I-SEMESTER

DESIGN STUDIO I – PROBLEM IDENTIFICATION			
CourseCode	**22BD11**	CIEMarks	50
TeachingHours/Week(L:T:S:P)	5hrs.(1:0:4:0)	VivaMarks	50
TotalHoursofPedagogy	75 hrs. (15 Weeks)	TotalMarks	100
Credits	5	Exam Hours	3

CourseLearningobjectives:
1. To understand the design process and be able to figure out solutions to simple problems.Emphasisisplacedontheabilitytoidentify problemsandidentify requirements.
2. To develop the ability to generate solutions to design constructs, with integrate principles ofdesignwithfunctional requirements.
3. Todevelopanunderstandingoftheholisticroleofdesignersinsociety.

Module-1
IntroductiontoDesignanditsecosystem.Designer'sroleinSocietyandintheworldofDesign. Understandingofadesigner'sconnectionwithotherdisciplinesofknowledge.DesignRelevance:Exposureand analysis.UniversalityofDesigntodifferentfields.Introductiontothe processofdesign.

Module-2
Inquiry and Observations in relation to the problem statement. Recognizing patterns, analyzing ideas,synthesizing information, solving problems, and creating things involving the process of abstraction.MethodsofDocumentingactivitiesandstatingtheproblemandenvironments

Module-3
Talkingandconversingwithuserstoextractdata.Todemonstratetheimportanceofvisibility,appropriate clues, and feedback of one's actions. These principles constitute a form of psychology—the psychology of how people interact with things. The designer will be mapping out what usersconsider both the user's needs and the technological constraints. Identifying strategies to curate theconversation,definingtheflowanditsunderlyinglogic,specificationthatrepresentsthecomplete userexperience.

Module-4
Problem Identification andneed finding: To understand the Qualitative and Quantitative aspects ofthe Design Process.Understanding its relationship with various methods leading to idea and conceptgeneration.Understandingthefunctional requirementswithrespecttodesigningfor people.

Module-5
Documentation, report making and presentations The student will be documenting all the abovemodels and its relationship. The student will be summing up the problem statement with all the abovestudiesandpresentingit.

Design Tasks:	Redesignof asimpleproblem(ex. designofaboardgame)thatinvolvesbothcommunicationandproductdesignissues. Thestudentsputintopracticewhattheyhavelearntduringthissemesterinthis project.
Teaching-LearningProcess	1. Get a perspective on design throughout the globe: Various videos of designersofthedesignprocessfromdifferentpartsoftheworld. 2. Screeningdocumentaries,videos,filmsonvariousDesignsinIndiaandAsia. 3. The contents of the courses shall be taught in an application-oriented manneron a scientific and design basis. The course contents shall be taught andlearned through thelectures, seminars, labs or workshops, studio exercisesanddesignprojects,etc.

| | 4. Site/fieldvisittofolkloresareas |
| | 5. Submission will include Idea generation, Study models, Sketches and drawingsto achievethedesired results. |

AssessmentDetails(bothCIEandSEE)forPCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%.The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for theSEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declaredas a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternal Evaluation)andSEE (SemesterEndExamination) takentogether.

The PCC means the professional core course.Project based/ Assignment based/Viva based outcomeCIEmarksfor thiscomponent are **50marks**

CIEfortheprofessionalcorecoursePCC

- **50CIEmarks**willbefortheDesignportfoliopresentations/viva/seminar/models.Splitupmarkswill bedecidedbytheinternalexaminer basedontheprojects.
- Thefirstinternalswillbeattheendof40-50%coverageofthesyllabusfor**25marks**andthesecondinternal evaluationwill be after covering85-90%ofthesyllabus for**25marks**.
- Scaled-downmarksofthesumoftwointernalsandotherassessmentmethodswillbeCIEmarksfor**50 marks.**
- Thestudenthastosecure50%ofmaximummarks-**20marks**toqualifyintheCIEoftheprofessionalcorecoursePCC.

SEEfortheprofessionalcorecoursePCC

- **50SEEmarks**willbevivabasedassessedbyinternalexaminerandexternalexaminer(appointedbythe University.**Note**:Examinerswillbefromacademiaaswellasindustryexperts.)
- Evaluation pattern will be based on Design portfolio presentations/ seminar/models. Split upmarkswill bedecidedby internal &externalexaminers basedontheprojects.

  The student must secure minimum of35% of maximum marks- (**18 marks out of 50 marks)** toqualifyintheSEEof the professional corecoursePCC.

SuggestedLearningResources:Books

1. D.Norman;TheDesignofEverydaythings,London,TheMITPress,1998
   - AForty;ObjectsofDesire,Thems&Hudson1995
2. -J.deNobleted.,IndustrialDesign-Reflectionsofacentury,Thames& Hudson,1993
   - Julier,G.;20thCenturyDesign,Thames&Hudson,1993
   - Potter,Norman;WhatisaDesigner:Things,Places,Messages,PrincetonArchitecturalPress,2002

WeblinksandVideoLectures(e-Resources):

SkillDevelopmentActivitiesSuggested

- GuestLecture fromexpert.
- CaseStudies:
  Tochooserelevant projectswherescopeofservicestobelearntismore.

CourseOutcome

Thestudentwillbeableto:

- **GetanIntroductionintothefieldofDesign**
- The student will be able to generate solutions to design constructs, understand the process ofdesignandbe abletofindsolutionsto simple problems.
- Makeresponsiblechoicesfordesigndevelopment.
- Thefocusisonbeingable toidentifyproblemsandfinding needs.

I–SEMESTER

ARTANDDESIGNFUNDAMENTALS2D			
CourseCode	**22BD12**	CIEMarks	50
TeachingHours/Week(L:T:S:P)	4hrs.(1:0:3:0)	VivaMarks	50
TotalHoursofPedagogy	60hrs. (15 Weeks)	TotalMarks	100
Credits	4	Exam Hours	3

CourseLearningobjectives:

Thestudentsexplore,discoverandunderstandthefundamentalsinvolvedin2-dimensionaldesign– its elements,features andprinciples

Module-1

Exposuretovariouselements andprinciplesofartanddesignin2D

Observational Drawing: to draw what is seen through keen observations. To draw simple objects fromaround.

- Observation&Studytodevelophand&cognitiveskills.
- Colours,Pattern&textures, andfunction
- Studying Solidity, Depth and Volume, Positive and Negative Shape - structure, surface, andtexture.
- TodiscusstheExamplesforCompositionusingbasicdesignelements

Module-2

Expressions and explorations using Points, Lines, Planes and Volumes. Its relation in context to natureandenvironment

- Exploringpoint,line,planeandtheeffects
- Studying Solidity, Depth and Volume, Positive and Negative Shape - structure, surface, andtexture.
- TodiscusstheExamplesforCompositionusingbasicdesignelements.

Module-3

StudyandunderstandingofFrameofReferenceorPoint ofViews

.Principlesofcolourtheory andexplorations

-Introductionto colour fundamentals

• Colour–interpretationandmeaning-connotation,symbolism

• Colourandcompositionusingbasicgeometricalshape-Colourinteraction.

-TounderstandtherelationshipbetweenValue,Hue,Shade,tones

•Incrementaldifferencesinvalue gradationandmatchcolorvaluestoan establishedgray scale.

•High/LowValueandHigh/LowChroma.

Theories of Color Relationships/Harmonies: Monochromatic, Analogous, Diad, Triad, Tetrad,Complementary,Split Complementary,Achromatic, andPolychromatic.

Module-4

Understandingofthevisualrelationships– balance, proportion,order,symmetry,rhythm,etc.

-Understanding and appreciation of scale and proportion of objects, forms, elements, colour texture,harmonyandcontrast UnderstandingofTerms:Visualcontrast,colour,rhythmandpatternindesign, cropping,hierarchyanddirectioninsingleimagesandcomplexcompositions.

Module-5

Studyofvisualprinciplesofcomposition:grids,layouts,asymmetry,balanceandasymmetry.	
DesignTasks:	The students understand the fundamentals and learn the principles of 2D design by doingassignments involving creative explorations and experiments with Form, Texture, Colour,andSpace inrelationtothecontextandenvironment.

Teaching - Learning Process	1. Assign exercises in making different types of models using a variety of materialsavailable inthemarket. 2. Studiostoconducthandsonworkwithmodels,sheets,drawingsinBasicDesign 3. Sketchinginvariousmedium toexplorevisualarts 4. Discussions,presentations,andcasestudiestocoverdifferenttypologies. 5. Theportfolio coveringallthe assignmentsshallbe presentedforthe Vivaexam..

AssessmentDetails(bothCIEandSEE)forPCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%.The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for theSEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declaredas a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternal Evaluation)andSEE (SemesterEndExamination) takentogether.

The PCC means the professional core course.Project based/ Assignment based/Viva based outcomeCIEmarksfor thiscomponent are **50marks**

CIEfortheprofessionalcorecoursePCC

- **50CIEmarks**willbefortheDesignportfoliopresentations/viva/seminar/models.Splitupmarkswill bedecidedby theinternalexaminer basedontheprojects.
- Thefirstinternalswillbeattheendof40-50%coverageofthesyllabusfor**25marks**andthesecondinternal evaluationwill be after covering85-90%ofthesyllabus for**25marks**.
- Scaled-downmarksofthesumoftwointernalsandotherassessmentmethodswillbeCIEmarksfor**50 marks.**
- Thestudenthastosecure50%ofmaximummarks-**20marks**toqualifyintheCIEoftheprofessionalcorecoursePCC.

SEEfortheprofessionalcorecoursePCC

- **50SEEmarks**willbevivabasedassessedbyinternalexaminerandexternalexaminer(appointedbythe University.**Note**:Examinerswillbefromacademiaaswellasindustryexperts.)
- Evaluationpatternwillbebasedon Designportfoliopresentations/seminar/models.Splitup markswillbedecidedbyinternal&externalexaminers basedontheprojects.

Thestudentmustsecureminimumof35%ofmaximummarks-**(18marksoutof50marks)**toqualifyintheSEEof the professional corecoursePCC.

SuggestedLearningResources:

Books

- GailGreetHannah,Elements ofDesign,PrincetonArchitecturalPress,2002
  - Lauer,David;DesignBasics,WadsworthPublishing,1999
  - W.Wong;PrinciplesofTwo-DimensionalDesign,JohnWileyandSons,1972
- J. Bowers; Introduction to Two-Dimensional Design: Understanding Form and function, JohnWiley&Sons,1999
  - L.Hotzschue;UnderstandingColour,VNR,1995
  - Itten, Johannes; The Art of Color: The Subjective Experience and Objective Rationale of Color,WileyPublications,1997
- Proctor,R.M.;Theprinciplesofpattern,DoverPublications,1990-Elam,Kimberly;GeometryofDesign: Studies inProportionandComposition,PrincetonArchitecturalPress,2001

WeblinksandVideoLectures(e-Resources):

SkillDevelopmentActivitiesSuggested
- GuestLecture fromexpert.
- CaseStudies:

    Tochoose buildingprojects (High risebuildings)wherescopeofservices tobelearntismore.

CourseOutcome:

Thestudentswillbeequippedwithgraphicalrepresentationskillswhichshallbeusefulintranslatingtheideas intotechnicallyappropriate drawingin2Dpresentations.

ThestudentswillhaveVisualobservation,Handskills, proportion, visualScaleetc.

IMAGEREPRESENTATIONANDTRANSFORMATIONS-1			
CourseCode	**22BD13**	CIEMarks	50
TeachingHours/Week(L:T:S:P)	4hrs(1:0:3:0)	TermWork	50
TotalHoursofPedagogy	60hrs. (15 Weeks)	TotalMarks	100
Credits	4	Exam Hours	3

CourseLearningobjectives:
Learningthefundamentalskillsandknowledgeofimagerepresentationinordertobeabletorepresentobjects, natureandlivingbeings.

Module-1
Object Representation, Picking Objects from the surroundings and using different techniques to illustrate.Understandingscaleandproportion;**thesizeofanobjectinrelationtothehumanfigure**;UnderstandingProportio nofthescaleofspecificdesignelementsofasingleobject;theseelementsincludesize,shape,texture,andcolor.

Module-2
Representingnatureseekstoexploretheideaofrepresenting(non-human)natureasademocratictask.FigureDrawing is depicting the human figure. Representation of the human form in any of its many shapes and poses,createdwith any drawingmedium.

Module-3
Understanding and representation of One point, Two point, and Three-point Perspective invisualization ofobjects.

Module-4
Studiesinlightandshadowon3-dimensionalFormRepresentations.Gridbaseddrawing,AnalyticalRepresentation

Module-5
ExposureanddemonstrationofIllustrationandImagemakingsoftware

Design Tasks:	Thestudentswillpracticeunderexpertguidancetheintricaciesofimagerepresentationthroughexercisesand explorations.
Teaching - Learning Process	1. Various exercises to be designed for students which helps them to learn symbolicallyrepresenta system/designetc. 2. VariousCasestudiesvideosofdesignersofthedesignprocessfromdifferentpartsoftheworld. 3. Seminarbystudentsontheirlearning. 4. Exposuretovarioussoftwares andHandsonexperienceof1 or2softwaresforImagemaking.

AssessmentDetails(bothCIEandSEE)forPCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%.The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for theSEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declaredas a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of theCIE(ContinuousInternal Evaluation)andSEE (SemesterEndExamination) takentogether.

ThePCC means theprofessionalcore course.Projectbased/Assignmentbased/Viva based outcomeCIEmarksfor thiscomponent are **50marks**

CIEfortheprofessionalcorecoursePCC

- **50 CIE marks** will be for the Design portfolio presentations/viva/ seminar/models. Split up markswillbedecided bythe internal examiner based ontheprojects.

- Thefirstinternalswillbeattheendof40-50%coverageofthesyllabusfor**25marks**andthe secondinternalevaluationwillbeaftercovering85-90% ofthesyllabus for**25marks**.

- Scaled-down marks ofthe sumof twointernalsandotherassessmentmethods willbeCIEmarksfor**50marks.**
- Thestudenthastosecure50%ofmaximummarks-**20marks**toqualifyintheCIEoftheprofessionalcorecoursePCC.

SEEfortheprofessionalcorecoursePCC

- **50 SEE marks** will be viva based assessed by internal examiner and external examiner (appointedbytheUniversity.**Note**:Examinerswillbefrom academia aswellasindustry experts.)
- EvaluationpatternwillbebasedonDesignportfoliopresentations/seminar/models.Splitupmarkswill bedecidedbyinternal &externalexaminersbasedontheprojects.
- Thestudentmustsecureminimumof35%ofmaximummarks-(**18marksoutof50marks)**to qualifyinthe SEEoftheprofessionalcorecoursePCC.

SuggestedLearningResources:Books

Edwards,Betty;NewDrawingontheRightSideoftheBrain,Publisher:Tarcher;2002
- DalleyTerenceed.; Thecompleteguidetoillustration&design,Phaidon,Oxford,1980
- T.C.Wang;PencilSketching, JohnWiley&Sons,1997
- Pogany, Willy ; The Art of Drawing, Publisher: Madison Books, 1996 - R. Kasprin; Design Media – Techniques forwatercolor,pen andink, pastel andcoloured markers, JohnWiley &Sons,1999

WeblinksandVideoLectures(e-Resources):

SkillDevelopmentActivitiesSuggested
- GuestLecturefromexpert.
- VariousCaseStudies

CourseOutcome

The students will be able to understand Fundamental skills of design that have been learnt along with theknowledgeofimagerepresentationinordertobeabletorepresentobjects,natureandlivingbeingsinrelationtoscale and proportion.

I-SEMESTER

DESIGNANDHUMANEVOLUTION			
CourseCode	**22BD14**	CIEMarks	50
TeachingHours/Week(L:T:S:P)	2hrs (2:0:0:0)	TheoryMarks	50
TotalHoursofPedagogy	30hrs(15 Weeks)	Total Marks	100
Credits	2	Exam Hours	3

CourseLearningobjectives:

To introduce the notion of Design as it evolved through the ages, from pre-historic times to a discipline in its ownright.Tounderstandthechronologicaldevelopmentofdesign inthecontext ofhuman evolution.

Module-1

TheevolutionofDesignas adisciplineanditsrelationshiptotheenvironment.

Module-2

Thediscoveriesandinventionsthathavechangedtheworld.

Module-3

Designanditsrelationshiptoart,craftandtechnology.

Module-4

Designanddesignersthathavemadeadifference.

Module-5

InnovativecasestudyinDesignprocessmakingthedifference.

Teaching-Learning Process	*CollaborativeandCooperativelearning*:
Design Tasks:	Aseminarpaperpresentation/submissiononanideaorthoughtthathasmadeadifferencetohumanevolution.
Teaching-Learning Process	1. Thestudentsneedtodotheassignmentsin thestudios. 2. Explorevideosinvariouswebsitesusinganimationofgeometricaldrawings 3. CasestudiesofvariousinventionswhichhasmadeadifferenceanditsAnalysis

AssessmentDetails(bothCIEandSEE)forPCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%.The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for theSEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declaredas a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total oftheCIE(ContinuousInternal Evaluation)andSEE (SemesterEndExamination) takentogether.

The PCC means the professional core course.Project based/ Assignment based/Viva based outcomeCIEmarksfor thiscomponent are **50marks**

CIEforthe professionalcorecoursePCC
- Thereare25marksfortheCIE'sAssignmentcomponentand25fortheInternalAssessmentTestcomponent.
- **25%CIEASSIGNMENTMarks**willbefortheDesignpresentations/viva/seminar/models/BLUEBOOKS.Splitup markswill bedecidedbytheinternal examinerbased ontheprojects.
- Each test shall be conducted for 25 marks. The first test will be administered after 40-50% ofthe coverage of the syllabus, and the second test will be administered after 85-90% of thecoverageofthesyllabus. The averageof the two testsshall be scaleddown to25marks
- Thefirstinternalswillbeattheendof40-50%coverageofthesyllabusfor**25marks**andthesecondinternalevaluationwill beaftercovering85-90%ofthesyllabusfor**25marks**.
- Scaled-downmarksofthesumoftwointernalsandotherassessmentmethodswillbeCIEmarksfor**50marks.**

- The student has to secure 50% of maximum marks-
  25marks to qualify in the CIE of the professional core course HSMC.

Semester-End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the course (**duration 03 hours).**

1. The question paper will have ten questions. Each question is set for 20 marks.
2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
3. The students must answer 5 full questions, selecting one from each module.
4. Marks scored shall be proportionally reduced to 50 marks.
5. The student must secure 35% of maximum marks- (**18marks)** to qualify in the SEE of the professional core course HSMC.

Suggested Learning Resources: Books

David Raizman; History of Modern Design, Prentice Hall, 2004
- Cross, N; Design Thinking: Understanding How Designers Think and Work, Berg, Oxford, 2011.
- http://designhistorytimeline.com/
- Journal of Design History, Oxford Journals

Weblinks and Video Lectures (e-Resources):

Skill Development Activities Suggested

- Guest Lecture from expert.
- Case Studies:
  To choose building projects (High rise buildings) where scope of services to be learnt is more.

Course Outcome:

- They will also understand the use of materials and structural systems that exploded during that era.
- The students will also understand and focus on local design context in addition to understanding the global history of Design.
- The students will be able to understand and identify the process of how design evolved in Social Cultural and political factors that influenced the early society.
- The students also understand the different materials used and its constraints during design evolution

I-SEMESTER

APPLIEDSCIENCEFORDESIGNERS			
CourseCode	**22BD15**	CIEMarks	100
TeachingHours/Week(L:T:S:P)	3hrs (1:0:2:0)	VivaMarks	--
TotalHoursofPedagogy	45hrs(15 Weeks)	TermworkMarks	--
Credits	3	TotalMarks	100
		Exam Hours	3

CourseLearningobjectives:
Tounderstandsomeoftheprinciplesofappliedscienceasinspirationsfordesign.

Module-1
FundamentalsofSymmetryandPatternsinNature

Module-2
EvolutionofForminNature

Module-3
Triangles,Hexagonsandrigidstructures

Module-4
WorkbyBuckminsterFullerandconceptofsustainablestructures.

Module-5
UnderstandingFibonacciseriesandtheGoldenratioGeometryofshapes

Teaching-Learning Process	***CollaborativeandCooperativelearning***:
DesignTasks:	Exercisesinsymmetry,goldenratio,proportion,geometryofobjects
Teaching-LearningProcess	1. TheoryclassestoevaluatethestructuralpropertiesofmaterialsusedinDesigntounderstand theworkability andstrength,limitationsofdifferentmaterials. 2. Documentinglearningthroughsketches,notes,assignments. 3. Theoreticalunderstandingthroughlecturestheoryclassestoevaluatethepropertiesofvariousmaterials.

SuggestedLearningResources: Books

- Livio,Mario;TheGoldenRatio:TheStoryofPHI,theWorld'sMostAstonishingNumber,Publisher:Broadway,2003
- WilliamNeill,PatMurphy;ByNature'sDesign-anExploratoriumBook,ChronicleBooks,1993
- DarcyWentworthThompson,JohnTylerBonner(Editor);OnGrowthandForm,DoverPublications,1992
- RudolfSteiner,DavidBooth;TheFourthDimension:SacredGeometry,Alchemy,andMathematics,SteinerBooks,2001 -RBuckminsterFuller;
- GuineaPigB:The56YearExperiment,CriticalPathPublishing,2004

AssessmentDetails(bothCIEandSEE)for BSAE

The weightage of Continuous Internal Evaluation (CIE) is 100% for Semester End Exam. The minimum passingmark for the CIE is 40% of the maximum marks (40 marks out of 100) . The student is declared as a pass in thecourseif he/shesecures a minimumrequirementinCIEasmentioned above.

The BSAE means the Building Science and applied engineering course.Project based/ Assignment based/Vivabased ,Bluebooksand modelsoutcomeCIEmarks forthiscomponentare10**0marks**

CIEfortheBSAEcourse

- **PortfolioAssessment-50CIEmarks**willbefortheDesignportfoliopresentations/viva/seminar/models.Splitupmarkswillbedecidedby theinternalexaminerbasedontheprojects.
- The first internals(project base assignment)will be at the end of 40-50% coverage of the syllabus for**25 marks** and the second internal (Project base assignment) will be after covering 85-90% of thesyllabusfor**25marks**.
- Scaled-down marks of the sum of two internals and Portfolio assessment methods will be CIE marks for100marks.
- The student has to secure 40% of maximum marks- 100 marks to qualify in the CIE of the professionalcorecourseBSAE

WeblinksandVideoLectures(e-Resources):

SkillDevelopmentActivitiesSuggested
- GuestLecturefromexpert.
- CaseStudies:

  Tochoosebuildingprojects(High risebuildings)wherescopeofservicestobelearntismore.

CourseOutcome
- Thestudents willbeabletoappreciatecriticalorientationtodesignthinkingandaction.
- Thestudentswillappreciatetheconceptofabstractionbyexperimentingwithdifferentformsconsidering scientificformulas inscience.
- Thestudentwillalsodevelopanabilitytoappreciateproportionstotheobjectsinascientificbasic

INNOVATION and DESIGN THINKING			
CourseCode	**21IDT19 / 22BD16**	CIEMarks	50
TeachingHours/Week(L:T:P:S)	1 hrs (1:0:0:0)	SEEMarks	50
TotalHoursofPedagogy	15hrs(15 Weeks)	TotalMarks	100
Credits	01	ExamHours	01

CourseCategory: Foundation

Preamble: This course provides an introduction to the basic conceptsand techniques of engineering and reverses engineering, the process of design, analytical thinking and ideas, basics and development of engineering drawing, application of engineering drawing with computer aide.

Courseobjectives:
- Toexplaintheconceptofdesignthinkingforproductandservicedevelopment
- Toexplainthefundamentalconceptofinnovationanddesignthinking
- Todiscussthemethodsofimplementingdesignthinkingintherealworld.

Teaching-LearningProcess(GeneralInstructions)

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
2. ShowVideo/animationfilmstoexplainconcepts
3. Encouragecollaborative(GroupLearning)Learningintheclass
4. Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking
5. AdoptProblemBasedLearning(PBL),whichfostersstudents' Analyticalskills,developsthinking skillssuchastheabilitytoevaluate,generalize,andanalyzeinformationratherthansimplyrecall it.
6. Topicswillbeintroducedinmultiplerepresentations.
7. Showthedifferentways to solve thesameproblemandencourage thestudents tocome upwith their own creative ways to solve them.
8. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

PROCESSOFDESIGN
UnderstandingDesignthinking

Shared model in team-based design –Theory and practice in Design thinking –Explore presentation signers across globe – MVP or Prototyping

Teaching-LearningProcess	Introductionaboutthedesignthinking:ChalkandTalkmethod Theory and practice through presentation
	MVPandPrototypingthroughliveexamplesandvideos

Module-2

ToolsforDesignThinking

Real-Timedesigninteractioncaptureandanalysis–Enablingefficientcollaborationindigitalspace –Empathyfordesign–CollaborationindistributedDesign

Teaching-Learning	Casestudiesondesignthinkingforreal-timeinteractionandanalysis
Process	Simulationexercisesforcollaboratedenableddesignthinking
	Liveexamplesonthesuccessofcollaborateddesignthinking

Module-3

DesignThinkinginIT
DesignThinkingtoBusinessProcessmodelling–AgileinVirtualcollaborationenvironment–Scenario based Prototyping

Teaching-Learning Process	Case studies on design thinking and business acceptance of the design Simulationontheroleofvirtualeco-systemforcollaboratedprototyping

Module-4

DTForstrategicinnovations
Growth – Story telling representation – Strategic Foresight - Change – Sense Making - Maintenance Relevance – Value redefinition - Extreme Competition – experience design - Standardization – Humanization-CreativeCulture–Rapidprototyping,StrategyandOrganization–BusinessModel
design.

Teaching-Learning Process	Businessmodelexamplesofsuccessfuldesigns Presentation by the students on the success of design Liveprojectondesignthinkinginagroupof4students

Module-5

Designthinkingworkshop
DesignThinkingWorkshopEmpathize,Design,Ideate,PrototypeandTest

Teaching-Learning Process	8hoursdesignthinkingworkshopfromtheexpectandthenpresentationbythestudents on the learning from the workshop

CourseOutcomes:
Uponthesuccessfulcompletionofthecourse,studentswillbeable to:

CO Nos.	CourseOutcomes	KnowledgeLevel(Basedonrevised Bloom'sTaxonomy)
CO1	Appreciatevariousdesignprocess procedure	K2
CO2	Generate anddevelopdesignideasthroughdifferenttechnique	K2
CO3	IdentifythesignificanceofreverseEngineeringtoUnderstand products	K2
CO4	Drawtechnicaldrawingfordesignideas	K3

AssessmentDetails(bothCIEandSEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) inthesemester-end examination(SEE), and a minimum of 40% (40 marks out of 100) inthesum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

ContinuousInternalEvaluation(CIE):

- TwoTests(preferablyinMCQpattern)eachof**30Marks;**Thefirsttestafterthecompletion ofthe 40-50% syllabus of the course. A second test after the completion of 90-100% of the syllabus of the course.

- TwoAssignments/twoquizzes/twoseminars/onefieldsurveyandreport presentation/one-course project totaling **40marks**

TotalMarksscored(test+assignments)outof100shallbescaleddownto**50marks**

At the beginningofthe semester, the instructor/facultyteachingte course has to announce the methods of CIE for the course.

The Teachers shall choose the types of assignments depending on the requirement of the course and plan to attaintheCosandPOs.(tohavealessstressedCIE,theportionofthesyllabusshouldnotbecommon /repeatedforanyofthemethodsoftheCIE.EachmethodofCIEshouldhaveadifferentsyllabusportionofthe course).CIEmethods/testquestionpaperisdesignedtoattainthedifferentlevelsofBloom'staxonomyasper the outcome defined for the course.

Semester-EndExamination:

TheorySEEwillbeconductedbyUniversityasperthescheduledtimetable,withcommonquestion

Papers for subject

SEEpaperwill be set for50questions ofeachof01marks. The pattern ofthe question paperis MCQ.

The time allotted for SEE is **01hour**

SuggestedLearningResources:

TextBooks:
1. John.R.Karsnitz, Stephen O'Brien and John P. Hutchinson, "Engineering Design",Cengage learning (International edition) Second Edition, 2013.
2. RogerMartin,"TheDesignofBusiness:WhyDesignThinkingistheNextCompetitiveAdvantage", Harvard Business Press , 2009.
3. HassoPlattner,ChristophMeinelandLarryLeifer(eds),"DesignThinking:Understand–Improve– Apply",Springer,2011
4. IdrisMootee,"DesignThinkingforStrategicInnovation:WhatTheyCan'tTeachYouatBusiness or Design School", John Wiley & Sons 2013.
   References:
5. Yousef Haik and Tamer M.Shahin, "Engineering Design Process", CengageLearning,Second Edition,2011.
6. Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business School Publishing) Hardcover – 20Sep2013byJeanne Liedtka(Author), AndrewKing(Author), Kevin Bennett (Author).

WeblinksandVideoLectures(e-Resources):

1. www.tutor2u.net/business/presentations/./**productlifecycle**/default.html
2. https://docs.oracle.com/cd/E11108_02/otn/pdf/./E11087_01.pdf
3. www.bizfilings.com›Home›Marketing›ProductDevelopmen
4. https://www.mindtools.com/brainstm.html
5. https://www.quicksprout.com/./how-to-**reverse**-**engineer**-your-competit
6. www.vertabelo.com/blog/documentation/**reverse**-**engineering**

7. https://support.microsoft.com/en-us/kb/273814
8. https://support.google.com/docs/answer/179740?hl=en
9. https://www.youtube.com/watch?v=2mjSDIBaUlMthevirtualinstructor.com/foreshortening.html
10. https://dschool.stanford.edu/.../designresources/.../ModeGuideBOOTCAMP2010L.pdf
11. https://dschool.stanford.edu/use-our-methods/
12. https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinkingprocess
13. http://www.creativityatwork.com/design-thinking-strategy-for-innovation/49
14. https://www.nngroup.com/articles/design-thinking/
15. https://designthinkingforeducators.com/design-thinking/
16. www.designthinkingformobility.org/wp-content/.../10/NapkinPitch_Worksheet.pdf

ActivityBasedLearning(SuggestedActivitiesinClass)/PracticalBasedlearning
1. http://dschool.stanford.edu/dgift/
2. https://onlinecourses.nptel.ac.in/noc19_mg60/preview

CommunicativeEnglish			
CourseCode	**21EGH18/ 22BD17**	CIEMarks	50
TeachingHours/Week(L:T:P:S)	1 hrs(1:0:0:0)	SEEMarks	50
TotalHoursofPedagogy	15hrs(15 Weeks)	ExamHours	1 hrs
Credits	01	TotalMarks	100

Courseobjectives: ThecourseCommunicativeEnglish(22ENG16)willenablethestudents,

1. ToknowaboutFundamentalsofCommunicativeEnglishandCommunicationSkillsingeneral.
2. Totraintoidentifythenuancesofphonetics,intonationandenhancepronunciationskillsforbetterCommunicationskills.
3. ToimpartbasicEnglishgrammarandessentialsofimportantlanguageskills.
4. Toenhance withEnglishvocabularyandlanguageproficiencyforbettercommunicationskills.
5. TolearnaboutTechniquesofInformationTransferthroughpresentation.

Teaching-LearningProcess:

ThesearesampleStrategies,whichteachercanuse toacceleratetheattainmentof thevariouscourseoutcomesandmakeTeaching–Learningmoreeffective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of differentmethodologieswhichsuit moderntechnologicaltoolsandsoftware'stomeetthepresentrequirementsoftheGlobalemploymentmarket.

(i)Directinstructionalmethod(Low/OldTechnology),(ii)Flippedclassrooms(High/advancedTechnologicaltools),(iii)Blended learning(Combinationofboth),(iv)Enquiryandevaluationbasedlearning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionarylearningTools and techniques,(viii)Useofaudiovisualmethodsthrough languageLabsinteachingofofLSRWskills.

Apartfromconventionallecturemethods,varioustypesofinnovativeteachingtechniquesthroughvideos,animationfilmsmaybe adaptedsothatthedelivered lessoncanprogressthestudentsIntheoreticalappliedandpractical skillsinteachingofcommunicativeskillsingeneral.

Language Lab : To augment LSRW, grammar and Vocabulary skills (Listening, Speaking, Reading, Writing andGrammar,Vocabulary) throughtests,activities,exercisesetc.,comprehensiveweb-basedlearningandassessmentsystemscanbe referredasperthe AICTE/VTUguidelines.

Module-1

IntroductiontoCommunicativeEnglish: CommunicativeEnglish, FundamentalsofCommunicativeEnglish,ProcessofCommunication,BarrierstoEffective CommunicativeEnglish,Differentstylesand levelsinCommunicativeEnglish. InterpersonalandIntrapersonalCommunicationSkills.

Module-2

IntroductiontoPhonetics: PhoneticTranscription,EnglishPronunciation,PronunciationGuidelinestoconsonantsandvowels,SoundsMispronounced,SilentandNon silentLetters,SyllablesandStructure.Word Accent, StressShiftand Intonation,SpellingRulesandWordsoftenMisspelt.CommonErrorsinPronunciation.

Module-3

BasicEnglishCommunicativeGrammarandVocabularyPART-I:Grammar:BasicEnglishGrammar and PartsofSpeech,ArticlesandPreposition.QuestionTags,OneWordSubstitutes,StrongandWeakformsofwords,IntroductiontoVocabulary,All TypesofVocabulary–Exercisesonit.

Module-4

BasicEnglishCommunicativeGrammarandVocabularyPART-II:Wordsformation-PrefixesandSuffixes, Contractionsand Abbreviations.WordPairs(MinimalPairs)– Exercises,TenseandTypesoftenses,TheSequenceofTenses(Rulesinuse ofTenses)andExercisesonit.

Module-5

CommunicationSkillsforEmployment: I n f o r m a t i o n Transfer:OralPresentationanditsPractice.DifferencebetweenExtempore/PublicSpeaking, CommunicationGuidelines.MotherTongueInfluence(MTI),VariousTechniquesforNeutralizationofMotherTongueInfluence.ReadingandListeningComprehensions–Exercises.

Courseoutcome(CourseSkillSet)
Attheend ofthecourseCommunicativeEnglish(22ENG16)thestudentwill beableto:

CO1	UnderstandandapplytheFundamentalsofCommunicationSkillsintheircommunicationskills.
CO2	Identifythenuancesofphonetics,intonationandenhance pronunciationskills.
CO3	ToimpartbasicEnglishgrammarandessentialsoflanguage skillsasperpresentrequirement.
CO4	UnderstandandusealltypesofEnglishvocabularyandlanguageproficiency.
CO5	AdopttheTechniquesofInformationTransferthroughpresentation.

AssessmentDetails(bothCIEandSEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passingmark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of themaximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned thecredits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-endexamination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) andSEE (SemesterEnd Examination)taken together.

ContinuousInternalEvaluation(CIE):
TwoUnitTestseach of30 Marks(duration01hour)
- Firsttestafterthecompletionof 30-40% ofthesyllabus
- Secondtestaftercompletionof80-90%of thesyllabus

OneImprovementtestbeforetheclosingoftheacademictermmaybeconductedifnecessary.Howeverbest twotests out ofthreeshallbetakenintoconsideration

Twoassignmentseachof20Marks
The teacher has to plan the assignments and get them completed by the students well before the closing of theterm so that marks entry in the examination portal shall be done in time. Formative (Successive) AssessmentsincludeAssignments/Quizzes/Seminars/Courseprojects/Fieldsurveys/Casestudies/Hands-onpractice(experiments)/Group Discussions/ others.The Teachers shall choose the types of assignments depending onthe requirement of the course and plan to attain the Cos and POs.(to have a less stressed CIE, the portion of thesyllabus should not be common /repeated for any of the methods of the CIE.Each method of CIE should have adifferent syllabus portion of the course).CIE methods /test question paper is designed to attain the differentlevelsofBloom'staxonomy aspertheoutcomedefinedforthecourse.

Thesumoftwotests,twoassignments,willbeoutof100marksandwillbescaleddownto50marks

SemesterEndExaminations(SEE)
SEE paper shall be set for **50 questions, each of the 01 mark**. The pattern of the **question paper is MCQ** (multiplechoice questions). The time allotted for SEE is **01 hour.** The student must secure a minimum of 35% of the maximummarksforSEE.

SuggestedLearningResources:

Textbook:

1. **CommunicationSkills**bySanjayKumar&PushpLata,OxfordUniversityPressIndiaPvtLtd-2019.
2. **ATextbookofEnglishLanguageCommunicationSkills,**(ISBN-978-81-955465-2-7),PublishedbyInfiniteLearningSolutions,Bengaluru-2022.

ReferenceBooks:

1. **TechnicalCommunication**byGajendraSinghChauhanandEtal,(ISBN-978-93-5350-050-4),CengagelearningIndiaPvtLimited[LatestRevisedEdition]-2019.
2. **EnglishforEngineers**byN.P.SudharshanaandC.Savitha,CambridgeUniversityPress–2018.
3. **EnglishLanguageCommunicationSkills–LabManualcumWorkbook,**CengagelearningIndiaPvt Limited[LatestRevisedEdition]– (ISBN-978-93-86668-45-5),2019.
4. **ACourseinTechnicalEnglish–D PraveenSam,KNShoba,**CambridgeUniversityPress–2020.
5. **PracticalEnglishUsage**byMichaelSwan,OxfordUniversityPress–2016.

ActivityBasedLearning(SuggestedActivitiesin Class)/PracticalBasedlearning

1. Contentsrelatedactivities(Activity-baseddiscussions)
2. ForactiveparticipationofstudentsinstructthestudentstoprepareFlowchartsandHandouts
3. OrganisingGroupwisediscussionsConnectingtoplacementactivities
4. QuizzesandDiscussions,Seminarsandassignments

Design Studio II — Problem Analysis				
Course Code	**22BD21**	CIE Marks	50	
Teaching Hours/Week (L:T:S:P)	5 hrs (1:0:4:0)	Viva Marks	50	
Total Hours of Pedagogy	05 Hours/Week	Exam Hrs	3	
Credits	05	Total Marks	100	

Course Learning objectives:
The course will focus on understanding the problem solving process by analysing the problem through different methods to arrive at alternate design concepts.

Module-1

Analysis of an existing problem in a given context

. Mind Maps, Affinity Mappings, Temporal-Spatial Mappings. Physical(Sensory) – Social - Cognitive Mappings

Module-2

Semiotic Analysis (Syntax-Semantic-Pragmatic)

Module-3

Observations, Insights and Opportunities

Module-4

Soft Prototyping the idea/concept

Module-5

Documentation, report making and presentations

Design Tasks	Redesign of an existing idea/concept (from a public Space) that has product, communication, and environmental issues and concerns. The students put into practice what they have learnt during this semester in this project.
Teaching-Learning Process	1. Get a perspective on design throughout the globe: Various videos of designers of the design process from different parts of the world. 2. Screening documentaries, videos, films on various Designs in India and Asia. 3. The contents of the courses shall be taught in an application-oriented manner on a scientific and

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design basis. The course contents shall be taught and learned through the lectures, seminars, labs or workshops, studio exercises and design projects, etc.

4. Site/field visit to folklores areas

5. Submission will include Idea generation, Study models, Sketches and drawings to achieve the desired results.

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Assessment Details (both CIE and SEE) for PCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

The PCC means the professional core course. Project based/ Assignment based/Viva based outcome CIE marks for this component are **50 marks**

CIE for the professional core course PCC

- **50 CIE marks** will be for the Design portfolio presentations/viva/ seminar/models. Split up marks will be decided by the internal examiner based on the projects.
- The first internals will be at the end of 40-50% coverage of the syllabus for **25 marks** and the second internal evaluation will be after covering 85-90% of the syllabus for **25 marks**.
- Scaled-down marks of the sum of two internals and other assessment methods will be CIE marks for **50 marks.**
- The student has to secure 50% of maximum marks- **20 marks** to qualify in the CIE of the professional core course PCC.

SEE for the professional core course PCC

- **50 SEE marks** will be viva based assessed by internal examiner and external examiner (appointed by the University. **Note**: Examiners will be from academia as well as industry experts.)
- Evaluation pattern will be based on Design portfolio presentations/ seminar/models. Split up marks will be decided by internal & external examiners based on the projects.
    The student must secure minimum of 35% of maximum marks- (**18 marks out of 50 marks)** to qualify in the SEE of the professional core course PCC.

Suggested Learning Resources:
Books

- Roozenburg and Eekels, Product Design: Fundamentals and Methods, Publisher: John Wiley & Sons Inc; New Ed edition, 1995
- Ulrich, Karl T., Eppinger, Steven D.; Product Design and Development, McGraw-Hill 1995, 2000, 2004

- J. de Noblet ed., Industrial Design- Reflections of a century, Thames & Hudson, 1993

Web links and Video Lectures (e-Resources):

Skill Development Activities Suggested
- Guest Lecture from expert.
- Case Studies :
  To choose relevant projects where scope of services to be learnt is more.

Course Outcome

The student will be able to:

- **Get an Introduction into the field of Design**
- The student will be able to generate solutions to design constructs, understand the process of design and be able to find solutions to simple problems.
- Make responsible choices for design development.
- The focus is on being able to identify problems and finding needs.

Art and Design Fundamentals – 3D

Course Code	**22 BD22**	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	4 hrs (1:0: 3: 0)	Viva Marks	50
Total Hours of Pedagogy	04 Hours/Week	Exam Hrs	3
Credits	04	Total Marks	100

Course Category:
The students explore, discover and understand the fundamentals involved in 3-dimensional design – its elements, features and principles

Module-1

Exposure to various elements of 3D and principles of art and design in 3D
Expressions and explorations of spaces and Volumes

Module-2

. Experimentations with Form, Texture, Colour and space
Its relation in context to nature and environment

Module-3

. Radii Manipulation, Form Transition, Morphology

Module-4

. Exposure to form and movement

Module-5

. Exposure and demonstration of 3D modelling software

Design Tasks	The understanding of various elements of 3D and principles of design in 3D is done through material explorations like wood, metal and clay
Teaching-Learning Process	1. Assign exercises in making different types of models using a variety of materials available in the market. 2. Studios to conduct hands on work with models, sheets, drawings in Basic Design 3. Sketching in various medium to explore visual arts 4. Discussions, presentations, and case studies to cover different typologies. 5. The portfolio covering all the assignments shall be presented for the Viva exam.

Assessment Details (both CIE and SEE) for PCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

The PCC means the professional core course. Project based/ Assignment based/Viva based outcome CIE marks for this component are **50 marks**

CIE for the professional core course PCC
- **50 CIE marks** will be for the Design portfolio presentations/viva/ seminar/models. Split up marks will be decided by the internal examiner based on the projects.
- The first internals will be at the end of 40-50% coverage of the syllabus for **25 marks** and the second internal evaluation will be after covering 85-90% of the syllabus for **25 marks**.
- Scaled-down marks of the sum of two internals and other assessment methods will be CIE marks for **50 marks.**
- The student has to secure 50% of maximum marks- **20 marks** to qualify in the CIE of the professional core course PCC.

SEE for the professional core course PCC
- **50 SEE marks** will be viva based assessed by internal examiner and external examiner (appointed by the University. **Note**: Examiners will be from academia as well as industry experts.)
- Evaluation pattern will be based on Design portfolio presentations/ seminar/models. Split up marks will be decided by internal & external examiners based on the projects.
    The student must secure minimum of 35% of maximum marks- (**18 marks out of 50 marks)** to qualify in the SEE of the professional core course PCC.

Suggested Learning Resources:
Books
Kepes, Gyorgy; Language of Vision, Dover Publications, 1995
- Elam, Kimberly; Geometry of Design: Studies in Proportion and Composition, Princeton Architectural Press, 2001
- Bachelard, Gaston; Jolas, Maria (Translator); The Poetics of Space, Publisher: Beacon Press; Reprint edition, 1994
- Hannah, Gail Greet; Elements of Design, Princeton Architectural Press, 2002

Web links and Video Lectures (e-Resources):

Skill Development Activities Suggested
- Guest Lecture from expert.
- Case Studies :
    To choose relevant projects where scope of services to be learnt is more.

Course Outcome:
The students will be equipped with graphical representation skills which shall be useful in translating the ideas into technically appropriate 3D models.
The students will be also be exposed to 3d modelling etc.

Image Representation and transformations II				
Course Code	**22 BD 23**	CIE Marks	50	
Teaching Hours/Week (L:T:S:P)	4 hrs(1:0: 3: 0)	Viva Marks	50	
Total Hours of Pedagogy	04 Hours/Week	Exam Hrs	3	
Credits	04	Total Marks	100	

Course Category:
Learning the essential skills and knowledge of image representation in order to visualize ideas, concepts and final representations and being able to transform these for different interpretations and applications.

Module-1
Representing the observed . Representing concepts - Sketching for ideation

Module-2
Mimetic Imagery and Abstraction **. Memory and Imagination**

Module-3
History of Art and Aesthetics . Expression and Imagery

Module-4
Time and space in Image . Migration of forms and Image manipulation

Module-5
Metamorphosis through form, colour and structure . Advanced exposure and demonstration to Illustration and Image making software

Design Tasks:	Exercises in imagination and representation, Expressions and Explorations, Concept drawings
Teaching-Learning Process	1. Various exercises to be designed for students which helps them to learn symbolically represent a system/ design etc. 2. Various Case studies videos of designers of the design process from different parts of the world. 3. Seminar by students on their learning. 4. Exposure to various softwares and Hands-on experience of 1 or 2 softwares for Image making.

Assessment Details (both CIE and SEE) for PCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

The PCC means the professional core course. Project based/ Assignment based/Viva based outcome CIE marks for this component are **50 marks**

CIE for the professional core course PCC

- **50 CIE marks** will be for the Design portfolio presentations/viva/ seminar/models. Split up marks will be decided by the internal examiner based on the projects.
- The first internals will be at the end of 40-50% coverage of the syllabus for **25 marks** and the second internal evaluation will be after covering 85-90% of the syllabus for **25 marks**.
- Scaled-down marks of the sum of two internals and other assessment methods will be CIE marks for **50 marks.**
- The student has to secure 50% of maximum marks- **20 marks** to qualify in the CIE of the professional core course PCC.

SEE for the professional core course PCC

- **50 SEE marks** will be viva based assessed by internal examiner and external examiner (appointed by the University. **Note**: Examiners will be from academia as well as industry experts.)
- Evaluation pattern will be based on Design portfolio presentations/ seminar/models. Split up marks will be decided by internal & external examiners based on the projects.

     The student must secure minimum of 35% of maximum marks- (**18 marks out of 50 marks)** to qualify in the SEE of the professional core course PCC.

Suggested Learning Resources:
Books

- Roozenburg and Eekels, Product Design: Fundamentals and Methods, Publisher: John Wiley & Sons Inc; New Ed edition, 1995
- Ulrich, Karl T., Eppinger, Steven D.; Product Design and Development, McGraw-Hill 1995, 2000, 2004

- J. de Noblet ed., Industrial Design- Reflections of a century, Thames & Hudson, 1993

Web links and Video Lectures (e-Resources):

Skill Development Activities Suggested
- Guest Lecture from expert.
- Case Studies :
  To choose relevant projects where scope of services to be learnt is more.

Course Outcome
- The students are able to understand Imaginative skills of design leading to ideating conceptsand converting toward conceptualization representation images.
- Generate aesthetic Manipulation of image.

II - SEMESTER

	Typography fundamentals and Exploratory Printing				
	Course Code	**22 BD 24**		CIE Marks	100
	Teaching Hours/Week (L:T:S:P)	3Hrs (1:0:2:0)		Viva Marks	----
	Total Hours of Pedagogy	03 Hours/Week		Exam Hrs	3
	Credits	03		Total Marks	100

	Course Category: **To understand and become sensitive to the use of type, type-families and their variations. To do explorative printing on different surfaces.**
	Module-1
	Introduction to type and its history. . Type as a form and means of communication.
	Module-2
	. Type in our environment. . Introduction to Indian Type
	Module-3
	. Learning to see and recognize typefaces, type families and know about type designers. . Construction of type with hand. . Structure and anatomy of the type; x-height, ascenders, descenders, counter, cap-height, baseline, etc.
	Module-4
	. Typographic variables: kerning, tracking, leading, Spacing etc. . Classification of type.
	Module-5
	. Semantics of type. Legibility and readability issues in type. Vernacular letter-forms. . Introduction to traditional printing techniques like Block printing, Screen printing, Hot stamping, etc .
Design Tasks:	Exercises in calligraphy, Compositions with type, Expressive typography, 3-dimensional typography. Explorative printing on different surfaces.
Teaching-Learning Process	1. The students need to do the assignments in the studios. 2. Explore videos in various websites for calligraphy type designs 3. Case studies of various inventions which has made a difference in type phase design

Assessment Details (both CIE and SEE) for PCC
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.
The PCC means the professional core course. Project based/ Assignment based/Viva based outcome CIE marks for this component are **50 marks**
CIE for the professional core course PCC
    • **50 CIE marks** will be for the Design portfolio presentations/viva/ seminar/models. Split up marks will be decided by the internal examiner based on the projects.
    • The first internals will be at the end of 40-50% coverage of the syllabus for **25 marks** and the second internal evaluation will be after covering 85-90% of the syllabus for **25 marks**.
    • Scaled-down marks of the sum of two internals and other assessment methods will be CIE marks for **50 marks.**
    • The student has to secure 50% of maximum marks- **20 marks** to qualify in the CIE of the professional core course PCC.
 	
  SEE for the professional core course PCC
    • **50 SEE marks** will be viva based assessed by internal examiner and external examiner (appointed by the University. **Note**: Examiners will be from academia as well as industry experts.)
    • Evaluation pattern will be based on Design portfolio presentations/ seminar/models. Split up marks will be decided by internal & external examiners based on the projects.
        The student must secure minimum of 35% of maximum marks- (**18 marks out of 50 marks)** to qualify in the SEE of the professional core course PCC.
 	
Suggested Learning Resources:
Books
 	
Carter Ron, Day Ben Meg Phillip, Typographic Design: Form and Communication, John Wiley & Sons, 1999 - Allen Hurlburt, The Grid, John Wiley & Sons,1998 - Jute, Andre; Grids : the structure of graphic design. Crans-Pres-Celigny : Rotovision, 1996 - Carter Ron, Day Ben Meg Phillip, Typographic Design: Form and Communication, John Wiley & Sons, 1999

Web links and Video Lectures (e-Resources):

Skill Development Activities Suggested
    ● Guest Lecture from expert.
    ● Case Studies :
        To choose relevant projects where scope of services to be learnt is more.

Course Outcome
    ● Student understand typographic families, their variation and its use in Printing or Digital Medium
    ● Students learn the technical aspect of creating new type phase by understanding the existing ones in Digital and Print medium.
    ● Students also understand the scale and proportion of its families with respect to visual legibility.

II - SEMESTER

Knowledge Organization and Communication				
Course Code	**22 BD 25**	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	2Hrs (2:0:0:0)	Theory Marks	50
Total Hours of Pedagogy	02 Hours/Week	Exam Hrs	03
Credits	02	Total Marks	100

Course Category:
To understand the dynamics of large knowledge systems and be able to structure, organize, make sense and be able to visualize and communicate its problems and issues.

Module-1
Module 1 Knowledge Gathering, Organisation and Visualisation

Module-2
. Visual Mapping of large systems

Module-3
Visual Mapping of large systems Contd...

Module-4
Data Mining and making sense of dynamic information. Building concept maps, affinities and networks

Module-5
Diffusion and communication of Knowledge

Design Tasks:	The students work on analysing large knowledge systems (for example literacy or global warming in the world), identify issues to be solved, visualize and communicate the issues.
Teaching-Learning Process	1. Theory classes to evaluate and understand the structural properties of the organization used in Design to understand the workability and strength, limitations of different approaches. 2. Documenting learning through sketches, notes, assignments. 3. Theoretical understanding through lectures theory classes to evaluate the structure of different design thinking processes

Assessment Details (both CIE and SEE) for PCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

The PCC means the professional core course. Project based/ Assignment based/Viva based outcome CIE marks for this component are **50 marks**

CIE for the professional core course PCC

- **50 CIE marks** will be for the Design portfolio presentations/viva/ seminar/models. Split up marks will be decided by the internal examiner based on the projects.
- The first internals will be at the end of 40-50% coverage of the syllabus for **25 marks** and the second internal evaluation will be after covering 85-90% of the syllabus for **25 marks**.
- Scaled-down marks of the sum of two internals and other assessment methods will be CIE marks for **50 marks.**
- The student has to secure 50% of maximum marks- **20 marks** to qualify in the CIE of the professional core course PCC.

SEE for the professional core course PCC

- **50 SEE marks** will be viva based assessed by internal examiner and external examiner (appointed by the University. **Note**: Examiners will be from academia as well as industry experts.)
- Evaluation pattern will be based on Design portfolio presentations/ seminar/models. Split up marks will be decided by internal & external examiners based on the projects.

   The student must secure minimum of 35% of maximum marks- (**18 marks out of 50 marks)** to qualify in the SEE of the professional core course PCC.

Suggested Learning Resources:
Books

  - Peter Burke, A Social History of Knowledge II: From the Encyclopaedia to Wikipedia,
   Polity,2012

- Nancy Williamson, Clare Beghtol ; Knowledge Organization and Classification in International Information Retrieval, Routledge, 2004

- Elaine Svenonius ; The Intellectual Foundation of Information Organization, TheMITPress,2000

- Thomas H. Davenport, LaurancePrusak ; Information Ecology: Mastering the Information and Knowledge Environment, Oxford University Press, USA, 1997

- Colin Ware, Information Visualization, Third Edition: Perception for Design(Interactive Technologies), MorganKaufmann,2012

- Brian M. Moon, Robert R. Hoffman, Joseph D. Novak, Alberto J. Cañas; Applied Concept Mapping: Capturing, Analysing, and Organizing Knowledge, CRCPress,2011

Web links and Video Lectures (e-Resources):

Skill Development Activities Suggested
- Guest Lecture from expert.
- Case Studies :
  To choose relevant projects where scope of services to be learnt is more.

Course Outcome:
- Students understand the organisational structure and try to map the connectivity in the system.
- Students learn the inter relation between the organisation system and its dynamic behaviours.
- Students learn visual mapping of an organisational structure to understand and identify issues to be solved, visualise and communicated.

Professional Writing Skills in English

Course Code	**21EGH 28/22BD26**	CIE Marks	50
Teaching Hours/Week (L:T:S:P)	1hr (1:0:0)	Theory Marks	50
Total Hours of Pedagogy	01 Hours/Week	Exam Hrs	01
Credits	01	Total Marks	100

Course Category:
The course (23BD 26) will enable the students ,
To Identify the Common Errors in Writing and Speaking of English.
To Achieve better Technical writing and Presentation skills for employment.
To read Technical proposals properly and make them to Write good technical reports.
Acquire Employment and Workplace communication skills.
To learn about Techniques of Information Transfer through presentation in different level.

Module-1

Identifying Common Errors in Writing and Speaking English :
Advanced English Grammar for Professionals with exercises, Common errors identification in parts of speech, Use of verbs and phrasal verbs, Auxiliary verbs and their forms, Subject Verb Agreement (Concord
Rules with Exercises).
Common errors in Subject-verb agreement, Noun-pronoun agreement, Sequence of Tenses and errors Identification in Tenses. Advanced English Vocabulary and its types with exercises – Verbal Analogies, Words Confused/Misused.

Module-2

Nature and Style of sensible writing :
Organizing Principles of Paragraphs in Documents, Writing Introduction and Conclusion, Importance of
Proper Punctuation, The Art of Condensation (Precise writing) and Techniques in Essay writing, Common
Errors due to Indianism in English Communication, Creating Coherence and Cohesion, Sentence arrangements exercises, Practice of Sentence Corrections activities .Importance of Summarising and
Paraphrasing.
Misplaced modifiers, Contractions, Collocations, Word Order, Errors due to the Confusion of words,
Common errors in the use of Idioms and phrases, Gender, Singular & Plural. Redundancies & Clichés.

Module-3

Technical Reading and Writing Practices :
Reading Process and Reading Strategies, Introduction to Technical writing process,
Understanding of writing process, Effective Technical Reading and Writing Practices, Introduction to Technical Reports writing, Significance of Reports, Types of Reports.
Introduction to Technical Proposals Writing, Types of Technical Proposals, Characteristics of Technical Proposals. Scientific Writing Process.
Grammar – Voice and Speech (Active and Passive Voices) and Reported Speech, Spotting Error Exercises,

	Sentence Improvement Exercises, Cloze Test and Theme Detection Exercises.
	Module-4
	Professional Communication for Employment : The Listening Comprehension, Importance of Listening Comprehension, Types of Listening, Understanding and Interpreting, Listening Barriers, Improving Listening Skills. Attributes of a good and poor listener. Reading Skills and Reading Comprehension, Active and Passive Reading, Tips for effective reading. Preparing for Job Application, Components of a Formal Letter, Formats and Types of official, employment, Business Letters, Resume vs Bio Data, Profile, CV and others, Types of resume, Writing effective resume for employment, Model Letter of Application (Cover Letter) with Resume, Emails, Blog Writing, Memos (Types of Memos) and other recent communication types.
	Module-5
	Professional Communication at Workplace: Group Discussions – Importance, Characteristics, Strategies of a Group Discussions. Group Discussions is a Tool for Selection. Employment/ Job Interviews - Importance, Characteristics, Strategies of a Employment/ Job Interviews. Intra and Interpersonal Communication Skills - Importance, Characteristics, Strategies of an Intra and Interpersonal Communication Skills. Non-Verbal Communication Skills (Body Language) and its importance in GD and PI/JI/EI. Presentation skills and Formal Presentations by Students - Importance, Characteristics, Strategies of Presentation Skills. Dialogues in Various Situations (Activity based Practical
Teaching-Learning Process	These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes. Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools and software's to meet the present requirements of the Global employment market. (i) Direct instructional method (Low /Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods through language Labs in teaching of of LSRW skills. Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical Applied and practical skills in teaching of communicative skills in general.

Assessment Details (both CIE and SEE) for PCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

The PCC means the professional core course. Project based/ Assignment based/Viva based outcome CIE marks for this component are **50 marks**

CIE for the professional core course PCC

- **50 CIE marks** will be for the Design portfolio presentations/viva/ seminar/models. Split up marks will be decided by the internal examiner based on the projects.
- The first internals will be at the end of 40-50% coverage of the syllabus for **25 marks** and the second internal evaluation will be after covering 85-90% of the syllabus for **25 marks**.
- Scaled-down marks of the sum of two internals and other assessment methods will be CIE marks for **50 marks.**
- The student has to secure 50% of maximum marks- **20 marks** to qualify in the CIE of the professional core course PCC.

SEE for the professional core course PCC

- **50 SEE marks** will be viva based assessed by internal examiner and external examiner (appointed by the University. **Note**: Examiners will be from academia as well as industry experts.)
- Evaluation pattern will be based on Design portfolio presentations/ seminar/models. Split up marks will be decided by internal & external examiners based on the projects.

   The student must secure minimum of 35% of maximum marks- (**18 marks out of 50 marks)** to qualify in the SEE of the professional core course PCC.

Suggested Learning Resources:

Books

1. A Course in Technical English, Cambridge University Press – 2020.
2. Functional English (As per AICTE 2018 Model Curriculam) Cengage learning India Pvt Limited [Latest Revised Edition] - 2020.
3. Communication Skills by Sanjay Kumar and PushpLata, Oxford University Press - 2018. Refer it's workbook for activities and exercises –"Communication Skills – I (A Workbook)" published by Oxford University Press
– 2018.
4. Professional Writing Skills in English, Infinite Learning Solutions – (Revised Edition) 2021.
5. Technical Communication – Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
6. High School English Grammar & Composition by Wren and Martin, S Chandh& Company Ltd – 2015.
7. Effective Technical Communication – Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private Limited – 2018.
8. Intermediate Grammar, Usage and Composition by M.L.Tichoo, A.L.Subramanian, P.R.Subramanian, Orient Black Swan – 2016.

Web links and Video Lectures (e-Resources):

Skill Development Activities Suggested
- Guest Lecture from expert.
- Case Studies :
  To choose relevant projects where scope of services to be learnt is more.

Course Outcome

At the end of the course(21EGH28) the student will be able :

1. To understand and identify the Common Errors in Writing and Speaking.
2. To Achieve better Technical writing and Presentation skills.
3. To read Technical proposals properly and make them to Write good technical reports.
4. Acquire Employment and Workplace communication skills.
5. To learn about Techniques of Information Transfer through presentation at different level.

Scientific Foundations of Health			
Course Code	**21SFH29/22BD27**	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	1hr (1:0:0:0)	Theory Marks	50
Total Hours of Pedagogy	01 Hours/Week	Exam Hrs	01
Credits	01	Total Marks	100

Course Category:
The course 21SFH29 will enable the students:
To know about Health and wellness (and its Beliefs)
To acquire Good Health & It's balance for positive mind-set
To Build the healthy lifestyles for good health for their better future
To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world
To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
To Prevent and fight against harmful diseases for good health through positive mind-set

Module-1

Good Health and It's balance for positive mind-set:
What is Health, Why Health is very important Now? – What influences your Health?, Health and Behaviour, Health beliefs and advertisements, Advantages of good health (Short term and long Term benefits), Health and Society, Health and family, Health and Personality - Profession. Health and behaviour, Disparities of health in different vulnerable groups. Health and Psychology, Methods to improve good psychological health. Psychological disorders (Stress and Health - Stress management), how to maintain good health, Mindfulness for Spiritual and Intellectual health, Changing health habits for good health. Health and personality.

Module-2

Building of healthy lifestyles for better future:
Developing a healthy diet for good health, Food and health, Nutritional guidelines for good health and well beingness, Obesity and overweight disorders and its management, Eating disorders - proper exercises for its maintenance (Physical activities for health), Fitness components for health, Wellness and physical function,

Module-3

Creation of Healthy and caring relationships :
Building communication skills (Listening and speaking), Friends and friendship - education, the value of relationships and communication, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering,

Module-4

		Avoiding risks and harmful habits : Characteristics of health compromising behaviours, Recognizing and avoiding of addictions, How addiction develops and addictive behaviours, Types of addictions, influencing factors for addictions, Differences between addictive people and non-addictive people and their behaviour with society, Effects and health hazards from addictions Such as..., how to recovery from Addictions.
	Module-5	
		Preventing and fighting against diseases for good health : Process of infections and reasons for it, How to protect from different types of transmitted Infections such as...., Current trends of socio economic impact of reducing your risk of disease, How to reduce risks for good health, Reducing risks and coping with chronic conditions, Management of chronic illness for Quality of life, Health and Wellness of youth: a challenge for the upcoming future Measuring of health and Wealth status.
	Teaching-Learning Process	These are sample Strategies, which teacher can use to accelerate the attainment of the various course Outcomes. Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools And software's to meet the present requirements of the Global employment market. (i) Direct instructional method (Low /Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (combination of both), (iv) Enquiry and evaluation based learning, (v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills in teaching of the concepts of Health and Wellness in general.

Assessment Details (both CIE and SEE) for PCC

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

The PCC means the professional core course. Project based/ Assignment based/Viva based outcome CIE marks for this component are **50 marks**

CIE for the professional core course PCC

- **50 CIE marks** will be for the Design portfolio presentations/viva/ seminar/models. Split up marks will be decided by the internal examiner based on the projects.
- The first internals will be at the end of 40-50% coverage of the syllabus for **25 marks** and the second internal evaluation will be after covering 85-90% of the syllabus for **25 marks**.
- Scaled-down marks of the sum of two internals and other assessment methods will be CIE marks for **50 marks.**
- The student has to secure 50% of maximum marks- **20 marks** to qualify in the CIE of the professional core course PCC.

SEE for the professional core course PCC

- **50 SEE marks** will be viva based assessed by internal examiner and external examiner (appointed by the University. **Note**: Examiners will be from academia as well as industry experts.)
- Evaluation pattern will be based on Design portfolio presentations/ seminar/models. Split up marks will be decided by internal & external examiners based on the projects.

  The student must secure minimum of 35% of maximum marks- (**18 marks out of 50 marks)** to qualify in the SEE of the professional core course PCC.

Suggested Learning Resources:
Books

Suggested Learning Resources:
1. Health Psychology (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor – Published by Routledge 711 Third Avenue, New York, NY 10017.
2. Health Psychology - A Textbook, FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited - Open University Press
3. HEALTH PSYCHOLOGY (Ninth Edition) by SHELLEY E. TAYLOR - University of California, Los Angeles, McGraw Hill Education (India) Private Limited - Open University Press
4. Scientific Foundations of Health (Health & Wellness) - General Books published for University and colleges references by popular authors and published by the reputed publisher.
9) SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos and other materials / notes

Web links and Video Lectures (e-Resources):

Skill Development Activities Suggested
- Guest Lecture from expert.
- Case Studies :
  To choose relevant projects where scope of services to be learnt is more .

Course Outcome

At the end of the course the student will be able :

CO 1: To understand Health and wellness (and its Beliefs)

CO 2: To acquire Good Health & It's balance for positive mindset

CO 3: To inculcate and develop the healthy lifestyle habits for good health.

CO 4: To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world

CO 5: To adopt the innovative & positive methods to avoid risks from harmful habits in their campus & outside the

campus.

CO 6: To positively fight against harmful diseases for good health through positive mindset.