

Software Development Fundamentals – II

Detailed Syllabus Lecture-wise Breakup

Course Code	15B11CI211	Semester: Even 2023 (specify Odd/Even)	Semester: II Session: INTG CSE Month from: Jan to June
Course Name	Software Development Fundamentals – II		
Credits	4	Contact Hours	4 (3 Hrs. Theory, 1 Hr. Tutorial)

Faculty (Names)	Coordinator(s)	Prantik Biswas, Dr. Ashish Mishra, Dr. Rashmi Kushwah
	Teacher(s) (Alphabetically)	J128 - Ambalika Sarkar, Chetna Gupta, Himanshu Mittal, Mukesh Saraswat, Naveen, Rashmi Kushwah, Shailesh Kumar, Surender, Shariq Murtuza J62 – Aditi Sharma, Dr. Ankita Jaiswal, Ankita Verma, Dr. Ashish Mishra, Mradula Sharma, Dr. Neetu Sardana, Prantik Biswas, Prashant Kaushik, Dr. Sangeeta Mittal, Dr. Shardha Porwal, Dr. Suma Dawn

COURSE OUTCOMES		COGNITIVE LEVELS
CO1	Explain various object-oriented concepts like class and objects, friend function, function and operator overloading, etc.	Understand Level(Level 2)
CO2	Apply and implement the relationships of association, aggregation, composition, and inheritance	Apply Level (Level 3)
CO3	Analyze the output of the source code and able to debug the errors	Analyze Level (Level 4)
CO4	Design the class diagram for real life problems and implement it using virtual functions, abstract classes, templates, and exception handling	Create Level (Level 6)
CO5	Apply SQL commands to create tables and perform various operations like insert, delete, select, etc.	Apply Level (Level 3)

Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Introduction to Object Oriented Programming	Comparison of Procedural and Object-Oriented Approach, Characteristics of Object-Oriented Languages, Separation of behavior and implementation	2
2.	OO Concepts using C++	Objects, Classes, Internal representations of Objects, Constructors, Destructors Function and Operator Overloading, Static and Friend Functions	8
3.	Inheritance using C++	Base Class, Derived class, Method Overriding, Private and Public Inheritance, Multiple Inheritance.	3
4.	Polymorphism using C++	Virtual Functions, Pure Virtual Functions, Abstract Classes, Dynamic Dispatch, Internal representations of method tables, RTTI	3

5.	UML/Relationship Implementation in C++	Models, Views and Model Elements, Class Diagram, Relationships of Association, Aggregation, Composition, and Inheritance, etc. and their implementing	8
6.	Exceptions, Templates, and STL in C++	Exceptions, Try, Catch and Throw, Re-throwing exceptions, Exception and Inheritance, Function Templates, Overloading Functions Template, Class Templates, Collection classes and iteration protocols (STL)	8
7.	Introduction to Database	Fundamentals of Database and Database Management System, Introduction to Relational Database, Table, Attributes, Records, Introduction to SQL, Data types in SQL, Various operations on single table like create, insert, delete, update, alter, etc. using SQL, SQL queries on single table using select statement with or without where/ group by clause, etc.	10
Total number of Lectures			42

Project based learning: Each student in a group of 3-4 will have to develop a mini project based on object-oriented programming concepts. The students have to design the class diagram for any real-world application. The students have to implement the mini project using C++/Java language. Project development and its presentation will enhance the knowledge and employability of the students in IT sector.

Evaluation Criteria	
Components	Maximum Marks
T1	20
T2	20
End Semester Examination	35
TA	25 (Mini Project (10), Attendance (10), Tutorial Assignments (5))
Total	100

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1	Herbert Schildt, C++: The Complete Reference, McGraw-Hill Osborne Media, 4th Edition, 2017
2	Ramez Elmasri, Shamkant B. Navathe, Fundamentals of Database Systems, Pearson, 7 th Edition, 2016
3	Stroustrup B., The C++ Programming Language, Addison Wesley, 4 th Edition, 2013
4	Avi Silberschatz, Henry F. Korth, and S. Sudarshan, "Database System Concepts", 6th edition, McGraw-Hill, 2010.
5	Robert Lafore, Object Oriented Programming in C++, SAMS, 4 th Edition, 2002
6	John Hubbard, Schaum's Outline of Programming with C++, McGraw-Hill, 2 nd Edition, 2000

Mathematics-2 (15B11MA211)

Convergence of sequences and series, second order linear differential equations, solution in series, Bessel and Legendre functions, partial differential equations, one dimensional wave and heat conduction equations, functions of a complex variable, analytic functions, Cauchy-Riemann equations, conformal mapping, poles and singularities, complex integration, Taylor's and Laurent's series, Cauchy residue theorem and applications, bilinear transformation.

Course Description

Course Code	15B11MA211	Semester Even	Semester II Session 2022-23 Month from Jan - Jun 2023
Course Name	Mathematics 2		
Credits	4	Contact Hours	3-1-0
Faculty (Names)	Coordinator(s)	Dr. Yogesh Gupta, Dr. Pankaj Kumar Srivastava	
	Teacher(s) (Alphabetically)	Prof. Alka Tripathi, Prof. Amrish Kumar Aggarwal, Prof. Bhagwati Prasad Chamola, Prof. Lokendra Kumar, Dr. Anuj Bhardwaj, Dr. Himanshu Agarwal, Dr. Richa Sharma, Dr. Neha Singhal, Dr. Nisha Shukla, Dr. Manish Bansal, Dr. Shruti, Dr. Ram Surat Chauhan, Dr. Aradhana Narang, Dr. Amita Bhagat, Dr. Pinkey Chauhan, Dr. Neha Ahlawat, Dr. Mohd. Sarfaraz	
COURSE OUTCOMES			COGNITIVE LEVELS
After pursuing the above mentioned course, the students will be able to:			
C106.1	apply different methods for solving ordinary differential equations of second order.	Applying Level (C3)	
C106.2	explain different tests/methods of convergence for infinite series.	Understanding Level (C2)	
C106.3	find the series solution of differential equations and use it to construct Legendre's polynomials and Bessel's functions.	Applying Level (C3)	
C106.4	classify the partial differential equations and apply Fourier series to find their solution.	Applying Level (C3)	
C106.5	explain Taylor's & Laurent's series expansion, singularities, residues and transformations.	Understanding Level (C2)	
C106.6	apply the concept of complex variables to solve the problems of complex differentiation and integrations.	Applying Level (C3)	
Module No.	Title of the Module	Topics in the Module	No. of Lectures for the module
1.	Second Order Linear Differential Equations	Linear Differential Equations of Second Order with constant coefficients and with variable coefficients, Change of Variable, Variation of Parameters.	5
2.	Convergence of Series	Convergence of series, Tests of convergence, Alternating Series, Absolute & Conditional Convergence, Uniform Convergence.	7

3.	Series Solution and Special Functions	Series Solutions, Bessel Function, Recurrence Relations and Orthogonality. Legendre functions, Recurrence relations and Orthogonality.	7
4.	Fourier Series and Partial Differential Equations	Fourier Series. Classification and Solution of PDE, Equation of vibrating string, Solution of one dimensional wave & heat equations.	5
5.	Complex Variables	Limit, Continuity and Differentiability of Functions of Complex Variables, Analytic Functions, Cauchy's Riemann Equations.	3
6.	Complex Integration	Cauchy Integral Theorem, Cauchy Integral Formula and Applications.	4
7.	Series Expansion	Taylor and Laurent Series Expansion, Poles and Singularities.	4
8.	Contour Integration	Residues, Cauchy's residue theorem and its applications.	5
9.	Conformal Mapping	Bilinear transformation	2
Total number of Lectures			42
Evaluation Criteria			
Components		Maximum Marks	
T1		20	
T2		20	
End Semester Examination		35	
TA		25 (Quiz, Assignments, Tutorials)	
Total		100	
Project based learning: Each student in a group of 3-4 will apply the concepts of Fourier Series, partial differential equations and contour integration to solve practical problems.			
Recommended Reading material:			
1.	Jain, R. K. & Iyenger, S. R. K. , Advanced Engineering Mathematics, 5 th Ed., Narosa Publishing House, New Delhi, 2016.		
2.	Brown, J.W. & Churchill, R.V. , Complex Variables and Applications, 6th Ed., McGrawHill, 1996.		
3.	Prasad, C. , (a) Mathematics for Engineers (b) Advanced Mathematics for Engineers, Prasad Mudranalaya, 1982.		
4.	Kreyszig, E. , Advanced Engineering Mathematics, 10th Edition, John Willey & Sons, Inc., 2015.		
5.	Simmons, G. F. , Differential Equations with Applications and Historical Notes, 2nd Ed. McGraw Hill, 1991.		
6.	Spiegel, M.R. , Complex Variables, Schaum's outline series, Mac Graw-Hill, 2009.		
7.	Grewal, B. S. , Higher Engineering Mathematics, 44 th Edition, Khanna Publisher, 2018.		

CO-PO-PSO Mapping:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C106.1	3	3	2	2								2		
C106.2	3	2	2	1								1		

Detailed Syllabus
Lab-wise Breakup

Course Code	15B17PH271	Semester: Even Semester	Semester: II Session 2022 -2023 Month: from Jan-July
Course Name	Physics Lab-2		
Credits	1	Contact Hours	2

Faculty (Names)	Coordinator(s)	Dr. Anshu Dharendra Varshney and Dr. Ravi Gupta
	Teacher(s) (Alphabetically)	Amit Verma, Anuj Kumar, Ashish Bhatnagar, Anshu Varshney, B.C. Joshi, Dinesh Tripathi, Guru Prasad Kadam, Manoj Kumar, Manoj Tripathi, Navendu Goswami, Papia Chowdhary, Prashant Chauhan, R. K. Diwedi, Ravi Gupta Sandeep Chhoker, S. P. Purohit, Sandeep Mishra, Suneet Kumar Awasthi, Vikas Malik Vaibhav Rawoot

COURSE OUTCOMES		COGNITIVE LEVELS
C171.1	Recall laser, fibre optics, semiconductor and solid state physics principles behind the experiments.	Remembering (C1)
C171.2	Explain the experimental setup and the principles involved behind the experiments performed.	Understanding (C2)
C171.3	Plan the experiment and set the apparatus and take measurements.	Applying (C3)
C171.4	Analyze the data obtained and calculate the error.	Analyzing (C4)
C171.5	Interpret and justify the results.	Evaluating (C5)

Module No.	Title of the Module	List of Experiments	CO
1.	Semiconductor Physics	1(a). To determine the band gap in a semiconductor using its p-n junction diode. 1(b). To draw the I-V characteristic of Solar cell and find maximum power and fill factor. 2(a). To measure resistivity of semiconductor at different temperatures by Four Probe Method. 2(b). To determine Band Gap of the semiconductor. 3. To study the Hall effect in semiconductor and to determine its allied coefficients.	1-5
2.	Solid State Physics	4. To study the Magnetostriction in metallic rod with the help of Michelson interferometer arrangement. 5. To find the susceptibility of a paramagnetic substance (FeCl_3) in the form of liquid or a solution. 6. Study of dielectric (constant) behavior and determination of Curie's temperature of ferroelectric ceramics.	1-5
3.	Modern Physics	7. To study the magneto resistance of given semiconductor material. 8(a). To determine the value of specific charge (e/m) of an electron by Magnetron method. 8(b). To determine the velocity of ultrasonic wave in the medium of liquid using ultrasonic interferometer and to determine the compressibility of the given liquid.	1-5

		9(a). To determine Planck's Constant using LEDs of known wavelength. 9(b). To study the photovoltaic cell and hence verify the inverse square law.											
4.	Optical Fiber	10(a). To determine the numerical aperture of a given multimode optical fiber. 10(b). To measure the power loss at a splice between two multimode fibers and to study the variation of splice loss with Longitudinal and Transverse misalignments of the given fibers.	1-5										
Evaluation Criteria <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Components</th> <th style="text-align: right;">Maximum Marks</th> </tr> </thead> <tbody> <tr> <td>Mid Term Viva (V1) : 20</td> <td></td> </tr> <tr> <td>End Term Viva (V2) : 20</td> <td></td> </tr> <tr> <td>D2D : 60 = 30 (Day to day viva) + 10 (PBL) + 10 (attendance) + 10 (Lab Record)</td> <td></td> </tr> <tr> <td>Total :</td> <td style="text-align: right;">100</td> </tr> </tbody> </table>				Components	Maximum Marks	Mid Term Viva (V1) : 20		End Term Viva (V2) : 20		D2D : 60 = 30 (Day to day viva) + 10 (PBL) + 10 (attendance) + 10 (Lab Record)		Total :	100
Components	Maximum Marks												
Mid Term Viva (V1) : 20													
End Term Viva (V2) : 20													
D2D : 60 = 30 (Day to day viva) + 10 (PBL) + 10 (attendance) + 10 (Lab Record)													
Total :	100												

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	Dey and Dutta, Practical Physics
2.	Lab Manuals

Project based learning: Each student in a group of 3-4 or individually will develop a mini project with the help of various concepts of semiconductor physics, solid state physics, and optical fiber. Individually or in a team they will learn how to apply the concepts for problem solving in a meaningful way.

Detailed Syllabus
Lab-wise Breakup

Course Code	18B15GE111	Semester: Even (specify Odd/Even)	Semester: II; Session 2022-2023 Month from: Jan - June
Course Name	Engineering Drawing and Design		
Credits	1.5	Contact Hours	3

Faculty (Names)	Coordinator(s)	Ms. Madhu Jhariya, Dr. Niraj Kumar
	Teacher(s) (Alphabetically)	Mr. Chandan Kumar, Ms. Madhu Jhariya, Dr. Niraj Kumar, Mr. Nitesh Kumar, Dr. Prabhakar Jha, Mr. Rahul Kumar, Dr. Satyanarayan Patel, Mr. Shwetabh Singh, ,

COURSE OUTCOMES		COGNITIVE LEVELS
C178.1	Recall the use of different instruments used in Engineering Drawing and Importance of BIS and ISO codes.	Remembering Level (C1)
C178.2	Illustrate various types of mathematical curves and scale.	Understanding Level (C2)
C178.3	Classify different types of projection and Construct Orthographic projection of Point, Line, Plane and Solid.	Applying Level (C3)
C178.4	Construct Isometric Projection and Conversion of Orthographic view to Isometric view and vice-versa.	Applying Level (C3)
C178.5	Construct Engineering model in Drawing software (AutoCAD) and Compare it with conventional drawing.	Analyzing Level (C4)

Module No.	Title of the Module	List of Experiments	CO
1.	Introduction to Engineering Drawing	<ul style="list-style-type: none"> • Principles of engineering graphics and their significance, usage of drawing instruments. • Technical vertical capital letters which includes English alphabets and numeric. 	C178.1
2.	Engineering Curves	<ul style="list-style-type: none"> • Constructing a pentagon and hexagon; engineering curves: Parabola, Ellipse, Hyperbola, Cycloids and Involutives. 	C178.2
3.	Orthographic Projections	<ul style="list-style-type: none"> • Projection of points: Point on VP, HP, in space. • Projection of straight lines: Lines inclined or parallel to any one of the planes; lines inclined to both HP and VP with traces. • Projection of planes: Plane on VP, HP, inclined to any one of the planes; plane inclined to both HP and VP. 	C178.3

4.	Projections of Regular Solids	<ul style="list-style-type: none"> Projections of solids in simple position inclined to one/both the planes. 	C178.3
5.	Sections and Sectional Views of Right Angular Solids	<ul style="list-style-type: none"> Sections of solids: Section of standard solids and true shape section of standard machine elements for the section planes perpendicular to one plane and parallel or inclined to other plane. 	C178.3
6.	Isometric Projections	<ul style="list-style-type: none"> Principles of Isometric projection – Isometric Scale, Isometric Views, Conventions; Isometric Views of Planes, Simple and compound Solids; Conversion of Isometric Views to Orthographic Views and Vice-versa. 	C178.4
7.	Overview of Computer Graphics	<ul style="list-style-type: none"> Demonstrating knowledge of the theory of CAD software; Dialog boxes and windows; Shortcut menus; the Command Line; the Status Bar; Isometric Views of lines, Planes, Simple and compound Solids. 	C178.5
8.	Customization & CAD Drawing	<ul style="list-style-type: none"> CAD Drawing along with customization tools, Annotations, layering & other functions. Orthographic Projections; Model Viewing; Co-ordinate Systems; Multi-view Projection; Surface Modeling; Solid Modeling. 	C178.5
9.	Demonstration of a simple team design project	<ul style="list-style-type: none"> Technical 2D/3D orthographic and Isometric projections; Demonstration of a simple team design project. 	C178.5
Evaluation Criteria Components		Maximum Marks	
Mid Viva		20	
End Viva		20	
TA		60	
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Total		100	

Project based learning: Auto-CAD is a computer-aided software used for creating 2D/3D models of different machine & structures along with all their components to visualize and analyze the feasibility of the same well before the actual manufacturing/construction. The laboratory mainly focused on engaging the students by replicating 2D and 3D models of common engineering equipment and instrumentation diagrams that enhances student's perception of their graphic expression skills.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	Bhatt N.D., Panchal V.M. & Ingle P.R., Engineering Drawing, Charotar Publishing House, 2014.
2.	Shah, M.B. & Rana B.C., Engineering Drawing and Computer Graphics, Pearson Education, 2008.
3.	George Omura, Mastering AutoCAD 2021 and AutoCAD LT 2021, Sybex, 2020.
4.	Alan J. Kalameja, AutoCAD 2010 Tutor for Engineering Graphics, Autodesk Press, 2009.

Detailed Syllabus
Lab-wise Breakup

Course Code	18B15GE112	Semester: EVEN	Semester: 2 nd Session: 2022 -23 Month-: Jan-Jun
Course Name	Workshop		
Credits	1.5	Contact Hours	03

Faculty (Names)	Coordinator(s)	Prabhakar Jha, Nitesh Kumar
	Teacher(s) (Alphabetically)	Chandan Kumar, Madhu Jhariya, Niraj Kumar, Nitesh Kumar. Prabhakar Jha, Rahul Kumar, Satyanarayan Patel and Shwetabh Singh

COURSE OUTCOMES		COGNITIVE LEVELS
C179.1	Tell the basic of manufacturing environment and various safety measures associated with it.	Remembering Level (C1)
C179.2	Apply the appropriate tools to fabricate joints utilizing work-bench tools.	Applying Level (C3)
C179.3	Create various prototypes in the carpentry trade, fitting trade, and welding trade	Creating Level (C6)
C179.4	Demonstrate the working principle of lathe, shaper and milling machines and able to fabricate the prototypes of desired shape and accuracies.	Understanding Level(C2)

Module No.	Title of the Module	List of Experiments	CO
1.	Carpentry	Preparation of T joint as per the given specification. Preparation of dovetail joint/ cross lap joint as per given specification.	C179.2, C179.3
2.	Welding Shop	To study Gas welding and Arc welding equipment and various safety measures associated with it. To make butt joint and lap joint.	C179.1, C179.2, C179.3
3.	Sheet Metal Shop	To prepare a square tray using GI sheet. To prepare a funnel using GI sheet.	C179.2, C179.3
4.	Fitting Shop	To prepare V- groove fit as per given specifications. To prepare square fit as per given specifications.	C179.2, C179.3
5.	Machine Shop	To perform turning, facing and grooving operation on Lathe. To perform slotting operation on Shaper Machine. To perform face milling operation on Milling Machine.	C179.4

Evaluation Criteria	
Components	Maximum Marks
Viva 1	20
Viva 2	20
Report file, Attendance, and D2D	60 [File Work (20) + Attendance (10)+(Experimental Work (30))
Total	100

Project based learning: Here students are divided in groups and learn about the applying of appropriate tools to fabricate joints utilizing work-bench tools which helps them in creating various prototypes in the field of engineering and technology. In the present workshop laboratory with the application of the course outcomes, students prepare their projects like robotic car, cutting of electronic board made of wood, etc. where application of carpentry shop, sheet metal shop and fitting shop is required.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1.	Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., “Elements of Workshop Technology”, Vol. I 2008 and Vol. II 2010, Media promoters and publishers private limited, Mumbai
2.	Kalpakjian S. And Steven S. Schmid, “Manufacturing Engineering and Technology”, 4 th edition, Pearson Education India Edition, 2002.
3.	Rao P.N., “Manufacturing Technology”, Vol. I and Vol. II, Tata Mc GrawHill House, 2017.
4.	John K.C., Mechanical Workshop Practice, 2nd Edition, PHI, 2010
5.	Roy A. Lindberg, “Processes and Materials of Manufacture”, 4th edition, Prentice Hall India, 1998
6.	Gowri P.Hariharan and A. Suresh Babu,” Manufacturing Technology – I” Pearson Education, 2008
7.	Raghuwanshi B.S., Workshop Technology Vol. I & II, Dhanpath Rai & Sons.

Detailed Syllabus
Lecture-wise Breakup

Subject Code	22B12HS111	Semester: EVEN	Semester: 2 Session: 2022-2023 Month from Jan to June
Subject Name	LIFE SKILLS AND EFFECTIVE COMMUNICATION		
Credits	2	Contact Hours	(1-2-0)
Faculty (Names)	Coordinator(s)	Dr. Badri Bajaj & Dr. Praveen Kumar Sharma	
	Teacher(s) (Alphabetically)	Dr. Amandeep Kaur, Dr. Anshu Banwari, Dr. Ankita Das, Dr. Chandrima Chaudhuri, Dr. Debjani Sarkar, Dr. Deepak Verma, Dr. Ekta Srivastava, Dr. Nilu Choudhary, Dr. Kanupriya Misra Bakhru, Dr. Monali Bhattacharya, Dr. Swati Sharma,	

COURSE OUTCOMES: The students will be able to:		COGNITIVE LEVELS
C180.1	Understand different life skills required for Self, Family, Society and lifelong success.	Understand (C2)
C180.2	Apply listening, speaking, reading and writing skills in professional environment.	Apply (C3)
C180.3	Develop Work-place skills for personal and professional excellence.	Analyze (C4)
C180.4	Evaluate and make decisions for empowerment of self and others.	Evaluate (C5)

Module No.	Subtitle of the Module	Topics in the module	No of Lectures	No of Practical
1.	Introduction	Overview of Life Skills: Meaning and significance of life skills, Life skills identified by various organizations, Life Skills for Self, Family, Society and lifelong success. Practical 1: Ice-breaking and Introducing Oneself Practical 2: Understanding Self	2	4
2.	AdvancedLSRW Skills	Advanced Reading and Comprehension Skills, inferring lexical and contextual meaning, employing discourse analysis, Advanced Speaking Skills: Conversations, Dialogues and Debates, Persuasion, Negotiation Skills, Expressing Opinions, Agreement and Disagreement, Advanced Listening Skills, Advanced Writing skills: The art of Condensation, Note making, Essay Writing. Practical 3: Academic Listening Practical 4: Comprehensive Reading Practical 5: Career-oriented Writing	2	6
3.	Work-Place Skills	Interpersonal Skills: Team- work skills, Empathy, Emotional Intelligence, VUCA Leadership, Resilience, Tolerance, Self-Belief and Time Management Practical 6: Team Communication-1 Practical 7: Team Communication-2	3	4
		Presentation and Interaction Skills: Speech Delivery, Group Discussion, Presentation Skills (Focused and targeted information seeking and presentation), Public Speaking, Audience Analysis, Interviews, Assessment of Personality - Projective& Self Report Techniques - Building Self-Confidence – Enhancing Personality Skills. Practical 8: Technical Presentation-1 Practical 9: Technical Presentation-2	2	4

		Creativity and Critical Thinking: Creativity: Definition; Characteristics of Creative Person: Fluency; Originality; Curiosity; Critical Thinking, Problem Solving Techniques: Six Thinking Hats, Mind Mapping etc. Practical 10: Thinking Skills Practical 11: Interview Skills-1	2	4
4.	Ethics and Holistic Life	Harmony in personal and social life: Professional Integrity, Respect & Equality, Building Trusting Relationships. Concept of personal and group Ethics; Balance between - rights and duties-welfare of self and welfare of all. Understanding Nine universal values in relationships. Understanding harmony in the Family. Harmony in the Family; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship. Understanding the harmony in the society (society being an extension of family): Undivided Society (AkhandSamaj), Universal Order (Sarvabhaum Vyavastha)- from family to world family. Gender Harmony & equity. Practical 12: Interview Skills-2	2	2
		Character, Righteousness and Virtues for A Meaningful Life: Self-Realization Through Spiritual texts: Egoless, Humility, Righteousness, Purity, Truthfulness, Integrity, Self-restraint, Self-control, Sense of responsibility, Empathy, Love, Compassion, Maitri / Comradeship, Cooperation, Tolerance and Gratitude.	1	
		Practical 13: PROJECT Practical 14: PROJECT		4
Total number of Hours			14	28

Evaluation Criteria

Components	Maximum Marks
T1	20
T2	20 (Technical Presentations)
End Semester Examination	35
TA	25 (Class participation, Project)
Total	100

Project Based Learning:

Students, in groups of 4-5, are required to visit Old Age Home/ Underprivileged Children/ NGO/ Cancer Hospital / etc. Spend time with them for 3-4 hours. Apply Life Skills learned in understanding their feeling and help them by providing solution to ease their stress. Document your visit and present in the class.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
Text Book(s):	
1.	Wadkar Alka, Life Skills for Success, Sage Publication Pvt Ltd, 2019
2.	Human Values, A.N. Tripathi, New Age International Pvt Ltd. Publishers New Delhi ,2005
Reference Book(s):	
3.	Carnegie Dale, Become an Effective Leader, New Delhi: Amaryllis, 2012
4.	Harold R. Wallace et. al, Personality Development, Cengage Learning India Pvt. Ltd; New Delhi, 2006
5.	Barun K. Mitra, Personality Development & Soft Skills, Oxford University Press, New Delhi, 2012.
6.	Mark G. Frank, David Matsumoto, Hyi Sung Hwang, Nonverbal Communication: Science and Applications, 2012, 1st Edition, Sage Publications, New York.
7.	William S. Pfeiffer, Public Speaking, Pearson, Delhi, 2012.
8.	Shiv Khera, You Can Win, Macmillan Books, New York, 2003.

9.	S. Kumar and PushpLata, Communication Skills, Oxford University Press, 1st, Ed. 2011
10.	Raman M. and S. Sharma, Technical Communication: Principles & Practices, 29 th Impression, Oxford University Press, New Delhi, 2009

Software Development Lab - II

Detailed Syllabus Lab-wise Breakup

Course Code	15B11CI271	Semester: Even	Semester: II Session: 2022-23 Month from: Jan to June
Course Name	Software Development Lab - II		
Credits	1	Contact Hours	2 hrs

Faculty (Names)	Coordinator(s)	(J62) Neetu Sardana, Mradula Sharma (J128) Mukesh Saraswat
	Teacher(s) (Alphabetically)	(J62) Adwitiya Sinha, Aditi Sharma, Alka Singhal, Anita Sahoo, Ankita Verma, Arpita Yadav, Ashish Mishra, Chetna Dabas, Deepti, Jaspal, Kapil madan, K Vimal Kumar, Mradula Sharma, Neetu Sardana, Parul Sharma, Raghu Vamsi, Sangeeta Mittal, Sarishty Gupta. (J128) Akanksha Bhardwaj, Ambalika Sarkar, Arti Jain, Chetna Gupta, Payal Khurana Batra, Raju Pal, Rashmi Kushwah, Shailesh Kumar, Shariq Murtuza

COURSE OUTCOMES		COGNITIVE LEVELS
C173.1	Write programs in C++ to implement OOPs concepts related to objects, classes, constructor, destructor, and friend function.	Apply Level (Level 3)
C173.2	Write programs in C++ using OOPs concept like encapsulation, inheritance, polymorphism and abstraction.	Apply Level (Level 3)
C173.3	Write programs in C++ using Standard Template Library.	Apply Level (Level 3)
C173.4	Perform exception handling in C++ programs.	Apply Level (Level 3)
C173.5	Write MySQL queries to perform operations like ADD, DELETE, UPDATE, SELECT on relational databases.	Apply Level (Level 3)

Module No.	Title of the Module	List of Experiments	No. of Labs for the module
1.	OO Concepts using C++	Write output based C++ programs to implement the concepts of Objects, Classes, Internal representations of Objects, encapsulation, Constructors, Destructors, Function and Operator Overloading, Static and Friend Functions.	3
2.	Inheritance using C++	Write programs in C++ to implement concepts of Base Class, Derived class, Method Overriding, Private and Public Inheritance, Multiple Inheritance.	2

3.	Polymorphism using C++	Write programs in C++ using Virtual Functions, Pure Virtual Functions, Abstract Classes, Dynamic Dispatch, Internal representations of method tables, RTTI, operator overriding.	2
4.	UML/Relationship Implementation in C++	Write programs in C++ using based on Class diagram, Relationships of Association, Aggregation, Composition, and Inheritance	1
5.	Exceptions, Templates, and STL in C++	Write programs in C++ using Exceptions, Try, Catch and Throw, Re-throwing exceptions, Exception and Inheritance, Function Templates, Overloading Functions Template, Class Templates, Collection classes and iteration protocols (STL)	2
6.	Introduction to Database	Design simple SQL queries using MYSQL to apply various operations on single table like create, insert, delete, update, alter, etc., Queries on single table using select statement with or without where/ group by clause, etc.	2
Total number of Labs			12

Evaluation Criteria	
Components	Maximum Marks
Evaluation 1	15
Lab Test1	20
Evaluation 2	15
Lab Test 2	20
Mini Project	10
Attendance	10
TA	10
Total	100
Project based leaning: Groups of 3-4 students will choose a project topic. They will use the concepts of OOP and/or database to execute their project. In a team, they will learn how to apply the concepts for problem solving in a meaningful way.	

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
Text Books	
1	Herbert Schildt, C++: The Complete Reference, McGraw-Hill Osborne Media, 4th Edition, 2017
2	Ramez Elmasri, Shamkant B. Navathe, Fundamentals of Database Systems, Pearson, 7 th Edition, 2016
3	Stroustrup B., The C++ Programming Language, Addison Wesley, 4 th Edition, 2013
Reference Books	
1	Avi Silberschatz, Henry F. Korth, and S. Sudarshan, "Database System Concepts", 6th edition, McGraw-Hill, 2010.
2	Robert Lafore, Object Oriented Programming in C++, SAMS, 4 th Edition, 2002
3	John Hubbard, Schaum's Outline of Programming with C++, McGraw-Hill, 2 nd Edition, 2000