LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)
Accredited by NAAC & NBA (Under Tier - I), ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi. and Affiliated to JNTUK, Kakinada
L.B. REDDY NAGAR, MYLAVARAM, KRISHNA DIST., A.P.-521 230.
Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF FRESHMAN ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr.S.Vijaya Dasaradha
Course Name & Code **:** Engineering Chemistry & 20FE06
L-T-P Structure **: 3-0-0** **Credits : 03**
Program/Sem/Sec : B.Tech/I-sem/I.T- A **A.Y. :** 2021-22

Pre-requisites: Nil
Course Educational Objectives: It enables the students to understand the fundamental concepts of chemistry and to provide them with the knowledge of industrial problems and finding the solutions. It helps to strengthen the basic concepts of electrochemistry, corrosion, nanotechnology, polymers, liquid crystals and analytical techniques.

COURSE OUTCOMES (COs): After completion of the course, students will be able to

CO1	Apply Nernst Equation for calculating electrode cell potentials and compare batteries for different applications (L3)
CO2	Apply Nernst Equation for calculating electrode cell potentials and compare batteries for different applications (L3)
CO3	Analyze the suitability of advanced materials like nano-materials in electronics and medicine (L4)
CO4	Identify the importance of liquid crystals, polymers in advanced technologies (L2)
CO5	Apply the principles of analytical techniques in chemical analysis (L3)

COURSE ARTICULATION MATRIX (Correlation between COs, POs):

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	1	-	2	2	-	-	-	-	2
CO2	3	2	2	1	-	2	1	-	-	-	-	2
CO3	3	2	2	1	-	1	1	-	-	-	-	2
CO4	3	2	2	1	-	1	1	-	-	-	-	2
CO5	3	2	1	1	-	1	1	-	-	-	-	2
1 = Slight (Low) **2 = Moderate (Medium)** **3 = Substantial (High)**												

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

T1 Shikha Agarwal, "A Text book of Engineering Chemistry", Cambridge University Press, New Delhi, 1st Edition, 2015

T2 Jain, Jain, "A textbook of Engineering Chemistry", Dhanpat Rai Publishing Company, New I 16th Edition, 2015.

BOS APPROVED REFERENCE BOOKS:

R1 Shashi Chawla, "A Text book of Engineering Chemistry", Dhanpat Rai Publishing Company, Delhi, 3rd Edition, 2003.

R2 S.S. Dara, S.S. Umare, "A Text book of Engineering Chemistry", S. Chand Publications, New Delhi, 12th Edition, 2010

R3 Prasanta Rath, B. Rama Devi, Ch. Venkata Ramana Reddy, Subhendu Chakroborty, "Engineering Chemistry", Cengage Learning India, 1st Edition, 2019.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: ELECTRO CHEMISTRY & BATTERIES

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Introduction to Course and COs	1	13-12-2021		TLM1	
2	Prerequisites for Unit-I	1	14-12-2021		TLM1	
3	Applications of Electro-chemical Series	1	15-12-2021		TLM1	
4	Calculation of EMF of Cell	1	18-12-2021		TLM1	
5	Practice exercises on applications of Electro chemical series	1	20-12-2021		TLM3	
6	Glass Electrode, Calomel Electrode	1	21-12-2021		TLM1	
7	Applications of Nernst Equation	1	22-12-2021		TLM1	
8	Lead-acid Battery	1	27-12-2021		TLM2	
9	Lithium-ion Battery, H_2 – O_2 Fuel cell, Mg-Cu Reserve Battery	1	28-12-2021		TLM2	
10	Revision of Unit 1, Assignment & Quiz	1	29-12-2021		TLM1	
No. of classes required to complete UNIT-I: 10				**No. of classes taken:**		

UNIT-II: SCIENCE OF CORROSION

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Definition, Examples, Dry corrosion	1	03-01-2022		TLM1	
2	Corrosion by other gases and liquid metal corrosion	1	04-01-2022		TLM1	
3	Contd.. Dry corrosion, pilling bed worth rule, Conditions for wet corrosion	1	05-01-2022		TLM1	
4	Mechanism- oxygen absorption, hydrogen evolution, types of wet corrosion	1	08-01-2022		TLM1	
5	Galvanic Corrosion, passivity and Galvanic series	1	10-01-2022		TLM1	
6	Concentration Cell Corrosion	1	11-01-2022		TLM1	
7	Nature of metal, Nature of environment	1	12-01-2022		TLM1	
8	Cathodic Protection	1	17-01-2022		TLM1	
9	Electroplating, metal cladding.	1	18-01-2022		TLM1	
10	Revision of Unit II, Assignment & Quiz	1	19-01-2022		TLM1	
No. of classes required to complete UNIT-II: 10				**No. of classes taken:**		

UNIT-III: CHEMISTRY OF ENGINEERING MATERIALS

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Introduction, types of nano-materials, ,	1	22-01-2022		TLM1	
2	Gas-Phase Synthesis of nanomaterials	1	24-01-2022		TLM1	
3	Applications of nano materials	1	25-01-2022		TLM2	
4	Materials in Electronic devices.	1	29-01-2022		TLM1	
5	Contd.. Materials in Electronic devices	1	31-01-2022		TLM2	
6	Contd.. Materials in Electronic devices	1	01-02-2022		TLM2	
7	Characteristics of Molecular motors and machines	1	02-02-2022		TLM1	
8	Rotaxanes as artificial molecular machines	1	05-02-2022		TLM2	
9	Catenanes as artificial molecular machines	1	14-02-2022		TLM2	

10	Automated light powered molecular motars	1	15-02-2022		TLM1	
No. of classes required to complete UNIT-III: 10				**No. of classes taken:**		

UNIT-IV : LIQUID CRYSTALS & POLYMERS

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Classification of liquid crystals	1	16-02-2022		TLM1	
2	Mechanisim of working liquid crystals & their applications	1	19-02-2022		TLM1	
3	Introduction and types of polymerizations,	1	21-02-2022		TLM1	
4	Preparation, properties and engineering applications of P.M.M.A, Teflon	1	22-02-2022		TLM2	
5	Preparation properties and engineering applications of Polycarbonate, Structure of raw rubber and vulcanized rubber	1	23-02-2022		TLM1	
6	Preparation properties and engineering applications of Polyurethane, Buna-S	1	26-02-2022 & 28-02-2022		TLM1	
7	Conducting polymers	1	02-03-2022		TLM1	
8	Biodegradable polymers	1	05-03-2022		TLM1	
9	Revision of Unit IV, Assignment & Quiz	1	07-03-2022		TLM1	
No. of classes required to complete UNIT-IV: 9				**No. of classes taken:**		

UNIT-V : ANALYTICAL TECHNIQUES

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Types of analysis	1	08-03-2022		TLM1	
2	Principle of conductometric titrations, Strong acid vs strong base titrations	1	09-03-2022		TLM1	
3	Strong acid vs weak base titrations, Strong base vs weak acid titrations	1	14-03-2022		TLM1	
4	Weak acid vs weak base titrations	1	15-03-2022		TLM1	
5	Principle of potentiometry Acid-base titration	1	16-03-2022		TLM1	

6	Redox titration	1	19-03-2022		TLM1	
7	Colorimetry, Principle and determination of iron by using thiocynate as a reagent	1	21-03-2022 & 22-03-2022		TLM1	
8	Revision of Unit V	1	23-03-2022		TLM1	
9	**Assignment & Quiz**	1	26-03-2022		TLM1	
No. of classes required to complete UNIT-V: 9				**No. of classes taken:**		

CONTENTS BEYOND SYLLABUS						
1	Batteries used in mobile phones of popular companies	1	28-03-2022		TLM1	
2	Polymers in industrial applications	1	29-03-2022		TLM1	
3	Applications of electroplating with ref to PCBs	1	30-03-2022		TLM1	

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	**Marks**
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Title	**Course Instructor**	**Course Coordinator**	**Module Coordinator**	**Head of the Department**
Name of the Faculty	**Mr.S.Vijaya Dasaradha**	**Dr.V.Parvathi**	**Dr.V.Parvathi**	**Dr.A.Rami Reddy**
Signature				

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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF FRESHMAN ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr.S.Vijaya Dasaradha
Course Name & Code : Engineering Chemistry & 20FE06
L-T-P Structure : **3-0-0** **Credits :** **03**
Program/Sem/Sec : B.Tech/I-sem/I.T- B **A.Y.** : 2021-22

Pre-requisites: Nil
Course Educational Objectives: It enables the students to understand the fundamental concepts of chemistry and to provide them with the knowledge of industrial problems and finding the solutions. It helps to strengthen the basic concepts of electrochemistry, corrosion, nanotechnology, polymers, liquid crystals and analytical techniques.

COURSE OUTCOMES (COs): After completion of the course, students will be able to

CO1	Apply Nernst Equation for calculating electrode cell potentials and compare batteries for different applications (L3)
CO2	Apply Nernst Equation for calculating electrode cell potentials and compare batteries for different applications (L3)
CO3	Analyze the suitability of advanced materials like nano-materials in electronics and medicine (L4)
CO4	Identify the importance of liquid crystals, polymers in advanced technologies (L2)
CO5	Apply the principles of analytical techniques in chemical analysis (L3)

COURSE ARTICULATION MATRIX (Correlation between COs, POs):

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
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CO2	3	2	2	1	-	2	1	-	-	-	-	2
CO3	3	2	2	1	-	1	1	-	-	-	-	2
CO4	3	2	2	1	-	1	1	-	-	-	-	2
CO5	3	2	1	1	-	1	1	-	-	-	-	2
1 = Slight (Low) **2 = Moderate (Medium)** **3 = Substantial (High)**												

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
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PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: ELECTRO CHEMISTRY & BATTERIES

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Introduction to Course and COs	1	13-12-2021		TLM1	
2	Prerequisites for Unit-I	1	14-12-2021		TLM1	
3	Applications of Electro-chemical Series	1	16-12-2021		TLM1	
4	Calculation of EMF of Cell	1	18-12-2021		TLM1	
5	Practice exercises on applications of Electro chemical series	1	20-12-2021		TLM3	
6	Glass Electrode, Calomel Electrode	1	21-12-2021		TLM1	
7	Applications of Nernst Equation	1	23-12-2021		TLM1	
8	Lead-acid Battery	1	27-12-2021		TLM2	
9	Lithium-ion Battery, H_2 – O_2 Fuel cell, Mg-Cu Reserve Battery	1	28-12-2021		TLM2	
10	Revision of Unit 1, Assignment & Quiz	1	30-12-2021		TLM1	
No. of classes required to complete UNIT-I: 10				**No. of classes taken:**		

UNIT-II: SCIENCE OF CORROSION

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Definition, Examples, Dry corrosion	1	03-01-2022		TLM1	
2	Corrosion by other gases and liquid metal corrosion	1	04-01-2022		TLM1	
3	Contd.. Dry corrosion, pilling bed worth rule, Conditions for wet corrosion	1	06-01-2022		TLM1	
4	Mechanism- oxygen absorption, hydrogen evolution, types of wet corrosion	1	10-01-2022		TLM1	
5	Galvanic Corrosion, passivity and Galvanic series	1	11-01-2022		TLM1	
6	Concentration Cell Corrosion	1	18-01-2022		TLM1	
7	Nature of metal, Nature of environment	1	20-01-2022		TLM1	
8	Cathodic Protection	1	22-01-2022		TLM1	
9	Electroplating, metal cladding.	1	24-01-2022		TLM1	
10	Revision of Unit II, Assignment & Quiz	1	25-01-2022		TLM1	
No. of classes required to complete UNIT-II: 10				**No. of classes taken:**		

UNIT-III: CHEMISTRY OF ENGINEERING MATERIALS

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Introduction, types of nano-materials, ,	1	27-01-2022		TLM1	
2	Gas-Phase Synthesis of nanomaterials	1	29-01-2022		TLM1	
3	Applications of nano materials	1	31-01-2022		TLM2	
4	Materials in Electronic devices.	1	01-02-2022		TLM1	
5	Contd.. Materials in Electronic devices	1	03-02-2022		TLM2	
6	Contd.. Materials in Electronic devices	1	05-02-2022		TLM2	
7	Characteristics of Molecular motors and machines	1	14-02-2022		TLM1	
8	Rotaxanes as artificial molecular machines	1	15-02-2022		TLM2	
9	Catenanes as artificial molecular machines	1	17-02-2022		TLM2	

10	Automated light powered molecular motars	1	19-02-2022		TLM1	
No. of classes required to complete UNIT-III: 10				**No. of classes taken:**		

UNIT-IV : LIQUID CRYSTALS & POLYMERS

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Classification of liquid crystals	1	21-02-2022		TLM1	
2	Mechanisim of working liquid crystals & their applications	1	22-02-2022		TLM1	
3	Introduction and types of polymerizations,	1	24-02-2022		TLM1	
4	Preparation, properties and engineering applications of P.M.M.A, Teflon	1	26-02-2022		TLM2	
5	Preparation properties and engineering applications of Polycarbonate, Structure of raw rubber and vulcanized rubber	1	28-02-2022		TLM1	
6	Preparation properties and engineering applications of Polyurethane, Buna-S	1	03-03-2022		TLM1	
7	Conducting polymers	1	05-03-2022		TLM1	
8	Biodegradable polymers	1	07-03-2022		TLM1	
9	Revision of Unit IV, Assignment & Quiz	1	08-03-2022		TLM1	
No. of classes required to complete UNIT-IV: 9				**No. of classes taken:**		

UNIT-V : ANALYTICAL TECHNIQUES

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1	Types of analysis	1	10-03-2022		TLM1	
2	Principle of conductometric titrations, Strong acid vs strong base titrations	1	12-03-2022		TLM1	
3	Strong acid vs weak base titrations, Strong base vs weak acid titrations	1	14-03-2022		TLM1	
4	Weak acid vs weak base titrations	1	15-03-2022		TLM1	
5	Principle of potentiometry Acid-base titration	1	19-03-2022		TLM1	

6	Redox titration	1	21-03-2022		TLM1	
7	Colorimetry, Principle and determination of iron by using thiocynate as a reagent	1	22-03-2022		TLM1	
8	Revision of Unit V	1	24-03-2022		TLM1	
9	**Assignment & Quiz**	1	26-03-2022		TLM1	
No. of classes required to complete UNIT-V: 9				**No. of classes taken:**		

CONTENTS BEYOND SYLLABUS						
1	Batteries used in mobile phones of popular companies	1	28-03-2022		TLM1	
2	Polymers in industrial applications	1	29-03-2022		TLM1	
3	Applications of electroplating with ref to PCBs	1	31-03-2022		TLM1	

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	**Marks**
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Title	**Course Instructor**	**Course Coordinator**	**Module Coordinator**	**Head of the Department**
Name of the Faculty	**Mr.S.Vijaya Dasaradha**	**Dr.V.Parvathi**	**Dr.V.Parvathi**	**Dr.A.Rami Reddy**
Signature				

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DEPARTMENT OF FRESHMAN ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr.S.Vijaya Dasaradha
Course Name & Code : Engineering Chemistry Lab & 20FE53
L-T-P Structure : 0-0-3 **Credits : 1.5**
Program/Sem/Sec : B.Tech/I-Sem/I.T - A **A.Y. :** 2021-22

Pre-requisites: Nil

Course Educational Objectives: This course enables the students to analyze water samples and perform different types of volumetric titrations. It provides them with an overview of preparation of polymers and analytical techniques.

Course Outcomes: At the end of the course, the student shall be able to

CO1: Assess alkalinity of water based on the procedure given. (L2)
CO2: Distinguish different types of titrations in volumetric analysis after performing the experiments listed in the syllabus. (L2)
CO3: Acquire practical knowledge related to preparation of polymers. (L2)
CO4: Exhibit skills in performing experiments based on theoretical fundamentals. (L2)

COURSE ARTICULATION MATRIX (Correlation between COs, POs):

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3		1		2	2					
CO2	2	1										
CO3	2		1									
CO4	3	2	1									
1 = Slight (Low) 2 = Moderate (Medium) 3 = Substantial (High)												

Note: **1-** Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

REFERENCE: BOS Approved Lab Manual

Part-B

COURSE DELIVERY PLAN (LESSON PLAN):

S.No.	Experiment	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Introduction to Engineering Chemistry lab	3	17-12-2021		TLM1	CO4	
2.	Introduction to volumetric analysis.	3	24-12-2021		TLM1	CO4	
3.	Preparation of Bakelite	3	31-12-2021		TLM4	CO3,CO4	
4.	Determination of amount of HCl using standard Na_2CO_3 solution.	3	07-01-2022		TLM4	CO2,CO4	
5.	Preparation of nylon fibres.	3	21-01-2022		TLM4	CO3,CO4	
6.	Determination of Mg^{+2} using standard EDTA solution.	3	28-01-2022		TLM4	CO2,CO4	
7.	Determination of pH of the given sample solution/soil using pH meter.	3	04-02-2022		TLM4	CO2,CO4	
8.	Estimation of Mohr's salt using potassium permanganate.	3	11-02-2022		TLM4	CO2,CO4	
9.	Determination of alkalinity of water sample.	3	18-02-2022		TLM4	CO1,CO4	
10.	Estimation of Mohr's salt using potassium dichromate.	3	25-02-2022		TLM4	CO2,CO4	
11.	Estimation of amount of HCl conductometrically using standard NaOH solution.	3	04-03-2022		TLM4	CO2,CO4	
12.	Estimation of amount of HCl conductometrically using NH_4OH solution	3	11-03-2022		TLM4	CO2,CO4	
13.	Revision	3	18-03-2022		TLM4	CO2,CO4	
14.	Lab Internal Exam(Batch-I)	3	25-03-2022		TLM4	CO2,CO4	
15.	Lab Internal Exam(Batch-II)	3	01-04-2022		TLM4	CO2,CO4	
Total							

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C

EVALUATION PROCESS:

According to Academic Regulations of R20 Distribution and Weightage of Marks for Laboratory Courses is as follows.

(a) Continuous Internal Evaluation (CIE):

- ✓ The continuous internal evaluation for laboratory course is based on the following parameters:

Parameter		**Marks**
Day – to – Day Work	Observation	05 Marks
	Record	05 Marks
Internal Test		05 Marks
Total		**15 Marks**

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr.S.Vijaya Dasaradha	Dr.V.Parvathi	Dr.V.Parvathi	Dr.A.Rami Reddy
Signature				

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF FRESHMAN ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr.S.Vijaya Dasaradha
Course Name & Code : Engineering Chemistry Lab & 20FE53
L-T-P Structure : 0-0-3 **Credits : 1.5**
Program/Sem/Sec : B.Tech/I-Sem/I.T - B **A.Y. :** 2021-22

Pre-requisites: Nil

Course Educational Objectives: This course enables the students to analyze water samples and perform different types of volumetric titrations. It provides them with an overview of preparation of polymers and analytical techniques.

Course Outcomes: At the end of the course, the student shall be able to

CO1: Assess alkalinity of water based on the procedure given. (L2)
CO2: Distinguish different types of titrations in volumetric analysis after performing the experiments listed in the syllabus. (L2)
CO3: Acquire practical knowledge related to preparation of polymers. (L2)
CO4: Exhibit skills in performing experiments based on theoretical fundamentals. (L2)

COURSE ARTICULATION MATRIX (Correlation between COs, POs):

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3		1		2	2					
CO2	2	1										
CO3	2		1									
CO4	3	2	1									
1 = Slight (Low) 2 = Moderate (Medium) 3 = Substantial (High)												

Note: **1-** Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

REFERENCE: BOS Approved Lab Manual

Part-B

COURSE DELIVERY PLAN (LESSON PLAN):

S.No.	Experiment	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Introduction to Engineering Chemistry lab	3	15-12-2021		TLM1	CO4	
2.	Introduction to volumetric analysis.	3	22-12-2021		TLM1	CO4	
3.	Preparation of Bakelite	3	29-12-2021		TLM4	CO3,CO4	
4.	Determination of amount of HCl using standard Na_2CO_3 solution.	3	05-01-2022		TLM4	CO2,CO4	
5.	Preparation of nylon fibres.	3	12-01-2022		TLM4	CO3,CO4	
6.	Determination of Mg^{+2} using standard EDTA solution.	3	19-01-2022		TLM4	CO2,CO4	
7.	Determination of pH of the given sample solution/soil using pH meter.	3	02-02-2022		TLM4	CO2,CO4	
8.	Estimation of Mohr's salt using potassium permanganate.	3	09-02-2022		TLM4	CO2,CO4	
9.	Determination of alkalinity of water sample.	3	16-02-2022		TLM4	CO1,CO4	
10.	Estimation of Mohr's salt using potassium dichromate.	3	23-02-2022		TLM4	CO2,CO4	
11.	Estimation of amount of HCl conductometrically using standard NaOH solution.	3	02-03-2022		TLM4	CO2,CO4	
12.	Estimation of amount of HCl conductometrically using NH_4OH solution	3	09-03-2022		TLM4	CO2,CO4	
13.	Revision	3	16-03-2022		TLM4	CO2,CO4	
14.	Lab Internal Exam(Batch-I)	3	23-03-2022		TLM4	CO2,CO4	
15.	Lab Internal Exam(Batch-II)	3	30-3-2022		TLM4	CO2,CO4	
Total							

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C

EVALUATION PROCESS:

According to Academic Regulations of R20 Distribution and Weightage of Marks for Laboratory Courses is as follows.

(a) Continuous Internal Evaluation (CIE):

- ✓ The continuous internal evaluation for laboratory course is based on the following parameters:

Parameter		Marks
Day – to – Day Work	Observation	05 Marks
	Record	05 Marks
Internal Test		05 Marks
Total		**15 Marks**

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

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9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr.S.Vijaya Dasaradha	Dr.V.Parvathi	Dr.V.Parvathi	Dr.A.Rami Reddy
Signature				

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DEPARTMENT OF INFORMATION AND TECHNOLOGY ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr B Sagar
Course Name & Code : PCS LAB, 20FE51
L-T-P Structure : **0-0-2** **Credits:** 01
Program/Sem/Sec : IT-A SEC - I SEM
A.Y. : 2021-22

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve the proficiency of students in English with an emphasis on better communication in formal and informal situations; Develop speaking skills required for expressing their knowledge and abilities and to face interviews with confidence.

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	Introduce one-self and others using appropriate language and details.	L2
CO2	Comprehend short talks and speak clearly on a specific topic using	L2
CO3	Report effectively after participating in informal discussions ethically.	L1
CO4	Interpret data aptly, ethically & make oral presentations without	L3

Syllabus: Professional Communication Lab (PCS) shall have two parts:

- **Computer Assisted Language Learning (CALL) Lab** for 60 students with 60 systems, LAN facility and English language software for self-study by learners.
- **Interactive Communication Skills (ICS) Lab.** with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo – audio & video system and camcorder etc.

Exercise– I

CALL Lab: Understand- Sentence structure.

ICS Lab: Practice -Listening: Identifying the topic, the context and specific information, Speaking: Introducing oneself and others.

Exercise–II

CALL Lab: Understand- Framing questions.

ICS Lab: Practice- Listening: Answering a series of questionsaboutmainideaandsupportingideasafterlisteningtoaudiotext.

Speaking: Discussing in pairs/small groups on specific topics; Delivering short structured talks using suitable cohesive devices (JAM)

Exercise–III

CALL Lab: Understand- Comprehension practice–Strategies for Effective Communication

ICS Lab: Practice - Listening: Listening for global comprehension and Summarizing Speaking: Discussing specific topics in pairs/small groups, reporting what is discussed

Exercise–IV

CALL Lab: Understand- Features of Good Conversation–Strategies for Effective Communication.

ICS Lab: Practice -Listening: making predictions while listening to conversations/transactional dialogues with/without video Speaking: Role – plays – formal & informal – asking for and giving information/directions/instructions/suggestions

Exercise– V

CALL Lab: Understand- Features of Good Presentation, Methodology of Group Discussion

ICS Lab: Practice –Introduction to Group Discussions.

Listening: Answering questions, identifying key terms and understanding concepts.

Speaking: Formal Oral & Poster presentations on topics from academic contexts without the use of PPT.

Lab Manual:

1. Prabhavati .Y & etal, "English All Round–Communication Skills for Undergraduate Learners" , Orient Black Swan, Hyderabad, 2019.

Suggested Software:

1. Digital Mentor: Globarena, Hyderabad,2005
2. Sky Pronunciation Suite: Young India Films, Chennai,2009
3. Mastering English in Vocabulary, Grammar, Spelling, Composition, Dorling Kindersley, USA, 2001
4. Dorling Kindersley Series of Grammar, Punctuation, Composition, USA, 2001
5. Oxford Talking Dictionary, The Learning Company, USA, 2002
6. Learning to Speak English- 4CDs. The Learning Company, USA, 2002
7. Cambridge Advanced Learners English Dictionary (CD).Cambridge University Press, New Delhi, 2008.

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1					3					3	3				
CO2					3					3	3				
CO3					3					3	3				
CO4					3					3	3				
1 - Low					**2** –Medium							**3** - High			

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	02	16-12-2021		TLM4	
2.	Self Introduction & Introducing others	02	23-12-2021		TLM4	
3.	Self Introduction & Introducing others	02	30-12-2021		TLM4	
4.	JAM- I(Short and Structured Talks)	02	06-01-2022		TLM4	
5.	JAM-II(Short and Structured Talks)	02	20-01-2022		TLM4	
6.	Role Play-I(Formal and Informal)	04	27-01-2022 03-02-2022		TLM4	
7.	Role Play-II (Formal and Informal)	02	17-02-2022		TLM4	
8.	Group Discussion-I (Reporting the discussion)	02	24-02-2022		TLM4, TLM6	
9.	Group Discussion-II	02	03-03-2022		TLM4, TLM6	
10.	Oral & Poster Presentation	02	10-03-2022 17-03-2022		TLM2, TLM4	
11.	Lab Internal Exam	02	24-03-2022			
No. of classes required to complete Syllabus: 24				**No. of classes taken:**		

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	Marks
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**B Sagar**	**Dr. B. Samrajya Lakshmi**	**Dr. B. Samrajya Lakshmi**	**Dr. A. Ramireddy**
Signature				

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DEPARTMENT OF INFORMATION AND TECHNOLOGY

COURSE HANDOUT

PART-A

Name of Course Instructor: MR B SAGAR
Course Name & Code : PC-I, 20FE01
L-T-P Structure : **2-0-0** **Credits:** 02
Program/Sem/Sec : IT-A –SEM-I
A.Y. : 2021-22

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve English language proficiency of the students on various aspects like vocabulary, grammar, communication skills, listening skills, Reading &Writing skills.

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	Write sentences and paragraphs using proper grammatical structures and word forms.	L1
CO2	Comprehendthegiventextbyemployingsuitablestrategiesforskimmingand Scanning and draw inferences	L2
CO3	Write summaries of reading texts using correct tense forms& Appropriate structures.	L1
CO4	Write Formal Letters; Memos & E-Mails	L3
CO5	Edit the sentences/short texts by identifying basic errors of grammar/ vocabulary/syntax	L2

Unit-I

Exploration - 'A Proposal to Girdle the Earth – Nellie Bly'; Reading: Skimming for main idea;Scanning for specific information; Grammar & Vocabulary: Content Words; Function Words;Word Forms: verbs, nouns, adjectives and adverbs; Nouns: Countable and Uncountable, Singularand Plural forms; Wh - Questions; Word Order in Sentences; Writing: Paragraph Analysis; Paragraph Writing; Punctuation and CapitalLetters

Unit–II

On Campus- 'The District School as it Was by One Who Went to it – Warren Burton'; Reading: Identifying Sequence of Ideas;

Grammar&Vocabulary: Cohesive Devices:Linkers/signposts/Transition signals, Synonyms, MeaningsofWords/Phrasesin thecontext; Writing: Memo Drafting.

Unit–III

WorkingTogether-'The Future of Work'

Reading: Making basic inferences; Strategies to use text clues for comprehension; Summarizing;Grammar & Vocabulary:Verbs: Tenses; Reporting Verbs for Academic Purpose; Writing**:** Rephrasing what is read; Avoiding redundancies and repetitions Abstract Writing/Summarizing.

Unit–IV

'A.P.J.AbdulKalam'; Grammar & Vocabulary: Direct & Indirect Speech; articles and their Omission; Writing :E-MailDrafting.

Unit–V

'C.V.Raman'; Grammar&Vocabulary: Subject-verb Agreement; Prepositions; Writing: Formal Letter Writing.

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1		1		1		1			3	3		2			
CO2		1		1		1			3	3		2			
CO3		1		1		1			3	3		2			
CO4		1		1		1			3	3		2			
CO5		1		1		1			3	3		2			
1 - Low				**2** –Medium							**3** - High				

TEXTBOOKS:

T1 Prabhavati. Y & etal , "English All Round –Communication Skills for Undergraduate Learners" ,Orient Black Swan, Hyderabad, 2019

T2 "The Great Indian Scientists" published by Cengage Learning India Pvt. Ltd., Delhi, 2017

REFERENCE BOOKS:

R1 Swan, M., "Practical English Usage", Oxford University Press, 2016.

R2 Kumar, Sand Latha, P, "Communication Skills", Oxford University Press, 2018.

R3 Rizvi Ashraf M.,"Effective Technical Communication", Tata Mc Graw Hill, NewDelhi, 2008.

R4 Baradwaj Kumkum, "Professional Communication",I. K. International PublishingHousePvt.Lt.,NewDelhi,2008.

R5 Wood, F. T., "Remedial English Grammar" , Macmillan, 2007.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	01	13-12-2021		TLM2	
2.	Proposal to Girdle The Earth by Nellie Bly	02	15-12-2021 17-12-2021		TLM2	
3.	Reading: Skimming for main idea ; Scanning for specific information	01	20-12-2021		TLM2	
4.	Content words and Function words	01	22-12-2021		TLM2	
5.	Word forms – verbs; Adjectives & adverbs	01	24-12-2021		TLM2	
6.	Nouns – countable & uncountable, singular and plural nouns Word order in sentences, "Wh" questions	01	27-12-2021		TLM2	
7.	Writing: Paragraph writing, Paragraph analysis	02	29-12-2021 31-12-2021		TLM2 TLM6	
No. of classes required to complete UNIT-I: 09				**No. of classes taken:**		

UNIT-II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	The District School As It Way by One Who Went to it - Warren Burton	02	03-01-2022 05-01-2022		TLM2	
9.	Identifying sequence of ideas	01	07-01-2022		TLM2	
10.	Cohesive devices: linkers /signposts/transition signals	01	10-01-2022		TLM2	

11.	Synonyms meanings of words / Phrases in the context	01	12-01-2022		TLM2	
12.	Essay Writing - Memo drafting	02	19-01-2022 21-01-2022 24-01-2022		TLM2 TLM6	
No. of classes required to complete UNIT-II: 08				**No. of classes taken:**		

UNIT-III:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
13.	The Future of Work	02	28-01-2022 31-01-2022		TLM2 TLM6	
14.	Making basic inferences, Strategies to uses text clues for comprehension	01	02-02-2022		TLM2	
15.	Verbs :tenses, reporting verbs for academic purpose	02	04-02-2022 14-02-2022 16-02-2022		TLM2	
16.	Summarizing rephrasing what is read	01	18-02-2022		TLM2	
17.	avoiding redundancies and repetitions - Abstract Writing	02	21-02-2022 23-02-2022		TLM2 TLM6	
No. of classes required to complete UNIT-III: 09				**No. of classes taken:**		

UNIT-IV:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
18.	APJ Abdul Kalam	01	25-02-2022		TLM2 TLM2	
19.	APJ Abdul Kalam	01	28-02-2022		TLM2	
20.	Direct-Indirect speech	01	02-03-2022		TLM2	
21.	Articles and their omission	01	04-03-2022		TLM2	
22.	E-mail drafting	02	07-03-2022 09-03-2022		TLM2 TLM6	
No. of classes required to complete UNIT-IV: 06				**No. of classes taken:**		

UNIT-V:

S.	Topics to be covered	No. of	Tentative	Actual	Teaching	HOD

No.		Classes Required	Date of Completion	Date of Completion	Learning Methods	Sign Weekly
23.	C.V.Raman	01	11-03-2022		TLM2	
24.	C.V.Raman	01	14-03-2022		TLM2	
25.	Subject – Verb agreement	01	16-03-2022 18-03-2022		TLM2	
26.	Prepositions	01	21-03-2022		TLM2	
27.	Formal Letter Writing	01	23-03-2022 25-03-2022		TLM2 TLM6	
No. of classes required to complete UNIT-V: 07				**No. of classes taken:**		

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

PART-C

EVALUATION PROCESS (R17 Regulation):

Evaluation Task	**Marks**
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2	M=30
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**B SAGAR**	**Dr. B. Samrajya Lakshmi**	**Dr. B. Samrajya Lakshmi**	**Dr. A. Ramireddy**
Signature				

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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L.B. REDDY NAGAR, MYLAVARAM, KRISHNA DIST., A.P.-521 230.
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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: MrR.ANJANEYULU NAIK
Course Name & Code : BASIC ELECTRICAL & ELECTRONICS ENGINEERING – 20EE02
L-T-P Structure : **3-0-0** **Credits:** 3
Program/Sem/Sec : B.Tech/I/IT /A&B **A.Y.:** 2021-22

PREREQUISITE: Physics

COURSE EDUCATIONAL OBJECTIVES (CEOs): This course enables student to illustrate the basics of applied electricity and electronics.

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	Apply network reduction techniques to simplify electrical circuits. **(Apply – L3)**
CO2	Illustrate the working principle of DC machines and transformers. **(Understand – L2)**
CO3	Understand V-I characteristics of semiconductor devices. **(Understand – L2)**
CO4	Illustrate the configuration of transistors and their applications. **(Understand – L2)**

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	-	2	-	-	-	-	-	-	1	-	-	-
CO2	3	2	1	2	-	-	-	-	-	-	-	1	-	-	-
CO3	3	1	3	-	3	-	-	-	-	-	-	2	-	-	-
CO4	3	2	2	2	-	-	-	-	-	-	-	1	-	-	-
1 - Low **2 –**Medium **3 -** High															

TEXTBOOKS:

T1 A.Sudhakar and Shyammohan S Palli, "Electrical Circuits" Tata McGraw-Hill, 3rd Edition.2017

T2 M.S.Sukhija, T.K.Nagsarkar, "Basic Electrical and Electronics Engineering", Oxford University Press, 2016 Edition.

REFERENCE BOOKS:

R1 Kothari and Nagarath, "Basic Electrical Engineering", TMH Publications, 3rd Edition.2013

R2 G.S.N.Raju, "Electronic Devices and Circuits", I.K.International.2006

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: ELECTRICAL CIRCUIT FUNDAMENTALS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Basic definitions	1	13-12-2021		TLM1	
2.	Types of elements	1	14-12-2021		TLM1	
3.	Ohm's Law	1	15-12-2021		TLM1	
4.	Kirchhoff's Laws	1	16-12-2021		TLM1	
5.	series, parallel Reduction	1	20-12-2021		TLM1	
6.	Star-Delta Reduction	1	21-12-2021		TLM1	
7.	Source Transformation Technique	1	22-12-2021		TLM1	
8.	Mesh analysis	1	23-12-2021		TLM1	
9.	Nodal Analysis	1	27-12-2021		TLM1	
10.	Problems	1	28-12-2021		TLM1	
11.	Problems	1	29-12-2021		TLM1	
No. of classes required to complete UNIT-I: 11				**No. of classes taken:**		

UNIT-II: DC NETWORK THEOREMS & AC FUNDAMENTALS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
12.	Superposition Theorem	1	30-12-2021		TLM1	
13.	Thevenin's Theorem	1	03-01-2022		TLM1	
14.	Norton's Theorem	1	04-01-2022		TLM1	
15.	Maximum Power Transfer Theorem	1	05-01-2022		TLM1	
16.	Peak, R.M.S, average and instantaneous values, Form factor and Peak factor for periodic waveforms	1	06-01-2022		TLM1	
17.	Phase and Phase difference	1	10-01-2022		TLM1	
18.	Reactance, Impedance, Susceptance and Admittance, Real, Reactive and apparent Powers, Power Factor	1	11-01-2022		TLM1	
19.	Resonance	1	17-01-2022		TLM1	
20.	Problems	1	18-01-2022		TLM1	
No. of classes required to complete UNIT-II: 09				**No. of classes taken:**		

UNIT-III: DC MACHINE FUNDAMENTALS AND SINGLE-PHASE TRANSFORMERS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
21.	DC generator principle	1	19-01-2022		TLM1	
22.	construction details	1	20-01-2022		TLM1	
23.	emf equation	1	24-01-2022		TLM1	
24.	types of generators	1	25-01-2022		TLM1	
25.	DC motor principle	1	27-01-2021		TLM1	
26.	Back emf	1	31-01-2022		TLM1	
27.	types of motors	1	01-02-2022		TLM1	
28.	Principle of operation of 1-Phase transformers	1	02-02-2022		TLM1	
29.	Construction	1	03-02-2022		TLM1	
30.	emf equation	1	14-02-2022		TLM1	
31.	Problems	1	15-02-2022		TLM1	
No. of classes required to complete UNIT-III: 11				**No. of classes taken:**		

UNIT-IV: P-N JUNCTION DIODE AND ZENER DIODE

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
32.	Introduction	1	16-02-2022		TLM1	
33.	P-N junction diode	1	17-02-2022		TLM1	
34.	Operation	1	18-02-2022		TLM1	
35.	V-I characteristics of PN junction	1	21-02-2022		TLM1	
36.	Rectifiers	1	22-02-2022		TLM1	
37.	Half wave rectifier	1	23-02-2022		TLM1	
38.	Full wave rectifier	1	24-02-2022		TLM1	
39.	Bridge type	1	28-02-2022		TLM1	
40.	Zener diode	1	02-03-2022		TLM1	
41.	Voltage regulator	1	03-03-2022		TLM1	
No. of classes required to complete UNIT-IV: 10				**No. of classes taken:**		

UNIT-V: TRANSISTORS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
42.	Introduction	1	07-03-2022		TLM1	
43.	Construction	1	08-03-2022		TLM1	
44.	Principle of operation, Symbol	1	09-03-2022		TLM1	
45.	CB configuration	1	10-03-2022		TLM1	
46.	CE configuration	1	14-03-2022		TLM1	
47.	JFET - Operation	1	15-03-2022		TLM1	
48.	JFET - Characteristics	1	16-03-2022		TLM1	
49.	MOSFET - Operation	1	17-03-2022		TLM1	
50.	MOSFET - Characteristics	1	21-03-2022		TLM1	
51.	application of transistor as an amplifier	1	22-03-2022		TLM1	
52.	Revision	1	23-03-2022		TLM1	
53.	Revision	1	24-03-2022		TLM1	
No. of classes required to complete UNIT-V: 12				**No. of classes taken:**		

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	**Marks**
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	13-12-2021	05-02-2022	8W
I Mid Examinations	07-02-2022	12-02-2022	1W
II Phase of Instructions	14-02-2022	02-04-2022	7W
II Mid Examinations	04-04-2022	09-04-2022	1W
Preparation and Practicals	11-04-2022	16-04-2022	1W
Semester End Examinations	18-04-2022	30-04-2022	2W

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	Organize, Analyze and Interpret the data to extract meaningful conclusions.
PSO 2	Design, Implement and Evaluate a computer-based system to meet desired needs.
PSO 3	Develop IT application services with the help of different current engineering tools.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mrs.R.Padma**	**Mr R ANJANEYULU NAIK**	**Dr G.NAGESWARA RAO**	**Dr.J.Siva.Vara.PRASAD**
Signature				

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE HANDOUT

PART-A

Name of Course Instructor : Dr.B.Srinivasa Rao
Course Name & Code : Programming for Problem Solving Using C (20CS01)
L-T-P Structure : 3-0-0 Credits : 3
Program/Sem/Sec : B.Tech., IT., I-Sem., Sections- A A.Y : 2021-22

PRE-REQUISITE : NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): The Objective of the course is to make learn the basic elements of C programming, control structures, derived data data types, Modular programming, user defined structures, basics of files and its I/O operations..

COURSE OUTCOMES (COs): At the end of the course, students are able to

CO 1	Familiar with syntax and semantics of the basic programming language constructs (L2)
CO 2	Construct derived data types like arrays in solving a problem(L3)
CO 3	Decompose a problem into modules and reconstruct it using various ways of user-defined functions(L3)
CO 4	Define user-defined data types like structures and unions and its applications to solve problems. (L3)
CO5	Discuss various file I/O operations and its application. (L2)

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
CO3	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
CO4	2	1	-	-	-	-	-	-	-	-	-	-	2	-	-
CO5	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-' ,1-** Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

TEXT BOOKS:

T1 ReemaThareja, Programming in C, Oxford University Press, 2nd Edition, 2015.

REFERENCE BOOKS:

R1 Jeri R.Hanly, Elliot B.Koffman, Problem Solving and Program Design in C, Pearson Publishers, 7th Edition, 2013
R2 E Balagurusamy, Computer Programming, McGraw Hill Education, 8th Edition.
R3 C: The Complete Reference, McGraw Hall Education, 4th Edition.
R4 PradeepDey, Manas Ghosh, Programming in C, Oxford University Press, 2nd Edition, 2011
R5 Stephen G.Kochan, Programming in C, Pearson Education, 3rd Edition, 2005

E-Books and Online Course Materials:

1. NPTEL COURSE : INTRODUCTION TO PROGRAMMING IN C
   https://nptel.ac.in/courses/106/104/106104128/
2. NPTEL COURSE : PROBLEM SOLVING THROUGH PROGRAMMING IN C
   https://nptel.ac.in/courses/106/105/106105171/

Online Courses and Video Lectures:

1. NPTEL COURSE : INTRODUCTION TO PROGRAMMING IN C
   https://nptel.ac.in/courses/106/104/106104128/

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Introduction to Problem solving through C-Programming, C Basics, Control Statements

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to course, Cos	1	13-12-21		TLM1	
2.	Problem Specification , Algorithm/ pseudo code	1	15-12-21		TLM1	
3.	Flow chart and examples, Raptor tool demo	1	17-12-21		TLM1,4	
4.	Structure of C program, identifiers	1	18-12-21		TLM1	
5.	Basic data types, constants, variables	1	20-12-21		TLM1	
6.	Input-output statements, sample C program	1	22-12-21		TLM1,4	
7.	Operators	1	23-12-21		TLM1,4	
8.	Expressions, type conversions	1	27-12-21		TLM1	
9.	Operator precedence, Evaluation	1	29-12-21		TLM1	
10.	Simple if, if else , examples	1	30-12-21		TLM1,4	
11.	Else if ladder , examples	1	31-12-21		TLM1,4	
12.	Switch statement, examples	1	03-01-22		TLM1,4	
13.	While, examples	1	05-01-22		TLM1,4	
14.	Do—while , examples	1	06-01-22		TLM1,4	
15.	For , Examples	1	07-01-22		TLM1,4	
16.	Break, continue, goto and labels	1	08-01-22		TLM1,4	
No. of classes required to complete UNIT-I: 16				No. of classes taken:		

UNIT-II: Arrays & its Applications

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Array def, declaration, accessing		10-01-22		TLM1	

2.	Storing, examples on arrays		12-01-22		TLM1,4	
3.	Multi-dimensional arrays		19-01-22		TLM1,4	
4.	Character array declaration, initialization, reading, writing strings		20-01-22		TLM1	
5.	String handling functions		21-01-22		TLM1,4	
6.	Pre-processor directive		22-01-22		TLM1,4	
7.	Macros, Linear search		24-01-22		TLM1,4	
8.	binary search		27-01-22		TLM1,4	
9.	Bubble sort		28-01-22		TLM1,4	
10.	Example Lab programs		29-01-22		TLM4	
No. of classes required to complete UNIT-II : 10				No. of classes taken:		

UNIT-III: pointers, functions, storage classes

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Declaration and initialization of pointer, pointer arithmetic	1	31-01-22		TLM1	
2.	Pointers and arrays	1	02-02-22		TLM1	
3.	Pointers and character arrays	1	04-02-22		TLM1	
4.	Pointers to pointers	1	14-02-22		TLM1	
5.	Functions, category of functions	1	14-02-22		TLM1	
6.	Parameter passing techniques	1	16-02-22		TLM1,4	
7.	Recursive functions	1	18-02-22		TLM1,4	
8.	Functions with arrays	1	19-02-22		TLM1,4	
9.	Standard library functions	1	21-02-22		TLM1,4	
10.	Dynamic memory management functions	1	21-02-22		TLM1,4	
11.	Command line arguments	1	23-02-22		TLM1,4	
12.	Storage classes	1	26-02-22		TLM1	
13.	Storage classes	1	28-02-22		TLM4	
No. of classes required to complete UNIT-III : 13				No. of classes taken:		

UNIT-IV : Derived Types.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Structures def, declaration, initialization	1	02-03-22		TLM1,4	
2.	Accessing structures, nested structures	1	04-03-22		TLM1,4	
3.	Array of structures	1	05-03-22		TLM1,4	
4.	Structures and functions	1	07-03-22		TLM1,4	
5.	Pointers to structures	1	07-03-22		TLM1,4	

6.	Self referential structures	1	9-03-22		TLM1,4	
7.	Unions, typedef	1	11-03-22		TLM1,4	
No. of classes required to complete UNIT-IV: 7				No. of classes taken:		

UNIT-V : Files.

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Concept of file, text files and binary files, streams	1	12-03-22		TLM1	
2.	Standard I/O	1	14-03-22		TLM1	
3.	Formatted I/O	1	16-03-22		TLM1	
4.	Formatted I/O	1	19-03-22		TLM4	
5.	File I/O	1	21-03-22		TLM1	
6.	File I/O	1	23-03-22		TLM4	
7.	Error Handling	1	25-03-22		TLM1	
No. of classes required to complete UNIT-V : 7				No. of classes taken:		

Content Beyond the Syallubus :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Programs related to codevita	1	18-04-22		TLM5	
2.	Programs related to infytQ	1	22-04-22		TLM5	

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20 Regulations):

Evaluation Task	**Marks**
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30

Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	Organize, Analyze and interpret the data to extract meaningful conclusions.
PSO 2	Design, Implement and Evaluate a computer-based system to meet desired needs
PSO 3	Develop IT application services with the help of different current engineering tools.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mrs M.Hema Latha**	**Dr B Srinivasa Rao**	**Dr S Naganjaneyulu**	**Dr B Srinivasa Rao**
Signature				

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE HANDOUT

PART-A

Name of Course Instructor : Mrs M.Hema Latha
Course Name & Code : Programming for Problem Solving Lab(20CS51)
L-T-P Structure : 0-0-3 Credits : 1.5
Program/Sem/Sec : B.Tech., IT., I-Sem., Sections- B A.Y : 2021-22

PRE-REQUISITE : NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): The objective of the course is to learn the basic elements of C Programming Structures like Data Types, Expressions, Control Statements, and Various I/O Functions and to solve simple mathematical problems using control structures. Design and implementation of various software components, which solve real world problems.

COURSE OUTCOMES (COs): At the end of the course, students are able to

CO 1	Apply control structures of C in solving computational problems.
CO 2	Implement derived data types & use modular programming in problem solving
CO 3	Implement user defined data types and perform file operations.
CO 4	Improve individual / teamwork skills, communication & report writing skills with ethical values.

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	1	-	-	-	-	-		-	-	-	-	1	-	-
CO2	3	1	-	-	-	-	-		-	-	-	-	1	-	-
CO3	3	1	-	-	-	-	-		-	-	-	-	1	-	-
CO4	-	-	-	-	-	-	-	3	3	3	-	-	-	-	-

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2** – Moderate (Medium), **3 -** Substantial (High).

TEXT BOOKS:

T1 ReemaThareja, Programming in C, Oxford University Press, 2nd Edition, 2015.

REFERENCE BOOKS:

R1 Jeri R.Hanly, Elliot B.Koffman, Problem Solving and Program Design in C, Pearson Publishers, 7th Edition, 2013
R2 E Balagurusamy, Computer Programming, McGraw Hill Education, 8th Edition.
R3 C: The Complete Reference, McGraw Hall Education, 4th Edition.
R4 PradeepDey, Manas Ghosh, Programming in C, Oxford University Press, 2nd Edition, 2011
R5 Stephen G.Kochan, Programming in C, Pearson Education, 3rd Edition, 2005

PART-B

M. No	Date (Tentative)	Date Actual	IDX	PROGRAM	Sign
1	**15-12-21**		**Introduction to Raptor Tool. Flow Chart & Basics of C Language**		
			1.1	Find the distance travelled	
			1.2	Find the total people attended the show	
			1.3	Express the expenses in percentages	
			1.4	Find different category of tickets sold	
			1.5	Find average show rating	
2	**05-01-22**		**Problem solving using Raptor Tool & Basics of C Language**		
			2.1	Celsius to Fahrenheit conversion	
			2.2	Arithmetic operations	
			2.3	Area and perimeter of circle	
			2.4	Area of a triangle	
			2.5	Converting Decimal No to Different Forms	
3	**12-01-22**		**Exercise Programs on selection statements**		
			3.1	Biggest of three numbers	
			3.2	Grade of a student	
			3.3	Roots of quadratic equation	
			3.4	Leap year	
			3.5	Current Bill Calculation	
4	**19-01-22**		**Exercise Programs on Loops**		
			4.1	Count No of Digits	
			4.2	Multiplication Table	
			4.3	Prime or not	
			4.4	Reverse the given no	
			4.5	Factorial	
5	**09-02-22**		**Exercise Programs on Loops & Nesting of Loops.**		
			5.1	Fibonacci series	
			5.2	Palindrome	
			5.3	Factors	
			5.4	Armstrong or not	
			5.5	Print the following format 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5	
			5.6	Print the following format *	
6	**16-02-22**		**Exercise Programs on 1D Arrays**		
			6.1	Sum and average of n numbers	
			6.2	Maximum and minimum in a list	
			6.3	Linear search	
			6.4	Binary search	
			6.5	Bubble Sort	

7	**23-02-22**		**Exercise Programs on 2D Arrays**		
			7.1	Addition and subtraction of two matrices	
			7.2	Multiplication of matrices	
			7.3	Transpose of a matrix	
			7.4	Sorting city names in alphabetical order	
8	**02-03-22**		**Exercise Programs on Strings with & without using built-in functions**		
			8.1	find the string length	
			8.2	copy one string into another	
			8.3	concatenate two strings	
			8.4	check whether two strings are equal or not	
			8.5	convert the given string into upper and lower case	
9	**09-03-22**		**Exercise Programs on Functions & Recursive Functions.**		
			9.1	Arithmetic operations using functions	
			9.2	LCM and GCD of two numbers	
			9.3	evaluate the expression $2.5\log x+\cos 32^{0}+\lvert x^{2}-y^{2}\rvert+\sqrt{2}xy$	
			9.4	Factorial of a number with and without recursion	
			9.5	Sum of the series 1+2+3+…+n using recursion	
			9.6	Fibonacci series using recursion	
			9.7	Towers of Hanoi using recursion	
			9.8	Binary Search using recursion	
10	**16-03-22**		**Exercise Programs on pointers**		
			10.1	Swap two numbers using pointers	
			10.2	Arithmetic operations using dynamic allocation	
			10.3	Display array elements using pointers	
			10.4	Find small, large element using pointer	
			10.5	Display the city names using pointers	
11	**23-03-22**		**Exercise Programs on user defined data types.**		
			11.1	Print the electricity bill	
			11.2	Display the students marks memo	
			11.3	Display the employee information	
			11.4	Display the bank customers information	
			11.5	Display the total marks of each student & subject	
12	**30-03-22**		**Exercise Programs on Files.**		
			12.1	Copy contents of one file into another using command line arguments and getc, putc	
			12.2	Create a product File using fscanf and fprintf	
			12.3	Create a bank binary file using fwrite	
			12.4	Reading bank file using fread	
			12.5	Modify the bank of a file (deposit/withdraw)	
			12.6	Count no of records in a bank file	

PART-C

EVALUATION PROCESS (R20 Regulations):

According to Academic Regulations of R20 Distribution and Weightage of Marks For Laboratory Courses is as follows

(a) Continuous Internal Evaluation (CIE):

The Continuous Internal Evaluation (CIE) is based on the following parameters:

Parameter	**Marks**
Day to Day work	05
Record	05
Internal Test	05
Total	15

(b) Semester End Examinations (SEE:

The Semester End examinations (SEE) for laboratory courses shall be jointly conducted by internal and external examiners with 3 hours duration and evaluated for 35 marks. The performance of the student shall be evaluated as per the parameters indicated below:

Parameter	**Marks**
Procedure/Algorithm	05
Experimentation/Program execution	10
Observations/Calculations/Validation	10
Result/Inference	05
Viva voce	05
Total	35

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
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PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	Organize, Analyze and interpret the data to extract meaningful conclusions.
PSO 2	Design, Implement and Evaluate a computer-based system to meet desired needs
PSO 3	Develop IT application services with the help of different current engineering tools.

Course Instructor	Course Coordinator	Module Coordinator	HOD
(Mrs M. Hema Latha)	Dr B Srinivasa Rao	Dr S Naganjaneyulu	Dr B.Srinivasa Rao

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE HANDOUT

PART-A

Name of Course Instructor : **Ms. M. ANURADHA**
Course Name & Code : PC-I, 20FE01
L-T-P Structure : **2-0-0** **Credits:** 02
Program/Sem/Sec :IT-B Sec – I SEM
A.Y. : 2021-22

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve English language proficiency of the students on various aspects like vocabulary, grammar, communication skills, listening skills, Reading &Writing skills.

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	Write sentences and paragraphs using proper grammatical structures and word forms.	L1
CO2	Comprehendthegiventextbyemployingsuitablestrategiesforskimmingand Scanning and draw inferences	L2
CO3	Write summaries of reading texts using correct tense forms& Appropriate structures.	L1
CO4	Write Formal Letters; Memos & E-Mails	L3
CO5	Edit the sentences/short texts by identifying basic errors of grammar/ vocabulary/syntax	L2

Unit-I

Exploration - 'A Proposal to Girdle the Earth – Nellie Bly'; Reading: Skimming for main idea; Scanning for specific information; Grammar & Vocabulary: Content Words; Function Words; Word Forms: verbs, nouns, adjectives and adverbs; Nouns: Countable and Uncountable, Singular and Plural forms; Wh - Questions; Word Order in Sentences; Writing: Paragraph Analysis; Paragraph Writing; Punctuation and Capital Letters

Unit–II

On Campus- 'The District School as it Was by One Who Went to it – Warren Burton'; Reading: Identifying Sequence of Ideas;
Grammar &Vocabulary: Cohesive Devices: Linkers/signposts/Transition signals, Synonyms, Meanings of Words/ Phrases in the context; Writing: Memo Drafting.

Unit–III

Working Together- 'The Future of Work'
Reading: Making basic inferences; Strategies to use text clues for comprehension; Summarizing; Grammar & Vocabulary: Verbs: Tenses; Reporting Verbs for Academic Purpose; Writing**:** Rephrasing what is read; Avoiding redundancies and repetitions Abstract Writing/Summarizing.

Unit–IV

'A.P.J. Abdul Kalam'; Grammar & Vocabulary: Direct & Indirect Speech; articles and their Omission; Writing :E-Mail Drafting.

Unit–V

'C.V.Raman'; Grammar &Vocabulary: Subject-verb Agreement; Prepositions; Writing: Formal Letter Writing.

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1		1		1		1			3	3		2			
CO2		1		1		1			3	3		2			
CO3		1		1		1			3	3		2			
CO4		1		1		1			3	3		2			
CO5		1		1		1			3	3		2			
1 - Low **2** –Medium **3 -** High															

TEXTBOOKS:

T1 Prabhavati. Y & etal , "English All Round –Communication Skills for Undergraduate Learners" ,Orient Black Swan, Hyderabad, 2019

T2 "The Great Indian Scientists" published by Cengage Learning India Pvt. Ltd., Delhi, 2017

REFERENCE BOOKS:

R1 Swan, M., "Practical English Usage", Oxford University Press, 2016

R2 Kumar, Sand Latha, P, "Communication Skills", Oxford University Press, 2018

R3 Rizvi Ashraf M.,"Effective Technical Communication", Tata Mc Graw Hill, NewDelhi, 2008

R4 Baradwaj Kumkum, "Professional Communication",I. K. International Publishing House Pvt. Lt., New Delhi, 2008.

R5 Wood, F. T., "Remedial English Grammar", Macmillan, 2007.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	01	14-12-2021		TLM2	
2.	Proposal to Girdle The Earth by Nellie Bly	02	15-12-2021 18-12-2021		TLM2	
3.	Reading: Skimming for main idea ; Scanning for specific information	01	18-12-2021		TLM2	
4.	Content words and Function words	01	21-12-2021		TLM2	
5.	Word forms – verbs; Adjectives & adverbs	01	22-12-2021		TLM2	
6.	Nouns – countable & uncountable, singular and plural nouns Word order in sentences, "Wh" questions	01	28-12-2021		TLM2	
7.	Writing: Paragraph writing, Paragraph analysis	02	29-12-2021 04-01-2022		TLM2 TLM6	
No. of classes required to complete UNIT-I: 09				No. of classes taken:		

UNIT-II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	The District School As It Way by One Who Went to it - Warren Burton	02	08-01-2022 11-01-2022		TLM2	
9.	Identifying sequence of ideas	01	18-01-2022		TLM2	
10.	Cohesive devices: linkers /signposts/transition signals	01	19-01-2022		TLM2	
11.	Synonyms meanings of words / Phrases in the context	01	22-01-2022		TLM2	
12.	Drafting a Memo	02	25-01-2022 29-01-2022		TLM2 TLM6	
No. of classes required to complete UNIT-II: 07				No. of classes taken:		

UNIT-III:

S. No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
13.	The Future of Work	02	01-02-2022 02-02-2022		TLM2 TLM6	
14.	Making basic inferences, Strategies to use text clues for comprehension	01	05-02-2022		TLM2	
15.	Verbs :tenses, reporting verbs for academic purpose	02	08-02-2022 09-02-2012		TLM2	
16.	Summarizing rephrasing what is read	01	12-02-2022		TLM2	
17.	Avoiding redundancies and repetitions - Abstract Writing	02	16-02-2022 19-02-2022		TLM2 TLM6	
No. of classes required to complete UNIT-III: 08				No. of classes taken:		

UNIT-IV:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
18.	APJ Abdul Kalam	02	22-02-2022 23-02-2022		TLM2 TLM2	
19.	APJ Abdul Kalam	01	26-02-2022		TLM2	
20.	Direct-Indirect speech	01	02-03-2022		TLM2	
21.	Articles and their omission	01	05-03-2022		TLM2	
22.	E-mail drafting	02	08-03-2022 09-03-2022		TLM2 TLM6	
No. of classes required to complete UNIT-IV: 08				No. of classes taken:		

UNIT-V:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
23.	C.V.Raman	02	12-03-2022 15-03-2022		TLM2	
24.	C.V.Raman	01	16-003-2022		TLM2	
25.	Subject – Verb agreement	01	19-03-2022		TLM2	
26.	Prepositions	01	22-03-2022		TLM2	
27.	Formal Letter Writing	02	23-03-2022 26-03-2022		TLM2 TLM6	
No. of classes required to complete UNIT-V: 07				No. of classes taken:		

Teaching Learning Methods			
TLM1	Chalk and Talk	TLM4	Demonstration (Lab/Field Visit)
TLM2	PPT	TLM5	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	TLM6	Group Discussion/Project

PART-C

EVALUATION PROCESS (R17 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO 8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
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PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Title	**Course Instructor**	**Course Coordinator**	**Module Coordinator**	**Head of the Department**
Name of the Faculty	**M. Anuradha**	**Dr. B. Samrajya Lakshmi**	**Dr. B. Samrajya Lakshmi**	**Dr. A. Ramireddy**
Signature				

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE HANDOUT

PART-A

Name of Course Instructor: Mrs. M Anuradha
Course Name & Code **:** PCS LAB, 20FE51
L-T-P Structure **: 0-0-2** **Credits:** 01
Program/Sem/Sec : IT (B – Sec) I SEM
A.Y. **:** 2020-21

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve the proficiency of students in English with an emphasis on better communication in formal and informal situations; Develop speaking skills required for expressing their knowledge and abilities and to face interviews with confidence.

COURSE OUTCOMES (COs): At the end of the course, student will be able to

CO1	Introduce one-self and others using appropriate language and details	L2
CO2	Comprehend short talks and speak clearly on a specific topic using	L2
CO3	Report effectively after participating in informal discussions ethically.	L1
CO4	Interpret data aptly, ethically & make oral presentations without	L3

Syllabus: Professional Communication Lab (PCS) shall have two parts:

- **Computer Assisted Language Learning (CALL) Lab** for 60 students with 60 systems, LAN facility and English language software for self-study by learners.
- **Interactive Communication Skills (ICS) Lab.** with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo – audio & video system and camcorder etc.

Exercise– I

CALL Lab: Understand- Sentence structure.

ICS Lab: Practice -Listening: Identifying the topic, the context and specific information, Speaking: Introducing oneself and others.

Exercise–II

CALL Lab: Understand- Framing questions.

ICS Lab: Practice- Listening: Answering a series of questions about main idea and supporting ideas after listening to audio text.

Speaking: Discussing in pairs/small groups on specific topics; Delivering short structured talks using suitable cohesive devices (JAM)

Exercise–III

CALL Lab: Understand- Comprehension practice–Strategies for Effective Communication

ICS Lab: Practice - Listening: Listening for global comprehension and Summarizing Speaking: Discussing specific topics in pairs/small groups, reporting what is discussed

Exercise–IV

CALL Lab: Understand- Features of Good Conversation–Strategies for Effective Communication.

ICS Lab: Practice -Listening: making predictions while listening to conversations/transactional dialogues with/without video Speaking: Role – plays – formal & informal – asking for and giving information/directions/instructions/suggestions

Exercise– V

CALL Lab: Understand- Features of Good Presentation, Methodology of Group Discussion

ICS Lab: Practice –Introduction to Group Discussions.

Listening: Answering questions, identifying key terms and understanding concepts.

Speaking: Formal Oral & Poster presentations on topics from academic contexts without the use of PPT.

Lab Manual:

1. Prabhavati .Y & etal, "English All Round–Communication Skills for Undergraduate Learners" , Orient Black Swan, Hyderabad, 2019.

Suggested Software:

1. Digital Mentor: Globarena, Hyderabad,2005
2. Sky Pronunciation Suite: Young India Films, Chennai,2009
3. Mastering English in Vocabulary, Grammar, Spelling, Composition, Dorling Kindersley, USA, 2001
4. Dorling Kindersley Series of Grammar, Punctuation, Composition, USA, 2001
5. Oxford Talking Dictionary, The Learning Company, USA, 2002
6. Learning to Speak English- 4CDs. The Learning Company, USA, 2002
7. Cambridge Advanced Learners English Dictionary (CD).Cambridge University Press, New Delhi, 2008.
8.

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1					3					3	3				
CO2					3					3	3				
CO3					3					3	3				
CO4					3					3	3				
1 - Low					**2 –**Medium						**3 -** High				

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	02	13-12-2021		TLM4	
2.	Self Introduction & Introducing others	02	20-12-2021		TLM4	
3.	Self Introduction & Introducing others	02	27-12-2021		TLM4	
4.	JAM- I(Short and Structured Talks)	02	03-01-2022		TLM4	
5.	JAM-II(Short and Structured Talks)	02	10-01-2022		TLM4	
6.	JAM-II(Short and Structured Talks)	02	24-01-2022		TLM4	
7.	Role Play-I(Formal and Informal)	02	31-01-2022		TLM4	
8.	Role Play-II (Formal and Informal)	02	07-02-2022		TLM4	
9.	Role Play-II (Formal and Informal)	02	14-02-2022		TLM4	
10.	Group Discussion-I (Reporting the discussion)	02	21-02-2022		TLM4, TLM6	
11.	Group Discussion-II	02	28-02-2022		TLM4, TLM6	
12.	Group Discussion-II	02	07-03-2022		TLM4, TLM6	
13.	Group Discussion-II	02	14-03-2022		TLM4, TLM6	
14.	Oral & Poster Presentation	02	21-03-2022		TLM2, TLM4	
15.	Oral & Poster Presentation	02	28-03-2022		TLM2, TLM4	
16.	Lab Internal Exam	02	28-08-2021			
No. of classes required to complete Syllabus: 26				**No. of classes taken:**		

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	Marks
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering.
PSO 2	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands.
PSO 3	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain.

Title	**Course Instructor**	**Course Coordinator**	**Module Coordinator**	**Head of the Department**
Name of the Faculty	**M. Anuradha**	**Dr. B. Samrajya Lakshmi**	**Dr. B. Samrajya Lakshmi**	**Dr. A. Ramireddy**
Signature				