

II Semester Scheme of Studies - Diploma in Computer Science & Engineering [C-20]

Sl. No	Course Category / Teaching Department	Course Code	Course Title	Hours per week			Total contact hrs/week	Credits	CIE Marks		SEE Marks		Total Marks	Min Marks for Passing (including CIE marks)	Assigned Grade	Grade Point	SGPA and CGPA
				L	T	P			Max	Min	Max	Min					
				THEORY COURSES													
1	SC/CS	20PM01T	Project Management Skills	2	0	4	6	4	50	20	50	20	100	40			S
PRACTICAL COURSES																	
2	BS/SC	20SC02P	Statistics and Analytics	2	0	4	6	4	60	24	40	16	100	40			
3	EG/SC /CS	20EG01P	Communication Skills	2	0	4	6	4	60	24	40	16	100	40			
4	ES/ME	20ME02P	Computer Aided Engineering Graphics	2	0	4	6	4	60	24	40	16	100	40			
5	ES/CS	20CS21P	Multimedia & Animation	2	0	4	6	4	60	24	40	16	100	40			
AUDIT COURSES																	
6	AU/KA	20KA21T	Kannada-I/ಸಾಹಿತ್ಯಸಿಂಚನ I /ಬಳಕೆ ಕನ್ನಡ - I	2	0	0	2	2	50	20	-	-	50	20			
Total				12	0	20	32	22	340	136	210	84	550	220			

T:- Theory P:- Practical D:- Drawing E:- Elective BS- Basic Science:: ES-Engineering Science:: HS-Humanities & Social Science:: AU-Audit Course:: EG: English ::SC: Science

Note:

1. Assigned Grade, Grade Point, SGPA and CGPA to be recorded in the Grade/Marks card.
2. Theory course Semester End Examination (SEE) is conducted for 100 marks (3 Hours duration)
3. Practical course CIE and SEE is conducted for 100 marks (3 Hours duration)

Government of Karnataka
Department of Collegiate and Technical Education
Board of Technical Examinations, Bangalore

Course Code	20PM01T	Semester	II
Course Title	Project Management Skills	Course Group	PM
No. of Credits	4	Type of Course	Activity based study
Course Category	Theory with Activities	Total Contact Hours	6 Hrs Per Week (2Theory +4 hrs of classroom activities)
			78 Hrs Per Semester
Prerequisites	10 th Level Mathematics	Teaching Scheme	4 hrs per week classroom sessions dedicated to case studies & activities
CIE Marks	50	SEE Marks	50

RATIONALE

Project Management is a confluence of Management principles and Engineering subject area. This course enables the students to develop conceptualisation of Engineering Management principles and apply the same for their engineering projects, in their domains, example, Software Development project or Construction Project and so on. The course integrates three core areas of Planning, Execution and Auditing of Projects.

1. COURSE SKILL SET

Student will be able to:

1. Understand what constitutes a project, Plan for the execution of the project by breaking into manageable work units, and Prepare necessary project artifacts
2. Track and control the Project while preparing verifiable records for Project Inspections and Audits
3. Inspect and Audit projects for Milestones or other project completion criteria and other metrics, Defects and remediation, Project learnings
4. Gain knowledge and develop curiosity on latest technology trends in Project management

2. COURSE OUT COMES

At the end of the course, student will be able to

C01	Apply the concepts of Project Management to real projects which are expressed in the form of the Project reports or Engineering drawings
C02	Estimate Project resources needed Time, Material and Effort, and Plan for execution
C03	Understand, analyse and assess the risks involved in a project and plan for managing them
C04	Use Project Management Software and processes to track and control Projects
C05	Conduct inspection of Projects and audit progress and bills
C06	Understand the Digital Technology trends in Project management and concepts like Smart cities

3. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS

UNIT NO	UNIT TITLE	TEACHING HOURS (L-T-P)	MARKS DISTRIBUTION(THEORY)			
			R LEVEL	U LEVEL	A LEVEL	TOTAL
1	Introduction	02-00-04	8	8	4	20
2	Project Administration	06-00-12	8	12	20	40
3	Project Lifecycle	04-00-08	8	12	20	40
4	Project Planning, Scheduling and Monitoring	06-00-12	8	12	20	40
5	Project Control, Review and Audit	06-00-12	8	12	20	40
6	Digital Project Management	02-00-04	8	8	4	20
	Total	26-00-52=78	48	64	88	200

Legends: R = Remember; U = Understand; A = Apply and above levels (Bloom's revised taxonomy)

4. DETAILS OF COURSE CONTENT

The following topics/subtopics is to be taught and assessed in order to develop Unit Skill sets for achieving CO to attain identified skill sets.

UNIT NO	Unit skill set (In cognitive domain)	Topics / Subtopics	Hours L-T-P
1 Introduction	Use Basic Science, Maths skills to understand Project management and project planning, execution and control.	Introduction and definition, Features of a Project, Types of Projects, Benefits and Obstacles in Project Management, Project Management Profession, Role of Project manager, Consultants, Project and Operation, Project Management Process, Project Scope	02-00-04
2 Project Administration	Able to develop WBS, PEP and PM processes for Project with given inputs	Project Administration, Project Team, Project Design, Work Breakdown Structure (WBS), Project Execution Plan (PEP), Systems and Procedure Plan, Project Direction, Communication and Co-ordination, Project Success Case Study I	06-00-12
3 Project Lifecycle	Use project administration and project lifecycle knowledge to Assess and plan for project risk	Project Life Cycle, Phases - Project Planning, Project Execution, Project Closure, Project Risks, Project Cost Risk Analysis, Time and Cost overruns Case Study 2a	04-00-08
4. Project Planning, Project Scheduling and Project Monitoring and Implementation	Able to develop a detailed project plan given the inputs on manpower, funds availability and time availability	Project Planning Function, Structure, Project Scheduling, Project monitoring and Project evaluation Case Study 2b	06-00-12
5. Project Control, Review and Audit	Use Project Management lifecycle knowledge to Control project parameters, review and audit project performance	Project Control, Problems of Project Control, Gantt Charts, Milestone Charts, Critical Path Method (CPM), Network Technique in Project Scheduling, Crashing Project Duration through Network, Project Review, Initial Review, Performance Evaluation,	06-00-12

		Abandonment Analysis, Project Audit Case Study 2c	
6.Digital Project Management	Understand latest trends of digital technologies impacting the domain of project management and application of the same in multiple scenario	Digital Technology trends in Project management, Cloud Technology, IoT, Smart cities, Data and analytics, case studies Case study 3	02-00-04

1. MAPPING OF CO WITH PO

CO	Course Outcome	PO Mapped	UNIT Linked	CL R/U/A	Sessions in Hrs	TOTAL - Marks
CO1	Understand the concepts of Project Management in relation to real projects which are expressed in the form of the Project reports or Engineering drawings Case Study - I	1, 2, 5, 7	1, 2	R/U/A	06	10
CO2	Estimate Project resources needed Time, Material and Effort, and Plan for execution Case study 2a	1, 2, 3, 7	2, 3	R/U/A	18	20
CO3	Evaluate the risks involved in a project and Plan for managing them Case Study - 2a	1,2,3,7	2,3	R/U/A	12	20

CO4	Use Project Management methods with Software and/or processes to track and control Projects Case Study 2b	1, 4, 6, 7	4	R/U/A	18	20
CO5	Conduct inspection of Projects and audit progress and bills Case Study 2c	1, 2, 5, 7	5	R/U/A	18	20
CO6	Understand the Digital Technology trends in Project management, and Engineering Industries Case Study 3	1, 5, 7	6	R/U/A	06	10
					78	100

	CO's	Programme Outcomes s) (PO						
		1	2	3	4	5	6	7
Project Management	CO1	3	3	0	0	2	0	1
	CO2	3	3	3	0	0	0	1
	CO3	3	0	0	3	0	3	1
	CO4	3	0	0	3	0	3	1
	CO5	3	2	0	0	2	0	1
	CO6	3	0	0	0	2	0	2
Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped								

7. INSTRUCTIONAL STRATEGY

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes

1. Explicit instruction will be provided in intervention classes or by using different differentiation strategies in the main classroom.

2. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching method and media that are employed to develop the outcomes.
3. Observing the way their more proficient peers use prior knowledge to solve current challenges and persevere in problem solving will help struggling students to improve their approach to engaging with rich contextual problems.
4. Topics be introduced always with a real life example and then answering What, how, why and when.
5. The teacher is able to show different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
6. In a perfect world, teacher would always be able to demonstrate how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding. When a concept cannot be applied in that manner, we can still share how it might be applied within mathematics.

8. SUGGESTED LEARNING RESOURCES:

Sl.No.	Author	Title of Books	Publication/Year
1	Dr. Lalitha Balakrishnan & Dr. Gowri Ramachandran	Project Management	Himalaya Publishing, 2019
2	Shailesh Kumar Shivakumar	Complete Guide to Digital Project Management	Apress, 2019
3	Prasanna Chandra	Project planning, analysis, selection, implementation and review	Tata McGraw Hill
4	Gopala Krishnan	Project Management	Mcmillan India Ltd.

9. COURSE ASSESSMENT AND EVALUATION CHART

Sl.No	Assessment	Duration	Max marks	Conversion
1	CIE Assessment 1 (Written Test -1) At the end of 3 rd week	80 minutes	30	Average of three written tests 30
2	CIE Assessment 2 (Written Test -2) At the end of 7 th week	80 minutes	30	

Sl.No	Assessment	Duration	Max marks	Conversion
3	CIE Assessment 3 (Written Test -3) At the end of 13 th week	80 minutes	30	
4	CIE Assessment 4 (Group Assignment -1) At the end of 5 th week	60 minutes	20	Average of three 20
5	CIE Assessment 5 (Group Assignment -2) At the end of 9 th week	60 minutes	20	
6	CIE Assessment 6 (Individual Student activity/Assignment) At the end of 11 th week	60 minutes	20	
Total Continuous Internal Evaluation (CIE) Assessment				50
8	Semester End Examination (SEE) Assessment (Written Test)	3 Hrs	100	50
Total Marks				100

Note:

- SEE (Semester End Examination) is conducted for 100 Marks theory course for a time duration of 3 Hrs
- Three CIE (written test), each of 30 marks for a time duration of 80 minutes shall be conducted. Also, three CIE (MCQ or Quiz/Group Assignment/Individual student activity or assignment) each of 20 marks for the time duration of 60 minutes shall be conducted. Any fraction at any stage during evaluation will be rounded off to the next higher digit
- Assessment of assignment and student activity is evaluated through appropriate rubrics by the respective course coordinator. The secured mark in each case is rounded off to the next higher digit.

10 DETAILED COURSE CONTENT

Unit No And Name	DETAILED COURSE CONTENT	CONTACT HRS	TOTAL
1. Introduction	1.1 Introduction	3	6
	1.2 Meaning of Project		
	1.3 Definition and No Change Mode		
	1.4 Features of a Project		
	1.5 Types of Projects		
	1.6 Benefits of Project Management		
	1.7 Obstacles in Project Management		
	1.8 Project Management A Profession		
	1.9 Project Manager and His Role		
	1.10 Project Consultants		
	1.11 What is Operation?	3	
	1.12 Difference between Project and Operation		
	1.13 What is Process in Project Management and Process Groups?		
	1.14 What is Scope? Difference between Project Group Objectives and		
	1.15 Project Scope		
2. Project Administra tion	2.1 Essentials of Project Administration	3	18
	2.2 Project Team		
	2.3 Project Design		
	2.4 Work Breakdown Structure (WBS)	6	
	2.5 Project Execution Plan (PEP)		
	2.6 Contracting Plan		
	2.7 Work Packing Plan	3	
	2.8 Organisation Plan		
	2.9 Systems and Procedure Plan		
	2.10 Project Procedure Manual	3	
	2.11 Project Diary		
	2.12 Project Execution System		

	2.13 Project Direction		
	2.14 Communication in a Project	3	
	2.15 Project Co-ordination		
	2.16 Pre-requisites for Successful Project Implementation		
3. Project Lifecycle	3.1 Introduction	6	12
	3.2 Phases of Project Life Cycle		
	3.3 Project Management Life Cycle General		
	3.4 Project Planning		
	3.5 Project Execution		
	3.6 Project Closure		
	3.7 Project Risks	3	
	3.8 Types of Risks: Illustrations		
	3.9 Risk Assessment Techniques with Illustrations		
	3.10 Project Cost Risk Analysis	3	
	3.11 Estimating Time and Cost Overrun Risks		
	3.12 Organisation/Procedural/Systemic Reasons for Project Cost Overruns		
	3.13 Time Overruns		
4. Project Planning, Scheduling and Monitoring	4.1 Introduction	6	18
	4.2 Nature of Project Planning		
	4.3 Need for Project Planning		
	4.4 Functions of Project Planning		
	4.5 Steps in Project Planning		
	4.6 Project Planning Structure		
	4.7 Project Objectives and Policies		
	4.8 Tools of Project Planning		
	4.9 Project Scheduling	6	
	4.10 Time Monitoring Efforts		
	4.11 Bounding Schedules		
	4.12 Scheduling to Match Availability of Manpower		

	4.13 Scheduling to Match Release of Funds		
	4.14 Problems in Scheduling Real-life Projects		
	4.15 Introduction	3	
	4.16 Situation Analysis and Problem Definition		
	4.17 Setting Goals and Objectives		
	4.18 Generating Structures and Strategies		
	4.19 Implementation		
	4.20 What is Project Evaluation?	3	
	4.21 Why is Project Evaluation Important?		
	4.22 What are the Challenges in Monitoring and Evaluation?		
5. Project Control, Review and Audit	5.1 Introduction	6	18
	5.2 Projected Control Purposes		
	5.3 Problems of Project Control		
	5.4 Gantt Charts		
	5.5 Milestone Charts		
	5.6 Critical Path Method (CPM)	6	
	5.7 Construction of a Network		
	5.8 Network Technique in Project Scheduling		
	5.9 Crashing Project Duration through Network		
	5.10 Project Review	3	
	5.11 Initial Review		
	5.12 Post Audit		
	5.13 Performance Evaluation		
	5.14 Abandonment Analysis		
	5.15 Objectives of Project Audit	3	
	5.16 Functions of Project Auditor		
	5.17 Project Audit Programme		
	5.18 Difficulties in Establishing Audit Purpose and Scope		

6. Digital Project Management	6.1 Digital Technology trends in Project management	1	6
	6.2 Cloud Technology, IoT, AR and VR applications in Project management, Smart Cities	1	
	6.3 Data Science and Analytics in Project Management	1	
	6.4 Case Studies	3	

Case Studies:

Please note: The Tutors can either use the following Case studies and activities or Design on their own, with the overall Learning Outcomes being met.

Case Study I: Residential House – Project Execution Plan

1. Dr. Sunil Kulkarni wants to build a house on his 9000 square feet (90x100) vacant plot in Bengaluru. His requirements were given below.
 - i) He lives with his wife, parents and two college going children.
 - ii) He likes open space around his house and likes to do gardening during free time
 - iii) His wife teaches Yoga and about 30 middle aged and old people attend the daily sessions.
 - iv) He has a budget limitation of INR 230,00,000 for this project and wants to present to his wife on their 20th wedding anniversary which is 18 months away.
 - v) His parents can not climb stairs and hence prefer a ground floor room
 - vi) All the rooms should have attached bathrooms

How-ever the Civil contractor who took the work, overshoot the time and money available and hence Dr Sunil was unhappy with the Architect firm who recommended the Contractor.

Task:

- Split the class into groups of three
- Ask them to prepare 2D drawings with Plan, Elevation, Sections and perspectives.

- Prepare the detailed WBS, a Project execution plan and Project communication plan for contractors
- Estimate the quantities
- Discuss on the possible reasons for delay and methods with which performance to both time and budget could have been achieved
- Present it in a seminar, with each group getting 5-10 minutes to present their idea.

Case Study 2a:

The Columbus Hospital proposed in Hubli is a 200 bed speciality private hospital for treatment of Cancer. The hospital will come up on a 12 acre plot between Hubli-Dharwad. A leading construction company has come forward to complete the hospital works from concept to commissioning in 9 months. The promoters are willing to spend a premium to complete the hospital in 9 month time and are not particular about type of construction, ie, RCC, Steel frame etc. The key requirements are as follows:

- i) 200 bed hospital of which 40 are for critical care (ICU), 40 for pre and post Operative care
- ii) 4 Operation Theatres - 2 Major (Minimum 800 SFT each) and 2 minor (minimum 400 sft each)
- iii) One full fledged Diagnostic laboratory (1500 Sft)
- iv) One 24x7 pharmacy (360 Sft min)
- v) Doctors rooms, Nurses enclosures, Change rooms
- vi) Office with billing counters (min 2000 sft) for all administrative staff
- vii) Wheel chair parking bays, Stretcher parking bays in all floors
- viii) One Cafeteria with 50 person capacity
- ix) One conference room with Multimedia equipment (300 sft min)
- x) Parking for ambulances, 4 wheelers, two wheelers
- xi) Reception and enquiry counter
- xii) All amenities should be accessible for disabled persons
- xiii) Incinerator, Waste storage and disposal area
- xiv) Generator and fuel storage area

Discuss

- i) The various alternative approaches available to complete the hospital.
- ii) Look into National Building Code and BIS standards for arriving at approximate (+/- 10%) super built-up area required, amenities to be planned
- iii) The various phases of the project according to Project lifecycle and durations
- iv) Prepare the detailed WBS, Project Organisation required and Project Dairy template
- v) Prepare a Project Plan with risks involved and the risk management plan.

- vi) Estimate the cost of time overrun if the project is delayed by 114 calendar days due to issues with approvals

Case Study 2b:

For case study 2 above, prepare an Implementation Plan using a spreadsheet software.

Discuss

- i) What happens if a pandemic affects the project in its 7th Month. How do you mitigate the possible issues in implementation?
- ii) What happens if during the fourth month of projects the client decides to reduce funds for the month by 50% ?

Case Study 2c:

For case study 2 above, prepare a Critical Path method Chart (CPM) showing all main activities in the WBS with milestones.

Discuss

- i) What happens if the client decides to complete the ground floor roof 15 days earlier ?
- ii) What happens if the client reduces the inflow of project funds by 50% for the month 4 ?
- iii) Write an Audit report for the project at the end of 6th month

Case Study 3:

This will be done as a student activity and has two components.

- i) Research on 3D printing in any industry and prepare a three page article
- ii) Study usage of Drones in different Industries and evaluate the Cost benefits of using the same for any one scenario.

Model Question Paper

I A Test (CIE)

Programme:	Semester: I
Course:	Max Marks: 30
Course Code:	Duration: 1 Hr 20 minutes
Name of the course coordinator:	Test: I/II/III

Note: Answer one full question from each section. One full question carries 10 marks.

Qn.No	Question	CL	CO	PO	Marks
Section-1					
1.a)					
b)					
c)					
2.a)					
b)					
c)					
Section-2					
3.a)					
b)					
c)					
4.a)					
b)					
c)					
Section-3					
5.a)					
b)					
c)					
6.a)					
b)					
c)					

**Model Question Paper
Semester End Examination**

Programme:	Semester: I
Course:	Max Marks: 100
Course Code:	Duration: 3 Hrs

Instruction to the Candidate: Answer one full question from each section. One full question carries 20 marks.				
Qn.No	Question	CL	CO	Marks
Section-1				
1.a)				
b)				
2.a)				
b)				
Section-2				
3.a)				
b)				
4.a)				
b)				
Section-3				
5.a)				
b)				
6.a)				
b)				
Section-4				
7.a)				
b)				
8.a)				
b)				
Section-5				
9.a)				
b)				
10.a)				
b)				

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Course Code	20SC02P	Semester	I/II
Course Title	STATISTICS AND ANALYTICS	Course Group	Core
No. of Credits	4	Type of Course	Lecture and practice
Course Category	Practice	Total Contact Hours	6 Hrs Per Week
			78 Hrs Per Semester
Prerequisites	10 TH LEVEL MATHEMATICS	Teaching Scheme	(L: T:P)-1:0:2
CIE Marks	60	SEE Marks	40

RATIONALE

Statistics and analytics help the learner to use the proper methods to collect the data, employ the correct analyses, effectively present the results and conduct research, to be able to read and evaluate journal articles, to further develop critical thinking and analytic skills, to act as an informed consumer and to know when you need to hire outside statistical help. The python language is one of the most accessible programming languages available because it has simplified syntax and not complicated, which gives more emphasis on natural language.

COURSE OUT COMES

At the end of the course, student will be able to

C01	Understand the tools of data collection, classification and cleaning of data.
C02	Able to summarize the given statistical data
C03	Understand the measure of location and dispersion of data.
C04	Learn the basics of Python programming.

DETAILS OF COURSE CONTENT

The following topics/subtopics is to be taught and assessed in order to develop Unit Skill Sets for achieving CO to attain identified skill sets.

UNIT NO	Unit skill set (In cognitive domain)	Topics/Subtopics	Hours L-T-P
UNIT-1 STATISTICAL DATA COLLECTION AND TYPES	<ul style="list-style-type: none"> ➤ Able to collect statistical data. ➤ Able to distinguish the data types. ➤ Understands the usage of data collection tools ➤ Able to specify problem statement for data collection ➤ Able to collect data pointing the root cause of the problem statement. 	a Definition of data and classification (qualitative quantitative discrete and continuous data). b Data collection tools iv) Questionnaires. v) Survey. vi) Interviews. vii) Focus group discussion. 1.3 Data cleaning.	4-0-8
UNIT-2 SUMMARIZATION OF DATA	<ul style="list-style-type: none"> ➤ Sketches bar, pie and histograms on Microsoft Excel spread sheet. ➤ Sketches frequency curve and frequency polygon for the data set on Microsoft Excel spread sheet. ➤ Sketches bar, pie and histograms on Microsoft Excel spread sheet. ➤ Sketches frequency curve and frequency polygon for the data set on Microsoft Excel spread sheet. 	a Descriptive statistics viii) Datatabulation(frequency table ix) Relative frequency table. b Grouped data x) Bar graph xi) Pie chart xii) Line graph xiii) Frequency polygon xiv) Frequency curve xv) Relative frequency polygon xvi) Histograms xvii) Box plot xviii) Leaf-stem plot To be done in Microsoft excel.	8-0-16
UNIT-3 MEASURE OF LOCATION AND DISPERSION	<ul style="list-style-type: none"> ➤ Able to determine the descriptive statistical variables using Microsoft Excel. 	a Determination of central tendencies Range, Mean, Mode and Median for the data in Microsoft excel. b Determination of absolute	6-0-12

	<ul style="list-style-type: none"> ➤ Able to determine the absolute measures of dispersion of the given data set. ➤ Explain the symmetry and asymmetry of the distributed data. 	<p>measures of dispersion for data like range quartile deviation, mean deviation, standard deviation and variance in Microsoft Excel.</p> <p>c Skewness and kurtosis graphs in Microsoft excel and interpretations of results.</p>	
<p>UNIT-4 INTRODUCTION TO PYTHON PROGRAMMING</p>	<ul style="list-style-type: none"> ➤ Able Install and run the Python interpreter. Create and execute Python programs. ➤ Understand the concepts of file I/O. ➤ Able to read data from a text file using Python. ➤ Learn variable declarations in Python. ➤ Learn control structures. ➤ Learn loop constructs. 	<p>4.1 Introduction to PYTHON. 4.2 Syntax of PYTHON. 4.3 Comments of PYTHON. 4.4 Data types of PYTHON. 4.5 Variables of PYTHON. 4.6 If-else in PYTHON. 4.6 Loops in PYTHON. 4.7 Arrays and functions in PYTHON.</p>	<p>8-0- 16</p>

SL NO	Practical outcomes/Practical exercises	Unit no	PO	CO	L:T:P
1	Prepare a questionnaire (closed end) containing 25 questions for a specified problem statement: for example experience of an individual in a restaurant.	1	1,2,4,5,7	1	0:0:2
2	Prepare a Google form for a specified problem statement to collect the dataset. (for example questionnaire to conduct online quiz)	1	1,2,4,5,7	1	0:0:2
3	Send out a survey on your problem statement to number of 50 (By Google forms) and collect the data.	1	1,2,4,5,7	1	0:0:2
4	Remove duplicate or irrelevant observations. Remove unwanted observations from the dataset provided, including duplicate observations or irrelevant observations.	1	1,2,4,5,7	1	0:0:2
5	In Microsoft Excel spread sheet draw the frequency distribution table for the given data (data set should contain minimum 50 data).	2	1,2,4,5,7	2	0:0:2
6	In Microsoft Excel spread sheet draw the relative frequency distribution table for the given data (data set should contain minimum 50 data).	2	1,2,4,5,7	2	0:0:2
7	Using Microsoft Excel spread sheet plot bar graph for the data collected from 100 people(for example, conduct a survey on the favorite fruit of a person in your locality(restricting to 5 to 6 fruits). Explain the bar graph with minimum 30 words.	2	1,2,4,5,7	2	0:0:2
8	Using Microsoft Excel spread sheet plot pie chart for the data collected from 50 people(for example, conduct a survey on the smokers with respect to their ages in your locality. Explain the pie chart with minimum 30 words.	2	1,2,4,5,7	2	0:0:2
9	Using Microsoft Excel spread sheet draw a line graph for the given dataset.	2	1,2,4,5,7	2	0:0:2
10	Using Microsoft Excel spread sheet draw frequency polygon and frequency curve for the data collected from 50 people. (For example, marks obtained by the students in your class in 5 subjects in previous examination). Explain your observations from the graph in minimum 30 words.	2	1,2,4,5,7	2	0:0:2
11	Using Microsoft Excel spread sheet construct a box plot for the given dataset. (For example dataset can be the number of passengers in a flat form at different time in a day).	2	1,2,4,5,7	2	0:0:2
12	Using Microsoft Excel spread sheet construct a leaf plot for the given dataset. Explain the graph with minimum 30 words.	2	1,2,4,5,7	2	0:0:2

13	Using Microsoft Excel spread sheet find the Mean, Mode and Median for the data (univariate data) given and also represent them in a Histogram.	3	1,2,4,5,7	2	0:0:2
14	Generate a 50 random data sample (even and odd number dataset) using Microsoft Excel spread sheet and determine the range and Quartiles.	3	1,2,4,5,7	2	0:0:2
15	Collect the current yield of a crop from 50 different persons (problem statement can be changed according to priorities of the tutor) in your locality and determine mean deviation and Quartile deviation in Microsoft excel spread sheet and brief your inference with less than 30 words.	3	1,2,4,5,7	3	0:0:2
16	Collect the data of any 2 livestock population from 50 different houses in your locality (problem statement can be changed according to priorities of the tutor) and determine standard deviation for both the two separately in Microsoft excel spread sheet and brief your inference with less than 30 words.	3	1,2,4,5,7	3	0:0:2
17	Collect the data of two wheeler (with a rider and a pillion) crossing a busy junction in your locality in the peak hours (problem statement can be changed according to priorities of the tutor) and determine the variance of the data in Microsoft excel spread sheet and brief your inference with less than 30 words.	3	1,2,4,5,7	3	0:0:2
18	Using Microsoft Excel spread sheet draw a Skewness graph and kurtosis graph for randomly generated dataset.	3	1,2,4,5,7	3	0:0:2
20	Write a python program to add 2 integers and 2 strings and print the result.	4	1,2,4,5,7	4	0:0:2
21	Write a python program to find the sum of first 10 natural numbers.	4	1,2,4,5,7	4	0:0:2
22	Write a python program to find whether the number is odd or even.	4	1,2,4,5,7	4	0:0:2
23	Write a python program to find the variance and standard deviation for the given data..	4	1,2,4,5,7	4	0:0:2
24	Write a python program to display student marks from the record.	4	1,2,4,5,7	4	0:0:2
25	Write a python program to create a labeled bar graph using matplotlib. pyplot.	4	1,2,4,5,7	4	0:0:2
26	Write a python program to create a labeled pie chart using matplotlib. pyplot.	4	1,2,4,5,7	4	0:0:2
Total Hours					0:0:52=52

MAPPING OF CO WITH PO

CO	Course Outcome	PO Mapped	Experiment Linked	Cognitive Level R/U/A	Tutorial & Practical Sessions in Hrs.	TOTAL
C01	Understand the tools of data collection, classification and cleaning of data.	1,2,4,5,7	1-4	A	12	12
C02	Able to summarize the given statistical data	1,2,4,5,7	5-12	A	33	33
C03	Understand the measure of location and dispersion of data.	1,2,4,5,7	13-18	A	12	12
C04	Learn the basics of Python programming.	1,2,4,5,7	19-26	A	21	21
					78	78

Course	CO's	Programme Outcomes (PO's)						
		1	2	3	4	5	6	7
Statistics & Analytics	C01	3	3	0	3	3	0	3
	C02	3	3	0	3	3	0	3
	C03	3	3	0	3	3	0	3
	C04	3	3	0	3	3	0	3
Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped								

SUGGESTED LEARNING RESOURCES:

1. Statistical Analysis with Excel For Dummies (For Dummies Series) Paperback Import, 9 April 2013 by [Joseph Schmuller](#) (Author)
2. <https://www.brianheinold.net/python/A Practical Introduction to Python ProgrammingHeinold.pdf>
3. http://www.bikeprof.com/uploads/9/0/6/5/9065192/excel_stats_handout_npl.pdf
4. <https://adminfinance.umw.edu/tess/files/2013/06/Excel-Manual1.pdf>
5. <https://www.brianheinold.net/python/A Practical Introduction to Python ProgrammingHeinold.pdf>
6. Introduction to Python programming for beginners by Vivian Baily Kindle edition.
7. PYTHON PROGRAMMING: Python programming: the ultimate guide from a beginner to expert by Clive Campbell.
8. Open source for python: <https://hub.gke2.mybinder.org/user/jupyterlab-jupyterlab-demo-zfkdwy4y/lab>

SUGGESTED LIST OF STUDENT ACTIVITY

Note: The following activities or similar activities for assessing CIE (IA) for 10 marks (Any one)

1	<p>Describe the data collection activity itself (interviews, surveys, library research, etc.) AND why this specific form of data collection was chosen. Be sure to explain why you think this kind of data will help you in your design process. Also be sure to provide details about the activity: how many interviews, how long they took, where they took place, how many questions asked in a survey, how many respondents, etc.</p> <p>Present the results of your data collection. You do not have to have completely analyzed all your data, but do make sure you present the results of your research. If you did a survey, please attach a copy of the survey as an appendix; if you did interviews, please attach a copy of the interview questions.</p> <p>Discuss any preliminary analysis of your data. What have you learned thus far from the data should be discussed from an analytical perspective (rather than a data dump). For example, if you surveyed people about their use of the local bus system, and 90% of your respondents said they take the bus when it is raining, and 60% of your respondents said they usually wait more than 10 minutes for a bus, think about what this teaches you rather than just the information itself. In this instance, you can see that people are generally waiting for several minutes in the rain for a bus, so a covered bus stop might be a good idea. Keep in mind that your findings from data should lead directly to the conclusions you make about your design recommendations. This is the time to begin thinking very specifically about your research in those terms. This is also an opportunity to think about your definition of “better” and how it applies to your design goals and your choice of research activities (for example, if you are choosing to make something better by making it cheaper, maybe you are interviewing people to see how much loss of functionality or decrease in features for a technology they are willing to tolerate).</p>
2	<p>https://ils.unc.edu/courses/2013_spring/inls541_001/Assignments.html#Assignment_9</p>

	DOWNLOAD a dataset from the above link and use data visualization tools to analyze it.
3	Acquire the dataset from https://www.kaggle.com/datasets (For example acquire the data of IPL ball by ball scores and find the standard deviation and variance of score of a batsmen)and clean the data for the root cause of the problem statement and summarize the date and explain the inference.

COURSE ASSESSMENT AND EVALUATION CHART

Method	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
DIRECT ASSESSMENT	CIE (Continuous Internal Evaluation)	Models	Students	Two IA Tests (Written)	20	Blue Book	1,2,3.
				Three Skill tests	20	Model	1,2,3
				Student Activity	20	Model/Report	
				TOTAL	60		
	SEE (Semester End Examination)	End Exam		End of the course	100	Models	1,2,3
INDIRECT ASSESSMENT	Student Feedback on course		Students	Middle of the course		Feedback forms	1,2,3, Delivery of course
	End of Course Survey			End of the course		Questionnaires	1,2,3 Effectiveness of Demonstrations & Assessment Methods

Sl.No	Assessment	Duration	Max marks	Conversion
1	CIE Assessment 1 (Written Test -1-theory) - At the end of 3rd week	60 minutes	20	Average of two written tests 20
2	CIE Assessment 2 (Written Test -2-theory) - At the end of 13th week	60 minutes	20	
3	CIE Assessment 3 (Skill test) - At the end of 5th week	3 Hrs	20	Average of three skill tests 20
4	CIE Assessment 4 (Skill test) - At the end of 7th week	3 Hrs	20	
5	CIE Assessment 5 (Skill test) - At the end of 9th week	3Hrs	20	
6	CIE Assessment 6 (Student activity) - At the end of 11th week	-	20	20
7	Total Continuous Internal Evaluation (CIE) Assessment			60
8	Semester End Examination (SEE) Assessment (Practical Test)	3Hrs	100	40
Total Marks				100

Note:

1. CIE written test is conducted for 20 marks (Two sections). Each section shall have two full questions of same CL, CO. Student shall answer one full question (10 marks) from each section.
2. CIE Skill test is conducted for 100 marks (3 Hours duration) as per scheme of evaluation and the obtained marks are scaled down to 20 marks.
3. SEE is conducted for 100 Marks (3 Hours duration) as per scheme of evaluation.

MODEL QUESTION PAPER

CIE, SKILL TEST AND SEMESTER END EXAMINATION

Course & Programme: Common to all Engineering Programmes.	Semester: II
Subject: Statistics and Analytics Practice	Max Marks: 100
Course Code : 20SC21P	Duration : 3Hrs

Instruction to the Candidate: Answer both questions

Qn.No	Question	CL	CO	PO	Marks
1	For the given ungrouped data set plot the bar graph by grouping the data in Microsoft excel spread sheet and interpret the obtained results. (Dataset, bar graphs and interpretation have to be entered in the answer script). OR Generate a random data set in Microsoft excel spread sheet containing 50 data and find the mean mode and median in Microsoft excel spread sheet and interpret the obtained results. (Dataset, bar graphs and interpretation have to be entered in the answer script).	A	2,3	1,2,4,5,7	50
2	Write the python program to enter two integers and two strings and to print the sum two integers and two strings.	A	4	1,2,4,5,7	50

Questions are not framed from Unit 1 in the final SEE. Short questions can only be asked from that unit.

SCHEME OF EVALUATION FOR BOTH CIE AND SEE

Sl. No	Particulars	Marks
1	Short questions from Unit 1	10
2	Observation	30

3	Conduction	20
4	Output and Interpretation of result	20
5	Viva-voce	20
Total		100

EQUIPMENT LIST

FOR STATISTICS AND DATA ANALYTICS LAB

2 laboratories. Each containing 30 computers (Desktop) with the following system requirements.

SYSTEM REQUIREMENTS			
SL NO	REQUIREMENTS	MINIMUM	RECOMMENDED
1	RAM	4GB FOR FREE RAM	8GB OF TOTAL SYSTEM RAM
2	DISK SPACE	2.5 GB AND 1 GB FOR CACHES	SSD DRIVE WITH AT LEAST 5 GB OF FREE SPACE
3	MONITOR RESOLUTION	1024x768	1920×1080
4	OS(OPERATING SYSTEM)	OFFICIALLY RELEASED 64-BIT VERSIONS OF THE FOLLOWING: MICROSOFT WINDOWS 8 OR LATER	LATEST 64-BIT VERSION OF WINDOWS

Government of Karnataka
Department of Collegiate and Technical Education
Board of Technical Examinations, Bangalore

Course Code	20EG01P	Semester	I/II
Course Title	COMMUNICATION SKILLS	Course Group	Core
No. of Credits	4	Type of Course	Lecture + Practice
Course Category	Workplace Skills / Humanities & Social Sciences	Total Contact Hours	6Hrs Per Week
			78Hrs Per Semester
Prerequisites	Nil	Teaching Scheme	(L:T:P)= 0:1:2
CIE Marks	60	SEE Marks	40

Preamble

Today, Communication is a very important skill for the success of every millennial student. Millennials affinity to use digital media for communication, changing career and working landscapes, and greater competition in colleges and workplaces makes enhancing student communication skills beyond language a must. Rote learning a few tips or tricks the night before an interview or performance review won't do the job if students are trying to make an impression in highly collaborative workplaces of the future. Expectations from students aspiring to be part of such future workplaces are that they have not just good verbal and non-verbal communication skills but also a good understanding of how to use modern tools for effective communication.

Scope

To enable students to communicate clearly and effectively, by improving their verbal and non-verbal communication skills, as well as enhancing interpersonal skills and knowledge of appropriate tools for specific communication strategies.

Course Objectives

The objectives of communication skills course are:

- Build better communication skills: oral and written expressions and body language
- Enable critical thinking
- Empower with active listening skills
- Enable team work/collaboration

Instructional Strategy

To achieve course objectives, it is important to provide the blended mode of instruction for each of the concepts. This blended mode of instruction enables and empowers students with:

- **Understanding of Concept (Theory):**
 - Through definitions, discussions, explanation, conclusions.

- Through demonstrations: Show films or other workplace clips that model various conversation skills. This provides greater clarity of the concept by
 - Enabling observation skills
 - Helping in expression of gesture
 - building confidence
- **Application of Concept (Learning by doing):** It is imperative that to become a good communicator, the skills have to be built by applying the concept in the hypothetically created real life situations. Students are encouraged to participate in each of these activities during lab session to help build the effective communication skills.
 - Use of technology tools like audio books, apps like voice thread or paper telephone, etc.
 - To help in workplace conversions.
 - To increase active listening, pronunciation
 - To help in voice modulation
 - Group discussion
 - Reinforce active listening
 - Enable group debate to imbibe healthy communication strategies
 - Sharpen the skills of “Asking clarifying questions”
 - Sharpen Feedback / Response skills
 - Time management skills
 - Group presentations/peer reviews
 - Enable team work
 - Assess concept understanding
 - Sharpen both oral and written communication skills
 - Group activities:
 - foster critical thinking
 - enable reflective learning
 - Tools usage:
 - Understand the difference between a Dictionary and a Thesaurus
 - Understand “When” and “How” to use these tools for communication

Course Outcomes

After completion of this course, the student shall be able to;

- Communicate
 - Identify audience (colleagues, management, customers/vendors) and use the right methodologies for communication using the right terminology, names, grades and other nomenclature pertaining to the trade, tools and specific equipment.
- Write
 - in at least one language correctly
 - basic level notes and observations
 - job cards, work sheets, basic report writing and responding to emails, simple presentations, job applications, resume
- Read
 - Technical manuals, task sheets/job orders, policies and regulations pertinent to the job, including OEM guidelines.
 - all instructions given in memos, manuals, documents or those put up as posters across the premises
 - safety precautions mentioned in equipment manuals and panels to understand the potential risks associated
- Question
 - Ask right questions

- Use different ways of asking questions
 - Clarifying/Open ended (What, Why, When, Who, Where, How)
 - Close ended
- Present
 - With right Posture & Gesture
 - With greater concept/content clarity
 - With high confidence
 - With voice modulation to capture the attention of audience
- Use technology tools
 - Office productivity
 - Word : Report writing
 - PowerPoint : Creating effective presentations
 - Excel : Data handling/Charts

Course Content

The following are the various units to be taught and assessed in order to ensure the student is able to demonstrate the Course Outcomes mentioned in the **Course Outcome** section.

Pre-assessment:

Teachers are required to administer pre-assessment before starting the actual instruction. This helps in gathering information about students' like their attitude, beliefs, interests, and learning abilities.

Pre assessment expectations:

- To assess current language skill (Pronunciation, usage, sentence formation)
- To assess their ability to comprehend and respond to the instruction
- To assess their interest towards accepting ideas and learning
- To assess their current communication skills: asking questions, listening, communicating with confidence

UNIT 1: English – Introduction			
Learning outcome:			
Learn English pronunciation, functional grammar concepts& Reading. To gain confidence in spoken English.This section also covers phonemic awareness, grammar rules to set a strong base for application mode of communication.			
Phonemic awareness	Going over 42 sounds	Examining the understanding of sounds Spelling patterns (Consonant and Vowel blending: CVC words) Pronunciation <ul style="list-style-type: none"> ○ List of words given above (Commonly used words) ○ Diction (speech) 	0:2:2
Functional Grammar Concepts	Revision of Grammar concepts	Parts of speech	2:0:0
		Sentence structure Examples of right sentences	0:1:0
		Gender, Singular, Plural	0:1:0

Comprehension activities	Reading conversations (check the unit wise activity table)	<i>Usage of voice (active and passive) and tenses</i> <i>Written test for each comprehension</i>	0:2:0 0:0:2
<p>UNIT 2: Communication</p> <p>Lesson outcome:</p> <p>At the end of the session:</p> <ul style="list-style-type: none"> • Students should be able to <ul style="list-style-type: none"> ○ Understand the communication process, influence of voice/tone, logical organization of thought, comprehension, listening skills. ○ Understand the basic building blocks of communication and strategies for working with each of these blocks. ○ Learn about carrying self, etiquettes of communication. ○ Build positive attitude about self and towards handling communication. ○ Learn the process for effective communication, problem solving techniques, to be confident communicator. 			
INTRODUCTION:	What is communication? Why communication? How do we communicate? Communication Theory and Process Barriers to communication	<i>How communication happens?</i> <ul style="list-style-type: none"> • Pictorial representation of communication framework • Elements of communication: sender, receiver, message • Refer to activity in Unit activity section. <i>Language</i> <ul style="list-style-type: none"> • Lack of linguistic ability • Grammar <i>Context</i> <ul style="list-style-type: none"> • Psychology • Physiology <i>Systematic</i> <ul style="list-style-type: none"> • inefficient or inappropriate information systems 	1: 2:0 0:2:2 0:2:2 (video clip play, content tutorial, role play)

		<ul style="list-style-type: none"> • Lack of communication channel • lack of understanding of the roles and responsibilities <p>Attitude</p> <ul style="list-style-type: none"> • Perceptions • Preconceived notions 	
Building blocks of communication	People Message Context Listening	<p>People:</p> <ul style="list-style-type: none"> • Empathising with sender's or receiver's perception • Intent & Impact on the sender/receiver • Think - Feel - Do model <p>Message:</p> <p>Message channels:</p> <ul style="list-style-type: none"> ○ Inperson, email, memo, report <p>Be aware of Mental Filters</p> <ul style="list-style-type: none"> ○ Level of understanding/knowledge ○ Personal concerns ○ Pre conceived notions <p>Organize message:</p> <ul style="list-style-type: none"> ○ Critical thinking: organize your thoughts? <p>Use following strategy:</p> <ul style="list-style-type: none"> ▪ Who ▪ What ▪ When ▪ Why ▪ How <ul style="list-style-type: none"> ○ Bundle Primary and Secondary information ○ Mindful about non-verbal message ○ Tone of voice <p>Examples of Types of messages:</p> <ul style="list-style-type: none"> ○ Inform ○ Persuade ○ Cyclical <p>Avoiding Miscommunication:</p> <ul style="list-style-type: none"> • Evaluate (Checking for) understanding of the intent of the message with the receiver - by asking clarifying questions? 	0:4:4

		<p>Context: Define context Importance of context Tune into context</p> <ul style="list-style-type: none"> • Timing • Location • Relationship <p>Listening: Importance of listening Barrier to listening:</p> <ul style="list-style-type: none"> • Mental filters • Multitasking • Information overload <p>Strategies for listening:</p> <ul style="list-style-type: none"> • Recall • Acknowledge • Summarize • Listen with eyes for connecting to non-verbal connection • Empathize • Pay attention • Ask clarifying questions <p>Effective Listening Behaviors:</p> <ul style="list-style-type: none"> • Maintaining relaxed body posture • Leaning slightly forward if sitting • Facing person squarely at eye level • Maintaining an open posture • Maintaining appropriate distance • Offering simple acknowledgements • Reflecting meaning (paraphrase) • Reflecting emotions • Using eye contact • Providing non-distracting environment <p>Behaviors that hinder effective listening</p> <ul style="list-style-type: none"> • Acting distracted • Autobiographical (Telling your own story without acknowledging theirs first) • No response • Invalidating response, put downs • Interrupting • Criticizing • Judging • Giving advice/solutions • Changing the subject • Reassuring without acknowledgment 	
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<p>UNIT 3: Verbal Communication Lesson outcome: At the end of this session, Students should be able to:</p> <ul style="list-style-type: none"> • Understand and define the communication framework structure for each of the verbal communication (in person/telephonic/video conference). • Understand and apply the verbal communication techniques. • Use technical jargons in communication. • Use right body language during verbal communication • Understand and practice the Active Listening techniques • Confidently articulate or present the content 			
<p>Different types of verbal communication:</p>	<p><i>In person</i></p> <p><i>Telephonic</i></p> <p><i>Video conference</i></p>	<p>Use ABC's: Accuracy, Brevity, Clarity</p> <ul style="list-style-type: none"> ○ Introduction ○ Main body of the content ○ Summary <ul style="list-style-type: none"> • Use voice/tone effectively • Reinforcement of Listening skills: Active and Empathetic listening skills • Body language <ul style="list-style-type: none"> ○ Eye contact ○ Body posture ○ Gesture ○ Facial expression ○ Space <p>Effective Listening Behaviours:</p> <ul style="list-style-type: none"> • Maintaining relaxed body posture • Leaning slightly forward if sitting • Facing person squarely at eye level • Maintaining an open posture • Maintaining appropriate distance • Offering simple acknowledgements • Reflecting meaning (paraphrase) • Reflecting emotions • Using eye contact • Providing non-distracting environment <p>Behaviours that hinder effective listening</p> <ul style="list-style-type: none"> • Acting distracted • Autobiographical (Telling your own story without acknowledging theirs first) • No response • Invalidating response, put downs • Interrupting 	<p>0:2:4</p>
<p>Listening Skills</p>	<p><i>Effective Listening behaviours</i></p> <p><i>Behaviours that hinder effective listening</i></p>		

<p>Using technical Jargons:</p>	<p><i>Assignment based project encouraging pupil to use the technical terms in the written and verbal communication.</i></p> <p>This requires understanding of the core concepts (from subject teacher) and integrating the concept with communication concepts to gain the real time application knowledge.</p>	<ul style="list-style-type: none"> • Criticizing • Judging • Giving advice/solutions • Changing the subject • Reassuring without acknowledgment 	
<p>UNIT4: Non-Verbal Communication:</p> <p>Lesson outcome:</p> <p>At the end of this unit, students should be able to:</p> <ul style="list-style-type: none"> • Understand the importance of Body language and its impact. • Use the strategies for effective body language. • Understand the relevance of different elements of emails and how to use them. • Develop the confidence in presenting written content in logical and organized manner with a definitive email framework. • Write different email formats confidently: Job application, Request email, apology email, email responses/feedback. • Confidently write Resume/Curriculum-vitae, Reports, Formal letters and portfolio. • Confidently communicate using technical jargons and with increased vocabulary. 			
<p>Body Language</p>	<p><i>Strategies</i></p>	<p>Body language tips:</p> <ul style="list-style-type: none"> • Keep appropriate distance • Take care of your appearance • Maintain eye contact • Smile genuinely 	<p>0:3:4</p>

<p>Art of Professional writing:</p>	<p>Written communication</p> <p>Emails:</p> <ul style="list-style-type: none"> Structured framework for writing formal emails to emphasize on professional communication in English 	<p>Do's and Don'ts:</p> <p>dos:</p> <ul style="list-style-type: none"> smile stand up confident and straight use appropriate hand gestures Make eye contact with audience Hold neat note cards while presenting content <p>Don'ts</p> <ul style="list-style-type: none"> point at anyone rock backwards and forwards pace across front of room read off slides <p>read off notes</p> <p>Different types of emails: Job application, request letter, letter writing and quick notes</p> <p>Structure of email text:</p> <ul style="list-style-type: none"> Introduction – Beginning of the letter and this plays crucial role as it provides first impression to the reader. <ul style="list-style-type: none"> Who: author (name + position and organisation) what: purpose - controlling idea (what author does or feels) Development: Expand on the Controlling Idea/purpose of the email by answering relevant WH questions <ul style="list-style-type: none"> what, when, where, who, whom, which, whose, why, and how Conclusion: Positive words <ul style="list-style-type: none"> Verb: thank, appreciate, hope, wish Phrases: be glad about, look forward to <p>Email writing samples and practice content in the activity section.</p>	<p>0:2:4</p>
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		<p>Additional essential writing skills – Framework will be provided and assignments will be advised:</p> <ul style="list-style-type: none"> • Resume writing /CurriculumVitae • Report Writing • Portfolio writing • Formal letters 	
<p>UNIT5: English - Reading Skills, Grammar & Vocabulary</p> <p>Lesson Outcome:</p> <p>At the end of the session, student should be able to:</p> <ul style="list-style-type: none"> • Read sentences with punctuation. • Understand the techniques of reading complex words. • Understand and apply the reading techniques for efficient reading. • Understand the usage of communication tools like Thesaurus and Dictionary that aids in improving vocabulary and reading. • Understand and apply the functional grammar aspects in day today communication. 			
Reading skills	<p><i>Comprehension activities</i></p> <p><i>Techniques for smart reading</i></p>	<p>Passage comprehension</p> <p>Conversation comprehension</p> <p>Strategies for smart reading:</p> <ul style="list-style-type: none"> • Skimming and scanning through the text, inferring the meaning • Questioning, summarizing 	0:2: 2
Functional Grammar	<p><i>List of Commonly confused words and how to use/avoid them</i></p>	<p>Set of words to accelerate the English language learning and usage.</p> <p>Strategies to use these words effectively</p>	0:1: 2
Vocabulary	<p><i>Sentences:</i></p> <ul style="list-style-type: none"> ○ Declarative sentence ○ Imperative sentence ○ Interrogative sentence ○ Exclamatory sentence 	<p>Techniques of categorizing sentences, understanding how to build with punctuation and effectively use in the verbal and non-verbal communication.</p> <p>This involves more of hands on activities.</p>	0:1: 2

One-to-One		Including attachment Working with "To, CC, BCC" and Subject fields effectively Using signature	
One-to-Many	<i>Presentation using PowerPoint</i>	Creating, Editing, Saving slides Using Animation Formatting options	0:1:2
	<i>Webinar / Web Presentation (zoom, Google meet, Skype)</i>	Hosting online meeting using online meeting tools Inviting people Sharing screen	0:1:1
Other	<i>Reports using MS Word</i>	Open, close, Edit and Save usage with documents Layout and strategies for creating report Sample report creation demo with follow on assignment Core subject project report submission assignment	0:1: 2
	<i>Data & Graphs using MS Excel</i>	Open, close, save and edit the excel document Creating data Using basic maths operation in Excel for working with data Creating simple graphs Assignment: For example, creating statistics of subject wise activities completed for 6 months in the credit course	0:1: 2
			4:34:40

Course Class Activity List (Unit-wise)

The following are the various activities that faculty could conduct for each unit are presented below;

Unit No.	Unit Title	Unit Activities
UNIT 1: Activities:	English – Introduction	1. 42 sounds revision:

		<ol style="list-style-type: none"> 1. s, a, t, i, p, n 2. c k, e, h, r, m, d 3. g, o, u, l, f, b 4. ai, j, oa, ie, ee, or 5. z, w, ng, v, oo, oo 6. y, x, ch, sh, th, th 7. qu, ou, oi, ue, er, ar <ul style="list-style-type: none"> • This helps in reducing the native language impact • Helps in understanding Short and Long vowel words • Helps in spelling • Helps in pronunciation <ol style="list-style-type: none"> 2. Reading commonly used words loud from the list (list will be provided in the workbook): <ul style="list-style-type: none"> • This helps in getting familiarity with the word pronunciation and helps in reading. 3. Blending words activity: <ul style="list-style-type: none"> • Write simple three letter words (CVC/CVCC/CVCV) pattern words: Can, Cap, Snap, cape (list will be provided in the workbook) • Show how to blend with the sound. • Starting with 3 letter words and continuing to 6 to 8 letter words. <i>Note: Remember before going through big words, it is always important to assess and ensure the student is aware of all the 42 sounds and are comfortable making small words.</i> <p>Parts of Speech:</p> <p>building sentence using parts of speech: Demonstration by teacher: (Will be explained in the book as an example)</p> <p>Jumbled parts of speech: Student should pick the right order to build meaningful sentence:</p> <p>(More samples will be provided in the workbook)</p> <ul style="list-style-type: none"> • College go to youeveryday. • Makes spider web the a <p>Gender, Singular and Plurals:</p>
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		<ul style="list-style-type: none"> • Match the following activity for singular and plural • Fill in the blanks activity for genders <p>Reading & Comprehension: Conversation</p> <ul style="list-style-type: none"> • Conversation at the bank (provided in the workbook along with few more conversation samples) • Questions based on this conversation will be provided in the workbook
<p>Unit 2</p>	<p>Communication</p>	<p>Oral:</p> <ul style="list-style-type: none"> • Introduce yourself? <p>Visual:</p> <ul style="list-style-type: none"> • Video clip on communication etiquette • Pictures (in addendum section): do’s and don’ts of communication <p>Group of students, one participant whispers in another participant’s ear, and this message has to be passed on in a circle until it reaches back the sender. Making a note of process of message conveyed and how it was perceived.</p> <ul style="list-style-type: none"> ○ Identify the communication gap if any. ○ Discuss and conclude the communication framework importance ○ Discuss/reiterate how to make communication framework strong. <p>1. Role play to assess the understanding of building blocks of communication: (can be tapered to the core skills of diploma courses, following are just few of the examples)</p> <ol style="list-style-type: none"> a. Announcing the result of students in the class or b. Announcing the job placement of students (people, context, message, form of message) c. Discussing the guidelines of examination (listening skills)

		<p>d. Listening to the weather forecast without seeing and making note of the listening ability (play video of weather forecast) – Assess based on how much the student is able to recall.</p> <p>2. Run National geography/Discovery Video clip/subject related technical video clip on YouTube: Check:</p> <ul style="list-style-type: none"> ○ if the student has not understood what a speaker expressed ○ about work or safety related issues ○ seeking clarification or advice appropriately from colleague, customer, management or vendor
<p>Unit 3</p>	<p>Verbal communication</p>	<p>1. Voice/tone modulation: Showcase video Discussion: What was right? What was wrong? How it should have been better?</p> <p>2. Picture description activity (memory test): Class split into groups A, B C,D: (two or four groups of at least 5 people each): Teacher shows different picture to each group for three minutes. Now each group has to remember what was on the picture and discuss with each other, write down the elements on a piece of sheet and share it with the teacher. Group that remembers more will be the winner.</p> <p>Teacher to observe the body language of a student in the group, listening skills of a student, presentation skill, comprehension skill, content delivery skill, confidence level, team work. And reiterate the concepts, dos and don'ts, and discuss what could have been done better. (details of pictures will be given in the workbook)</p> <p>3. Telephonic conversation:</p>

		<p>Role play by a teacher: Call Airtel/Vodafone department and asking for the phone number portability process.</p> <p>After teacher demonstrates, teacher divides the class in to small groups of three people.</p> <ul style="list-style-type: none"> • Each group will be given a different telephone conversation assignment (samples will be provided in workbook). • Two people in the group pretend to converse over the phone, and the third person makes a note of right and wrong approaches during the communication.
<p>Unit 4:</p>	<p>Non-verbal communication</p>	<p>Body language</p> <p>Simon Says:</p> <p>Instructions and set up :</p> <ol style="list-style-type: none"> 1. Series of instructions to the group that are to be copied/reproduced. Start slowly and increase the pace 2. State the following actions as YOU do them: <ul style="list-style-type: none"> ○ Put your hand to your nose ○ Clap your hands ○ Stand up ○ Turn around ○ Touch your shoulder ○ Sit down ○ Stamp your foot ○ Cross your arms ○ Put your hand to your forehead – <u>BUT WHILE SAYING THIS PUT YOUR HAND TO YOUR NOSE</u> 3. Observe the number of group members who copy what you did rather than what you said. <p>Outcome of this activity:</p> <p>Discuss how body language can reinforce/influence verbal communication and drive the importance of body language and how to work on it</p>

		<ul style="list-style-type: none"> Email communication & Using technical jargons: Sample letter writing as assignment to students. (list will be provided in the text book – Request, apology, job application and relevant email formats that are useful for students post diploma course) There will be at least one assignment that utilizes technical jargons in email communication.
UNIT 5:	English - Reading Skills, Grammar & Vocabulary	<ul style="list-style-type: none"> Reading passage (Provided in workbook) Reading passage from the text book Comprehension: Passage & Conversation (will be provided in workbook) Chunking words and reading activities
Unit 6:	Communication tools	<ul style="list-style-type: none"> Email writing activities: Writing emails using email provider. Theme based email writing Report writing assignment <p>Writing about a machinery tool/interior designing plan? Related to the diploma stream.</p> <ul style="list-style-type: none"> Resume writing assignment Data handling: Collecting data about machines/number of students passed out of college for last three years and creating graph about it. Presentation: <ul style="list-style-type: none"> About learning in the communication class Concept presentation

Course Assessment Strategies

Assessment Methodology

- Observation (role play activities, team activities, demonstration)
- Questions & Answer – Periodic Assessment

Assessment Grading RUBRICS

Language Basics	
Beginner	Doesn't know / understand
Intermediate	can read and identify commonly used words
Good	Confident , able to communicate well with known people
Advanced	Confident , able to communicate well with anyone using a English

Expert	Can read, understand; Also comprehend & can train others
Reading	
Beginner	Beginning to read, has native language impact
Intermediate	can read, identify words, build simple 3/4/5 letter words easily
Good	Can read, understand, build words, read simple sentences ; Also comprehend
Advanced	Can read, understand, build words, read simple sentences ; Also comprehend
Expert	Confident , read simple and complex sentences with punctuation, comprehend, spell also build words
Inter personal communication	
Beginner	is shy, doesn't talk/express
Intermediate	hesitates to communicate – due to lack of confidence / ability, can talk to known people
Good	can talk to unknown people, less confident, does not express, has hard time working as a team
Advanced	can talk to unknown people, confident, can't express, has hard time working as a team
Expert	confident, can talk to anyone, express well, works well in the team
Body language	
Beginner	Is shy, not open to communicate, has hard time making friends
Intermediate	Knows basics of Body language, practices sometimes
Good	Knows basics of Body language, practices most times, has less confidence in presenting content
Advanced	Knows and practices good body language all times, can present content
Expert	Knows and practices good body language all times, is an example, Leads the pack to get better
Listening Skills	
Beginner	Just hears, no attention
Intermediate	Listens, pays attention, does not ask any question
Good	Listens, pays attention, ask questions
Advanced	listens, pays attention, asks questions, cannot empathize
Expert	Listens, pays attention, asks clarifying questions, able to understand the message communicated
Acceptability to Learn	
Low	is not receiving to information
Average	receives information but resists to implement
Good , Above Average	receives information and implements per instructions
Strong	receives information and proactively implements and seeks feedback
Verbal Communication	
Beginner	Does not communicate, shy, low on confidence: has problem expressing in his/her native language or English language
Intermediate	Can communicate in native language, low confidence, shy, yet to try in English language

Good	Can communicate in native language, good confidence, tries to communicate in English language
Advanced	Can communicate in native language, express view points, good confidence, comfortable talking to people in the team, tries to communicate in English language as well
Expert	Can communicate in native language, express view points, very good confidence, can communicate with anyone without any fear, asks clarifying questions, communicates well in English, or tries hard to communicate in English language as well
Non-Verbal Communication	
Beginner	Struggles to understand the non-verbal cues, has to work on body language, has hard time understanding the written communication aspects
Intermediate	Can understand the non-verbal cues, has to practice, tries to apply written communication aspects
Good	Can understand non-verbal cues, practices well, works hard to get hold on written communication skills, exhibits confidence in whatever task is given
Advanced	Can understand non-verbal cues, can work on written communication aspects, exhibits confidence, practices well, help others to identify non-verbal cues
Expert	Can understand non-verbal cues, train others, confident, exhibits good non-verbal cues at all times, can train the pack, has good hold on written communication as well.
Comprehension	
Beginner	Tries to read the passage, has hard time to comprehend
Intermediate	Can read the conversation passage, has hard time understanding the regular passage
Good	Can read the conversation passage, regular passage, but stutters in answering questions if there are technical jargons
Advanced	Can read the conversation passage, comprehend but regular passage comprehension is good
Expert	Can read the conversation passage, comprehend but regular passage comprehension is good, explain better to others, help others, lead the pack
Writing Communication	
Beginner	Has trouble forming right sentences for written communication
Intermediate	Can form sentences, has problem with the layout, gets confused between layout for different form of written communication
Good	Can form sentences, has fair understanding of the layout to be used for particular type of written communication, but stutters for words and expression
Advanced	Can form sentences, has good understanding of the layout to be used for particular type of written communication, confident, can express thoughts well

Expert	Can form sentences, has good understanding of the layout to be used for particular type of written communication, confident, can express thoughts well and train others and lead the pack
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Recommended Learning Resources

<https://www.englishclub.com/grammar/parts-of-speech.htm>

Watch Amy Cuddy's TED Talk: [Your Body Language Shapes Who You Are](#)

Additional Reading: http://money.cnn.com/2000/05/03/career/q_body_language/

Pre-assessment:

Activity 1:

Make a group, read random words from the list, build sentence for few words from the list.

Create a group of 3 or 5 students. Randomly pick 5 words from the word list write down on the board/show them as a chart if you have created a word chart/make chart of words and ask them to pick one chart and READ the word.

Main idea: Testing the pronunciation ability, language ability, confidence in speaking, ability to understand and accept the instruction

Activity 2:

Simple reading test – Reading passages (Simple passage from the current course book)

Show the reading passage, let each one of them read 2 lines, after first student is done with reading two lines, then the next student must pick up from there and read next two lines. This process has to be followed until the entire class is done with reading or at least ten students are done with reading.

Main idea: Testing listening skills, attentiveness, language ability, pronunciation ability

Activity 3:

Students getting to know each other. Create a group of 3 or 5 students. Each student gets chance to talk to another student, introduce him/herself to the student, ask question, make a note of the answer against the name of the student who is answering the question on a sheet of paper.

Main idea: To assess current communication level, body language when students talk with each other, and confidence.

Commonly Used Word List

When	Today	For	Off	
Give	Stop	There	Often	
Again	Little	Than	Myself	
Do	Large	At	Over	
From	Both	Like	Along	
Him	Name	Said	Why	
Can	Few	They	Has	
Go	Home	Look	Bring	
But	Big	Know	Part	
Old	Should	Done	By	
Not	Once	High	As	
Her	Thought		So	Into
Time	Better	Them	Away	
Long	Many	Does	No	
Had	Get	Always	Other	
Word	Please	These	With	
Very	Ask	Last	An	
Your	Say	Got	What	
Make	Ten	Next	Come	
Day	I	Those	Would	
Each	Show	Play	Who	
Yes	To	Girl	This	
On	Am	A	Could	
Been	Where	You	Now	
Of	Way	Be	Fun	
He	Which	Were	Only	
It	Write	Or	Much	
More	Goes	One	Tell	
My	Great	All	Out	
Any	Number		That	Fast
Their	First	Cat	Is	
We	Find	His	Small	
She	Me	Have	Dog	
Did	In	How	See	
Went	Before	Water	Here	
Full	Saw	And	People	
Some	Never	Use	School	
Then	Boy	Take	Two	
If	Right	The	Call	
Night	After	Will	Might	
Made	About	Was	May	
Up	Far	Are	Walk	

To assess current communication skill: Activity based

Activity 3:

Making a group of students and getting to know each other with a predefined expectation for example:

Name:

I have performed on stage:

I'm good at sports:

I can speak more than 3 languages:

I'm always cheerful:

I like my mother tongue:

Course Assessment and Evaluation

Continuous Internal Evaluation (CIE)

Sl.No	Assessment	Schedule	Duration	Max. Test marks
1	Skill Test 1	At the end of 3 rd week of the sem	2 Hrs	20
2	Skill Test 2	At the end of 7 th week of the sem	2 Hrs	20
3	Skill Test 3	At the end of 13 th week of the sem	2 Hrs	20
Total				60

Scheme of Valuation for CIE

Serial no	Assessment	Marks
1	Portfolio Evaluation of activities / exercises conducted upto the schedule of Skill Test. (Work Book Based)	10
2	Assessment of any one through qualitative assessment (Rubrics)	10
TOTAL		20

**RUBRICS FOR ASSESSMENT OF ACTIVITY (10marks)
(Qualitative Assessment)**

Dimension	Beginner	Intermediate	Good	Advanced	Expert	Student Score
	2	4	6	8	10	
	Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	
	Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	
	Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	
	Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	
Average / Total Marks:						

Example Only						
RUBRICS FOR ASSESSMENT OF ACTIVITY (10marks)						
Faculty need to develop appropriate rubrics as per the assigned activity for assessment						
Dimension	Beginner	Intermediate	Good	Advanced	Expert	Student Score
	2	4	6	8	10	
Language Basics	Doesn't know / understand	Can read and identify commonly used words	Confident , able to communicate well with known people	Confident , able to communicate well with anyone using a English	Can read, understand; Also comprehend & can train others	8
Reading	Beginning to read, has native language impact	Can read, identify words, build simple 3/4/5 letter words easily	Can read, understand, build words, read simple sentences ; Also comprehend	Can read, understand, build words, read simple sentences ; Also comprehend	Confident , read simple and complex sentences with punctuation, comprehend, spell also build words	6
Inter personal communication	Is shy, doesn't talk/express	Hesitates to communicate – due to lack of confidence / ability, can talk to known people	Can talk to unknown people, less confident, does not express, has hard time working as a team	Can talk to unknown people, confident, can't express, has hard time working as a team	Confident, can talk to anyone, express well, works well in the team	8
Body language	Is shy, not open to communicate, has hard time making friends	Knows basics of Body language, practices sometimes	Knows basics of Body language, practices most times, has less confidence in presenting content	Knows and practices good body language all times, can present content	Knows and practices good body language all times, is an example, Leads the pack to get better	8
Average / Total Marks: (8+6+8+8)/4						7.5 = 8 marks

Scheme of Valuation for Semester End Examination (SEE)

Serial no	Assessment	Evidence	Marks	Conversion
1	Portfolio Evaluation- UNIT 1: English - Introduction	Work Book	15	40 Marks
2	Portfolio Evaluation- UNIT 2: Communication	Work Book	15	
3	Portfolio Evaluation- UNIT 3: Verbal Communication	Work Book	15	
4	Portfolio Evaluation- UNIT-4: Non-Verbal Communication:	Work Book	15	
5	Portfolio Evaluation- UNIT-5: English - Reading Skills, Grammar & Vocabulary	Work Book	15	
6	Any one activity through communication tools- By qualitative assessment (Rubrics).	BTE Answer scripts	25	
		TOTAL	100	

Government of Karnataka
Department of Collegiate and Technical Education
Board of Technical Examinations, Bangalore

Course Code	20ME02P	Semester	I/II
Course Title	Computer Aided Engineering Graphics	Course Group	CS,EC,EE & Other allied branches
No. of Credits	4	Type of Course	Lecture & Practice
Course Category	PC	Total Contact Hours	6Hrs Per Week
			78Hrs Per Semester
Prerequisites	Enthusiasm to learn the subject/Visualizing/Creativity	Teaching Scheme	(L: T:P) = 1:0:2
CIE Marks	60	SEE Marks	40

1. COURSE RATIONALE:

Engineering Drawing is an effective language of engineers. It is the foundation block which strengthens the engineering & technological structure. Moreover, it is the transmitting link between ideas and realization.

2. LIST OF COMPETENCIES:

The course content should be taught and implemented with the aim to develop different types of skills leading to the achievement of the following competencies:

1. Prepare engineering drawings both manually and using CAD with given geometrical dimensions using prevailing drawing standards and drafting instruments.
2. Visualize the shape of simple object from orthographic views and vice versa

3. COURSE OUT COMES:

C01	Adopt the standards, dimensioning and construct appropriate drawing scales, in technical drawing development.
C02	Visualize objects in all planes and learn displaying techniques for graphical communication in design process.
C03	Sketch orthographic projections into isometric projections and vice versa.
C04	Use computer software and Apply computer aided drafting tools to create 2D /3 D engineering drawings

4. INSTRUCTIONAL STRATEGY:

1. Teacher should show model of real of the component/part whose drawing is to be made. Emphasis should be given on cleanliness, dimensioning and layout of sheet.
2. Focus should be on proper selection of drawing instruments and their proper use.
3. The institute should procure AutoCAD or other engineering graphics software for practice in engineering drawings.
4. Separate labs for practice on Engineering graphics Software should be established.

5 COURSE DETAILS:

The following topics/sub topics is to be taught and assessed in order to develop Unit Skill sets for achieving CO to attain identified skill sets

Unit	Major Learning Topics and Sub-Topics	Outcomes (in cognitive domain)	Hours L-T-P
UNIT-1 Basic elements of Drawing	1.1 List the different drawing instruments and application 1.2 Convention of lines and its application (Thick, Thin, Axis etc.) 1.3 Practice use of drawing instruments 1.4 Representative fraction Scales - Full Scale, Reduced Scale and Enlarged Scale 1.6 Dimensioning a) Aligned system and Unidirectional system in the Sketches b) Chain dimensioning and Parallel dimensioning 1.7 Construct different polygons	1. Drawing equipment's, instruments and materials. 2. Equipment's-types, specifications, method to use them, applications. 3. Instruments-types, specifications, methods to use them and applications. 4. Pencils-grades, applications, Different types of lines. 5. Scaling technique used in drawing. 6. Dimensioning methods. - Aligned method. Unilateral with chain, parallel dimensioning. 7. Constructions of geometrical figures	4-0-8
UNIT-2 CAD Interface	22.1 Introduction to CAD- Hardware requirements. 2.2 Various CAD software available 2.3 Familiarization of CAD window - Commands like New file, Saving the file, opening an existing drawing file, Creating templates 2.4 Setting up new drawing: Units, Limits, Grid, Snap. Standard sizes of sheet. 2.5 Selecting Various plotting parameters such as Paper size, paper units, drawing orientation, plot scale, plot offset, plot area, print preview	1. CAD-Definition-Importance. 2. Familiarization with CAD Environment and utilities. 3. Setting up layout in CAD software's by taking plotting parameters	4-0-8
UNIT-3 Exposure to CAD Commands	3.1 Draw basic entities like Line, Circle, Arc, Polygon, Ellipse, Rectangle, Multiline, Dimensioning, Inserting text Applying constraints - horizontal, vertical, parallel, concentric, perpendicular, symmetric equal, collinear 3.2 Insert title block for the drawing and take the Print out 3.3 Create objects by applying constraints and convert the objects to full scale, reduced scale and enlarged scale 3.4 Apply copy, mirroring, array, fillet and trim on the object created	1. Computer graphics & its terminology. 2. CAD definition, concept & need. 3. Commands used in CAD 4. Functional areas of CAD. - Coordinate systems. 5. Familiarization of Cad commands 6. Draw simple Geometrical figures using CAD	6-0-12
UNIT-4 Orthographic projections	4.1 Introduction to orthographic projection 4.2 Conversion of pictorial view into Orthographic Views	1. Types of projections-orthographic concept and applications. 2. Various term associated	4-0-8

		<p>with orthographic projections.</p> <p>(a) Theory of projection.</p> <p>(b) Methods of projection.</p> <p>(c) Orthographic projection.</p> <p>(d) Planes of projection.</p> <p>3. Conversion of simple pictorial views into Orthographic views.</p> <p>Illustrative problems on orthographic projection.</p> <p>Note :</p> <p>(1) Problem should be restricted up to - Front view/Elevation, Top view/Plan and Side views only.</p> <p>Use First Angle Method only.</p>	
UNIT-5 Isometric projections	<p>5.1 Introduction to Isometric Projections</p> <p>5.2 Isometric Scales and Actual Scale</p> <p>5.3 Isometric View and Isometric Projection</p> <p>5.4 Conversion of Orthographic Views into Isometric</p>	<p>1. Isometric axis, lines and planes.</p> <p>2. Isometric scales.</p> <p>3. Isometric view and isometric drawing.</p> <p>4. Difference between isometric projection and isometric drawing.</p> <p>5. Illustrative problems limited to Simple elements</p>	4-0-8
UNIT-6 CAD Drafting	<p>6.1 Draw different types of 2D/3D modeling entities using viewing commands, to view them (Problems solved in chapter no 3 and 4 i.e Orthographic, isometric projection).</p> <p>6.2 2D/3D modeling for Branch specific components</p>	<p>1 Difference between 2D & 3D models.</p> <p>2.2D/3D modeling – concept, Simple objects</p>	4-0-8
		TOTAL	26-0-52

6. LIST OF PRACTICAL EXERCISES:

The exercises/practical/experiments should be properly designed and implemented with an attempt to develop different types of skills leading to the achievement of the competency. Following is the list of exercises/practical/experiments for guidance.

Sr. No	Unit No.	Practical Exercises (Outcomes in Psychomotor Domain)	Hours
1	1	1. Teacher will demonstrate a: Use of a. Drawing instruments. b. Planning and layout as per IS. c. Scaling technique.	1-0-2
		2. Draw following. Problem – 1 Drawing horizontal, vertical, 30 degree, 45 degree, 60 & 75 degrees lines using Tee and Set squares/ drafter. (Sketch book)	
		Problem – 2 Indicate different convention of lines on the drawing.(SketchBook)	1-0-2
		Problem – 3 Copy the sketch to the required scale and dimensioning adopting right system and positioning of dimensions using Tee and Set squares / drafter. (SketchBook)	1-0-2

		Problem 4. Draw regular geometric constructions Pentagon, Hexagon, Square, circle, Triangle and other shapes. (SketchBook)	1-0-2
2	2	Use of CAD commands, plotting the drawing	4-0-8
3	3	Problem 5: Drawing basic entities: Circle, Arc, Polygon, Ellipse, Rectangle, Multiline	6-0-12
4	4	Problem 6: Draw Orthographic views for the given object. (CAD Drawing) (Minimum 5 Problems)	4-0-8
5	5	Problem 7: Draw Isometric projections for the given Orthographic views(CAD Drawing) (Minimum 5 Problems)	4-0-8
6	6	Problem 8: Produce Orthographic (2D) Drawings in CAD – Chap 3 Problem 14: Produce Isometric and 3D Drawings in CAD – Chap 4 (CAD Drawings and Printout) (Minimum 5 Problems)	2-0-4
		Problem 9: create 3D models of Program specific Elements such as Panel box (Minimum 3 Problems related to Program specific)) (CAD Drawings and Printout)	2-0-4
		TOTAL	26-0-52

- 1 Theory & practice should be in first angle projections and IS codes should be followed wherever applicable.
- 2 The dimensions of line, axes, distances, angle, side of polygon, diameter, etc. must be varied for each student in batch so that each student will have same problems, but with different dimensions.
- 3 The sketchbook has to contain data of all problems, solutions of all problems and student activities performed.
- 4 Students activities are compulsory to be performed.

7. SUGGESTED LIST OF STUDENT ACTIVITIES:

SL.NO.	ACTIVITY
1	Sketch the combinations of set squares to draw angles in step of 15 ^o .30 ^o , 45 ^o , 60 ^o , 75 ^o , 90 ^o , 105 ^o , 120 ^o , 135 ^o , 150 ^o , 165 ^o , 180 ^o .
2	Take two simple objects. Sketch isometric of them.
3	Take two simple objects. Sketch Pictorial orthographic views of them.
4	Prepare a 2D drawing using AutoCAD and 2D parametric sketcher environment.
5	Prepare 3D solid models using AutoCAD any one mechanical component (Four components).

8. SUGGESTED LEARNING RESOURCES:

1. Bureau of Indian Standards. *Engineering Drawing Practice for Schools and Colleges IS: Sp-46*. BIS. Government of India, Third Reprint, October 1998; ISBN: 81-7061-091-2.
2. Bhatt, N. D. *Engineering Drawing*. Charotar Publishing House, Anand, Gujrat 2010; ISBN: 978-93-80358-17-8.
3. Jain &Gautam, *Engineering Graphics & Design*, Khanna Publishing House, New Delhi (ISBN: 978- 93-86173-478)
4. Jolhe, D. A. *Engineering Drawing*. Tata McGraw Hill Edu. New Delhi, 2010; ISBN: 978-0-07-064837-1
5. Dhawan, R. K. *Engineering Drawing*. S. Chand and Company, New Delhi; ISBN: 81-219-1431-0.

6. Shah, P. J. *Engineering Drawing*. S. Chand and Company, New Delhi, 2008, ISBN:81-219-2964-4.
7. Kulkarni, D. M.; Rastogi, A. P.; Sarkar, A. K. *Engineering Graphics with AutoCAD*. PHI Learning Private Limited-New Delhi (2010); ISBN: 978-8120337831.
8. Jeyapooan, T. *Essentials of Engineering Drawing and Graphics using AutoCAD*. Vikas Publishing House Pvt. Ltd, Noida, 2011; ISBN: 978-8125953005.
9. Autodesk. *AutoCAD User Guide*. Autodesk Press, USA, 2015.
10. Sham, Tickoo. *AutoCAD 2016 for Engineers and Designers*. Dreamtech Press; Galgotia Publication, New Delhi, 2015; ISBN 978-9351199113.

9. SOFTWARE/LEARNING WEBSITES :

1. <https://www.youtube.com/watch?v=TI4iGyDWCw>
2. https://www.youtube.com/watch?v=dmt6_n7Sgcg
3. <https://www.youtube.com/watch?v=MOScnLXL0M>
4. <https://www.youtube.com/watch?v=3WXPanCq9LI>
5. <https://www.youtube.com/watch?v=fvjk7PlxAuo>
6. <http://www.me.umn.edu/coursesme2011/handouts/engg%20graphics.pdf>
7. <https://www.machinedesignonline.com>

10. Mapping of Course Outcomes with Programme Outcomes (Suggestive only):

Course	CO's	Programme Outcomes (PO's)						
		1	2	3	4	5	6	7
Engineering Graphics	CO1	3	0	0	3	0	0	0
	CO2	3	0	0	3	0	0	0
	CO3	3	0	0	3	0	0	0
	CO4	3	0	0	3	0	0	0

Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped

Method is to relate the level of PO with the number of hours devoted to the CO s which maps the given PO.
 If ≥50% of classroom sessions related to the CO are addressing a particular PO, it is considered that PO is mapped at Level 3
 If 30 to 50% of classroom sessions related to the CO are addressing a particular PO, it is considered that PO is mapped at Level 2
 If 5 to 30% of classroom sessions related to the CO are addressing a particular PO, it is considered that PO is mapped at Level 1
 If < 5% of classroom sessions related to the CO are addressing a particular PO, it is considered that PO is considered not mapped i.e. Level 0

11. COURSE ASSESSMENT AND EVALUATION CHART:

Sl. No	Assessment	Time frame in semester	Duration	Max marks	Conversion
1.	Portfolio Evaluation of Drawings (CAD Practice Exercises)	Entire Duration	-	20	20
2	Skill Test-1 (Skill test 1-Unit 1&2)	At the end of 4 week	3 Hrs	100	Average of two skill tests 1 and 2 (Both skill tests are to be reduced to weightage of 20 independently) 20
3	Skill Test-2 (Skill test 2 is of CAD based-Unit,3,4)	At the end of 8 week	3 Hrs	100	

4	Skill Test-3 (Skill test 3 is of CAD based Unit 5,6)	At the end of 13 week	3 Hrs	100	Skill tests-3 is to be reduced to weightage of 20
5	Total Continuous Internal Evaluation (CIE) Assessment				60
6	Semester End Examination (SEE) Assessment conducted for 100 marks, finally reduced to 40 marks weightage		3 Hrs	100	40
				TOTAL	100

Scheme of Valuation for End Examination

SL NO	QUESTIONS	MARKS
1.	Create Orthographic views for the given Pictorial drawing. Indicate all Dimensions and Annotations. (CAD)	50
OR		
	Create Isometric Projections for the given Orthographic views (CAD)	50
2.	Create 3D drawing for the given Sketch (CAD)	50
		TOTAL
		100

12. CAD Laboratory and Other Requirements to Conduct Engineering Graphics Course

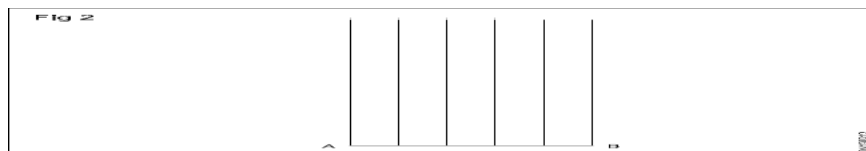
1. Latest Configuration Computers which can be able to run latest any Computer Aided Drafting Software. (At least One Computer per student in practical session.)-30 no
2. Any latest Authorized Computer Aided Drafting Software (30 user licenses)
3. Plotter of size A2/A3
4. LCD Projector.

MODEL QUESTION BANK (Suggestive only)

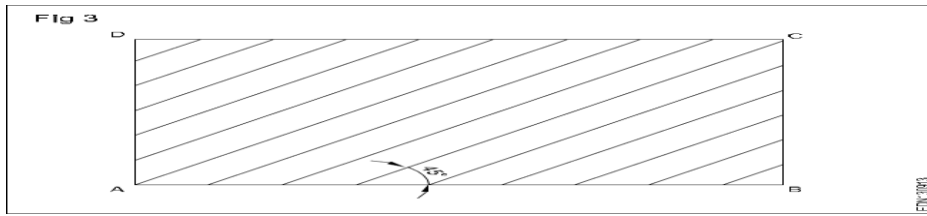
1. Draw six horizontal parallel lines of 50 mm long with 10 mm intervals (Fig 1).



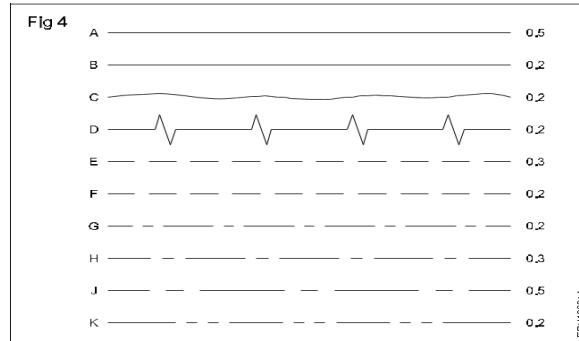
2. Draw six vertical parallel lines of 50 mm length with 10 mm intervals (Fig 2)



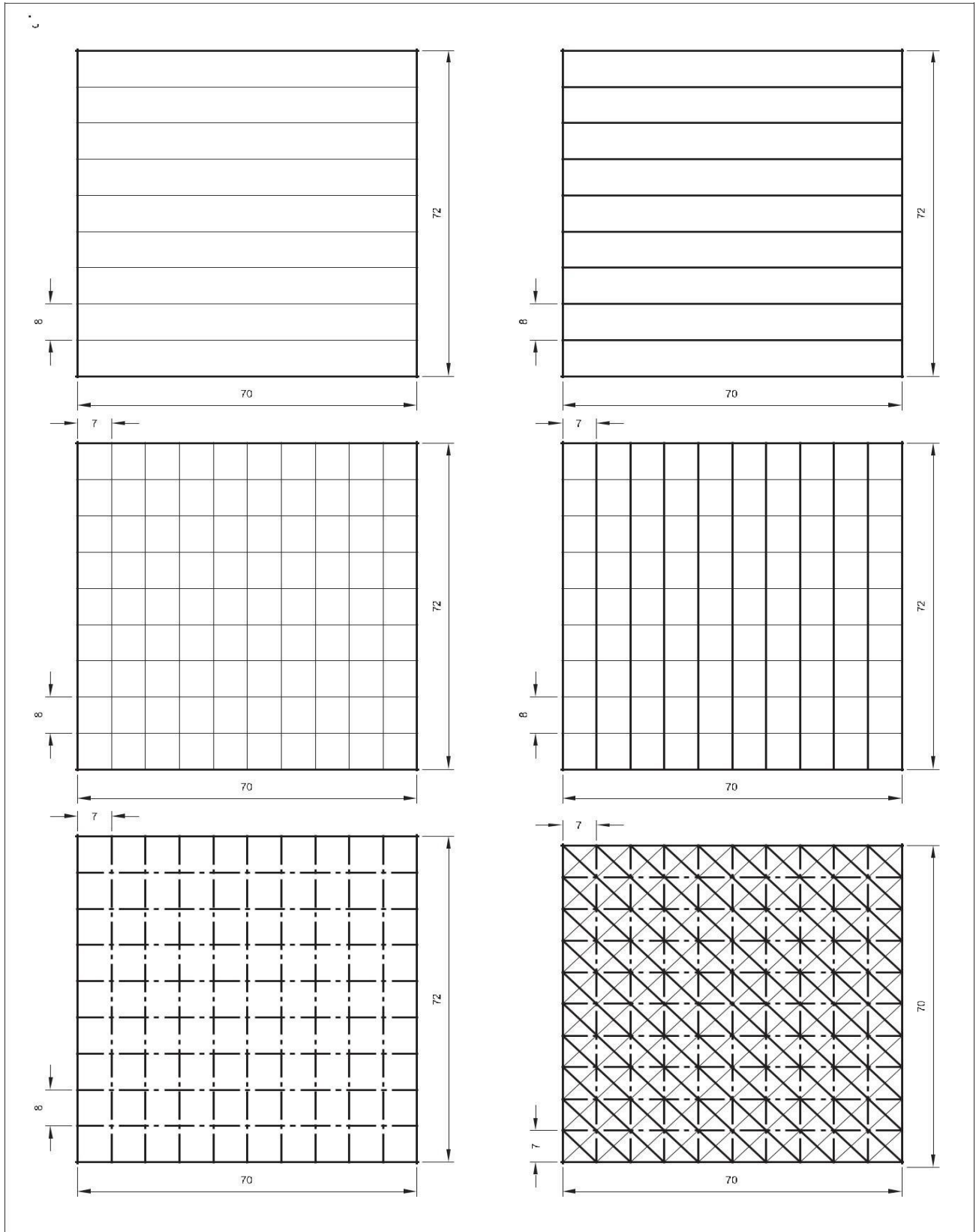
3. Draw 45° inclined lines (Fig 3).



4. Draw the given types of lines using 0.5 range thickness of line according to the specification (Fig 4).



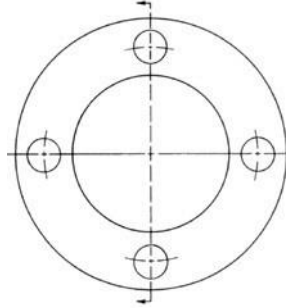
5. Draw the following Exercises in A4 sheet (Fig 5).



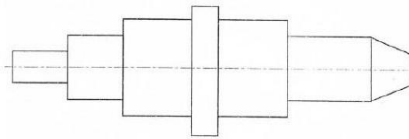
6a) Illustrate the elements of dimensioning with the help of a sketch.

b) Illustrate the dimensioning of given common features: diameter, radius, chord, Arc and angle.

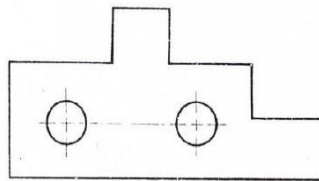
7. Copy the sketch to 1:1 scale and dimension it using Aligned system.



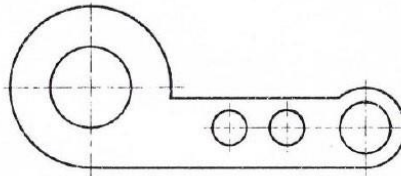
8. Copy the sketch to 1:1 scale and dimension it using unidirectional system with Parallel dimensioning method.



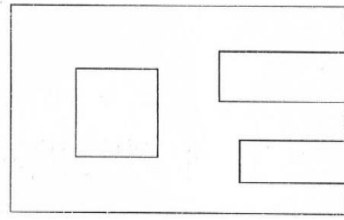
9. Copy the sketch to 1:1 scale and dimension it using Aligned system with Chain dimensioning method.



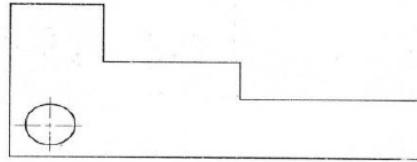
10. Copy the sketch to 1:1 scale and dimension it using Aligned system with Parallel dimensioning method.



11. Copy the sketch to 1:1 scale and dimension it using unidirectional system with Chain dimensioning method

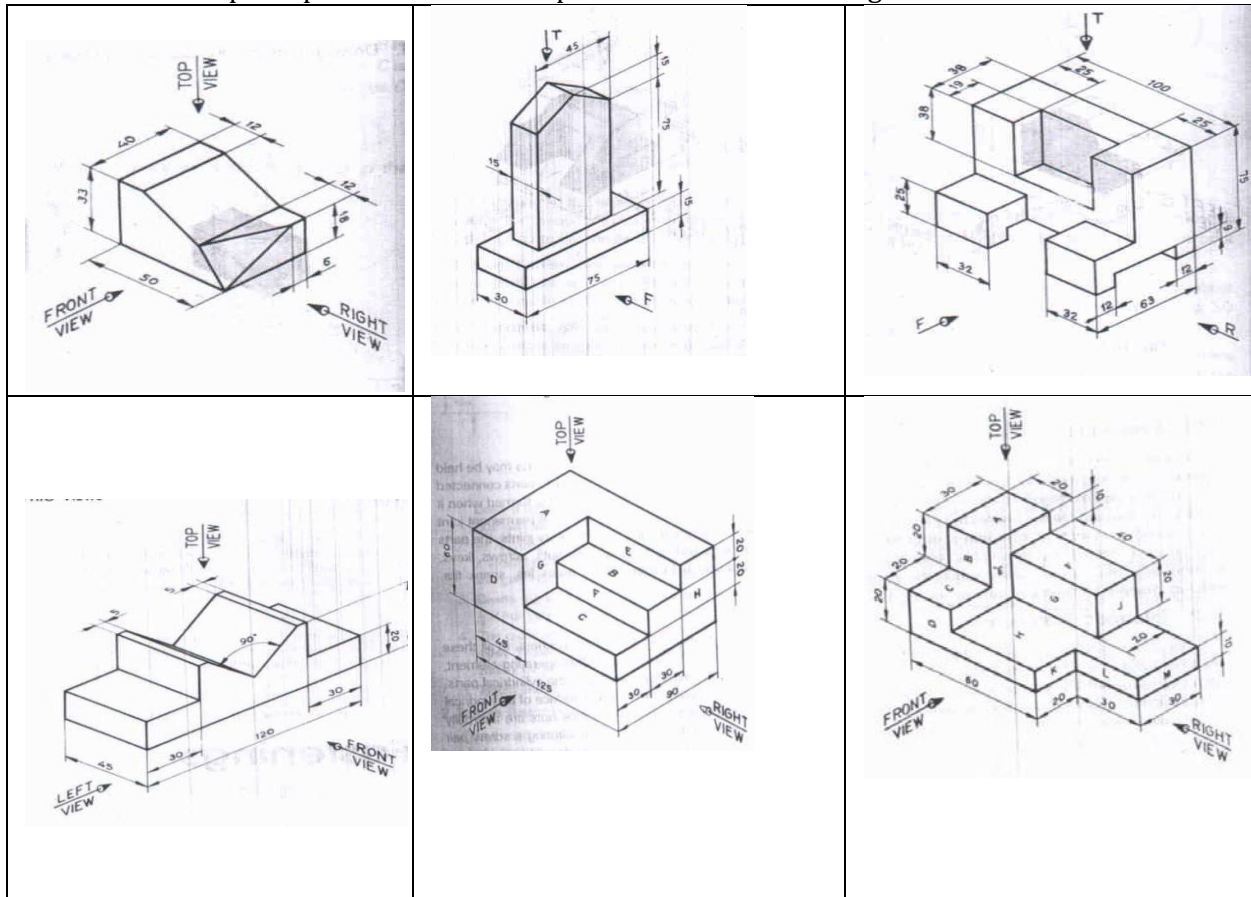


12. Copy the sketch to 1:1 scale and dimension it using unidirectional system with Parallel dimensioning method.



ORTHOGRAPHIC REJECTIONS

1. Draw the three principal views of the component as shown in the figure.

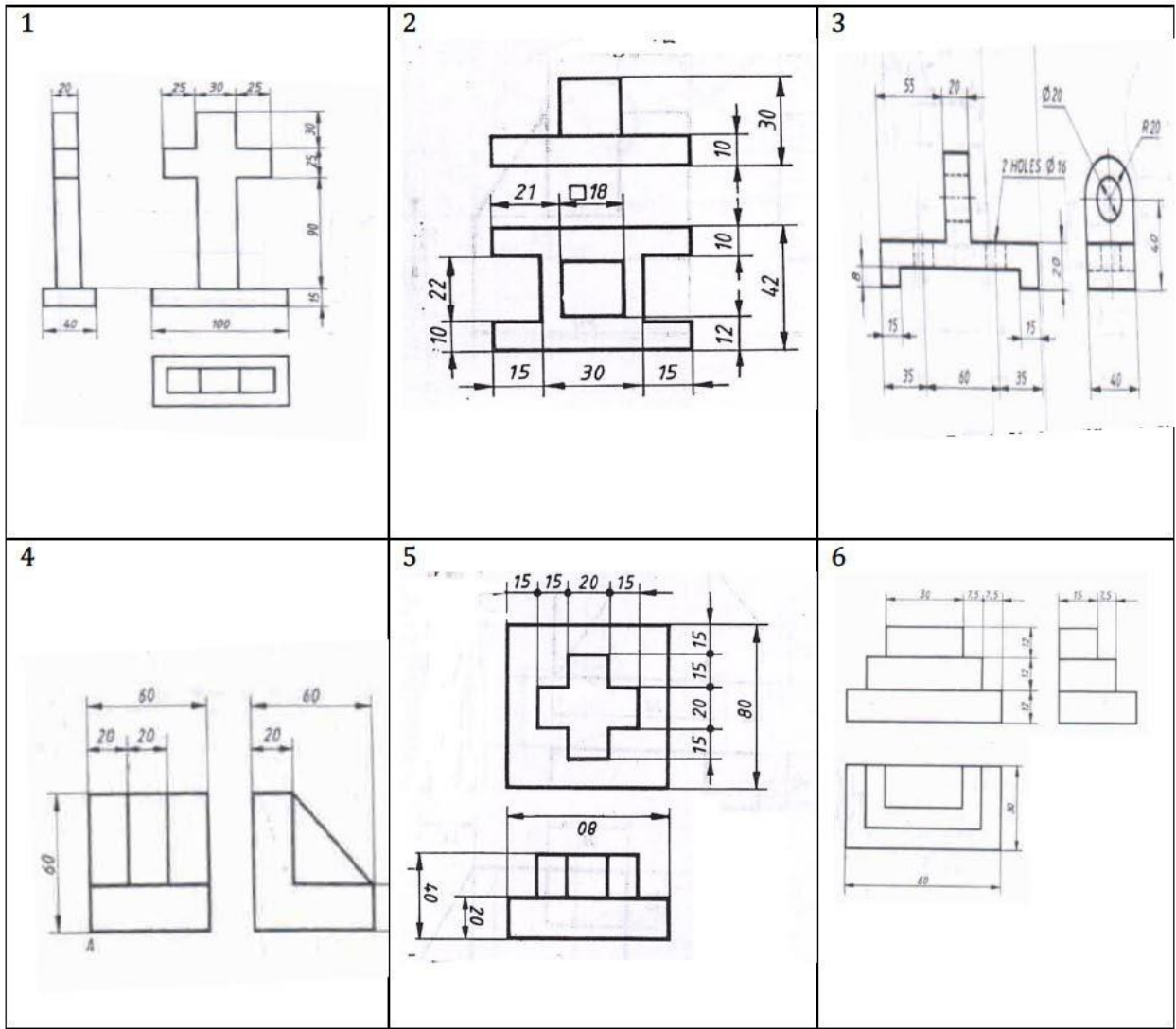


ISOMETRIC PROJECTIONS

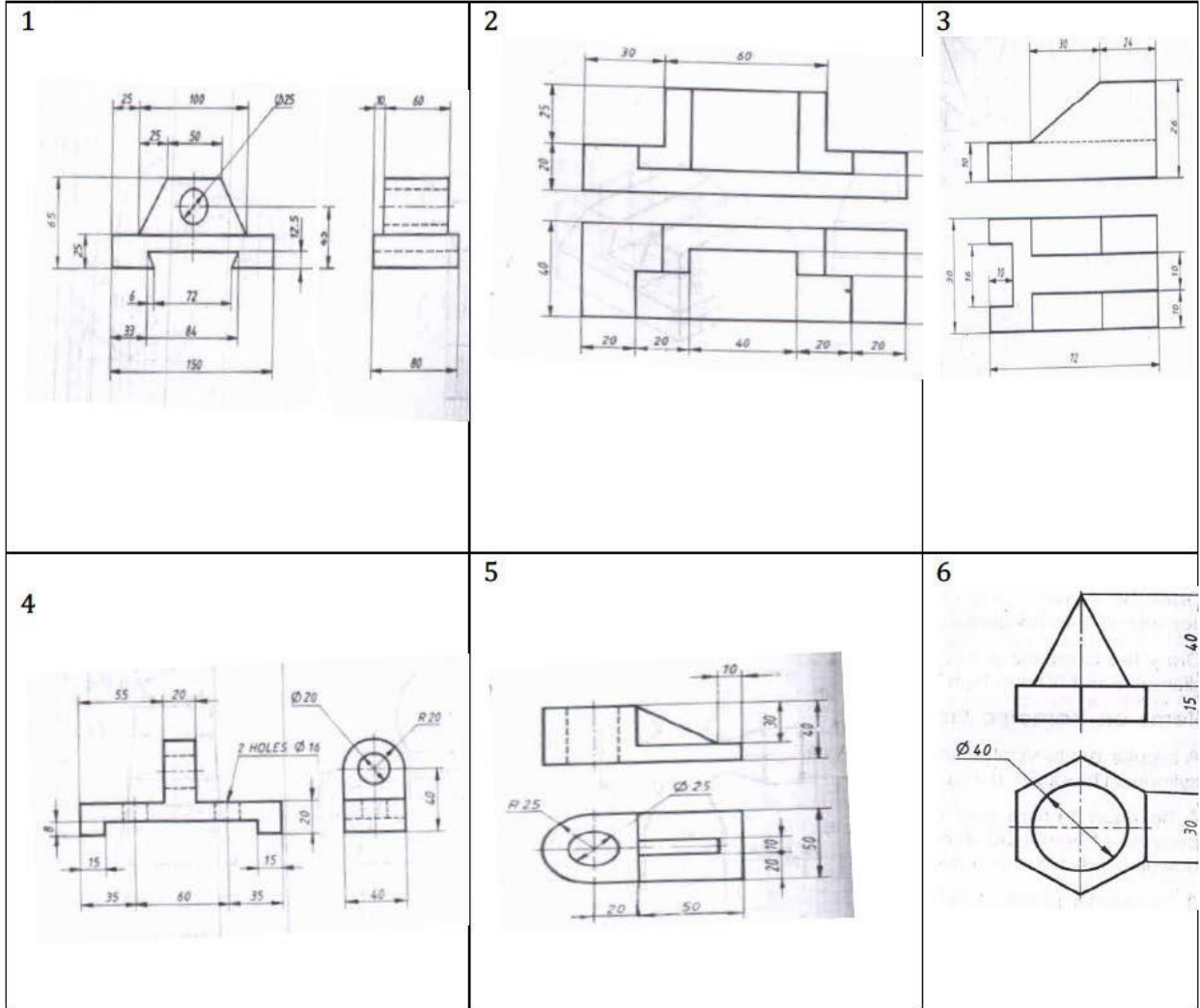
1. Draw the isometric view of the machine component whose orthographic views are given below:

<p>1.</p>	<p>2.</p>	<p>3.</p>
<p>4.</p>	<p>5.</p>	<p>6.</p> <p>All dimensions in mm</p>
<p>7.</p>	<p>8.</p>	<p>9.</p> <p>All dimensions in mm</p>

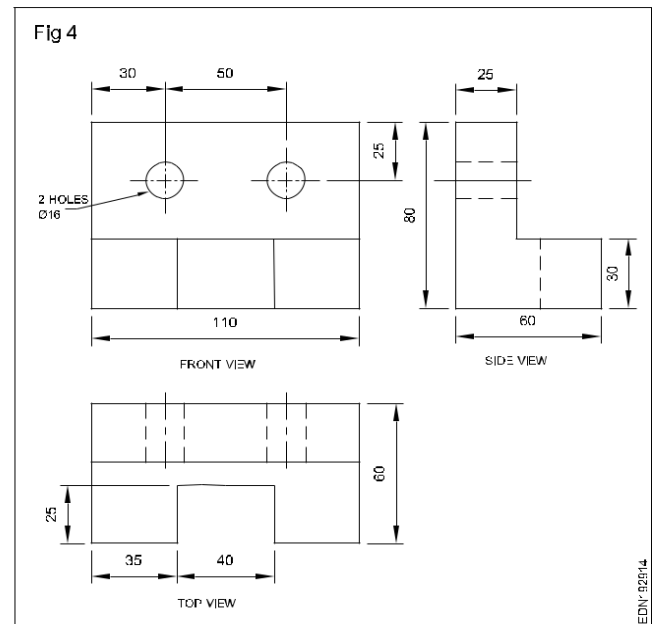
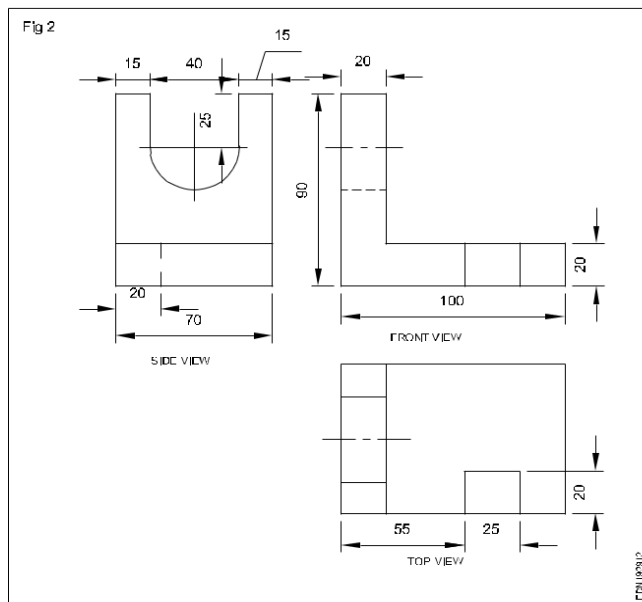
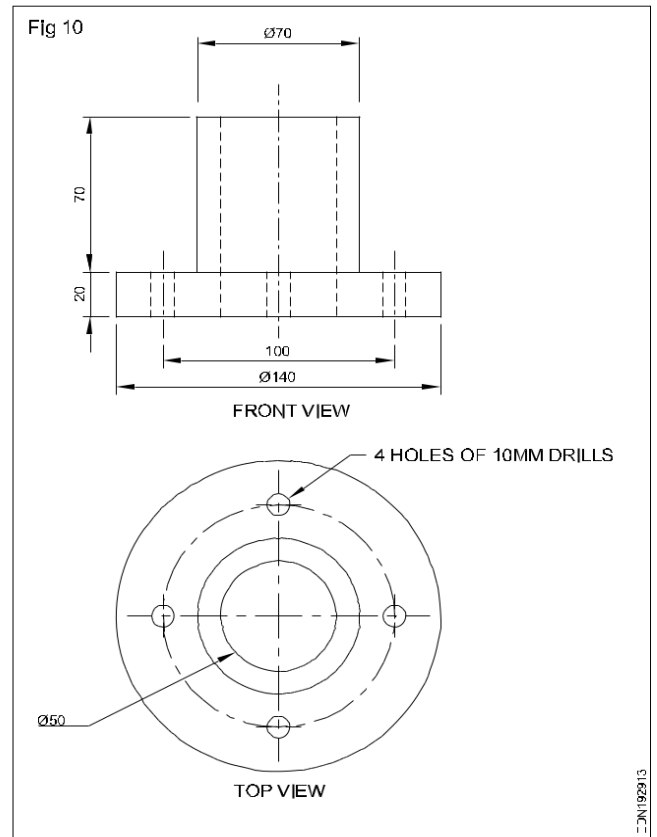
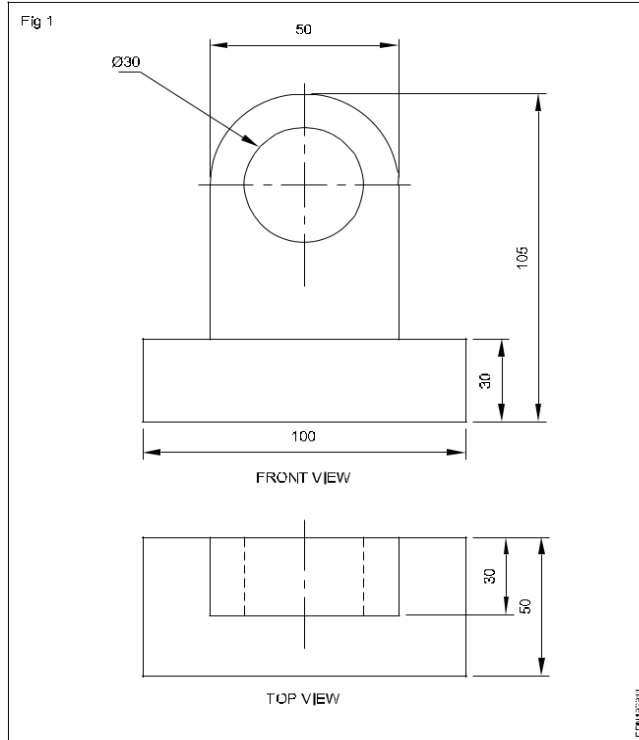
2. Draw the isometric Projection of the machine component whose orthographic views are given below:



3. Draw the isometric Projection of the machine component whose orthographic views are given below



4. Draw the isometric View of the machine component whose orthographic views are given below



Government of Karnataka

Department of Collegiate and Technical Education

Board of Technical Examinations, Bangalore

Course Code	20CS21P	Semester	II
Course Title	MULTIMEDIA & ANIMATION	Course Group	Core
No. of Credits	4	Type of Course	Lecture + Practice
Course Category	PC	Total Contact Hours	6Hrs Per Week
			78Hrs Per Semester
Prerequisites	Nil	Teaching Scheme	(L: T:P) = 1:0:2
CIE Marks	60	SEE Marks	40

1. RATIONALE

Multimedia is one of the very effective forms of communication through which students can enhance their presentation skills. Learning multimedia enables the brain's ability to make connections between verbal and visual representations of content, leading to a deeper understanding, which in turn supports the transfer of learning to other situations. Animation is the broad field of study that allows one to show their creativity, amplify their imagination and exercise graphic and technical skills.

2. COURSE SKILL SET

The aim of the course is to help the student to attain the following industry identified competency through various teaching learning experiences

Perform jobs related to Multimedia – Text, Image, Audio, Video, and Animation.

3. COURSE OBJECTIVES

6. Explore Multimedia features and applications
7. Demonstrate various Photo editing techniques to enhance visual effects of the image
8. Construct graphic design.
9. Demonstrate animation principles.

4. JOB ROLE

SL.NO	LEVEL	JOB ROLES
1	3	Freelance Photo Editor and Graphic Designer
2	3	Junior Creative Designer/Digital Artist
3	3	Junior Animator

5. PREREQUISITES

STUDENT	Nil.
TEACHER	FDP training on Multimedia and Animation course.

6. COURSE OUTCOMES

On successful completion of the course, the students will be able to demonstrate industry-oriented COs associated with the above-mentioned competency:

COURSE OUTCOME		CL	LINKED PO	TEACHING HOURS
CO1	Identify basic Multimedia features and applications.	U	1,4	06
CO2	Compile various Photo Editing techniques to create excellent Images.	U,A	1,4,7	27
CO3	Construct graphic design / web design like Advertisement/logo/flyer/Invitation Card/Banner/web site.	U,A	1,4,7	09
CO4	Animate geometrical objects by applying different animation principles.	U,A	1,4,7	36

Legends: R = Remember; U = Understand; A = Apply and above levels (Bloom's revised taxonomy)

7. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS(THEORY)

UNITNO.	UNIT NAME	TEACHING HOURS	DISTRIBUTION OF THEORY MARKS			
			R	U	A	TOTAL
1	Introduction to Multimedia Systems	6				
2	Image editing	24				
3	Graphic Design	12				
4	Animation	36				
	Total	78				200

8. INSTRUCTIONAL STRATEGY

These are sample strategies, which teacher can use to accelerate the attainment of the various course outcomes

1. Instructors should expose students to explore User Interface thoroughly.
2. Demonstration using visual/graphic content should be delivered. Emphasis should be given on presentational skills.
3. Arrange visits to nearby Photo studios/ Advertising Industries/ DTP centres/other related industries.
4. Students should be exposed to other relevant & similar software and their interfaces.

9. DETAILS OF COURSE CONTENT

The following topics/subtopics is to be taught and assessed in order to develop Unit Skill sets for achieving CO to attain identified skill sets

UNIT NO	TOPICS/SUBTOPICS	LEARNING OUTCOME (IN COGNITIVE DOMAIN)	HOURS L : P
1	INTRODUCTION TO MULTIMEDIA SYSTEMS		6

	<p>1.1 Introduction</p> <ul style="list-style-type: none"> ▪ Significant Features ▪ Classifications ▪ Applications <p>1.2 Multimedia Building blocks</p> <ul style="list-style-type: none"> ▪ Text ▪ Audio ▪ Image ▪ Animation ▪ Video ▪ Image Data Types <p>1.3 Multimedia Image and Graphics</p> <ul style="list-style-type: none"> ▪ Resolution, Size and Compression ▪ File formats <p>1.4 Multimedia Hardware</p> <ul style="list-style-type: none"> ▪ Interfaces ▪ I/O Devices ▪ Storage ▪ Communication Devices. 	<p>1. Identity Multimedia features and Applications</p> <p>2. Describe building blocks of multimedia</p> <p>3. Classify multimedia data types and file formats</p> <p>4. Discuss multimedia hardware</p>	<p>2:4</p>
<p>2</p>	<p>IMAGE EDITING</p>		<p>24</p>
	<p>2.1 Explore image editing tool interface.</p> <ul style="list-style-type: none"> ▪ Customizing Workspaces. ▪ File Handling ▪ Setting size and resolution parameters. ▪ Importing files. ▪ Navigating open document <p>2.2 Working with Layers</p> <p>2.3 Exploring Selection Tools</p>	<p>1. Explore interfaces of editing tool</p> <p>2. Perform photo compositing</p> <p>3. Create abstract art</p> <p>4. Apply image editing techniques</p>	<p>1:2</p> <p>11:22</p>

	2.4 Exploring Layer Styles 2.5 Using filters 2.6 Image editing techniques <ul style="list-style-type: none"> ▪ Adjusting exposure(brightness) ▪ Adjusting color ▪ Cropping and adjusting aspect ratio ▪ Dodging and burning ▪ Retouching ▪ Sharpening and noise reduction 		
3	GRAPHIC DESIGN		12
	3.1 Design a graphic <ul style="list-style-type: none"> ▪ Cards ▪ Flyer ▪ Banner ▪ Advertisement 3.2 Using blend modes create <ul style="list-style-type: none"> ▪ Logo ▪ Poster 3.3 Creating custom shape & text wrapping	1. Construct a graphic design for a theme 2. Create social media graphic (like emoji's)	
4	ANIMATION		36
	4.1 Exploring User Interface <ul style="list-style-type: none"> ▪ Installation & Configuration ▪ Getting to know about Editors, Scenes and Objects 4.2 Fundamentals of Animation.	1. Explore interfaces of Animation Tool. 2. Applying foundation principles of animation	3:6

	<ul style="list-style-type: none"> ▪ Types of Animation. ▪ 12 Basic Principles of Animation. ▪ Keyframes, Timelines, Graph Editor, Dope Sheet 		4:8
	<p>4.3 3D Object Animation.</p> <ul style="list-style-type: none"> ▪ Creating/Importing Object. ▪ Texturing ▪ Lighting & Rendering ▪ Dynamics ▪ Animation ▪ Adding Sound effects ▪ Saving and Exporting. 		5:10
	<p>Note</p> <p>1. Emphasis to be given on Basic Animation principles - Squash & Stretch, Timing, Spacing, Arc, Overlapping, and Anticipation</p>		

10. SUGGESTED PRACTICAL EXERCISES

Sl No	Suggested Practical Exercises (should be similar in skills to the ones enlisted)	Unit No	PO	CO	L:P Hrs
1	Browse the Internet and find different Multimedia Presentations and identify the building blocks.	1	1,4	1	1:2
2	i) Identify the importance of Resolution, Size and compression of Images. ii) Classify file formats of various Multimedia files	1	1,4,7	1	1:2
	i) Practice setting the canvas on the workspace for different requirements. ii) Import an image from the browser / Picture folder and place it on the workspace. iii) Click and drag the image on the work space.	2	1,4	2	2:4

	iv) Scale the image up and down.				
4	Design a Greeting card. Use different Layers for image and text.	2	1,4,7	2	1:2
5	Practice using different Selection tools.	2	1,4,7	2	1:2
6	Practice using different painting tools.	2	1,4	2	1:2
7	Restore old monochrome photos to a new one. Apply suitable colors.	2	1,4,7	2	1:2
8	Import a similar picture from the internet. Erase unwanted parts in the image, retouch old photos into new. Color partially.	2	1,4,7	2	1:2
9	Import a picture of a stationary motorcyclist. Apply suitable masking filters and background. The image should appear as though the motorcyclist is speeding fast.	2	1,4,7	2	1:2
10	Create a professional web layout. Use different layers, textures, colors, text, blending features and filter masking.	2	1,4,7	2	1:2
11	Create an innovative logo for your Institute considering all the features of your Institute.	2	1,4,7	3	1:2
12	Design a flyer for a short term course that is supposed to commence from 3 weeks ahead from the current date.	2	1,4,7	3	1:2
13	i) Add different objects to the space. Practice with both shortcut keys and menus. ii) Perform Transformation operations on objects added in 14 (i)	3	1,4,7	4	1:2
14	Create primitive objects like an ice cream cone, snowman, house, tunnel and like.	3	1,4,7	4	2:4
15	Change the structure of objects by editing Vertices, Edges, Faces and transform the same and observe the changes.	3	1,4,7	4	1:2
16	Design a red ball lying on green grass. Apply suitable texture and render the same.	3	1,4,7	4	2:4

17	Animate the ball in Ex. 15 (both rigid and elastic) to bounce thrice and roll. Use suitable animation principles. Add a booning sound when the ball bounces.	3	1,4,7	4	2:4
18	Design two playing dice and animate the same. Add suitable sound for dice fall.	3	1,4,7	4	2:4
19	Show the animation of water flowing out from a pipe around a suitable environment.	3	1,4,7	4	2:4
Total Hours				26 0:52 =78	

The **suggested practical exercises** specified above are demonstrated for the attainment of the competency. These practical activities can also be used for the student assessment in portfolio mode for awarding CIE marks. **The lecturer can enhance the competency level of the students by sketching more practical exercises.**

NOTES:

8. It is compulsory to prepare log book/record of exercises. It is also required to get each exercise recorded in logbook, checked and duly dated signed by the teacher
9. Student activities are compulsory and are also required to be performed and noted in logbook.
10. Student activity is compulsory and part of skill assessment. The activity enables student to explore the course, help student to demonstrate creativity & critical thinking.
11. Student activity report is compulsory part to be submitted at the time of practical ESE
12. Term work report is compulsory part to be submitted at the time of practical ESE.
13. Student activity and student activity reports must be uploaded to Learning management system.
14. For CIE, students are to be assessed for Skills/competencies achieved.

11. MAPPING OF CO WITH PO

COURSE	CO'S	PROGRAMME OUTCOMES (PO'S)						
		1	2	3	4	5	6	7
MULTIMEDIA & ANIMATION	CO1	3	-	-	3	-	-	2
	CO2	3	-	-	3	-	-	3

	C03	3	-	-	3	-	-	3
	C04	3			3			3
Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped								

12. SUGGESTED LEARNING RESOURCES

BOOKS	
1	The Illusion of Life / Frank Thomas and Ollie Johnston
2	The Animator's Survival Kit / Richard Williams
3	Animation For Beginners / Morr Meroz
URL'S	
1	https://webneel.com/
2	https://clippingpathindia.com/
3	https://www.photoshopessentials.com/basics/ https://www.befunky.com/
4	https://www.creativebloq.com/advice/understand-the-12-principles-of-animation
5	https://www.cgtarian.com/animation-tutorials/disney-animation-principles.html
6	https://ohmy.disney.com/movies/2016/07/20/twelve-principles-animation-disney/
7	https://wave.video/blog/12-basic-principles-of-animation/
8	https://www.youtube.com/watch?v=ILqOWe3zAbk&list=PLa1F2ddGya - UvuAqHAksYnB0qL9yWDO6&index=2

9	https://www.youtube.com/watch?v=8XyIYRW_2xk&list=PLa1F2ddGya - UvuAqHAksYnB0qL9yWDO6&index=3
10	https://www.youtube.com/watch?v=hTL6AKR8YDs&list=PLa1F2ddGya - UvuAqHAksYnB0qL9yWDO6&index=4
11	https://www.youtube.com/watch?v=JSAobQPRLwc&list=PLa1F2ddGya - UvuAqHAksYnB0qL9yWDO6&index=5
12	https://www.youtube.com/watch?v=7DNmar7TKwU&list=PLa1F2ddGya - UvuAqHAksYnB0qL9yWDO6&index=7

13. SUGGESTED LIST OF PROPOSED STUDENT ACTIVITIES

Note: the following activities or similar activities for assessing CIE (IA)

SL. NO	ACTIVITY
1	Create a Collage of college events with various layouts
2	Create a flyer or advertisement for social issue.
3	Create a matte painting of a mountain region
4	Create scenery with a mirror reflection and proper lighting effect.
6	Create colourful balls and apply animation effects such that balls fall from a table and roll in different directions.
7	Animate blossoming of a flower.
8	Leaf falling from a tree.

14. COURSE ASSESSMENT AND EVALUATION CHART

SL.NO	ASSESSMENT	DURATION (in minutes)	MAX MARKS	CONVERSION
1	CIE Assessment 1 (Written Test -1 TH) - At the end of 3 ^d week	60	20	Average of two written tests 20
2	CIE Assessment 2 (Written Test -2 TH) - At the end of 13 th week	60	20	
3	CIE Assessment 3 (Skill Test) - At the end of 5 th week	3 hrs	20	Average of three skill test 20
4	CIE Assessment 4 (Skill Test) - At the end of 7 th week	3 hrs	20	
5	CIE Assessment 5 (Skill Test) - At the end of 9 th week	3 hrs	20	
6	CIE Assessment 6 (Student activity)- At the end of 11 th week	-	20	20
7	Total Continuous Internal Evaluation (CIE) Assessment			60
8	Semester End Examination(SEE) Assessment (Practical Test)	3 hrs	100	40
TOAL MARKS				100
Note: CIE written test is conducted for 100 marks (Two sections). Each section shall have two full questions of same CL, CO. Student shall answer one full question from each section.				

15. RUBRICS FOR EVALUATION OF ACTIVITY

RUBRICS FOR ACTIVITY						
Dimension	Poor	Below Average	Average	Good	Exemplary	Student Score
	2	4	6	8	10	
Project Guidelines Compliance	Guidelines have not been followed.	Guidelines have been followed with little noise.	Guidelines have been followed to an average extent.	Guidelines have been followed and executed to maximum extent.	All guidelines have been exceptionally followed and executed.	8
Concept/ Idea	No thought given to the subject. No idea or concept presented in the work.	Cliché idea or concept. Needs to brainstorm and apply fresh ideas.	Average idea or concept. Subject is presented in a typical manner	Good idea or concept. Subject is presented in a competent manner.	Good use of an idea or concept. Presented the idea in a unique and novel way.	6
Editing Techniques	Lacks demonstration of qualities and characteristics of various techniques and processes.	Demonstrates few qualities and characteristics of various techniques and processes, but unreliable.	Demonstrates some qualities and characteristics of various techniques and processes.	Good demonstration of qualities and characteristics of various techniques and processes	Excellent demonstration of qualities and characteristics of all techniques and processes expected.	8
Graphic Design	Limited or no expression of creative ideas and thoughts.	Designing needs more planning and creativity.	Competent development of creative ideas.	Excellent approach to creative thinking and expression.	Refined and sophisticated approach to original and unique presentation.	8

Animation & Rendering	3D animation / rendering is not done at all. Lacks knowledge on saving and appropriately naming files.	3D animation / rendering is incomplete. Expected to improve in techniques. Saved in appropriately named file	3D animation / rendering is completed. Works/looks satisfactorily and saved in an appropriately named file.	3D animation / rendering is done well, works/looks properly and saved in an appropriately named file.	3D animation / rendering is done extremely well, works/looks properly and is saved in an appropriately named file.	7
Appeal	Messy and confusing.	Presentation can be better.	Good.	Excellent show.	Exemplary. Very well organized.	7
Average / Total Marks: (8+6+8+8+7+7)/6						7.3 = 8 marks

16. RUBRICS FOR SKILL TEST EVALUATION (CIE & SEE)

Sl. No.	Parameter to be observed	Marks Allotted
1	Selection of suitable tool	10
2	Comfort level of working on UI	
3	Techniques Applied	30
4	Completion of task	40
5	Appeal	20
Total		100

Note: Execution of task Image Editing & Graphic Design / Animation.

17.SYSTEM REQUIREMENTS:

Sl. No.	Specification	Quantity
1.	Computers with HD Graphics Card	20
2.	Software: GIMP, KRETA, BLENDER, PHOTOSHOP or any other relevant open-source software.	-
3.	Internet Connectivity,	-

Note: Above specification is for a batch of 20 students

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ಬಲ# ಕನೃ ಡ - 1

Course Code	20KA21T	Semester : II	Course Group – AU/KA
Course Title	ಬಲ# ಕನ. ಡ - I	Category : AU	Lecture Course
No. of Credits	2	Type of Course	CIE Marks : 50
Total Contact Hours	2 Hrs Per Week 26Hrs Per Semester	Teaching Scheme (L:T:P)= 2:0:0	SEE Marks : Nil

Table of Contents (ಪ"#\$)

Part - 1		Teaching Hour
Introduction to the Book, Necessity of learning a local language, Tips to learn the language with easy methods. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conversation. Instructions to Teachers for Listening and Speaking Activities.		02
Part - II		
Key to Transcription for Correct Pronunciation of Kannada Language, Instructions to Teachers to teach Kannada Language		02
Part – III Lessons to teach Kannada Language - Listening and Speaking Activities		
Lesson – 1	Personal Pronouns, Possessive Forms, Interrogative words	02
Lesson – 2	Possessive forms of nouns, dubitive question and Relative nouns	02
Lesson – 3	Qualitative, Quantitative and Colour Adjectives, Numerals	02
Lesson – 4	Predictive Forms, Locative Case	02
Lesson – 5	Dative Cases, and Numerals	02
Lesson – 6	Ordinal numerals and Plural markers	02
Lesson – 7	Defective / Negative Verbs and Colour Adjectives	02
Lesson – 8	Permission, Commands, encouraging and Urging words (Imperative words and sentences)	02
Lesson – 9	Accusative Cases and Potential Forms used in General Communication	02
Lesson – 10	Helping Verbs “iru and iralla”, Corresponding Future and Negation Verbs	02
Lesson – 11	Do's and Don'ts in Learning of Kannada Language (Any Language in General)	01
Lesson – 12	Kannada Vocabulary List : ■ ಭಾಷೆಯು & > *ೇಪ -ೇR ಕನೃ ಡ ಪದಗ5 -	01
Hours Kannada Words in Conversation		Total Teaching 26 Hours

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(ಕನ# ಡ ಭಾ) *ತೃ , -ಸ/ 1 ಮ3 ಪ6ಪ7 893)

Course Code	20KA21T	Semester : II	Course Group – AU/KA
Course Title	ಒ *ತೃ :ಂಚನ - ಂ	Category : AU	Lecture Course
No. of Credits	2	Type of Course	CIE Marks : 50
Total Contact Hours	2 Hrs per Week 26 Hrs per Semester	Teaching Scheme (L:T:P)= 2:0:0	SEE Marks : Nil

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ಪರ7 8ನ ಕದ ಪ"#\$	= 09 @ ಅವC
1. ಕ@Dಟಕದ - GH ಷ ಇ1Jಸ ಮ3) *ತೃ ದ KಳವMN	01 QR
2. ಕನ# ಡ) *ತೃ ದ - GH ಷ ಚ9S	01 QR
3. ಹVಗನ# ಡ) *ತೃ - Xಪ YವD Zಗ ಕನ1 ಡ 67ತ್ರಿ ದ ರಚ<= ಷ ? ಖ A ಂರ\$ಗ5 ಮC ಷ ವಗ5 ಕನ1 ಡ 67ತ್ರಿ ಷ ವCHIಶ ಯ ಕKHಜMಗN ಮC ವOP Hಧ<	03 QR
4. Xಪ/\Y Zಗದ ಕನ# ಡ) *ತೃಮ3 ಪ6ಪ7 ಅ)ಕK Sಪ, ರನ1 , Tನ1 , ಜನ1 . ಒಂದY ZಗವಮN ಮCZಗ [ಡ 10 ಮC 11Y ಶತMನದ ಸಮ] & ಂನ ಷ ? ಖ ಕKಗ5	04 QR
5. ನ^ಗನ# ಡ) *ತೃ - ವಚನ) *ತೃ / ಬಸವ Zಗ ವಚನ 67ತ್ರಿ ದ ^ಳವ`==]ರಣಗ5 ಮC ಅದರ ಮಹತಿ ಷ ? ಖ ವಚನ]re, ವಚನ 67ತ್ರಿ ದ& fghಕi ಮC]ಯಕ ತಿd	04 QR
6. 8aರ< ಸ Zಗ ಮ3) *ತೃ ದ ಇತ7 dಪಗೇ ರಗV - ಹhಹರ, ಷಟ್ಯ h - jMರk9 ಸ, ಲm ಂಶ ಮC Hಘkಂಕ ಂಂಗತೃ - ರq1 ಕರವ`N,	04 QR
7. iಸ) *ತೃ / GೇತDkಗೇ rFದರsಸೇ, ಕನಕಸಸೇ ಮC ಇತG ಮೇತN <]He	02 QR
8. ಇತ7) *ತೃ ದ ಷ mರಗೇ 1Tಪh - ಸವNಜು , nನಪದ) *ತೃ , ತಃಂ ಪದಗೇ - vwZಳ ಶಹೇಘೇ	04 QR
9. ಮ*p) *ತೃ : yಳವನಕZ{ Rhಯಮಂ ಮC ! } ನ1 ಮಂ , ಅstಕ YವD ಕನ# ಡ) *ತೃ : ~ಂorZHಯಣ ಮC ?ದG ಣ	02 QR
10. ಹVಗನ# ಡ ಮ3 ನ^ಗನ# ಡ) *ತೃ ಚ9S ಯ ಒow ಅವxೇಕನ ಒN) 09ಧQ ಅವC 26 TUಗV	01 QR 26 TU

ಬಳಸಿ ಕನಡ -I ಮತು/ 02ತು 4ಂಚನ -00 ಪಠಕ;ಮಗ=> Rಂತರ ಅಂತBಕ

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(COURSE ASSESSMENTS AND EVALUATION CHART- CIE ONLY)

Sl.No	Assessment	Type	Time frame in semester	Duration	Max marks	Conversion
1.	CIE Assessment 1	Written test-1	- At the end of 3 ^d week	80 minutes	30	Average of three written tests-1,2,3 for 30 marks
2	CIE Assessment 2	Written test-2	- At the end of 7 week	80 minutes	30	
3	CIE Assessment 3	Written test-3	- At the end of 13 week	80 minutes	30	
4	CIE Assessment 4	MCQ/Quiz	- At the end of 5 week	60 minutes	20	Average of three Assessment 4,5,6 for 20 marks
5	CIE Assessment 5	Open book test	- At the end of 9 week	60 minutes	20	
6	CIE Assessment 6	Student activity & presentation	- At the end of 11 week	60 minutes	20	
Total Continuous Internal Evaluation (CIE) Assessment						50
					Total Marks	50