JSS MAHAVIDYAPEETHA

JSS POLYTECHNIC FOR THE DIFFERENTLY ABLED, MYSURU-06

CIRRICULUM STRUCTURE

II Semester Scheme of Studies-Diploma in Electronics and Communication Engineering (C-21)

Sl. No	Course Category / Teaching Department	Course Code	Course Title	Hours per Week			Total contact hours per week	Credits	CIE Marks		SEE Marks		Total Marks	Min Marks for Passing (including CIE)	Assigned Grade	Grade Point	SGPA and CGPA
				L	T	P			Max	Min	Max	Min					
THEORY COURSES																	SGPA & CGPA of 2nd Semester
1	SC/EC	5421	Project Management Skills	2	0	4	6	4	50	20	50	20	100	40			
2	BS/SC	5422	Engineering Mathematics	4	0	0	4	4	50	20	50	20	100	40			
PRACTICAL COURSES																	
3	EG	5423	Communication Skills in English	2	0	4	6	4	60	24	40	16	100	40			
4	ES/CS	5424	IT Skills	2	0	4	6	4	60	24	40	16	100	40			
5	ES/EC	5425	Electronic Components & Devices	2	0	4	6	4	60	24	40	16	100	40			
AUDIT COURSES																	
6	AU/KA	21KA 21/21 NK21	Kannada-I/ಸಾಹಿತ್ಯ ಸಿಂಚನ-1 /ಬಳಕೆ ಕನ್ನಡ-1	2	0	0	2	2	50	20	--	--	50	20			
7	AU/SL		Sign Language-II	2	0	0	2	Not for Examination									
8	AU/Psy		Psychology & Counseling-II	2	0	0	2	Not for Examination									
			Total	**18**	**0**	**16**	**34**	**22**	**330**	**132**	**220**	**88**	**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(3Hours Duration)
3. Practical course CIE and SEE is conducted for the 100 marks (3 Hours Duration)

Government of Karnataka

Department of Collegiate and Technical Education

JSS Polytechnic for the Differently Abled, Mysuru (AUTONOMOUS)

Course Code	**5421**	Semester	**II**
Course Title	**Project Management Skills**	Course Group	**PM**
No. of Credits	**4**	Type of Course	**EC/CS/AR**
Course Category	**EEC**	Total Contact Hours	**6 Hrs Per Week (2Theory +4 hrs of classroom activities)**
			96 Hrs Per Semester
Prerequisites	**10th 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 conceptualization 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 learning's
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

CO1	Apply the concepts of Project Management to real projects which are expressed in the form of the Project reports or Engineering drawings
CO2	Estimate Project resources needed Time, Material and Effort, and Plan for execution
CO3	Understand, analyze and assess the risks involved in a project and plan for managing them
CO4	Use Project Management Software and processes to track and control Projects
CO5	Conduct inspection of Projects and audit progress and bills. 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	02-00-06	8	8	4	20
2	Project Administration	06-00-14	8	12	20	40
3	Project Life cycle	06-00-14	8	12	20	40
4	Project Planning, Scheduling and Monitoring	06-00-14	8	12	20	40
5	Project Control, Review &Audit and Digital Project Management	08-00-20	16	20	24	60
	Total	28-00-68=96	**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 setsfor 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, Math's skills to understand Project management andproject planning, execution and control.	Introduction and definition, Features of a Project, Types of Projects, Benefits and Obstaclesin Project Management, Project Management Profession, Role of Project manager, Consultants, Project and Operation, Project Management Process, Project Scope.	02-00-06
2. Project Administration	Able to develop WBS, PEP and PM processes for Project with given inputs	Project Administration, ProjectTeam, Project Design, Work Breakdown Structure (WBS), Project Execution Plan (PEP), Systems and Procedure Plan, Project Direction, Communication and Co- ordination, Project Success. **Case Study 1**	06-00-14
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 RiskAnalysis, Time and Cost overruns. **Case Study 2a**	06-00-14
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 Projectevaluation **Case Study 2b**	06-00-14
5. Project Control, Review& Audit and Digital Project Management	Use Project Management lifecycle knowledge to Control project parameters, review and audit project performance. Understand latest trends of digital technologies impacting the domain of project management and application of the same in multiple scenario	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, Abandonment Analysis, Project Audit **Case Study 2c** Digital Technology trends in Project management, Cloud Technology, IoT, Smart cities, Data and analytics, case studies **Case study 3**	08-00-20

5. MAPPING OF CO WITH PO

CO	Course Outcome	PO Mapped	UNIT Linked	CL R/U/A	Sessionsin Hrs	TOTAL Marks
CO1	Understand the concepts of Project Management in relationto real projects which are expressed in the form of the Project reports or Engineering drawings **Case Study - 1**	**1, 2, 5, 7**	**1, 2**	**R/U/A**	08	20
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**	20	40
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**	20	40
CO4	Use Project Management methods with Software and/orprocesses to track and control Projects **Case Study-2b**	**1, 4, 6, 7**	4	**R/U/A**	20	40
CO5	Conduct inspection of Projects and audit progress and bills. Understand the Digital Technology trends in Project management, and Engineering Industries **Case Study- 2c. Case Study-3**	**1, 2, 5, 7**	5	**R/U/A**	28	60
				Total	**96**	**100**

	CO's	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)	
		1	**2**	**3**	**4**	**5**	**6**	**7**	**1**	**2**
Project Management	CO1	**3**	**3**	-	-	**2**	-	1	-	-
	CO2	**3**	**3**	**3**	-	-	-	1	-	-
	CO3	**3**	-	-	**3**	-	3	1	-	-
	CO4	**3**	-	-	**3**	-	3	1	-	-
	CO5	**3**	**2**	-	-	**2**	-	2	-	-
Average		**3**	**2.6**	**3**	**3**	**2**	**3**	**1.2**	-	-

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

6. INSTRUCTIONAL STRATEGY

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

1. Explicit instruction will be provided in intervention classes or by using differentdifferentiation strategies in the main classroom.
2. Lecturer method (L) does not mean only traditional lecture method, but different type ofteaching method and media that are employed to develop the outcomes.
3. Observing the way their more proficient peers use prior knowledge to solve current challenges and persevere in problem solving will help struggling students to improve their approach to engaging with rich contextual problems.
4. Topics be introduced always with a real life example and then answering What, how, whyand when.
5. The teacher is able to show different ways to solve the same problem and encourage thestudents to come up with their own creative ways to solve them.
6. In a perfect world, teacher would always be able to demonstrate how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding. When a concept cannot be applied in that manner, we can still share howit might be applied within mathematics.
7. Use oral and Sign language in the class room as many of the students are hearing impaired.
8. Use of Audio and Visual techniques like E-Books, PPT, Videos ete
9. Teaching through group discussion, Guest lecture ete.
10. Providing course materials.
11. Providing extra inputs through industrial visits, employability skills and career awareness programs.
12. Additional inputs' through MOOCs and NPTEL courses.
13. Hands on training through demonstration to tutorial classes in laboratories.

7. SUGGESTED LEARNING RESOURCES:

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

8. COURSE ASSESSMENT AND EVALUATION CHART

Sl.No	Assessment	Duration	Max marks	Conversion
1	CIE Assessment 1 (Written Test -1) At the end of 6 th week	80 minutes	30	Average of three written tests 30
2	CIE Assessment 2 (Written Test -2) At the end of 10th week	80 minutes	30	
3	CIE Assessment 3 (Written Test -3) At the end of 15th week	80 minutes	30	
4	CIE Assessment 4 (Group Assignment -1) At the end of 8th week	60 minutes	20	Average of three 20
5	CIE Assessment 5 (Group Assignment -2) At the end of 13th week	60 minutes	20	
6	CIE Assessment 6 (Individual Student activity/Assignment) At the end of 16th 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 timeduration 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 nexthigher digit

3. 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.

9. DETAILED COURSE CONTENT

Unit No And Name	DETAILED COURSE CONTENT	CONTACT HRS	TOTAL
1.Introduction	1.1 Introduction	4	08
	1.2 Meaning of Project		
	1.3 Definition and No Change Mode		
	1.4 Features of a Project		
	1.5 Types of Projects		
	1.6 Benefits of Project Management		
	1.7 Obstacles in Project Management		
	1.8 Project Management A Profession		
	1.9 Project Manager and His Role		
	1.10 Project Consultants		
	1.11 What is Operation?	4	
	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 Administration	2.1 Essentials of Project Administration	3	20
	2.2 Project Team		
	2.3 Project Design		
	2.4 Work Breakdown Structure (WBS)		
	2.5 Project Execution Plan (PEP)	8	
	2.6 Contracting Plan		
	2.7 Work Packing Plan		
	2.8 Organization Plan	3	
	2.9 Systems and Procedure Plan		
	2.10 Project Procedure Manual		
	2.11 Project Diary	3	
	2.12 Project Execution System		
	2.13 Project Direction		
	2.14 Communication in a Project	3	
	2.15 Project Co-ordination		
	2.16 Pre-requisites for Successful Project Implementation		

3. Project Life cycle	3.1 Introduction	10	20
	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	5	
	3.8 Types of Risks: Illustrations		
	3.9 Risk Assessment Techniques with Illustrations		
	3.10 Project Cost Risk Analysis	5	
	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	20
	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	4	
	4.16 Situation Analysis and Problem Definition		
	4.17 Setting Goals and Objectives		
	4.18 Generating Structures and Strategies		
	4.19 Implementation		
	4.20 What is Project Evaluation?	4	

	4.21 Why is Project Evaluation Important?		
	4.22 What are the Challenges in Monitoring and Evaluation?		
6. Project Control, Review and Audit AND Digital Project Management	5.1 Introduction	6	28
	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	4	
	5.11 Initial Review		
	5.12 Post Audit		
	5.13 Performance Evaluation		
	5.14 Abandonment Analysis		
	5.15 Objectives of Project Audit	4	
	5.16 Functions of Project Auditor		
	5.17 Project Audit Programme		
	5.18 Difficulties in Establishing Audit Purpose and Scope		
	6.19 Digital Technology trends in Project management	2	
	6.20 Cloud Technology, IoT, AR and VR applications in Project management, Smart Cities	2	
	6.21 Data Science and Analytics in Project Management	2	
	6.22 Case Studies	2	

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 1: Residential House – Project Execution Plan

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 20^{th} wedding anniversary which is 18 months away.
v) His parents cannot 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, overshot the time and money availableand hence Dr Sunil was unhappy with the Architect firm who recommended the Contractor.

Tasks:

- 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 planfor contractors
- Estimate the quantities
- Discuss on the possible reasons for delay and methods with which performance toboth 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. Aleading construction company has come forward to complete the hospital works fromconcept 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 Organization 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 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

What happens if the client decides to complete the ground floor roof 15 days earlier?
i) What happens if the client reduces the inflow of project funds by 50% for the month 4?
ii) 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

IA 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 for End Examination

PROJECT MANAGEMENT SKILLS

Duration: 3 Hours] **Subject Code: 3421** **[Max. Marks: 100**

Instruction: *Answer all the questions considering the internal choice in each section. Each section carries 20 marks.*

SECTION – 1

1. Multiple choice Four questions
4 Marks
2. a)
8 marks

OR

b)

3. a)
8marks

OR

b)

SECTION – 2

4. Multiple choice Four questions
4 Marks
5. a)
8 marks

OR

b)
6. a)
8marks

OR

b)

SECTION – 3

7. Multiple choice Four questions
4 Marks
8. a)
8 marks

OR

b)
9. a)
8marks

OR

b)

SECTION-4

10. Multiple choice Four questions
4 Marks
11. a)
8 marks

OR

b)
12. a)
8marks

OR

b)

SECTION – 5

13. Multiple choice Four questions
4 Marks
14. a)
8 marks

OR

b)
15. a)
8marks

OR

b)

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Government of Karnataka

Department of Collegiate and Technical Education

JSS Polytechnic for the Differently Abled, Mysuru (AUTONOMOUS)

Course Code	**5422**	Semester	**II**
Course Name	**ENGINEERING MATHEMATICS**	Course Group	**EC,CS, AR**
Number of Credits	**4**	Type of Course	**Lecture**
Course Category	**Theory**	Total Contact Hours	**4 Hrs. / Week** **64 Hrs. / Semester**
Prerequisites	**SSLC Mathematics**	Teaching Scheme	**[L : T : P] = 4 : 0 : 0**
CIE Marks	**50**	SEE Marks	**50**

RATIONALE:

Engineering Mathematics provides students a strong foundation to develop their skills in the areas of analytical, problem solving, real time applications and to understand the world better. This course enable students to develop mathematical conceptualization, inquiry, reasoning and communication skills and the ability to use mathematics to formulate and solve problems in all areas of engineering and technology. This course provides opportunities for students to remember understand and apply the knowledge studied in engineering problems through the three major areas of learning: Algebra, Trigonometry and Calculus. Most of the differently Abled students are having learning difficulties due to their disabilities, specifically lack of analytical and reasoning skills, this course provides a strong foundation to bridge their level of understanding through mathematics.

1. COURSE SKILL SET

At the end of the course, the students will be able to acquire the following skills:

1. Solve system of linear equations arise in different engineering fields.
2. Incorporate the knowledge of calculus to support their concurrent and subsequent engineering studies.
3. Adopt quantitative problem solving skills.
4. Ability to understand both concrete and abstract problems.
5. Apply mathematical abilities in real time situation.
6. Improve the analytical and communication skills.

2. COURSE OUTCOMES

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

CO-1	Apply the concepts of matrices and determinants to solve the system of linear equations and find Eigen values of square matrices of order 2.
CO-2	Find the equation of straight lines of different forms and to determine the parallelism and perpendicularity of straight lines.
CO-3	Calculate trigonometric ratios of allied and compound angles and also transformation of sum into product and vice versa.
CO-4	Differentiate various functions and apply the concept of real time problems.
CO-5	Integrate various functions and apply the concept of evaluating the area and volume through definite integrals.

3. COURSE CONTENT OUTLINE WITH TEACHING HOURS AND MARKS

UNIT NO.	UNIT TITLE	TEACHING HOURS	DISTRIBUTION LEVELS (Marks)			
			R	U	A	TOTAL
1	Matrices and Determinants	12	8	20	12	40
2	Straight Lines	11	8	20	12	40
3	Trigonometry	12	8	20	12	40
4	Differential Calculus and Applications	13	8	20	12	40
5	Integral Calculus and Applications	13	8	20	12	40
CIE Tests		03				
Total		**64**	**40**	**100**	**60**	**200**

(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 accessed in order to develop UnitSkill Sets for achieving CO to attain identified skill sets:

UNIT NO.	UNIT SKILL SET	TOPICS / SUBTOPICS	HOURS L-T-P
UNIT-1 MATRICES AND DETERMINANTS	Use algebraic skills which are essential for the study of systems of linear equations, matrixalgebra and Eigen values.	1.1 Matrix and types 1.2 Algebra of Matrices (addition, subtraction, scalar multiplicationand multiplication) 1.3 Evaluation of determinants of a square matrix of order 2 and 3.Singular matrices 1.4 Cramer's rule for solving system of linear equations involving 2 and3 variables 1.5 Ad joint and Inverse of matrices oforder 2 and 3 1.6 Characteristic equation and Eigenvalues of a square matrix of order 2	12-0-0
UNIT – 2 STRAIGHT LINES	❖ Able to find the equation of a straight line in different forms ❖ Determine whether the lines are parallelor perpendicular	2.1 Slope of a straight line 2.2 Intercepts of a straight line 2.3 Intercept form of a straight line 2.4 Slope-intercept form of a straight line 2.5 Slope-point form of a straight line 2.6 Two-point form of a straight line 2.7 General form of a straight line 2.8 Angle between two lines and conditions for lines to be paralleland perpendicular 2.9 Equation of a straight line parallelto the given line 2.10 Equation of a straight line perpendicular to the given line	11-0-0

UNIT – 3 TRIGONOME TRY	❖ Use basic trigonometric skills in finding the trigonometric ratiosof allied and compound angles ❖ Able to find all the measurable dimensions of a triangle	3.1 Concept of angles, their measurement, Radian measureand related conversions. 3.2 Signs of trigonometric ratios in different quadrants (ASTC rule) 3.3 Trigonometric ratios of allied angles (definition and the table oftrigonometric ratios of standard allied angles say 900±Θ, 1800±Θ, 2700±Θ and 3600±Θ) 3.4 Trigonometric ratios of compound angles (without proof) 3.5 Trigonometric ratios of multipleangles 3.6 Transformation formulae	12-0-0
UNIT – 4 DIFFERENTIAL CALCULUS AND APPLICATIONS	❖ Able to differentiate algebraic, exponential, trigonometric, logarithmic and composite functions ❖ Able to find higher order derivatives ❖ Understand and work with derivatives as ratesof change in mathematical models ❖ Find local maxima and minima of a function	4.1Derivatives of continuous 4.2 functions in an interval (List of formulae) 4.3Rules of differentiation 4.4Successive differentiation (up to second order) 4.5Applications of differentiation	13-0-0
UNIT – 5 INTEGRAL CALCULUS AND APPLICATIONS	❖ Understand thebasic rules of integration and ❖ Evaluate integralswith basic integrands. ❖ Identify the methodsto evaluate integrands Apply the skills to evaluate integrals representing areasand volumes	5.1 List of standard integrals and Basic rules of integration 5.2 Evaluation of integrals of simple function and their combination 5.3 Methods of integration 5.4 Concept of definite integrals 5.5 Applications of definite integrals	13-0-0

5. MAPPING OF CO WITH PO

CO	Course Outcome	PO Mapped	Unit Linked	CL R/U/A	Theory in Hrs.	Total Marks
1	Determine the inverse of a square matrixusing matrix algebra. Apply the concepts of matrices and determinants to solve system of linear equations and find Eigen values associated with the square matrix.	1, 7	1	R/U/A	12	40
2	Find the equation of straight line in Different forms. Determine the parallelismand perpendicularity of lines.	1, 7	2	R/U/A	11	40
3	Calculate trigonometric ratios of allied angles and compound angles. Transformsum (difference) of trigonometric ratios Into product and vice versa.	1, 7	3	R/U/A	12	40
4	Differentiate various continuous functions And apply the concept in real lifesituations.	1, 3,7	4	R/U/A	13	40
5	Integrate various continuous functions and apply the concept in evaluating the areaand volume through definite integrals.	1, 3,7	5	R/U/A	13	40
Total					**61**	**200**

6. LEVELS OF CO AND PO MAPPING

Course	CO's	Programme Outcomes (POs)						
		1	**2**	**3**	**4**	**5**	**6**	**7**
ENGINEERING MATHEMATICS	**CO-1**	3	1	0	0	0	0	3
	CO-2	3	1	0	0	0	0	3
	CO-3	3	1	0	0	0	0	3
	CO-4	3	1	3	0	0	0	3
	CO-5	3	1	3	0	0	0	3
Levels: 3 – Highly Mapped, 2 – Moderately Mapped, 1- Low Mapped and 0 – Not Mapped								

7. INSTRUCTIONAL STRATEGY

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

1. Explicit instruction will be provided in intervention classes or by using different differentiation strategies in the main classroom.
2. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching method and media that are employed to develop the outcomes.
3. Observing the way their more proficient peers use prior knowledge to solve current challenges and persevere in problem solving will help struggling students to improve their approach to engaging with rich contextual problems.
4. Ten minutes a day in homeroom, at the end of class, or as a station in a series of math activities will help students build speed and confidence.
5. Topics will be introduced in a multiple representation.
6. 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.
7. In a perfect world, teacher would always be able to demonstrate how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding. When a concept cannot be applied in that manner, we can still share how it might be applied within mathematics.

8. SUGGESTED LEARNING RESOURCES:

Sl. No.	Author	Title of Books	Publication / Year
1.	B.S. Grewal	Higher Engineering Mathematics	Khanna Publishers, New Delhi, 40th Edition,2007
2.	G. B. Thomas, R. L. Finney	Calculus and Analytic Geometry	Addison Wesley, 9th Edition, 1995
3.	S.S. Sabharwal, Sunita Jain, Eagle Parkashan	Applied Mathematics, Vol. I & II	Jalandhar.
4.	Comprehensive Mathematics	Comprehensive Mathematics Vol. I & II	Laxmi Publications, Delhi
5.	Reena Garg & Chandrika Prasad	Advanced Engineering Mathematics	Khanna Publishing House, New Delhi

9. COURSE ASSESSMENT AND EVALUATION CHART

SL. NO.	Assessment	Duration	Max Marks	Conversion
1.	CIE Assessment – 1(Written Test – 1) At the end of 6th Week	80 Minutes	30	Average of three written tests 30 Marks
2.	CIE Assessment – 2(Written Test – 2) At the end of 10th Week	80 Minutes	30	
3.	CIE Assessment – 3(Written Test – 3) At the end of 15th Week	80 Minutes	30	
4.	CIE Assessment 4 (MCQ / Quiz) At the end of 8thWeek	60 Minutes	20	Average of three 20
5.	CIE Assessment 5(Open book Test) At the end of 13th Week	60 Minutes	20	
6.	CIE Assessment 6 (Student Activity / Assignment)At the end of 16th Week	60 Minutes	20	
Total Continuous Internal Evaluation (CIE) Assessment				**50**
7.	Semester End Examination (SEE) Assessment (Written Test)	3 Hours	100	50
Total Marks				**100**

Note:

1. SEE (Semester End Examination) is conducted for 100 Marks theory courses for time duration of 3 Hours.
2. Three CIE (written test), each of 30 marks for a time duration of 80 minutes shall be conducted. Also, three CIE (MCQ or Quiz/Open book test/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
3. 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 CONTENTS

UNIT NO. AND NAME	DETAILED COURSE CONTENT	CO	PO	CONTAC THRS.	TOTAL
UNIT-1 MATRICES AND DETERMINANTS	Definition and types of matrices	1	1, 7	1	12
	Algebra of Matrices (addition, subtraction and scalar multiplication) problems	1	1, 7	1	
	Multiplication of Matrices(problems)	1	1, 7	1	
	Evaluation of 2x2 ,3x3 determinants and Singular matrices and problems in finding unknown variable	1	1, 7	2	
	Cramer's rule to solve system of linear equation with 2 variables	1	1, 7	2	
	Minors, Cofactors of elements of square matrices of order 2 and 3 and problems	1	1, 7	1	
	Adjoint and Inverse of a square matrix of order 2 and problems	1	1, 7	2	
	Characteristic equation and Eigen values of a2x2 matrix and problems	1	1, 7	2	
UNIT-2 STRAIGHTLINES	Slope of the straight line(provided with inclination and two points on the line aswell) and problems	2	1, 7	1	11
	Intercepts of a straight line and problems	2	1, 7	1	
	Intercept form of a straight line and Problems	2	1, 7	1	
	Slope-intercept form of a straight line and Problems	2	1, 7	1	
	Slope-point form of the straight line andproblems	2	1, 7	1	
	Two-point form of a straight line and Problems	2	1, 7	1	
	General form of a straight line and problems on finding slope and intercepts.	2	1, 7	1	
	Angle between two straight lines and conditions for the lines to be parallel and perpendicular and related problems	2	1, 7	2	
	Equation of a line parallel to the given line and problems	2	1, 7	1	
	Equation of a line perpendicular to the given Line and problems	2	1, 7	1	

UNIT – 3 TRIGONOMERY	Concept of angles and their measurement. Radian measures and related conversions (degree to radian and vice-versa) and problems	3	1, 7	2	12
	Signs of trigonometric ratios in different quadrants (ASTC rule)	3	1, 7	2	
	Trigonometric ratios of allied angles (definition and the table of trigonometric ratios of standard allied angles say $90^0 \pm \theta$, $180^0 \pm \theta$, $270^0 \pm \theta$ and $360^0 \pm \theta$) and related problems	3	1, 7	2	
	Trigonometric ratios of compound angles (without proof)	3	1, 7	2	
	Trigonometric ratios of multiple angles (sin2A, cos2A, tan2A, sin3A, cos3A and tan3A) and related problems	3	1, 7	2	
	Transformation formulae (without proof) assum to product. (Simple problems)	3	1, 7	1	
	Transformation formulae (without proof) as product to sum. (Simple problems)	3	1, 7	1	
UNIT – 4 DIFFERENTIAL CALCULUS AND APPLICATIONS	Definition of a derivative of a function. Listing the derivatives of standard functions.(Algebraic, trigonometric, exponential, logarithmic & inverse trigonometric functions)	4	1, 3, 7	1	13
	Addition and subtraction rule of differentiation and problems	4	1, 3, 7	2	
	Product rule and quotient rule of differentiation and problems	4	1, 3, 7	2	
	Composite functions and their derivatives. (CHAIN RULE)	4	1, 3, 7	1	
	Successive differentiation up to second order	4	1, 3, 7	2	
	Slope of the tangent and normal to the given curve and their equations and problems	4	1, 3, 7	2	
	Rate measure: velocity and acceleration at a point of time and problems	4	1, 3, 7	2	
	Maxima and Minima of a function and problems	4	1, 3, 7	1	

UNIT – 5 INTEGRAL ALCULUS AND APPLICATIONS	Definition of an indefinite integral. Listingthe Integrals of standard functions. (Algebraic, trigonometric, exponential, logarithmic and inverse trigonometric functions)	5	1, 3, 7	1	13
	Rules of Integration. Evaluation of integrals with simple integrands and their combinations and related problems	5	1, 3, 7	2	
	Evaluation of integrals by Substitution method	5	1, 3, 7	2	
	Evaluation of integrals by Integration by parts	5	1, 3, 7	2	
	Definition of definite integrals and theirevaluation and related problems	5	1, 3, 7	2	
	Area enclosed by the curves by integralmethod	5	1, 3, 7	2	
	Volume generated by the curve rotated about an axis by integral method	5	1, 3, 7	2	

First Semester Examination, Model Question Paper

ENGINEERING MATHEMATICS

Duration: 3 Hours] **Subject Code: 3411/5411/1411** **[Max. Marks: 100**

Instruction: Answer one full question from each section. One full question carries 20 marks..

SECTION – 1

1. a i) If $\begin{vmatrix} x & 5 \\ 0 & 3 \end{vmatrix}$ = 0 Then the value of 'x' is _____ **4**

a) 0 b)3 c)5 d)2

ii) The order of matrix A=$\begin{bmatrix} 2 & 3 & 1 \\ 5 & 6 & 7 \end{bmatrix}$ is _____

a)2x1 b)2x3 c)3x2 d)3x3

iii) If A=$\begin{bmatrix} 5 & 0 \\ 0 & x \end{bmatrix}$ is a scalar matrix, then the value of x is _____

a)5 b)1 c)-5 d)0

iv) The value of a determinant $\begin{vmatrix} 2 & 3 \\ 6 & 4 \end{vmatrix}$ is _____

a) 10 b)-10 c)4 d)2

b. If A=$\begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$ and B=$\begin{bmatrix} 5 & -1 \\ 4 & 1 \end{bmatrix}$, find AB. 5

c. Solve the equations $x + y = 0, y + z = 1$ *and* $x + z = 3$ for y by Cramer's rule 5

d) If A= $\begin{bmatrix} 3 & 1 & 2 \\ -2 & 1 & 1 \\ 3 & 0 & 2 \end{bmatrix}$ find A^{-1} 6

2. a i) The order of matrix A= $\begin{bmatrix} 2 & 2 \\ 0 & 1 \end{bmatrix}$ is _____ 4

a)2x2 b)2x1 c)3x2 d)1x1

ii) The value of a determinant $\begin{vmatrix} 3 & 0 \\ 1 & 2 \end{vmatrix}$ is _____

a)6 b)0 c)-6 d)-1

iii) If A=$\begin{bmatrix} x & 0 \\ 0 & 1 \end{bmatrix}$ is a unit matrix then the value of x is _____

a)3 b)1 c)-1 d)0

iv) If $\begin{vmatrix} x & 2 \\ 2 & 1 \end{vmatrix}$ =0 then the value of x is _____

a)1 b)4 c)-4 d)0

b) If A=$\begin{bmatrix}-1 & 0\\ 5 & 3\end{bmatrix}$ and B=$\begin{bmatrix}3 & 5\\ 2 & 4\end{bmatrix}$, prove that adj(AB)=[adj(B)adj(A) 5

c) Verify whether AB=BA for the matrices. 5

A=$\begin{bmatrix}1 & 0 & 5\\ -1 & 2 & 1\\ 5 & 4 & 3\end{bmatrix}$ and B=$\begin{bmatrix}3 & -1 & 4\\ 0 & -1 & 1\\ 2 & 4 & -2\end{bmatrix}$

d) Find the characteristics equation and Eigen values for the matrix $\begin{bmatrix}2 & -1\\ -3 & 1\end{bmatrix}$ 6

SECTION – 2

3. a i) The slope of x - axis is _____ 4

a) 0 b)-1 c)∞ d)1

ii) The x intercept of a line $2x - 3y + 5 = 0$ is _____

a) 1/3 b)-5/2 c) 5/2 d) 2/5

iii) The slope of a line which is Inclined 45° to the $x$axis is _____

a)-1 b)1 c)0 d)5

iv)The condition if the two lines are parallel is _____

a)$m_1=-m_2$ b)$m_1=m_2$ c)$m_1xm_2=1$ d) $m_1xm_2=-1$

b. Write the standard point- slope form of a straight line. Find the equation. 5
of the straight line passing through the point (5, 6) and slope 3 units.

c. Find the equation of the straight line whose x intercept and y intercept are 3 and 4 respectively by writing the standard form of it. 5

d. Find the acute angle between the lines $x+3y+1=0$ and $2x- y +4=0$. 6

4. a i) The slope of y - axis is _____ 4

a) ∞ b) 0 c)-1 d)1

ii) The y intercept of a line $ax + by + c = 0$ is _____

a)-c/a b)c/a c)a/b d)b/a

iii) The condition for lines are perpendicular is_____

a) $m_1=m_2$ b) $m_1=-m_2$ c) $m_1xm_2=-1$ d) $m_1xm_2=1$

iv) The value of 'c' if the line passes through the origin is _____

a) ∞ b)0 c) -1 d)1

b. Find the equation of the straight line which has an angle of inclination is 45^0 with x axis

and y intercept of 2 units by writing its standard form. 5

c. Write the standard form of a straight line. Find the equation of the straight line passing Through the point (2, -3) and(5,4). 5

d. Find the equation of the straight line passing through the points (-3, 2) and perpendicular to the line 4x-y+7=0 6

SECTION – 3

5. a i) The value of 30^0 in radian is _____ 4

a) $\frac{\pi}{6}$ b) $\frac{\pi}{3}$ c)$\frac{\pi}{4}$ d) $\frac{\pi}{2}$

ii) The value of sin (-θ) is _____

a) - sin θ b) $cos\theta$ c) tan θ d) cot θ

iii) The value of cos (180+ θ) is _____

a) - sin θ b) sin θ c)$-\ cos\theta$ d)cos θ

iv) If $\theta = 75$ then the value of sin 2 θ is _____

a) $\frac{1}{2}$ b) $\frac{\sqrt{3}}{2}$ c)$\frac{-1}{2}$ d) $\frac{-\sqrt{3}}{2}$

b . Prove that $\frac{\sin(A+B)+Sin(A-B)}{Cos(A+B)+Cos(A-B)} = \tan A$ 5

c. prove that : sin 3 θ= 3sin θ- 4sin^3 θ 5

d. prove that : cos20 cos40 cos60 cos80= $\frac{1}{16}$ 6

6. a i) The value of $\frac{\pi}{3}$in degrees is _____ 4

a)30^0 b)45^0 c)60^0 d)90^0

ii) If sin $\theta = +ve$ and cos θ =-ve in _____ quadrant

a)I b)II c)III d)IV

iii) The value of sin (360+ θ) is _____

a) sin θ b) $cos\theta$ c) -sin θ d)tan θ

iv) If θ =30^0 then the value of cos2 θ is _____

a)$\frac{1}{2}$ b) $\frac{\sqrt{3}}{2}$ c) $\frac{-\sqrt{3}}{2}$ d) $\frac{-1}{2}$

b. Simplify $\frac{\sin(-\theta)}{\sin(\pi-\theta)} - \frac{tan\frac{\pi}{2}-\theta}{\cot(\pi-\theta)} + \frac{cos\left(\frac{\pi}{2}+\theta\right)}{cos\left(\frac{3\pi}{2}-\theta\right)}$ 5

c. If tan A = $\frac{1}{3}$; tan B = $\frac{1}{2}$, find tan (A+B) 5

d. Without using calculator and table find the value of sin 600^0 cos330^0 +cos120^0 sin150^0 6

SECTION – 4

7. a i) $\frac{d}{dx}(\sqrt{x})$ is _____ 4

a)$\frac{1}{2\sqrt{x)}}$ b) $\sqrt{x)}$ c)2 $\sqrt{x)}$ d) 0

ii) $\frac{d}{dx}(x^5)$ is _____

a)5 x^5 b) 5 x^6 c) 5x^6 d) 0

iii) The distance travelled by a body is 's' in time 't' seconds then its velocity at 't' is _____

a)$\frac{ds}{dt}$ b) $\frac{dt}{ds}$ c) d^2s/dt^2 d) dt^2/ds^2

iv)If 'm' is the slope of a Tangent then slope of a normal is _____

a)0 b)-m c)$\frac{1}{m}$ d)$-\frac{1}{m}$

b. If y= $\frac{1-\tan x}{1+\tan x}$ find $\frac{dy}{dx}$ 5

c. If y= (e^x - $\sin^{-1}$x+4log x)^{10} find $\frac{dy}{dx}$ 5

d. If S= t^3-t^2+9t+8 where S is the distance travelled by particle in t seconds. Find the velocity and acceleration at t=2 seconds. 6

8. a i)$\frac{d}{dx}(20)$ is _____ 4

a)0 b)10 c)20 d)5

ii)$\frac{d}{dx}(\tan^{-1}x)$ is _____x^2

a)1/1+x^2 b) 1/1-x^2 c) 1/x d) 1/ x^2

iii) If 'S' is the displacement of a body in time t seconds its acceleration of a body at 't' is

a)$\frac{ds}{dt}$ b) $\frac{-dt}{ds}$ c) d^2s/dt^2 d)$-d^2s/dt^2$

iv) the slope of a tangent is ½, then slope of normal is _____

a)2 b)-2 c))$-\frac{1}{2}$ d) $\frac{1}{2}$

b. If $y=x^2 \log(e^x)$ find $\frac{dy}{dx}$ 5

c. iif $y= \tan^{-1} x$ show that $(1+x^2)y_2+2xy_1$ 5

d. find the equation of the tangent to the curve $y= 2x^3-5x^2+8x-6$ at the point (1,-1). 6

SECTION – 5

9. a i) The value of $\int cosx\, dx$ is _____ 4

a) sin*x* +c b)cos*x*+*c* c) tan*x*+*c* d)$\frac{1}{x}$

ii) the value of $\int_0^1 x\, dx$ is _____

a)1/2 b)-1/2 c)3/2 d)-3/2

iii) Thr area under a curve y=f (x) between the ordinate x=a and x=b is _____

a) $\int_a^b f^1(x)dx$ b) $\int_a^b y\, dx$ c) $\int_a^b y^2 \text{dx}$ d)$\int_a^b y\, 3\ \text{dx}$

iv) The value of $\int_0^2 1.x\, dx$ is _____

a)2 b)4 c) 0 d) -2

b) Evaluate $\int_0^{\frac{\pi}{2}} \sin^2 x\, dx$ 5

c) Evaluate $\int x \log x\, dx$ 5

d. Find the area bounded by the curve $y=x^2+1$, *x* –axis and the coordinates at *x*=1; *x*=2 6

10. a i) The value of $\int x\, dx$ is _____ 4

a) $\frac{x2}{2}$+c b) $\frac{x3}{3}$ c) 1 d) 0

ii) the value of $\int_0^1 2x\, dx$ is _____

a)1 b) $\frac{1}{2}$ c) 2 d) 0

iii) The volume generated by the curve y=3(*x*) between the ordinates *x*=a and *x*=b around the *x*-axis is

a) $\int_a^b y^2 \text{dx}$ b)$\pi \int_a^b y\, dx$ c) $\pi \int_a^b y^2 \text{dx}$ d)$\int_a^b y\, 3\ \text{dx}$

iv) $\int 1/(1+x^2)$ is _____

a) $\text{Sin}^{-1}x$ +c b)$\cos^{-1}x+c$ c) $\tan^{-1}x+c$ d) $\cot^{-1}x+c$

b. Evaluate $\int \text{Sin}^6 x \cos x\, dx$ 5

c. Evaluate $\int x\, e^x\, dx$ 5

d. Find the volume generated by rotating the curve $y=\sqrt{x+2}$about x axis between x=0and x=2. 6

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Government of Karnataka

Department of Collegiate and Technical Education

JSS Polytechnic for the Differently Abled, Mysuru (AUTONOMOUS)

Course Code	**5423**	Semester	**II**
Course Name	**Communication Skills in English**	Course Group	**Core**
No. of Credits	**4**	Type of Course	**Lecture + Practice**
Course Category	**AR/CS/EC/JD**	Total Contact Hours	**6 Hrs. / Week** **96 Hrs. / Semester**
Prerequisites	**English Knowledge**	Teaching Scheme	**[L : T : P] = 0: 2 : 4**
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.

1. COURSE SKILL SET

At the end of the course, the students will be able to acquire the following skills:

1. Enable critical thinking
2. Empower with active learning skills
3. Enable team work/collaboration
4. Develop Reading and communication skills
5. Speak formally and informally in the day-to-day context.

2. COURSE OUTCOMES

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

	Course Outcome
CO1	Acquire Knowledge functional grammar concepts& Reading.
CO2	Inculcate Importance of Body language and its impact.
CO3	Acquire Knowledge on Articulate ideas and engage in impromptu conversations.
CO4	Acquire knowledge on confidence in presenting written content in logical and organized manner.

3. COURSE CONTENT OUTLINE WITH TEACHING HOURS AND MARK

UNIT NO	UNIT TITLE	TEACHING HOURS	DISTRIBUTION LEVELS (Marks)			TOTAL
			R	U	A	
01	**Parts of Speech**	24	05	05	-	10
02	**Non-Verbal Communication**	24	-	05	05	10
03	**Communication skills**	24	05	-	05	10
04	**Writing skills**	24	05	-	05	10
Total		**96**	**15**	**10**	**15**	**40**

(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 accessed in order to develop Unit Skill Sets for achieving CO to attain identified skill sets:

UNIT NO.	UNIT SKILL SET	TOPICS / SUBTOPICS	HOURS L-T-P
UNIT-1. Parts of Speech	Understand of Functional Grammar Concepts	2.1 Definitions- Meanings of Parts of speech 2.2 Parts of speech Sentence structure 2.3 Examples of right sentences 2.4 Reading Comprehension 2.5 Reading a paragraph in Braille/ text 2.6 Time Concept Activities 2.7 Reading Fluency Activities 2.8 Comprehending the read message and understanding it, reproduce with the write up - Exercises/ Activities	0-15-09

UNIT– 2 **Non-Verbal Communication**	Understand the strategies for effective body language	2.1 Body language tips: • Keep appropriate distance • Take care of your appearance • Maintain eye contact 2.2 Do's in Non-Verbal Communication • Smile • stand up confident and straight • use appropriate hand gestures • Make eye contact with audience • Hold neat note cards while presenting content 2.3 Don'ts in Non-Verbal Communication • point at anyone • rock backwards and forwards • pace across front of room • read off slides read off notes • 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. 2.4 Ten Different types of Non-Verbal Communication a) Facial Expressions b) Gestures c) Paralinguistic's D) PROXIMIC" (PROXIMITY/PERSONAL SPACE) e) EYE CONTACT/EYE GAZE f) HAPTIC (PHYSICAL TOUCH)	0-14-10

UNIT- 3 Communication skills	Understand and apply knowledge on Communication and demonstration skills	3.1 Language Functions 3.2 General Knowledge Questions – Factual propositions, Argumentative issue 3.3 The nature of group Discussion – Opinion forming, storming, Norms and Performing- Leadership Roles 3.4 Dialogue presentation. 3.5 Role Play – Sales man, Guide, Narration, News and Views – Jobs, Business and everyday activities – Programme and plans -Giving message. 3.6 Starting Conversation with a stranger – Making Request-Expression Gratitude – Complimenting and congratulating – Apologizing and Responding to an Apology – Expressing Sympathy – Seeking Permission – Introducing – Leave taking – Request for Repetition – Asking for Information – Offering to help – Agreeing and Disagreeing 3.7 Webinar / Web Presentation (zoom, Google meet, Skype)	0-14-10
UNIT– 4 Writing Skills	Understand and apply knowledge on writing skills	4.1 Present content in the PPT format efficiently. 4.2 Job Interviews Preparation- To understand and Practice Questions and effective replies at a job interview. 4.3 Preparing CV in a latest Format. 4.4Personal Details – Interview Manners -HR questions. 4.5 Passage comprehension Conversation comprehension; 4.6 Reports using MS Word 4.7 Different types of emails: Job application, request letter, letter writing and quick notes	0-13-11

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:	Parts of speech	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 goes to you every day. • Makes spider web a Gender, Singular and Plurals: 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:	Non-verbal communication	Body language 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: 3.Put your hand to your nose 4.Clap your hands 5.Stand up 6.Turn around 7.Touch your shoulder 8.Sit down 9.Stamp your foot 10.Cross your arms

		11.Put your hand to your forehead – BUT WHILE SAYING THIS PUT YOUR HAND TO YOUR NOSE 12.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
UNIT 3:	Communication skills	• Reading passage (Provided in workbook) • Reading passage from the text book • Comprehension: Passage & Conversation (will be provided in workbook) Chunking words and reading activities • Presentation: o About learning in the communication class o Concept presentation Hosting online meeting using online meeting tools Inviting people
Unit 4:	Writing Skills	• Email writing activities: Writing emails using email provider. Theme based email writing • Report writing assignment Additional essential writing skills – Framework will be provided and assignments will be advised: • Resume writing /Curriculum Vitae • Report Writing • Portfolio writing Formal letters 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.

		○ Sharing screen 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.

6. MAPPING OF CO WITH PO

CO	Course Outcome	PO Mapped	Unit Linked	CL R/U/A	Theory in Hrs.	Total Marks
1	Acquire Knowledge functional grammar concepts& Reading.	1,6,7	1	R/U/A	24	10
2	Inculcate Importance of Body language and its impact.	1,6,7	2	R/U/A	24	10
3	Acquire Knowledge on Articulate ideas and engage in impromptu conversations.	1,6,7	3	R/U/A	24	10
4	Acquire knowledge on confidence in presenting written content in logical and organized manner.	1,6,7	4	R/U/A	24	10
Total					**96**	**40**

7. LEVELS OF CO AND PO MAPPING

Course	CO's	Programme Outcomes							Programme Specific Objectives		
Communication skills in English	**Sl.No**	1	2	3	4	5	6	7	1	2	3
	CO1	3	-	-	-	-	2	3	2	3	-
	CO2	3	-	-	-	-	2	3	2	3	-
	CO3	3	-	-	-	-	2	3	2	3	-
	CO4	3	-	-	-	-	2	3	2	3	-
Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.											

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.
If >40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3
If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2
If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1
If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

8. 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 invoice 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 Tool’s usage:
- Understand the difference between a Dictionary and a Thesaurus
- Understand “When” and “How” to use these tools for communication.

9. SUGGESTED LEARNING RESOURCES:

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/

9. COURSE ASSESSMENT AND EVALUATION CHART

Sl.No	Assessment	Schedule	Duration	Max. Test marks
1	SkillTest1	Attheendof 5th weekofthesem	2 Hrs	20
2	SkillTest2	Attheendof 9th weekofthesem	2 Hrs	20
3	SkillTest3	Attheendof15th weekofthesem	2 Hrs	20
			Total	60

Scheme of Valuation for CIE

Serial no	Assessment	Marks
1	**Portfolio Evaluation of activities / exercises conducted up to 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	

Note:
1. SEE (Semester End Examination) is conducted for 80 Marks Practical courses for a time duration of 3 Hours.
2. Two CIE (written test),(Theory Test) each of 20 marks for a time duration of 60 minutes shall be conducted. Two CIE (written test),(Practical Test) each of 20 marks for a time duration of 60 minutes shall be conducted Also, Three CIE (MCQ or Quiz/ /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
3. 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 CONTENTS

UNIT NO. AND NAME	DETAILED COURSE CONTENT	CO	PO	CONTACT HRS.	TOTAL
1. Parts of speech	1.1Definitions- Meanings of Parts of speech	1	1,7	4	24
	1.2Parts of speech Sentence structure	1	1,7	4	
	1.3Examples of right sentences	1	1,7	4	
	1.4Reading Comprehension	1	1,7	3	
	1.5Reading a paragraph in braille/ text	1	1,7	2	
	1.6Time Concept Activities	1	1,7	2	
	1.7Reading Fluency Activities	1	1,7	2	
	1.8Comprehending the read message and understanding it, reproduce with the write up	1	1,7	3	
	Exercises/ Activities				
3. Non-verbal communication	2.1 Body language tips:	2	1,6,7	4	24
	• Keep appropriate distance	2	1,6,7	4	
	• Take care of your appearance	2	1,6,7	4	
	• Maintain eye contact	2	1,6,7	4	
	2.2Do's in Non-Verbal Communication	2	1,6,7	4	
	• smile				
	• stand up confident and straight				
	• use appropriate hand gestures				
	• Don'ts in Non-Verbal Communication				
	2.3 Don'ts in Non-Verbal Communication				
	• point at anyone				
	• rock backwards and forwards				
	• pace across front of room				
	• read off slides read off notes				
	• 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.				
	2.4 Ten Different types of Non-Verbal Communication				
	• Facial Expressions				
	• Gestures				
	• Paralinguistics				
	• Proxemic" (proximity/personal space)				
	• Eye contact/eye gaze				
	• Haptic (physical touch)				

3. Communication Skills	3.1 Language Functions	3	1,6,7	4	24
	3.2 General Knowledge Questions – Factual propositions, Argumentative issue	3	1,6,7	4	
	3.3 The nature of group Discussion – Opinion forming, storming, Norms and Performing- Leadership Roles	3	1,6,7	3	
	3.4 Dialogue presentation.	3	1,6,7	3	
	3.5 Role Play – Sales man, Guide, Narration, News and Views – Jobs, Business and everyday activities – Programme and plans -Giving message.	3	1,6,7	3	
	3.6 Starting Conversation with a stranger – Making Request-Expression Gratitude	3	1,6,7	4	
	– Complimenting and congratulating – Apologizing and Responding to an Apology – Expressing Sympathy – Seeking Permission				
	– Introducing – Leave taking – Request for Repetition – Asking for Information – Offering to help – Agreeing and Disagreeing				
	3,7 Webinar / Web Presentation (zoom, Google meet, Skype)				
4. Presentation Skills	4.1 Present content in the PPT format efficiently.	4	1,6,7	6	24
	4.2 Job Interviews Preparation- To understand and Practice Questions and effective replies at a job interview.	4	1,6,7	4	
	4.3 Preparing CV in a latest Format.	4	1,6,7	2	
	4. 4Personal Details – Interview Manners -HR questions	4	1,6,7	2	
	4. Reports using MS Word	4	1,6,7	2	
	4.6Apologizing and Responding to an Apology	4	1,6,7	2	
	4. Different types of emails: Job application, request letter, letter writing and quick notes	4	1,6,7	2	
	4.8Introducing – Leave taking – Request for Repetition–	4	1,6,7	2	
	4.9Asking for Information – Offering to help – Agreeing and Disagreeing	4	1,6,7	2	
Total					**96**

First Semester Examination, Model Question Paper – 2021
Communication Skills in English Lab

Duration: 3 Hours] **Course Code:** **[Max. Marks: 100**

Instruction: Answer all the questions considering the internal choice in each section.
Each section carries 20 marks**.**

SECTION – 1 [20 Marks]

[Questions from Unit 1 – which covers CO-1 and POs 1]

Question Number	Question 1		Question 2	Marks
1	State the question	**OR**	State the question	5
2	State the question		State the question	5
3	State the question		State the question	5
4	State the question		State the question	5

SECTION – 2 [20 Marks]

[Questions from Unit 2 - Forms of Business Organization which covers CO-2 and POs 1&2]

Question Number	Question 1		Question 2	Marks
1	State the question	**OR**	State the question	5
2	State the question		State the question	5
3	State the question		State the question	5
4	State the question		State the question	5

SECTION – 3 [20 Marks]

[Questions from Unit 3 - Business Services which covers CO-3 and POs 1]

Question Number	Question 1		Question 2	Marks
1	State the question	**OR**	State the question	5
2	State the question		State the question	5
3	State the question		State the question	5
4	State the question		State the question	5

SECTION – 4 [20 Marks]

[Questions from Unit 4 - Emerging Modes of Business which covers CO-4 and POs 1,5&7]

Question Number	Question 1		Question 2	Marks
1	State the question	**OR**	State the question	5
2	State the question		State the question	5
3	State the question		State the question	5
4	State the question		State the question	5

SECTION – 5 [20 Marks]

[Questions from Unit 5 -Social Responsibility of Business and Business Ethics which covers CO-5 and POs 1,5&7]

Question Number	Question 1		Question 2	Marks
1	State the question	**OR**	State the question	5
2	State the question		State the question	5
3	State the question		State the question	5
4	State the question		State the question	5

Government of Karnataka

Department of Collegiate and Technical Education

JSS Polytechnic for the Differently Abled, Mysuru (AUTONOMOUS)

Course Code	**5424**	Semester	**II**
Course Title	**IT SKILLS**	Course Group	**EC / CS**
No. of Credits	**4**	Type of Course	**Lecture + Practice**
Course Category	**ES**	Total Contact Hours	**6Hrs Per Week** **96Hrs 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, businessdevelopment, 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 orientedCos associated with the above mentioned competency:

COURSE OUTCOME		UNIT LINKED	CL	LINKED PO	TEACHING HOURS
C01	Illustrate the basics of coding and develop simple application android phones	1	U,A	1,4,7	18
C02	Design and Develop Websites.	2	U,A	1,4,7	33
C03	Identify Cloud Services LOT applications & Apply Workflow and use ERP for simple project plan	3	U	1,4,7	30
C04	Implement best practices of Cyber safety and Security in the workplace	4	U,A	1,4,7	15
	TOTAL				**96**

7. INSTRUCTIONAL STRATERGY

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/subtopics.
3. Online coding platform wherever mentioned.
4. Hands on coding should be practiced.
5. About 15 to 20% of the topics/subtopics which are relatively simpler or descriptive in nature is to be given to the students for self-directed learning
6. Use oral and Sign language in the class room as many of the students are hearing impaired.
7. Use of Audio and Visual techniques like E-Books, PPT, Videos ete.
8. Teaching through group discussion, Guest lecture ete.
9. Providing course materials.
10. Providing extra inputs through industrial visits, employability skills and career awareness programs.
11. Additional inputs' through MOOCs and NPTEL courses.
12. Hands on training through demonstration to tutorial classes in laboratories.

8 .DETAILS OF COURSE CONTENT

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

UNIT NO.	Topics/Sub topics	Unit skill set/Learning outcomes (In cognitive domain)	Hours L-T-P
1	**UNIT 1 - INTRODUCTION TO BASICS OF CODING**		6:0:12
	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**	1. Understand computer programming 2. Create and write Algorithm for programmable problems. 3. Design Flowchart for	

	online/offline coding platforms should be used to demonstrate and provide coding experience to students. **a. https://scratch.mit.edu/**	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.*** ***ii. Application development should be done using any App builder platforms such as*** ***iii. MITApp Inventor: https://appinventor.mit.edu/*** ***iv. Thunkable: https://thunkable.com/*** ***v. ibuildapp: https://ibuildapp.com/*** ***vi. The student should be introduced to the android application development environment for further research and learninghttps://developer.android.com/*** Activity: create a simple Android application (Unique for each student) publish on the learning management system.		
	UNIT 2 - DESIGN AND DEVELOP WEB PAGES		11:0:22
2	2.1 Basic web technologies • Browser • Web –Server • Client-Server Model • URL • SEO techniques • Domain names and domain name system. Creating Web-pages with HTML5 - Static	1. Understand and examine basic web technologies 2. Creating static web pages 3. Formatting Webpages with cascading style sheets (CSS) 4. Creating Dynamic web pages with JavaScript	

	web pages. • Introduction, Editors • Tags, Attributes, Elements, Headings • Links, Images, List, Tables, Forms • Formatting, Layout, Iframes. 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 Creating a web page dynamic usingJavaScript. • Dynamic web page and Introductionto 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 - worldpress.com.** **2) The student must be made familiar with launching websites.**	5. Creating and launching dashboard based personalwebsite.	

	Certification available: • HTML - W3schools • CSS - W3schools • JavaScript - W3schools		
	UNIT 3 -BUSINESS PROCESS AUTOMATION/ERP & INTRODUCTION TO CLOUD AND IOT CONCEPTS		10:0:20
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 needsof 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 Fundamentals of cloud 3.6 Cloud service models • IaaS (Infrastructure-as-a-Service) • PaaS (Platform-as-a-Service) • SaaS (Software-as-a-Service) 3.7 Cloud deployment types • Public, • Private, • Hybrid • Community Cloud 3.8 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): • *Colab* 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 acrossmultiple servers. **Note: Above cloud services are not compulsory for all branches; teacher can recommend other cloud service based on need of engineering branch.** 3.9 Working of IoT and IoT components (Only brief introduction and demonstration through videos) 3.10 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/**		

	3.11Activity: • **Project plan for summer internship - use open source ERP Software** • **Identify different components of nearby organization with recourseplan and workflow design.** • **Identify types of ERP software available with their market share.** • **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.**		
4	**UNIT 5 - CYBERSECURITY AND SAFETY**		**5:0:10**
	4.1Introduction to Cyber security and cybersafety. • 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). 4.2 Common threats - Demonstration • Phishing • DoS attack • Man in the middle attack • Eavesdropping • Spamming	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	

4.3 Activity

- **Identification of basic security issues in computers of your college and fixing the same.**
- **Visit nearby government organization.**
  - **Identify basic cyber security issuesand fixing the same**
  - **Demonstrate the importance of cyber security, password policy, and cyber safety.**

9. 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	1,47	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	2,3	1,4,7	2,3

	automation with respect to your branch of engineering			
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	3
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	3
16	Installation of Antivirus software	5	1,4,7	4
17	Demonstration and hands on browser settings	5	1,4,7	4
18	Demonstration and hands on privacy settings and password policy	5	1,4,7	4
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	4

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.

10. MAPPING OF CO WITH PO

COURSE	CO'S	PROGRAMME OUTCOMES (POs)							Program Specific Outcomes (PSOs)	
		1	2	3	4	5	6	7	1	2
IT SKILLS	CO1	3	-	-	3	-	-	3	2	3
	CO2	3	-	-	3	-	-	3	2	3
	CO3	3	-	-	3	-	-	-	2	3
	CO4	3	-	-	3	-	-	-	2	3
AVERAGE VALUE		**3**	**-**	**-**	**3**	**-**	**-**	**3**	**2**	**3**
Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped										

11. 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 Madisetti 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

12.SUGGESTED LIST OF PROPOSED STUDENTS ACTIVITY

Note: Refer activities mentioned in DETAILS OF COURSE CONTENT table

13. COURSE ASSESSMENT AND EVALUATION CHART

	SL. NO	ASSESSMENT	DURATION (in minutes)	MAX MARKS	CONVERSION
DIRECT ASSESSMENT	**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 week	**60**	**20**	
	3	CIE Assessment 3 (Skill Test) - At the end of 5 week	**3 hrs**	**20**	Average of three skill test 20
	4	CIE Assessment 4 (Skill Test) - At the end of 7 week	**3 hrs**	**20**	
	5	CIE Assessment 5 (Skill Test) - At the end of 9 week	**3 hrs**	**20**	
	6	CIE Assessment 6 (Student activity)- At the end of 11 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**
INDIRECT ASSE	Student Feedback on course	Students	Middle of the Course	Feedback forms	

	End of Course Survey		End of the Course	Questionnaire
	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.			

14. 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 Fallowed 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 implementatio n	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**

15. 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**

16. 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

JSS Polytechnic for the Differently Abled, Mysuru (AUTONOMOUS)

Course Code	**5425**	Semester	**II**
Course Title	**Electronics Components and Devices (ECD)**	Course Group	**Core**
No. of Credits	**4**	Type of Course	**Lecturing & Practice**
Course Category	**EC**	Total Contact Hours	**6 Hrs Per Week** **96 Hrs Per Semester**
Prerequisites	**Arithmetic, basic of electronics**	Teaching Scheme	**(L: T:P) = 1:0:2**
CIE Marks	**60**	SEE Marks	**40**

RATIONALE

An electronic circuit is a structure that directs and controls electric current to perform various functions including signal amplification, computation, and data transfer. It comprises several semiconductor devices & components such as resistors, transistors, capacitors, inductors, and diodes. These Semiconductor devices supply themselves in integrating into complex and are readily manufacturable into microelectronic circuits. They also find a good scope in the future in forming key components for the majority of electrical and electronic instruments and systems in various fields such as communications, data-processing, consumer electronics & robots and also in industrial control equipment

I. COURSE SKILL SET

The goal of the course is to help the student to attain the following industry-need competencies through various teaching-learning processes.

Identifying various components and semiconductor devices used in industrial applications.

Interpretation of datasheets and usage of Instruments.

Basic knowledge of components, devices and simple applications.

Perform soldering job, build and test analog electronic circuits for simple applications.

Testing and experimentation under simulated and real environments.

II. INSTRUCTIONAL STRATEGY

1. This is theory-practice course with 1:2 time-share. Normally, the Lecturer is expected essentially to teach the relevant theoretical parts in one hour prior to the 2-hour lab session so that at the end the class the student attains the specified class-outcome. This requires well planning from Lecturer side to adhere to the schedules.
2. The Lecturer is expected to emphasize only the essential concepts/components/circuit/topics in respect of the practicing experiment in one-hour.
3. Normally in industrial environments, experiments are conducted under simulated environments before real-environment experimentation owing to the benefits of simulation. Same procedure is adapted here too with a few exceptions
4. Awareness and safety-precautions on use of instruments/laboratory resources is mandatory for all students prior to the experimentation.
5. Lecturers shall advise repetition of experiments wherever possible and necessary.
6. Pre-reading of the content and experiment-procedure will have a greater impact on effectiveness and taking forward of this course and hence students shall be advised to do so.
7. The intent of the activity is to integrate multiple concepts learnt in the course and to create interest in students to face the integrating-challenge; hence, the Lecturer is advised to assign only such the activities.
8. Activity project need not be designed by student, teacher may provide or guide to search; however, it has to be simulated, fabricated and tested by the students.

III . LEVELS OF COURSE SKILL – SETS

Sl. No.	LEVEL	SKILL SET/S To be Attained
1	**Level-1**	Identification of components and semiconductor devices. Testing electronics components and semiconductor devices. Adaption of the best soldering methods/practices for fabrication of circuits.
2	**Level-2**	Experimenting to observe characteristics/behaviour/working of semiconductor devices Building simple application development using components and semiconductor devices.
3	**Level-3**	Application, circuit simulation, testing and implementation.

IV. COURSE OUT COMES

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

CO1	Identify and Test select the electronic components and devices and instruments.
CO2	Fabricate/construct discrete circuits.
CO3	Select and analyse electronic circuits for characteristics and/or simple applications.
CO4	Experiment the circuit characteristics/simple applications under simulated and real environment.

V . Course Outcomes CO, PO, Cognitive-level and Teaching hours map

Course Outcomes	CL	Linked PO
CO1: Identify and test select the electronic components and devices and instruments.	U/A	1,2,4,5
CO2: Fabricate/construct discrete circuits.	U/A	1,4,5
CO3: Select and analyse electronic circuits for characteristics and/or simple applications.	U/A	1,3,4,5
CO4: Experiment the circuit characteristics/simple applications under simulated and real environment.	U/A	1,3,4,5, 7

VI .DETAILS OF COURSE CONTENTS

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

Sl. No	Content	Experiment	Method/ Class Outcome	L: T:P
UNIT 01: BASICS OF ELECTRONIC COMPONENTS				
Note: Demonstrations are hand-on and can be supported by videos/animation wherever possible to see that the students understand the concepts. Real experimentation is after simulation.				
1	Passive components (Resistor, Inductors and capacitors): Introduction, role, symbols, units, types/classification, identification, selection and applications.	Identification and finding/assessing values/tolerances (using color codes, labels) of passive components of different packages.	Demonstration, examples and exercises. Identify and ascertain roles and values of components.	**1:0:2**
2	Usage of electronic instruments: Multi-meter and LCR meter.	Verification of the values of passive components using multimeter and LCR meters (for the same components used in Expt.1)	Demonstration and exercises. **Use meters to assess values and to test components.**	**1:0:2**
3	Active components(Diode, Zener Diode, BJT): Introduction, list, role/function, symbols, types/packages, and applications	Identification of the active components, terminals, packages, and testing them for working, using multimeter.	Demonstration and exercises. **Identify terminals, packages and test the active components.**	**1:0:2**
4	Active components (MOSFET, SCR, DIAC, TRIAC): Role/function symbols, types and applications.	Identification of the active components , terminals, packages, and testing them for working, using multimeter.	Demonstration and experiment **Identify terminals, packages and test the active components.**	**1:0:2**
5	Packing, Stocking, Handling of components and their electrostatic safety. Understand the data/ specification sheets of all components Selection criterion of components. Soldering types and	Preparation of components, use of soldering iron and lead and flux. Standard Soldering practice to connect the components on base-board /PCB/assembly board (follow soldering standard).	Videos, demonstration and exercises. **Identify specifications from component data-sheets and perform standard soldering.**	**1:0:2**

	precautions.			
6	Atomic structure and energy-band diagram of conductors, insulators and semiconductors- comparison and examples.	Soldering practice (continued)and de-soldering.	Videos, demonstration and exercises. **Compare the features of conductors, insulators and semiconductors**. **Solder and de- solder the components on PCBs/Baseboards.**	**1:0:2**
7	Simulators: Concept, advantages and features. Prominent simulation softwares and their features.	Using simulator/editors: Identification, selection and use of sources, components, devices and instruments. Component specifications and properties, schematic preparation. Component foot-print/3D views.	Demonstration. **Use simulator for experimentation.**	**1:0:2**
8	Semiconductor- Covalent bond, intrinsic and extrinsic SC: N type & P type, PN junction, biasing, current conduction, effect of temperature, and diode.	Usage of electronic Equipments: power supply, CRO and signal generator. Both in real and simulated environment.	Videos, demonstration and exercises. **Understand the current conduction in PN junction. Use CROs, RPS and Sig. generators**	**1:0:2**
UNIT 02: BASICS OF SEMICONDUCTOR DEVICES				
9	PN Junction Diode: Formationof PNjunction. Potential barrier. Depletion region. Forward and Reverse biasing of diode and VI characteristics. Diode ratings and parameters	Plot VI characteristics of Diode and ascertain Ri and cut-in voltage using simulator.	Animation/Video/ Visuals to show the working of PN junction/diode. Experiment, graph and calculations. **Know the behavior of PN junction for biasing voltages.**	**1:0:2**
10	Zener diode: Working principle, constructional features,Avalanche and Zener breakdown. Reverse VI characteristics and applications.	Plot reverse VI characteristics of Zener ascertain Zener voltage using simulator.	Animation/Video/ Visuals to show the Working of Zener Diode. Experiment And graph. **Know the behavior of Zener diode for**	**1:0:2**

			reverse biasing.	
11	Simple problems on diode circuits/selection of different biasing voltages to illustrate FB and RB of diode.	VI characteristics of diode (expt. 9) in real environment. Plot reverse VI Characteristics of Zener diode (expt.10) in real environment.	Experiment and Comparison with simulated results. **Compare real and simulated results.**	**1:0:2**
12	AC-to-DC conversion: Need, rectification, half-wave and full-wave rectification. Half-wave rectifier: waveform, efficiency and ripple factor.	Experiment to obtain half- wave rectification under simulated environment: Obtain waveform, ripple factor, efficiency and PIV.	Experiment, waveforms and calculations .**Apply diode-switch to convert AC to DC.**	**1:0:2**
13	Bridge Rectifier: efficiency and its ripple factor. Filter components and their role in reducing ripple.	Experiment to obtain full-wave rectification (using bridge)and filtering under simulated environment: Obtain waveform, ripple factor, efficiency and PIV, without and Full wave rectifier with C-filter	Experiment, waveform and calculations. **Apply diode- switches and filter to convert AC to DC more efficiently.**	**1:0:2**
14	Simple problems on half- wave, full-wave rectifier and filter circuits.	Conduct Expt. 13 under real environment.	Experiment, graph/waveforms and calculations. **Compare simulated and real-experiment results.**	**1:0:2**
15	Voltage regulation: Concept, need, Zener diode as voltage regulator. Voltage regulator circuit working. Condition and types of regulation.	Show how Zener diode can be used as voltage regulator in simulated and real environments.	Experiment and interpretation of result. **Use of Zener diode for regulated voltage supply.**	**1:0:2**
16	BJT: Types, construction, symbols, functions of base, emitter and collector, Current gain in CE mode.	Obtain output characteristics of BJT in CE configuration under simulated environment. Calculate input resistance, and mark the different	Experiment, graph and calculations **Understand the**	**1:0:2**

		regions on output characteristics and calculate current gain.	**Behaviour of BJT**	
17	BJT: Modes of operation-comparison.BJT packages and specifications. Data sheet interpretation.	Experiments16underreal environment.	Experiment, graph and calculations. **Compare with simulated results.**	**1:0:2**
18	Operating regions of BJT, BJT as a switch and amplifier. Thermal runaway and need for heat sink.	Experiment BJT as a switch under simulation environment. (This is linkedtoexperiment21)	Experiment **Use BJT as a current-controlled electronic switch**	**1:0:2**
19	MOSFET: Field effect, types, construction, working and applications. MOSFET applications. MOSFET as switch. Comparison of BJT and MOSFET.	Show how MOSFET can be used as a switch under simulated environment. (This is linked to experiment21)	Experiment **Use MOSFET as a voltage-controlled switch**	**1:0:2**
20	SCR: Construction, Working, Operating modes, definition of triggering and commutation.	Forward VI characteristics of SCR simulation and real environment.	Experiment **Understand the behavior of controlled switch**	**1:0:2**
UNIT 03: OPTO ELECTRONIC DEVICES				
21	Opto-electronic devices: Introduction, principle of photo emission, photoconduction and photovoltaic effects. LED: Construction Features ,role, biasing, packages, and ratings.	Switching to blink an LED using BJT or MOSFET. Experiment under simulated and real environment. This is extension of Expt.18 and19)	Experiment. **Use electronic switch and LED in application development.**	**1:0:2**
22	LDR: Construction features, role, package, specifications, and application. Explanation of automatic street-light control circuit.	Conduct a simple experiment to automatically control street-light using LDR and SCR in simulated environment.	Experiment. **Use electronic components and devices to solve simple real-world problem**	**1:0:2**
23	Photodiode and	Conduct experiment 22 in real environment.	Experiment.	

	Phototransistor: Construction features, role, specifications, packages, and applications.		**Compare real and simulated results.**	**1:0:2**

UNIT 04: SENSORS AND ACTUATORS				
24	Sensors: Principle and classification. List passive sensors, their working principle/role, packages, specifications, and applications. Anyone passive-sensor-based simple application in detail.	Experiment any passive-sensor-based simple application to under simulated environments to illustrate use of sensor for solving simple real- world problem.	Experiment. **Use electronic components and/or devices (sensor) to solve simple real-world problem**	**2:0:4**
25	Active sensors: List active sensors, their working principle/role, packages, specifications, and applications. Anyone active-sensor-based simple application in detail.	Experiment 24 under real environment	Experiment, **Use electronic components and/or devices (sensors) to solve simple real-world problem**	**2:0:4**
26	Actuators: Basic principle/role and types/classification. Roles/applications of different actuators. Simple application involving actuator in detail.	Conduct a simple application involving actuator under simulated and/or real environment.	Experiment, **Use electronic components and/or devices (actuator) to solve simple real-world problem**	**2:0:4**

VII Mapping of COs, POs, Cognitive-levels and Teaching Hours

CO	Course Outcome	PO Mapped	Experiment	Cognitive level	Lecture	Tutorial	Total
CO1	Identify and test select the electronic components and instruments	1,2,4,5	**U1**	U/A	12	20	32
CO2	Fabricate/construct discrete circuits.	1,4,5	**U2,U3, &U4**	**U/A**	18	46	64
CO3	Select and analyse electronic circuits for characteristics and/or simple applications.	1,3,4,5					
CO4	Experiment the circuit characteristics/simple applications under simulated and real environment.	1,3,4,5,7					
					30	**66**	**96**

Course	COs	Program Outcomes (POs)						
		1	**2**	**3**	**4**	**5**	**6**	**7**
Electronic Components and Devices	CO1	3	1	0	2	1	0	0
	CO2	3	0	0	2	1	0	0
	CO3	3	0	1	2	1	0	0
	CO4	3	0	1	2	1	0	2
Legends: Level 3- Highly Mapped, Level 2-Moderately Mapped, Level 1-Low Mapped, Level 0- Not Mapped								

VIII. SUGGESTED LEARNING RESOURCES

Reference Books:

6. PrinciplesofElectronics,RohitMehta&VKMehta,S.ChandPublishingISBN: 9788121924504
7. FundamentalsofElectricalandElectronicsEngineering,B.L.Theraja,S.Chandand Company.REPRINT2013,ISBN8121926602
8. Electronic Components, Dr. K. Padmanabhan and P. Swaminathan, Lakshmi Publications,2006.
9. ElectronicDevicesandCircuits,DavidA.Bell,OxfordUniversityPress,
10. SensorsHandbook-SabrieSoloman-McGrawHillpublication,SecondEdition.

11. HandbookofModernSensors:Physics,Designs,andApplications,JacobFraden,Springer Publications, Third Edition.

E-Resources

1. http://www.electronics-tutorials.ws
2. http://electrical4u.com/

IX Student Activities (CIE 20 marks)

Introduction

Group of 4(maximum)students should conduct UNIQUE activity. Suggestive activities areas follow, But not limited to these only, any similar activity can be assigned. Each activity can be carried out off-class hours in the laboratory. Choose the activity for which circuits ,boards and and components are easily available with the guidance of the teacher, and the activity shall have the scope to integrate multiple concepts. Students area devised plan and start the activity in7thweek and complete it by11th week.

Example activities

SL. No.	Activities
1.	Fire detector application.
2.	Intruder detector
3.	LED serial-sets
4.	Clapp/sound detector application
5.	Smoke detector application
6.	LED bulb
7.	And all such simple circuits/projects that have scope to integrate multiple concepts learnt and for which circuits/boards/components are easily available.

Execution details

1. Maximumof4studentsineachbatch.
2. Writequalitativereportnotexceeding8pages;onereportperbatch.
3. Eachoftheactivitycanbecarriedoff-class,andshallbepresentedtotheteacherusing suitable presentation mode

Assessment shall be made based on information collection, integration of concepts involved, execution (simulation/fabrication/testing/results), report, presentation, and role in the team.

Activity Assessment Scheme

Sl. No.	Parameter to be Observed for Activity Assessment	Marks Allotted
1	Information collection	4
2	Level of integration of concepts/creativity	4
3	Simulation, testing and result	4
4	Fabrication, testing and result	4
5	Report Presentation Role in the team	4
	Total	**20**

X. COURSE ASSESSMENT AND EVALUATION CHART

Sl.No	Assessment	Duration	Max marks	Conversion
1.	CIE Assessment 1 (Written Test -1-theory) - At the end of **5th week**	60 minutes	20	Average of two written tests 20
2.	CIE Assessment 2 (Written Test -2-theory) - At the end of **15th week**	60 minutes	20	
3.	CIE Assessment 3 (Skill test) - At the end of **7th week**	3 Hours	20	Average of three skill tests 20
4	CIE Assessment 4 (Skill test) - At the end of **9th week**	3 Hours	20	
5	CIE Assessment 5 (Skill test) - At the end of **11th week**	3 Hours	20	
6	CIE Assessment 6 (Student activity) - At the end of **13th 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 Hours duration) as per scheme of evaluationand the obtained marks are scaled down to 20 marks

XI. Scheme of Evaluation for CIE and SEE (Skill test)

(CONTINOUS INTERNAL EVALUATION & SEMESTER END EXAMINATION)

Sl. No.	Particulars	Marks
1	Understanding of the problem, identification and selection of components/devices/equipment, inputs and expected outputs.	10
2	Experimentation/Execution under simulated environment	20
3	Circuit building using soldering and board (Assessment ,indicators: correctness, quality, effective use of space and soldering in conformance with standards)	20
4	Experimentation and recording the observed readings in real environment	30
5	Results interpretation (Calculation/accuracy/graph/table)	10
6	Viva-voice	10
Total		**100**

NOTE:

- Both CIE &SEE is conducted for 100 marks (3 Hrs duration)
- Examiner is suggested to assign the question randomly and uniformly so as to avoid resource shortage in the laboratory.
- Reasonable opportunities shall be given to the student to write the circuit. Until and unless correct circuit is written he should not be allowed to rig-up/fabricate the circuit; however, student can be allowed to work under simulation environment. Then he can rig-up/fabricate the circuit for real execution.
- Normally, the experiment is simulated first, then moving on to real experimentation. However, order of simulation and real experimentation can be interchanged in the examination for the purpose of resource and time management during the examination.

XII. RUBRICS FOR ACTIVITY

RUBRICS FOR ACTIVITY (Example only) Faculty need to develop appropriate rubrics for respective 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	8
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	6
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.	8
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	8
				Average / Total Marks:(8+6+8+8)/4		**7.5=8**

Model Question Paper FOR CIE (WRITTEN TEST)

Programme:				**Semester: II**	
Course Name :				**Max Marks:20**	
Course Code :				**Duration:60minutes**	
Name of the course coordinator:				**Test: I/II**	
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)					

Equipment List (For a batch of 20 students)

Sl. No.	NAME OF THE EQUIPMENT	Quantity
01	DualChannel0-30Vat2/1ARPSwithshort-circuitprotection	10
02	0-30V at 2/1A RPS with short circuit protection	10
03	Function Generator(0-10MHz)	10
04	Dual Trace Oscilloscope (20MHz)	10
05	Digital multimeters.	20
06	Decade resistance boxes	10
07	Decade capacitance boxes	10
08	Decade inductance boxes	10
09	LCR meter	05
10	Electronic components/Consumables resistors, inductors, capacitors, transformers, hookup wires ,SCR, MOSFET, DIAC,TRIAC, BJT, Photo transistor, Photo diode, JFET, diode, Zener diode, soldering lead etc	10
11	Breadboards,SolderingGun,TagBoard,9Vbatterycells,Bulbs.	10
12	Computer System for Circuit simulation(having Electronics Circuit Simulation Software installed in each computer).	20

ಜೆಎಸ್ಎಸ್ ವಿಶೇಷಚೇತನರ ಪಾಲಿಟೆಕ್ನಿಕ್, ಮೈಸೂರು –570 06

2021–22ನೇ ಸಾಲಿನಲ್ಲಿ ದ್ವಿತೀಯ ಸೆಮಿಸ್ಟರ್ ಕನ್ನಡ ಬಲ್ಲ ಡಿಪ್ಲೋಮಾ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ನಿಗದಿಪಡಿಸಿದ ಪಠ್ಯಕ್ರಮ

ಸಾಹಿತ್ಯ ಸಿಂಚನ –1

(ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಪರಂಪರೆ ಕುರಿತು)

Course Code	**21KA21**	Semester	**II**
Course Title	**ಸಾಹಿತ್ಯ ಸಿಂಚನ –1**	Category :	**Lecture**
No. of Credits	**2**	Type of Course	**Audit Course**
Total Contact Hours	**2 Hrs Per Week** **32 Hrs Per semester**	Teaching Scheme [L : T : P] 2:0:0	**CIE Marks : 50** **SEE Marks : Nil**

ದ್ವಿತೀಯ ಸೆಮಿಸ್ಟರ್

ಸಾಹಿತ್ಯ ಸಿಂಚನ – 1 Course Code: 21KA21

ಕನ್ನಡ ಬಲ್ಲ ಡಿಪ್ಲೋಮಾ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ನಿಗಧಿಪಡಿಸಿ ಕಾರ್ಯಪಠ್ಯಪುಸ್ತಕ

(ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ, ಸಂಸ್ಕೃತಿ ಮತ್ತು ಪರಂಪರೆ ಕುರಿತು)

ಪಠ್ಯ ಪುಸ್ತಕದ ಪರಿವಿಡಿ	ಬೋಧನಾ ಅವಧಿ
1. **ಕರ್ನಾಟಕದ ಸಂಕ್ಷಿಪ್ತ ಇತಿಹಾಸ ಮತ್ತು ಸಾಹಿತ್ಯದ ಬೆಳವಣಿಗೆ**	02 ಗಂಟೆ
2. **ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಸಂಕ್ಷಿಪ್ತ ಚರಿತ್ರೆ**	02 ಗಂಟೆ
3. **ಹಳಗನ್ನಡ ಸಾಹಿತ್ಯ – ಪಂಪ ಪೂರ್ವ ಯುಗ** ಕನ್ನಡ ಸಾಹಿತ್ಯದ ರಚನೆಗೆ ಪ್ರಮುಖ ಪ್ರೇರಣೆಗಳು ಮತ್ತು ಪ್ರಭಾವಗಳು ಕನ್ನಡ ಸಾಹಿತ್ಯ ಪರಂಪರೆ ಮತ್ತು ರಾಜಾಶ್ರಯ ಕವಿರಾಜಮಾರ್ಗ ಮತ್ತು ವಡ್ಡಾರಾಧನೆ	04 ಗಂಟೆ
4. **ಪಂಪ / ಚಂಪೂ ಯುಗದ ಕನ್ನಡ ಸಾಹಿತ್ಯ ಮತ್ತು ಪರಂಪರೆ** ಆದಿಕವಿ ಪಂಪ, ರನ್ನ, ಪೊನ್ನ, ಜನ್ನ,ಒಂದನೇ ನಾಗವರ್ಮ ಮತ್ತು ನಾಗಚಂದ್ರ 10 ಮತ್ತು 12 ನೇ 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	06 ಗಂಟೆ
6. **ಕುಮಾರವ್ಯಾಸ ಯುಗ ಮತ್ತು ಸಾಹಿತ್ಯದ ಇತರೆ ರೂಪಗಳು** **ರಗಳೆ –** ಹರಿಹರ **ಷಟ್ಪದಿ –** ಕುಮಾರವ್ಯಾಸ, ಲಕ್ಷ್ಮೀಶ ಮತ್ತು ರಾಘವಾಂಕ **ಸಾಂಗತ್ಯ –** ರತ್ನಾಕರವರ್ಣಿ	04 ಗಂಟೆ

7. ದಾಸ ಸಾಹಿತ್ಯ / ಕೀರ್ತನೆಗಳು ಪುರಂದರದಾಸರು, ಕನಕದಾಸರು ಮತ್ತು ಇತರೆ ಕೀರ್ತನಕಾರರು	**02 ಗಂಟೆ**
8. ಇತರೆ ಸಾಹಿತ್ಯದ ಪ್ರಕಾರಗಳು **ತ್ರಿಪದಿ –** ಸರ್ವಜ್ಞ **ಜಾನಪದ ಸಾಹಿತ್ಯ,** **ತತ್ವಪದಗಳು –** ಶಿಶುನಾಳ ಶರೀಫರು	**02 ಗಂಟೆ**
9. ಮಹಿಳಾ ಸಾಹಿತ್ಯ : ಹೆಳವನಕಟ್ಟೆ ಗಿರಿಯಮ್ಮ ಮತ್ತು ಸಂಚಿಹೊನ್ನಮ್ಮ **ಆಧುನಿಕ ಪೂರ್ವ ಕನ್ನಡ ಸಾಹಿತ್ಯ :** ಕೆಂಪುನಾರಾಯಣ ಮತ್ತು ಮುದ್ದಣ	**04 ಗಂಟೆ**
10. ಹಳಗನ್ನಡ ಮತ್ತು ನಡುಗನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆಯ ಒಂದು ಅವಲೋಕನ	**02 ಗಂಟೆ**
ಒಟ್ಟು ಬೋಧನಾ ಅವಧಿ 32 ಗಂಟೆಗಳು	**32 ಗಂಟೆಗಳು**

ಬಳಕೆ ಕನ್ನಡ–1 ಮತ್ತು ಸಾಹಿತ್ಯ ಸಿಂಚನ–1 ಪಠ್ಯಕ್ರಮಗಳಿಗೆ ನಿರಂತರ ಅಂತರಿಕ ಮೌಲ್ಯಮಾಪನದ ಮಾರ್ಗಸೂಚಿಗಳು

(COURSE ASSESSMENT AND EVALUATION CHART –CIE ONLY)

Sl. No	Assessment	Duration	Max Marks	Conversion
1	CIE Assessment – 1 (Written Test – 1) At the end of 6th Week (Theory Test)	80 Minutes	30	Average of two written tests 30 Marks
2	CIE Assessment – 2 (Written Test – 2) At the end of 10th Week (Theory Test)	80 Minutes	30	
3	CIE Assessment – 3 (Skill Test-1) At the end of 1th Week (Practical Test)	80 Minutes	30	Average of three Assessment
4	CIE Assessment – 4 (MCQ / Quiz) At the end of 8th Week	60 Minutes	20	
5	CIE Assessment – 5 (Open Book Test-3) At the end of 13th Week	60 Minutes	20	
6	CIE Assessment 6 (Student Activity / Assignment) At the end of 16th Week	60 Minutes	20	
Total Continuous Internal Evaluation (CIE) Assessment				**50**

At the end of each unit, the student be able to achieve the following course outcomes:

COURSE OUTCOMES:

CO – 1 : Understand the history of Kannada language.

CO – 2 : Familiarize the usage of old Kannada and Kannada heritage

CO – 3 : Understand Mid-age Kannada (Basava Yuga and Kumaravyasa Yuga)Usage

CO – 4 : Know the Kannada Language through poems and Folk literature

CO – 5 : Familiarize the use of Kannada language through literature for women

CO-PO Mapping

CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO-1	2	-	-	-	2	1	2		
CO-2	2	-	-	-	2	1	2		
CO-3	2	-	-	-	2	1	2		
CO-4	2	-	-	-	2	1	2		
CO-5	2	-	-	-	2	1	2		

ಜೆಎಸ್ಎಸ್ ವಿಶೇಷಚೇತನರ ಪಾಲಿಟೆಕ್ನಿಕ್, ಮೈಸೂರು –570 06

2021–22ನೇ ಸಾಲಿನಲ್ಲಿ ದ್ವಿತೀಯ ಸೆಮಿಸ್ಟರ್ ಕನ್ನಡ ಬಾರದ / ಕನ್ನಡೇತರ ಡಿಪ್ಲೋಮಾ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ನಿಗದಿಪಡಿಸಿದ ಪಠ್ಯಕ್ರಮ

ಬಳಕೆ ಕನ್ನಡ –1

Course Code	**21NK21**	Semester	**II**
Course Title	**ಬಳಕೆ ಕನ್ನಡ –1**	Category	**Lecture**
No. of Credits	**2**	Type of Course	**Audit Course**
Total Contact Hours	**2 Hrs Per Week** **32 Hrs Per semester**	Teaching Scheme [L : T : P] 2:0:0	**CIE Marks : 50** **SEE Marks: Nil**

ದ್ವಿತೀಯ ಸೆಮಿಸ್ಟರ್

ಕನ್ನಡ ಬಾರದ / ಕನ್ನಡೇತರ ಡಿಪ್ಲೋಮಾ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ನಿಗಧಿಪಡಿಸಿದ ಪಠ್ಯಪುಸ್ತಕ

ಬಳಕೆ ಕನ್ನಡ –1 (ಕಾರ್ಯಪುಸ್ತಕ) Course Code: 21NK21

Table of Contents (ಪರಿವಿಡಿ)

ಬಹುವಚನ 2.3 Linga (Gender) - ಲಿಂಗ 2.4 Pullinga (Masculine gender) - ಪುಲ್ಲಿಂಗ 2.5 Stree linga (Feminine gender) - ಸ್ತ್ರೀ ಲಿಂಗ 2.6 Napumsakaa linga (Neuter gender) - ನಪುಂಸಕ ಲಿಂಗ 2.7 Samanya linga (Common gender) - ಸಾಮಾನ್ಯ ಲಿಂಗ 2.8 Exercise 2.9 Prashnarthaka Padagalu (Interrogative words) - ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು 2.10 Viruddha Padagalu / Virodarthaka Padagalu (Antonyms) - ವಿರುದ್ದ/ವಿರೋದಾರ್ಥಕಪದಗಳು. 2.11 Asamanjasa Uchcharane (Inappropriate Pronounciation) - ಅಸಮಂಜಸ ಉಚ್ಚಾರಣೆ	
CO – 3:	
3.1 Sankhya Vyavasthe (Numbers system) – ಸಂಖ್ಯಾ ವ್ಯವಸ್ಥೆ 3.2 Kannada moolaankagalu (Cardinal numbers), Stanasuchaka / Sankeyyegalu / Kramasuchaka sanekyyegalu (ordinal numbers) ಸ್ಥಾನಸೂಚಕ ಸಂಖ್ಯೆಗಳು / ಕ್ರಮ ಸೂಚಕ ಸಂಖ್ಯೆಗಳು 3.3Fractional weights and measurements 3.4 Gunitha Chinnhegalu (Mathematical symbols) – ಗಣಿತ ಚಿಹ್ನೆಗಳು 3.5 Bhinnamshagalu (Fractions) - ಭಿನ್ನಾಂಶಗಳು 3.6 List of Vegetables 3.7 Tindiya Hesarugalu / Belagina upaharagala Hesarugalu – Menu (Names) of the breakfast items - ತಿಂಡಿಯ ಹೆಸರುಗಳು 3.8 Aaharakke sambandhisida padagalu / Aahara padarthagala Hesarugalu (Names connected with food) – ಆಹಾರಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಪದಗಳು 3.9Samaya / Kalakke Sambhandhisida padhagalu (Words Relating to Time) – ಸಮಯ / ಕಾಲಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತಹ ಪದಗಳು 3.10 Dikkugalige sambhadisida padhagalu (Words Relating to Direcctions) – ದಿಕ್ಕಿಗೆ ಸಂಬಂಧಿಸಿದಂತಹ ಪದಗಳು 3.11 Manavana Bhavanegalige sambhanddisida Padagalu (Words Relating to Human's feelings and Emotions) – ಮಾನವ ಭಾವನೆಗಳಿಗೆ ಸಂಬಂಧಿಸಿದ ಪದಗಳು	08
CO – 4:	
4.1 Manavana shareerada bagagalu / angagalu (Parts of the Human body) – ಮಾನವ ಶರೀರದ ಭಾಗಗಳು / ಅಂಗಗಳು 4.2 Manava sambhandhada / Sambhandhaakke sambhadisida padhagalu (Terms relating to Human Relationship) – ಮಾನವ ಸಂಬಂಧಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಪದಗಳು 4.3 Vaasada sstalakke sambhandisidanthaha padhagalu (Words Relating to Place of Living)– ವಾಸದ ಸ್ಥಳಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಪದಗಳು 4.4 Saamanya sambhashaneyalli Bhlasuvanthaha Padagala Patti (List of Words, used in the general conversation) – ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಯಲ್ಲಿ ಬಳಸುವಂತಹ ಪದಗಳ ಪಟ್ಟಿ 4.5 Bannagala Hesarugalu (Name of the Colours) – ಬಣ್ಣಗಳ ಹೆಸರುಗಳು	04

CO – 5:	
Sambhashaneyalli Kannada Kannada in conversations 5.1 Introduction 5.2 naamapadagaLu (Nouns) – ನಾಮಪದಗಳು 5.3. SarvanaamapadagaLu (Pronouns) – ಸರ್ವನಾಮಪದಗಳು 5.4. Kannada naamavisheshanagaLu (Kannada Adjectives and its usage) – ಕನ್ನಡ ನಾಮ ವಿಶೇಷಣಗಳು 5.5 Kriya padagaLu (Kannada Verbs) - ಕ್ರಿಯಾಪದಗಳು 5.6. KriyavisheshanagaLu (Adverbs in Kannada) – ಕನ್ನಡ ಕ್ರಿಯಾ ವಿಶೇಷಣಗಳು 5.7 Kannadadalli SamyogagaLu (Conjuctions in Kannada) ಕನ್ನಡದಲ್ಲಿ ಸಂಯೋಗಗಳು 5.8 Upasarga (Prepositions in Kannada) – ಉಪಸರ್ಗಗಳು 5.9 Prashnarthaka padagalu (Interrogative words) – ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು 5.10 vicharaneya / Vicharisuva / bedikeya vaakyagaLu (Enquiry/ Request sentences) – ವಿಚಾರಣೆಯ / ವಿಚಾರಿಸುವ / ಬೇಡಿಕೆಯ ವಾಕ್ಯಗಳು	04
CO – 6 :	
6.1 Activities in Kannada (Kannadadalli chatuvatike -1 (Activity -1) 6.2 Sambhashane – Conversation - ಸಂಭಾಷಣೆ - 1 and 2 with Exersies 6.3 Chatuvatike – 2 (Activity -2 Shabdakisha – Vocabulary –ಶಬ್ದಕೋಶ 6.4 Sambhashane - Conversation - – ಸಂಭಾಷಣೆ -1,2 & 3 with Exersies Model Question Papers and Extra Actitie.– ಗ್ರಂಥಋಣ	04
Total Teaching Hours	32 Hours

ಬಳಕೆ ಕನ್ನಡ–1 ಮತ್ತು ಸಾಹಿತ್ಯ ಸಿಂಚನ–1 ಪಠ್ಯಕ್ರಮಗಳಿಗೆ ನಿರಂತರ ಅಂತರಿಕ ಮೌಲ್ಯಮಾಪನದ ಮಾರ್ಗಸೂಚಿಗಳು

(COURSE ASSESSMENT AND EVALUATION CHART –CIE ONLY)

Sl. No	Assessment	Duration	Max Marks	Conversion
1	CIE Assessment – 1 (Written Test – 1) At the end of 6th Week (Theory Test)	80 Minutes	30	Average of two written tests 30 Marks
2	CIE Assessment – 2 (Written Test – 2) At the end of 10th Week (Theory Test)	80 Minutes	30	
3	CIE Assessment – 3 (Skill Test-1) At the end of 1th Week (Practical Test)	80 Minutes	30	Average of three Assessment
4	CIE Assessment – 4 (MCQ / Quiz) At the end of 8th Week	60 Minutes	20	
5	CIE Assessment – 5 (Open Book Test-3) At the end of 13th Week	60 Minutes	20	
6	CIE Assessment 6 (Student Activity / Assignment) At the end of 16th Week	60 Minutes	20	
Total Continuous Internal Evaluation (CIE) Assessment				**50**

COURSE OUTCOMES:

CO – 1: Understand & usage of Kannada alphabets

CO – 2: Use of singular & plural nouns in Kannada language

CO – 3: Usage of numbers and day-to-day application of Kannada language

CO – 4: Know the human body parts & general conversation

CO – 5: Apply knowledge acquired in Kannada Language & related activities

CO-PO-PSO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO-1	2	-	-	-	2	1	2		
CO-2	2	-	-	-	2	1	2		
CO-3	2	-	-	-	2	1	2		
CO-4	2	-	-	-	2	1	2		
CO-5	2	-	-	-	2	1	2		

Government of Karnataka

Department of Collegiate and Technical Education

JSS Polytechnic for the Differently Abled, Mysuru (AUTONOMOUS)

Course Code	-	Semester	**II**
Course Title	**Sign Language II**	Course Group	**Audit**
Type of Course	**Lecture**	Total Contact Hours	**2Hrs Per Week** **32Hrs Per Semester**
Prerequisites	**Knowledge of Basic Sign Language**	Teaching Scheme	**(L:T:P)=2:0:0**
CIE Marks	**50**	SEE Marks	-

COURSE OBJECTIVES:

1. Understand and apply signs of English, Banking and others.
2. Understand the Departmental Technical Terminology.
3. Understand and apply signs of Mathematical Terminologies.

COURSE OUTCOMES:

At the end of the course student will be able to achieve the following course outcomes:

CO1	Acquire and apply the signs of English and Computer terminology.
CO2	Acquire and apply the signs of Banking Terminologies.
CO3	Obtain and apply the signs of Department related Technical terms.
CO4	Acquire and apply the signs and Measuring Units.
CO5	Acquire and apply the signs of Mathematical terminologies.

COURSE CONTENT:

Unit No & Name	Detailed Course Content	CO	PO	Contact Hrs
1. English Terminologies and Computer Terminologies	1.1 Know the signs for English Terminology	CO1	1,5,6,7	2
	1.2 Know the signs for Computer Terminology	CO1	1,5,6,7	2
	1.3 Practice session	CO1	1,5,6, 7	1
	CIE Assessment 1			1
2. Banking Terminologies	2.1 Know the signs for Banking Terminology	CO2	1,5,6, 7	2
	2.2 Practice Session	CO2	1,5,6,7	1
	CIE Assessment 2			1
3. Department Related Words	3.1 Learning Department related words of Computer Science	CO3	1,5,6, 7	2
	3.2 Learning Department related words of Electronics & Communication Engineering	CO3	1,5,6,7	2
	3.3 Learning Department related words of Architecture	CO2	1,5,6,7	2
	3.4 Learn Department related words of Commercial Practice	CO3	1,5,6,7	2
	3.5 Learn Department related words of Jewellery Design & Technology	CO3	1,5,6,7	2
	3.6 Practice Session			3
	CIE Assessment 3			1
4. Measuring Units	4.1 Know the signs for Measuring Units 4.2 Practice Session	CO3	1,5,6,7	3
	CIE Assessment 4			1
5. Mathematical Terminologies	5.1 Know the signs for Mathematical Terminologies. 5.2 Practice Session	CO3	1,5,6,7	3
	CIE Assessment 5			1

References:

(a) Suggested Learning Resources:

Books:

1. Book on Sign Language, Ali Yavar Jung National Institute for the Hearing Handicapped, Training Center for Adult Deaf.
2. Indian Sign Language Dictionary, Ramakrishna Mission Vidyalaya.
3. Book on Hearing Impairment, Ali Yavar Jung National Institute for the Hearing Handicapped, Training Center for Adult Deaf.
4. Signing Naturally Level 1, Cheri Smith, Ella Mae Lentz , Ken Mikes.
5. Signing Naturally Level 2, Cheri Smith, Ella Mae Lentz , Ken Mikes

(b) Open source software and website address:

1) www.indiansignlnguage.org
2) www.islrtc.nic.in
3) www.talkinghands.co.in
4) www.def.org.in

Teaching strategies:

- Demonstrating the words using signs.
- Interaction with the students using sign language.
- Online assistance is given to the students
- Involving the students
- in group discussion

Mapping of Course Outcomes with Programme Outcomes

CO	Course Outcome	PO Mapped	Cognitive Level R/U/A	Units	Theory Sessions In Hrs
CO1	Acquire and apply the signs of English and Computer terminology.	1,5,6,7	R,UA	1	6
CO2	Acquire and apply the signs of Banking Terminologies.	1,5,6, 7	R,U,A	2	4
CO3	Obtain and apply the knowledge of signing the Department related Technical terms.	1,5,6,7	R,U	3	14
CO4	Acquire and apply the signs and measuring units.	1,5,6,7	R,UA	4	4
CO5	Acquire and apply the signs of Mathematical terminologies.	1,5,6,7	R,UA	5	4
Total Hours of instruction					32

Level of Mapping PO's with CO's

Course	CO's	Programme Outcomes(PO's)						
		1	2	3	4	5	6	7
Sign Language-II	CO1	2	0	0	0	2	2	2
	CO2	2	0	0	0	2	2	2
	CO3	2	0	0	0	2	2	2
	CO4	2	0	0	0	2	2	2
	CO5	2	0	0	0	2	2	2

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

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

Course Assessment and Evaluation Chart

Sl. No	Assessment	Duration	Max marks	Conversion
1.	CIE Assessment 1 (Activity 1 - At the end of 3d week	60 minutes	10	Total of all the CIE Assessment
2.	CIE Assessment 2 (Activity -2) - At the endof 5th week	60 minutes	10	
3.	CIE Assessment 3 (Activity -3) - At the end of 12th week	60 minutes	10	
4	CIE Assessment 4 (MCQ/Quiz) - At the end of 14th week	60 minutes	10	
5	CIE Assessment 5 (Activity/Assignment) - At the beginning of 16th week	60 minutes	10	
7.	Total Continuous Internal Evaluation (CIE) Assessment			50
Total Marks				**50**

Government of Karnataka

Department of Collegiate and Technical Education

JSS Polytechnic for the Differently Abled, Mysuru (AUTONOMOUS)

Course Code	-	Semester	**II**
Course Title	**Psychology and Counseling - II**	Course Group	**Audit**
Type of Course	**Lecture**	Total Contact Hours	**2 Hrs. / Week** **32 Hrs. / Semester**
Prerequisites	**English Knowledge**	Teaching Scheme	**[L : T : P] 2:0:0**
CIE Marks	**50**	SEE Marks	**-**

1. COURSE OBJECTIVES

At the end of the course the students shall be able to:

1. Understand Psychology related problems and acquire problem solving skills.
2. Understand and learn to work in teams.
3. Adapt positive psychology in daily life.
4. Understand career planning and explore career options.

2. COURSE OUTCOMES

At the end of the course, the students shall be able to

	Course Outcomes
CO 1	Develop knowledge on problem solving skills.
CO 2	Work in teams.
CO 3	Acquire knowledge and adapt a good mental well-being.
CO 4	Obtain positive attitude and self esteem.
CO 5	Obtain knowledge about career planning and apply it.

3. COURSE CONTENT OUTLINE WITH TEACHING HOURS AND MARK

UNIT NO	UNIT TITLE	TEACHING HOURS	MARKS
01	Problems and problem solving skills	06	10
02	Working with groups	06	10
03	Positive Psychology	07	10
04	Attitude	07	10
05	Career Planning	06	10
Total		32	50

4. DETAILS OF COURSE CONTENTS

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

UNIT NO.	SKILLS	TOPICS / SUBTOPICS	HOURS
UNIT– 1. Problems and problem solving skills	Understand and apply problem solving skills. Learn self value and live a well-balanced life.	1.1 Analyzing a problem 1.2 Problem solving skills 1.3 Forgiving self and understanding self-worth. 1.4 Well-balanced living.	06
UNIT– 2. Working with groups	Understand and learn to work/adjust in a groups.	2.1 Nature of groups. 2.2 Group productivity. 2.3 Leadership. 2.4 Success. 2.5 Understanding Pros and Cons of working in groups.	06
UNIT- 3 Positive Psychology	Understand the importance of staying positive and have a good mental health.	3.1 Science of happiness 3.2 Mindfulness 3.3 Positive thinking 3.4 Optimism 3.5 Mental well-being	07

UNIT- 4 Attitude	Understand the importance of positive attitude and self esteem.	4.1 Attitude 4.2 Factors Influencing our attitude 4.3 Changing attitude- negative to positive. 4.4 Building positive self-esteem and image. 4.5 Forming positive habits and characters. 4.6 Prejudice 4.7 Overcoming loneliness 4.8 Witnessing/ interacting with successful differently abled people.	07
UNIT- 5 Career Planning	Understand the importance of career planning and apply it in exploring suitable options.	5.1 Career planning 5.2 Features and importance of career planning. 5.3 Understanding job satisfaction. 5.4 Exploring career options suitable for their personality. 5.5 Goal setting and working towards it. 5.6 Time Management. 5.7 Decision Making	06

5. MAPPING OF CO WITH PO

CO	Course Outcome	PO Mapped	Unit	CL R/U/A	Theory in Hrs.
1	Develop knowledge on problem solving skills.	1,5,6,7	1	R/U/A	6
2	Work in teams.	1,5,6,7	2	R/U/A	6
3	Acquire knowledge and adapt a good mental well-being.	1,5,6,7	3	R/U/A	7
4	Obtain positive attitude and self esteem.	1,5,6,7	4	R/U/A	7
5	Obtain knowledge about career planning and apply it.	1,5,6,7	5	R/U/A	6
Total					32

6. LEVELS OF CO AND PO MAPPING

Psychology and Counselling	**Programme Outcomes**						
Course outcomes	1	2	3	4	5	6	7
CO1	2	0	0	0	3	1	2
CO2	2	0	0	0	3	1	2
CO3	2	0	0	0	3	1	2
CO4	2	0	0	0	3	1	2
CO5	2	0	0	0	3	1	2

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.

If >40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3

If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2

If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1

If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

7. COURSE ASSESSMENT AND EVALUATION CHART

Sl. No	**Assessment**	**Duration**	**Max marks**	**Conversion**
1.	CIE Assessment 1 (Activity) - At the end of 3rd week	60 minutes	10	Total of all the CIE assessments.
2.	CIE Assessment 2 (Activity) - At the end of 6th week	60 minutes	10	
3.	CIE Assessment 3 (MCQ/Quiz) - At the end of 9th week	60 minutes	10	
4.	CIE Assessment 4 (MCQ/Quiz) - At the end of 12th week	60 minutes	10	
5.	CIE Assessment 5 (Activity) - At the beginning of 15th week	60 minutes	10	
Total Continuous Internal Evaluation (CIE) Assessment				50
Total Marks				**50**

8. INSTRUCTIONAL STRATEGY

- Emphasis on demonstration based learning activities.
- Involve the students in the group discussions.
- Explain the students with real time problems.
- Providing the course materials in soft copy, power point presentation and hard copy to revise the contains in depth.
- Encourage innovative teaching by providing online references.

9. DETAILED COURSE CONTENTS

UNIT NO. AND NAME	DETAILED COURSE CONTENT	CO	PO	CONTACT HRS.	TOTAL
1. Problems and problem solving skills	Analyzing a problem	1	1,5,6,7	1	**06**
	Problem solving skills	1	1,5,6,7	1	
	Forgiving self and understanding self-worth	1	1,5,6,7	1	
	Well-balanced living.	1	1,5,6,7	1	
	Activity on problem solving.	1	1,5,6,7	1	
	CIE Assessment 1	1	1,5,6,7	1	
2. Working with groups	Nature of groups.	2	1,5,6,7	1	**06**
	Group productivity.	2	1,5,6,7	1	
	Leadership. Success.	2	1,5,6,7	1	
	Understanding Pros and Cons of working in groups	2	1,5,6,7	1	
	Activity on working in groups - 2 Tasks	2	1,5,6,7	1	
	CIE Assessment 2	2	1,5,6,7	1	
3. Positive Psychology	Science of happiness	3	1,5,6,7	1	**07**
	Mindfulness	3	1,5,6,7	1	
	Positive thinking	3	1,5,6,7	1	
	Optimism	3	1,5,6,7	1	
	Mental well-being	3	1,5,6,7	1	
	Activity on staying positive	3	1,5,6,7	1	
	CIE Assessment 3	3	1,5,6,7	1	
4. Attitude	Attitude Factors Influencing our attitude	4	1,5,6,7	1	**07**
	Changing attitude- negative to positive.	4	1,5,6,7	1	
	Building positive self-esteem and image.	4	1,5,6,7	1	
	Forming positive habits and characters.	4	1,5,6,7	1	

	Prejudice Overcoming loneliness	4	1,5,6,7	1	
	Witnessing/ interacting with successful differently abled people.	4	1,5,6,7	1	
	CIE Assessment 4	4	1,5,6,7	1	
5. Career Planning	Career planning Features and importance of career planning.	5	1,5,6,7	1	**06**
	Understanding job satisfaction. Exploring career options suitable for their personality.	5	1,5,6,7	1	
	Goal setting and working towards it.	5	1,5,6,7	1	
	Time Management.	5	1,5,6,7	1	
	Decision Making	5	1,5,6,7	1	
	CIE Assessment 5	5	1,5,6,7	1	
Total					**32**

10. SUGGESTED LIST OF STUDENTS ACTIVITIES

Sl. No	Suggested Activities
1	Puzzle activity- to build their creativity.
2	Individual tasks in the classroom stage to build confidence
3	Healthy competitions to know their caliber and learn to encourage and support each other.
4	Group discussions
5	Mock Interview

11. SUGGESTED LEARNING REFERENCES

Sl.No	References
1	Introduction to Psychology by Morgan and king
2	Social Psychology by Shelley E. Taylor
3	Positive Psychology by Baumgardner Steve Crothers Marie
4	13 Things Mentally Strong People Don't Do by Amy Morin
5	The Righteous Life by A.P.J. Abdul Kalam
6	https://www.youtube.com/watch?v=ZnjJpa1LBOY
7	https://www.youtube.com/watch?v=_gJ5V525SCk