT-B

14 HOURS

Concept of limit and continuity of a function of two variables, Partial derivatives, Homogenous Function , Euler's Theorem, Total Derivative, Differentiation of an implicit function, chain rule, Change of variables, Jacobian, Taylor's and McLaurin's series. Maxima and minima of a function of two and three variables: Lagrange's method of multipliers.

UNIT-C

14 HOURS

Formation of ordinary differential equations, solution of first order differential equations by separation of variables, Homogeneous equations, Reduce to Homogenous, exact differential equations, equations reducible to exact form by integrating factors, equations of the first order and higher degree, clairaut's equation.

UNIT-D

13 HOURS

Solution of differential equations with constant coefficients: method of differential operators. Non – homogeneous equations of second order with constant coefficients: Solution by method of variation of parameters, Simultaneously Linear differential equation.

Recommended Books

1. Grewal, B.S. *Higher Engineering Mathematics*. New Delhi: Khanna Publication, 2009
2. Kreyszig, Erwin. *Advanced Engineering Mathematics*. New Delhi: Wiley Eastern Ltd., 2003.
3. Jain, R K, and K Iyengar S R. *Advanced Engineering Mathematics*, New Delhi: Narosa Publishing House, 2003.
4. Thomas, George B. and Finney Ross L. *Calculus and Analytic Geometry*. New Delhi Addison Wesley, 1995.

DAV UNIVERSITY, JALANDHAR

Course Title: Engineering Mathematics-II

Course Code: MTH-152

L	T	P	Credits	Marks
4	1	0	4	100

Objective:

The objective of the course is to equip the students with the knowledge of concepts of vectors and geometry and their applications. A flavor of pure mathematics is also given to the readers.

Unit-A

14 HOURS

Infinite Series: Convergence and divergence of series, Tests of convergence (without proofs): Comparison test, Integral test, Ratio test, Raabe's test, Logarithmic test, Cauchy's root test and Gauss test. Convergence and absolute convergence of alternating series, Uniform Convergence and Power Series.

Unit-B

15 HOURS

Differential Calculus: Curve tracing: Tracing of Standard Cartesian; Parametric and Polar curves.

Integral Calculus: Rectification of standard curves; Areas bounded by standard curves; Volumes and surfaces of revolution of curves; Applications of integral calculus to find Centre of gravity and moment of inertia.

Multiple Integrals: Double and triple integral and their evaluation, change of order of integration, change of variable, Application of double and triple integration to find areas and volumes.

Unit-C

13 HOURS

Functions of Complex Variables:Complex Numbers and elementary functions of complex variable De-Moivre's theorem and its applications. Real and imaginary parts of exponential, logarithmic, circular, inverse circular, hyperbolic, inverse hyperbolic functions of complex variables. Summation of trigonometric series. (C+iS method).

Unit-D

15 HOURS

Vector Calculus: Scalar and vector fields, differentiation of vectors, velocity and acceleration.

Vector differential operators: Del, Gradient, Divergence and Curl, their physical interpretations. Line, surface and volume integrals.

Application of Vector Calculus: Flux, Solenoidal and Irrotational vectors. Gauss Divergence theorem. Green's theorem in plane, Stoke's theorem (without proofs) and their applications.

References:

1. Grewal, B.S. *Higher Engineering Mathematics*. New Delhi: Khanna Publication, 2009
2. Kreyszig, Erwin. *Advanced Engineering Mathematics*. New Delhi: Wiley Eastern Ltd., 2003.
3. Jain, R K, and K Iyengar S R. *Advanced Engineering Mathematics*, New Delhi: Narosa Publishing House, 2003.
4. Thomas, George B., and Finney Ross L. *Calculus and Analytic Geometry*. New Delhi Addison Wesley, 1995

DAV UNIVERSITY, JALANDHAR

Course Title: Chemistry

Course Code: CHE151

Time: 03 Hours

L	T	P	Credits	Marks
3	0	0	3	75

Course Objectives:

The objective of the Engineering Chemistry is to acquaint the student with the basic phenomenon/concepts of chemistry for the development of the right attitudes by the engineering students to cope up with the continuous flow of new technology. The student will be able to understand the new developments and breakthroughs efficiently in engineering and technology.

Expected Prospective:

This course will equip students with the necessary chemical knowledge concerning the fundamentals as well as new technology in the field of chemistry.

PART A

Spectroscopy and its Applications

(12 Hrs)

General Introduction: Introduction, electromagnetic spectrum, absorption and emission spectrum, atomic and molecular spectroscopy, types of molecular spectra, experimental techniques, selection rules, width and intensities of spectral lines.

UV/Visible Spectroscopy: types of electronic Transitions, Chromophores, Auxochromes, Effect of conjugation on Chromophores, Factors affecting λ_{\max} and intensity of spectral lines, effect of solvent on λ_{\max} , isobestic point, applications.

IR Spectroscopy: Infrared region, fundamental modes of vibrations and types, theory of infrared spectra, vibrational frequency and energy levels, anharmonic oscillator, modes of vibrations of polyatomic molecules, characteristic signals of IR spectrum, finger print region, factors affecting vibrational frequency; applications.

NMR Spectroscopy: Principle and instrumentation, relaxation processes, proton magnetic resonance spectroscopy, number of signals, Chemical shift, Spin-Spin Splitting, coupling constant, applications.

DAV UNIVERSITY, JALANDHAR

PART B

Water and its treatment

(7 Hrs)

Introduction, hardness of water, degree of hardness, units of hardness, boiler feed water: specification, scales and sludge formation; priming & foaming, boiler corrosion, caustic embrittlement, treatment of boiler feed water, internal treatment of water; softening of water by lime-soda, zeolite and ion exchange methods, desalination of water; Water for domestic use: purification of water for domestic use.

Corrosion and its Prevention

(7 Hrs)

Introduction; different types of corrosion - wet and dry corrosion; mechanism of wet corrosion; comparison of dry and wet corrosion, Types of electrochemical corrosion: galvanic corrosion, concentration cell corrosion or differential aeration corrosion, waterline corrosion, pitting corrosion, crevice corrosion, stress corrosion, intergranular corrosion; other forms of corrosion: atmospheric corrosion, soil corrosion, microbiological corrosion, erosion corrosion, filiform corrosion, stray current corrosion, passivity, galvanic series, factors influencing corrosion, various methods of corrosion control.

PART C

Chemistry in Nanoscience and Technology

(7 Hrs)

Introduction, Materials self-assembly, molecular vs. material self-assembly, hierarchical assembly, self-assembling materials, two dimensional assemblies, mesoscale self assembly, coercing colloids, nanocrystals, supramolecular structures, nanoscale materials, future perspectives applications, nanocomposites and its applications.

Part D

Polymers and polymerization

(7 Hrs)

Introduction, monomer and repeating unit, degree of polymerization, functionality, classification of polymers: based on origin, monomers, structure, method of synthesis, tacticity or configuration, action of heat, chemical composition, ultimate form; types of polymerization, specific features of polymers, regularity and irregularity, tacticity of polymers, average molecular weights and size, determination of molecular weight by number average methods, effect of molecular weight on the properties of polymers, introduction to polymer reinforced composites.

Suggested Books:

1. Kemp, William *Organic Spectroscopy*, Palgrave Foundations, 1991.
2. Skoog, D. A. Holler, F. J. and Timothy, A. N. *Principle of Instrumental Analysis*, 5th Edition., Philadelphia: Saunders College Publishing, 1998.

DAV UNIVERSITY, JALANDHAR

3. Poole C. P., Jr., Owens, F. J. *Introduction to Nanotechnology*, NY:Wiley Interscience, 2003.
4. Foster L.E., *Nanotechnology, Science Innovation & Opportunity*, New Delhi: Pearson Education, 2007.
5. Ghosh, P. *Polymer Science and technology*, 2nd Edition, New Delhi: Tata McGraw Hill, 2008.
6. *Wiley Engineering Chemistry*, Second Edition, 2013.

DAV UNIVERSITY, JALANDHAR

Course Title: Chemistry Lab

Course Code: CHE152

L	T	P	Credits	Marks
0	0	1	2	50

Time: 02 Hours

Course Objectives:

This course is intended to learn the basic concepts of Engineering Chemistry Laboratory. The present syllabus has been framed as per the recent research trends in the subject. The various experiments have been designed to enhance laboratory skills of the undergraduate students.

Expected Prospective:

The students will be able to understand the basic objective of experiments in Engineering chemistry, properly carry out the experiments, and appropriately record and analyze the results through effective writing and oral communication skills. They will know and follow the proper procedures and regulations for safe handling and use of chemicals.

List of Practicals:

1. Verify Lambert Beer's law using spectrophotometer and CoCl_2 or $\text{K}_2\text{Cr}_2\text{O}_7$ solution.
2. Determine the strength of HCl solution by titrating against NaOH solution conductometrically.
3. Determination of the strength of HCl solution by titrating against NaOH using pH meter.
4. Determination of total hardness of water (tap) using standard EDTA solution and Eriochrome black T indicator.
5. Determination of alkalinity of water.
6. Determination of surface tension of given liquid by using Stalagmometer.
7. Determination of residual chlorine in a water sample.
8. Determination of Flash & Fire point of given a given lubricating oil by Pensky-Marten's apparatus.
9. Determination of the viscosity of given lubricating oil by using Redwood Viscometer.
10. Preparation of a polymer phenol/urea formaldehyde resin.
11. Determination of moisture, volatile matter and ash content in a given sample of coal by proximate analysis.
12. Determination of dissolved oxygen present in given sample of water.

Suggested Books:

1. Levitt, B.P., *Findlays Practical Physical Chemistry*. London & New York: Longman Group Ltd 1978.
2. Yadav, J.B. *Advanced Practical Physical Chemistry*. Meerut: Krishna Prakashan, 2010
3. Vogel, A. I. *A textbook of Quantitative Inorganic Analysis*, PBS: Longman Gp. Ltd, 4th edition, 2000.

DAV UNIVERSITY, JALANDHAR

Course Title: Computer fundamentals and programming

L	T	P	Credits	Marks
4	0	0	4	100

Course Code: CSE-101

Course Objective: To get basic knowledge of computers (hardware and software), its components and Operating systems. To acquire programming skills in C, basic knowledge of Internet.

Expected Outcome: Students will feel comfortable working with computers and will have practical knowledge about Internet and procedural programming language (C Language).

PART-A

Introduction to Computers (8)

Define a Computer System, Block diagram of a Computer System and its working, memories, Volatile and non-volatile memory, cache, virtual, secondary storage devices- Magnetic Tape, Hard Disk, CD-DVD, Magnetic Disk, Various input devices including keyboard, Mouse, Joystick, Scanners and Various output devices including Monitors, Printers, Plotters.

Operating Systems (7)

Computer Software and its types and Hardware, Operating Systems, their types and functions.

PART-B

Working Knowledge of Computer System (6)

Introduction to word processors and its features, creating, editing, printing and saving documents, spell check, mail merge, creating power point presentations, creating spreadsheets and simple graphs.

Fundamentals of Internet Technology (8)

Local area networks, MAN and wide area network, Internet, WWW, E-mail, Browsing and Search engines, Internet Connectivity, Network Topology, Hub, Switches, Router, Gateway.

PART-C

Basic Constructs of C (8)

Keywords, Identifiers, Variables, Data Types and their storage, Arithmetic Operators, Relational Operators, Logical Operators, Bitwise Operators, Increment & Decrement Operators, Expressions, Conditional Expressions, Assignment Operators and Expressions, External Variables and Scope of Variables, Structure of C Program.

Control Structures (8)

Decision making statements: if, nested if, if – else ladder, switch, Loops and iteration: while loop, for loop, do – while loop, break statement, continue statement, goto statement.

PART D

Functions (6)

Advantages of using functions, structure of a function, declaring and defining functions, return statement, call by value and call by reference, recursion, and storage classes.

DAV UNIVERSITY, JALANDHAR

Arrays and Strings

(7)

Declaration of arrays, initialization of array, accessing elements of array, I/O of arrays, passing arrays as arguments to a function, strings, I / O of strings, string manipulation functions (strlen, strcat, strcpy, strcmp).

REFERENCES:

1. Jain, V.K. *Fundamentals of Information Technology and Computer Programming* New Delhi:PHI. Latest Edition.
2. Goel, Anita. *Computers Fundamentals*, New Delhi: Pearson Publications
3. Kernighan, Brian and Ritchie, Dennis M. *The C Programming Language*. New Delhi:Prentice Hall, 2nd Edition 2007.
4. King, K.N.: *C Programming : A Modern Approach* .W.W. Norton Company, 2nd edition 2008.
5. Schildt, Herbert: *C: The Complete Reference*. New Delhi:Tata Mcgraw Hill Publications 4th edition, 2000.
6. Gottfried : *Programming in ANSI C, Schaum Series*. TMH publications, 2nd Edition (1996).

DAV UNIVERSITY, JALANDHAR

Course Title: Computer fundamentals and programming Lab

Course Code: CSE-102

L	T	P	Credits	Marks
0	0	2	2	50

Instruction for Students: The students will be attending a laboratory session of 2 hours weekly and they have to perform the practical related to the following list.

1. Practical know-how of various internal and external Hardware components of a computer (including basic working of peripheral devices).
2. Introduction to Operating Systems; installing Windows; basics of windows.
3. Working knowledge of Internet.
4. Introduction to word processor and mail merge.
5. Introduction to MS-Excel.
6. Working on MS-PowerPoint.
7. Introduction to basic structure of C program, utility of header and library files.
8. Implementation of program related to the basic constructs in C
9. Programs using different data types in C
10. Programs using Loops and Conditional Statements in C
11. Programs using arrays single dimension in C.
12. Programs using functions by passing values using call by value method.
13. Programs using functions by passing values using call by reference method.
14. Program to implement array using pointers
15. Programs related to string handling in C

DAV UNIVERSITY, JALANDHAR

Course Title: Environment Education, Road Safety
and Legal Awareness
Paper Code: EVS101

Course Objective: This course aims at understanding the students in aspects of environmental problems, its potential impacts on global ecosystem and its inhabitants, solutions for these problems as well as environmental ethics which they should adopt to attain sustainable development.

Unit 1

The multidisciplinary nature of environmental studies (2 Hours)

Definition, scope and importance, Need for public awareness

Natural Resources: Renewable and non-renewable resources: (8 Hours)

Natural resources and associated problems.

(a) **Forest resources:** Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

(b) **Water resources:** Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

(c) **Mineral resources:** Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

(d) **Food resources:** World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

(e) **Energy resources:** Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.

(f) **Land resources:** Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Ecosystem: (4 Hours)

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids

DAV UNIVERSITY, JALANDHAR

- Introduction, types, characteristic features, structure and function of the following ecosystem:
 - a. Forest ecosystem
 - b. Grassland ecosystem
 - c. Desert ecosystem
 - d. Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

Unit II

Biodiversity and its conservation

4 Hours

- Introduction – Definition: Genetic, Species and Ecosystem Diversity
- Bio-geographical classification of India
- Value of biodiversity: Consumptive use, Productive use, Social, Ethical, Aesthetic and Option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity, global and national efforts.
- Genetically modified crops
- Cartagena Protocol
- Biodiversity Act

Environmental Pollution

8Hours

- Definition, causes, effects and control measures of:
 - a. Air pollution
 - b. Water pollution
 - c. Soil pollution
 - d. Marine pollution
 - e. Noise pollution
 - f. Thermal pollution
 - g. Nuclear pollution
 - Solid waste management: Causes, effects and control measures of urban and industrial wastes.
 - Role of an individual in prevention of pollution
 - Pollution case studies
 - Disaster management: floods, earthquake, cyclone and landslides

Indoor Pollution:

2 Hours

- Practical tips on how to save the self from self-inflicted pollution.
- Basics of toxicity.
- Problems of lifestyle based diseases.

DAV UNIVERSITY, JALANDHAR

- Solutions needed for safety.

Unit III

Social Issues and the Environment

7 Hours

- Population growth, variation among nations, Population explosion – Family Welfare Programmes.
- Environment and human health,
- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Laws: The Environment Protection Act, 1986; The Air (Prevention and Control of Pollution) Act, 1981; The Water (Prevention and control of Pollution) Act 1974; The Wildlife Protection Act, 1972; Forest Conservation Act, 1980.
- Issues involved in enforcement of environmental legislation
- Public Awareness

Human Population and Environment 5 Hours

- Population Growth and Variations among Nations
- Population Explosion
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

Global environmental issues

5 Hours

- Stockholm Conference
- Brundtland Commission
- Montreal Protocol
- Kyoto protocol
- Earth Summit
- World Summit

Unit IV

DAV UNIVERSITY, JALANDHAR

Road Safety

6 Hours

- Road safety: Concept and its importance.
- Attitude of people towards road safety
- Role of traffic police in road safety
- Traffic rules, Traffic signs, How to obtain driving license, Traffic offences, penalties and procedures,
- Common driving mistakes, Significance of first-aid in road safety
- Role of civil society in road safety and Traffic police-public relationship
- Motor Vehicle Act 1998 (2010)

Legal Awareness

4 Hours

- Legal literacy
- Child labour
- Domestic Violence
- Right to Education

Field Work

5 Hours

- Visit to a local area to document environmental assets river/ forest/ grassland/hill/mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-Pond, river, hill slopes, etc (Field work equal to 5 lecture hours)

Suggested Readings:

1. Odum, EP. *Basic Ecology*. Japan : Halt Saundurs, 1983.
2. Botkin, DB, and Kodler EA. *Environmental Studies: The Earth as a living planet*. New York: John Wiley and Sons Inc., 2000.
3. Singh, JS, Singh, SP, and Gupta SR. *Ecology, Environment and Resource Conservation*. New Delhi: Anamaya Publishers, 2006.
4. De, AK. *Environmental Chemistry*. New Delhi: Wiley Eastern Ltd., 1990.
5. Sharma, PD. *Ecology and Environment*. Meerut Rastogi Publications, 2004.

DAV UNIVERSITY, JALANDHAR

Course Title : Human Values and Ethics
Course Code : SGS - 101

L	T	P	Credits	Marks
2	0	0	2	50

Course Objectives

- To sensitize students about the role and importance of human values and ethics in personal, social and professional life.
- To encourage students to read and realize the values of enlightened human beings.
- To enable students to understand and appreciate ethical concerns relevant to modern lives.

Learning Outcomes:

Students becoming responsible citizens and better professionals who practise Values and Ethics in every sphere of life.

Unit - A

Human Values

1. **Concept of Human Values:** Meaning, Types and Importance of Values. **2 hours**
2. **Human Values :** Lessons from the lives and teachings of great thinkers. **3 hours**
3. **Value Education :** The content of value education **2 hour**
4. **Value crisis and its redressal.** **1 hour**

Unit - B

Being Good and Responsible

1. Self Exploration and Self Evaluation **2 hour**
2. Acquiring Core Values for Self Development **2 hour**
3. Living in Harmony with Self, Family, Society and Nature **3 hours**
4. Values enshrined in the Constitution : Liberty, Equality Fraternity and Fundamental Duties. **3 hours**

Unit - C

Value – based living

1. Vedic values of life **2 hour**
2. *Karma Yoga and Jnana Yoga* **2 hours**
3. *Ashta Marga and Tri-Ratna* **2 hours**
4. Truth, Contentment and Wisdom **2 hours**

Unit - D

Ethical Living:

Ethics: Difference between Ethics and Values

1. Personal Ethics **2 hours**
2. Professional Ethics **3 hours**
3. Ethics in Governance **2 hours**
4. Ethics in Education **2 hours**

Total = 35 hours

Suggested Books:

DAV UNIVERSITY, JALANDHAR

1. Sreedharan,E. and Wakhlu,Bharat. Ed. *Restoring Values*. New Delhi: Sage Publications Ltd., 2010.
2. Nagarajan, K. *Indian Ethos and Values*.New Delhi: Tata McGraw Hill, 2011
3. Tripathi, A N. *Human Values*. New Delhi: New Age International Publishers, 2009
4. Sankar. *Indian Ethos and Values in Management*. New Delhi: Tata McGraw Hill Education Pvt. Ltd.
5. Osula.*Values and Ethics*. New Delhi: Asian Books, 2001.
6. Surbiramanian, R. *Professional Ethics*. New Delhi: Oxford University Press, 2013.
7. Anand, Rishabh. *Human Values and Professional Ethics*, New Delhi: Satya Prakashan, 2012
8. Bhalla, Sanjeev. *Human Values and Professional Ethics*.New Delhi: Satya Prakashan, 2012.
9. Soryan, Ritu. *Human Values and Professional Ethics*. New Delhi: Dhanpat Rai & Co. Pvt. Ltd., 2010.
10. Jayshree, Suresh, and B S, Raghavan. *Human Values and Professional Ethics*. New Delhi: S Chand & Co. Ltd.,2007.
11. Shukla, Dr. R K, Misra, Anuranjan. *Human Values and Professional Ethics*, A B Publication, 2010.
12. Sharma,Vayu. *Human Values and Professional Ethics*. New Delhi: Education of India Language publishers, 2012.
13. Kannan,S, and Srilakshmi,K. *Human Values and Professional Ethics*.New Delhi: Taxmann Publication, Pvt. Ltd., 2009
14. Srivastava, Smriti. *Human Values and Professional Ethics*. New Delhi: S K Kataria & Sons, 2001
15. Singh, Yogendra, and Garg, Ankur. *Human Values and Professional Ethics*. New Delhi: Aitbs publishers, 2011.
16. Kumar, Vrinder. *Human Values and Professional Ethics*. Ludhiana: Kalyani Publishers, 2013.
17. Gaur,R R, Sangal, R. Bagaria, GP. *Human Values and Professional Ethics*. New Delhi: Excel Books, 2010.
18. Osula, Dr. Bramwell and Upadhyay, Dr. Saroj. *Values and Ethics*, New Delhi : Asian Books Pvt. Ltd., 2011.
19. *Complete works of Swami Vivekanand*, Calcutta: Advaita Ashram, 1931.
20. Radhakrishnan, S. *Indian Philosophy*, George Allen & Unwin Ltd., New York: Humanities Press INC, 1929.
21. Dwivedi, A N. *Essentials of Hinduism, Jainism and Buddhism*, New Delhi: Books Today–1979
22. Saraswati, Maharishi Dayanand. *Light of Truth: Satyarth Parkash*. New Delhi: Arya Swadhyay Kendra, 1975.

DAV UNIVERSITY, JALANDHAR

23. Bhan, Suraj. *Dayanand : His life and work*. New Delhi : DAVCMC, 2001.
24. Raghavan, V, and Iyer, N. *Moral and Political Thoughts of Mahatma Gandhi*. New Delhi : Oxford University Press India, 2000.
25. Singh, Narain. *Guru Nanak Dev's view of life*. Amritsar: Bhagat Puran Singh All India Pingalwara Society, 2010.
26. Dwivedi, Kapil Dev. *Esence of Vedas*. Hoshiarpur : Katyayan Vedic Sahitya Prakashan,1990.
27. Chaubey,B B. *Vedic Concepts*. Hoshiarpur : Katyayan Vedic Sahitya Prakashan, 1990.
28. Radhakrishnan, Saravapalli. *Mahatma Gandhi : Essays and Reflections on his life*. Mumbai: Zaico Publication, 1977.
29. Hardayal, Lala. *Hints for Self Culture*, Mumbai:Jaico Publishing House, 1961.
30. Saraswati Dayanand, *The Light of Truth (The Satyārtha Prakashan)*.New Delhi:
31. Krishnamurti J. *The First and Last Freedom*
32. Maharishi, Sri Raman. *Who Am I*.
33. Balsekar, Ramesh S. *Peace and Harmony in Daily Living*. New Delhi: Yogi Impressions.

DAV UNIVERSITY, JALANDHAR

Syllabus

Course Title: Stenography

Course Code: SGS104

L	T	P	Credits	Marks
3	0	0	1	25

Course Objective: The course is to inculcate writing and listening skills among the students. This would act as building blocks for the learner to begin the study of stenography. As the learners are from the senior secondary background the course has been created keeping in mind their requirements for the future.

Learning Outcome:

After going through this course the participant would have understood the basic concepts of shorthand language and would be able to apply them in daily life. Completion of the course will improve their speed of writing and typing. They would be able to pronounce the English words correctly and can use effective English communication.

<p>Unit A I. The Consonants II. The Vowels III. Intervening Vowels and Position Grammalogues, Punctuation IV. Alternative Signs for r and h V. Diphthongs Abbreviated w. VI. Phaseography Tick the VII. Circle s and z—Left and Right Motion VIII. Stroke s and z IX. Large Circles sw and ss or sz X. Loops st and str.</p>	12 hours
<p>Unit B XI. Initial Hooks to Straight Strokes and Curves XII. Alternative Forms for fr, vr, etc. Intervening Vowels XIII. Circle or Loop Preceding Initial Hook XIV. n and f Hooks XV. Circles and Loops to Final Hooks.XVI The shun hook. XVII. The Aspirate. XVIII. Upward and Downward r.XIX. Upward and downward l and sh. XX. Compound consonants XXI. Vowel indication.</p>	12 hours
<p>Unit C XXII. The halving principle (section 1). XXIII. The halving principle (section 2). XXIV. The Doubling principle. XXV.Diphonic or two vowel signs. XXVI. Medial semicircle. XXVII. Prefixes negative words. XXVIII. Suffixes and terminations. XXIX. Contractions. XXX. Figures, etc .proper names.</p>	11 hours
<p>Unit D XXXI.Note taking, transcription, etc. XXXII. Essentials vowels. XXXIII. Special contractions. XXXIV. Advanced parseography. XXXV. Intersections. XXXVI. Business phrases. XXXVIII. Banking and stockbroking phrases. XXXIX. Insurance and shipping phrases. XL. Technical and railway phrases. XLI. Legal phrases. XLIII. Special list of words. XLIV. Shorthand in practice.</p>	10hours
Total	45 hours

Suggested Books:

Pitman. *Pitman Shorthand Instructor and Key*, New Delhi: Pearson publisher. 2001.

DAV UNIVERSITY, JALANDHAR

Course Title: Stenography Lab

Course Code: SGS105

Course Objective: The course is to inculcate writing and listening skills among the students. This would act as building blocks for the learner to begin the study of stenography. As the learners are from the senior secondary background the course has been created keeping in mind their requirements for the future.

Learning Outcome:

After going through this course the participant would have understood the basic concepts of typing and would be able to apply them in daily life. Completion of the course will improve their speed of typing and typing skills.

Unit A Beginner : Basics-fjdk, sla,,ghy,vmbn,ruei,woqp,cx. .	04 hours
Unit B Shift keys, numeric pad, Digits and symbols	03 hours
Unit C Intermediate- Syllables and words.	04 hours
Unit D Expert- Paragraphs and Stories	04 hours
Total	15 hours

DAV UNIVERSITY, JALANDHAR

Course Title: Engineering Drawing
Course Code: MEC-101
Total Lectures: 90

L	T	P	CREDITS	Marks
2	0	4	4	100

Course Objectives: Students will get knowledge of various lines and dimension system, knowledge the concepts of orthographic projections, knowledge of developing the surfaces.

Part - A

Drawing Techniques (12)

Introduction to drawing instruments, various types of lines, principles of dimensioning, size and location dimensions, symbols, lettering in single stroke as per SP-46 code

Scales (6)

Concept of Reduced and Enlarge scale, Construction of plane and diagonal scales

Part - B

Projection of Points (6)

Concept of horizontal and vertical planes (Principle planes). First and third angle projections; projection of points in all four quadrants, shortest distance from reference line

Projection of Lines and Planes (18)

Projection of line perpendicular to one plane, inclined to one and both the reference planes and their traces. Plane perpendicular to one plane inclined to one and both the reference planes. Profile plane. Auxiliary planes

Part - C

Projection of Solids (12)

Right and oblique solids; solids of revolution and polyhedrons etc. and projection of solid with axis perpendicular to one plane and parallel to one or both reference planes. Projection of solid with axis inclined to one or both reference axis.

Sectioning of Solids (9)

Theory of sectioning, types of sectioning, and their practice on projection of solids, sectioning by auxiliary planes

Part - D

Interpretation of Views (9)

Draw orthographic views from isometric view, Missing line and missing view

Development of Surfaces (18)

Method of Development, Development of surfaces (pyramids, prisms, cylinders and cones). Development of oblique solids

Reference:

1. Jolhe, A.J., *Engineering Drawing*, New Delhi: Tata McGraw-Hill.
2. Gill, P.S., *Engineering Drawing* Ludhiana: S.K. Kataria and Sons,
3. French, T.E. and Vierck, C.J., *Graphic Science*, New York: McGraw-Hill,
4. Zozzora, F, *Engineering Drawing* , New York :McGraw Hill

DAV UNIVERSITY, JALANDHAR

COURSE CODE: PHY151
ENGINEERING PHYSICS
Total Lecture-60

L	T	P	Marks
4	0	0	100

AIM. The aim of this course on physics is to make the student of engineering understand the basic concepts of physics which will form the basis of certain concept in their respective fields.

Unit-1

PHYSICAL OPTICS: (18)

Interference: Division of wave front, Fresnel's biprism, division of amplitude, Newton's rings and applications.

Diffraction:

Difference between Fraunhofer and Fresnel diffraction, Fraunhofer diffraction through a slit, plane transmission diffraction grating, its dispersive and resolving power.

Polarization: Polarised and unpolarised light, double refraction, Nicol prism, quarter and half wave plates.

Unit-II (15)

LASER: Spontaneous and stimulated emission, Laser action, Characteristics of laser beam, concept of coherence, HeNe laser, Semiconductor lasers and applications

FIBRE OPTICS: Propagation of light in fibres, numerical aperture, single mode and multimode fibres, applications

Unit-III (13)

DIELECTRICS:

Molecular Theory, polarization, displacement, susceptibility, dielectric coefficient, permittivity, relations between electric vectors, Gauss's law in the presence of a dielectric, energy stored in an electric field, Behaviour of dielectric in alternating field and Clausius Messotti equation.

Unit-IV (14)

QUANTUM MECHANICS: Difficulties with Classical physics, Introduction to quantum mechanics simple concepts, Black Body radiation, Planck's Law of radiation and its limitations, Group velocity and phase velocity, Schrodinger's wave equations and their applications.

SUPER CONDUCTIVITY: Introduction (experimental survey), Meissner effect, Type I and type II superconductors, London equation, Elements of BCS theory, Applications of superconductors.

Suggested Books:

1. Sear, F.W. *Electricity and Magnetism*. London: Addison-Wesley, 1962.
2. Resnick and Halliday. *Physics*. New York: Wiley, 2002.
3. Lal, B. and Subramanyam, N.A *Text Book of Optics*. New Delhi: S. Chand and Company Limited, 1982.
4. Jenkins, and White. *Fundamental of Physical Optics*. New York: Tata McGraw-Hill, 1937.
5. Griffiths, D. *Introduction to Electrodynamics*, New Delhi: Prentice Hall, 1998.
6. Beiser, A. *Perspective of Modern Physics*. New Delhi: McGraw Hill Ltd., 2002.

DAV UNIVERSITY, JALANDHAR

Course Code: PHY152: ENGINEERING PHYSICS LABORATORY

(30 hrs)

Max

Marks: 25

Objective: The laboratory exercises have been so designed that the students learn to verify some of the concepts learnt in the theory courses. They are trained in carrying out precise measurements and handling sensitive equipments.

Note:

- Students are expected to perform at least eight-ten experiments out of following list. The experiments performed in first semester cannot be repeated in second Semester.
- The examination for both the courses will be of 3 hours duration

List of Experiments:

Experimental skills: General Precautions for measurements and handling of equipment, representation of measurements, Fitting of given data to a straight line, and Error analysis, Significant figures and interpretation of results.

1. To determine the Refractive Index of the Material of a given Prism using Sodium Light.
2. To determine the Dispersive Power and resolving power of the Material of a given Prism using Mercury Light.
2. To determine wavelength of sodium light using Fresnel Biprism.
3. To determine wavelength of sodium light using Newton's Rings.
4. To determination Wavelength of Sodium Light using Michelson's Interferometer.
5. To determine the wavelength of Laser light using Diffraction of Single Slit.
6. To determine the wavelength of (1) Sodium and (2) Mercury Light using Plane Diffraction Grating.
7. To determine the (1) Wavelength and (2) Angular Spread of HeNe Laser using Plane Diffraction Grating.
8. To study the wavelength of spectral lines of sodium light using plane transmission grating.
9. To study the specific rotation of sugar solution Laurent's half shade polarimeter method
10. To study the numerical aperture and propagation losses using HeNe laser Optical fibre set up .
11. To compare the focal length of two lenses by Nodal slide method.
12. To find the unknown low resistance by Carey Foster bridge.
13. To determine the beam divergence of the HeNe laser.
14. To study the Meissner's effect in superconducting sample.
15. To study the Faraday law of electromagnetic induction.
16. To study the capacitance by flashing/quenching of Neon bulb kit
17. To compare the two unknown capacitances of two capacitors by using DeSauty's bridge.
18. To find our out the unknown inductance by using the Anderson's bridge method.
19. To study the numerical aperture and propagation losses for He-Ne laser by using the optical fiber set up for
20. To study the Planck's constant by using photoelectric cell method.

DAV UNIVERSITY, JALANDHAR

Course Title: Electrical and Electronics Technology
Course Code: ELE-101

L	T	P	Credits	Marks
4	0	0	4	100

UNIT 1: D.C Circuit Analysis

Voltage source, current source, dependent and independent sources, analysis of D.C circuit by KCL and KVL, Nodal and Mesh analysis, Thevenin theorem, Norton theorem, superposition theorem, Maximum Power Transfer Theorem

UNIT 2: A.C Circuit Analysis

Review of single phase A.C. circuit under sinusoidal steady state, solution of R.L.C. Series circuit, the j operator, complex representation of impedance, solution of series and parallel circuit, series and parallel resonance, 3 phase A.C. Circuit, star and delta connections, line and phase quantities solution of 3 phase circuits, balance supply voltage and balanced supply voltage and balance load, phasor diagram, measurement of power and power factor by two wattmeter method.

UNIT 3: Magnetic Circuit:

Review of laws of electromagnetism, Flux, MMF and their relation. Comparison of electrical and magnetic circuit, B-H Curve, saturation leakage and fringing. Analysis of series and parallel magnetic circuit, AC Excitation in magnetic circuits, Hysteresis and eddy currents.

UNIT 4: Transformers

Single phase transformer, basic concepts constructional detail, type, voltage current and impedance Transformation, phasor diagram, equivalent circuit, voltage regulation, oc/sc test, losses and efficiency concept of All day efficiency, autotransformer.

UNIT 5: Rotating Electrical Machines

Basic concepts, working principle and general construction of DC machines (motor/generators), torque and EMF expression.

UNIT 6: Basic Electronics:

P-Type and N-Type semiconductor, concept of diode, transistor and their application, introduction to OPAMP, application of op amp as a subtractor, summer, differentiator, integrator, logic gates AND, OR, NOT, NOR, NAND etc.

Suggested Books:

1. Sukhija, M.S. Nagsarkar T.K., *Basic Electrical and Electronics Engineering*, UK:Oxford University Press, 2012.
2. Husain, Ashfaq Harsoon Ashfaq, *Fundamentals of Electrical Engineering*, 4th Edition, New Delhi: Dhanpat Rai and Co., 2013
3. Mittle, V.N. *Basic Electrical Engineering*, 2nd Edition, New Delhi: Tata McGraw Hill Publication.
4. Theraja, B.L. Theraja, A.K. *A Text Book of Electrical Technology*, Volume-1, New Delhi: S. Chand Publication
5. Jena, Debashisha *Basic Electrical Engineering*, 1st edition, India: Wiley India Publication, 2012.
6. Theraja, B.L. Sedha, R.S. *Principles of Electric Devices and Circuits*, New Delhi: S. Chand Publication, 1st edition, 2006

DAV UNIVERSITY, JALANDHAR

**Course Title: Electrical and Electronics Technology
Laboratory
Course Code: ELE-102**

L	T	P	Credits	Marks
0	0	2	2	50

List of Experiments

1. To verify Ohm's Law, Kirchhoff's Current Law and Kirchhoff's Voltage Law.
2. To verify Thevenin's and Norton's theorems.
3. To verify Superposition theorem.
4. To verify Maximum Power Transfer theorem.
5. To study frequency response of a series R-L-C circuit and determine resonant frequency and Q-factor for various values of R, L and C
6. To study frequency response of a parallel R-L-C circuit and determine resonant frequency and Q-factor for various values of R, L and C.
7. To perform direct load test of a transformer and plot efficiency versus load characteristics.
8. To perform open circuit and short circuit test on transformer.
9. To perform speed control of DC motor.
10. Measurement of power in a three phase system by two wattmeter method.
11. To plot the V-I characteristics of PN-junction diode.
12. To verify the truth table of logic gates.

DAV UNIVERSITY, JALANDHAR

Course Title: Fundamentals of Mechanical Engineering

L	T	P	CREDITS	Marks
4	0	0	4	100

Course Code: MEC-102

Total Lectures:

Course Objectives: To impart the basic knowledge of thermodynamic principles, various power producing and power absorbing devices. To impart the knowledge of mechanical devices and manufacturing processes.

Part - A

Fundamental Concepts of Thermodynamics

(6)

Introduction, Thermodynamic System and its types, Boundary and its types, Surroundings, Thermodynamic properties, processes and cycles, Working Substance, Units and Dimensions, Mechanical and Thermodynamic work, Equations for work done in various processes, Heat, Pressure, Pressure measurement, Pressure exerted due to a column of fluid, Barometer, Mechanical gauges for pressure measurement: Bourdon tube pressure gauge, Diaphragm pressure gauge, Dead weight pressure gauge, Manometer: Piezometer, Single tube manometer(Numerical), Double tube manometer, Differential manometers

Laws of Thermodynamics

(6)

Zero law of Thermodynamics, Thermodynamic property and Thermometers, Principle of temperature measurement, Scale of temperature, Microscopic and Macroscopic point of view, Quasi Static Process, Reversible and Irreversible processes, Energy and Forms of Energy i.e. store and transient, Law of conservation of energy, Joule's Experiment, First law of thermodynamics, Work is a path function and properties are point function, Internal energy, Enthalpy, Specific heat at constant volume, Specific heat at constant pressure, Adiabatic Index, Limitations of first law of thermodynamics

Part - B

Heat Transfer

(5)

Introduction, Modes of heat transfer, Thermal Conductivity, Thermal Resistance, Fourier law, Newton's law of cooling, Stefan Boltzmann's Law, Heat Exchangers, Insulation, Properties of insulation, Types of Insulations

Power Producing Devices

(6)

Forms of matter, Steam boiler, Classification of boilers, Types of boilers, Advantages of superheating the steam, Essentials of a good boiler, Comparison between Water tube and Fire tube boilers, Steam Turbines, Classification, Advantage, Working of common type of turbines, Hydraulic Turbines, Internal combustion engines, Two and Four stroke SI engines

Part - C

Power Absorbing Devices

(5)

Power Absorbing Devices, Difference between Hydraulic pump, Air compressor, Fan, Blower, Classification, Positive displacement and Dynamic, Reciprocating, Rotary, Centrifugal, Axial along with their types, Uses of compressed air.

Principles of Design

(5)

Need of design, Stress and Strain and its types, Hooke's law, Poisson's ratio, Stress- Strain Curve, Factor of Safety, Material properties and selection, Factors affecting material selection, Aesthetics.

Part - D

Mechanical Devices

(5)

Individual and group drive system, Belt drive, Ropes, Chain drive, Gear drive, Clutches, Brakes

Machine Elements

(5)

Power transmission shafts, Types of shafts, Shaft material, Application of shafts, Axle, Keys, Coupling and their types, Flanged coupling, Oldham's coupling, Universal coupling, Bearings and their types, Flywheel construction and types, Governor

DAV UNIVERSITY, JALANDHAR

Reference:

1. Rajan T.S. *Basic Mechanical Engineering*, New Delhi: New Age Publishers.
2. Singh Sadhu *Principles of Mechanical Engineering*, New Delhi: S Chand Publishers.
3. Shankar V.P., *Basic Mechanical Engineering*, New Delhi: Laxmi Publishers.
4. Phthak G. K., *Basic Mechanical Engineering*, New Delhi: Rajsons Publications.
5. Kumar Parveen, *Basic Mechanical Engineering*, New Delhi: Pearson Education

DAV UNIVERSITY, JALANDHAR

Course Title: Basic Communication Skills

Course Code: ENG151

No. Of Lectures: 45

L	T	P	Credits	Marks
3	1	0	3	70

Course Objective:

- To enhance students' vocabulary and comprehensive skills through prescribed texts.
- To hone students' writing skills.

Learning Outcomes: Students will be able to improve their writing skills as well as will enrich their word power.

Unit – A Applied Grammar (Socio-Cultural Context)	
• Parts of Speech: Noun, Pronoun, Adjective, Verb, Adverb, Preposition, Conjunction, Interjection	5 hours
• Tenses (Rules and Usages in Socio-cultural contexts)	6 hour
• Modals: Can, Could, May, Might, Will, Would, Shall, Should, Must, Ought to	5hours
• Passives	5 hours
• Reported/Reporting Speech	5hour
Unit – B Reading (Communicative Approach to be Followed)	
• J M Synge: Riders to the Sea (One Act Play)	7 hours
• Anton Chekhov : Joy (Short Story)	rs
• Swami Vivekanand : The Secret of Work (Prose)	7 hours
Unit – C Writing	
• Paragraph and Essay Writing	5Hours
• Letter Writing: Formal and Informal	5 hours
• Notice and Email	5hours

References:

a. Books

1. Kumar, Sanjay and PushpLata. *Communication Skills*. India: OUP, 2012.
2. Vandana, R. Singh. *The Written Word* by. New Delhi: Oxford University Press, 2008.

b. Websites

DAV UNIVERSITY, JALANDHAR

1. www.youtube.com (to download videos for panel discussions)
2. www.letterwritingguide.com
3. www.teach-nology.com
4. www.englishforeveryone.org
5. www.dailywritingtips.com
6. www.englishworksheets.com
7. www.mindtools.com

Course Title: Basic Communication Skills
Course Code: ENG 152

L	T	P	Credits	Marks
0	0	2	1	30

No. Of Lectures: 30

Course Objective:

- To improve fluency in speaking English.
- To promote interactive skills through Group Discussions and role plays.

Learning Outcomes:

Unit – A Speaking/Listening	
• Movie-Clippings	10 hours
• Role Plays	10 hours
• Group Discussions	10 hours

References:

Books

1. Gangal, J. K. *A Practical Course In Spoken English*. India: Phi Private Limited, 2012.
2. Kumar, Sanjay and PushpLata. *Communication Skills*. India: OUP, 2012.

Websites

1. www.youtube.com (to download videos for panel discussions)
2. www.englishforeveryone.org
3. www.talkenglish.com
4. www.mindtools.com

DAV UNIVERSITY, JALANDHAR

Course Title: General Knowledge and Current Affairs

Course Code: SGS-102

L	T	P	Credits	Marks
2	0	0	2	50

Course Objectives

The study of General Knowledge and Current Affairs has become even more important today. It is not only a major constituent of most competitive examinations but also aids in acquiring general awareness.

The objectives of this course are:

- To introduce students with the course and contents of various competitive examinations
- To prepare a foundation for appearing in various competitive examinations
- To sensitize the students about the current issues and events of national and international importance
- To provide opportunity to the students to study inter disciplinary subjects like Geography, Science, Economy, Polity, History, International Relations etc.

Learning Outcomes:

- Students would get an opportunity to aspire, plan and prepare for various competitive examinations in advance.
- It would polish their personalities and sharpen the skills of debates, group discussions, communication, interview etc.
- Students would acquire general awareness of National and International Events.

Unit — A

General Geography

World Geography:

The Universe, The Solar System, The Earth, Atmosphere, The World **3 hours**
we

live in, Countries rich in Minerals, Wonders of the World, Biggest and Smallest.

Indian Geography:

Location, Area and Dimensions, Physical Presence, **3 hours**

Indian States and Union Territories,
Important sites and Monuments, Largest-Longest and Highest in India.

General History

Glimpses of India History, Ancient Indian, Medieval India, Modern India, **3 hours**
Various Phases of Indian National Movement, Prominent Personalities.

Glimpses of Punjab history with special reference to period of Sikh Gurus.

Glimpses of World History

Important Events of World History, Revolutions and Wars of Independence, **3 hours**

Political Philosophies like Nazism, Fascism,
Communism, Capitalism, Liberalism etc.

Unit — B

General Polity **3 hours**

World Politics – Major Actors and their political relations, UNO and other organizations viz: WTO, EU, SAARC, ASEAN, BRICS, WTO, OIC, OAU, OPEC, GCC etc.

Indian Polity : Constitution of India : **3 hours**

DAV UNIVERSITY, JALANDHAR

Important Provisions, Basic Structure, Union Government, Union Legislature and Executive, State Government: State Legislature and Executive, Indian Judiciary, The Election Commission, Panchayati Raj System, RTI etc.

General Economy :

The process of liberalization, privatization, globalization and Major World Issues. Indian Economy, Indian Financial System, Major Economic Issues, Economic Terminology. **3 hours**

Unit — C

General Science :

General appreciation and understandings of science including the matters of everyday observation and experience. Inventions and Discoveries. **3 hours**

Sports and Recreation :

The World of Sports and recreation. Who's Who is sports, Major Events, Awards and Honours. Famous personalities, Festivals. Arts and Artists. **3 hours**

Current Affairs :

National and International Issues and Events in News. Governments Schemes and Policy Decisions. **3 hours**

India and Neighbours:

Current phase relations with China, Pakistan, Bangladesh, Nepal, Sri Lanka and Afghanistan **3 hours**

Unit — D

Miscellaneous Information

Who is who

2 hours

Books and Authors, Persons in News, Awards and Honours, Abbreviations and Sports

Total: 35 Hours

Suggested Books:

1. Aggarwal, R. S. *Advance Objective General Knowledge*, S. Chand Publisher (2013)
2. Sen, S. *Concise General Knowledge Manual 2013*, Unique Publishers, 2013
3. Verma, R P. *Encyclopedia of General Knowledge and General Awareness*, Penguin Books Ltd (2010)
4. Thorpe, Edgar. And Thorpe, Showick. *General Knowledge Manual 2013-14*, the Pearson, Delhi.
5. Mohanty, Mukhtikanta. *General Knowledge Manual 2013-14*, Macmillan Publishers India Ltd., Delhi.
6. India 2013, *Government of India (Ministry of Information Broadcasting)*, Publication Division, 2013.
7. Methew, Mammen. *Manorama Year Book 2013-14*, Malayalam Manorama Publishers, Kottayam, 2013.
8. *Spectrum's Handbook of General Studies – 2013-14*, Spectrum Books (P) Ltd., New Delhi
9. *Unique Quintessence of General Studies – 2013-14*, Unique Publishers, New Delhi.

CURRENT AFFAIRS

Magazines

Economic and Political Weekly, Yojna, the Week, India Today, Frontline, Spectrum. Competition Success Review, Competition Master, Civil Services Chronicle, Current Affairs, World Atlas Book

Newspapers

The Hindu, Times of India, The Hindustan Times, The Tribune

DAV UNIVERSITY, JALANDHAR

Course Title: Fundamentals of Management

Course Code: MGT151

L	T	P	Credits	Marks
2	0	0	2	50

Course Objective: The course aims at developing an appreciation about the principles, functions of management and functioning of professional organisations.

Learning Outcomes: After completion of course students will be able to work professionally in organizations. They should be able to apply the principles and theories of management in the work context.

Unit – A

- Introduction to business management- Definition of management, characteristics of management, management as an art, science and profession, universality of management, levels of management, management process, managerial roles and skills, functional areas of management. 4 hours
- Planning- Introduction, planning and plan, strategy and strategic planning, main components of plan, vision, mission, purpose, objectives, goals and targets, Management by Objectives (MBO), 3 hours

Unit – B

- Forecasting: Meaning, process and importance, Decision-Making Process and types of decisions. 3 hours
- Organizing- Definition, characteristics, organizing process, authority, responsibility, power, delegation, decentralization, departmentation, span of control, organization chart and manuals. Forms of Organization Structure 4 hours

Unit – C

- Staffing- Introduction, factors affecting and qualities of good staffing, manpower planning, recruitment and selection. 3 hours
- Leadership- Characteristics, importance, style, role, quality and skills of leader. 2 hours
- Directing and Co-ordination- meaning, Fundamentals of motivation, motivation theories : Maslow's need hierarchy, Herzberg's Two-Factor Theory of Motivation, McGregor's Theory X and Theory Y. 4 hours

Unit – D

- Communicating- Definition, Characteristics, Communication process, importance and types of communication, barriers to communication. 4 hours
- Controlling- Meaning, characteristics, scope, control process, types of control, designing effective control systems. 3 hours

30 hours

Text Book:

1. Rudani Ramesh, *Principles of Management*, New Delhi: Tata McGraw-Hill Education, 1st Edition

Reference Books:

1. Koontz H & Weihrich, *Essentials of Management*, 9th Edition 2013
2. Prasad L M, *Principles and Practices of Management*, New Delhi: Sultan Chand & Sons.
3. Stoner J A F, Freeman R E and Gilbert D R, *Management*, New Delhi: Pearson Education, 6th Edition

DAV UNIVERSITY, JALANDHAR

Course Title: MANUFACTURING PRACTICE

L	T	P	CREDITS	Marks
0	0	4	2	50

Course Code: MEC-104

COURSE OBJECTIVES:

1. Know basic workshop processes, Read and interpret job drawing.
2. Identify, select and use various marking, measuring, holding, striking and cutting tools & equipment's.
3. Operate and control different machines and equipment's.

CARPENTRY SHOP

- a) Preparation of half lap joint
- b) Preparation of Mortise and Tenon Joint
- c) Preparation of a Dove & Tail joint
- d) To prepare a White board duster

Welding Shop:

- a) Preparation of Joint by Arc Welding
- b) Preparation of Joint by using Gas Welding
- c) Preparation of Joint by MIG/ TIG Welding
- d) Preparation of Joint by Spot/ Seam Welding

Smithy Shop

- a) To Forge the L – Hook
- b) To Forge a Chisel
- c) To Forge a Cube from a M.S Round
- d) To forge a screw driver

Fitting Shop

- a) Filing a dimensioned rectangular or square piece and prepare a sq. fitting
- b) Preparation of T fitting male part
- c) Preparation of U fitting Female part
- d) Internal thread Cutting in Square piece and external thread cutting on a rod and assembling as a paper weight

Foundry Shop:

- a) To make a Mould of solid pattern
- b) To prepare a mould of sleeve fitting using gating system
- c) To make a Mould of Split Pattern using Cope & Drag
- d) To check the Hardness of the Mould
To check the Moisture Content in the Molding Sand
To check the Compressive Strength of Molding Sand

Sheet-Metal Shop

DAV UNIVERSITY, JALANDHAR

- a) Preparation of a funnel from G.I. sheet
- b) Preparation of a book rack stand from G.I. Sheet
- c) Preparation of a leak proof tray with inclined edges from G.I. Sheet
- d) Preparation of a square pen stand from G.I. Sheet with riveting at corners

Machine Shop

- a) To make a job using step turning and grooving
- b) To make a job using knurling and threading
- c) To make a multi operation job on a Lathe machine
- d) To make V – slot by using shaper machine

Electrical Shop

- a) Layout of electrical tube light wiring
- b) Layout of stair case wiring using two way switch
- c) Testing and rectification of simulated faults in electrical appliances such as 'Electric Iron' Ceiling Fan. Electric kettle
- d) To fabricate a circuit for the electrical wiring of, Fan with regulator and Bulb through a main switch and its testing using a series lamp

References:

1. Johl K. C., *Mechanical Workshop Practice*, New Delhi:Prentice Hall India, 1st Edition.
2. Bawa H.S., *Workshop Technology* , New Delhi:Tata McGraw Hill, 7th Edition.