NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY, GREATER NOIDA, GAUTAM BUDDH NAGAR

(AN AUTONOMOUS INSTITUTE)

Affiliated to

DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW

Evaluation Scheme & Syllabus

For

Bachelor of Technology
Computer Science

First Year

(Effective from the Session: 2024-25)

NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY, GREATER NOIDA, GAUTAM BUDDH NAGAR

(AN AUTONOMOUS INSTITUTE)

Bachelor of Technology

Computer Science

Evaluation Scheme

SEMESTER-I

Sl. No.	Subject code	Subject	Types of Subject	Periods			Evaluation Schemes				End Semester		Total	Credit
				L	T	P	CT	TA	TOTAL	PS	TE	PE		
3 WEEKS COMPULSORY INDUCTION PROGRAM														
1	BAS0103	Engineering Mathematics-I	Mandatory	3	1	0	30	20	50		100		150	4
2	BAS0101AZ	Engineering Physics	Mandatory	3	0	0	30	20	50		100		150	3
3	BCSE0103	Design Thinking-I	Mandatory	2	1	0	30	20	50		50		100	3
4	BCSE0151	Problem Solving using Python	Mandatory	0	0	6				50		100	150	3
5	BCSE0152	C Programming	Mandatory	0	0	6				50		100	150	3
6	BAS0151A	Engineering Physics Lab	Mandatory	0	0	2				25		25	50	1
7	BASL0151Z	Acquiring Business Communication (ABC) Lab	Mandatory	0	0	6				50		100	150	3
8	BNC0102/ BNC0103	Constitution of India, Law and Engineering/Essence of Indian Traditional Knowledge	Compulsory Audit	2	0	0	30	20	50		50		100	NA
		*Massive Open Online Courses (For B.Tech. Hons. Degree)	*MOOCs											
		TOTAL											**900**	**20**

PLEASE NOTE: -

- **Compulsory Audit (CA) Courses (Non-Credit - BNC0103/BNC0102)**
  - All Compulsory Audit Courses (a qualifying exam) do not require any credit.
  - The total and obtained marks are not added in the grand total.

*** List of MOOCs Based Recommended Courses for first year (Semester-I) B. Tech Students**

S. No.	Subject Code	Course Name	University/ Industry Partner Name	N. of Hours	Credits
1.	BMC0002	Next Gen Technologies	Infosys Wingspan (Infosys Springboard)	10h 14m	0.5
2.	BMC0042	Programming Fundamentals using Python - Science Graduates - Foundation Program	Infosys Wingspan (Infosys Springboard)	66h 10m	4

Abbreviation Used:

L: Lecture, T: Tutorial, P: Practical, CT: Class Test, TA: Teacher Assessment, PS: Practical Sessional, TE: Theory End Semester Exam., CE: Core Elective,OE:Open Elective, DE: Departmental Elective, PE: Practical End Semester Exam, CA: Compulsory Audit, MOOCs: Massive Open Online Courses.

NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY, GREATER NOIDA, GAUTAM BUDDH NAGAR

(AN AUTONOMOUS INSTITUTE)

Bachelor of Technology

Computer Science

Evaluation Scheme

SEMESTER-II

Sl. No.	Subject Code	Subject	Types of Subject	Periods			Evaluation Schemes				End Semester		Total	Credit
				L	T	P	CT	TA	TOTAL	PS	TE	PE		
1	BAS0203	Engineering Mathematics-II	Mandatory	3	1	0	30	20	50		100		150	4
2	BEC0201Z	Basic Electrical and Electronics Engineering	Mandatory	3	0	0	30	20	50		100		150	3
3	BCSE0204	Discrete Structures	Mandatory	3	0	0	30	20	50		100		150	3
4		Foreign Language	Core Elective	2	0	0	30	20	50		50		100	2
5	BCSE0252	Advanced Python	Mandatory	0	0	6				50		100	150	3
6	BASL0251	Communication for Career Enhancement	Mandatory	0	0	4				50		50	100	2
7	BEC0251N	Basic Electrical and Electronics Engineering Lab	Mandatory	0	0	2				25		25	50	1
8	BME0251N	CAD and Digital Manufacturing	Mandatory	0	0	6				50		100	150	3
9	BNC0203/ BNC0202	Essence of Indian Traditional Knowledge / Constitution of India, Law and Engineering	Compulsory Audit	2	0	0	30	20	50		50		100	NA
		*Massive Open Online Courses (For B.Tech. Hons. Degree)	*MOOCs											
		TOTAL											**1000**	**21**

PLEASE NOTE: -

- **A 3-4 weeks Internship shall be conducted during summer break after semester-II and will be assessed during semester-III**
- **Compulsory Audit (CA) Courses (Non-Credit - BNC0202/BNC0203)**
  - All Compulsory Audit Courses (a qualifying exam) do not require any credit.
  - The total and obtained marks are not added in the grand total.

Foreign Language:

S. No.	Subject Code	Course Name	Types of Subject
1.	BASL0202	French	Core Elective
2.	BASL0203	German	Core Elective
3.	BASL0204	Japanese	Core Elective

*** List of MOOCs Based Recommended Courses for first year (Semester-II) B. Tech Students**

S. No.	Subject Code	Course Name	University/ Industry Partner Name	N. of Hours	Credits
1.	BMC0004	Programming In C	Infosys Wingspan (Infosys Springboard)	17h 7m	1
2.	BMC0041	Microsoft Office 2016	Infosys Wingspan (Infosys Springboard)	31h 54m	2.5

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Abbreviation Used:

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NOIDA INSTITUTE OF ENGINEERING & TECHNOLOGY, GREATER NOIDA, GAUTAM BUDDH NAGAR

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AICTE Guidelines in Model Curriculum:

A student will be eligible to get Under Graduate degree with Honours only, if he/she completes the additional MOOCs courses such as Coursera certifications, or any other online courses recommended by the Institute (Equivalent to 20 credits). During Complete B.Tech. Program Guidelines for credit calculations are as follows.

1. For 6 to 12 Hours =0.5 Credit
2. For 13 to18 =1 Credit
3. For 19 to 24 =1.5 Credit
4. For 25 to 30 =2 Credit
5. For 31 to 35 =2.5 Credit
6. For 36 to 41 =3 Credit
7. For 42 to 47 =3.5 Credit
8. For 48 and above =4 Credit

For registration to MOOCs Courses, the students shall follow Coursera registration details as per the assigned login and password by the Institute these courses may be cleared during the B. Tech degree program (as per the list provided). After successful completion of these MOOCs courses, the students shall provide their successful completion status/certificates to the Controller of Examination (COE) of the Institute through their coordinators/Mentors only.

The students shall be awarded Honours Degree as per following criterion.

i. If he / she secures 7.50 as above CGPA.

ii. Passed each subject of that degree program in the single attempt without any grace.

iii. Successful completion of MOOCs based 20 credits

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

Department of Mathematics

Subject Name: Engineering Mathematics - I	**L-T-P [3-1-0]**
Subject Code: BAS0103	**Applicable in Department: B.Tech.- First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**

Pre-requisite of Subject: Knowledge of Mathematics up to 12th standard

Course Objective:

The objective of this course is to familiarize the graduate engineers with techniques in linear algebra, differential calculus-I, differential calculus-II and multivariable calculus. It aims to equip the students with standard concepts and tools from intermediate to advanced level that will enable them to tackle more advanced level of mathematics and applications that they would find useful in their disciplines.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Apply the concept of matrices to solve linear simultaneous equations	K3
CO2	Apply the concept of successive differentiation and partial differentiation to solve problems of Leibnitz theorems and total derivatives.	K3
CO3	Apply partial differentiation for evaluating maxima, minima, Taylor's series and Jacobians.	K3
CO4	Apply the concept of multiple integral to find area, volume, centre of mass and centre of gravity.	K3
CO5	Solve the problems of Profit, Loss, Number & Series, Coding & decoding, Algebra.	K3

Syllabus						
Unit No	**Module Name**	**Topic covered**	**Pedagogy**	**Lecture Required (L+P)**	**Practical/ Assignment/ Lab Nos**	**CO Mapping**
Unit 1	**Matrices**	Types of Matrices: Symmetric, Skew-symmetric and Orthogonal Matrices; Complex Matrices, Inverse and Rank of matrix using elementary transformations, System of linear equations, Characteristic equation, Cayley-Hamilton Theorem and its application, Eigen values and eigenvectors; Diagonalisation of a Matrix. Applications in Engineering.	Classroom,PPT, M.Tutor, Smart Board	8	1.1, 1.2, 1.3, 1.4	**CO1**
Unit 2	**Differential Calculus -I**	Successive Differentiation (nth order derivatives), Leibnitz theorem and its application, Asymptotes, Curve tracing: Cartesian and Polar co-ordinates. Partial derivatives, Total derivative, Euler's Theorem for homogeneous functions. Applications in Engineering.	Classroom,PPT, M.Tutor, Smart Board	8	2.1, 2.2, 2.3	**CO2**
Unit 3	**Differential Calculus -II**	Taylor and Maclaurin's theorems for a function of one and two variables, Jacobians, Approximation of errors. Maxima and Minima of functions of several variables, Lagrange Method of Multipliers. Applications in Engineering.	Classroom,PPT, M.Tutor, Smart Board	8	3.1, 3.2, 3.3	**CO3**
Unit 4	**Multivariable Calculus**	Multiple integration: Double integral, Triple integral, Change of order of integration, Change of variables, Application: Areas and volumes, Beta & Gama function and their properties, Dirichlet's integral and its applications. Applications in Engineering.	Classroom,PPT, M.Tutor, Smart Board	10	4.1, 4.2, 4.3	**CO4**
Unit 5	**Aptitude-I**	Simplification, Percentage, Profit, loss & discount, Average, Number & Series, Coding & decoding, Algebra.	Classroom,PPT, M.Tutor, Smart Board	8	5.1, 5.2, 5.3, 5.4	**CO5**

Total	42		

Textbooks	
Sr No	**Book Details**
1.	B. V. Ramana, Higher Engineering Mathematics, Tata Mc Grew-Hill Publishing Company Ltd.
2.	B. S. Grewal, Higher Engineering Mathematics, Khanna Publisher.
3.	R K. Jain & S R K. Iyenger, Advance Engineering Mathematics, Narosa Publishing House.

Reference Books	
Sr No	**Book Details**
1.	E. Kreyszig, Advance Engineering Mathematics, John Wiley & Sons.
2.	Peter V. O'Neil, Advance Engineering Mathematics, Thomson (Cengage) Learning.
3.	D. Poole, Linear Algebra: A Modern Introduction, 2nd Edition, Brooks/Cole.
4.	Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi.
5.	Ray Wylie C and Louis C Barret, Advanced Engineering Mathematics, Tata Mc-Grew-Hill; Sixth Edition.
6.	P. Siva Ramakrishna Das and C. Vijayakumari, Engineering Mathematics, 1st Edition, Pearson India Education Services Pvt. Ltd.
7.	Advanced Engineering Mathematics. Chandrika Prasad, Reena Garg.
8.	Engineering Mathematics – I. Reena Garg.
9.	Quantitative Aptitude by R.S. Agrawal.

10.	Maurice D. Weir, Joel Hass, Frank R. Giordano, Thomas, Calculus, Eleventh Edition, Pearson.

Links (Only Verified links should be pasted here)
Youtube Link: **Unit 1:** **https://www.youtube.com/watch?v=kcL5WWJjmIU** **https://www.youtube.com/watch?v=VTHz4gjzsKI** **https://youtu.be/56dEt9EOZ_M** **https://www.youtube.com/watch?v=njDiwB43w80** **https://www.youtube.com/watch?v=N33SOw1A5fo** **https://www.youtube.com/watch?v=yLi8RxqfowA** **www.math.ku.edu/~lerner/LAnotes/Chapter5.pdf** **http://www.math.hawaii.edu/~lee/linear/sys-eq.pdf** **https://youtu.be/41Y38WjHbtE** **https://www.youtube.com/watch?v=4jcvZmMK_28** **https://www.youtube.com/watch?v=G4N8vJpf7hM** **https://www.youtube.com/watch?v=r5dIXpssvrA** **https://youtu.be/ZX5YnDMzwbs http://web.mit.edu/2.151/www/Handouts/CayleyHamilton.pdf** **Unit 2:** **https://www.youtube.com/watch?v=tQxk5IX9S_8&list=PLbu_fGT0MPstS3DTIyqkUecSW_7axdxKe** **https://www.youtube.com/watch?v=U5sGFf0DjLs&t=34s** **https://www.youtube.com/watch?v=TCPPvRfHtXw** **https://www.youtube.com/watch?v=PkuPGKSacu0&list=PL2FUpm_Ld1Q3H00wVFuwjWOo1gtMXk1eb**

https://www.youtube.com/watch?v=QeWrQ9Fz3Wo&t=22s

https://www.youtube.com/watch?v=5dFrWCE6bHg

https://www.youtube.com/watch?v=WX6O9TiFYsA&t=110s

https://www.youtube.com/watch?v=GII1ssdR2cg&list=PLhSp9OSVmeyK2yt8hdoo3Qze3O0Y67qaY

Unit 3:

https://www.youtube.com/watch?v=6tQTRlbkbc8

https://www.youtube.com/watch?v=McT-UsFx1Es

https://www.youtube.com/watch?v=_1TNtFqiFQo

https://www.youtube.com/watch?v=X6kp2o3mGtA

https://www.youtube.com/watch?v=btLWNJdHzSQ

https://www.youtube.com/watch?v=jiEaKYI0ATY

https://www.youtube.com/watch?v=r6lDwJZmfGA

https://www.youtube.com/watch?v=Jk9xMY4mPH8

https://www.youtube.com/watch?v=fqq_UR4zhfI

https://www.youtube.com/watch?v=G0V_yp0jz5c

https://www.youtube.com/watch?v=9-tir2V3vYY

https://www.youtube.com/watch?v=jGwA4hknYp4

Unit 4:

https://www.youtube.com/watch?v=3BbrC9JcjOU https://www.youtube.com/watch?v=-DduB46CoZY

https://www.youtube.com/watch?v=VvKAuFBJLs0

https://www.youtube.com/watch?v=4rc3w1sGoNU

https://www.youtube.com/watch?v=X6kp2o3mGtA&t=1003s

https://www.youtube.com/watch?v=wtY5fx6VMGQ&t=1151s

https://www.youtube.com/watch?v=-I3HUeHi1Ys&t=1933s

https://www.youtube.com/watch?v=kfv9h3c46CI

https://www.youtube.com/watch?v=9_m36W3cK74

https://www.youtube.com/watch?v=HQM7XMd5QQo

https://www.GovernmentAdda.com

Unit 5:

https://www.GovernmentAdda.com

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
Department of Physics

Subject Name: Engineering Physics	**L-T-P [3-0-2]**
Subject Code: BAS0101AZ	**Applicable in Department: B.Tech.- First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**

Pre-requisite of Subject:

1. Newton's law of motion.
2. Scalar and vector (gard, div. and curl)
3. Basic laws of optics.
4. Basic laws of electricity and magnetism.
5. Atomic structure and atomic spectra.
6. Properties of matter.

Course Objective:

1. To provide the knowledge of Relativistic Mechanics and their uses to engineering applications.
2. To provide the knowledge of Quantum Mechanics and to explore possible engineering utilization.
3. To provide the knowledge of interference and diffraction.
4. To provide the knowledge of the phenomenon of semiconductors and its uses to engineering applications.
5. To provide the basic knowledge of Optical Fiber and Laser which is necessary to understand the working of modern engineering tools and techniques.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Solve the relativistic mechanics problems.	K1
CO2	Apply the concept of quantum mechanics.	K3
CO3	Apply the laws of optics and their application in various processes.	K3

CO4	Define the laws of semiconductors.	K2
CO5	Explain the working of modern engineering tools and techniques of optical fiber and laser.	K3

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping
Unit 1	**Relativistic Mechanics**	Frame of reference, Inertial & non-inertial frames, Galilean transformations, Michelson Morley experiment, Postulates of special theory of relativity, Lorentz transformations, Length contraction, Time dilation, Velocity addition theorem, Variation of mass with velocity, Einstein's mass energy relation, Relativistic relation between energy and momentum, Massless particle. Some engineering applications(qualitative): Global positioning system (GPS), Application to Satellites.	Smartboard, PPT	8	Assignment 1.1,1.2,1.3	**CO1**
Unit 2	**Quantum Mechanics**	Introduction to wave-particle duality, de Broglie matter waves, Phase and group velocities, Heisenberg's uncertainty principle and its applications, Wave function characteristics and significance, Time-dependent and time- independent Schrödinger's wave equations, Particle in one-dimensional rigid box. Theory of Quantum excitation of the Higgs field (Higgs Boson or GOD particle)(qualitative).	Smartboard, PPT	8	Assignment 2.1, 2.2,2.3/ Exp. 7,5, 19	**CO2**
Unit 3	**Wave Optics**	Coherent sources, Interference in uniform and wedge shaped thin films, Necessity of extended sources, Newton's Rings and its applications, Fraunhofer diffraction at single slit and at double slit, absent spectra, Diffraction grating, grating spectra, Rayleigh's criterion of resolution, Resolving power of grating, Some engineering applications(qualitative): Optical filters.	Smartboard, PPT	10	Assignment 3.1, 3.2/ Exp.1,2,4	**CO3**
Unit 4	**Semiconductor Physics and Information Storage**	(a) Introduction to the concept of electrical conductivity, conductivity of conductors and semiconductors, Fermi-Dirac probability distribution function, Position of Fermi level in intrinsic semiconductors and extrinsic semiconductors, variation of Fermi level with temperature	Smartboard, PPT	6	Assignment 4.1, 4.2/Exp.5, 8, 9, 11, 12, 20, 22	**CO4**

		(qualitative), Photovoltaic effect, working of a solar cell on the basis of band diagrams and Applications. **(b)** Basics of magnetic, and semiconductor memories				
Unit 5	**Fiber Optics & Laser**	Fiber Optics: Introduction to fiber optics, Acceptance angle, Numerical aperture, Normalized frequency, Classification of fiber, Attenuation and Dispersion in optical fibers. Laser: Absorption of radiation, Spontaneous and stimulated emission of radiation, Einstein's coefficients, Population inversion, Ruby Laser, He-Ne Laser. Recent engineering applications of optical fibers and Laser(Qualitative): Laser-guided UAV (Drone).	Smartboard, PPT	8	Assignment 5.1, 5.2/ Exp.16, 17, 18	**CO5**
Total				**40**		

Textbooks	
Sr No	**Book Details**
1.	A. Beiser, Concepts of Modern Physics (McGraw Hill)
2.	Brijlal & Subramanian, Optics (S. Chand)
3.	Neeraj Mehta, Applied Physics for Engineers (PHI Learning, New)
Reference Books	
Sr No	**Book Details**
1.	Robert Resnick, Introduction to Special Theory of Relativity (Wiley)

2.	Katiyar and Pandey, Engineering Physics: Theory and Practical (Wiley India)
3.	H. K. Malik and A. K. Singh, Engineering Physics- (McGrawHill)
4.	J.W. Jewett , Jr. and R. A. Serway , Physics for Scientists and Engineers with Modern Physics,7th Edn. (CENGAGE Learning)
5.	C. Kittel , Solid State Physics,7th Edn. (Wiley Eastern)
6.	V. Raghavan, Materials Science and Engineering (Prentice Hall, India)
7.	S.O. Pillai , Solid State Physics,5th Edn (New Age International)
8.	R. Booker and E. Boysen , Nanotechnology (Wiley Publ.)
9.	K.Rajagopal, Engineering Physics, 2nd Edn. (PHI Learning)
10.	G. Aruldhas , Engineering Physics (PHI Learning)
11.	S.D. Jain and G.S. Sahasrabudhe , Engineering Physics (Universities Press)
12.	L. F. Bates, Modern Magnetism, (Cambridge Univ. Press)
13.	F.T.S.Yu , X.-Y.Yang, Introduction to Optical Engineering (Cambridge Univ.Press)
14.	G.Keiser, Optical Communications Essentials (Tata McGrawHill)

Links (Only Verified links should be pasted here)

UNIT1: https://www.youtube.com/watch?v=lzBKlY4f1XA&list=PL10WTjZXSIlHKMnU4UCxpPsH-yAf_n1O6&index=11

UNIT2: **http://nptel.ac.in/ , http://www.mit.edu/**

UNIT3: **https://www.youtube.com/watch?v=bWTxf5dSUBE , http://ocw.mit.edu/, http://nptel.ac.in/**

UNIT4: https://www.youtube.com/watch?v=6vyYRnLvnqI

UNIT5: https://www.youtube.com/watch?v=0GD-18Jqnro, https://www.youtube.com/watch?v=dQhhcgn8YZo

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

School of Computer Science in Emerging Technologies

Subject Name: Design Thinking- I	**L-T-P [2-1-0]**
Subject Code: BCSE0103	**Applicable in Department: B. Tech.-First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**

Pre-requisite of Subject:

Course Objective:

The objective of this course is to familiarize students with design thinking process as a tool for breakthrough innovation. It aims to equip students with design thinking skills and ignite the minds to create innovative ideas, develop solutions for real-time problems.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Develop a strong understanding of the design process and apply it in a variety of business settings	K1
CO2	Analyze self, culture, teamwork to work in a multidisciplinary environment and exhibit empathetic behaviour	K3
CO3	Formulate specific problem statements of real time issues and generate innovative ideas using design tools	K4
CO4	Apply critical thinking skills in order to arrive at the root cause from a set of likely causes	K4
CO5	Demonstrate an enhanced ability to apply design thinking skills for evaluation of claims and arguments	K4

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping
Unit 1	**Introduction**	An overview of future skills, introduction to design thinking, traditional problem solving versus design thinking, history of design thinking, wicked problems. Innovation and creativity, the role of innovation and creativity in organizations, creativity in teams and their environments, design mindset. Introduction to elements and principles of design, 13 Musical Notes for Design Mindset, Examples of Great Design, Design Approaches across the world.	Smartboard/PPT/Text book/Reference book	**10**	Practical Approach (Discussion and Activities), Workshop at School of Future Skills Activity related to observation & team building exercise	**CO 1**
Unit 2	**Ethical Values and Empathy**	Understanding humans as a combination of I (self) and body, basic physical needs up to actualization, prosperity, the gap between desires and actualization. Understanding culture in family, society, institution, startup, socialization process. Ethical behaviour: effects on self, society, understanding core values and feelings, negative sentiments and how to overcome them, definite human conduct: universal human goal, developing human consciousness in values, policy, and character. Understand stakeholders, techniques to empathize, identify key user problems. Empathy tools- Interviews, empathy maps, emotional mapping, immersion and observations, Emotional Intelligence, customer journey maps, classifying insights after Observations, Classifying Stakeholders, Individual activity- 'Moccasin walk'	Smartboard/PPT/Text book/Reference book	**8**	Practical Approach (Discussion and Activities)/ Assignment Activity related to Empathy Map and Journey Mapping	**CO 2**

Unit 3	**Problem Statement and Ideation**	Defining the problem statement, creating personas, Point of View (POV) statements. Research identifying drivers, information gathering, target groups, samples, and feedbacks. Idea Generation basic design directions, Themes of Thinking, inspirations and references, brainstorming, inclusion, sketching and presenting ideas, idea evaluation, double diamond approach, analyze – four W's, 5 why's, "How Might We", Defining the problem using Ice-Cream Sticks, Metaphor & Random Association Technique, Mind-Map, ideation activity games - six thinking hats, million-dollar idea, introduction to visual collaboration and brainstorming tools - Mural, JamBoard.	Smartboard/PPT/Text book/Reference book	**8**	Practical Approach (Discussion and Activities)/ Assignment Activity related to Brainstorming and Six Thinking Hats	**CO 3**
Unit 4	**Critical Thinking**	Fundamental concepts of critical thinking, the difference between critical and ordinary thinking, characteristics of critical thinkers, critical thinking skills- linking ideas, structuring arguments, recognizing incongruences, five pillars of critical thinking, argumentation versus rhetoric, cognitive bias, tribalism, and politics. Case study on applying critical thinking on different scenarios.	Smartboard/PPT/Text book/Reference book	**6**	Practical Approach (Discussion and Activities)/Assignment Activity related to identifying Biases	**CO 4**
Unit 5	**Logic and Argumentation**	The argument, claim, and statement, identifying premises and conclusion, truth and logic conditions, valid/invalid arguments, strong/weak arguments, deductive argument, argument diagrams, logical reasoning, scientific reasoning, logical fallacies, propositional logic, probability, and judgment, obstacles to critical thinking. Group activity/role plays on evaluating arguments.	Smartboard/PPT/Text book/Reference book	**8**	Practical Approach (Discussion and Activities)/Assignment	**CO 5**

Total	40		

Textbooks	
Sr No	**Book Details**
1.	Arun Jain, UnMukt : Science & Art of Design Thinking, 2020, Polaris
2.	Jeanne Liedta, Andrew King and Kevin Benett, Solving Problems with Design Thinking – Ten Stories of What Works, 2013, Columbia Business School Publishing
3.	RR Gaur, R Sangal, G P Bagaria, A Foundation Course in Human Values and Professional Ethics, First Edition, 2009, Excel Books: New Delhi

Reference Books	
Sr No	**Book Details**
1.	Vijay Kumar, 101 Design Methods: A Structured Approach for Driving Innovation in Your Organization, 2013, John Wiley and Sons Inc, New Jersey
2.	Mootee, I. (2013). Design thinking for strategic innovation: What they can't teach you at business or design school. John Wiley & Sons.
3.	Gavin Ambrose and Paul Harris, Basics Design 08: Design Thinking, 2010, AVA Publishing SA
4.	Roger L. Martin, Design of Business: Why Design Thinking is the Next Competitive Advantage, 2009, Harvard Business Press, Boston MA

Links (Only Verified links should be pasted here)

Video Link:

Unit1:

https://nptel.ac.in/courses/110/106/110106124/

https://nptel.ac.in/courses/109/104/109104109/

https://designthinking.ideo.com/

https://blog.hypeinnovation.com/an-introduction-to-design-thinking-for-innovation-managers

https://www.creativityatwork.com/design-thinking-strategy-for-innovation/

https://www.youtube.com/watch?v=GFffb2H-gK0

Unit 2

https://aktu.ac.in/hvpe/

http://aktu.uhv.org.in/

https://nptel.ac.in/courses/110/106/110106124/

https://swayam.gov.in/nd1_noc19_mg60/preview

Unit 3

https://nptel.ac.in/courses/110/106/110106124/

https://swayam.gov.in/nd1_noc19_mg60/preview

https://www.udemy.com/course/design-thinking-for-beginners/

https://www.designthinking-methods.com/en/

https://www.interaction-design.org/literature/article/personas-why-and-how-you-should-use-them

Unit 4

https://www.forbes.com/sites/sap/2016/08/25/innovation-with-design-thinking-demands-critical-thinking/#340511486908

https://www.criticalthinking.org/pages/defining-critical-thinking/766

Unit 5

https://www.udemy.com/course/critical-thinker-academy/

https://swayam.gov.in/nd2_aic19_ma06/preview

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

School of Computer Science in Emerging Technologies

Subject Name: Problem Solving using Python	**L-T-P [0-0-6]**
Subject Code: BCSE0151	**Applicable in Department: B.Tech.- First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Basic Computer Knowledge, Logical Thinking & Basic Mathematics	
Course Objective: To provide Basic knowledge of Python programming and to implement programming skill for solving real world problems	

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Understanding basic programming logic.	K1
CO2	Implement python programs using decision control statements.	K3
CO3	Implement user defined functions and modules in python	K3
CO4	Implement python data structures –lists, tuples, set, dictionaries	K3
CO5	Apply programming concepts to solve real world problem.	K3

Syllabus						
Unit No	**Module Name**	**Topic covered**	**Pedagogy**	**Lecture Required (L+P)**	**Practical/ Assignment/ Lab Nos**	**CO Mapping**
Unit-I	**Basics of python programming**	Problem Solving Techniques, Algorithm, Building blocks of algorithms (statements, state, control flow, functions), Notation, Flow chart, Pseudo code, programming language, Categories of programming languages. A Brief History of Python, Applications areas of python, The Programming Cycle for Python, Python IDE, Interacting with Python Programs.	White board, Smart board Lecture, Hands-on exercise, Demonstration practical lab	7+8	Practical (1.1-1.45)	**CO1**
Unit-II	**Decision Control Statements**	Conditionals: Conditional statement in Python (if-else statement, its working and execution) Nested-if statement and elif statement in Python, Expression Evaluation & Float Representation. Loops: Purpose and working of loops, while loop, For Loop, Nested Loops, Break and Continue, pass statement.	White board, Smart board Lecture, Hands-on exercise, Demonstration	4+10	Practical (2.1-2.66)	**CO2**

			practical lab			
Unit III	**Function and Modules**	Introduction of Function, calling a function, Function arguments, built in function, scope rules Passing function to a function, recursion, Lambda functions Modules and Packages: Importing Modules, writing own modules, Standard library modules, dir( ) Function, Packages in Python	White board, Smart board Lecture, Hands-on exercise, Demonstration, practical lab	6+9	Practical (3.1-3.29)	**CO3**
Unit IV	**Basic Data structures in Python**	Strings: Basic operations, Indexing and Slicing of Strings, Comparing strings Regular expressions. Python Basic Data Structure: Sequence, Unpacking Sequences, Mutable Sequences, Lists, Looping in lists, Tuples, Sets, Dictionaries. Map, filter, Reduce, Comprehension	White board, Smart board Lecture, Hands-on exercise, Demonstration practical lab	5+9	Practical (4.1-4.75)	**CO4**

Unit V	**File and Exception handling**	Exception Handling, Errors, Run Time Errors, Handling IO Exception, Try-except statement, Raise	White board, Smart board Lecture, Hands-on exercise, Demonstration Practical lab	3+7	Practical (5.1-5.21**)**	**CO5**
Total				**68**		

Lab Experiments		
Course Objective: To understand Python syntax and its data types and develop problem solving and debugging skills to solve real world problems.		
Course Outcomes (CO)		
Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Understanding basic programming logic.	K1
CO2	Implement python programs using decision control statements.	K3
CO3	Implement user defined functions and modules in python	K4
List of Practical		
Sr No	**Program Title**	**CO Mapping**

1.1	Python Program to Print Statement	CO1
1.2	Swap two variables without using a temporary variable	CO1
1.3	Check if a given number is even or odd.	CO1
1.4	Find the largest of three numbers.	CO1
1.5	Convert a string to an integer.	CO1
1.6	Convert an integer to a string.	CO1
1.7	Convert a string to a floating-point number.	CO1
1.8	Convert a floating-point number to an integer.	CO1
1.9	WAP to demonstrate implicit and explicit type conversion.	CO1
1.10	Convert Employee Count to Binary	CO1

1.11	Convert Revenue to Currency Format	CO1
1.12	Write a program to Calculate Sum of 5 Subjects and Find Percentage (Max Mark in each subject is 100).	CO1
1.13	Write a program to find gross salary.	CO1
1.14	Write a program to Calculate Area of Rectangle, Square.	CO1
1.15	Write a program to Calculate Area of Scalene Triangle and Right-angle Triangle.	CO1
1.16	Write a program to find the perimeter of a circle, rectangle and triangle.	CO1
1.17	Write a program to Compute Simple Interest.	CO1
1.18	Write a program to Convert Fahrenheit temperature in to Celsius.	CO1
1.19	Write a program to Find the Gravitational Force Acting Between Two Objects.	CO1
1.20	Write a program to swap the values of two variables with and without using third variable.	CO1

1.21	Write a program to perform arithmetic operations on a = 8, b = 3.	CO1
1.22	Write a program to apply relational operations on a=8, b=3.	CO1
1.23	Write a program to apply assignment operations on a=8, b=3.	CO1
1.24	Write a program to apply logical operations on a=8, b=3.	CO1
1.25	Write a program to apply bitwise operations on a=8, b=3.	CO1
1.26	Write a program to apply identity operators.	CO1
1.27	Write a program to Swap the Contents of two Numbers using Bitwise XOR Operation	CO1
1.28	WAP to find the absolute value of the given number.	CO1
1.29	Write a program to Add two Complex Numbers.	CO1

1.30	Write a Program to find roots of a quadratic expression.	CO1
1.31	Program to perform basic arithmetic operations (addition, subtraction, multiplication, division) on two numbers.	CO1
1.32	Program to calculate the area of a rectangle using the multiplication operator.	CO1
1.33	Program to calculate the average of a list of numbers using the division operator.	CO1
1.34	Program to compare two numbers and determine if they are equal.	CO1
1.35	Program to compare two numbers and determine whether they are greater than or less than .	CO1
1.36	Program to check if a given string is equal to a specific value.	CO1
1.37	Write a program to apply Logical AND operator on two operands.	CO1
1.38	Write a program to apply Logical OR operator on two operands.	CO1
1.39	Write a program to apply Logical NOT operator on an operand.	CO1

1.40	Program to increment or decrement a variable using assignment operators.	CO1
1.41	Program to calculate compound interest using compound assignment operators.	CO1
1.42	Program to perform bitwise AND, OR, XOR, left shift, and right shift operations.	CO1
1.43	Program to check if a given number is odd or even using bitwise operators.	CO1
1.44	Write a Python script that calculates the average score from a list of exam scores using basic arithmetic operations and control flow statements.	CO1
1.45	Create a basic calculator GUI application using Python's Tkinter library.	CO1
2.1	Write a program to Accept two Integers and Check if they are Equal.	CO 2
2.2	Write a program to Check if a given Integer is Positive or Negative and Odd or Even.	CO 2
2.3	Write a program to Check if a given Integer is Divisible by 7 or not.	CO 2
2.4	Write a program to find the greatest of three numbers using else if ladder.	CO 2
2.5	Write a program to find the greatest of three numbers using Nested if.	CO 2
2.6	Write a program to convert an Upper-case character into lower case and vice-versa.	CO 2
2.7	Write a program to check weather an entered year is leap year or not.	CO 2

2.8	Write a Program to check whether an alphabet entered by the user is a vowel or a constant.	CO 2
2.9	Write a program to print day according to the day number entered by the user.	CO 2
2.10	Write a program to print color name, if user enters the first letter of the color name.	CO 2
2.11	Write a program to Simulate Arithmetic Calculator.	CO 2
2.12	Write a menu driven program for calculating area of different geometrical figures such as circle, square, rectangle, and triangle.	CO 2
2.13	WAP that accepts the marks of 5 subjects and finds the percentage marks obtained by the student. It also prints grades according to the following criteria: Between 90-100% Print 'A', 80-90% Print 'B', 60-80% Print 'C', 50-60% Print 'D', 40-50% Print 'E', Below 40% Print 'F'.	CO 2
2.14	WAP to enter a character and then determine whether it is a vowel, consonants, or a digit.	CO 2
2.15	Write a program to display all even numbers from 1 to 20	CO 2
2.16	Write a program to print all the Numbers Divisible by 7 from 1 to 100.	CO 2
2.17	Write a program to print table of any number.	CO 2
2.18	Write a program to Find the Sum of first 50 Natural Numbers using for Loop.	CO 2
2.19	Write a program to calculate factorial of a given number using for loop and also using while loop.	CO 2
2.20	Write a program to count the sum of digits in the entered number.	CO 2
2.21	Write a program to find the reverse of a given number.	CO 2
2.22	Write a program to Check whether a given Number is Perfect Number.	CO 2

2.23	Write a program to Print Armstrong Number from 1 to 1000.	CO 2
2.24	Write a program to Compute the Value of Xn.	CO 2
2.25	Write a program to Calculate the value of nCr.	CO 2
2.26	Write a program to generate the Fibonacci Series.	CO 2
2.27	Write a program to check whether a given Number is Palindrome or Not.	CO 2
2.28	Write a program to Check whether a given Number is an Armstrong Number.	CO 2
2.29	Write a program to print all prime numbers from 1-500.	CO 2
2.30	Write a program to find the Sum of all prime numbers from 1-1000.	CO 2
2.31	Write a program to display the following pattern: *	CO 2
2.32	Write a program to display the following pattern: *	CO 2

	* * * * * * * * * * * * * *	
2.33	Write a program to display the following pattern: 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5	CO 2
2.34	Write a program to display the following pattern: A B B C C C D D D D E E E E E	CO 2

2.35	Write a program to display the following pattern: * * * * * * * * * * * * * * *	CO 2
2.36	Write a program to display the following pattern: 1 2 3 4 5 1 2 3 4 1 2 3 1 2 1	CO 2
2.37	Write a program to display the following pattern: *	CO 2

	* * * * * * * * * * * * * * *	
2.38	Write a program to display the following pattern: *	CO 2
2.39	Write a program to display the following pattern (Pascal Triangle): 1 1 1 1 2 1 1 3 3 1	CO 2

	1 4 6 4 1 1 5 10 10 5 1	
2.40	Write a program to display the following pattern: 1 2 3 4 5 6 7 8 9 10	CO 2
2.41	Write a program to display the following pattern: A B C D E F G F E D C B A A B C D E F F E D C B A A B C D E E D C B A A B C D D C B A A B C C B A A B B A	CO 2

	A A	
2.42	Write a program to display the following pattern: *	CO 2
2.43	Write a program to display the following pattern:	CO 2

	0 0 01 10 010 010 0101 1010 0101001010	
2.44	Write a program to display the following pattern: A B C D E F G H I J K L M N O	CO 2
2.45	Write a program to display the following pattern: A BAB CBABC	CO 2

	DCBABCD EDCBABCDE	
2.46	Write a program to Find the Sum of A.P Series.	CO 2
2.47	Write a program to Find the Sum of G.P Series.	CO 2
2.48	Write a program to Find the Sum of H.P Series.	CO 2
2.49	Write a program to print the following sequence of integers. 1, 2, 4, 8, 16, 32	CO 2
2.50	Write a program to find the Sum of following Series: (1*1) + (2*2) + (3*3) + (4*4) + (5*5) + ... + (n*n)	CO 2
2.51	Write a program to find the Sum of following Series: (1^1) + (2^2) + (3^3) + (4^4) + (5^5) + ... + (n^n)	CO 2
2.52	Write a program to find the Sum of following Series: (1!/1) + (2!/2) + (3!/3) + (4!/4) + (5!/5) + ... + (n!/n)	CO 2
2.53	Write a program to print the following Series: 1, 2, 3, 6, 9, 18, 27, 54, ... upto n terms	CO 2
2.54	Write a program to print the following Series: 2, 15, 41, 80, 132, 197, 275, 366, 470, 587	CO 2
2.55	Write a program to print the following Series:1, 3, 4, 8, 15, 27, 50, 92, 169, 311	CO 2

2.56	Write a program to Convert the given Binary Number into Decimal.	CO 2
2.57	Write a program to Convert Binary to Hexadecimal.	CO 2
2.58	Write a program to find out L.C.M. of two numbers.	CO 2
2.59	Write a program to find out H.C.F. of two numbers.	CO 2
2.60	Python Program to Accept Three Digits and Print all Possible Combinations from the Digits.	CO 2
2.61	Python Program to Print Odd Numbers within a Given Range.	CO 2
2.62	Python Program to Find the Smallest Divisor of an Integer.	CO 2
2.63	Python Program to Count the Number of Digits in a Number	CO 2
2.64	Python program to find GCD between two given integer numbers.	CO 2
2.65	Create a program that calculates the grade based on the score entered by the user. Hint: Use if-elif-else statements to check the score range and assign the corresponding grade (e.g., A, B, C, D, F).	CO2
2.66	Extend the temperature converter case study to handle invalid inputs. Hint: Use try-except blocks to catch errors when the user enters non-numeric values or invalid temperature ranges.	CO2
3.1	Write a Python function to find the Max of three numbers.	CO3
3.2	Write a Python function to sum all the numbers in a list. Sample List: (8, 2, 3, 0, 7)	CO3

	Expected Output: 20	
3.3	Write a Python program to reverse a string. Sample String: "1234abcd" Expected Output: "dcba4321"	CO3
3.4	Write a Python function to check whether a number of falls in a given range.	CO3
3.5	Write a Python function that accepts a string and calculate the number of upper-case letters and lower-case letters. Sample String: 'The quick Brow Fox' Expected Output: No. of Upper case characters : 3 No. of Lower case Characters : 1	CO3
3.6	Write a Python function that takes a number as a parameter and check the number is prime or not.	CO3
3.7	Write a Python function that checks whether a passed string is palindrome or not.	CO3
3.8	Write a Python function that prints out the first n rows of Pascal's triangle.	CO3
3.9	Write a Python function that accepts a hyphen-separated sequence of words as input and prints the words in a hyphen-separated sequence after sorting them alphabetically. *Sample Items:* green-red-yellow-black-white Expected Result: black-green-red-white-yellow	CO3

3.10	Python function to convert height (in feet and inches) to centimetres	CO3
3.11	Python function to Convert Celsius to Fahrenheit.	CO3
3.12	Implement a function to check if two strings are anagrams of each other.	CO3
3.13	Python function to display all the Armstrong number from 1 to n.	CO3
3.14	Write a program using recursion to compute factorial of a given number.	CO3
3.15	Write a program to print Fibonacci Series using recursion.	CO3
3.16	Write a program to calculate sum of numbers 1 to N using recursion.	CO3
3.17	Write a program to Find Sum of Digits of the Number using Recursive Function.	CO3
3.18	Write a program to print Tower of Hanoi using recursion.	CO3
3.19	Python Program to Determine How Many Times a Given Letter Occurs in a String Recursively	CO3
3.20	Python Program to Find the Binary Equivalent of a Number Recursively	CO3
3.21	Python Program to Find the GCD of Two Numbers Using Recursion	CO3
3.22	Python Program to Find the Power of a Number Using Recursion	CO3
3.23	WAP to compute the sum of all the elements of the list using reduce() function.	CO3
3.24	A) Write a program to create a module and import the module in another python program.	CO3
3.25	Write a program to import all objects from a modules, specific objects from module and provide custom import name to the imported object from the module.	CO3
3.26	Create a python package having at least two modules in it.	CO3

3.27	Create a python package having at least one subpackage in it.	CO3
3.28	Explore and use standard library modules available in Python. Hint: Import standard library modules such as math, random, and os. Demonstrate the usage of functions and constants provided by these modules, such as calculating square roots, generating random numbers, and navigating the file system. Additionally, use the dir() function to inspect the attributes of these modules.	CO3
3.29	Create a Python module for basic arithmetic operations such as addition, subtraction, multiplication, and division. Hint: Develop a module named simple_calculator.py with functions for each arithmetic operation. Import this module into another Python script and use its functions to perform calculations.	CO3
4.1	Python program to check whether the string is Symmetrical or Palindrome	CO 4
4.2	Ways to remove i'th character from string in Python	CO 4
4.3	Python program to Check if a Substring is Present in a Given String	CO 4
4.4	Find length of a string in python (4 ways)	CO 4
4.5	Python program to print even length words in a string	CO 4
4.6	Python program to accept the strings which contains all vowels	CO 4
4.7	Remove all duplicates from a given string in Python	CO 4
4.8	Python program to Maximum frequency character in String	CO 4

4.9	Python Program to Replace all Occurrences of ‘a’ with $ in a String	CO 4
4.10	Python Program to Form a New String where the First Character and the Last Character have been Exchanged	CO 4
4.11	Python Program to Count the Number of Vowels in a String	CO 4
4.12	Python Program to Take in a String and Replace Every Blank Space with Hyphen	CO 4
4.13	Python Program to Calculate the Length of a String Without Using a Library Function	CO 4
4.14	Python Program to Remove the Characters of Odd Index Values in a String	CO 4
4.15	Python Program to Calculate the Number of Words and the Number of Characters Present in a String	CO 4
4.16	Python Program to Take in Two Strings and Display the Larger String without Using Built-in Functions	CO 4
4.17	Python Program to Check if a String is a Pangram or Not (A pangram is a sentence that uses all 26 letters of the English alphabet at least once. like” The quick brown fox jumps over the lazy dog”)	CO 4
4.18	Python Program to Accept a Hyphen Separated Sequence of Words as Input and Print the Words in a Hyphen-Separated Sequence after Sorting them Alphabetically	CO 4
4.19	Python Program to Form a New String Made of the First 2 and Last 2 characters From a Given String	CO 4
4.20	Python Program to Count the Occurrences of Each character in a Given String Sentence	CO 4
4.21	Python Program to Check if a Substring is Present in a Given String	CO 4

4.22	Python Program to Find the Most Repeated Word in a String.	CO 4
4.23	Write a python program to check the validity of a password given by the user. The password should satisfy the following criteria: i) Contain at least 1 letter between a and z. ii) Contain at least 1 number between 0 and 9. iii) Contain at least 1 letter between A and Z. iv) Contain at least 1 character from $,#,@. v) Maximum length of password 6. Maximum length of password:12.	CO 4
4.24	Write a python program to validate mobile number.	CO 4
4.25	Given an input file which contains a list of names and phone numbers separated by spaces in the following: i) Phone number contains a 3- or 2-digit area code and a hyphen followed by an 8-digit number. Find all names having phone number with a 3digit area code using regular expression.	CO 4
4.26	Program to interchange first and last elements in a list	CO 4
4.27	WAP to find min, max and average of elements of a list having numeric data	CO 4
4.28	Program to check if element exists in list	CO 4
4.29	Program for Reversing a List	CO 4

4.30	Program to Multiply all numbers in the list	CO 4
4.31	Program to find smallest and largest number in a list	CO 4
4.32	Program to find second largest number in a list	CO 4
4.33	Program to print all even numbers in a range	CO 4
4.34	Program to print all negative numbers in a range	CO 4
4.35	Program to Remove multiple elements from a list in Python	CO 4
4.36	Program to Cloning or Copying a list	CO 4
4.37	Program to Count occurrences of an element in a list	CO 4
4.38	Program to find Cumulative sum of a list	CO 4
4.39	Program to Break a list into chunks of size N in Python	CO 4
4.40	Python Program to transpose of Matrix.	CO 4
4.41	Python Program to Add Two Matrices.	CO 4
4.42	Python Program to Multiply Two Matrices.	CO 4
4.43	Program to get K^{th} Column of Matrix	CO 4
4.44	WAP to print all even numbers of a list using list comprehension.	CO 4
4.45	WAP that prompts user to enter an alphabet and then print all the words that starts with that alphabet from the list of words.	CO 4
4.46	WAP to transpose a given matrix using list comprehension.	CO 4

4.47	Print All the characters of a string using list Comprehension	CO 4
4.48	Write a program to calculate square of numbers upto n using list comprehension.	CO 4
4.49	Python program to Find the size of a Tuple	CO 4
4.50	Python – Maximum and Minimum K^{th} elements in Tuple	CO 4
4.51	Create a list of tuples from given list having number and its cube in each tuple	CO 4
4.52	Python – Flatten tuple of List to tuple	CO 4
4.53	Python Program to Count the Number of Vowels Present in a String using Sets	CO 4
4.54	Python Program to Check Common Letters in Two Input Strings	CO 4
4.55	Python Program that Displays which Letters are in the First String but not in the Second	CO 4
4.56	Python Program that Displays which Letters are Present in Both the Strings	CO 4
4.57	Python Program that Displays which Letters are in the Two Strings but not in Both	CO 4
4.58	Python Program to Add a Key-Value Pair to the Dictionary	CO 4
4.59	Python Program to Concatenate Two Dictionaries into One.	CO 4
4.60	Python Program to Check if a Given Key Exists in a Dictionary or Not	CO 4
4.61	Python Program to Generate a Dictionary that Contains Numbers (between 1 and n) in the Form (x,x*x).	CO 4
4.62	Python program to create an instance of an Ordered dict using a given dictionary. Sort the dictionary	CO 4

	during the creation and print the members of the dictionary in reverse order.	
4.63	Python Program to Sum All the Items in a Dictionary	CO 4
4.64	WAP to create dictionary which has characters of given string as keys and frequency of characters as values.	CO 4
4.65	Python Program to Multiply All the Items in a Dictionary	CO 4
4.66	Python Program to Remove the Given Key from a Dictionary	CO 4
4.67	Python Program to Form a Dictionary from an Object of a Class	CO 4
4.68	Python Program to Map Two Lists into a Dictionary	CO 4
4.69	Write a program Filtering even numbers from a list using tuple comprehension	CO 4
4.70	Creating a list of tuples from two lists using comprehension function	CO 4
4.71	Extracting the first character from each word in a list of strings	CO 4
4.72	Swapping keys and values in a dictionary	CO 4
4.73	Filtering even numbers from a dictionary:	CO 4
4.74	Write a Program to calculate square of number using dictionary comprehension	CO 4
4.75	Develop a Python program to analyze and manipulate text data using string operations and regular expressions. Hint: Implement functions to perform basic operations like concatenation, string slicing, and string	CO4

	comparison. Utilize regular expressions to extract specific patterns or information from the text data.	
5.1	Python program to read file word by word	CO 5
5.2	Python program to read character by character from a file	CO 5
5.3	Python – Get number of characters, words, spaces and lines in a file	CO 5
5.4	Program to Find ‘n’ Character Words in a Text File	CO 5
5.5	Python Program to obtain the line number in which given word is present	CO 5
5.6	Count number of lines in a text file in Python	CO 5
5.7	Python Program to remove lines starting with any prefix	CO 5
5.8	Python Program to Eliminate repeated lines from a file	CO 5
5.9	Python Program to read List of Dictionaries from File	CO 5
5.10	Python – Append content of one text file to another	CO 5
5.11	Python program to copy odd lines of one file to other	CO 5
5.12	Python Program to merge two files into a third file	CO 5
5.13	Python program to Reverse a single line of a text file	CO 5
5.14	Python program to reverse the content of a file and store it in another file	CO 5
5.15	Python Program to handle divide by zero exception.	CO 5
5.16	WAP to handle multiple exception.	CO 5

5.17	Python program to combine each line from first file with the corresponding line in second file.	CO 5
5.18	Write a program to copy the contents of one file to another.	CO 5
5.19	Write a program to print First 5 line in a file	CO 5
5.20	a) Write a program to catch the following exception: i) Value error ii) Index error iii) Name error iv) Type error v) Divide zero error. b) Write a program to create user defined exceptions. c) Write a program to understand the use of else and finally block with try block. Write a python program that uses raise and exception class to throw an exception.	CO 5
5.21	Develop a Python module containing custom functions for file handling operations such as reading CSV files, writing JSON files, and copying files. Hint: Write functions that encapsulate file handling operations for specific file formats or tasks. Utilize these functions in different Python scripts to perform file operations efficiently and consistently.	CO5

Required Software and Tools	
1. Anaconda (Jupiter Notebook) 2. Python Compiler (Open Source) 3. Google Co-Lab	
Textbooks	
Sr No	**Book Details**
1.	Magnus Lie Hetland, "Beginning Python-From Novice to Professional"—Third Edition, Apress
2.	Python Programming using Problem solving approach by Reema Thareja OXFORD Higher education
3.	Kenneth A. Lambert, ―Fundamentals of Python: First Programs, CENGAGE Learning.
Reference Books	
Sr No	**Book Details**
1.	John V Guttag, ―Introduction to Computation and Programming Using Python ‘‘, Revised and expanded Edition, MIT Press.
2.	Charles Dierbach, ―Introduction to Computer Science using Python: A Computational Problem-Solving Focus, Wiley India Edition.

3.	Allen B. Downey, “Think Python: How to Think Like a Computer Scientist”, 2nd edition, Updated for Python 3, Shroff/O‘Reilly Publishers.
4.	Robert Sedgewick, Kevin Wayne, Robert Dondero: Introduction to Programming in Python: An Inter- disciplinary Approach, Pearson India Education Services Pvt. Ltd.,2016.
5.	Guido van Rossum and Fred L. Drake Jr, ―An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd.

Links (Only Verified links should be pasted here)

Unit 1: **https://nptel.ac.in/courses/106/106/106106182/**

Unit 2: **https://nptel.ac.in/courses/106/106/106106212/**
https://www.youtube.com/watch?v=PqFKRqpHrjw

Unit 3: **https://nptel.ac.in/courses/106/106/106106145/**
https://www.youtube.com/watch?v=m9n2f9lhtrw
https://www.youtube.com/watch?v=oSPMmeaiQ68

Unit 4: **https://nptel.ac.in/courses/106/106/106106145/**
https://www.youtube.com/watch?v=ixEeeNjjOJ0&t=4s

Unit 5: **https://nptel.ac.in/courses/106/106/106106145/**
https://www.youtube.com/watch?v=NMTEjQ8-AJM

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
School of Computer Science & Information Technology

Subject Name: C Programming	**L-T-P [0-0-6]**
Subject Code: BCSE0152	**Applicable in Department: B.Tech.- First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Basic knowledge of computers	
Course Objective: The objective of a C programming course is to provide students with a solid foundation in the C programming language. The course aims to familiarize students with the syntax, concepts, and principles of C programming, as well as develop their ability to write efficient and effective C code.	

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Implement and trace the execution of conditional and iteration programs.	K3
CO2	Implement Pointers, Functions, Recursion and Memory allocation concepts.	K3
CO3	Acquire the knowledge of memory allocation and binding, array, structure to solve complex problems	K3
CO4	Compare and contrast between Structure and union along with concepts of DMA	K4
CO5	Understand and apply the concepts of File Handling and Embedded Programming	K3

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping

Unit-1 : **Basic Concepts of C Programming**	Module 1.1: Introduction to Algorithm and C Program	Programming using C: Concepts of Algorithm and Flowchart, Translator and its types, Applications of C programming, Structure of C program, Overview of compilation and execution process in an IDE, transition from algorithm to program, Syntax, logical errors and Run time errors, object and executable code,	T3, R1, Chalk & Duster/PPT/Online Programs	2+2	Basic Program in C	**CO1**
	Module 1.2: Tokens & Operators	Keywords, identifiers, constant, data types. Operators and their types, Arithmetic expressions and precedence: Operators, operator precedence and associativity, type conversion, mixed operands	T3, R1, Chalk & Duster/PPT/Online Programs	3+3	Basic Program in C	**CO1**
	Module 1.3: Conditional Branching	if, else-if, nested if - else, switch statements, use of break, and default with switch	T3, R1, Chalk & Duster/PPT/Online Programs	1+2	Programs using Conditional Statement	**CO1**
	Module 1.4: Iteration and loops	Concept of loops, for, while and do- while, multiple loop variables, use of break and continue statements, nested loop.	T3, R1, Chalk & Duster/PPT/Online Programs	1+2	Programs using Looping Statement	**CO1**
Unit-2 : **Iteration, Recursion & Memory Concepts**	Module 2.1: Functions	Concept of Sub-programming, function, types of functions, passing parameters to functions: call by value Definition	T3, R1, Chalk & Duster/PPT/Online Programs	3+3	Function Programs	**CO2**
	Module 2.2: Recursion	Definition, Types of recursive functions, Tower of Hanoi problem,	T3, R1, Chalk & Duster/PPT/Online Programs	1+2	Recursion Programs	**CO2**
	Module 2.3: Storage	scope of variable, local and global variables, Nesting of Scope, Storage classes: Auto, Register, Static and Extern	T3, R1, Chalk & Duster/PPT/Online Programs	1+1	Programs showing use of Storage	**CO2**
	Module 2.4: Pointers	defining and declaring pointer, pointer arithmetic and scaling, Pointer Aliasing. call by reference	R1, R3, R4 Chalk & Duster/PPT/ Labs	2+2	Programs illustrating use of Pointers Arithmetic/Addressing/Call by Reference	**CO2**
Unit-3 : **Arrays & Strings**	Module 3.1: Arrays	Array notation and representation (one and two dimensional), array using pointers, manipulating array elements,2-D array s used in matrix computation.	R1, R3, R4 Chalk & Duster/PPT/ Labs	2+2	Programs illustrating use of Pointers Arithmetic/Addressing/Call by Reference	**CO3**

	Module 3.2: Strings	Introduction, initializing strings, accessing string elements, Array of strings, Passing strings to functions, String functions like Strcat, strcmp, strcpy and any other functions	R1, R3, R4 Chalk & Duster/PPT/ Labs	2+3	Use of Arrays both Single and Multi-Dimensional.	**CO3**
Unit-4 : **Structure & Union**	Module 4.1: Structure	Introduction, Initializing, defining and declaring structure, accessing members, Operations on individual members, Operations on structures, Structure within structure, Array of structure	T1, T2, R1, R2 Chalk & Duster/PPT/ Labs	2+2	Program Based on structure implementation	**CO4**
	Module 4.2: Union	Introduction, Initializing, defining and declaring structure, Accessing members, Operations on individual members, Operations on Union, Difference between Structure and Union	T1, T2, R1, R2 Chalk & Duster/PPT/ Labs	1+1		**CO4**
	Moule 4.3 Dynamic Memory Allocation	Introduction, Library functions– malloc, calloc, realloc and free.	T1, T2, R1, R2 Chalk & Duster/PPT/ Labs	1+1	Programs allocating memory during run time and manipulations	**CO4**
Unit-5 : **File Handling & Embedded Programming Concepts**	Module 5.1: File Handling	Basics, File Types, File operations, File pointer, File opening modes, File handling functions, Command Line Arguments, File handling through command line argument, Record I/O in files	T1, T2, R1, R2 Chalk & Duster/PPT/ Labs	2+4	Implementation of Data Files and Command Line Arguments	**CO5**
	Module 5.2: Introduction to Embedded Programming	Introduction to Embedded System, Factors for Selecting the Embedded Programming Language, Difference Between C and Embedded C, Keyword, Datatypes, Components of Embedded Program, Program Structure, Basic concepts of Embedded Programming, Defining Macros, Types & File Inclusion, Pre-processor directives implementation	T1, T2, R1, R2 Chalk & Duster/PPT/ Labs	2+4	Example on Embedded Programs	**CO**5
Total				**60**		

Lab Experiments		
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Course Outcomes (CO)		
Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level (KL)**
CO 1	Implement and trace the execution of conditional and iteration programs.	K3
CO2	Implement Pointers, Functions, Recursion and Memory allocation concepts.	K3
CO3	Acquire the knowledge of memory allocation and binding, array, structure to solve complex problems	K3
CO4	Compare and contrast between Structure and union along with concepts of DMA	K4
CO5	Understand and apply the concepts of File Handling and Embedded Programming	K3

List of Practical

Sr. No.	Program Title	CO Mapping
1	Half pyramid of *	CO1
2	Half pyramid of numbers	CO1
3	Half pyramid of alphabets	CO1
4	Inverted half pyramid of *	CO1
5	Inverted half pyramid of numbers	CO1
6	Full pyramid of *	CO1
7	Full pyramid of numbers	CO1
8	Inverted full pyramid of *	CO1
9	Pascal's triangle	CO1

10	Floyd's triangle	CO1
11	Half pyramid of *	CO1
12	C Program to Print Diamond Pattern	CO1
13	C Program to Print Floyd's Triangle	CO1
14	C Program to Print Pascal Triangle	CO1
15	Star Pattern Programs in C	CO1
16	Pyramid Patterns in C	CO1
17	Write a C program for a matchstick game being played between the computer and a user. Your program should ensure that the computer always wins. Rules for the game are as follows: – There are 21 matchsticks. – The computer asks the player to pick 1, 2, 3 or 4 matchsticks. – After the person picks, the computer does its picking. Whoever is forced to pick up the last matchstick loses the game.	CO1
18	Write a program that plays tic-tac-toe. The tic-tac-toe game is played on a 3x3 grid the game is played by two players, who take turns. The first player marks move with a circle, the second with a cross. The player who has formed a horizontal, vertical, or diagonal sequence of three marks wins. Your program should draw the game_board, ask the user for the coordinates of the next mark, change the players after every successful move, and pronounce the winner.	CO1
19	Design a Calculator which performs Number system conversion	CO1
20	C Program to Simulate a Simple arithmetic Calculator	CO1
21	C Program to Evaluate the Given Polynomial Equation	CO1
22	C Program to Find Mean, Variance and Standard Deviation	CO1
23	C Program to Add Two Complex Numbers	CO1
24	C Program to Find Power of a Number	CO1

25	C Program to Calculate Pow (x,n)	CO1
26	C program to Find the Sum of Arithmetic Progression Series	CO1
27	C program to Find the Sum of Geometric Progression Series	CO1
28	C program to Find the Sum of Harmonic Progression Series	CO1
29	C Program to Find Sum of Series 1 + 1/2 + 1/3 + 1/4 + ……. + 1/N	CO1
30	C Program to Find Sum of Series 1^2 + 2^2 + …. + n^2	CO1
31	C Program to Find Sum of Series 1^3 + 2^3 + 3^3 +… + n^3	CO1
32	C Program to Find Sum of the Series 1/1! + 2/2! +3/3! + ……1/N!	CO1
33	Accept five subject marks of the student. Calculate his percentage. If his percentage is below 35 mark him “fail”. If between 35to 45 “Third Div”, 45-60 Second and above 60 then first.Do this process till the user wishes. No field should be left blank.	CO1
34	Design a program which displays following options on screen 1. Figure 2. Exit 3. Enter Choice Once valid choice is entered it executes further. If choice one is entered, then it should display 1. TRAINGLE 2. SQUARE 3. RHOMBUS 4. TRAPEZIUM 5. RETURN TO PREVIOUS MENU ENTER CHOICE Once valid choice is entered it executes further. After that it ask for specific data and prints the area and volume and perimeter/circumference of the respective figure. After that a choice is to be asked for Do you wish to continue (Y/N)? And should work accordingly. Before Every Menu the screen should be cleared,	CO1
35	C Program to Find the Largest Number Among Three Numbers.	CO1
36	C Program to Find the Roots of a Quadratic Equation.	CO1
37	C Program to Check Leap Year. Evaluate all the cases.	CO1

38	C Program to Check Whether a Number is Positive or Negative	CO1
39	C Program to Check Whether a Character is an Alphabet or not	CO1
40	C Program to Calculate the Sum of Natural Numbers	CO1
41	C Program to Find Factorial of a Number	CO1
42	C Program to Generate Multiplication Table	CO1
43	C Program to Display Fibonacci Sequence	CO1
44	C Program to Find GCD of two Numbers	CO1
45	C Program to Find LCM of two Numbers	CO1
46	C Program to Display Characters from A to Z Using Loop	CO1
47	C Program to Reverse a Number using looping concepts	CO1
48	C Program to Check Whether a Number is Palindrome or Not	CO1
49	C Program to Check Whether a Number is Prime or Not	CO1
50	C Program to Check Armstrong Number	CO1
51	C Program to Display Armstrong Number Between Two Intervals	CO1
52	C Program to Display Factors of a Number	CO1
53	C Program to Make a Simple Calculator Using switch...case	CO1
54	C Program to Check Whether a Number is Even or Odd	CO1
55	C Program to Check Whether a Character is a Vowel or Consonant	CO1
56	C Program to Find the Largest Number Among Three Numbers	CO1
57	C Program to Check Whether a Number is Positive or Negative	CO1
58	C Program to Calculate the Sum of Natural Numbers	CO1
59	C Program to Find Factorial of a Number	CO1
60	C Program to Generate Multiplication Table	CO1

61	C Program to Display Fibonacci Sequence	CO1
62	C Program to Display Prime Numbers Between Intervals Using Function	CO1
63	C Program to Check Prime or Armstrong Number Using User- defined Function	CO1
64	C Program to Check Whether a Number can be Expressed as Sum of Two Prime Numbers	CO1
65	C Program to Find the Sum of Natural Numbers using Recursion	CO1
66	C Program to Find Factorial of a Number Using Recursion	CO2
67	C Program to Find G.C.D Using Recursion	CO2
68	C Program to Convert Binary Number to Decimal and vice-versa	CO2
69	C program to calculate the power using recursion	CO2
70	C Program to Check Prime or Armstrong Number Using User- defined Function	CO2
71	C Program to Find the Sum of Natural Numbers using Recursion	CO2
72	Design a calculator	CO2
73	Design a Menu Driven program which performs the functions as per the menu 1. Add Details of students 2. Search the student data 3. Display the records 4. Exit Enter the Choice: Note: Choice must be between 1-4 Only. Other than that, an error message must be displayed and entry should be done again.Name must not be blank, and first letter should be alphabet Student details should contain Name. Age, Class, Roll-No	
74	C Program to add two number using recursion.	CO2
75	C Program to find sum of digit of number using recursion.	CO2

76	Write a method in C which will remove any given character from a String.	CO2
77	C Program to Calculate Average Using Arrays	CO3
78	C Program to Find Largest Element in an Array	CO3
79	C Program to search an element	CO3
80	C Program to Add Two Matrices Using Multi-dimensional Arrays	CO3
81	C Program to Multiply Two Matrices Using Multi-dimensional Arrays	CO3
82	C Program to Find Transpose of a Matrix	CO3
83	C program to illustrate Point Arithmetic	CO3
84	C Program to Access Array Elements Using Pointer	CO3
85	C Program to Find Largest Number Using Dynamic Memory Allocation	CO3
86	C Program to Calculate Average Using Arrays	CO3
87	C Program to Find Largest Element in an Array	CO3
88	C Program to Calculate Standard Deviation	CO3
89	C Program to Find the Frequency of Characters in a String	CO3
90	C Program to Count the Number of Vowels, Consonants and so on	CO3
91	C Program to Remove all Characters in a String Except Alphabets	CO3
92	C Program to Find the Length of a String	CO3
93	C Program to Concatenate Two Strings	CO3
94	C Program to Copy String Without Using strcpy()	CO3
95	C Program to Sort Elements in Lexicographical Order (Dictionary Order)	CO3
96	C Program to Find the Frequency of Characters in a String	CO3
97	Write a method in C which will remove any given character from a String.	CO3
98	Write a program in C to count occurrence of a given character in a String.	CO3

99	Write a program in C to check if two Strings are Anagram.	CO3
100	Write a program in C to check a String is palindrome or not.	CO3
101	C program to check given character is vowel or consonant.	CO3
102	C program to check given character is digit or not.	CO3
103	C program to replace the string space with a given character.	CO3
104	C program to convert lowercase char to uppercase of string.	CO3
105	C program to convert lowercase vowel to uppercase in string.	CO3
106	C program to delete vowels in a given string.	CO3
107	C program to count Occurrence of Vowels & Consonants in a String.	CO3
108	C program to print the highest frequency character in a String.	CO3
109	C program to Replace First Occurrence Of Vowel With '-' in String.	CO3
110	C program to count alphabets, digits and special characters.	CO3
111	C program to separate characters in a given string.	CO3
112	C program to remove blank space from string.	CO3
113	C program to count blank space from string.	CO3
114	C program to concatenate two strings.	CO3
115	C program to remove repeated character from string.	CO3
116	C program to calculate sum of integers in string.	CO3
117	C program to print all non-repeating character in string.	CO3
118	C program to copy one string to another string.	CO3
119	C Program to sort characters of string.	CO3
120	C Program to sort character of string in descending order.	CO3

121	Write a program in C for, In array 1-100 numbers are stored, one number is missing how do you find it.	CO3
122	Write a program in C for, In a array 1-100 multiple numbers are duplicates, how do you find it.	CO3
123	Write a program in C to find first duplicate number in a given array.	CO3
124	Write a program in C to remove duplicate elements form array in C.	CO3
125	Write a program in C for, Given two arrays 1,2,3,4,5 and 2,3,1,0,5 find which number is not present in the second array.	CO3
126	Write a program in C for, How to compare two array is equal in size or not.	CO3
127	Write a program in C to find largest and smallest number in array.	CO3
128	Write a program in C to find second highest number in an integer array.	CO3
129	Write a program in C to find top two maximum number in array?	CO3
130	C program to print array in reverse Order.	CO3
131	C program to reverse an Array in two ways.	CO3
132	C Program to calculate length of an array.	CO3
133	C program to insert an element at end of an Array.	CO3
134	C program to insert element at a given location in Array.	CO3
135	C Program to delete element at end of Array.	CO3
136	C Program to delete given element from Array.	CO3
137	C Program to delete element from array at given index.	CO3
138	C Program to find sum of array elements.	CO3
139	C Program to print all even numbers in array.	CO3
140	C Program to print all odd numbers in array.	CO3
141	C program to perform left rotation of array elements by two positions.	CO3
142	C program to perform right rotation in array by 2 positions.	CO3
143	C Program to merge two arrays.	CO3

144	C Program to find highest frequency element in array.	CO3
145	C Program to Store Information of a Student Using Structure	CO4
146	C Program to Store Information of Students Using Structure	CO4
147	C Program to Store Data in Structures Dynamically	CO4
148	C Program to Store Information of a Student Using Structure	CO4
149	C Program to Add Two Distances (in inch-feet system) using Structures	CO4
150	Snake Game Mini Project in C is a basic console program with no graphics. You may play the famous "Snake Game" in this project exactly as you would anywhere else. To move the snake, use the up, down, right, and left arrows. Food is placed at various co-ordinates on the screen for the snake to consume. The snake's length and score will both rise by one element each time it consumes the food.	CO4
151	C Program to Write a Sentence to a File	CO5
152	C Program to Read the First Line From a File	CO5
153	C Program to showcase use of DMA	CO5
154	C Program to Write a record to a File	CO5
155	C Program to Read the last Line From a File	CO5
156	Program to create a file using command line argument	CO5
157	Program to copy one file into another	CO5
158	Implement macro handling	CO5
159	Program to write a structure into a file and display its content	CO5
160	Program to search a record in a file	CO5
161	Program to implement multi line macro and Conditional Macros	CO5
162	Program to draw Circle/Rectangle/Triangle/ A Hut/with colors in it	CO5
163	Program to shut down/ sleep a system if not component is being Touched	CO5
164	Write a program in C to create and store information in a text file.	CO5

165	Write a program in C to read an existing file.:	CO5
166	Write a program in C to write multiple lines to a text file.:	CO5
167	Write a program in C to read the file and store the lines in an array.	CO5
168	Write a program in C to find the number of lines in a text file.	CO5
169	Write a program in C to find the content of a file and the number of lines in a text file.	CO5
170	Write a program in C to count the number of words and characters in a file.	CO5
171	C Program to list all files and sub-directories in a directory	CO5
172	C Program to count number of lines in a file	CO5
173	C Program to print contents of file	CO5
174	C Program to copy contents of one file to another file	CO5
175	C Program to merge contents of two files into a third file	CO5
176	C Program to read records from a data file	CO5
177	C Program to count number of lines, words, characters, blank space in a file	CO5
178	C Program to Illustrate how User Authentication is Done	CO5
179	C Program to Shutdown Computer in Linux	CO5
180	C Program to Compute First N Fibonacci Numbers using Command Line Arguments	CO5
181	C Program to Generate Fibonacci Series using Command Line Argument	CO5
182	Design an ATM Simulation using C	CO5
183	Manage the information of workers working in a firm or organization using this Employee Management System. The file handling technique is used here to save the data in a particular file, and you get the notion of this project as soon as you hear the name. This project uses the Insert, Edit, and Delete file actions, but the sole constraint is that you can only display the data, not search for any data item in particular. If you have more experience with C, you may alter this program by using the searching strategies. The following modules are included in this project. Add Employee Details • Edit Employee details • Modify Employee	

	• Delete Employee Create a Database using C file structure	
184	A Library in charge is facing problems in handling books and customers. Design a solution using C regarding his problem	CO5
185	Design a Simple Result System in the C programming language. You can keep track of the pupils' grades and update them at any time. Students might be given marks based on their performance in each subject. The project is straightforward and straightforward to use. The system is written entirely in the C programming language. You will be greeted with a "Welcome Screen" when you build and execute the project. Following that, many choices will appear on your computer screen. Select the required project modification function from the drop-down menu. The admin is in charge of the majority of the system. He has the ability to add and remove teachers. He can also add students. Following the addition of instructors, the administrator may finally assign grades to the pupils. All of the data has been preserved.	CO5

Required Software and Tools

C Compiler

Textbooks

Sr. No.	Book Details
1.	"C: The Complete Reference", Herbert Scheldt, McGraw Hill Education,4th Edition 2022
2	E Balagurusamy, “Computing Fundamentals and C Programming”, McGraw-Hill ,2nd Edition, 2018
3	Yashwant P. Kanetkar ,”Let Us C”, BPB publication, 16th Edition, 2018

Reference Books

Sr. No.	Book Details
1	Modern C, Third Edition" by Jens Gustedt,: Manning Publications,3rd Edition ,2023.
2	**Head First C: A Brain-Friendly Guide"** by David Griffiths, Shroff/O’Reilly, 1st Edition ,2022.

3	C Programming in Easy Steps" by Mike McGrath, In Easy Steps Limited, 5th Edition ,2022.
Links	
Unit 1	https://www.youtube.com/watch?v=KnvbUiSxvbM&list=PL98qAXLA6aftD9ZlnjpLhdQAOFI8xIB6e&ab_channel=Programiz
Unit 2	https://www.youtube.com/watch?v=JYHpD9huNR4&list=PL98qAXLA6aftD9ZlnjpLhdQAOFI8xIB6e&index=25&ab_channel=Programiz
Unit 3	https://www.youtube.com/watch?v=MOeGnamlUP4&list=PL98qAXLA6aftD9ZlnjpLhdQAOFI8xIB6e&index=19&ab_channel=Programiz
Unit 4	https://www.youtube.com/watch?v=zmRxC7gYw-g&list=PLBlnK6fEyqRiteqwlMLXYtZ16xXDR7MO0&ab_channel=NesoAcademy
Unit 5	https://www.youtube.com/watch?v=UxifZwjd5xU&ab_channel=GateSmashers https://www.youtube.com/watch?v=VM7s1k0s7kk&list=PLzx1ARJOmyed-PYHMduhZDQ4eKXmWJj_T&ab_channel=SmartLogicAcademy

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

Department of Physics

Subject Name: Engineering Physics Lab	**L-T-P [0-0-2]**
Subject Code: BAS0151A	**Applicable in Department: B.Tech.- First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**

Lab Experiments

Course Objective:

1. To provide the practical knowledge of the phenomenon of interference, diffraction and polarization.

2. To provide the practical knowledge of energy band gap and resistivity.

3. To provide the practical knowledge of the measurement techniques of magnetism.

4. To provide the practical knowledge of the flow of liquids and characteristics of photoelectric cell.

5. To provide the practical knowledge of Planck's constant and dielectric constant.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level (KL)**
CO 1	Apply the practical knowledge of the phenomenon of interference, diffraction and polarization.	K3
CO2	Understand energy band gap and resistivity.	K2

CO3	Develop the measurement techniques of magnetism.	K6
CO4	Analyze the flow of liquids and characteristics of photoelectric cell.	K4
CO5	Understand Planck's constant and dielectric constant.	K2

List of Practicals

Sr No	Program Title	CO Mapping
1	To determine the wavelength of monochromatic light by Newton's ring.	CO1
2	To determine the focal length of two lenses by nodal slide and to verify the formula for the focal length of combination of two lenses.	CO1
3	To determine the specific rotation of cane sugar solution using Polarimeter.	CO1
4	To determine the wavelength of spectral lines using plane transmission grating.	CO1
5	To determine the specific resistance of a given wire using Carey Foster's bridge.	CO2
6	To study the variation of magnetic field along the axis of current carrying - circular coil and then to estimate the radius of the coil.	CO3
7	To verify Stefan's Law by electrical method.	CO2
8	To study the Hall effect and determine the Hall Coefficient, carrier density and mobility of a given semiconductor material using Hall effect setup.	CO2
9	To determine the energy band gap of a given semiconductor material.	CO2
10	To determine the coefficient of viscosity of a liquid.	CO4
11	To calibrate a voltmeter using potentiometer.	CO2
12	To calibrate a ammeter using potentiometer.	CO2
13	To determine E.C.E. of copper using Tangent or Helmholtz galvanometer.	CO3
14	To determine the magnetic susceptibility of a ferromagnetic salt ($FeCl_3$) by using Quincke's tube method.	CO3
15	To study the hysteresis curve and then to estimate the retentivity and coercivity of a given ferromagnetic material.	CO3

16	To determine the angle of divergence of laser beam using He-Ne Laser.	CO1
17	To determine the wavelength of laser using diffraction grating.	CO1
18	To determine the numerical aperture of optical fiber.	CO1
19	To determine the Planck's constant using LEDs of known wavelength.	CO5
20	To determine the resistivity of given material using four probe method.	CO2
21	To determine the dielectric constant of the material by charging and discharging of capacitor.	CO5
22	To determine the characteristics of photoelectric cell.	CO4

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
Department of Languages

Subject Name: Acquiring Business Communication (ABC) Lab	**L-T-P [0-0-6]**
Subject Code: BASL0151Z	**Applicable in Department(s): B.Tech.- First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Comprehension of basic English language	

Course Objective:

- To improve proficiency in the English language to the Intermediate level of CEFR (Common European Framework of Languages).
- To motivate students to look within and create a better version of 'self.'
- To introduce the key concepts of ethics, etiquette, and life skills.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Identify key concepts of life-skills	K1, K2
CO2	Apply effective listening skills	K3
CO3	Demonstrate fluency and spontaneity while speaking	K3
CO4	Understand and analyze simple written texts	K2, K4
CO5	Compose clear and concise texts on a wide range of subjects	K6

List of Practical

Sr No	Program Title	CO Mapping
1	**Introduction to the course and the evaluation scheme** Students will gain knowledge about Examination Pattern.	CO1
2	**Importance of Communication Skills and motivation to improve** Students will watch Video Clips of famous personalities who have learnt to communicate well e.g., Kapil Dev, Jahnvi Panwar, APJ Abdul Kalam, and others.	CO1
3	**Anubhav Activity** Students will share their expectations from the course.	CO1
4	**Showcasing the talents** Participants will gain confidence in expressing themselves through song/dance, overcome inhibitions, and develop a sense of freedom and creativity.	CO1
5	**Developing active listening and accurate communication skills** Participants will enhance their listening skills, practice conveying information accurately, and understand the importance of clear communication and active listening.	CO1
6	**Language Toolbox 1: Vocabulary enrichment** Participants will be exposed to General Service List (GSL) by West and Academic Word List (AWL); the students will be asked to keep a journal of new words learnt every day.	CO1
7	**Introducing others and oneself** Participants will improve their speaking skills and develop clarity in listening and retaining information.	CO1
8	**Think-Pair-Share for Reading Comprehension** Students will actively interact with the reading material by engaging in this activity, collaborating with their peers, and refining their comprehension skills.	CO2
9	**Basics of Writing**	CO2

	The students will practice basic writing skills through sentence construction by understanding the requisites of a good sentence.	
10	**Listen and write** The students will practice writing exactly what they hear.	CO2
11	**Reading Aloud** The students will improve their reading ability and vocabulary. Students will read Economic Times, Readers Digest, Fiction, National Geographic, Technology magazines etc.	CO2
12	**Art of Listening** Participants will listen to their peers reading aloud and write down the gist; and will repeat verbatim what is read.	CO2
13	**Language Toolbox 2: Word association & word formation** The students will be able to improve their language proficiency.	CO2
14	**Small Talk through Role Plays** The students will learn to initiate and engage in simple conversations.	CO3
15	**Voice Dynamics: Clarity of Speech; Importance of Pronunciation** The students will know the importance of pronunciation in bringing in clarity in speech.	CO3
16	**Reading Techniques for Time Management** Students will be able to identify keywords, headings, and topic sentences. Further, they will be able to analyse and synthesize information from the selected texts.	CO3
17	**Writing through prompts** The students will practice writing skills through visual or verbal prompts.	CO3
18	**Practice Prompt writing in Groups** The students will practice writing skills through visual or verbal prompts.	CO3
19	**Listening to directions and instructions** Participants will improve their listening comprehension and enhance their ability to follow instructions & directions.	CO3
20	**Analysing Caselets**	CO3

	The students will improve their analytical and speaking skills by analysing & providing solutions to the issues in the caselets.	
21	**Decoding infographics** Participants will improve their ability to interpret and analyse information presented in diagrams, graphs, and pie charts.	CO4
22	**Language Toolbox 3: Vocabulary Building – Homophones, homonyms, synonyms, antonyms, phrases & idioms** The students will be able to bring in variety in the usage of words.	CO4
23	**Filling forms** Participants will improve their ability to understand and follow instructions and develop ability in filling out forms accurately.	CO4
24	**Writing Captions and Identifying Topic Sentences** The students will be provided with paragraphs on a variety of topics to develop their concise & precise writing skills.	CO5
25	**Analysing Speech/Ted Talks** The students will be able to improve their listening by analysing speeches by famous personalities/Ted Talks on the subjects related to technology/science.	CO4
26	**Sharing your views in a group discussion** Participants will enhance their ability to express their opinions, actively listen to others, and engage in constructive discussions to develop well-rounded perspectives.	CO4
27	**Language Toolbox 4: Vocabulary Enrichment – Abbreviations and Acronyms** The exercises and activities will enhance language proficiency of the students by helping them bring in variety in their usage of words	CO5
28	**Basics of Email Writing** Students will be able to write letters/applications on familiar topics and will gain knowledge to apply in real life scenarios.	CO5
29	**Situation based Role Play writing** The students will write role plays to practice effective communication strategies, develop empathy and understanding, and improve their writing skills and ability to handle real-life situations through role-playing exercises.	CO5
30	**Role Play Activity** The students will present their role-play which will further help them improve their speaking skills.	CO5

31	**Language Toolbox 4: Developing concise and clear communication** The students will be able to remove verbosity from their language.	CO5
32	**Overcoming nervousness: Extempore and JAM sessions** Students will learn to speak with confidence in public, utilizing various verbal and non-verbal aspects of speech. Students will practice speaking in front of an audience.	CO5
33	**Project Presentations** The students will be presenting their Projects	CO5

Required Software and Tools
British Council English Score Mobile App

Textbooks	
Sr No	**Book Details**
1.	ABC Workbook, NIET Publishing House, Meerut, 2023

Reference Books	
Sr No	**Book Details**
1	Cambridge English Business Benchmark (Pre-intermediate to Intermediate), 2nd edition, Norman Whitby, Cambridge University Press, 2013, UK.
2	Listening in the Language Classroom by John Field, Cambridge University Press, 2021, UK.

3	Speaking: Second Language Acquisition, from Theory to Practice by William Littlewood, **Cambridge University Press, 2022, UK.**
4	Second Language Writing in Transitional Spaces: Teaching and Learning Across Languages and Cultures edited by Viniti Vaish and Guangwei Hu, Routledge, 2019, UK.
5	The Writing Revolution: A Guide to Advancing Thinking Through Writing in All Subjects and Grades by Judith C. Hochman and Natalie Wexler, Jossey-Bass, 2022, USA.
6	The Cambridge Handbook of Corrective Feedback in Second Language Learning and Teaching edited by Hossein Nassaji and Eva Kartchava, **Cambridge University Press, 2021, UK**
7	IELTS 11: General Training with answers. Cambridge English, 2018

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

Department of MBA

Subject Name: Constitution of India, Law and Engineering	**L-T-P [2-0-0]**
Subject Code: BNC0102	**Applicable in Department: B.Tech.- First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Basic understanding of political science.	
Course Objective: Acquaint the students with legacies of constitutional development in India and help those to understand the most diversified legal document of India and philosophy behind it.	

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:	**Bloom's Knowledge Level(KL)**
CO1 - Identify and explore the basic features and modalities about Indian constitution.	K1
CO2- Differentiate and relate the functioning of Indian parliamentary system at the center and state level.	K2
CO3- Differentiate different aspects of Indian Legal System and its related bodies.	K4
CO4- Discover and apply different laws and regulations related to engineering practices.	K4
CO5- Correlate role of engineers with different organizations and governance models.	K4

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping

Unit 1	**Introduction and Basic Information about Indian Constitution**	Meaning of the constitution law and constitutionalism, Historical Background of the Constituent Assembly, Government of India Act of 1935 and Indian Independence Act of 1947,Enforcement of the Constitution, Indian Constitution and its Salient Features, The Preamble of the Constitution, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy, Parliamentary System, Federal System, Centre-State Relations, Amendment of the Constitutional Powers and Procedure, The historical perspectives of the constitutional amendments in India, Emergency Provisions: National Emergency, President Rule, Financial Emergency, and Local Self Government – Constitutional Scheme in India.	PPT, Lecture	8	Assignment 1	**CO1**
Unit 2	**Union Executive and State Executive**	Powers of Indian Parliament Functions of Rajya Sabha, Functions of Lok Sabha, Powers and Functions of the President, Comparison of powers of Indian President with the United States, Powers and Functions of Vice-President, Powers and Functions of the Prime Minister, Judiciary – The Independence of the Supreme Court, Appointment of Judges, Judicial Review, Public Interest Litigation, Judicial Activism, LokPal, Lok Ayukta, The Lokpal and Lok ayuktas Act 2013, State Executives – Powers and Functions of the Governor, Powers and Functions of the Chief Minister, Functions of State Cabinet, Functions of State Legislature, Functions of High Court and Subordinate Courts.	PPT, Lecture	8	Assignment 2	**CO2**

Unit 3	**Introduction and Basic Information about Legal System**	The Legal System: Sources of Law and the Court Structure: Enacted law -Acts of Parliament are of primary legislation, Common Law or Case law, Principles taken from decisions of judges constitute binding legal rules. The Court System in India and Foreign Courtiers (District Court, District Consumer Forum, Tribunals, High Courts, Supreme Court). Arbitration: As an alternative to resolving disputes in the normal courts, parties who are in dispute can agree that this will instead be referred to arbitration. Contract law, Tort, Law at workplace.	PPT, Lecture	8	Assignment 3	**CO3**
Unit 4	**Intellectual Property Laws and Regulation to Information**	Intellectual Property Laws: Introduction, Legal Aspects of Patents, Filing of Patent Applications, Rights from Patents, Infringement of Patents, Copyright and its Ownership, Infringement of Copyright, Civil Remedies for Infringement, Regulation to Information, Introduction, Right to Information Act, 2005, Information Technology Act, 2000, Electronic Governance, Secure Electronic Records and Digital Signatures, Digital Signature Certificates, Cyber Regulations Appellate Tribunal, Offences, Limitations of the Information Technology Act.	PPT, Lecture	8	Assignment 4	**CO4**
Unit 5	**Business Organizations and E-Governance**	Sole Traders, Partnerships: Companies: The Company's Act: Introduction, Formation of a Company, Memorandum of Association, Articles of Association, Prospectus, Shares, Directors, General Meetings and Proceedings, Auditor, Winding up. E-Governance and role of engineers in E-Governance, Need for reformed engineering serving at the Union	PPT, Lecture	8	Assignment 5	**CO5**

		and State level, Role of I.T. professionals in Judiciary, Problem of Alienation and Secessionism in few states creating hurdles in Industrial development.				
Total				**40**		

Textbooks	
Sr No	**Book Details**
1.	Brij Kishore Sharma: Introduction to the Indian Constitution, 8th Edition, PHI Learning Pvt. Ltd.
2.	Granville Austin: The Indian Constitution: Cornerstone of a Nation (Classic Reissue), Oxford University Press.
Reference Books	
Sr No	**Book Details**
1.	Madhav Khosla: The Indian Constitution, Oxford University Press.
Links	

Video Link

https://www.youtube.com/watch?v=D3yQEoXkiAA

https://www.youtube.com/watch?v=N8nRnralqiI

https://www.youtube.com/watch?v=t96A1DrsZTw

https://www.youtube.com/watch?v=6CS3WwY2_h8

https://www.youtube.com/watch?v=7hnKGOgjYNI

https://www.youtube.com/watch?v=SXeKCB8WPGg

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

Department of MBA

Subject Name: Essence of Indian Traditional Knowledge	**L-T-P [2-0-0]**
Subject Code: BNC0103	**Applicable in Department: B.Tech.- First Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Philosophical Systems, Spiritual Practices, Cultural Heritage, Ayurveda and Traditional Medicine, Architecture,	
Course Objective: To enable the students to understand the importance of our surroundings and encourage them to contribute towards sustainable development.	

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:	**Bloom's Knowledge Level(KL)**
CO1 - Understand the basics of past Indian politics and state polity.	K2
CO2- Understand the Vedas, Upanishads, languages & literature of Indian society.	K2
CO3- Know the different religions and religious movements in India.	K4
CO4- Identify and explore the basic knowledge about the ancient history of Indian agriculture, science & technology, and ayurveda.	K4
CO5- Identify Indian dances, fairs & festivals, and cinema.	K1

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping

Unit 1	**Society State and Polity in India**	State in Ancient India: Evolutionary Theory, Force Theory, Mystical Theory Contract Theory, Stages of State Formation in Ancient India, Kingship , Council of Ministers Administration Political Ideals in Ancient India Conditions' of the Welfare of Societies, The Seven Limbs of the State, Society in Ancient India, Purusārtha, Varnāshrama System, Āshrama or the Stages of Life, Marriage, Understanding Gender as a social category, The representation of Women in Historical traditions, Challenges faced by Women.	PPT, Lecture	8	Assignment 1	**CO1**
Unit 2	**Indian Literature, Culture, Tradition, and Practices**	Evolution of script and languages in India: Harappan Script and Brahmi Script. The Vedas, the Upanishads, the Ramayana and the Mahabharata, Puranas, Buddhist And Jain Literature in Pali,Prakrit And Sanskrit, **Sikh Literature**, Kautilya's Arthashastra, Famous Sanskrit Authors, Telugu Literature, Kannada Literature,Malayalam Literature ,Sangama Literature Northern Indian Languages & Literature, Persian And Urdu ,Hindi Literature	PPT, Lecture	8	Assignment 2	**CO2**
Unit 3	**Indian Religion, Philosophy, and Practices**	Pre-Vedic and Vedic Religion, Buddhism, Jainism, Six System Indian Philosophy, Shankaracharya, Various Philosophical Doctrines , Other Heterodox Sects, Bhakti Movement, Sufi movement, Socio religious reform movement of 19th century, Modern religious practices.	PPT, Lecture	8	Assignment 3	**CO3**

Unit 4	**Science, Management and Indian Knowledge System**	Astronomy in India, Chemistry in India, Mathematics in India, Physics in India, Agriculture in India, Medicine in India , Metallurgy in India, Geography, Biology, Harappan Technologies, Water Management in India, Textile Technology in India ,Writing Technology in India Pyrotechnics in India Trade in Ancient India/,India's Dominance up to Pre-colonial Times.	PPT, Lecture	8	Assignment 4	**CO4**
Unit 5	**Cultural Heritage and Performing Arts**	Indian Architect, Engineering and Architecture in Ancient India, Sculptures, Pottery, Painting, **Indian Handicraft**, **UNESCO'S List of World Heritage sites in India**, Seals, coins, Puppetry, Dance, Music, Theatre, drama, Martial Arts Traditions, Fairs and Festivals, **UNESCO'S List of Intangible Cultural Heritage, Calenders**, Current developments in Arts and Cultural, Indian's Cultural Contribution to the World. Indian Cinema	PPT, Lecture	8	Assignment 5	**CO5**
Total				**40**		

Textbooks	
Sr No	**Book Details**
1.	Nitin Singhania, Indian Art and Culture: for civil services and other competitive Examinations,3rd Edition,Mc Graw Hill
2.	Sharma, R.S., Aspects of Political Ideas and Institutions in Ancient India (fourth edition), Delhi, Motilal Banarsidass,
Reference Books	
Sr No	**Book Details**
1.	Basham, A.L., The Wonder that was India (34th impression), New Delhi, Rupa & co.

Links
Video Link: **https://www.youtube.com/watch?v=wjepzXnEqYo** **https://www.youtube.com/watch?v=AnGJ7zwyCAk** **https://www.youtube.com/watch?v=5xpJeO_syN4&t=832s** **https://www.youtube.com/watch?v=IGOJMQC7Jy4** **https://indianexpress.com/article/research/a-crackling-history-of-fireworks-in-india-4890178/** **https://artsandculture.google.com/partner/national-council-of-science-museums** **https://artsandculture.google.com/exhibit/QQLyzPzKbMlEKg**

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
Department of Mathematics

Subject Name: Engineering Mathematics-II	**L-T-P [3-1-0]**
Subject Code: BAS0203	**Applicable in Department: B.Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Knowledge of Mathematics up to 12th standard	

Course Objective:

The objective of this course is to familiarize the engineering students with techniques of solving Ordinary Differential Equations, Fourier series expansion, Laplace Transform and vector calculus and its application in real world. It aims to equip the students with adequate knowledge of mathematics that will enable them in formulating problems and solving problems analytically.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level (KL)**
CO1	Apply the concept of differentiation to solve differential equations.	K3
CO2	Apply the concept of convergence of sequence and series to evaluate Fourier series.	K3
CO3	Apply the Laplace transform to solve ordinary differential equations.	K3
CO4	Apply the concept of vector calculus to evaluate line, surface and volume integrals.	K3
CO5	Solve the problems of Proportion & Partnership, Problem of ages, Allegation & Mixture, Direction, Blood relation , Simple & Compound interest, Geometry and Mensuration.	K3

Syllabus						
Unit No	**Module Name**	**Topic covered**	**Pedagogy**	**Lecture Required (L+P)**	**Practical/ Assignment/ Lab Nos**	**CO Mapping**
Unit 1	**Ordinary Differential Equation of Higher Order**	Linear differential equation of nth order with constant coefficients, Cauchy-Euler equation, Simultaneous linear differential equations, Second order linear differential equations with variable coefficients, Solution by changing independent variable, Reduction of order, Normal form, Method of variation of parameters, Application of ordinary differential equation in Engineering.	Smart Board And PPT	10	1.1,1.2,1.3 & 1.4	**CO1**
Unit 2	**Sequences and series**	Definition of Sequence and series with examples, Convergence of sequence and series, Tests for convergence of series, (p-test, D' Alembert's test or Ratio test, Raabe's test). Fourier series, Half range Fourier sine and cosine series. Applications in Engineering.	Smart Board And PPT	8	2.1 & 2.2	**CO2**
Unit 3	**Laplace Transform**	Laplace transform, Existence theorem, Laplace transforms of derivatives and integrals, Initial and final value theorems, Unit step function, Dirac- delta function, Laplace transform of periodic function, Inverse Laplace transform, Convolution theorem, Application to solve simple linear and simultaneous differential equations. Applications in Engineering.	Smart Board And PPT	8	3.1,3.2 & 3.3	**CO3**
Unit 4	**Vector Calculus**	Vector differentiation: Gradient, Curl and Divergence and their Physical interpretation, Directional derivatives, Tangent and Normal planes. Vector Integration: Line integral, Surface integral, Volume integral, Gauss's Divergence	Smart Board And PPT	8	4.1 & 4.2	**CO4**

		Theorem, Green's theorem, Stoke's theorem (without proof) and their applications. Applications in Engineering.				
Unit 5	**Aptitude-II**	Ratio, Proportion & Partnership, Problem of ages, Allegation & Mixture, Direction, Blood relation, Simple & Compound interest, Geometry and Mensuration, Puzzles.	Smart Board And PPT	8	5.1,5.2 & 5.3	**CO5**
Total				**42**		

Textbooks	
Sr No	**Book Details**
1.	B. V. Ramana, Higher Engineering Mathematics, Tata McGraw-Hill Publishing Company Ltd..
2.	B. S. Grewal, Higher Engineering Mathematics, Khanna Publisher.
Reference Books	
Sr No	**Book Details**
1.	E. Kreyszig, Advance Engineering Mathematics, John Wiley & Sons.
2.	Peter V. O'Neil, Advance Engineering Mathematics, Thomson (Cengage) Learning.
3.	Maurice D. Weir, Joel Hass, Frank R. Giordano, Thomas, Calculus, Eleventh Edition, Pearson.
4.	G.B Thomas, R L Finney, Calculus and Analytical Geometry, Ninth Edition Pearson.
5.	James Ward Brown and Ruel V Churchill, Fourier Series and Boundary Value Problems, 8th Edition-Tata McGraw-Hill.

6.	D. Poole, Linear Algebra : A Modern Introduction, 2nd Edition, Brooks/Cole.
7.	Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi.
8.	Charles E Roberts Jr, Ordinary Differential Equations, Application, Model and Computing, CRC Press T&F Group.
9.	Ray Wylie C and Louis C Barret, Advanced Engineering Mathematics, 6th Edition, Tata McGraw-Hill.
10.	James Ward Brown and Ruel V Churchill, Complex Variable and Applications, 8th Edition, Tata McGraw-Hill.
11.	P. Sivaramakrishna Das and C. Vijayakumari, Engineering Mathematics, 1st Edition, Pearson India Education Services Pvt. Ltd.
12.	Advanced Engineering Mathematics By Chandrika Prasad, Reena Garg Khanna Publishing House, Delhi.
13.	Quantitative Aptitude by R.S. Aggrawal.

Links (Only Verified links should be pasted here)

Youtube Link:

UNIT-1

https://www.youtube.com/watch?v=Ql42qcOLKfo&t=7s

https://www.youtube.com/watch?v=qIyx1kFTqT8

https://www.youtube.com/watch?v=n_3ZmnVnrc4

https://www.youtube.com/watch?v=19Vt7ds8Lvw

UNIT-2

https://www.youtube.com/watch?v=HUKR4LWrZ14&t=74s

https://www.youtube.com/watch?v=uei7JPnPpVg

https://www.youtube.com/watch?v=ummJvI0Ax2Q

https://www.youtube.com/watch?v=bWTmUWWZnhQ

https://www.youtube.com/watch?v=wpN1wn98XiA

https://www.youtube.com/watch?v=gK1Y11UxOhw

https://www.youtube.com/watch?v=Clwkvn77QrE&t=10s

https://www.youtube.com/watch?v=LGxE_yZYigI

UNIT-3

https://youtu.be/nmp-5tSp-UY

https://youtu.be/6ANT4eD6fII

https://youtu.be/c9NibpoQjDk

https://www.youtube.com/playlist?list=PLNOGlXC4kCBT8G5pWCrH71hmwaAvwsBY3

UNIT-4

https://youtu.be/IwgqKjA6wko

https://youtu.be/d4OyeuRTZNA

https://youtu.be/j36lJKSJMQk

https://youtu.be/DhwMOrl6Q9g

https://youtu.be/DhwMOrl6Q9g

https://youtu.be/fsMouTxce_A

https://youtu.be/yq5olnzDCGc

https://youtu.be/2SB3IVCwW1w

https://www.khanacademy.org/math/multivariable-calculus/integrating-multivariable-functions/line-integrals-vectors/v/line-integra

https://www.khanacademy.org/math/multivariable-calculus/integrating-multivariable-functions/3d-flux/v/vector-representation-of-a-su

http://nucinkis-lab.cc.ic.ac.uk/HELM/workbooks/workbook_29/29_2_surfac

https://www.youtube.com/watch?v=Mb6Yb-SGqio

https://www.khanacademy.org/math/multivariable-calculus/greens-theorem-and-stokes-theorem/stokes-theorem/v/stokes-theorem-intuition

https://www.youtube.com/watch?v=eSqznPrtzS4

UNIT-5

https://www.GovernmentAdda.com

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
School of Electronics and Communication Engineering

Subject Name: Basic Electrical and Electronics Engineering	**L-T-P [3-0-0]**
Subject Code: BEC0201Z	**Applicable in Department: B.Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Physics, Mathematics	
Course Objective: The student will learn about DC circuit fundamentals, element of power system, semiconductors diodes applications, analysis of BJT, logic simplification, combinational and sequential circuits.	

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO1	Apply circuit laws and theorems to solve the problems of electrical circuits and understand elements of power system.	K2, K3, K5
CO2	Illustrate semiconductor diode and Bipolar junction transistor.	K2
CO3	Demonstrate truth table of various types of logic gates and binary codes.	K2
CO4	Demonstrate different type of combinational circuits.	K2
CO5	Demonstrate different type of sequential circuits.	K2

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping

Unit 1	**D.C. circuits and elements of power system**	Concept of network, Active and passive elements, voltage and current sources, concept of linearity and linear network, unilateral and bilateral elements, source transformation, Kirchhoff's Law: loop and nodal methods of analysis, network theorems: Superposition theorem, Thevenin's theorem, maximum power transfer theorem. Introduction to Elements of Power System: General layout of Power system. Elementary calculations for energy consumption.	Smart Digital board/ PPT/ White board/ Videos/M-Tutor	8+4	Assignment/ Lab 1.1, 1.2, 1.3, 2.1	**CO1**
Unit 2	**Semiconductor diode and Bipolar junction transistor**	Semiconductor diode: P-N Junction Diode: Depletion layer, V-I characteristics, Half and Full Wave rectification. Bipolar Junction Transistor: Operation, CB, CE, CC Configurations, Common Emitter input/output characteristics, Transistor Biasing and Stabilization: Need of biasing, Operating Point, The DC load line, Voltage Divider Biasing technique.	Smart Digital board/ PPT/ White board/ Videos/M-Tutor	8+4	Assignment/ Lab 2.2, 2.3, 3.1	**CO2**
Unit 3	**Logic simplification and binary codes**	Number Systems, Complements of binary Number, Boolean Algebra, De Morgan's Theorem, Logic Gates, SOP & POS Forms, Canonical Forms, Karnaugh Maps, Multilevel NAND/NOR realizations, Binary Codes.	Smart Digital board/ PPT/ White board/ Videos/M-Tutor	8+4	Assignment/ Lab 3.2, 3.3, 4.1	**CO3**
Unit 4	**Combinational Circuit**	Code Conversion, Comparators, Adders: Half Adder, Full Adder, Carry Look Ahead Adder, Subtractors: Half Subtractor, Full Subtractor, Serial And Parallel Adders, BCD Adder, Multiplexers, Demultiplexers, Encoders, and Decoders.	Smart Digital board/ PPT/ White board/ Videos/M-Tutor	8+4	Assignment/ Lab 4.2, 4.3, 4.4, 5.1, 5.2	**CO4**
Unit 5	**Sequential Circuit**	Basic Building Blocks of Sequential circuits like SR Latch, Flip Flops: SR, JK, JK Master Slave, D and T Type Flip Flops, Excitation and characteristics Table of all Flip Flops, Conversion from one type of Flip-Flop to another, Types of Shift Registers, Counters: Synchronous and Asynchronous, RAM and ROM.	Smart Digital board/ PPT/ White board/ Videos/M-Tutor	8+4	Assignment/ Lab 5.3, 5.4, 5.5	**CO5**
Total				**40+20**		

Textbooks	
Sr No	**Book Details**
1.	J.B. Gupta, Basic Electrical Engineering, Kataria & Sons
2	Robert L. Boylestad / Louis Nashelsky “Electronic Devices and Circuit Theory”, Latest Edition, Pearson Education
3	R.P. Jain, “Modern digital Electronics”, Tata McGraw Hill, 4th edition, 2009.
4	Morris Mano,” Digital Design, 3/E” Prentice Hall India

Reference Books	
Sr No	**Book Details**
1	Electrical Engineering Fundamentals, Vincent Del Toro, Pearson Publication, 2015.
2	Microelectronics Circuits, Adel S. Sedra and Kenneth Carless Smith, Oxford University Press.
3	John F Wakerly, Digital Design: Principles and Practices, Pearson, (2000).
4	W.H. Gothmann, “Digital Electronics- An introduction to theory and practice”, PHI, 2nd edition, 2006.
5	Fundamentals of Logic Design”, Cengage Learning, 5th, Edition, 2004.

Links

UNIT1:

https://www.youtube.com/watch?v=nHssOEH5DkY&list=PLDN15nk5uLiAluhKNZwdblke36lBDz8iD

https://www.youtube.com/watch?v=zTDgziJC-q8

https://www.youtube.com/watch?v=8CA6ZNXgI-Y

UNIT2: https://www.youtube.com/watch?v=EdUAecpYVWQ https://www.youtube.com/watch?v=Xmu31a-59vw https://www.youtube.com/watch?v=KynKHr2cXgk
UNIT3: https://www.youtube.com/watch?v=sUutDs7FFeA https://www.youtube.com/watch?v=XCiLHOZsQl8https://www.youtube.com/watch?v=juJR_JDJRa0 https://www.youtube.com/watch?v=2cpl_HjcI3A https://www.youtube.com/watch?v=KergVtV3SxU https://www.youtube.com/watch?v=kgL5UaSVuro https://www.youtube.com/watch?v=EznCqZ1eh5Q
UNIT4: https://www.youtube.com/watch?v=ibQBb5yEDlQ https://www.youtube.com/watch?v=LHAbLXfRYXk https://www.youtube.com/watch?v=Gc3DL-tmr-g https://www.youtube.com/watch?v=8S1kvCJRfvchttps://www.youtube.com/watch?v=ntiv1g7G_C4 https://www.youtube.com/watch?v=Qe_9CPac23c
UNIT5: https://www.youtube.com/watch?v=4GpWA_hmRhw https://www.youtube.com/watch?v=p4R0Ej6FCn0&list=PLAuW6sm6dy0yRMXL47Kz4nfhB7tURK88p https://www.youtube.com/watch?v=jrQ1YYgiOTo

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
School of Computer Science & Information Technology

Subject Name: Discrete Structures	**L-T-P [3-0-0]**
Subject Code: BCSE0204	**Applicable in Department: B.Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**

Pre-requisite of Subject: Some basic knowledge of algebra and logic is usually sufficient to begin studying discrete mathematics for computer science. Familiarity with sets, functions, and basic Boolean algebra is also helpful.

Course Objective: The objective of discrete structure is to enable students to formulate problems precisely, solve the problems, apply formal proofs techniques and hence enhance one's logical thinking and problem-solving skills.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Apply the basic principles of sets, relations & functions and mathematical induction in computer science & engineering related problems.	K3
CO2	Describe the algebraic structures and it's properties to solve complex problems.	K2
CO3	Describe lattices and it's type to simplify digital circuits.	K2
CO4	Infer the validity of statements and construct proofs using predicate logic formulas.	K4
CO5	Implement and use non-linear data structure like graphs to solve real world problems.	K3

Syllabus						
Unit No	**Module Name**	**Topic covered**	**Pedagogy**	**Lecture Required (L+P)**	**Practical/ Assignment/ Lab Nos**	**CO Mapping**
Unit-1: Set Theory & Relations	Module 1.1: Set Theory	Set Theory: Definition of sets, countable and uncountable sets, Set operations, Partition of set, Cardinality, Venn Diagrams, proofs of some general identities on sets. **Applications of set Theory**	Lecture Notes, PPT, Online Videos & R2	8	NA	**CO1**
	Module 1.2: Relations	Relation: Definition, types of relation, composition of relations, Equivalence relation, Partial ordering relation. **Applications of Relations**	Lecture Notes, PPT, Online Videos & R2			
Unit-2: Algebraic Structures	Module 2.1: Algebraic Structures	Definition, Properties, types: Semi Groups, Monoid, Groups, Abelian group, Properties of groups, Subgroup, cyclic group, Permutation group, Cosets, Normal subgroup, Homomorphism and isomorphism of Groups. **Applications of Algebraic Structure**	Lecture Notes, PPT, Online Videos & R2	8	NA	**CO2**
Unit-3: Posets, Hasse Diagram and Lattices	Module 3.1: Posets, Hasse Diagram and Lattices:	Introduction, ordered set, Hasse diagrams of partially ordered set, isomorphic ordered set, well ordered set, properties of lattices, types of lattices. **Applications of Lattice**	Lecture Notes, PPT, Online Videos & R2	8	NA	**CO3**
Unit-4: Propositional & Predicate Logic	Module 4.1: Propositional Logic	Propositions and compound Propositions, Basic logical operations, truth tables, tautologies, Contradictions, CNF, DNF Algebra of Proposition, logical implications, logical equivalence, predicates and quantifiers, Rules of Inference **Application of Propositional Logics.**	Lecture Notes, PPT, Online Videos & R2	8	NA	**CO4**
	Module 4.2: Predicate Logic	First order predicate, Well-formed formula of Predicate, Quantifiers, Inference Theory of Predicate Logic **Application of Predicate Logics.**	Lecture Notes, PPT, Online Videos & R2			

Unit-5: Graphs	Module 5.1: Graphs	Definition and terminology, Representation of Graphs, Paths connectivity, Walks, Paths, Cycles, Bipartite, Regular, Planar and connected graphs, Components, Euler graphs, Euler's theorem, Hamiltonian path and circuits, Graph coloring, chromatic number, isomorphism and homomorphism of graphs. **Application of Graphs**	Lecture Notes, PPT, Online Videos & R2	8	NA	**CO5**
Total				**40**		

Textbooks	
Sr. No.	**Book Details**
1.	Swapan Kumar Sarkar, "A Textbook of Discrete Mathematics", S. Chand Publication, 9th Edition, 2021
2.	T Veerarajan, "Discrete Mathematics, with Graph Theroy and Combinatorics" TMH Publication, 4th Edition, 2021
Reference Books	
Sr. No.	**Book Details**
1.	B. Kolman, R.C. Busby, and S.C. Ross, Discrete Mathematical Structures, Prentice Hall, 6th Edition, 2020.
2.	Liptschutz, Seymour, "Discrete Mathematics", TMH, 4th Edition, 2021.
3.	Kenneth H. Rosen, Kamala Krithivasan, "Discrete Mathematics and its Applications", TMH, 8th Edition, 2021
Links	
Unit 1	https://www.youtube.com/watch?v=hGtOLG3SsjI&list=PLwdnzlV3ogoVxVxCTlI45pDVM1aoYoMHf&index=9

	https://www.youtube.com/watch?v=rGcTcGFx9_s&list=PLwdnzlV3ogoVxVxCTlI45pDVM1aoYoMHf&index=10 https://www.youtube.com/watch?v=_BIKq9Xo_5A&list=PL0862D1A947252D20&index=13
Unit 2	https://www.youtube.com/watch?v=dQ4wU0k7JKI&list=PL0862D1A947252D20&index=35 https://www.youtube.com/watch?v=CjmWE-f3vEc&list=PLwdnzlV3ogoVxVxCTlI45pDVM1aoYoMHf&index=41
Unit 3	https://www.youtube.com/watch?v=qPtGlrb_sXg&list=PL0862D1A947252D20&index=40
Unit 4	https://www.youtube.com/watch?v=xlUFkMKSB3Y&list=PL0862D1A947252D20&index=1 https://www.youtube.com/watch?v=DmCltf8ypks&list=PL0862D1A947252D20&index=3
Unit 5	https://www.youtube.com/watch?v=E40r8DWgG40&list=PLEAYkSg4uSQ2fXcfrTGZdPuTmv98bnFY5

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
Department of Languages

Subject Name: French Language	**L-T-P [2-0-0]**
Subject Code: BASL0202	**Applicable in Department: B. Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject:	

Course Objective:

To help the students learn to articulate in French language in day-to-day real-life situations.

To enable the students acquire the four basic skills LSRW (Listening, Speaking, Reading, and Writing) of language learning.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Recognize the basic sounds, letters, numbers, words, and phrases of French.	K1
CO2	Develop basic French vocabulary.	K2
CO3	Use simple vocabulary and sentences in day-to-day life.	K3
CO4	Introduce a third person	K3
CO5	Develop basic skills in writing and speaking	K2

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping

Unit 1	**Introduction to French**	• Basic greetings • French letters, sounds and accents • Numbers • The subject pronouns • Verbs- être, avoir • Basic adjectives (How to change into feminine form) • Introductory questions and Self introduction	Audio-lingual method & reference of the learning aids	5	Assignment on- Greetings, numbers, verb conjugation, adjective and basic questions	**CO1**
Unit 2	**Vocabulary Building**	• Days of the week, months of the year and date • Colors • Basic vocabulary • Articles (indefinite and definite) • How to make nouns plural • Use of C'est and Ce sont • Vocabulary of nationality and professions • Introduction of a friend	Learning through attractive pictures, word-picture association & question-answer patterns.	6	Assignment on- days, months, colors, articles, nationality, professions and making sentences plural	**CO2**
Unit 3	**Everyday Common Simple Sentences**	• Contracted articles with à • Vocabulary of transports • Use of prepositions à and en • Time • Negation 3 ways to frame question and how to reply accordingly	Communicative method and learning through videos, Total Physical Respond Methodology (TPR), activities might include: dialogue framing, question making.	7	Assignment on- contracted articles, transports, prepositions (à and en), time, negative sentences, and questions	**CO3**
Unit 4	**Reading & Writing**	• Vocabulary of family members • Introduction of a family member • "ER" verbs with exceptions	Tasked-Based Learning, Grammar-Translation Method,	3	Assignment on- family members and verb conjugation	**CO4**

			Reading Aids, Reference Books			
Unit 5	**Skilled writing**	• How to fill a basic form • How to write a brief post card in French.	Communicative and Tasked-Based Learning method, activities might include: developing writing skills through various forms of exercises.	3	Assignment on-writing post card in French and filling form	**CO5**
Total				**24**		

Reference Books	
Sr No	**Book Details**
1.	Edito 1 (Méthode de français/Cahiers d'exercices)
2.	Echo A1 (Méthode de français/Cahier d'exercices)
3.	Saison A1 (Méthode de français/Cahier d'exercices)
Links (Only Verified links should be pasted here)	
Youtube Link: **1.Learn French | French for Beginners |French Alphabet | L' alphabet français | Pronunciation. (youtube.com)**	

2. 💯 French numbers 1-100 (with free PDF) | French grammar for beginners (youtube.com)

3. French verbs (avoir; être; faire; aller) en chanson (youtube.com)

4. Les articles définis le, la les, l' (youtube.com)

5. les articles indéfinis un, une, des (youtube.com)

6. Les Nationalités en français ! The Nationalities in French (youtube.com)

7. French Lesson 103 - Jobs Professions Occupations in French - Les métiers Oficios y profesiones (youtube.com)

8. When to use C'EST / CE SONT or IL EST // French Grammar Course // Lesson 8 FR (youtube.com)

9. French Verb 'Parler' Present Tense (youtube.com)

10. L'interrogation (Intonation, Est-ce que, Inversion) with sentences... (youtube.com)

11. La Négation (ne...pas) ! Negation in French... (youtube.com)

12. écrivez une carte postale décrivant votre nouvelle école ! Post Card describing your new school !!! (youtube.com)

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
Department of Languages

Subject Name: German Language	**L-T-P [2-0-0]**
Subject Code: BASL0203	**Applicable in Department: B. Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject:	

Course Objective:

To help the students learn to articulate in German language in day-to-day real-life situations.

To enable the students acquire the four basic skills LSRW (Listening, Speaking, Reading, and Writing) of language learning.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Understand and be familiar with basic German Language concepts and the culture	K1
CO2	Recognise the fundamental vocabulary	K1
CO3	Use simple vocabulary and sentences in everyday conversations	K3
CO4	Read and write simple sentences	K2
CO5	Use complex sentences and develop basic writing skills	K3

Syllabus						
Unit No	**Module Name**	**Topic covered**	**Pedagogy**	**Lecture Required (L+P)**	**Practical/ Assignment/ Lab Nos**	**CO Mapping**
Unit 1	**Introduction to German**	• Letters and Numbers • German Greetings and Self Introduction • Personal Pronouns and Verb Conjugations (Regular and Irregular Verbs) • W-Question • Simple Sentences	Audio-lingual method & reference books	4	Assignment on – Verb Exercises, Question Making	**CO1**
Unit 2	**Vocabulary building**	• The concept of German Articles (Definite and Indefinite) • Nouns and Articles • Days, Months, & Seasons • Adjectives • Negation	Learning through attractive pictures, audio-lingual method Activities will include pantomiming, word-picture association & question-answer patterns.	4	Assignment on – Articles ,Vocabulary, Negative Sentences	**CO2**
Unit 3	**Everyday common simple sentences**	• Basic directions • Imperativ • Date and Time • Modal Verben ➢ (Basic everyday life conversations and making appointments)	Communicative method and learning through videos, Total Physical Respond Methodology (TPR),	4	Assignment on – Sentence Making and Dialogue	**CO3**
Unit 4	**Reading and Writing**	• Separable Verbs • Possessive Pronouns • Sentences - Nomminativ, Akkusativ, Dativ ➢ Translations (English to German, German to English) Short Text and Form Filling	Tasked-Based Learning, Grammar-Translation Method, Reading Aids, Reference Books	6	Assignment on – Translations and Sentence Making, Form Filling exercises	**CO4**
Unit 5	**Skilled Writing**	• Changeable Prepositions • Present Perfect Tense • Past Tense of – To have and To Be • Health and Body, Vacations	Communicative and Tasked-Based Learning method, Grammar-Translation, activities	6	Assignment on - Vocabulary Exercises, Usage of Prepositions, Changing a	**CO5**

		• Leisure Activities, Celebrations ➢ E-mail Writing	will include developing writing skills through various forms of exercises.		sentence/Text from Present tense to past tense, E-mail writing	
Total				**24**		

Reference Books	
Sr No	**Book Details**
1.	Netzwerk A1 (Goyal Saab Publications)
2.	Studio D A1 (Goyal Saab Publications)
3.	Langescheidt Dictionary

Links (Only Verified links should be pasted here)

Video Link

Unit 1:

https://www.youtube.com/watch?v=nd0Y_iIaJns

https://www.youtube.com/watch?v=LLTX3k1gJ0A

https://www.youtube.com/watch?v=1dBD8P9cCrA

https://www.youtube.com/watch?v=CyME2ZobD60

Unit 2:

https://www.youtube.com/watch?v=8Smh9MRp2vc

https://www.youtube.com/watch?v=t0uLiNMvY6o

Unit 3:

https://www.youtube.com/watch?v=bD4vSw6AWps

Unit 4:

https://www.youtube.com/watch?v=Kj_L8uAffG8

https://www.youtube.com/watch?v=nf1rzqG3nvA

Unit 5:

https://www.youtube.com/watch?v=Dmv2BzXv_7U

https://www.youtube.com/watch?v=lN-5Z4puA6U

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

Department of Languages

Subject Name: Japanese Language	**L-T-P [2-0-0]**
Subject Code: BASL0204	**Applicable in Department: B. Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject:	

Course Objective:

To help the students learn to articulate in Japanese language in day-to-day real-life situations.

To enable the students acquire the four basic skills LSRW (Listening, Speaking, Reading, and Writing) of language learning.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Understand and be familiar with basic Japanese Language concepts and the culture.	K1
CO2	Recognise the fundamental vocabulary.	K1
CO3	Use simple vocabulary and sentences in everyday conversations.	K3
CO4	Read and write simple sentences.	K2
CO5	Use complex sentences and develop basic writing skills.	K3

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping
Unit 1	**Introduction to Japanese**	• General features of Japanese • Japanese scripts • Pronunciation of Japanese words • Classroom instructions • Daily greetings and expressions • Numerals, Months name Days of the week, Time & Calendar • Family members • Vocabulary lessons 1&2 • Sentence pattern & Example sentences • Self-introduction (jikoshokai)	Audio-lingual method & reference books	**5**	Assignment on – Verb Exercises, Question Making	**CO1**
Unit 2	**Vocabulary building**	• Country, language, and people • Basic conversations • Vocabulary lessons 3&4 • Use of patterns (KO, SO, AA, and DO) • Conversations between guests and hosts • Conversations between customers and shopkeepers	Learning through attractive pictures, audio-lingual method. Activities might include pantomiming, word-picture association & question-answer patterns.	**5**	Assignment on – Articles, Vocabulary, and Negative Sentences	**CO2**
Unit 3	**Everyday common simple sentences**	• Vocabulary lessons 5&6 • Grammar explanation • Colour & taste • Conversations in post office • Conversations with friends • Making a request • Making an enquiry – Railway Station • Buying Fruits & Vegetables • Names of the Animals • Question formation	Communicative method and learning through videos, Total Physical Respond Methodology (TPR), activities might include dialogue framing, question making.	**5**	Assignment on – Sentence Making and Dialogue	**CO3**

Unit 4	**Reading and Writing**	• Scanning based Newspaper reading • Transportation • KANJI Form of Writing – 40 Characters • Shopping Counters • Basic Japanese grammar rules – particles: か (ka), は (wa), の (no), と (to), を (o), に (ni), も(mo), が (ga), や (ya). • Kara, Soshite • Grammar - Present, Past, Future • Adjectives • Vocabulary Lessons 7&8	Tasked-Based Learning, Grammar-Translation Method, Reading Aids, Reference Books	**4**	Assignment on – Translations and Sentence Making	**CO4**
Unit 5	**Skilled Writing**	• Write short text on oneself. • Grammar: Pronouns – subject, object, possessive, Modal verbs	Communicative and Tasked-Based Learning method, Grammar-Translation, activities might include -developing writing skills through various forms of exercises.	**5**	Assignment on - Vocabulary Exercises, Usage of Prepositions, Changing a sentence/Text from Present tense to past tense.	**CO5**
Total				**24**		

Reference Books	
Sr No	**Book Details**
1.	Minna no nihongo – N5
2.	**https://mfadhillah.wordpress.com/wp-content/uploads/2012/12/minna-no-nihongo-i-c3bcbersetzungen-grammatikalische-erklc3a4rungen-englisch.pdf**

Links (Only Verified links should be pasted here)
Video Link https://www.youtube.com/@NihonGoal/community **https://www.youtube.com/watch?v=wDpsF90DoeI&list=PLag_mhJfCJ-1-EZcPapMFPTlzVzwjz33M** **https://www.youtube.com/watch?v=W_qW904Gn3M&list=PL_Sdfd1Q7hZrDFwVYpsrxWqsridvP6kTK** **https://www.youtube.com/watch?v=z4qh8BVrb3w** **https://www.jlpt.jp/e/samples/forlearners.html**

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

School of Computer Science in Emerging Technologies

Subject Name: **Advanced Python**	**L-T-P [0-0-6]**
Subject Code: **BCSE0252**	**Applicable in Department: B. Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Basic Python Programming & Python Concepts.	
Course Objective: To become familiar with Python's Object-Oriented Concepts, functional programming and create GUI application and to gain the knowledge of Python libraries.	

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO1	Implement classes and create instances in python	K3
CO 2	Implement GUI based Python application	K3
CO 3	Use Python libraries for data handling.	K3
CO 4	Analyse data using visualization libraries.	K4
CO 5	Analyse web scraping application for real world data	K4

Syllabus						
Unit No	**Module Name**	**Topic covered**	**Pedagogy**	**Lecture Required (L+P)**	**Practical/ Assignment/ Lab Nos**	**CO Mapping**
Unit 1	**Classes and Objects**	Introduction: Python Classes and objects, User- Defined Classes, Class Variables and Instance Variables, Instance methods, Class method, static methods, constructor in python, parametrized constructor, Magic Methods in python, Object as an argument, Instances as Return Values, namespaces, Introduction to inheritance and polymorphism, Abstract Class, Introduction to Abstraction and Encapsulation.	Smart board, Hands-on exercise	10+10	Program1-32	CO1
Unit 2	**Functionaland GUI Programming**	Functional Programming: Immutability, Closures and Decorators, generators, Co-routines, iterators, Declarative programming, GUI Programming: Introto GUI Programming, Settling widgets in the window's interior, Numeric Widgets, Boolean Widgets, Selection Widgets, String Widgets, Date Picker, Color Picker, Container Widgets, Creating a GUI Application, Tkinter, button, canvas.	Smart board, Hands-on exercise	4+10	Program33-78	CO2
Unit 3	**Libraries for Data Handling**	NumPy: Basic Operation, Indexing, slicing and Iterating, Multidimensional arrays, NumPy Data types, Reading and writing data on Files	Smart board, Hands-on exercise	5+8	Program79-116	CO3

		SciPy: Introduction to SciPy, Create function,modules of SciPy. Pandas: Series and Data Frames, Grouping, aggregation, Merge Data Frames, Generate summary tables, Group data into logical pieces, Manipulation of data				
Unit 4	**Libraries in Data Visualization**	Matplotlib: Scatter plot, Bar charts, histogram, Stack charts, Legend title Style, Figures andsubplots, Plotting function in pandas, Labelling and arranging figures, Save plots. Seaborn: style function, color palettes, heatmaps,distribution plots, category plot, regression plotPlotly: Line plots, Area plots, Scatterplots, Bubble plots, Stacked bar charts, Grouped bar charts, Pie charts, Tables, Dashboards.	Smart board, Hands-on exercise	5+8	Program117-174	CO4
Unit 5	**Web Scraping with Python**	WebScraping: Introduction, Web Crawling v/s WebScraping, Uses of Web Scraping, Components of a Web Scraper, working of a Web Scraper, Crawl, Parse and Transform Store the Data. BeautifulSoup: Introduction to Beautiful Soup library, Accessing Tags, Navigable Strings, Navigating and searching with Beautiful Soup, Web Scraping. Example: Scraping Flipkart Website Introduction to	Smart board, Hands-on exercise	4+8	Program175-208	CO5

		GitHub.				
Total				**72**		

Lab Practical		
Course Objective: To enhance students' proficiency in advanced Python features, including object-oriented programming,functional programming, python packages and libraries for data science, web development.		
Course Outcomes (CO)		
Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO1	Apply classes and instances in real world problems.	K3
CO2	Implement GUI based Python application	K3
CO3	Design python packages, libraries and web scraping application	K6
List of Practical		
Sr No	**Program Title**	**CO Mapping**
1.	Write a program illustrating class definition and accessing class members.	CO1
2.	Write a program to implement default constructor, parameterized constructor, and destructor.	CO 1

3.	Create a Python class named Rectangle constructed by a length and width. a. Create a methodcalled area which will compute the area of a rectangle.	CO 1
4.	Create a class called Numbers, which has a single class attribute called MULTIPLIER, and aconstructor which takes the parameters x and y (these should all be numbers). a. Write an instance method called add which returns the sum of the attributes x and y. b. Write a class method called multiply, which takes a single number parameter a and returns theproduct of a and MULTIPLIER.	CO 1
5.	Create a class named as Student to store the name and marks in three subjects. Use List to storethe marks. a. Write an instance method called compute to compute total marks and average marks of astudent. b. Write a method called display to display student information.	CO 1
6.	Create a Python class named Circle constructed by a radius. Use a class variable to define the valueof constant PI. a. Write two methods to be named as area and circum to compute the area and the perimeter ofa circle respectively by using class variable PI. b. Write a method called display to print area and perimeter.	CO 1

7.	Write a program that has a class called Fraction with attributes numerator and denominator. a. Write a method called getdata to enter the values of the attributes. b. Write a method show to print the fraction in simplified form.	CO 1
8.	Write a program that has a class Numbers with a list as an instance variable. a. Write a method called insert_element that takes values from user. b. Write a class method called find_max to find and print largest value in the list.	CO 1
9.	Create a class called Complex. Write a menu driven program to read, display, add and subtract twocomplex numbers by creating corresponding instance methods.	CO 1
10.	Write a program that has a class Point with attributes x and y. a. Write a method called midpoint that returns a midpoint of a line joining two points. b. Write a method called length that returns the length of a line joining two points.	
11.	Write a Python program to create a class called "Rectangle" with attributes length and width.Include methods to calculate the perimeter and area of the rectangle.	CO 1
12.	Implement a Python class called "BankAccount" with attributes account number, account holder	CO 1

	name, and balance. Include methods to deposit and withdraw money from the account.	
13.	Write a Python program to create a class called "Student" with attributes roll number, name, and marks in three subjects. Include a method to calculate the average marks of the student.	CO 1
14.	Implement a Python class called "Car" with attributes make, model, and year. Include methods to start the car, stop the car, and display its details.	CO 1
15.	Write a Python program to create a class called "Book" with attributes title, author, and price. Include methods to calculate the discounted price of the book based on a discount percentageprovided.	CO 1
16.	Implement a Python class called "Bank" with attributes bank name and branch. Include methods to add a new account, display all accounts, and search for an account based on the accountnumber.	CO 1
17.	Write a Python program to create a class called "Rectangle" with attributes length and width. Include a method to check if the rectangle is a square or not.	CO 1
18.	Implement a Python class called "Employee" with attributes name, designation, and experience. Include methods to promote an employee to a higher designation based on their experience.	CO 1
19.	Write a Python program to create a class called "Employee" with attributes name, employee ID, and salary. Include a method to display the employee details.	CO 1
20.		CO 1

	Write a program to illustrate the use of following built-in methods: a. hasattr(obj,attr) b. getattr(object, attribute_name [, default]) c. setattr(object, name, value) d. delattr(class_name, name)	
21.	Write a Program to illustrate the use of__str__(),__repr__(),__new__,__doc__,__dict__, __name__and__bases__methods.	CO 1
22.	Write a program to create class Employee. Display the personal information and salary details of 5employees using single inheritance.	CO 1
23.	WAP that extends the class Employee. Derive two classes Manager and Team Leader from Employee class. Display all the details of the employee working under a particular Manager and Team Leader.	CO 1
24.	Write a program that has a class Point. Define another class Location which has two objects (Location and destination) of class Point. Also, define a function in Location that prints the reflection on the y-axis.	CO 1
25.	Write a program that create a class Distance with members km and metres. Derive classes Schooland office which store the distance from your house to school and office along with other details.	CO 1

26.	Write a program to create an abstract class Vehicle. Derive three classes Car, Motorcycle and Truck from it. Define appropriate methods and print the details of vehicle	CO 1
27.	Write a program to demonstrate hybrid inheritance and show MRO for each class.	CO 1
28.	Write a program to overload + operator to multiply to fraction object of fraction class which contain two instance variable numerator and denominator. Also, define the instance method simplify() to simplify the fraction objects.	CO 1
29.	26. Write a program to compare two-person object based on their age by overloading > operator. .	CO 1
30.	Write a program to overload in operator.	CO 1
31.	WAP to create a Complex class having real and imaginary as it attributes. Overload the +,-,/,* and += operators for objects of Complex class	CO 1
32.	Design a fundamental banking system where users can create accounts, deposit money, withdraw money, and check their balance.	CO1
33.	WAP to Show the concept of inner function.	CO2
34.	WAP to create closure.	CO2

35.	WAP to create a decorator which will convert a string into upper case string.	CO2
36.	WAP to show the concept of nested decorator.	CO2
37.	WAP to decorate a function with arguments.	CO2
38.	WAP to decorate instance method	CO2
39.	WAP to calculate sum of 1,2,3,4,5 using reduce function.	CO2
40.	WAP to generate numbers from 1 to 10 using generator.	CO2
41.	WAP to decide number is even or odd using generator.	CO2
42.	WAP to generate square of 1,2,3,4,5,6,7,8,9,10 using generator.	CO2
43.	WAP to generate square of even number upto 10 using generator and save in list.	CO2

44.	WAP to make a co-routine which will print all name with prefix Dear.	CO2
45.	WAP to close a co-routine.	CO2
46.	WAP to iterate tuple using iter() and next() method.	CO2
47.	WAP to iterate a string using iter and next method.	CO2
48.	WAP to print numbers from 1 to 20 using iterator and generate StopIteration exception once wereach limit.	CO2
49.	Hello World: Display a simple "Hello, World!" message box.	CO 2
50.	Button: Create a button that displays a message when clicked.	CO 2
51.	Entry: Create a text entry field and display the entered text.	CO 2
52.	Check button: Create a checkbox and display the selected options	CO 2

53.	Radio button: Create radio buttons and display the selected option.	CO 2
54.	List box: Create a list box and display the selected items.	CO 2
55.	Text: Create a text area and display the entered text.	CO 2
56.	Menu: Create a menu with different options.	CO 2
57.	Message: Display a message in a dialog box.	CO 2
58.	Progress bar: Create a progress bar that updates over time python	CO 2
59.	Scale: Create a scale widget and display the selected value.	CO 2
60.	Spin box: Create a spin box and display the selected value.	CO 2
61.	Canvas: Create a canvas and draw shapes on it.	CO 2
62.	Label Frame: Create a labeled frame with widgets inside.	CO 2
63.	Scrollbar: Add a scrollbar to a widget like a text area or list box	CO 2

64.	Frame: Create a frame and place widgets inside it.	CO 2
65.	Tree view: Create a tree view widget to display hierarchical data	CO 2
66.	Notebook: Create a notebook widget with tabs.	CO 2
67.	File Dialog: Open a file dialog to select a file.	CO 2
68.	Color Dialog: Open a color dialog to select a color.	CO 2
69.	Button Counter: Create a button that increments a counter when clicked.	CO 2
70.	Checkbox List: Display a list of checkboxes and show selected options.	CO 2
71.	Dropdown Menu: Create a dropdown menu with multiple options.	CO 2
72.	Slider Value Display: Display the current value of a slider widget.	CO 2
73.	Text Input and Button: Take user input in a text box and display it when a button is clicked.	CO 2
74.	Radio Buttons: Present a set of options as radio buttons and display the selected option.	CO 2
75.	Progress Bar: Show the progress of a task using a progress bar widget.	CO 2
76.	Password Input: Create a password input field that hides the entered characters.	CO 2
77.	File Uploader: Enable users to upload files and display the selected file name.	CO 2
78.	Implement a Student class where students can enroll in courses and the class keeps track of total enrolments.	CO2
79.	Creating Arrays: Create NumPy arrays using various methods like np.array(), np.zeros(), np.ones(),	CO 3

	np.arange(), etc.	
80.	Array Shape and Size: Get the shape and size of a NumPy array using the shape and size attributes.	CO 3
81.	Array Indexing: Access and modify individual elements of a NumPy array using indexing	CO 3
82.	Array Slicing: Extract a subset of elements from a NumPy array using slicing.	CO 3
83.	Array Reshaping: Change the shape of a NumPy array using the reshape() function.	CO 3
84.	Array Arithmetic: Perform basic arithmetic operations (addition, subtraction, multiplication, division) on NumPy arrays.	CO 3
85.	Array Broadcasting: Perform element-wise operations on arrays with different shapes usingbroadcasting rules.	CO 3
86.	Array Aggregation: Calculate aggregate values on arrays, such as sum(), min(), max(), mean(), etc. using NumPy	CO 3
87.	Array Transposition: Transpose a NumPy array using the transpose() function.	CO 3
88.	Write a program that demonstrates advanced array indexing techniques, such as indexing with boolean arrays or using fancy indexing to select specific elements or subsets of an array.	CO3
89.	Write a program using NumPy to perform data manipulation tasks, such as sorting arrays, removing duplicates, or finding unique elements in an array.	CO3
90.	Array Sorting: Sort the elements of a NumPy array using the sort() function.	CO 3
91.	Array Filtering: Filter elements in a NumPy array based on a condition using boolean indexing.	CO 3

92.	Array Statistics: Calculate statistical measures like mean, median, standard deviation using functions like np.mean(), np.median(), np.std().	CO 3
93.	Array Randomization: Generate random numbers or arrays using functions from the np.random module.	CO 3
94.	Array Dot Product: Compute the dot product of two NumPy arrays using the dot() function.	CO 3
95.	Array Matrix Operations: Perform matrix operations like matrix multiplication, matrix inverse using functions from the np.linalg module.	CO 3
96.	Array File I/O: Save and load NumPy arrays from files using functions like np.save() and np.load().	CO 3
97.	Array Masking: Create a mask array to select or manipulate specific elements of a NumPy array based on a condition.	CO 3
98.	Array Broadcasting: Understand and utilize broadcasting rules in NumPy for efficient computations.	CO 3
99.	Write a program to finds the cube root of values using scipy library.	CO 3
100.	Write a program to computes the 10**x element-wise using scipy library .	CO 3
101.	Write a SciPy program to calculate Permutations and Combinations.	CO 3
102.	Write a SciPy program to calculates the inverse of any square matrix.	CO 3
103.	Write a SciPy program to calculates the Eigenvalues and Eigenvector.	CO 3
104.	Read and Load a CSV File into a Pandas DataFrame using pandas.read_csv.	CO 3
105.	Access and Display the First N Rows of a DataFrame using DataFrame.head(N).	CO 3

106.	Access and Display the Last N Rows of a DataFrame using DataFrame.tail(N).	CO 3
107.	Retrieve Basic Information about a DataFrame using DataFrame.info.	CO 3
108.	Perform Descriptive Statistics on a DataFrame using DataFrame.describe.	CO 3
109.	Filter Rows of a DataFrame based on a Condition using Boolean Indexing.	CO 3
110.	Rename Columns in a DataFrame using DataFrame.rename.	CO 3
111.	Group Data in a DataFrame using DataFrame.groupby.	CO 3
112.	Perform Aggregation on Grouped Data using GroupBy.agg.	CO 3
113.	Sort a DataFrame by One or Multiple Columns using DataFrame.sort_values.	CO 3
114.	Perform Basic Arithmetic Operations on Columns of a DataFrame.	CO 3
115.	Apply a Function to Each Element or Column of a DataFrame using DataFrame.apply or DataFrame.applymap.	CO 3
116.	Reshape Data using Pivot Tables using DataFrame.pivot_table.	CO 3
117.	Perform Data Visualization using pandas.plotting or matplotlib.pyplot.	CO 3
118.	Save a DataFrame to a CSV File using DataFrame.to_csv.	CO 3
119.	Perform Data Sampling or Random Selection using DataFrame.sample.	CO 3
120.	Find the roots of a mathematical equation using SciPy's root-finding functions, such as scipy.optimize.root.	CO 3
121.	Fit a polynomial function to a set of data points using SciPy's curve fitting functions, such as	CO 3

	scipy.optimize.curve_fit	
122.	Perform linear regression on a dataset using SciPy's linear regression functions, such as scipy.stats.linregress.	CO 3
123.	Calculate the Fast Fourier Transform (FFT) of a signal using SciPy's FFT functions, such as scipy.fft.fft.	CO 3
124.	Solve a system of linear equations using SciPy's linear algebra functions, such as scipy.linalg.solve.	CO 3
125.	Perform numerical integration using SciPy's integration functions such as scipy.integrate.quad.	CO 3
126.	Calculate the eigenvalues and eigenvectors of a square matrix using SciPy's linear algebra functions, such as scipy.linalg.eig.	CO 3
127.	Load a CSV file of the temperature readings and analyze the data using grouping, aggregation, and merging data frames.	CO3
128.	Create a Simple Line Plot using matplotlib.pyplot.plot.	CO 4
129.	Create a Scatter Plot using matplotlib.pyplot.scatter.	CO 4
130.	Create a Bar Chart using matplotlib.pyplot.bar.	CO 4
131.	Create a Histogram using matplotlib.pyplot.hist.	CO 4
132.	Create a Pie Chart using matplotlib.pyplot.pie.	CO 4
133.	Create a Box Plot using matplotlib.pyplot.boxplot.	CO 4
134.	Create a Heatmap using matplotlib.pyplot.imshow.	CO 4
135.	Customize Plot Labels and Titles using matplotlib.pyplot.xlabel, matplotlib.pyplot.ylabel, and	CO 4

	matplotlib.pyplot.title.	
136.	Customize Plot Colors, Line Styles, and Marker Styles using matplotlib.pyplot.plot parameters.	CO 4
137.	Add Gridlines to a Plot using matplotlib.pyplot.grid.	CO 4
138.	Add Legends to a Plot using matplotlib.pyplot.legend.	CO 4
139.	Create Subplots using matplotlib.pyplot.subplots.	CO 4
140.	Save a Plot as an Image File using matplotlib.pyplot.savefig.	CO 4
141.	Create 3D Plots using mpl_toolkits.mplot3d module.	CO 4
142.	Create Error Bars on a Plot using matplotlib.pyplot.errorbar.	CO 4
143.	Customize Axis Ticks and Tick Labels using matplotlib.pyplot.xticks and matplotlib.pyplot.yticks.	CO 4
144.	Create a Bar Plot with Stacked Bars using matplotlib.pyplot.bar and the bottom parameter.	CO 4
145.	Create a Scatter Plot using seaborn.scatterplot.	CO 4
146.	Create a Line Plot using seaborn.lineplot.	CO 4
147.	Create a Bar Plot using seaborn.barplot.	CO 4
148.	Create a Histogram using seaborn.histplot.	CO 4
149.	Create a Box Plot using seaborn.boxplot.	CO 4
150.	Create a Violin Plot using seaborn.violinplot.	CO 4
151.	Create a Heatmap using seaborn.heatmap.	CO 4

152.	Create a Pair Plot using seaborn.pairplot.	CO 4
153.	Create a Joint Distribution Plot using seaborn.jointplot.	CO 4
154.	Create a KDE (Kernel Density Estimate) Plot using seaborn.kdeplot.	CO 4
155.	Create a Categorical Scatter Plot using seaborn.stripplot.	CO 4
156.	Create a Categorical Bar Plot using seaborn.countplot.	CO 4
157.	Create a Facet Grid using seaborn.FacetGrid.	CO 4
158.	Customize Plot Colors and Styles using seaborn.set_palette and seaborn.set_style.	CO 4
159.	Add Error Bars to a Plot using seaborn.barplot or seaborn.pointplot with the ci parameter.	CO 4
160.	Create a Clustered Heatmap using seaborn.clustermap.	CO 4
161.	Create a Regression Plot using seaborn.regplot.	CO 4
162.	Create a Pairwise Relationship Plot using seaborn.pairplot or seaborn.scatterplot with multiple variables.	CO 4
163.	Create a Boxen Plot using seaborn.boxenplot.	CO 4
164.	Create a Stacked Bar Plot using seaborn.barplot with the hue parameter.	CO 4
165.	Write a program to draw a line chart using Plotly	CO 4
166.	Write a program to draw a Bar chart using Plotly	CO 4
167.	Write a program to draw a Histogram chart using Plotly	CO 4

168.	Write a program to draw a scatter plot using Plotly	CO 4
169.	Write a program to draw a Bubble chart using Plotly	CO 4
170.	Write a program to draw a pie chart using Plotly	CO 4
171.	Write a program to draw a Boxplot using Plotly	CO 4
172.	Write a program to draw Violin Plots using Plotly	CO 4
173.	Write a program to draw a Gant chart using Plotly	CO 4
174.	As a data analyst working on a project to analyse sales data for a retail company. Your task is tovisualize various aspects of the data using Matplotlib, Seaborn, and Plotly to gain insights and communicate findings effectively.	CO4
175.	Write a Python program to find the title tags from a given html document.	CO 5
176.	Write a Python program to retrieve all the paragraph tags from a given html document.	CO 5
177.	Write a Python program to get the number of paragraph tags of a given html document.	CO 5
178.	Write a Python program to extract the text in the first paragraph tag of a given html document.	CO 5
179.	Write a Python program to find the length of the text of the first <h2> tag of a given html document.	CO 5
180.	Write a Python program to find the text of the first <a> tag of a given html text.	CO 5
181.	Write a Python program to find the href of the first <a> tag of a given html document.	CO 5
182.	Write a Python program to a list of all the h1, h2, h3 tags from the webpage python.org.	CO 5

183.	Write a Python program to extract all the text from a given web page.	CO 5
184.	Write a Python program to print the names of all HTML tags of a given web page going through the document tree.	CO 5
185.	Write a Python program to retrieve children of the html tag from a given web page.	CO 5
186.	Write a Python program to retrieve all descendants of the body tag from a given web page.	CO 5
187.	Write a Python program to print content of elements that contain a specified string of a given web page.	CO 5
188.	Write a Python program to print the element(s) that has a specified id of a given web page.	CO 5
189.	Write a Python program to create a Beautiful Soup parse tree into a nicely formatted Unicode string, with a separate line for each HTML/XML tag and string.	CO 5
190.	Write a Python program to find the first tag with a given attribute value in an html document.	CO 5
191.	Write a Python program to find tag(s) beneath other tag(s) in a given html document.	CO 5
192.	Write a Python program to find tag(s) directly beneath other tag(s) in a given html document.	CO 5
193.	Write a Python program to find the siblings of tags in a given html document.	CO 5
194.	Write a Python program to find tags by CSS class in a given html document.	CO 5
195.	Write a Python program to change the tag's contents and replace with the given string.	CO 5
196.	Write a Python program to add to a tag's contents in a given html document.	CO 5
197.	Write a Python program to insert a new text within a url in a specified position.	CO 5

198.	Write a Python program to insert tags or strings immediately before specified tags or strings.	CO 5
199.	Write a Python program to insert tags or strings immediately after specified tags or strings.	CO 5
200.	Write a Python program to remove the contents of a tag in a given html document.	CO 5
201.	Write a Python program to extract a tag or string from a given tree of html document.	CO 5
202.	Write a Python program to remove a tag from a given tree of html document and destroy it and its contents.	CO 5
203.	Write a Python program to remove a tag or string from a given tree of html document and replace it with the given tag or string.	CO 5
204.	Write a Python program to wrap an element in the specified tag and create the new wrapper.	CO 5
205.	Write a Python program to replace a given tag with whatever's inside a given tag.	CO 5
206.	As a data analyst working for a retail company. Your task is to gather product information from various e-commerce websites to analyze market trends and competitor pricing.	CO5
207.	Write a program illustrating class definition and accessing class members.	CO 1
208.	Write a program to implement default constructor, parameterized constructor, and destructor.	CO 1

Required Software and Tools

1. Anaconda (Jupiter Notebook)
2. Python Compiler (Open Source)
3. Google Co-Lab

Textbooks	
Sr No	**Book Details**
1	Magnus Lie Hetland, "Beginning Python-From Novice to Professional"—Third Edition, Apress
2	Peter Morgan, Data Analysis from Scratch with Python, AI Sciences
3	Allen B. Downey, “Think Python: How to Think Like a Computer Scientist,” 2nd edition, Updated for Python 3,Shroff/O‘Reilly Publishers, 2016
4	Miguel Grinberg, Developing Web applications with Python, OREILLY
Reference Books	
Sr No	**Book Details**
1	Dusty Phillips, Python 3 Object-oriented Programming - Second Edition, O’Reilly
2	Burkhard Meier, Python GUI Programming Cookbook - Third ,Packt
3	DOUG HELLMANN, THE PYTHON 3 STANDARD LIBRARY BY EXAMPLE, : Pyth 3 Stan Libr Exam _2 (Developer's Library),1st Edition, Kindle Edition.
4	Kenneth A. Lambert, ―Fundamentals of Python: First Programs,‖ CENGAGE Learning, 2012.

Links (Only Verified links should be pasted here)
UNIT 1: https://nptel.ac.in/courses/106/106/106106145/ https://www.youtube.com/watch?v=_vr5faCXFo8 **UNIT 2:** https://realpython.com/python-gui-tkinter/ https://realpython.com/courses/functional-programming-python/ **UNIT 3:** https://www.youtube.com/watch?v=5rNu16O3YNE https://www.youtube.com/watch?v=8Y0qQEh7dJg **UNIT 4:** https://www.youtube.com/watch?v=OZOOLe2imFo https://www.youtube.com/watch?v=6GUZXDef2U0 **UNIT 5:** https://www.youtube.com/watch?v=8dTpNajxaH0 https://www.youtube.com/watch?v=4tAp9Lu0eDI

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

Department of Languages

Subject Name: Communication for Career Enhancement Lab	**L-T-P [0-0-4]**
Subject Code: BASL0251	**Applicable in Department: B. Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**

Pre-requisite of Subject: Should have completed ABC course in semester I.

Course Objective:

- To improve proficiency in Business English to the upper-intermediate level of CEFR (Common European Framework of Reference)
- To improve communication skills

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level(KL)**
CO 1	Apply key concepts of life skills in real life scenarios.	K3
CO2	Understand conversations and discussions on a variety of topics.	K2
CO3	Express ideas clearly and effectively through oral communication.	K2, K5
CO4	Understand and analyze main ideas of complex texts.	K2, K4
CO5	Construct clear and detailed texts on a wide range of topics.	K3, K5

List of Practical		
Sr No	**Program Title**	**CO Mapping**
1	**Introduction to the course and the evaluation scheme** Students will be familiarised with the course and the Examination Pattern.	CO1
2	**Anubhav Activity** Students will share their aspirations in life	CO1
3	**Listening to audio conversations of native speakers** The students will develop their ability to comprehend standard English conversations.	CO2
4	**Interactions Level 1- Meet & greet** Students will practice how to meet, and greet in professional scenarios, and strike a conversation.	CO3
5	**Deciphering critical information from official documents** The students will be able to identify and analyse the critical information in various official documents such as reports, articles, research papers etc.	CO4
6	**Art of condensation** The students will develop the ability to summarize official texts.	CO4
7	**Writing professional emails** Students will practice and develop ability to write clear and concise emails.	CO5
8	**Critiquing Films/Videos** Participants will improve their listening and critical thinking skills.	CO2
9	**Conversations in different situations (through caselets)** Participants will learn to converse in different professional situations.	CO3
10	**Case Study Analysis** The students will develop their critical thinking and analytical skills.	CO4

11	**Presentations based on the Case** The students will be able to improve their presentation skills.	CO3
12	**Language Toolbox 1** Class discussions on good and bad writing, common errors, punctuation rules.	CO5
13	**Paragraph Writing** Students will be able to write coherent paragraphs on a variety of topics.	CO5
14	**Language Toolbox 2: Domain specific terms and expressions** The students will practice using domain specific terms in different professional scenarios.	CO1
15	**Peer Talk** The students will develop conversational skills by discussing topics in pairs and will record their response to general questions asked by their peers.	CO3
16	**Responding to general questions** The students will develop the ability to respond spontaneously to general questions.	CO2
17	**Impromptu Speaking** The students will develop spontaneous thinking, and ability to express their ideas effectively.	CO3
18	**Reading for the Gist** The students will practice reading to get the central idea of a text.	CO3
19	**Writing short answers** The students will be able to write short notes on general as well as professional topics.	CO4
20	**Language Toolbox 3: Language concord** The students will be able to develop and improve their language proficiency.	CO4
21	**Individual Presentations** The students will hone their presentation skills.	CO3
22	**Group Talk**	CO4

	Participants will improve their ability to express their views clearly while discussing a topic in a group.	
23	**Hansei Activity** The students will discuss their key learnings from the course.	CO4

Required Software and Tools

- British Council EnglishScore Mobile App
  Free Apps to practice English:

  1. Memrise - https://www.memrise.com
  2. Open Language - https://open-language.en.uptodown.com
  3. Duolingo - https://englishtest.duolingo.com/applicants
  4. Rosetta Stone - https://www.rosettastone.com/product/mobile-apps/
  5. FluentU - https://www.rosettastone.com/product/mobile-apps/

Textbooks

Sr No	Book Details
1.	ABC Workbook, NIET Publishing House, Meerut, 2023

Reference Books

Sr No	Book Details
1	Cambridge English Business Benchmark (Pre-intermediate to Intermediate), 2nd edition, Norman Whitby, Cambridge University Press, 2013, UK.
2	Listening in the Language Classroom by John Field, Cambridge University Press, 2021, UK.
3	Speaking: Second Language Acquisition, from Theory to Practice by William Littlewood, Cambridge University Press, 2022, UK.

4	Second Language Writing in Transitional Spaces: Teaching and Learning Across Languages and Cultures edited by Viniti Vaish and Guangwei Hu, Routledge, 2019, UK.
5	The Writing Revolution: A Guide to Advancing Thinking Through Writing in All Subjects and Grades by Judith C. Hochman and Natalie Wexler, Jossey-Bass, 2022, USA.
6	The Cambridge Handbook of Corrective Feedback in Second Language Learning and Teaching edited by Hossein Nassaji and Eva Kartchava, Cambridge University Press, 2021, UK
7	IELTS 11: General Training with answers. Cambridge English, 2018

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY
GREATER NOIDA-201306
(An Autonomous Institute)
School of Electronics and Communication Engineering

Subject Name: Basic Electrical and Electronics Engineering Lab	**L-T-P [0-0-2]**
Subject Code: BEC0251N	**Applicable in Department: B.Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Physics, Mathematics	

Lab Experiments

Course Objective: The student will learn about DC circuit fundamentals, element of power system, semiconductors diodes applications, analysis of BJT, logic simplification, combinational and sequential circuits.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level (KL)**
CO 1	Apply circuit laws and theorems to solve the problems of electrical circuits.	K1, K2
CO2	Illustrate diode characteristics, Rectifier circuits and characteristics of BJT.	K1, K2
CO3	Verify truth table of various types of logic gates.	K2, K3
CO4	Design and verify different type of combinational circuits.	K3, K4
CO5	Implement and verify truth table of various types of flip-flops.	K3, K4

List of Practicals

Sr No	**Program Title**	**CO**

		Mapping
1	Study and verify the Kirchhoff's Current Law and Kirchhoff's Voltage Law for given circuit.	**CO1**
2	Study and verify the Super position theorem for the given circuit.	**CO1**
3	Study and verify the Thevenin's Theorem for the given circuit.	**CO1**
4	Study and verify the Maximum Power transfer Theorem for the given circuit.	**CO1**
5	To plot the V-I characteristics of PN junction diode	**CO2**
6	Design and verify half wave and full wave rectifier for V_{dc} = 10 volt and I_L=100 mA. Observe output waveform.	**CO2**
7	To Plot the input and output characteristics of a Bipolar Junction Transistor (BJT) connected in Common Emitter (CE) configuration.	**CO2**
8	Verification of the truth tables of Basic Logic Gates and Universal Logic Gates using TTL ICs. a) AND (7408) b) OR (7432) c) NOT (7404) d) NAND (7400) NOR (7402)	**CO3**
9	Implementation of the given Boolean function using TTL Logic Gates (NOT, AND and OR Gates) in SOP for following Boolean expressions: a) Y1=AB' +A'B Y2=ABC + A'B'C' + A'C	**CO3**
10	Implementation of the given Boolean function using TTL Logic Gates (NOT, AND and OR Gates) in POS forms for following Boolean expressions: a) Y1=(A'+B)(A+B') Y2= (A+B+C)(A'+B'+C')(A'+C)	**CO3**
	Implementation of Half-adder, Full-adder and Full-adder using two Half-adder with TTL Logic Gates (EXOR-7486, AND-7408, OR-7432) and verify its truth table.	**CO4**

	Implementation of Half-subtractor, Full-subtractor and Full-subtractor using two Half-subtractor with TTL Logic Gates (EXOR-7486, AND-7408, OR-7432) and verify its truth table.	**CO4**
	Implement 2 Bit magnitude comparator using logic gates and verify the truth table.	**CO4**
	Verification of truth table of flip-flop using NAND gate (7400) & NOR gates (7402). a) RS Flip Flop b) JK Flip Flop c) D Flip Flop T Flip Flop	**CO5**
	Implement D flip flop using SR flip flop and verify the truth table.	**CO5**
Required Software and Tools		
None		

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

School of Mechanical Engineering

Subject Name: CAD and Digital Manufacturing	**L-T-P [0-0-6]**
Subject Code: BME0251N	**Applicable in Department: B.Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject:	

Course Objective:

The course aims are to provide students with comprehensive knowledge and practical skills in Computer-Aided Design (CAD) and its application in digital manufacturing. Students will gain understanding of CAD software fundamentals and its relevance in modern industrial processes. Through advanced techniques in modelling, simulation, and prototyping, they will learn to effectively design the products for digital fabrication methods like 3D printing and CNC machining. The course emphasizes hands-on learning with practical exercises and real-world case studies, enabling students to develop critical problem-solving abilities essential in the field of CAD and digital manufacturing.

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:		**Bloom's Knowledge Level**
CO1	Understand engineering drawings, projections, and CAD software for accurate technical design and visualization.	K2
CO2	Gain proficiency in sketching, dimensioning, editing, and detailing drawings in CAD, including advanced layout and plotting techniques	K3
CO3	Apply skills in 3D modeling, visualization, and assembly, mastering techniques for creating and editing complex digital prototypes and blueprints.	K3
CO4	Understand workshop practices, machining tools, and materials, with insights into digital manufacturing, automation, and Industry 5.0 innovations.	K2

CO5	Demonstrate and apply 3D printing, understand various production types, and explore smart factories and industry technologies for advanced manufacturing.	K3

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping
1.	**Introduction to CAD**	Introduction to Engineering Drawings, Scale, Basic Measurement System, Coordinate System, Types of View: Orthographic, Isometric & Perspective, Type of Projection, Sections of solids and Development of surfaces, Introduction to CAD Software, Exploring GUI, Workspaces, Coordinate systems, File Management, Display Control.	Smart Board/ PPT	8	-	CO1
2.	**Working on CAD in 2D environment**	Starting with Sketching, working with Drawing Aids, Editing Sketched Objects, Layers, Creating Text and Tables, Dimensioning and Detailing of Drawings, Editing Dimensions, Dimension Styles, Adding Constraints to Sketches, Hatching Drawings, Paper Layout, Plotting Drawings in AutoCAD, Template Drawings.	Smart Board/ PPT	8	-	CO2
3.	**Working on CAD in 3D environment**	Introduction to 3D Modeling, 3D Environment and Drawing, Modeling Workflow, Editing Models, Assembly, sectioning a Model and Creating Drawings, Visualization, Downstream, Rectangular 3D coordinates, 3D Construction techniques, constructing wireframe objects, constructing solid primitives, dynamically changing a 3D view, and shading a 3D model, Blueprint Drawing, Uses of Digital Prototype	Smart Board/ PPT	8	-	CO3
4.	**Introduction to**	Introduction to workshop layout, engineering	Smart Board/	8	-	CO4

	Digital Manufacturing	materials, Fitting, Carpentry, Forging, Casting, Welding, Forming, Basic Machining Tools: Lathe, Milling, Drilling, Shaper, Grinding, Introduction to Digital Manufacturing: additive manufacturing, basics of automation & robotics and Industry 5.0.	PPT			
5.	**Applications of Digital Manufacturing**	3D Modelling and simulation of various Forming, machining in CAD, Overview of Computational Fluid Dynamics, Basic introduction to 3D Printing & Technologies (FDM, LDM, SLA) Slicing software. Types of Production, Various types of Industries, Introduction to Smart Factory	Smart Board/ PPT	8	-	CO5
			Total	**40**	**-**	**-**

Required Software and Tools

1. AutoCAD
2. CNC Simulator

Textbooks

S. No.	Book Details
1.	A Handbook on AUTOCAD tool practice by SSR Krishna
2.	Engineering. Graphics, by Agrawal B. & Agrawal CM., TMH Publication
3.	Engineering. Drawing by Bhatt ND, Charotar Publiction
4.	CAD by CAM by M.P. Grover.
5.	A course in Workshop technology by B.S. Raghuwanshi, Vol I & II, Dhanpat Rai & sons, New Delhi
6.	Industrial automation and Robotics by A.K. Gupta., S K Arora, Laxmi publication
7.	CNC Fundamentals and Programming by P.M Agarwal, V.J Patel, Charotar Publication

Reference Books	
S. No.	**Book Details**
1.	Engineering Drawing +AUTOCAD 6th Edition by K Venugopal & V Prabhu Raja, New Age International Publishers
2.	Computer Aided Engineering Drawing - S. Triyambaka Murthy, - I.K. International Publishing House Pvt. Ltd., New Delhi.
3.	Advance CAD Modelling by Nicola & Duhovnik
4.	Manufacturing Engineering and Technology, Kalpakjian S. And Steven S. Schmid, 4th edition, Pearson Education India Edition.
5.	Rapid Product Development, Kimura Fumihiko
6.	CNC Machines by M. Adhitan, B.S Pabla; New age international.
7.	CAD/CAM, by Groover and Zimmers, Prentice Hall India Ltd

Links

1. AutoCAD Basics
2. AutoCAD 3D Screwdriver
3. AutoCAD 3D Funnel Model
4. AutoCAD 3D Wooden Table
5. AutoCAD 3D Door Model
6. AutoCAD 3D Window Model
7. AutoCAD 3D Spark Plug Model
8. AutoCAD 3D Jet Engine Propeller
9. AutoCAD 3D Wind Turbine Model
10. AutoCAD 3D Solar Panel Layout
11. AutoCAD 3D Belt Pulley Model
12. Fitting, fitting operations
13. Carpentry joints and operations
14. Forging operations
15. Casting Process

16. Forging operations such as drawing out, upsetting, bending, upsetting
17. To demonstrate casting experiments using materials like aluminum or bronze.
18. To study different welded joints using different welding techniques.
19. To study basic metal forming techniques (rolling, extrusion, wire drawing)
20. Study of Machining Tools- Lathe, Milling
21. Study of Machining Tools- Drilling, Shaper, Grinding.
22. Study and demonstration of automation & robotics.
23. To study the concepts of Industry 4.0 & Industry 5.0
24. Setting up of work piece zero position and tool adjustment in CNC Turning machine
25. To write and simulate CNC Part program
26. CNC Part program for facing operation
27. CNC Part program for milling operations.
28. FDM 3D Printing Technology.
29. SLA 3D Printing Technology.
30. conversion of CAD model on a slicing software.
31. AutoCAD Projects
32. AutoCAD 2D Drawings
33. AutoCAD 3D Drawings
34. CAD Projects

Lab No.	UNIT	Topic	Simulator/ Software	CO Mapping
1	1	To create design of a robotic Arm model on CAD	AutoCAD	CO1
2		To draw & design a Cell phone adapter in CAD Software.	AutoCAD	CO1
3		To create layout of job shop, batch shop and continuous manufacturing on CAD	AutoCAD	CO1
4		To draw the orthographic projection view of Hub, Arms, and Face of a Pulley	AutoCAD	CO1
5		To draw the isometric projection view of Pipe, 90-degree elbow and 180-degree bend of a piping system	AutoCAD	CO1

6		To draw the isometric projection view of motor coupling in CAD Software	AutoCAD	CO1
7		To draw the orthographic projection view of a Study Chair.	AutoCAD	CO1
8		To draw the isometric projection view of one-way mobile connector	AutoCAD	CO1
9		Two dimensional drawings of Cam and Rocker Arm on AutoCAD.	AutoCAD	CO1
10		To create a design of a Soap Case on CAD software.	AutoCAD	CO1
11		To draw a two-way cable connector on CAD software.	AutoCAD	CO1
12		To draw orthographic projections of hexagonal bolt in CAD Software.	AutoCAD	CO1
13		Two dimensional drawings of washer on AutoCAD.	AutoCAD	CO1
14		Two dimensional drawings of Gaskets of a vacuum pump on AutoCAD.	AutoCAD	CO1
15		To create 2D Drawings of Ring and Pinion Gear in CAD Software.	AutoCAD	CO1
16		To draw and design a phone stand/tripod in CAD software	AutoCAD	CO1
17		To draw an orthographic projection view of Edge Flange in CAD Software	AutoCAD	CO1
18		To draw the orthographic projection view of Fork End of a Knuckle Shaft	AutoCAD	CO1
19		To draw an orthographic projection view of Roller Stud in CAD Software	AutoCAD	CO1
20	2	To design a quadcopter drone on CAD	AutoCAD	CO2
21		To design a digital camera on CAD	AutoCAD	CO2
22		To design the layout of intent device connector on CAD	AutoCAD	CO2
23		To model & design a motor coupling in CAD Software.	AutoCAD	CO2
24		To design a 3D Model of a one-way mobile connector.	AutoCAD	CO2

25		To create 2D drawings of Helical Gear in AutoCAD Software.	AutoCAD	CO2
26		To draw & design a socket welded produced elbow in CAD Software.	AutoCAD	CO2
27		To create 2D model of crane hook	AutoCAD	CO2
28		Two-dimensional drawing of seal cover on AutoCAD software.	AutoCAD	CO2
29		Two dimensional drawings of a Friction plate on AutoCAD.	AutoCAD	CO2
30		To create 2D drawing of a threaded rod using AutoCAD Software.	AutoCAD	CO2
31		Create 2D drawings of Cam and camshaft bearings in AutoCAD	AutoCAD	CO2
32		To design a socket weld cross fitting model in CAD Software.	AutoCAD	CO2
33		To draw orthographic view of engine cylinder head in CAD software	AutoCAD	CO2
34		To demonstrate & draw a threaded rod using AutoCAD Software.	AutoCAD	CO2
35		To design a wrench in AutoCAD Software.	AutoCAD	CO2
36		To design a wristwatch in AutoCAD Software.	AutoCAD	CO2
37		To design a slip-on flange in AutoCAD Software.	AutoCAD	CO2
38		To design a CAR Wheel in CAD Software.	AutoCAD	CO2
39		Modelling and designing of steering wheel of a car in CAD software	AutoCAD	CO2
40		To create drawings of a Connecting Rod and Gudgeon pin on CAD software.	AutoCAD	CO2
41		To demonstrate a Butt-weld Straight Pipe Tee fitting and design it in CAD Software.	AutoCAD	CO2
42		To create a 2D drawing of Cotter and Sleeve	AutoCAD	CO2
43		To create 2D drawing of Knuckle Pin, Taper Pin and Collar in CAD Software	AutoCAD	CO2

44		To design a digital X-ray Machine on CAD	AutoCAD	CO2
45		To design & assemble a 3D pipe routing in CAD Software.	AutoCAD	CO2
46		To design an electric motor on CAD	AutoCAD	CO2
47		To create design of a CNC Lathe on CAD	AutoCAD	CO2
48		To create design of a Shaper Machine on CAD	AutoCAD	CO2
49		To create design of a Milling Machine on CAD	AutoCAD	CO2
50		To create design of a drilling Machine on CAD	AutoCAD	CO2
51		To create design of carpentry joints on CAD	AutoCAD	CO2
52		To create 2D drawings of Cam and followers on CAD	AutoCAD	CO2
53		To create design of a 3D printer machine on CAD	AutoCAD	CO2
54		To create layout of workshop on CAD	AutoCAD	CO2
55	3	To design & assemble a 3d model of Cotter and Sleeve Joint with all dimensions and allowances	AutoCAD	CO3
56		To design & assemble a 3d model of knuckle joint with dimensions and allowances in CAD Software.	AutoCAD	CO3
57		To draw & model a spiral spring in AutoCAD Software.	AutoCAD	CO3
58		To design an edge flange on base flange using CAD Software.	AutoCAD	CO3
59		To model & design a Roller Stud in CAD Software.	AutoCAD	CO3
60		To model & design a Pulley used to transmit power.	AutoCAD	CO3
61		To model & design a 3D Model of a Study Chair in AutoCAD Software.	AutoCAD	CO3
62		To design the 3D assembly of Cam and Rocker Arm on AutoCAD.	AutoCAD	CO3

63		To create a 3D model of water bottle in CAD Software.	AutoCAD	CO3
64		To create the 3D drawing of Differential on AutoCAD.	AutoCAD	CO3
65		Modelling and designing of door lock handle in CAD software	AutoCAD	CO3
66		To design & model a chain ring in CAD Software.	AutoCAD	CO3
67		To create 3D model of crane hook	AutoCAD	CO3
68		Modelling and designing of a fry pan used in kitchen	AutoCAD	CO3
69		To draw and modelling of Camshaft assembly used in multicylinder engines.	AutoCAD	CO3
70		Modelling and designing of a rotor of turbine	AutoCAD	CO3
71		3D modelling of a kitchen sink in CAD Software.	AutoCAD	CO3
72		To create 3D design of Auto headlight reflector on AutoCAD software.	AutoCAD	CO3
73		To design a 3d design of water pump fan in CAD Software.	AutoCAD	CO3
74		To design a wristwatch in AutoCAD Software.	AutoCAD	CO3
75		Designing and modelling of wardrobe in CAD Software	AutoCAD	CO3
76		Modelling and designing of English toilet seat in CAD software	AutoCAD	CO3
77		Modelling and designing of steering wheel of a car in CAD software	AutoCAD	CO3
78		Modelling and designing of a computer mouse by mesh modelling in CAD software	AutoCAD	CO3
79		Modelling and designing of a chair wheel of revolving chair	AutoCAD	CO3
80		Modelling and designing of transition duct in CAD software	AutoCAD	CO3
81		Modelling and designing of exhaust manifold of engine	AutoCAD	CO3

82		To design a 3D Model of a bike suspension in CAD Software.	AutoCAD	CO3
83		To model & design of a Drone Fan in CAD Software.	AutoCAD	CO3
84		To demonstrate & design a Motorcycle front sprocket in CAD Software.	AutoCAD	CO3
85		To draw elevation and plan of a home on CAD.	AutoCAD	CO3
86		To draw elevation and plan of a town on CAD.	AutoCAD	CO3
87		To create an assembly of a Connecting Rod on CAD software.	AutoCAD	CO3
88		To design a water, tap in AutoCAD Software.	AutoCAD	CO3
89		To design a Footstep Power Generator in Designing Software.	AutoCAD	CO3
90		To create a Cam Follower assembly on CAD software.	AutoCAD	CO3
91	4	Introduction and demonstration of manufacturing processes- Fitting, Carpentry	Virtual Simulator	CO4
92		To simulate different fitting operations through simulation	Process Simulator	CO4
93		To Introduce students to basic wood carving techniques using carving chisels and gouges	Process Simulator	CO4
94		To practice carving simple designs or patterns on wooden blocks.	Process Simulator	CO4
95		Introduction and demonstration of manufacturing Processes- Forging, Casting	Virtual Simulator	CO4
96		To teach students basic hammering techniques used in forging, such as drawing out, upsetting, bending.	Process Simulator	CO4

97		Demonstrate the process of punching holes or slots in a forged work piece using a punch and drift	Process Simulator	CO4
98		To simulate forging process like punching, upsetting using process simulator	Process Simulator	CO4
99		To perform casting experiments using materials like aluminium or bronze.	Process Simulator	CO4
100		To investigate the effect of mold temperature on cast parts.	Process Simulator	CO4
101		To investigate the effect of pouring temperature on cast parts	Process Simulator	CO4
102		To investigate the effect of cooling rate on cast parts	Process Simulator	CO4
103		Introduction and demonstration of manufacturing Processes- Welding, Forming.	Virtual Simulator	CO4
104		To study different welded joints using different welding techniques.	Virtual Simulator	CO4
105		To simulate Electric arc welding through different welding techniques	Process Simulator	CO4
106		To simulate MIG welding with the help of the processes simulator	Process Simulator	CO4
107		To simulate TIG welding with the help of the processes simulator	Process Simulator	CO4
108		To study basic metal forming techniques (rolling, extrusion, wire drawing)	Virtual Simulator	CO4

109		To simulate rolling process using virtual simulator	Virtual Simulator	CO4
110		To simulate extrusion process using virtual simulator	Virtual Simulator	CO4
111		To simulate wire drawing process using virtual simulator	Virtual Simulator	CO4
112		Study of Machining Tools- Lathe, Milling	Virtual Simulator	CO4
113		Study of Machining Tools- Drilling, Shaper, Grinding	Virtual Simulator	CO4
114		To simulate lathe machine to obtain desired shape and size.	Process Simulator	CO4
115		To simulate drill machine to obtain holes of different diameter.	Process Simulator	CO4
116		To simulate lathe machine to obtain desired shape and size.	Process Simulator	CO4
117		Study and demonstration of automation & robotics	Construction Equipment	CO4
118		To study the concepts of Industry 4.0	Simulator	CO4
119	5	3D Modelling and simulation of Machining in CAD	Construction Equipment Simulator	CO5

120		3D Modelling and simulation of sheet bending in CAD	Construction Equipment Simulator	CO5
121		Setting up of work piece zero position and tool adjustment in CNC Turning machine	Process Simulator	CO5
122		To write and simulate CNC Part program for turning operation as per drawing	Control System Simulator	CO5
123		To write and simulate CNC Part program for facing operation as per drawing	Control System Simulator	CO5
124		To write and simulate CNC Part program for drilling operation as per drawing	Control System Simulator	CO5
125		To write and simulate CNC Part program for milling operations.	Control System Simulator	CO5
126		Study of FDM 3D Printing Technology.	Process Simulator	CO5
127		Study of LDM 3D Printing Technology.	Process Simulator	CO5
128		Study of SLA 3D Printing Technology.	Process Simulator	CO5
129		Visualization and conversion of CAD model on a slicing software.	Process Simulator	CO5

130		Create a product using a 3D printer machine tool through different 3D printing techniques	Robotics Simulator	CO5
131		Study of different type of production systems used in industry- Job, Batch, Mass, Continuous (Case Studies and Examples)	Process Simulator	CO5
132		Study of different types of industries (Case Studies and Examples)	Process Simulator	CO5
133		Design and implementation of Smart factory for Industry Revolution 4.0	Robotics Simulator	CO5
134		To create digital twins of given parts using smart manufacturing simulation software	Smart manufacturing simulator	CO5
135		Objective is to familiarize students with the operation of CNC machines, including their components, controls, and functionalities. Through hands-on experiments, students gain practical knowledge of setting up work pieces, tooling, and executing machining operations.	Robotics Simulator	CO5
136		Objective is to enhance students' programming skills for CNC machines. By designing and executing different machining operations, students learn to write and debug CNC programs, understand G-code instructions, and create efficient tool paths.	Robotics Simulator	CO5
137		Objective is to teach students how to optimize machining processes using CNC machines. Through experiments, students learn to analyse different parameters such as cutting speed, feed rate, and tool path strategies to achieve desired machining results, including surface finish, accuracy, and cycle time reduction	Robotics Simulator	CO5
138		Objective is to expose students to advanced CNC techniques and capabilities. Through experiments, students can explore topics such as multi-axis machining, high-speed machining, tool change management, and complex part production to expand their knowledge and skills in CNC machining.	Robotics Simulator	CO5

139		Objective is to help students understand the impact of machining variables on the quality of machined parts. Through experiments, students can explore variables like tool geometry, tool material, cutting parameters, and machining strategies to analyse their effects on surface finish, dimensional accuracy, and tool life.	Robotics Simulator	CO5
140		Objective is to teach students how to use simulation and verification tools to validate and optimize CNC programs before executing them on the machine. Through experiments, students can understand the importance of simulation in preventing collisions, verifying tool paths, and optimizing machining processes.	Robotics Simulator	CO5
141		Objective is to develop students' problem-solving and troubleshooting skills in CNC machining. Through experiments, students encounter and resolve issues such as tool breakage, incorrect tool paths, or machine errors, helping them develop critical thinking and decision-making abilities.	Robotics Simulator	CO5
142	1	1.1 Introduction to basic electronic components like capacitors, resistors, LEDs, transistors, diodes, etc. 1.2 Describe and demonstrate the hands-on use of a multi-meter to check component and circuit status. 1.3 Introduction to the Soldering Procedure along with hands-on practice.	IDEA Lab	CO5
143	2	2.1 Design and implement the connection of a LED with a battery via Tinkercad and using hardware. 2.2 Design and implement the connection of a Buzzer with a battery via Tinkercad and using hardware. 2.3 Design and implement the connection of a DC motor with a battery via Tinkercad and using hardware. 2.4 Design and implement the connection of a potentiometer with an LED and a battery via Tinkercad and using hardware.	IDEA Lab	CO5
144	3	3.1 Design and implement the connection of a potentiometer with a DC motor and a battery via Tinkercad and using hardware. 3.2 Design and implement the connection of a push button with an LED and a battery via Tinkercad and using hardware.	IDEA Lab	CO5
145	4	4.1 Introduction and demonstration of 3D printing 4.2 Introduction and demonstration of 3D Scanning	IDEA Lab	CO5

146	5	Design and implement the project of a traffic light via Tinkercad and using hardware.	IDEA Lab	CO5
147	6	6.1 Introduction to Arduino Boards. 6.2 Hands-on session on Arduino IDE basic components for automation.	IDEA Lab	CO5
148	7	Design and implement the project of Basic Home Automation via Tinkercad and using hardware.	IDEA Lab	CO5
149	8	Understanding the working of MV Laser and performing engraving, cutting operation.	IDEA Lab	CO5
150	9	Understanding the working of CNC Router Machine and performing engraving using CNC Router.	IDEA Lab	CO5
151	10	Hands-on- training on different tools and making enclosure and support for the project.	IDEA Lab	CO5
Projects	1	**Home Automation using Voice Assistant (Alexa/Google Home):** In this project you will learn how you can control a lamp, fan, curtain or any other electrical appliance in your space using an Arduino. At the end of the project, you will be able to control the connected load from your smartphone**.**	IDEA Lab	CO5
	2	**Line Follower Robot:** The concept of the line follower robot is related to light. Here, we use the behaviour of light on the black-and-white surface. The white colour reflects all the light that falls on it, whereas the black colour absorbs the light. In this line-follower robot, we use IR transmitters and receivers (photodiodes).	IDEA Lab	CO5
	3	**Obstacle Avoider Robot:** An obstacle avoiding robot is a fully autonomous robot which can be able to avoid any obstacle which it faces when it moves. Simply, when it met an obstacle while it is moving forward, automatically stops moving forward and makes a step back.	IDEA Lab	CO5
	4	**Office Desk Decore displaying Time Temperature and Humidity:** This project aims to display the time, temperature and humidity using the DHT11 sensor and LCD display 1602 with an I2C module.	IDEA Lab	CO5
	5	**Num pad-based door lock:** In this project, you can design an Arduino Keypad Door Lock which can be mounted to any of your existing doors to secure them with a digital password.	IDEA Lab	CO5

	6	**Traffic Light Simulation:** We will use three LEDs in this project to simulate the sequence of traffic lights (red, yellow and green). By starting with this project, we will be able to learn to control light sequentially and with different timing.	IDEA Lab	CO5
	7	**Smoke Detecting IoT Device Using Gas Sensor:** Smoke Detecting IoT device is a smart fire detection system that can detect combustible gases and alert you to act immediately to control or stop the fire from breaking out. With the help of Arduino, an MQ-2 Smoke detection sensor, a breadboard, some jumper wires, a resistor, two LEDs, and a buzzer, one can quickly build this fire detection system using IoT.	IDEA Lab	CO5
	8	**Tank Water Monitoring System:** This device applies the power of the internet of things to build a water monitoring system to reduce water wastage. It notifies you when the water reaches the maximum or the minimum level. The primary components used in this project are Arduino UNO, Ultrasonic sensor, Buzzer, and Bolt Wi-Fi module.	IDEA Lab	CO5
	9	**Gesture-Controlled Contactless Switch:** This IoT project aims to build a gesture-controlled switch that you can use in homes and public places to control all kinds of connected devices on an IoT network. Here are the components you need for the project, Arduino mini pro, OLED Display, Channel Relay, 5V adaptor, Gesture Sensor, and a bulb.	IDEA Lab	CO5
	10	**Distance Measurement Using Ultrasonic Sensor:** The main part of this project is the ultrasonic sensor. We will be able to measure distances at high accuracy using sound waves.	IDEA Lab	CO5
	11	**Temperature and Humidity Monitor:** With this project we can gain more knowledge how to connect humidity and temperature sensors to accurately monitor the environment.	IDEA Lab	CO5
	12	**To control the speed of a railway barrier using servo motor:** This project introduces us to servo motors which is a fascinating motor that transforms electrical signal into accurate mechanical motion.	IDEA Lab	CO5
	13	**To design on screen information LCD display:** In this project we will be able to learn how to interface an LCD with arduino and create an on-screen information system.	IDEA Lab	CO5
	14	**To design a security-based alarm system using PIR based sensor:** This project helps us to develop a system that detects motion and sound. This arduino based alarm system combines a PIR motion sensor and a buzzer.	IDEA Lab	CO5

	15	**To design a visual display of multiple patterns using 8x8 LED matrix with arduino circuit:** LED matrices are very captivating, it creates a visual display, multiple patterns and simple animations	IDEA Lab	CO5
	16	**To design an anti-theft alarm system using force sensor:** With this project we create a basic but effective security solution that can be used to protect valuables or any entry points in a place.	IDEA Lab	CO5
	17	**To design a security system using RFID based access control:** This project has the power of RFID and arduino which provides us an advanced and futuristic way to manage access and increase security.	IDEA Lab	CO5
	18	**To design a fluid flow rate and volume monitoring system:** This project guides us through interfacing a flow sensor with arduino to measure the rate at which the water flows through a pipe and also calculate the total volume passed.	IDEA Lab	CO5

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

Department of MBA

Subject Name: Essence of Indian Traditional Knowledge	**L-T-P [2-0-0]**
Subject Code: BNC0203	**Applicable in Department: B.Tech.-Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Philosophical Systems, Spiritual Practices, Cultural Heritage, Ayurveda and Traditional Medicine, Architecture,	
Course Objective: To enable the students to understand the importance of our surroundings and encourage them to contribute towards sustainable development.	

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:	**Bloom's Knowledge Level(KL)**
CO1 - Understand the basics of past Indian politics and state polity.	K2
CO2- Understand the Vedas, Upanishads, languages & literature of Indian society.	K2
CO3- Know the different religions and religious movements in India.	K4
CO4- Identify and explore the basic knowledge about the ancient history of Indian agriculture, science & technology, and ayurveda.	K4
CO5- Identify Indian dances, fairs & festivals, and cinema.	K1

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping

Unit 1	**Society State and Polity in India**	State in Ancient India: Evolutionary Theory, Force Theory, Mystical Theory Contract Theory, Stages of State Formation in Ancient India, Kingship , Council of Ministers Administration Political Ideals in Ancient India Conditions' of the Welfare of Societies, The Seven Limbs of the State, Society in Ancient India, Purusārtha, Varnāshrama System, Āshrama or the Stages of Life, Marriage, Understanding Gender as a social category, The representation of Women in Historical traditions, Challenges faced by Women.	PPT, Lecture	8	Assignment 1	**CO1**
Unit 2	**Indian Literature, Culture, Tradition, and Practices**	Evolution of script and languages in India: Harappan Script and Brahmi Script. The Vedas, the Upanishads, the Ramayana and the Mahabharata, Puranas, Buddhist And Jain Literature in Pali,Prakrit And Sanskrit, **Sikh Literature**, Kautilya's Arthashastra, Famous Sanskrit Authors, Telugu Literature, Kannada Literature,Malayalam Literature ,Sangama Literature Northern Indian Languages & Literature, Persian And Urdu ,Hindi Literature	PPT, Lecture	8	Assignment 2	**CO2**
Unit 3	**Indian Religion, Philosophy, and Practices**	Pre-Vedic and Vedic Religion, Buddhism, Jainism, Six System Indian Philosophy, Shankaracharya, Various Philosophical Doctrines , Other Heterodox Sects, Bhakti Movement, Sufi movement, Socio religious reform movement of 19th century, Modern religious practices.	PPT, Lecture	8	Assignment 3	**CO3**

Unit 4	**Science, Management and Indian Knowledge System**	Astronomy in India, Chemistry in India, Mathematics in India, Physics in India, Agriculture in India, Medicine in India , Metallurgy in India, Geography, Biology, Harappan Technologies, Water Management in India, Textile Technology in India ,Writing Technology in India Pyrotechnics in India Trade in Ancient India/,India's Dominance up to Pre-colonial Times.	PPT, Lecture	8	Assignment 4	**CO4**
Unit 5	**Cultural Heritage and Performing Arts**	Indian Architect, Engineering and Architecture in Ancient India, Sculptures, Pottery, Painting, **Indian Handicraft**, **UNESCO'S List of World Heritage sites in India**, Seals, coins, Puppetry, Dance, Music, Theatre, drama, Martial Arts Traditions, Fairs and Festivals, **UNESCO'S List of Intangible Cultural Heritage, Calenders**, Current developments in Arts and Cultural, Indian's Cultural Contribution to the World. Indian Cinema	PPT, Lecture	8	Assignment 5	**CO5**
Total				**40**		

Textbooks	
Sr No	**Book Details**
1.	Nitin Singhania, Indian Art and Culture: for civil services and other competitive Examinations,3rd Edition,Mc Graw Hill
2.	Sharma, R.S., Aspects of Political Ideas and Institutions in Ancient India (fourth edition), Delhi, Motilal Banarsidass,
Reference Books	
Sr No	**Book Details**
1.	Basham, A.L., The Wonder that was India (34th impression), New Delhi, Rupa & co.

Links
Video Link: **https://www.youtube.com/watch?v=wjepzXnEqYo** **https://www.youtube.com/watch?v=AnGJ7zwyCAk** **https://www.youtube.com/watch?v=5xpJeO_syN4&t=832s** **https://www.youtube.com/watch?v=IGOJMQC7Jy4** **https://indianexpress.com/article/research/a-crackling-history-of-fireworks-in-india-4890178/** **https://artsandculture.google.com/partner/national-council-of-science-museums** **https://artsandculture.google.com/exhibit/QQLyzPzKbMlEKg**

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY GREATER NOIDA-201306

(An Autonomous Institute)

Department of MBA

Subject Name: Constitution of India, Law and Engineering	**L-T-P [2-0-0]**
Subject Code: BNC0202	**Applicable in Department: B.Tech.- Second Semester CSE/CSE-R/IT/CS/IOT/M.Tech.(Int.)**
Pre-requisite of Subject: Basic understanding of political science.	
Course Objective: Acquaint the students with legacies of constitutional development in India and help those to understand the most diversified legal document of India and philosophy behind it.	

Course Outcomes (CO)

Course outcome: After completion of this course students will be able to:	**Bloom's Knowledge Level(KL)**
CO1 - Identify and explore the basic features and modalities about Indian constitution.	K1
CO2- Differentiate and relate the functioning of Indian parliamentary system at the center and state level.	K2
CO3- Differentiate different aspects of Indian Legal System and its related bodies.	K4
CO4- Discover and apply different laws and regulations related to engineering practices.	K4
CO5- Correlate role of engineers with different organizations and governance models.	K4

Syllabus

Unit No	Module Name	Topic covered	Pedagogy	Lecture Required (L+P)	Practical/ Assignment/ Lab Nos	CO Mapping

Unit 1	**Introduction and Basic Information about Indian Constitution**	Meaning of the constitution law and constitutionalism, Historical Background of the Constituent Assembly, Government of India Act of 1935 and Indian Independence Act of 1947,Enforcement of the Constitution, Indian Constitution and its Salient Features, The Preamble of the Constitution, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy, Parliamentary System, Federal System, Centre-State Relations, Amendment of the Constitutional Powers and Procedure, The historical perspectives of the constitutional amendments in India, Emergency Provisions: National Emergency, President Rule, Financial Emergency, and Local Self Government – Constitutional Scheme in India.	PPT, Lecture	8	Assignment 1	**CO1**
Unit 2	**Union Executive and State Executive**	Powers of Indian Parliament Functions of Rajya Sabha, Functions of Lok Sabha, Powers and Functions of the President, Comparison of powers of Indian President with the United States, Powers and Functions of Vice-President, Powers and Functions of the Prime Minister, Judiciary – The Independence of the Supreme Court, Appointment of Judges, Judicial Review, Public Interest Litigation, Judicial Activism, LokPal, Lok Ayukta, The Lokpal and Lok ayuktas Act 2013, State Executives – Powers and Functions of the Governor, Powers and Functions of the Chief Minister, Functions of State Cabinet, Functions of State Legislature, Functions of High Court and Subordinate Courts.	PPT, Lecture	8	Assignment 2	**CO2**

Unit 3	**Introduction and Basic Information about Legal System**	The Legal System: Sources of Law and the Court Structure: Enacted law -Acts of Parliament are of primary legislation, Common Law or Case law, Principles taken from decisions of judges constitute binding legal rules. The Court System in India and Foreign Courtiers (District Court, District Consumer Forum, Tribunals, High Courts, Supreme Court). Arbitration: As an alternative to resolving disputes in the normal courts, parties who are in dispute can agree that this will instead be referred to arbitration. Contract law, Tort, Law at workplace.	PPT, Lecture	8	Assignment 3	**CO3**
Unit 4	**Intellectual Property Laws and Regulation to Information**	Intellectual Property Laws: Introduction, Legal Aspects of Patents, Filing of Patent Applications, Rights from Patents, Infringement of Patents, Copyright and its Ownership, Infringement of Copyright, Civil Remedies for Infringement, Regulation to Information, Introduction, Right to Information Act, 2005, Information Technology Act, 2000, Electronic Governance, Secure Electronic Records and Digital Signatures, Digital Signature Certificates, Cyber Regulations Appellate Tribunal, Offences, Limitations of the Information Technology Act.	PPT, Lecture	8	Assignment 4	**CO4**
Unit 5	**Business Organizations and E-Governance**	Sole Traders, Partnerships: Companies: The Company's Act: Introduction, Formation of a Company, Memorandum of Association, Articles of Association, Prospectus, Shares, Directors, General Meetings and Proceedings, Auditor, Winding up. E-Governance and role of engineers in E-Governance,	PPT, Lecture	8	Assignment 5	**CO5**

		Need for reformed engineering serving at the Union and State level, Role of I.T. professionals in Judiciary, Problem of Alienation and Secessionism in few states creating hurdles in Industrial development.				
Total				**40**		

Textbooks	
Sr No	**Book Details**
1.	Brij Kishore Sharma: Introduction to the Indian Constitution, 8th Edition, PHI Learning Pvt. Ltd.
2.	Granville Austin: The Indian Constitution: Cornerstone of a Nation (Classic Reissue), Oxford University Press.
Reference Books	
Sr No	**Book Details**
1.	Madhav Khosla: The Indian Constitution, Oxford University Press.
Links	

Video Link

https://www.youtube.com/watch?v=D3yQEoXkiAA

https://www.youtube.com/watch?v=N8nRnralqiI

https://www.youtube.com/watch?v=t96A1DrsZTw

https://www.youtube.com/watch?v=6CS3WwY2_h8

https://www.youtube.com/watch?v=7hnKGOgjYNI

https://www.youtube.com/watch?v=SXeKCB8WPGg