

II Semester Scheme of Studies - Diploma in Electrical & Electronics 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	Assigned Grade	Grade Point	SGPA and	
				L	T	P			Max	Min	Max	Min						
THEORY COURSES																		
1	SC/EE	20PM01T	Project Management Skills	2	0	4	6	4	50	20	50	20	100	40			SGPA & CGPA of 2 nd Semester	
PRACTICAL COURSES																		
2	BS/SC	20SC02P	Statistics and Analytics	2	0	4	6	4	60	24	40	16	100	40				
3	EG/SC /EE	20EG01P	Communication Skills	2	0	4	6	4	60	24	40	16	100	40				
4	ES/CS	20CS01P	IT Skills	2	0	4	6	4	60	24	40	16	100	40				
5	ES/EE	20EE21P	Residential Electrical Wiring Practice	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

C04	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
C05	Conduct inspection of Projects and audit progress and bills Case Study 2c	1, 2, 5, 7	5	R/U/A	18	20
C06	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.

- 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.
- 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.
- Topics be introduced always with a reallife example and then answering What, how, why and when.
- 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.
- 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:

SlNo.	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
	1.1 Introduction	3	

Unit No And Name	DETAILED COURSE CONTENT	CONTACT HRS	TOTAL
1. Introduction	1.2 Meaning of Project		6
	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 Administ ration	2.1 Essentials of Project Administration	3	18
	2.2 Project Team		
	2.3 Project Design		
	2.4 Work Breakdown Structure (WBS)		
	2.5 Project Execution Plan (PEP)		
	2.6 Contracting Plan		
	2.7 Work Packing Plan		
	2.8 Organisation Plan		
	2.9 Systems and Procedure Plan		
	2.10 Project Procedure Manual	3	
	2.11 Project Diary	3	
	2.12 Project Execution System		
	2.13 Project Direction		
	2.14 Communication in a Project		
	2.15 Project Co-ordination	3	

	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		3			
	4.17 Setting Goals and Objectives					
	4.18 Generating Structures and Strategies					
	4.19 Implementation					
	4.20 What is Project Evaluation?					
	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	3				
	5.15 Objectives of Project Audit					
	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	➤ 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	➤ 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	➤ 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

	➤ Able to determine the absolute measures of dispersion of the given data set. ➤ Explain the symmetry and asymmetry of the distributed data.	measures of dispersion for data like range quartile deviation, mean deviation, standard deviation and variance in Microsoft Excel. c Skewness and kurtosis graphs in Microsoft excel and interpretations of results.	
UNIT-4 INTRODUCTION TO PYTHON PROGRAMMING	➤ 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.	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.	8-0-16

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=5 2

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-zfkdw4y/lab>

SUGGESTED LIST OF STUDENT ACTIVITY

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

1	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. 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. 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).
2	https://ils.unc.edu/courses/2013_spring/inls541_001/Assignments.html#Assignment_9

	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 data and explain the inference.

COURSE ASSESSMENT AND EVALUATION CHART

Meth od	What		To whom	When/Wh ere (Frequenc y in the course)	Max Mar ks	Evidence collected	Course outcomes
DIRECT ASSESSMENT	CIE (Continuo us Internal Evaluation)	Mode ls	Studen ts	Two IA Tests (Written)	20	Blue Book	1,2,3.
				Three Skill tests	20	Model	1,2,3
				Student Activity	20	Model/Rep ort	
				TOTAL	60		
	SEE (Semester End Examinati on)	End Exam		End of the course	100	Models	1,2,3
INDIRECT ASSESSMENT	Student Feedback on course		Studen ts	Middle of the course		Feedback forms	1,2,3, Delivery of course
	End of Course Survey			End of the course		Questionnai res	1,2,3 Effectiveness of Demonstratio ns& 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 : 20SC02P	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	Tutorial + 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	<i>Examining the understanding of sounds</i> <i>Spelling patterns (Consonant and Vowel blending: CVC words)</i> Pronunciation ○ List of words given above (Commonly used words) ○ Diction (speech)	0:2:2
Functional Grammar Concepts	Revision of Grammar concepts	<i>Parts of speech</i> <i>Sentence structure</i> <i>Examples of right sentences</i> <i>Gender, Singular, Plural</i>	2:0:0 0:1:0 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
UNIT 2: Communication Lesson outcome: At the end of the session: - Students should be able to - 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	<i>How communication happens?</i> - Pictorial representation of communication framework - Elements of communication: sender, receiver, message - Refer to activity in Unit activity section.	1: 2:0 0:2:2
	Barriers to communication	<i>Language</i> - Lack of linguistic ability - Grammar <i>Context</i> - Psychology - Physiology <i>Systematic</i> - inefficient or inappropriate information systems	0:2:2 (video clip play, content tutorial, role play)

		• Lack of communication channel • lack of understanding of the roles and responsibilities Attitude • Perceptions • Preconceived notions	
Building blocks of communication	People Message Context Listening	People: • Empathising with sender's or receiver's perception • Intent & Impact on the sender/receiver • Think – Feel – Do model Message: Message channels: ○ Inperson, email, memo, report Be aware of Mental Filters ○ Level of understanding/knowledge ○ Personal concerns ○ Pre conceived notions Organize message: ○ Critical thinking: organize your thoughts? Use following strategy: ▪ Who ▪ What ▪ When ▪ Why ▪ How ○ Bundle Primary and Secondary information ○ Mindful about non-verbal message ○ Tone of voice Examples of Types of messages: ○ Inform ○ Persuade ○ Cyclical Avoiding Miscommunication: • Evaluate (Checking for) understanding of the intent of the message with the receiver – by asking clarifying questions?	0:4:4

		Context: Define context Importance of context Tune into context • Timing • Location • Relationship Listening: Importance of listening Barrier to listening: • Mental filters • Multitasking • Information overload Strategies for listening: • Recall • Acknowledge • Summarize • Listen with eyes for connecting to non-verbal connection • Empathize • Pay attention • Ask clarifying questions Effective Listening Behaviors: • 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 Behaviors that hinder effective listening • 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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[illegible]

Using technical Jargons:	<i>Assignment based project encouraging pupil to use the technical terms in the written and verbal communication.</i> This requires understanding of the core concepts (from subject teacher) and integrating the concept with communication concepts to gain the real time application knowledge.	• Criticizing • Judging • Giving advice/solutions • Changing the subject • Reassuring without acknowledgment	
UNIT4: Non-Verbal Communication: Lesson outcome: At the end of this unit, students should be able to: • 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.			
Body Language	Strategies	Body language tips: • Keep appropriate distance • Take care of your appearance • Maintain eye contact • Smile genuinely	0:3:4

Art of Professional writing:	Written communication Emails: Structured framework for writing formal emails to emphasize on professional communication in English	Do's and Don'ts: dos: - smile - stand up confident and straight - use appropriate hand gestures - Make eye contact with audience - Hold neat note cards while presenting content Don'ts - point at anyone - rock backwards and forwards - pace across front of room - read off slides read off notes Different types of emails: Job application, request letter, letter writing and quick notes Structure of email text: - Introduction – Beginning of the letter and this plays crucial role as it provides first impression to the reader. - 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 - what, when, where, who, whom, which, whose, why, and how - Conclusion: Positive words - Verb: thank, appreciate, hope, wish - Phrases: be glad about, look forward to Email writing samples and practice content in the activity section.	0:2:4
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		Additional essential writing skills – Framework will be provided and assignments will be advised: • Resume writing /CurriculumVitae • Report Writing • Portfolio writing • Formal letters	
UNIT5: English - Reading Skills, Grammar & Vocabulary Lesson Outcome: At the end of the session, student should be able to: • 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	Comprehension activities Techniques for smart reading	Passage comprehension Conversation comprehension Strategies for smart reading: • Skimming and scanning through the text, inferring the meaning • Questioning, summarizing	0:2: 2
Functional Grammar	List of Commonly confused words and how to use/avoid them	Set of words to accelerate the English language learning and usage. Strategies to use these words effectively	0:1: 2
Vocabulary	Sentences: ○ Declarative sentence ○ Imperative sentence ○ Interrogative sentence ○ Exclamatory sentence	Techniques of categorizing sentences, understanding how to build with punctuation and effectively use in the verbal and non-verbal communication. This involves more of hands on activities.	0:1: 2

	Punctuation, Content organization and Comprehension Techniques: • Learning new words from comprehension by way of repetition and usage of these words in communication • Listing technical jargons and repeatedly using in the communication with peers and teachers • Chunking and reading words Tools • Understand the difference between a Dictionary and a Thesaurus • Understand “When” and “How” to use these tools for communication	Comprehension remains as a main activity to accelerate the learning of spoken and written English language Increases vocabulary, builds confidence and helps in becoming a good communicator. Activities are done, tips are provided to efficiently implement these strategies.	0:1:2 0:1:0
Unit 6 - Communication Tools Lesson Outcome: At the end of the session, student should be able to: • Use Email technology efficiently for communication • Present content in the PPT format efficiently • Understand different platforms available for web conferencing and efficiently work with them. • Create reports and data management.			
Introduction	Evolution of communication tools	Traditional vs. modern communication tools Advantages and Disadvantages	1:0:0
	Email using Gmail	How to use the tools effectively? Formatting, layout	0:1:1

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:

		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 • This helps in reducing the native language impact • Helps in understanding Short and Long vowel words • Helps in spelling • Helps in pronunciation 2. Reading commonly used words loud from the list (list will be provided in the workbook): • This helps in getting familiarity with the word pronunciation and helps in reading. 3. Blending words activity: • 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> Parts of Speech: building sentence using parts of speech: Demonstration by teacher: (Will be explained in the book as an example) Jumbled parts of speech: Student should pick the right order to build meaningful sentence: (More samples will be provided in the workbook) • College go to you everyday. • Makes spider web the a Gender, Singular and Plurals:
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		- Match the following activity for singular and plural - Fill in the blanks activity for genders Reading & Comprehension: Conversation - 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
Unit 2	Communication	Oral: - Introduce yourself? Visual: - Video clip on communication etiquette - Pictures (in addendum section): do's and don'ts of communication 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. - Identify the communication gap if any. - Discuss and conclude the communication framework importance - Discuss/reiterate how to make communication framework strong. 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) - Announcing the result of students in the class or - Announcing the job placement of students (people, context, message, form of message) - Discussing the guidelines of examination (listening skills)

		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. 2. Run National geography/Discovery Video clip/subject related technical video clip on YouTube: Check: ○ 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
Unit 3	Verbal communication	1. Voice/tone modulation: Showcase video Discussion: What was right? What was wrong? How it should have been better? 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. 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) 3. Telephonic conversation:

		Role play by a teacher: Call Airtel/Vodafone department and asking for the phone number portability process. After teacher demonstrates, teacher divides the class in to small groups of three people. • 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.
Unit 4:	Non-verbal communication	Body language Simon Says: Instructions and set up : 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: ○ 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. Outcome of this activity: Discuss how body language can reinforce/influence verbal communication and drive the importance of body language and how to work on it

		- 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	- 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	- Email writing activities: Writing emails using email provider. Theme based email writing - Report writing assignment Writing about a machinery tool/interior designing plan? Related to the diploma stream. - 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: - 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 chit of words and ask them to pick one chit 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	20CS01P	Semester	I/II
Course Title	IT SKILLS	Course Group	ES/CS
No. of Credits	4	Type of Course	Lecture + Practice
Course Category	ES	Total Contact Hours	6Hrs Per Week
			78Hrs Per Semester
Prerequisites	Basic Computer Skills	Teaching Scheme	(L:T:P)= 1:0:2
CIE Marks	60	SEE Marks	40

1. RATIONALE

Information Technology is crucial to the majority of the business and has a great influence on innovation and engineering. Every branch of engineering and every organization opt for computers and IT skills for business automation, communication/connectivity, resource planning, work automation and securing information etc. All engineering diploma students must be conversant with the basic IT skills which empower them to learn new technologies, adapt to changes, business development, communication etc.

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 web design and maintenance, business process automation tool management, cyber security and safety and program assistant.

3. COURSE OBJECTIVES

1. Demonstrate the basics of coding.
2. Design and develop web pages that include static and dynamic content.
3. Describe the basic concepts of Cloud and IoT.
4. Express the workflow and business automation
5. Recognize the best practices of Cyber Safety and security.

4. JOB ROLE

SL.NO	LEVEL	JOB ROLES
1	3	Junior software developer - web.
2	3	Junior Creative Designer/Digital Artist

5. PREREQUISITES

STUDENT	Basic Computer skills (Students without basic computer skills should be taught basic skills)
TEACHER	Computer science faculty with required knowledge of IT Skills.

6. COURSE OUT COMES

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

COURSE OUTCOME		UNIT LINKED	CL	LINKED PO	TEACHING HOURS
CO1	Illustrate the basics of coding and develop simple applications for android phones.	1	U, A	1,4,7	15
CO2	Design and Develop websites.	2	U, A	1,4,7	30
CO3	Identify Cloud Services IoT applications	3	U	1,4,7	12
CO4	Apply workflow and use ERP for a simple project plan	4	U	1,4,7	09
CO5	Implement best practices of cyber safety and security in the workplace.	5	U, A	1,4,7	12
TOTAL					78

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

8. INSTRUCTIONAL STRATEGY

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

1. Lecturer method(L) does not mean only traditional lecture method, but different type of teaching method and media visual/graphical content that are employed to develop the outcomes
2. Massive Open on-line courses (MOOCS) can be used to teach various topics/sub topics.
3. Online coding platform wherever mentioned.
4. Hands on coding should be practiced.
5. About 15 to 20% of the topics/sub topics which are relatively simpler or descriptive in nature is to be given to the students for self-directed learning

9. DETAILS OF COURSE CONTENT

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 NO	Topics/Sub topics	Unit skill set/Learning outcomes (In cognitive domain)	Hours L-T-P
1	UNIT 1 - INTRODUCTION TO BASICS OF CODING		05-0-10
	1.1 Introduction to computer programming 1.2 Algorithms –With sufficient examples 1.3 Flowcharts – With sufficient examples 1.4 Execute simple programs Note: Below listed or any other suitable online/offline coding platforms should be used to demonstrate and provide coding experience to students. a. https://scratch.mit.edu/	1. Understand computer programming 2. Create and write Algorithm for programmable problems. 3. Design Flowchart for programmable problems. 4. Develop simple Android application.	

	b. https://studio.code.org/projects Suggested programs are listed in Table 1 1.5 Introduction to Application development 1.6 Simple android application development (No knowledge of programming language is required). Note: <i>The purpose of application development is to ignite and promote programming skills.</i> <i>Application development should be done using any App builder platforms such as</i> <i>MITApp</i> <i>Inventor:</i> https://appinventor.mit.edu/ <i>Thunkable:</i> https://thinkable.com/ <i>ibuildapp:</i> https://ibuildapp.com/ <i>The student should be introduced to the android application development environment for further research and learning</i>https://developer.android.com/ 1.7 Activity: create a simple Android application (Unique for each student) publish on the learning management system.		
2	UNIT 2 - DESIGN AND DEVELOP WEB PAGES		10-0-20
2	2.1 Basic web technologies ▪ Browser ▪ Web -Server ▪ Client-Server Model ▪ URL ▪ SEO techniques ▪ Domain names and domain name system. 2.2 Creating Web-pages with HTML5 - Static	- Understand and examine basic web technologies - Creating static web pages - Formatting Webpages with cascading style sheets (CSS) - Creating Dynamic web pages with JavaScript	

web pages. ▪ Introduction, Editors ▪ Tags, Attributes, Elements, Headings ▪ Links, Images, List, Tables, Forms ▪ Formatting, Layout, Iframes. 2.3 Formatting web pages with style sheets (CSS3). ▪ Introduction to CSS ▪ Inline CSS, Internal CSS, Classes and IDs ▪ div, Color, Floating, Positioning ▪ Margins, Padding, Borders ▪ Fonts, Aligning Text, Styling Links 2.4 Creating a web page dynamic using JavaScript. ▪ Dynamic web page and Introduction to JS ▪ Basic syntax ▪ Functions ▪ Events Note: Refer https://www.w3schools.com 2.6 Creating dashboards in websites. 2.6 Activity: Personal website design and launch with a free platform or Create a Blogging website. ▪ Online platforms (Learning and executing) ▪ https://www.w3schools.com/ ▪ https://studio.code.org ▪ https://www.khanacademy.org Note: 1) The student must be introduced to website development platforms - wordpress.com. 2) The student must be made familiar	5. Creating and launching dashboard based personal website.	
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	with launching websites . Certification available: • HTML - W3schools • CSS - W3schools • JavaScript - W3schools		
3	UNIT 3 -BUSINESS PROCESS AUTOMATION/ERP		03:0:06
3	3.1 Introduction to business process automation. 3.2 Organization structure and functions composition-Properties and applications ▪ Structure ▪ Types ▪ Functional Units Note: Students should be made familiar with organization, types and components of a big enterprise to make him understand the working of organization keeping him as part of org. 3.3 Workflows ▪ Introduction ▪ Components ▪ Use and use cases Note: Use free and open-source platform to demonstrate and create workflows. Example: https://airflow.apache.org/ https://taverna.incubator.apache.org/ https://trello.com/ https://www.processmaker.com/ 3.4 Enterprise resource planning ▪ History ▪ Evolution ▪ Uses of ERP ▪ ERP software tools.	1. Identify and examine the needs of business process automation. 2. Understand Organization structure and functions 3. Create and use workflows 4. Use Enterprise resource planning in workplace.	

	Note: The student should be introduced into Enterprise resource planning software tools to understand importance of ERP. Examples: ▪ https://erpnext.com/ ▪ www.bitrix24.com ▪ https://www.odoo.com/ 3.5 Activity: ▪ Project plan for summer internship - use open source ERP Software ▪ Identify different components of nearby organization with recourse plan and workflow design. ▪ Identify types of ERP software available with their market share.		
4	UNIT 4 - INTRODUCTION TO CLOUD AND IOT CONCEPTS		04-0-8
	4.1 Fundamentals of cloud 4.2 Cloud service models ▪ IaaS (Infrastructure-as-a-Service) ▪ PaaS (Platform-as-a-Service) ▪ SaaS (Software-as-a-Service) 4.3 Cloud deployment types ▪ Public, ▪ Private, ▪ Hybrid ▪ Community Cloud 4.4 Cloud services: ▪ Google Drive - file storage and synchronization service developed by Google; ▪ Google docs- bring your documents to life with smart editing and styling tools to help you easily format text and paragraphs; ▪ Google Co-lab (Usage of Jupyter Notebook): <i>Colab</i> notebooks allow you to combine	1. Understand Cloud concepts 2. Identify and use Cloud services 3. Understand IoT concepts 4. Identify IoT applications	

	executable code and rich text in a single document, along with images, HTML, LaTeX, and more. ▪ Google App Engine: Google App Engine is a Platform as a Service and cloud computing platform for developing and hosting web applications in Google-managed data centers. Applications are sandboxed and run across multiple servers. Note: Above cloud services are not compulsory for all branches; teacher can recommend other cloud service based on need of engineering branch. 4.5 Working of IoT and IoT components (Only brief introduction and demonstration through videos) 4.6 Explain concept of Internet of Things with examples ▪ Smart home ▪ Smart city ▪ Smart farming Note: a. Teacher can also select specific area of work where Things (autonomous computing devices) could be interconnected over TCP/IP to establish IoT. b. The students should be introduced to the IoT environment for further research and study. Example: ▪ https://www.raspberrypi.org/ ▪ https://www.arduino.cc/		
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	4.7 Activity: Create your cloud service account and demonstrate using cloud services. Identify cloud service provider with respect to service models and deployment types. Identify areas where Internet of Things could bring positive changes.		
5	UNIT 5 - CYBERSECURITY AND SAFETY		4-0-8
	5.1 Introduction to Cyber security and cyber safety. ▪ Brief awareness on cyber safety measures ▪ Identification of basic security issues in mobile phones and personal computers ▪ Installation of Antivirus software ▪ Firewall concepts ▪ Browser settings ▪ Importance of privacy and Password policy (Best practices). 5.2 Common threats - Demonstration ▪ Phishing ▪ DoS attack ▪ Man in the middle attack ▪ Eavesdropping ▪ Spamming 5.3 Activity ▪ Identification of basic security issues in computers of your college and fixing the same. ▪ Visit nearby government organization. ▪ Identify basic cybersecurity issues and fixing the same ▪ Demonstrate the importance of cybersecurity, password policy, and cyber safety.	1. Identify need for Cyber security and cyber safety 2. Identify basic security issues in mobile phones and personal computers 3. Examine Importance of privacy, Password policy 4. Implement best practices of cyber safety and security in work place	

10. SUGGESTED PRACTICAL SKILL EXERCISES**TABLE-I**

Sl. No.	Practical Out Comes/Practical exercises	Unit No.	PO	CO
1	Write an algorithm for programmable problems Example for Reference: - Add/subtract two numbers - Find the largest/smallest of 3 numbers - Calculate and print sum of 'N' numbers	1	1,4,7	1
2	Design a flowchart for programmable problems Example for Reference: Add/subtract two numbers Find the largest/smallest of 3 numbers Calculate and print sum of 'N' numbers	1	1,4,7	1
3	Design and create simple game using MIT-scratch/Code.org	1	1,4,7	1
4	Design and create simple android application (MIT App Inventor)	1	1,4,7	1
5	Design and create webpage for displaying your poem (Title, header, paragraph, formatting tags)	2	1,4,7	2
6	Design and create webpage for your wish list (What you want to do). Also list challenges and opportunities along with images to present your dreams (List ordered and unordered, Image, table)	2	1,4,7	2
7	Design and create webpage using HTML and CSS about an awesome animal (Use necessary CSS tags)	2	1,4,7	2
8	Design and create web page for a travel book/recipe book with more than 3 pages, table to list places/recipes (iframe, hyperlink)	2	1,4,7	2
9	Design and create web page with JavaScript to design a simple calculator to perform the following operations: sum, product, difference and quotient	2	1,4,7	2
10	Design and create a personal webpage with dashboard	2	1,4,7	2
11	Design and create web page about advantages of business process automation with respect to your branch of engineering	2,3	1,4,7	2,3

12	Create a workflow for education loan approval in bank/diploma admission process (Use any tool)	3	1,4,7	3
13	Demonstrate ERP with ERPNext Demo for manufacturing, retail and service sector (Use any other ERP tools)	3	1,4,7	3
14	Create user account and demonstrate use of Google drive, Google docs, Google Co-lab (Usage of Jupyter Notebook)	4	1,4,7	4
15	1.1 Demonstrate Internet of Things using with examples a. Smart home b. Smart city c. Smart farming Note: Teacher can also select specific area of work where Things (autonomous computing devices) could be interconnected over TCP/IP to establish IoT.	4	1,4,7	4
16	Installation of Antivirus software	5	1,4,7	5
17	Demonstration and hands on browser settings	5	1,4,7	5
18	Demonstration and hands on privacy settings and password policy	5	1,4,7	5
19	Demonstration of common security threats (using videos) a. Phishing b. DoS attack c. Man in the middle attack d. Spamming e. Virus	5	1,4,7	5

The suggested practical activities (TABLE-I) in this section 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:

1. 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
2. Student activities are compulsory and are also required to be performed and noted in logbook.
3. Student activity is compulsory and part of skill assessment. The activity enable student to explore the course, help student to demonstrate creativity & critical thinking.
4. Student activity report is compulsory part to be submitted at the time of practical ESE
5. Term work report is compulsory part to be submitted at the time of practical ESE.

6. Student activity and student activity reports must be uploaded to Learning management system.
7. 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
IT SKILLS	CO1	3	0	0	3	0	0	3
	CO2	3	0	0	3	0	0	3
	CO3	3	0	0	3	0	0	0
	CO4	3	0	0	3	0	0	3
	CO5	3	0	0	3	0	0	0
Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped								

12 SUGGESTED LEARNING RESOURCES

BOOKS	
1	The Art of Programming Through Flowcharts & Algorithms, A. B. Chaudhuri, Firewall Media publication
2	HTML5 Black Book, by Publishing company Limited. Kogent Learning Solutions Inc.
3	"World Wide Web design with HTML", Xavier, Tata McGraw-Hill
4	Internet of Things – A Hands on Approach, By ArshdeepBahga and Vijay Madiseti Universities Press, ISBN: 9788173719547
URL'S	
1	https://scratch.mit.edu
2	https://studio.code.org
3	http://ai2.appinventor.mit.edu
4	https://www.w3schools.com
5	https://www.tutorialspoint.com/javascript/index.htm
6	https://www.geeksforgeeks.org/html-tutorials/
7	Android https://developer.android.com
8	https://www.khanacademy.org
9	Tools for Web Development a. https://www.wix.com

	b. https://atom.io/ c. https://www.openelement.com/ d. https://www.layoutit.com
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13. SUGGESTED LIST OF PROPOSED STUDENTS ACTIVITY

Note: Refer activities mentioned in DETAILS OF COURSE CONTENT table

14. COURSE ASSESSMENT AND EVALUATION CHART

SL.N O	ASSESSMENT	DURATIO N (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 20 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 ACTIVITY

RUBRICS FOR ACTIVITY (Example Only)						
Appropriate rubrics shall be developed by the concerned faculty						
Dimension	Poor	Below Average	Average	Good	Exemplary	Student Score
	4	8	12	16	20	
Concept	Does not collect any information relating to the concept	Collects very limited information; some relate to the concept	Collect much information; but very limited relate to the concept	Collects some basic information; most refer to the concept	Collects a great deal of information; all refer to the concept	8
Design	Design is not acceptable/very poorly structured	Design is poor and not well structured.	Design Followed layout samples and well structured	Design & convey both content and context	Design considered all aspect of concept, concept and presentation (UI)	6
Creativity	Very little creativity in design/implementation	Creativity in concept or design or implementation	Creativity in concept /design/implementation	Creativity in concept /design/implementation which complements each other	Creative concept, content, presentation and implementation	8
Implementation	Poorly implemented	Partially implemented	Implemented on time with results (content)	Product convey both content and context	Product is creative with easy-to-use UI, structure	8
Average / Total Marks: (8+6+8+8)/4						7.5 = 8

16. RUBRICS for Skill Test Evaluation (Both for CIE & SEE)

Sl No	Parameter to be Observed	Marks Allotted
1	Design-Written Skill Test 1: Algorithm / Flowchart/Visual Design Skill Test 2: Web site visual design Skill Test 3: Work flow or Project plan or cyber security plan or Cloud service Concept	30
2	Implementation Skill Test 1: Android application Skill Test 2: Web site / Web pages Skill Test 3: Create or use cloud service account or Cyber safety and security- Antivirus Installation or browser settings	50
3	Appeal and Presentation	20
Total		100

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

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

Course Code	20EE21P	Semester	II
Course Title	Residential Electrical Wiring Practice	Course Group	Core
No. of Credits	4	Type of Course	Lecture & Practical
Course Category	PC	Total Contact Hours	6 Hrs Per Week
			78 Hrs Per Semester
Prerequisites	Fundamental of Electrical and Electronics Engineering	Teaching Scheme	(L:T:P)-1:0:2
CIE Marks	60	SEE Marks	40

RATIONALE

Residential electrical wiring involves the design, estimation and physical wiring of a residential building for voltages less than 650V by an Electrician. A diploma student who is willing to take Electrician as a profession must have good knowledge of different types of wiring that is being carried out according to the budget of house owner. Studying this course enhances the skill of the student to utilize the resources-best design, latest technology and longevity of house wiring in best possible way that is also cost effective keeping the protection of wiring, house hold gadgets and property.

1. COURSESKILL SET

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

- Good Knowledge of different types of wiring that is being carried out according to the budget
- Skills to utilize the resources-best design, latest technology and longevity of house wiring in best possible way that is also cost effective keeping the protection of wiring, house hold gadgets and property.
- To carry out all sorts of troubleshooting in electrical circuits of domestic wiring, and fault repair

2. INSTRUCTIONAL STRATEGY

1. Instructor should expose students to different tools used in electrical wiring, Operational safety and Procedure to be followed in domestic wiring.
2. Focus should be on proper selection and sizing of wires, cables and use of protective devices as well as on testing and troubleshooting of electrical faults.

3.COURSE OUT COMES

On successful completion of the course, the students will be able to

CO1	Comply with the safety procedures and standards.
CO2	Select cables, wiring, optimize accessories and forecast.
CO3	Develop and test wiring installations as per standards and customer requirement.
CO4	Troubleshoot and repair the wiring installations for proper working.

4. COURSE TOPICS

Sl No.	Unit Name	Lecture Hours	Practical Hours	Total Hours
1	Health & Safety practices at the work place	01	02	03
2	Planning & Design	07	14	21
3	Installation & Testing	12	24	36
4	Fault Location & Earthing	06	12	18
TOTAL		26	52	78

5. DETAILS OF COURSE CONTENT

Unit No.	Unit skill set (In cognitive domain)	Topics/Sub topics	Hours		
			L	T	P
UNIT-1 Basic Health & Safety practices at the work place	- To understand basic health and safety practices covering CEA safety regulations 2010 - To study use of PPE equipment's - Good housekeeping practices and disposal of waste.	- Identify Various types of safety signs - Demonstrate and practice use of PPE - Demonstrate how to free a person from electrocution - Administer appropriate first aid - Fire safety, causes and precautionary activities. Use of appropriate fire extinguishers on different types of fires - Demonstrate rescue techniques during fire hazard, Inform relevant authority about any abnormal situation.	1	0	2
UNIT-II Planning & Design	Read, interpret and revise drawings, Installation descriptions and manuals related to Internal Wiring. - Layout and Circuit drawings - Follow written instructions - Plan installation - Work using drawing and documentation provided - Ensure correct requirement of wires, cables, fuse,	1. Identify, specify, dismantle and assemble different types of Lighting accessories (Switches, Socket Outlets, Plugs and Lamp holders)	1	0	2
		2. Identify different types of cables with specifications based on: - Materials - Voltage ratings - Sizes - Insulation Strands & Core	1	0	2
		3. Measure the wire sizes of different cables.			
		4. Current rating of Single core Copper and Aluminum conductors of different sizes.			
		5. Identify, specify, dismantle and	1	0	2

Unit No.	Unit skill set (In cognitive domain)	Topics/Sub topics	Hours		
			L	T	P
	switches and other electrical accessories for optimal expenditure •Ensure wiring and points selected in wiring are according to load growth in future	assemble different types of LT Switchgears and Protective devices. (Main Switch, Distribution Boards, Fuse, MCB, RCCB).			
		6. Identify, Specify and Select different types of Conduits and its accessories.			
		7. Interpret the various BIS symbols used in electrical wiring diagrams 8. Interpret Manufactures Catalogue for Cables and wiring accessories. 9. B.I.S Regulations, Recommendations and the National Electrical Code of practice pertaining to wiring installations.	1	0	2
		Concept of Phase wire, Neutral wire, Earth wire and Half wire and determining the size of conductors. 10. Concept of Layout plan (Wiring plan), Layout diagram (Wiring Layout), Installation plan, Circuit (schematic) diagram and Wiring diagram.	1	0	2

Unit No.	Unit skill set (In cognitive domain)	Topics/Sub topics	Hours		
			L	T	P
		11. Wiring circuits – planning, permissible load in sub circuits, estimation of load, cable size.	1	0	2
		12. Prepare a layout diagram, circuit / schematic diagram, installation plan and wiring diagram for the following: a) A bed room with 2 Lamps, 1 fan and one 5A socket. b) A living room with 4 Lamps, 2 fans and three 5A socket. c) A Kitchen with one 15A socket, one 5A socket, one light point and one Exhaust fan. d) A bathroom with one 15A socket, one 5A socket and one light point.			
		13. Conduitwiring –Bending procedure of conduits, Drawing of cables through conduits.			
UNIT-III Installation & Testing	<u>Installation of wiring system</u> 1. Select and Install equipment's and wire ways as per drawings and documents provided. (Surface Conduit) 2. Install conduits, accessories and attach securely onto surface. 3. Install Electrical Switchboards onto surface. 4. Draw and terminate the cables inside the	1) Prepare the different wirings methods and joints. • Switch loop in • Junction box Loop in • Ceiling Rose Loop in • Simple Twist Joint • Married Joint in Stranded conductors	1	0	2
		2) Identify the phase and neutral terminals of the supply.			
		1. Testing domestic wiring installation: • Continuity test (OC & SC Test) • Polarity test			

Unit No.	Unit skill set (In cognitive domain)	Topics/Sub topics	Hours		
			L	T	P
	switchboard and conduits according to circuit drawing.	• Earth and ground test • Insulation and leakage test			
	<u>Test installations before energizing to ensure personal and electrical safety to include:</u>	4) Prepare layout diagram, installation plan and wiring diagram according to National electrical code for the following wiring installations on a board in PVC Surface conduit wiring system. Install, test and ensure the functioning of the wiring installation.			
	1. Check correct polarity of all Control and Protective Devices. 2. Short circuit test, Open circuit test, Insulation resistance and earth continuity test. 3. Checking complete function on all equipments installed to ensure correct operation of new installation as per instruction. 4. Set the installation to fully functioning and ensure customer can operate.	1. Two lamps controlled independently.	1	0	2
		2. Two lamps in series controlled by one switch.			
		3. One lamp, one fan and one three pin socket controlled from one switchboard.	1	0	2
		4. One lamp controlled from three different places. (Intermediate wiring)	1	0	1
		5. Consumer main board with Energy meter, Double pole iron Clad Switch and Distribution Board.			
		5) Anelectrical installation having one room having 2 light points, 1 fan point and one 5A socket. One light point and fan are controlled from two locations.(One lighting sub circuit and multiple switchboards)	1	0	2
		6) An electrical installation having • Two rooms with 1 light point, one fan point and one 5A socket. • One living room with two 5A sockets, 1 fan points and 2 light points. (Two lighting sub-circuits and multiple switchboards)	2	0	4
		7) An electrical installation having four 15A sockets and 4 light	2	0	4

Unit No.	Unit skill set (In cognitive domain)	Topics/Sub topics	Hours		
			L	T	P
		points. (TwoPower sub-circuits and one lighting sub-circuit)			
		8) Design a 2BHK residential installation scheme and estimate the materials required. Draw the layout diagram; installation plan and wiring diagram according to National electrical code for the following wiring installations.Also prepare the bill of materials.	2	0	4
UNIT-IV Fault Location & Earthing	<u>Fault location</u> - Diagnose the electrical installation and identify the problems such as bad connection, polarity of control and protective devices, incorrect wiring and equipment failure. <u>Earthing</u> - Prepare the plate, pipe for earthing according to ISI standard(IS : 3043 – 1987) - Test the earthing and measure the earth resistance using earth tester / Megger.	- Various faults in residential wiring. - Procedure for fault locating. - Checking the function of each component for proper functioning.	2	0	4
		- Reasons for system and equipment earthing - Terminologies related to earthing - Characteristics of TN,TT and IT systems	1	0	2
		Methods of preparing pipe earthing and plate earthing, according to B.I.S. recommendations.	3	0	6
		Specifications of Pipe Earthing			
		Specifications of Plate Earthing			
		TOTAL			26

6. SUGGESTED PRACTICAL SKILL EXERCISES

Unit No.	Practical Outcomes / practical exercises)	Unit No.	PO	CO	Hours		
					L	T	P
1	1) Demonstrate and practice use of PPE 2) Demonstrate how to free a person from electrocution 3) Demonstrate rescue techniques applied during fire hazard, correct method to move injured people during emergency 4) Use of appropriate fire extinguishers on different types of fires	1	1,4	1	0	0	2
2	Identify, specify, dismantle and assemble different types of Lighting accessories (Switches, Socket Outlets, Plugs and Lamp holders)	2	1,4	2	0	0	2
3	Identify, Measure the wire sizes and find the Current rating of different types of Single core Copper and Aluminum cables.	2	1,4	2	0	0	2
4	Identify, specify, dismantle and assemble different types of Conduits and its accessories, LT Switchgears and Protective devices. (Main Switch, Distribution Boards, Fuse, MCB, RCCB).	2	1,4	2	0	0	2
5	- Interpret the various BIS symbols used in electrical wiring diagrams. - Interpret Manufactures Catalogue for Cables and wiring accessories. - B.I.S Regulations, Recommendations and the National Electrical Code of practice pertaining to wiring installations.	2	1,4	2	0	0	2
6	- Identify the Phase wire, Neutral wire, Earth wire and Half wire in a switchboard. - Estimate the permissible load in sub circuits and calculation of cable sizes.	2	1,4	2	0	0	2
7	Prepare a layout diagram, circuit / schematic diagram, installation plan and wiring diagram for the following: a) A bed room with 2 Lamps, 1 fan and one 5A socket. b) A living room with 4 Lamps, 2 fans and three 5A socket. c) A Kitchen with one 15A socket, one 5A socket, one light point and one Exhaust fan. d) A bathroom with one 15A socket, one 5A socket and one	2	1,4	2	0	0	2

Unit No.	Practical Outcomes / practical exercises)	Unit No.	PO	CO	Hours		
					L	T	P
	light point.						
8	Practice conduits bending, drawing of cables through conduits. (on a board in PVC Surface conduit wiring system)	2	1,4	2	0	0	2
9	Practice the different wirings methods and joints. • Switch loop in • Junction box Loop in • Ceiling Rose Loop in • Simple Twist Joint • Married Joint in Stranded conductors	3	1,4	3	0	0	2
10	Identify the phase and neutral terminals of the supply and perform the following test on domestic wiring installation: • Continuity test (OC & SC Test) • Polarity test • Earth and ground test • Insulation and leakage test	3	1,4	3	0	0	2
Install, test and ensure the functioning of the wiring installation by preparing layout diagram, installation plan and wiring diagram according to National electrical code for the following wiring installations on a board in PVC Surface conduit wiring system.							
11	• Two lamps controlled independently. • Two lamps in series controlled by one switch.	3	1,4	3	0	0	2
12	One lamp, one fan and one three pin socket controlled from one switchboard.	3	1,4	3	0	0	2
13	One lamp controlled from three different places. (Intermediate wiring)	3	1,4	3	0	0	2
14	Consumer main board with Energy meter, Double pole iron Clad Switch and Distribution Board.	3	1,4	3	0	0	2
15	An electrical installation having one room having 2 light points, 1 fan point and one 5A socket. One light point and fan are controlled from two locations. (One lighting sub circuit and multiple switchboards)	3	1,4	3	0	0	2
16	An electrical installation having • Two rooms with 1 light point, one fan point and one 5A socket.	3	1,4	3	0	0	4

Unit No.	Practical Outcomes / practical exercises)	Unit No.	PO	CO	Hours		
					L	T	P
	One living room with two 5A sockets, 1 fan points and 2 light points. (Two lighting sub-circuits and multiple switchboards)						
17	An electrical installation having four 15A sockets and 4 light points. (Two Power sub-circuits and one lighting sub-circuit)	3	1,4	3	0	0	4
18	Design a 2BHK residential installation scheme and estimate the materials required. Draw the layout diagram; installation plan and wiring diagram according to National electrical code for the following wiring installations. Also prepare the bill of materials.	3	1,4	3	0	0	2
19	- Perform the basic electrical tests on the given wiring system and identify the problems such as bad connection, incorrect wiring and equipment failure if any. - Locate various faults in residential wiring and rectify them. - Check the function of each component for proper functioning.	4	1,4	4	0	0	4
20	Prepare pipe earthing and measure the earth resistance using earth tester / Megger.	4	1,4	4	0	0	4
21	Prepare plate earthing and measure the earth resistance using earth tester / Megger.	4	1,4	4	0	0	4
TOTAL							52

7. MAPPING OF CO WITH PO

CO	Course Outcome	PO Mapped	Experiment Linked	Cognitive Level R/U/A	Tutorial & Practical Sessions in Hrs
CO1	Comply with the safety procedures and standards	PO1,PO4	1	A	3
CO2	Select cables, wiring, optimize accessories and forecast.	PO1,PO4	2,3,4,5,6,7,8	A	21
CO3	Develop and test wiring installations as per standards and customer requirement.	PO1,PO4	7,8,9,10,11, 12,13,14,15, 16	A	36
CO4	Troubleshoot and repair the wiring installations for proper working.	PO1,PO4	17,18,19	A	18
Total					78

8. LEVEL OF MAPPING PO's with CO's

Course	CO's	Programme Outcomes (PO's)						
		1	2	3	4	5	6	7
Residential Electrical Wiring Practice	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								

9.SUGGESTED LEARNING RESOURCES:

- 1) A Course in Electrical Installation Estimating & Costing: J.B GUPTA, Katson Books.
- 2) Electrical Design Estimating & Costing: K.B.Raina & S.K.Bhattacharya, New Age International Publishers.
- 3) Electrician - Trade Practical & Trade Theory, Semester-2 (NSQF LEVEL 5), National Instructional Media Institute (NIMI), Chennai
- 4) IS 732 (1989): Code of Practice for Electrical Wiring Installations

10.List of Software/Learning Websites

1. Electrical switch board wiring diagram !Diy house wiring
<https://www.youtube.com/watch?v=JmwL-3rhgwY>
2. How to fit a flush double metal back box and double socket into a solid brick wall
<https://www.youtube.com/watch?v=1zMGbqJ7M64>
3. single phase meter wiring diagram
<https://www.youtube.com/watch?v=5YNSiE7HWsY>
4. Two Way Switching Explained - How to wire 2 way light switch
https://www.youtube.com/watch?v=opoEswRp_jg
5. Three way light switching | Intermediate switch
<https://www.youtube.com/watch?v=SUlt4ouCYPu>
6. Rcc Slab || Electrical Conduit Pipe || Working Process || House Wiring
<https://www.youtube.com/watch?v=5PtXIWjLpnc>
7. what is Ground ? Earth / Ground earthing
https://www.youtube.com/watch?v=zLW_7TPf310
8. Pipe Earthing
<https://www.youtube.com/watch?v=8PTNjw-hQIM>

11. Suggested list of student Activities

- 1) Troubleshoot a given wiring system and make a report on procedures followed to locate faults.
- 2) Estimate the materials required for wiring a domestic house, lab etc. and prepare a cost estimate.
- 3) Interact with an electrical contractor and involve in a physical wiring work and make a report of all activities.

- 4) Preparing extension box, switch box and wiring models, simple panel board, and distribution board, building wiring of a lab/ room, etc

12.ASSESSMENT FOR THEORY –PRACTICAL (P) COURSES

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 Hours	100	20	Average of three skill tests 20
4	CIE Assessment 4 (Skill test) - At the end of 7th week	3 Hours	100		
5	CIE Assessment 5 (Skill test) - At the end of 9th week	3 Hours	100		
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)	3 Hours	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 Hrs duration) as per scheme of evaluation and the obtained marks are scaled down to 20 marks.

12. SCHEME OF VALUATION FOR SKILL TEST CIE &SEE (CONTINUOUS INTERNAL & SEMESTER END EXAMINATION)

Sl. No.	Particulars	Marks
1	Schematic diagram/installation plan	15
2	Selection of related wiring accessories	15
3	Installation of the wiring system	30
4	Testing & Troubleshooting	20
5	Safety procedures followed	10
6	Viva-voice	10
Total		100

13. RUBRICS FOR ACTIVITY

RUBRICS FOR ACTIVITY (20marks)						
Appropriate rubrics to be developed by the faculty as per the activity						
Dimension	Beginning	Developing	Satisfactory	Good	Exemplary	Student Score
	1	2	3	4	5	
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collect much information; but very limited relate to the topic	Collects some basic information; most refer to the topic	Collects a great deal of information; all refer to the topic	
Fulfil team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties but unreliable.	Performs very little duties	Performs nearly all duties	Performs all duties of assigned team roles	
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Normally does the assigned work	Always does the assigned work without having to be reminded.	
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Talks good; but never show interest in listening others	Listens, but sometimes talk too much	Listens and speaks a fair amount	
Average / Total Marks:						

14.EQUIPMENT LIST**(For a batch of 20students)**

Sl.no	Name of equipment	Qty
1	Woodenboard2’x3’	20 Nos.
2	Electrician Tools Screwdriver8",10",12" Combinationplier6",8" Neon tester Roundnoseplier15cm Electricianknife10cm Heavydutyscrewdriver10",12"Nosefliers6" B.P Hammer1/2kg.1/4kgCold chisel15cm Trisquare15cm Formerchisel14cm,20cm,25cm Poker15cm Hacksaw30cm Handdrillingmachine6mmWirestripper10cm Measuringtapes5meter,Standardwiregauge.	10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 10 Nos 02 Nos. .
3	Wiring accessories a) PVCconduit1/2",3/4",1" b) Saddles of as sorted sizes c) DifferentSwitches5A,230v d) DifferentSockets5A,230v e) DifferentHolders5A,230v f) Ceiling Roses g) Wooden/PVC round blocks h) Wiresofdifferentssq.mm1.5sq.mm,2.5sq.mm,4.0sq.mm i) Different Gang boxes j) Kit-Katfuses5A,230v k) Screws of as sorted sizes l) 7/18,7/16SWGAluconductorPVCcable(for joints) m) Fluorescent lamp fitting n) Rotary switch o) 1.5sqmm copper wire p) Electronic regulator q) Buzzer	10lengthseach 20dozens 50 Nos. 50 Nos. 50 Nos. 50 Nos. 50 Nos. 50 Nos. 50 Nos. 50 Nos. 200 Nos 02coils 10 Nos. 10 Nos. 4 coils 5 Nos. 05 Nos
4	Megger500V	05 Nos.
5	Earth tester	02 Nos.
6	Tong tester	02 Nos.
6	AVO meters/multimeter	05 Nos.
7	Singlephaseenergymeter10A230volts-analogtype	05 Nos.
8	ELCB, RCCB, MCB, MCCB,16Asinglephaseandthreephase	02Nos.each
9	16A,32A,230vdifferentDPswitches	05Nos.each

**ದ್ವಿತೀಯ ಸೆಮಿಸ್ಟರ್ ಕನ್ನಡ ಬಾರದ / ಕನ್ನಡೇತರ ಡಿಪ್ಲೋಮಾ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
ನಿಗದಿಪಡಿಸಿದ ಪಠ್ಯಕ್ರಮ
ಬಳಕೆ ಕನ್ನಡ - 1**

Course Code	20KA21T	Semester : II	Course Group – AU/KA
Course Title	ಬಳಕೆ ಕನ್ನಡ – 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 (ಪರಿವಿಡಿ)

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 conservation. 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 : ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು -	01
Kannada Words in Conversation Hours	Total Teaching 26 Hours

**ದ್ವಿತೀಯ ಸೆಮಿಸ್ಟರ್ ಕನ್ನಡ ಬಲ್ಲ ಡಿಪ್ಲೋಮಾ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
ನಿಗದಿಪಡಿಸಿದ ಪಠ್ಯಕ್ರಮ
(ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ, ಸಂಸ್ಕೃತಿ ಮತ್ತು ಪರಂಪರೆ ಕುರಿತು)**

Course Code	20KA21T	Semester : II	Course Group – AU/KA
Course Title	ಸಾಹಿತ್ಯ ಸಿಂಚನ – ೧	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

ಸಾಹಿತ್ಯ ಸಿಂಚನ – ೧ (ಕಾರ್ಯಪುಸ್ತಕ) (20KA21T)

ಪಠ್ಯಪುಸ್ತಕದ ಪರಿವಿಡಿ	ಬೋಧನಾ ಅವಧಿ
1. ಕರ್ನಾಟಕದ ಸಂಕ್ಷಿಪ್ತ ಇತಿಹಾಸ ಮತ್ತು ಸಾಹಿತ್ಯದ ಬೆಳವಣಿಗೆ	01 ಗಂಟೆ
2. ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಸಂಕ್ಷಿಪ್ತ ಚರಿತ್ರೆ	01 ಗಂಟೆ
3. ಹಳಗನ್ನಡ ಸಾಹಿತ್ಯ - ಪಂಪ ಪೂರ್ವ ಯುಗ	
ಕನ್ನಡ ಸಾಹಿತ್ಯದ ರಚನೆಗೆ ಪ್ರಮುಖ ಪ್ರೇರಣೆಗಳು ಮತ್ತು ಪ್ರಭಾವಗಳು ಕನ್ನಡ ಸಾಹಿತ್ಯ ಪರಂಪರೆ ಮತ್ತು ರಾಜಾಶ್ರಯ ಕವಿರಾಜಮಾರ್ಗ ಮತ್ತು ವಡ್ಡಾರಾಧನೆ	03 ಗಂಟೆ
4. ಪಂಪ / ಚಂಪೂ ಯುಗದ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಮತ್ತು ಪರಂಪರೆ	
ಆದಿಕವಿ ಪಂಪ, ರನ್ನ, ಪೊನ್ನ, ಜನ್ನ, ಒಂದನೇ ನಾಗವರ್ಮ ಮತ್ತು ನಾಗಚಂದ್ರ 10 ಮತ್ತು 11ನೇ ಶತಮಾನದ ಸಮಕಾಲೀನ ಪ್ರಮುಖ ಕವಿಗಳು	04 ಗಂಟೆ
5. ನಡುಗನ್ನಡ ಸಾಹಿತ್ಯ - ವಚನ ಸಾಹಿತ್ಯ / ಬಸವ ಯುಗ	
ವಚನ ಸಾಹಿತ್ಯದ ಬೆಳವಣಿಗೆಗೆ ಕಾರಣಗಳು ಮತ್ತು ಅದರ ಮಹತ್ವ ಪ್ರಮುಖ ವಚನಕಾರರು, ವಚನ ಸಾಹಿತ್ಯದಲ್ಲಿ ವೈಚಾರಿಕತೆ ಮತ್ತು ಕಾಯಕ ತತ್ವ	04 ಗಂಟೆ
6. ಕುಮಾರವ್ಯಾಸ ಯುಗ ಮತ್ತು ಸಾಹಿತ್ಯದ ಇತರೆ ರೂಪಗಳು	
ರಗಳೆ - ಹರಿಹರ, ಷಟ್ಪದಿ - ಕುಮಾರವ್ಯಾಸ, ಲಕ್ಷ್ಮೀಶ ಮತ್ತು ರಾಘವಾಂಕ ಸಾಂಗತ್ಯ - ರತ್ನಾಕರವರ್ಣಿ,	04 ಗಂಟೆ
7. ದಾಸ ಸಾಹಿತ್ಯ / ಕೀರ್ತನೆಗಳು	02 ಗಂಟೆ
ಪುರಂದರದಾಸರು, ಕನಕದಾಸರು ಮತ್ತು ಇತರೆ ಕೀರ್ತನೆಕಾರರು	
8. ಇತರೆ ಸಾಹಿತ್ಯದ ಪ್ರಕಾರಗಳು	04 ಗಂಟೆ
ತ್ರಿಪದಿ - ಸರ್ವಜ್ಞ, ಜಾನಪದ ಸಾಹಿತ್ಯ, ತತ್ತ್ವಪದಗಳು - ಶಿಶುನಾಳ ಶರೀಫರು	
9. ಮಹಿಳಾ ಸಾಹಿತ್ಯ : ಹೆಳವನಕಟ್ಟೆ ಗಿರಿಯಮ್ಮ ಮತ್ತು ಸಂಚಿಹೊನ್ನಮ್ಮ, ಆಧುನಿಕ ಪೂರ್ವ ಕನ್ನಡ ಸಾಹಿತ್ಯ : ಕೆಂಪುನಾರಾಯಣ ಮತ್ತು ಮುದ್ದಣ	02 ಗಂಟೆ
10. ಹಳಗನ್ನಡ ಮತ್ತು ನಡುಗನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಒಂದು ಅವಲೋಕನ	01 ಗಂಟೆ
ಒಟ್ಟು ಬೋಧನಾ ಅವಧಿ 26 ಗಂಟೆಗಳು	26 ಗಂಟೆ

ಬಳಕೆ ಕನ್ನಡ -I ಮತ್ತು ಸಾಹಿತ್ಯ ಸಿಂಚನ -೦೧ ಪಠ್ಯಕ್ರಮಗಳಿಗೆ ನಿರಂತರ ಆಂತರಿಕ ಮೌಲ್ಯಮಾಪನದ

ಮಾರ್ಗಸೂಚಿಗಳು

(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 rd 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 th week	80 minutes	30	
3	CIE Assessment 3	Written test-3	- At the end of 13 th week	80 minutes	30	
4	CIE Assessment 4	MCQ/Quiz	- At the end of 5 th 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 th week	60 minutes	20	
6	CIE Assessment 6	Student activity & presentation	- At the end of 11 th week	60 minutes	20	
	Total Continuous Internal Evaluation (CIE) Assessment					50
				Total Marks		50