



ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous Institution - UGC, Govt. of India)

(Sponsored by Ellenki Educational Society)

(Approved by AICTE, New Delhi, Affiliated to JNTUH Hyderabad, MSME - HI Govt. of India,

Accredited by NAAC, Recognition of 2(f) by UGC, ISO 9001:2015 Certified)




Date: 01-11-2023

BOARD OF STUDIES OF HUMANITIES&SCIENCE(CHEMISTRY)

On behalf of ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous), Patelguda, Sangareddy-502319. I am pleased to constitute the Board of Studies in the Department of HUMANITIES&SCIENCES(CHEMISTRY) for B.Tech Courses as per details given below:

S.NO	NAME	DESIGNATION	DESIGNATION IN BOS
1	Mrs.M.VARA LAKSHMI DEVI	Assistant Professor, Head of the Department of Chemistry ,ECET	Chair Person
2	Dr.B.SATYANARAYANA	Assistant professor in chemistry, JNTUH UCEJ	JNTUH-Nominee
3	Dr.KISHORE RAMINENI	Assistant Professor, Department of Chemistry, ANURAG UNIVERSITY	Member-Other College
4	Mrs.G.BHAVANI	Assistant Professor ,M N R COLLEGE, OSMANIA UNIVERSITY	Member-Other College
5	Mr.K.CHANDRA PRAKASH	Senior Research Scientist, CURIA INDIA Pvt.Ltd	Member-Industry
6	Mrs.A.SOWJANYA	Assistant Professor, ECET	Member-College
7	Mrs.B.LAKSHMI SARADA	Assistant Professor, ECET	Member-College
8	Mr.N.RAJENDER REDDY	Assistant professor & Head of the Department(HUMANITIES&SCIENCE)	Member-College
9	Mr.D.ANVESH	Alumni	Member-Alumni
10	Prof.P.JOHN PAUL	Principial, ECET	Special invitee

- The above staff members of the Board of Studies in HUMANITIES & SCIENCES(CHEMISTRY) shall hold the office for a period of three years with effect from the date of issue of this order.
- The members attending the meeting of the Board of Studies are eligible for T.A. and D.A as per rules of the Institution in force.
- The members are also requested to intimate this office in case of any changes in their address and designations.
- We request you to kindly consent your willingness to be the member of this BOS


Principal
Ellenki College of Engg. & Tech.
Patelguda (V), Ameenpur (M),
Sangareddy Dist., T.S. - 502319.



Department of Chemistry

Minutes of Board of Studies Meeting

Date: 15/11/2023

Ellenki College of Engineering & Technology was founded in the year 1999 with a vision to achieve excellence in providing all round education. Established for over two decades, ELLENKI College of Engineering & Technology is one of the premier private engineering colleges in Hyderabad. The College has got Autonomous Status from the A.Y. 2023-24 for a period of 5 years.

The first BOS meeting of Chemistry Department was held on 15th November, 2023 in dual mode. The minutes of meeting are as follows.

The Chairman welcomed all the members for the 1st Board of Studies meeting of the Chemistry Department.

1. Academic course structure for B. Tech (I year) has been discussed and drafted for ER23 Regulations.
2. Detailed syllabi for B. Tech (I Year) program have been discussed at length. The proposed syllabus has been agreed and no changes were suggested by the BOS members.

Finally the Chairman thanked to all the members for their presence and also for their valuable suggestions towards the important of the Curriculum and Syllabus of the Chemistry Department.

S. Jayaraman
15/11/2023
(Dr. B. Sathyanarayana)

[Signature]
Chairman
Board of Studies



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Date: 15-11-2023

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Principal

PRINCIPAL
Ellenki College of Engg. & Tech.
Patelguda (V), Ameenpur (M),
Sangareddy Dist., T.S. - 502319.



Humanities and Sciences

Department Of Chemistry

Sno	Department	Course	Subject	Branch	Year	Sem
1	Chemistry	B.Tech	Engineering Chemistry	B.Tech(EEE,CSE,CSC,CSD)	I	I
			ENGINEERING CHEMISTRY LABORATORY	B.Tech(EEE,CSE,CSC,CSD)	I	I
			Engineering Chemistry	B.Tech(CIVIL,ECE,MECH, CSM)	I	II
			ENGINEERING CHEMISTRY LABORATORY	B.Tech(CIVIL,ECE,MECH, CSM)	I	II
2	Environmental Science	B.Tech	ENVIRONMEN TAL SCIENCE	B.Tech(CIVIL,ECE,MECH, CSM)	I	I
			ENVIRONMEN TAL SCIENCE	B.Tech(EEE,CSE,CSC,CSD)	I	II

Board of Studies

ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)

B.Tech. For (CSE,EEE,CSE(CYBER SECURITY) & CSE(DATA SCIENCE))
COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)
Applicable from AY 2023-24 Batch

Engineering Chemistry

B.Tech. I Year I Sem.

L T P C
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Course Objectives:

1. To bring adaptability to new developments in Engineering Chemistry and to acquire the skills required to become a perfect engineer.
2. To include the importance of water in industrial usage, fundamental aspects of battery chemistry, significance of corrosion its control to protect the structures.
3. To imbibe the basic concepts of petroleum and its products.
4. To acquire required knowledge about engineering materials like cement, smart materials and Lubricants.

Course Outcomes:

1. Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.
2. The students are able to understand the basic properties of water and its usage in domestic and industrial purposes.
3. They can learn the fundamentals and general properties of polymers and other engineering materials.
4. They can predict potential applications of chemistry and practical utility in order to become good engineers and entrepreneurs.

UNIT - I: Water and its treatment: [8]

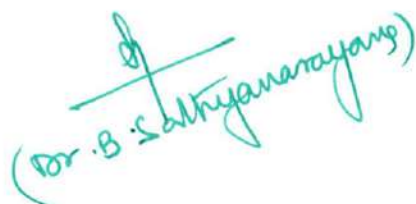
Introduction to hardness of water – Estimation of hardness of water by complexometric method and related numerical problems. Potable water and its specifications - Steps involved in the treatment of potable water - Disinfection of potable water by chlorination and breakpoint chlorination. Defluoridation

- Determination of F^- ion by ion-selective electrode method.

Boiler troubles: Sludges, Scales and Caustic embrittlement. Internal treatment of Boiler feed water - Calgon conditioning - Phosphate conditioning - Colloidal conditioning, External treatment methods - Softening of water by ion-exchange processes. Desalination of water – Reverse osmosis.

UNIT – II Battery Chemistry & Corrosion [8]

Introduction - Classification of batteries- primary, secondary and reserve batteries with examples. Basic requirements for commercial batteries. Construction, working and applications of: Zn-air and Lithium ion battery, Applications of Li-ion battery to electrical vehicles. Fuel Cells- Differences between battery and a fuel cell, Construction and applications of Methanol Oxygen fuel cell and Solid oxide fuel cell. Solar cells - Introduction and applications of Solar cells.


(Dr. B. Sathyanarayana)

Corrosion: Causes and effects of corrosion – theories of chemical and electrochemical corrosion – mechanism of electrochemical corrosion, Types of corrosion: Galvanic, water-line and pitting corrosion. Factors affecting rate of corrosion, Corrosion control methods- Cathodic protection – Sacrificial anode and impressed current methods.

UNIT - III: Polymeric materials: [8]

Definition – Classification of polymers with examples – Types of polymerization – addition (free radical addition) and condensation polymerization with examples – Nylon 6:6, Terylene **Plastics:** Definition and characteristics- thermoplastic and thermosetting plastics, Preparation, Properties and engineering applications of PVC and Bakelite, Teflon, Fiber reinforced plastics (FRP). **Rubbers:** Natural rubber and its vulcanization.

Elastomers: Characteristics –preparation – properties and applications of Buna-S, Butyl and Thiokolrubber.

Conducting polymers: Characteristics and Classification with examples-mechanism of conduction intrans-polyacetylene and applications of conducting polymers.

Biodegradable polymers: Concept and advantages - Polylactic acid and poly vinyl alcohol and their applications.

UNIT - IV: Energy Sources: [8]

Introduction, Calorific value of fuel – HCV, LCV- Dulong's formula. Classification- solid fuels: coal – analysis of coal – proximate and ultimate analysis and their significance. Liquid fuels – petroleum and its refining, cracking types – moving bed catalytic cracking. Knocking – octane and cetane rating, synthetic petrol - Fischer-Tropsch's process; Gaseous fuels – composition and uses of natural gas, LPG and CNG, Biodiesel – Transesterification, advantages.

UNIT - V: Engineering Materials: [8]

Cement: Portland cement, its composition, setting and hardening.

Smart materials and their engineering applications

Shape memory materials- Poly L- Lactic acid. Thermoresponse materials- Polyacryl amides, Poly vinylamides

Lubricants: Classification of lubricants with examples-characteristics of a good lubricants - mechanism of lubrication (thick film, thin film and extreme pressure)- properties of lubricants: viscosity, cloud point, pour point, flash point and fire point.

TEXT BOOKS:

1. Engineering Chemistry by P.C. Jain and M. Jain, Dhanpatrai Publishing Company, 2010
2. Engineering Chemistry by Rama Devi, Venkata Ramana Reddy and Rath, Cengage learning, 2016
3. A text book of Engineering Chemistry by M. Thirumala Chary, E. Laxminarayana and K. Shashikala, Pearson Publications, 2021.
4. Textbook of Engineering Chemistry by Jaya Shree Anireddy, Wiley Publications.

REFERENCE BOOKS:

1. Engineering Chemistry by Shikha Agarwal, Cambridge University Press, Delhi (2015)
2. Engineering Chemistry by Shashi Chawla, Dhanpatrai and Company (P) Ltd. Delhi (2011)

ENGINEERING CHEMISTRY LABORATORY

B.Tech. I Year I Sem.

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Course Objectives: The course consists of experiments related to the principles of chemistry required for engineering student. The student will learn:

- Estimation of hardness of water to check its suitability for drinking purpose.
- Students are able to perform estimations of acids and bases using conductometry, potentiometry and pH metry methods.
- Students will learn to prepare polymers such as Bakelite and nylon-6 in the laboratory.
- Students will learn skills related to the lubricant properties such as saponification value, surfacetension and viscosity of oils.

Course Outcomes: The experiments will make the student gain skills on:

- Determination of parameters like hardness of water and rate of corrosion of mild steel in various conditions.
- Able to perform methods such as conductometry, potentiometry and pH metry in order to find out the concentrations or equivalence points of acids and bases.
- Students are able to prepare polymers like bakelite and nylon-6.
- Estimations saponification value, surface tension and viscosity of lubricant oils.

List of Experiments:

I. Volumetric Analysis: Estimation of Hardness of water by EDTA Complexometry method.

II. Conductometry: Estimation of the concentration of an acid by Conductometry.

III. Potentiometry: Estimation of the amount of Fe^{+2} by Potentiometry.

IV. pH Metry: Determination of an acid concentration using pH meter.

V. Preparations:

1. Preparation of Bakelite.
2. Preparation Nylon – 6.

VI. Lubricants:

1. Estimation of acid value of given lubricant oil.
2. Estimation of Viscosity of lubricant oil using Ostwald's Viscometer.

VII. Corrosion: Determination of rate of corrosion of mild steel in the presence and absence of inhibitor.

VIII. Virtual lab experiments

1. Construction of Fuel cell and its working.
2. Smart materials for Biomedical applications
3. Batteries for electrical vehicles.
4. Functioning of solar cell and its applications.

REFERENCE BOOKS:

1. Lab manual for Engineering chemistry by B. Ramadevi and P. Aparna, S Chand Publications, New Delhi (2022)
2. Vogel's text book of practical organic chemistry 5th edition
3. Inorganic Quantitative analysis by A.I. Vogel, ELBS Publications.
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B.Tech. For (CIVIL, MECH, ECE & CSE(AI & MI))
COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)
Applicable from AY 2023-24 Batch
Engineering Chemistry

B.Tech. I Year II Sem.

L T P C
3 1 0 4

Course Objectives:

5. To bring adaptability to new developments in Engineering Chemistry and to acquire the skills required to become a perfect engineer.
6. To include the importance of water in industrial usage, fundamental aspects of battery chemistry, significance of corrosion its control to protect the structures.
7. To imbibe the basic concepts of petroleum and its products.
8. To acquire required knowledge about engineering materials like cement, smart materials and Lubricants.

Course Outcomes:

5. Students will acquire the basic knowledge of electrochemical procedures related to corrosion and its control.
6. The students are able to understand the basic properties of water and its usage in domestic and industrial purposes.
7. They can learn the fundamentals and general properties of polymers and other engineering materials.
8. They can predict potential applications of chemistry and practical utility in order to become good engineers and entrepreneurs.

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- Determination of F^- ion by ion-selective electrode method.

Boiler troubles: Sludges, Scales and Caustic embrittlement. Internal treatment of Boiler feed water - Calgon conditioning - Phosphate conditioning - Colloidal conditioning, External treatment methods - Softening of water by ion-exchange processes. Desalination of water – Reverse osmosis.

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Introduction - Classification of batteries- primary, secondary and reserve batteries with examples. Basic requirements for commercial batteries. Construction, working and applications of: Zn-air and Lithium ion battery, Applications of Li-ion battery to electrical vehicles. Fuel Cells- Differences between battery and a fuel cell, Construction and applications of Methanol Oxygen fuel cell and Solid oxide fuel cell. Solar cells - Introduction and applications of Solar cells.

Corrosion: Causes and effects of corrosion – theories of chemical and electrochemical corrosion – mechanism of electrochemical corrosion, Types of corrosion: Galvanic, water-line and pitting corrosion. Factors affecting rate of corrosion, Corrosion control methods- Cathodic protection – Sacrificial anode and impressed current methods.

UNIT - III: Polymeric materials: [8]

Definition – Classification of polymers with examples – Types of polymerization – addition (free radical addition) and condensation polymerization with examples – Nylon 6:6, Terylene **Plastics:** Definition and characteristics- thermoplastic and thermosetting plastics, Preparation, Properties and engineering applications of PVC and Bakelite, Teflon, Fiber reinforced plastics (FRP). **Rubbers:** Natural rubber and its vulcanization.

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Biodegradable polymers: Concept and advantages - Polylactic acid and poly vinyl alcohol and their applications.

UNIT - IV: Energy Sources: [8]

Introduction, Calorific value of fuel – HCV, LCV- Dulong's formula. Classification- solid fuels: coal – analysis of coal – proximate and ultimate analysis and their significance. Liquid fuels – petroleum and its refining, cracking types – moving bed catalytic cracking. Knocking – octane and cetane rating, synthetic petrol - Fischer-Tropsch's process; Gaseous fuels – composition and uses of natural gas, LPG and CNG, Biodiesel – Transesterification, advantages.

UNIT - V: Engineering Materials: [8]

Cement: Portland cement, its composition, setting and hardening.

Smart materials and their engineering applications

Shape memory materials- Poly L- Lactic acid. Thermoresponse materials- Polyacryl amides, Poly vinylamides

Lubricants: Classification of lubricants with examples-characteristics of a good lubricants - mechanism of lubrication (thick film, thin film and extreme pressure)- properties of lubricants: viscosity, cloud point, pour point, flash point and fire point.

TEXT BOOKS:

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B.Tech. I Year II Sem.

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- Students are able to prepare polymers like bakelite and nylon-6.
- Estimations saponification value, surface tension and viscosity of lubricant oils.

List of Experiments:

IX. Volumetric Analysis: Estimation of Hardness of water by EDTA Complexometry method.

X. Conductometry: Estimation of the concentration of an acid by Conductometry.

XI. Potentiometry: Estimation of the amount of Fe^{+2} by Potentiometry.

XII. pH Metry: Determination of an acid concentration using pH meter.

XIII. Preparations:

1. Preparation of Bakelite.
2. Preparation Nylon – 6.

XIV. Lubricants:

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Applicable from AY 2023-24 Batch

*MC210: ENVIRONMENTAL SCIENCE

B.Tech. I Year I Sem.

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Course Objectives:

- Understanding the importance of ecological balance for sustainable development.
- Understanding the impacts of developmental activities and mitigation measures.
- Understanding the environmental policies and regulations

Course Outcomes:

- Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development

UNIT - I

Ecosystems: Definition, Scope, and Importance of ecosystem. Classification, structure, and function of an ecosystem, Food chains, food webs, and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnification, ecosystem value, services and carrying capacity, Field visits.

UNIT - II

Natural Resources: Classification of Resources: Living and Non-Living resources, **water resources:** use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problems. **Mineral resources:** use and exploitation, environmental effects of extracting and using mineral resources, **Land resources:** Forest resources, **Energy resources:** growing energy needs, renewable and non-renewable energy sources, use of alternate energy source, case studies.

UNIT - III

Biodiversity and Biotic Resources: Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

UNIT - IV

Environmental Pollution and Control Technologies: Environmental Pollution: Classification of pollution, **Air Pollution:** Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. **Water pollution:** Sources and types of pollution, drinking water quality standards. **Soil Pollution:** Sources and types, Impacts of

Satyanarayan
(Dr. B. Satyanarayan)

modern agriculture, degradation of soil. **Noise Pollution:** Sources and Health hazards, standards, **Solid waste:** Municipal Solid Waste management, composition and characteristics of e-Waste and its management. **Pollution control technologies:** Wastewater Treatment methods: Primary, secondary and Tertiary.

Overview of air pollution control technologies, Concepts of bioremediation. **Global Environmental Issues and Global Efforts:** Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances (ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol, and Montréal Protocol. NAPCC-Gol Initiatives.

UNIT - V

Environmental Policy, Legislation & EIA: Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio- economical aspects. Strategies for risk assessment, Concepts of Environmental Management Plan

(EMP). **Towards Sustainable Future:** Concept of Sustainable Development Goals, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.

TEXT BOOKS:

- 1 Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission.
- 2 Environmental Studies by R. Rajagopalan, Oxford University Press.

REFERENCE BOOKS:

1. Environmental Science: towards a sustainable future by Richard T. Wright. 2008 PHL Learning Private Ltd. New Delhi.
2. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela. 2008 PHI Learning Pvt. Ltd.
3. Environmental Science by Daniel B. Botkin & Edward A. Keller, Wiley INDIA edition.
4. Environmental Studies by Anubha Kaushik, 4th Edition, New age international publishers.
5. Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.
6. Introduction to Environmental Science by Y. Anjaneyulu, BS. Publications.



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B.Tech. I Year II Sem.

L	T	P	C
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Course Objectives:

- Understanding the importance of ecological balance for sustainable development.
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UNIT - I

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UNIT - II

Natural Resources: Classification of Resources: Living and Non-Living resources, **water resources:** use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problems. **Mineral resources:** use and exploitation, environmental effects of extracting and using mineral resources, **Land resources:** Forest resources, **Energy resources:** growing energy needs, renewable and non-renewable energy sources, use of alternate energy source, case studies.

UNIT - III

Biodiversity and Biotic Resources: Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

UNIT - IV

Environmental Pollution and Control Technologies: Environmental Pollution: Classification of pollution, **Air Pollution:** Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. **Water pollution:** Sources and types of pollution, drinking water quality standards. **Soil Pollution:** Sources and types, Impacts of

modern agriculture, degradation of soil. **Noise Pollution:** Sources and Health hazards, standards, **Solid waste:** Municipal Solid Waste management, composition and characteristics of e-Waste and its management. **Pollution control technologies:** Wastewater Treatment methods: Primary, secondary and Tertiary.

Overview of air pollution control technologies, Concepts of bioremediation. **Global Environmental Issues and Global Efforts:** Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances (ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol, and Montréal Protocol. NAPCC-Gol Initiatives.

UNIT - V

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(EMP). **Towards Sustainable Future:** Concept of Sustainable Development Goals, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.

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11. Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.
12. Introduction to Environmental Science by Y. Anjaneyulu, BS. Publications.



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Date: 01-11-2023

BOARD OF STUDIES OF HUMANITIES&SCIENCE(ENGLISH)

On behalf of ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous), Patelguda, Sangareddy-502319. I am pleased to constitute the Board of Studies in the Department of HUMANITIES&SCIENCES (ENGLISH) for B.Tech Courses as per details given below:

S.NO	NAME	DESIGNATION	DESIGNATION IN BOS
1	Mr.CH.RAVI	Assistant Professor & Head of the Department of English, ECET	Chairman
2	Dr.N.V.S.N.LAKSHMI	Assoc.prof.in English,JNTUH UCESTH	JNTUH-Nominee
3	Dr.M.SRIDHAR	Associate Professor,Department of English ANURAG UNIVERSITY	Member-Other College
4	Mrs.MD.SHABANA	Assistant Professor ,M N R COLLEGE, OSMANIA UNIVERSITY	Member-Other College
5	Mr.N.GIRISH	Senior Programmer ,TECH MAHINDRA	Member-Industry
6	Mrs.N.SARITHA	Assistant Professor, ECET	Member-College
7	Mrs.SYED TARIQ	Assistant Professor, ECET	Member-College
8	Mr.N.RAJENDER REDDY	Assistant Professor & Head of the Department(HUMANITIES&SCIENCE)	Member-College
9	Mr.M.PRASHANTH	Alumni	Member-Alumni
10	Prof.P.JOHN PAUL	Principial, ECET	Special invitee

- The above staff members of the Board of Studies in HUMANITIES&SCIENCES(ENGLISH)shall hold the office for a period of three years with effect from the date of issue of this order.
- The members attending the meeting of the Board of Studies are eligible for T.A. and D.A as per rules of the Institution in force.
- The members are also requested to intimate this office in case of any changes in their address and designations.
- We request you to kindly consent your willingness to be the member of this BOS


Principal
PRINCIPAL
Ellenki College of Engg. & Tech.
Patelguda (V), Ameenpur (M),
Sangareddy Dist., T.S. - 502319.



ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous Institution - UGC, Govt. of India)

(Sponsored by Ellenki Educational Society)

(Approved by AICTE, New Delhi, Affiliated to JNTUH Hyderabad, MSME - HI Govt. of India,
Accredited by NAAC, Recognition of 2(f) by UGC, ISO 9001:2015 Certified)



Department of English

Minutes of Board of Studies Meeting

Date: 16/11/2023

Ellenki College of Engineering & Technology was founded in the year 1999 with a vision to achieve excellence in providing all round education. Established for over two decades, ELLENKI College of Engineering & Technology is one of the premier private engineering colleges in Hyderabad. The College has got Autonomous Status from the A.Y. 2023-24 for a period of 5 years.

The first BOS meeting of English Department was held on 16th November, 2023 in dual mode. The minutes of meeting are as follows.

The Chairman welcomed all the members for the 1st Board of Studies meeting of the English Department.

1. Academic course structure for B. Tech (I year) has been discussed and drafted for ER23 Regulations.
2. Detailed syllabi for B. Tech (I Year) program have been discussed at length. The proposed syllabus has been agreed and no changes were suggested by the BOS members.
3. Academic course structure for M.B.A(BCSL) I year has been discussed and drafted for ER23 Regulations.
4. Detailed syllabi for M.B.A(BCSL) I Year program have been discussed at length. The proposed syllabus has been agreed by the BOS Members.

Finally the Chairman thanked to all the members for their presence and also for their valuable suggestions towards the important of the Curriculum and Syllabus of the English Department.


Chairman
Board of Studies


- 16/11/2023



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Date: 16-11-2023

BOARD OF STUDIES OF HUMANITIES&SCIENCE(ENGLISH)

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1	Mr.CH.RAVI	Assistant Professor & Head of the Department of English, ECET	Chairman	<i>Ch.Ravi</i>
2	Dr.N.V.S.N.LAKSHMI	Assoc.prof.in English,JNTUH UCETH	JNTUH-Nominee	<i>N.V.S.N.Lakshmi</i> 16/11/2023
3	Dr.M.SRIDHAR	Associate Professor,Department of English, ANURAG UNIVERSITY	Member-Other College	<i>M.Sridhar</i>
4	Mrs.MD.SHABANA	Assistant Professor ,M N R COLLEGE, OSMANIA UNIVERSITY	Member-Other College	<i>Shabana</i>
5	Mr.N.GIRISH	Senior Programmer ,TECH MAHINDRA	Member-Industry	<i>N.Girish</i>
6	Mrs.N.SARITHA	Assistant Professor, ECET	Member-College	<i>N.Saritha</i>
7	Mrs.SYED TARIQ	Assistant Professor, ECET	Member-College	<i>Syed Tariq</i>
8	Mr.N.RAJENDER REDDY	Assistant Professor & Head of the Department(HUMANITIES&SCIENCE)	Member-College	<i>N.Rajender Reddy</i>
9	Mr.M.PRASHANTH	Alumni	Member-Alumni	<i>Prashanth</i>
10	Prof.P.JOHN PAUL	Principial, ECET	Special invitee	<i>P.John Paul</i>

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- The members attending the meeting of the Board of Studies are eligible for T.A. and D.A as per rules of the Institution in force.
- The members are also requested to intimate this office in case of any changes in their address and designations.
- We request you to kindly consent your willingness to be the member of this BOS

P.John Paul
Principal
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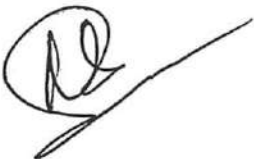
Humanities and Sciences

Department Of English

S.no	Department	Course	Subject	Branch	Year	Sem
1	English	B.Tech	ENGLISH FOR SKILL ENHANCEMENT	B.Tech(CIVIL,ECE,MECH, CSM)	I	I
			ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY	B.Tech(CIVIL,ECE,MECH, CSM)	I	I
			ENGLISH FOR SKILL ENHANCEMENT	B.Tech(EEE,CSE,CSC,CSD)	I	II
			ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY	B.Tech(EEE,CSE,CSC,CSD)	I	II
		M.B.A	BUSINESS COMMUNICATION LAB	Master Of Business Administration	I	I


Chairman

Board of Studies



ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY (Autonomous)

B.Tech. For (CIVIL,MECH,ECE & CSE(AI &ML))
COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)
Applicable from AY 2023-24 Batch

ENGLISH FOR SKILL ENHANCEMENT

B.Tech. I Year I Sem.

L T P C
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Course Objectives: This course will enable the students to:

1. Improve the language proficiency of students in English with an emphasis on Vocabulary, Grammar, Reading and Writing skills.
2. Develop study skills and communication skills in various professional situations.
3. Equip students to study engineering subjects more effectively and critically using the theoretical and practical components of the syllabus.

Course Outcomes: Students will be able to:

1. Understand the importance of vocabulary and sentence structures.
2. Choose appropriate vocabulary and sentence structures for their oral and written communication.
3. Demonstrate their understanding of the rules of functional grammar.
4. Develop comprehension skills from the known and unknown passages.
5. Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various contexts.
6. Acquire basic proficiency in reading and writing modules of English.

UNIT - I

Chapter entitled '*Toasted English*' by R.K.Narayan from "*English: Language, Context and Culture*" published by Orient BlackSwan, Hyderabad.

Vocabulary: The Concept of Word Formation -The Use of Prefixes and Suffixes - Acquaintance with Prefixes and Suffixes from Foreign Languages to form Derivatives - Synonyms and Antonyms

Grammar: Identifying Common Errors in Writing with Reference to Articles and Prepositions.

Reading: Reading and Its Importance- Techniques for Effective Reading.

Writing: Sentence Structures -Use of Phrases and Clauses in Sentences- Importance of Proper Punctuation- Techniques for Writing precisely – Paragraph Writing – Types, Structures and Features of a Paragraph - Creating Coherence-Organizing Principles of Paragraphs in Documents.

UNIT - II

Chapter entitled '*Appro JRD*' by Sudha Murthy from "*English: Language, Context and Culture*" published by Orient BlackSwan, Hyderabad.

Vocabulary: Words Often Misspelt - Homophones, Homonyms and Homographs

Grammar: Identifying Common Errors in Writing with Reference to Noun-pronoun Agreement and Subject-verb Agreement.

Reading: Sub-Skills of Reading – Skimming and Scanning – Exercises for Practice

Writing: Nature and Style of Writing- Defining /Describing People, Objects, Places and Events – Classifying- Providing Examples or Evidence.

UNIT - III

Chapter entitled '*Lessons from Online Learning*' by F.Haider Alvi, Deborah Hurst et al from "*English: Language, Context and Culture*" published by Orient BlackSwan, Hyderabad.

Vocabulary: Words Often Confused - Words from Foreign Languages and their Use in English.

Grammar: Identifying Common Errors in Writing with Reference to Misplaced Modifiers and

12/11/2023

- Tenses.
- Reading:** Sub-Skills of Reading – Intensive Reading and Extensive Reading – Exercises for Practice.
- Writing:** Format of a Formal Letter-Writing Formal Letters E.g., Letter of Complaint, Letter of Requisition, Email Etiquette, Job Application with CV/Resume.

UNIT - IV

Chapter entitled 'Art and Literature' by Abdul Kalam from "*English: Language, Context and Culture*" published by Orient BlackSwan, Hyderabad.

- Vocabulary:** Standard Abbreviations in English
- Grammar:** Redundancies and Clichés in Oral and Written Communication.
- Reading:** Survey, Question, Read, Recite and Review (SQ3R Method) - Exercises for Practice
- Writing:** Writing Practices- Essay Writing-Writing Introduction and Conclusion -Précis Writing.

UNIT - V

Chapter entitled 'Go, Kiss the World' by Subroto Bagchi from "*English: Language, Context and Culture*" published by Orient BlackSwan, Hyderabad.

- Vocabulary:** Technical Vocabulary and their Usage
- Grammar:** Common Errors in English (*Covering all the other aspects of grammar which were not covered in the previous units*)
- Reading:** Reading Comprehension-Exercises for Practice
- Writing:** Technical Reports- Introduction – Characteristics of a Report – Categories of Reports
Formats- Structure of Reports (Manuscript Format) -Types of Reports - Writing a Report.

Note: Listening and Speaking Skills which are given under Unit-6 in AICTE Model Curriculum are covered in the syllabus of ELCS Lab Course.

- **Note: 1.** As the syllabus of English given in AICTE *Model Curriculum-2018 for B. Tech First Year is Open-ended*, besides following the prescribed textbook, it is required to prepare teaching/learning materials **by the teachers collectively** in the form of handouts based on the needs of the students in their respective colleges for effective teaching/learning in the class.
- **Note: 2.** Based on the recommendations of NEP2020, teachers are requested to be flexible to adopt Blended Learning in dealing with the course contents. They are advised to teach 40 percent of each topic from the syllabus in blended mode.

TEXT BOOK:

1. "English: Language, Context and Culture" by Orient BlackSwan Pvt. Ltd, Hyderabad. 2022. Print.

REFERENCE BOOKS:

1. Effective Academic Writing by Liss and Davis (OUP)
2. Richards, Jack C. (2022) Interchange Series. Introduction, 1,2,3. Cambridge University Press
3. Wood, F.T. (2007). Remedial English Grammar. Macmillan.
4. Chaudhuri, Santanu Sinha. (2018). Learn English: A Fun Book of Functional Language, Grammar and Vocabulary. (2nd ed.), Sage Publications India Pvt. Ltd.
5. (2019). Technical Communication. Wiley India Pvt. Ltd.
6. Vishwamohan, Aysha. (2013). English for Technical Communication for Engineering Students. Mc Graw-Hill Education India Pvt. Ltd.
7. Swan, Michael. (2016). Practical English Usage. Oxford University Press. Fourth Edition.



ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY

B.Tech. I Year I Sem.

L T P C
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The **English Language and Communication Skills (ELCS) Lab** focuses on the production and practice of sounds of language and familiarizes the students with the use of English in everyday situations both in formal and informal contexts.

Course Objectives:

- ✓ To facilitate computer-assisted multi-media instruction enabling individualized and independent language learning
- ✓ To sensitize the students to the nuances of English speech sounds, word accent, intonation and rhythm
- ✓ To bring about a consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking
- ✓ To improve the fluency of students in spoken English and neutralize the impact of dialects.
- ✓ To train students to use language appropriately for public speaking, group discussions and interviews

Course Outcomes: Students will be able to:

- ✓ Understand the nuances of English language through audio- visual experience and group activities
- ✓ Neutralise their accent for intelligibility
- ✓ Speak with clarity and confidence which in turn enhances their employability skills

Syllabus: English Language and Communication Skills Lab (ELCS) shall have two parts:

- a. **Computer Assisted Language Learning (CALL) Lab**
- b. **Interactive Communication Skills (ICS) Lab**

Listening Skills:

Objectives

1. To enable students develop their listening skills so that they may appreciate the role in the LSRW skills approach to language and improve their pronunciation
2. To equip students with necessary training in listening, so that they can comprehend the speech of people of different backgrounds and regions

Students should be given practice in listening to the sounds of the language, to be able to recognize them and find the distinction between different sounds, to be able to mark stress and recognize and use the right intonation in sentences.

- Listening for general content
- Listening to fill up information
- Intensive listening
- Listening for specific information

Speaking Skills:

Objectives

1. To involve students in speaking activities in various contexts
2. To enable students express themselves fluently and appropriately in social and professional contexts

- Oral practice
- Describing objects/situations/people
- Role play – Individual/Group activities


16/11/2023

- Just A Minute (JAM) Sessions

The following course content is prescribed for the **English Language and Communication Skills Lab**.

Exercise – I

CALL Lab:

Understand: Listening Skill- Its importance – Purpose- Process- Types- Barriers- Effective Listening.

Practice: Introduction to Phonetics – Speech Sounds – Vowels and Consonants – Minimal Pairs- Consonant Clusters- Past Tense Marker and Plural Marker- *Testing Exercises*

ICS Lab:

Understand: Spoken vs. Written language- Formal and Informal English.

Practice: Ice-Breaking Activity and JAM Session- Situational Dialogues – Greetings – Taking Leave – Introducing Oneself and Others.

Exercise – II

CALL Lab:

Understand: Structure of Syllables – Word Stress– Weak Forms and Strong Forms – Stress pattern in sentences – Intonation.

Practice: Basic Rules of Word Accent - Stress Shift - Weak Forms and Strong Forms- Stress pattern in sentences – Intonation - *Testing Exercises*

ICS Lab:

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

Practice: Situational Dialogues – Role Play- Expressions in Various Situations –Making Requests and Seeking Permissions - Telephone Etiquette.

Exercise - III

CALL Lab:

Understand: Errors in Pronunciation-Neutralising Mother Tongue Interference (MTI).

Practice: Common Indian Variants in Pronunciation – Differences between British and American Pronunciation -*Testing Exercises*

ICS Lab:

Understand: Descriptions- Narrations- Giving Directions and Guidelines – Blog Writing

Practice: Giving Instructions – Seeking Clarifications – Asking for and Giving Directions – Thanking and Responding – Agreeing and Disagreeing – Seeking and Giving Advice – Making Suggestions.

Exercise – IV

CALL Lab:

Understand: Listening for General Details.

Practice: Listening Comprehension Tests - *Testing Exercises*

ICS Lab:

Understand: Public Speaking – Exposure to Structured Talks - Non-verbal Communication- Presentation Skills.

Practice: Making a Short Speech – Extempore- Making a Presentation.

Exercise – V

CALL Lab:

Understand: Listening for Specific Details.

Practice: Listening Comprehension Tests -*Testing Exercises*

ICS Lab:

Understand: Group Discussion

Practice: Group Discussion

and Introduction to Interview Skills
and Mock Interview

16/11/2023

16/11/2023

Minimum Requirement of infrastructural facilities for ELCS Lab:

1. Computer Assisted Language Learning (CALL) Lab:

The Computer Assisted Language Learning Lab has to accommodate 40 students with 40 systems, with one Master Console, LAN facility and English language learning software for self- study by students.

System Requirement (Hardware component):

Computer network with LAN facility (minimum 40 systems with multimedia) with the following specifications:

- i) Computers with Suitable Configuration
- ii) High Fidelity Headphones

2. Interactive Communication Skills (ICS) Lab :

The Interactive Communication Skills Lab: A Spacious room with movable chairs and audio-visual aids with a Public Address System, a T. V. or LCD, a digital stereo –audio & video system and camcorder etc.

Source of Material (Master Copy):

- *Exercises in Spoken English. Part 1,2,3.* CIEFL and Oxford University Press

Note: Teachers are requested to make use of the master copy and get it tailor-made to suit the contents of the syllabus.

Suggested Software:

- Cambridge Advanced Learners' English Dictionary with CD.
- Grammar Made Easy by Darling Kindersley.
- Punctuation Made Easy by Darling Kindersley.
- Oxford Advanced Learner's Compass, 10th Edition.
- English in Mind (Series 1-4), Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge.
- English Pronunciation in Use (Elementary, Intermediate, Advanced) Cambridge University Press.
- English Vocabulary in Use (Elementary, Intermediate, Advanced) Cambridge University Press.
- TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS).
- Digital All
- Orell Digital Language Lab (Licensed Version)

REFERENCE BOOKS:

1. (2022). *English Language Communication Skills – Lab Manual cum Workbook.* Cengage Learning India Pvt. Ltd.
2. Shobha, KN & Rayen, J. Lourdes. (2019). *Communicative English – A workbook.* Cambridge University Press
3. Kumar, Sanjay & Lata, Pushp. (2019). *Communication Skills: A Workbook.* Oxford University Press
4. Board of Editors. (2016). *ELCS Lab Manual: A Workbook for CALL and ICS Lab Activities.* Orient Black Swan Pvt. Ltd.
5. Mishra, Veerendra et al. (2020). *English Language Skills: A Practical Approach.* Cambridge University Press



ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY (Autonomous)

B.Tech. For (EEE,CSE,CSE(CYBER SECURITY) & CSE(DATA SCIENCE))
COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)
Applicable from AY 2023-24 Batch

ENGLISH FOR SKILL ENHANCEMENT

B.Tech. I Year II Sem.

L T P C
2 0 0 2

Course Objectives: This course will enable the students to:

4. Improve the language proficiency of students in English with an emphasis on Vocabulary, Grammar, Reading and Writing skills.
5. Develop study skills and communication skills in various professional situations.
6. Equip students to study engineering subjects more effectively and critically using the theoretical and practical components of the syllabus.

Course Outcomes: Students will be able to:

7. Understand the importance of vocabulary and sentence structures.
8. Choose appropriate vocabulary and sentence structures for their oral and written communication.
9. Demonstrate their understanding of the rules of functional grammar.
10. Develop comprehension skills from the known and unknown passages.
11. Take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various contexts.
12. Acquire basic proficiency in reading and writing modules of English.

UNIT - I

Chapter entitled '*Toasted English*' by R.K.Narayan from "*English: Language, Context and Culture*" published by Orient BlackSwan, Hyderabad.

Vocabulary: The Concept of Word Formation -The Use of Prefixes and Suffixes - Acquaintance with Prefixes and Suffixes from Foreign Languages to form Derivatives - Synonyms and Antonyms

Grammar: Identifying Common Errors in Writing with Reference to Articles and Prepositions.

Reading: Reading and Its Importance- Techniques for Effective Reading.

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Vocabulary: Words Often Confused - Words from Foreign Languages and their Use in English.



- Grammar:** Identifying Common Errors in Writing with Reference to Misplaced Modifiers and Tenses.
- Reading:** Sub-Skills of Reading – Intensive Reading and Extensive Reading – Exercises for Practice.
- Writing:** Format of a Formal Letter-Writing Formal Letters E.g., Letter of Complaint, Letter of Requisition, Email Etiquette, Job Application with CV/Resume.

UNIT - IV

Chapter entitled 'Art and Literature' by Abdul Kalam from "English: Language, Context and Culture" published by Orient BlackSwan, Hyderabad.

- Vocabulary:** Standard Abbreviations in English
- Grammar:** Redundancies and Clichés in Oral and Written Communication.
- Reading:** Survey, Question, Read, Recite and Review (SQ3R Method) - Exercises for Practice
- Writing:** Writing Practices- Essay Writing-Writing Introduction and Conclusion -Précis Writing.

UNIT - V

Chapter entitled 'Go, Kiss the World' by Subroto Bagchi from "English: Language, Context and Culture" published by Orient BlackSwan, Hyderabad.

- Vocabulary:** Technical Vocabulary and their Usage
- Grammar:** Common Errors in English (Covering all the other aspects of grammar which were not covered in the previous units)
- Reading:** Reading Comprehension-Exercises for Practice
- Writing:** Technical Reports- Introduction – Characteristics of a Report – Categories of Reports
Formats- Structure of Reports (Manuscript Format) -Types of Reports - Writing a Report.

Note: Listening and Speaking Skills which are given under Unit-6 in AICTE Model Curriculum are covered in the syllabus of ELCS Lab Course.

- **Note: 1.** As the syllabus of English given in AICTE Model Curriculum-2018 for B.Tech First Year is **Open-ended**, besides following the prescribed textbook, it is required to prepare teaching/learning materials **by the teachers collectively** in the form of handouts based on the needs of the students in their respective colleges for effective teaching/learning in the class.
- **Note: 2.** Based on the recommendations of NEP2020, teachers are requested to be flexible to adopt Blended Learning in dealing with the course contents. They are advised to teach 40 percent of each topic from the syllabus in blended mode.

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11. Chaudhuri, Santanu Sinha. (2018). Learn English: A Fun Book of Functional Language, Grammar and Vocabulary. (2nd ed.,). Sage Publications India Pvt. Ltd.
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ENGLISH LANGUAGE AND COMMUNICATION SKILLS LABORATORY

B.Tech. I Year II Sem.

L T P C
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The **English Language and Communication Skills (ELCS) Lab** focuses on the production and practice of sounds of language and familiarizes the students with the use of English in everyday situations both in formal and informal contexts.

Course Objectives:

- ✓ To facilitate computer-assisted multi-media instruction enabling individualized and independent language learning
- ✓ To sensitize the students to the nuances of English speech sounds, word accent, intonation and rhythm
- ✓ To bring about a consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking
- ✓ To improve the fluency of students in spoken English and neutralize the impact of dialects.
- ✓ To train students to use language appropriately for public speaking, group discussions and interviews

Course Outcomes: Students will be able to:

- ✓ Understand the nuances of English language through audio- visual experience and group activities
- ✓ Neutralise their accent for intelligibility
- ✓ Speak with clarity and confidence which in turn enhances their employability skills

Syllabus: English Language and Communication Skills Lab (ELCS) shall have two parts:

- c. **Computer Assisted Language Learning (CALL) Lab**
- d. **Interactive Communication Skills (ICS) Lab**

Listening Skills:

Objectives

1. To enable students develop their listening skills so that they may appreciate the role in the LSRW skills approach to language and improve their pronunciation
2. To equip students with necessary training in listening, so that they can comprehend the speech of people of different backgrounds and regions

Students should be given practice in listening to the sounds of the language, to be able to recognize them and find the distinction between different sounds, to be able to mark stress and recognize and use the right intonation in sentences.

- Listening for general content
- Listening to fill up information
- Intensive listening
- Listening for specific information

Speaking Skills:

Objectives

3. To involve students in speaking activities in various contexts
 4. To enable students express themselves fluently and appropriately in social and professional contexts
- Oral practice
 - Describing objects/situations/people
 - Role play – Individual/Group activities



- Just A Minute (JAM) Sessions

The following course content is prescribed for the **English Language and Communication Skills Lab**.

Exercise – I

CALL Lab:

Understand: Listening Skill- Its importance – Purpose- Process- Types- Barriers- Effective Listening.

Practice: Introduction to Phonetics – Speech Sounds – Vowels and Consonants – Minimal Pairs- Consonant Clusters- Past Tense Marker and Plural Marker- *Testing Exercises*

ICS Lab:

Understand: Spoken vs. Written language- Formal and Informal English.

Practice: Ice-Breaking Activity and JAM Session- Situational Dialogues – Greetings – Taking Leave – Introducing Oneself and Others.

Exercise – II

CALL Lab:

Understand: Structure of Syllables – Word Stress– Weak Forms and Strong Forms – Stress pattern in sentences – Intonation.

Practice: Basic Rules of Word Accent - Stress Shift - Weak Forms and Strong Forms- Stress pattern in sentences – Intonation - *Testing Exercises*

ICS Lab:

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

Practice: Situational Dialogues – Role Play- Expressions in Various Situations –Making Requests and Seeking Permissions - Telephone Etiquette.

Exercise - III

CALL Lab:

Understand: Errors in Pronunciation-Neutralising Mother Tongue Interference (MTI).

Practice: Common Indian Variants in Pronunciation – Differences between British and American Pronunciation -*Testing Exercises*

ICS Lab:

Understand: Descriptions- Narrations- Giving Directions and Guidelines – Blog Writing

Practice: Giving Instructions – Seeking Clarifications – Asking for and Giving Directions – Thanking and Responding – Agreeing and Disagreeing – Seeking and Giving Advice – Making Suggestions.

Exercise – IV

CALL Lab:

Understand: Listening for General Details.

Practice: Listening Comprehension Tests - *Testing Exercises*

ICS Lab:

Understand: Public Speaking – Exposure to Structured Talks - Non-verbal Communication- Presentation Skills.

Practice: Making a Short Speech – Extempore- Making a Presentation.

Exercise – V

CALL Lab:

Understand: Listening for Specific Details.

Practice: Listening Comprehension Tests -*Testing Exercises*

ICS Lab:

Understand: Group Discussion *and Introduction to Interview Skills*

Practice: Group Discussion *and Mock Interview*

16/11/2023

Minimum Requirement of infrastructural facilities for ELCS Lab:

3. Computer Assisted Language Learning (CALL) Lab:

The Computer Assisted Language Learning Lab has to accommodate 40 students with 40 systems, with one Master Console, LAN facility and English language learning software for self-study by students.

System Requirement (Hardware component):

Computer network with LAN facility (minimum 40 systems with multimedia) with the following specifications:

- i) Computers with Suitable Configuration
- ii) High Fidelity Headphones

4. Interactive Communication Skills (ICS) Lab :

The Interactive Communication Skills Lab: A Spacious room with movable chairs and audio-visual aids with a Public Address System, a T. V. or LCD, a digital stereo –audio & video system and camcorder etc.

Source of Material (Master Copy):

- *Exercises in Spoken English. Part 1,2,3.* CIEFL and Oxford University Press

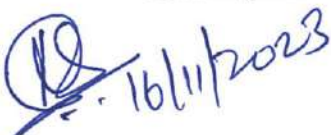
Note: Teachers are requested to make use of the master copy and get it tailor-made to suit the contents of the syllabus.

Suggested Software:

- Cambridge Advanced Learners' English Dictionary with CD.
- Grammar Made Easy by Darling Kindersley.
- Punctuation Made Easy by Darling Kindersley.
- Oxford Advanced Learner's Compass, 10th Edition.
- English in Mind (Series 1-4), Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge.
- English Pronunciation in Use (Elementary, Intermediate, Advanced) Cambridge University Press.
- English Vocabulary in Use (Elementary, Intermediate, Advanced) Cambridge University Press.
- TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS).
- Digital All
- Orell Digital Language Lab (Licensed Version)

REFERENCE BOOKS:

6. (2022). *English Language Communication Skills – Lab Manual cum Workbook.* Cengage Learning India Pvt. Ltd.
7. Shobha, KN & Rayen, J. Lourdes. (2019). *Communicative English – A workbook.* Cambridge University Press
8. Kumar, Sanjay & Lata, Pushp. (2019). *Communication Skills: A Workbook.* Oxford University Press
9. Board of Editors. (2016). *ELCS Lab Manual: A Workbook for CALL and ICS Lab Activities.* Orient Black Swan Pvt. Ltd.
10. Mishra, Veerendra et al. (2020). *English Language Skills: A Practical Approach.* Cambridge University Press

 16/11/2023

ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous)

MASTER OF BUSINESS ADMINISTRATION

COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)

Applicable from AY:2023-24 Batch

Business Communication Lab

I Year I Semester

L T P C
0 0 2 2

Course Objectives:

- To demonstrate the importance various modes of communication and their applications in business.
- To develop Business Writing skills with practice of writing letters and improving the readability of written communication.
- To highlight the importance of writing business reports and proposals.
- To impart knowledge and skills necessary for development of verbal (speech & presentation) and non-verbal (body language) skills.
- To orient on the contemporary aspects in communication.

Course Outcomes: Students will be able to

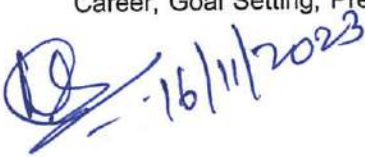
- Appreciate the importance and influence of Business Communication and learn its applications for the purpose of self-development.
- Learn by practice of writing a variety of formal and informal letters & e-mails and reports and improve the readability of written documents
- Identify the intricacies of writing Business Reports and Proposals
- Develop verbal (oral) skills by giving presentations and participating in group discussions; appreciate the impact of body language in the process of communication
- Polish their etiquette, improve telephonic skills and appreciate the need for culture in maintenance of public relations.

Unit – I: Introduction: Introduction to Business Communication, Communication Barriers, Communication Media Choices, Inter-cultural and Team Communication, Interpersonal Communication: Respecting Social Protocol, Networking and Socializing Professionally, Non-Verbal Communication, Listening, Communication through social media, Business Meetings.

Unit – II: Developing Business Writing Skills: Process of Writing, Drafting, Revising Visuals, Editing, Proofreading and Formatting, Writing Positive and Neutral Messages, Persuasive Messages, Bad News Messages, Business Letter Writing, Kinds of Business Letters, Communicating with E-Mail and Memos. Improving Readability of Written Communication using Gunning Fog Index.

Unit – III: Business Reports and Proposals: Writing the Report, Planning the Report, Steps in Writing Business Reports, Parts of a Report, Corporate Report and Business Proposal, Citing Sources.

Unit – IV: Oral and Employment Communication: The Role of Business Presentations, Planning and Organizing Presentations, Team Presentations, Online Presentations. Understanding Yourself, Career, Goal Setting, Preparing Resume, Resume Formats, Writing Covering Letters, and Enquiry

 -16/11/2023

Mails, Preparing for the Job Interview.

Unit – V: Contemporary Aspects in Communication: Business Etiquette, Developing Professional Telephone Skills, Mass Media, Public Relations Management, Cross Cultural and Global Communication, Communication in Information Technology, e-Business related Operations.

Suggested Readings:

- Kelly M. Quintanilla and Shawn T. Wahl, Business and Professional Communication, Sage Publications, 4e, 2020.
- Mallika Nawal, Business Communication, Cengage Learning, 2e, 2020.
- Varinder Kumar, Bodh Raj, Business Communication, Kalyani Publishers, 6e, 2019.
- Ober Newman, Communicating in Business, Cengage Learning, 2015.
- Rebecca Moore Howard, Writing Matters, 3e, Mc Graw Hill Education, 2018.
- Jeff Butterfield, Soft Skills for Everyone, Cengage Learning, 2017.
- Rajendra Pal, J S Korlahahi, Essentials of Business Communication, Sultan Chand & Sons, New Delhi, 2013.
- Elevate English, Mc Graw Hill, www.ellevateenglish.com.

 16/11/2023



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Date: 01-11-2023

BOARD OF STUDIES OF HUMANITIES&SCIENCES(MATHEMATICS)

On behalf of ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous), Patelguda, Sangareddy-502319. I am pleased to constitute the Board of Studies in the Department of HUMANITIES&SCIENCES(MATHEMATICS) for B.Tech and M.Tech Courses as per details given below:

S.NO	NAME	DESIGNATION	DESIGNATION IN BOS
1	Mr.N.RAJENDER REDDY	Assistant Professor & Head of the Department(HUMANITIES & SCIENCE)	Chairman
2	Dr.M.N.RAJASEKHAR	Professor of Mathematics , JNTUH UCESTH	JNTUH-Nominee
3	Dr.T.YUGANDHAR	Associate Professor, Department of Mathematics,ANURAG UNIVERSITY	Member-Other College
4	Dr.M.YUVA RAJ	Associate Professor,MATRUSRI ENGINEERING COLLEGE	Member-Other College
5	Mr.N.GIRISH	Senior Programmer ,TECH MAHINDRA	Member-Industry
6	Mrs.M.SRILATHA	Assistant Professor, ECET	Member-College
7	Mrs.K.SUSMITHA	Assistant Professor, ECET	Member-College
8	Mrs.CH.SUSHMA	Assistant Professor, ECET	Member-College
9	Mr.M.ARAVIND	Alumni	Member-Alumni
10	Prof.P.JOHN PAUL	Principial ,ECET	Special invitee

- The above staff members of the Board of Studies in HUMANITIES&SCIENCES (MATHEMATICS) shall hold the office for a period of three years with effect from the date of issue of this order.
- The members attending the meeting of the Board of Studies are eligible for T.A. and D.A as per rules of the Institution in force.
- The members are also requested to intimate this office in case of any changes in their address and designations.
- We request you to kindly consent your willingness to be the member of this BOS


Principal
PRINCIPAL
Ellenki College of Engg. & Tech.
Patelguda (V), Ameenpur (M),
Sangareddy Dist., T.S. - 502319.



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Department of Mathematics

Minutes of Board of Studies Meeting

Date: 14/11/2023

Ellenki College of Engineering & Technology was founded in the year 1999 with a vision to achieve excellence in providing all round education. Established for over two decades, ELLENKI College of Engineering & Technology is one of the premier private engineering colleges in Hyderabad. The College has got Autonomous Status from the A.Y. 2023-24 for a period of 5 years.

The first BOS meeting of Mathematics Department was held on 14th November, 2023 in dual mode. The minutes of meeting are as follows.

The Chairman welcomed all the members for the 1st Board of Studies meeting of the Mathematics Department.

1. Academic course structure for B. Tech (I year) has been discussed and drafted for ER23 Regulations.
2. Detailed syllabi for B. Tech (I Year) program have been discussed at length. The proposed syllabus has been agreed and no changes were suggested by the BOS members.
3. Academic course structure for M. Tech (CONM), I year has been discussed and drafted for ER23 Regulations.
4. Detailed syllabi for M. Tech (CONM), I Year program have been discussed at length. The proposed syllabus has been agreed by the BOS Members.

Finally the Chairman thanked to all the members for their presence and also for their valuable suggestions towards the important of the Curriculum and Syllabus of the Mathematics Department.


Chairman
Board of Studies





ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY

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Date: 14-11-2023

BOARD OF STUDIES OF HUMANITIES&SCIENCES(MATHEMATICS)

On behalf of ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous), Patelguda, Sangareddy-502319. I am pleased to constitute the Board of Studies in the Department of HUMANITIES&SCIENCES(MATHEMATICS) for B.Tech and M.Tech Courses as per details given below:

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1	Mr.N.RAJENDER REDDY	Assistant Professor & Head of the Department(HUMANITIES & SCIENCE)	Chairman	
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Humanities and Sciences Department Of Mathematics

S.no	Department	Course	Subject	Branch	Year	Sem
1	Mathematics	B.Tech	MATRICES AND CALCULUS	B.Tech(CIVIL,EEE,ECE,CSE, MECH,CSC,CSD,CSM)	I	I
			ORDINARY DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS	B.Tech(CIVIL,EEE,ECE,CSE, MECH,CSC,CSD,CSM)	I	II
		M. Tech	COMPUTER ORIENTED NUMERICAL METHODS (Program Elective – II)	M. Tech (STRUCTURAL ENGINEERING)	I	I

Chairman

Board of Studies

ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY (Autonomous)

B.Tech. For (CIVIL,EEE,MECH,ECE,CSE,CSE(CYBER SECURITY),CSE(DATA SCIENCE)
& CSE(AI & ML))

COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)
Applicable from AY 2023-24 Batch

MATRICES AND CALCULUS

B.Tech. I Year I Sem

L T P C
3 1 0 4

Pre-requisites: Mathematical Knowledge at pre-university level

Course Objectives: To learn

- Types of matrices and their properties.
- Concept of a rank of the matrix and applying this concept to know the consistency and solving the system of linear equations.
- Concept of eigenvalues and eigenvectors and to reduce the quadratic form to canonical form
- Geometrical approach to the mean value theorems and their application to the mathematical problems
- Evaluation of surface areas and volumes of revolutions of curves.
- Evaluation of improper integrals using Beta and Gamma functions.
- Partial differentiation, concept of total derivative
- Finding maxima and minima of function of two and three variables.
- Evaluation of multiple integrals and their applications

Course outcomes: After learning the contents of this paper the student must be able to

- Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations
- Find the Eigenvalues and Eigen vectors
- Reduce the quadratic form to canonical form using orthogonal transformations.
- Solve the applications on the mean value theorems.
- Evaluate the improper integrals using Beta and Gamma functions
- Find the extreme values of functions of two variables with/ without constraints.
- Evaluate the multiple integrals and apply the concept to find areas, volumes

UNIT-I: Matrices

10 L

Rank of a matrix by Echelon form and Normal form, Inverse of Non-singular matrices by Gauss-Jordan method, System of linear equations: Solving system of Homogeneous and Non-Homogeneous equations by Gauss elimination method, Gauss Seidel Iteration Method.

UNIT-II: Eigen values and Eigen vectors

10 L

Linear Transformation and Orthogonal Transformation: Eigenvalues, Eigenvectors and their properties, Diagonalization of a matrix, Cayley-Hamilton Theorem (without proof), finding inverse and power of a matrix by Cayley-Hamilton Theorem, Quadratic forms and Nature of the Quadratic Forms, Reduction of Quadratic form to canonical forms by Orthogonal Transformation.

UNIT-III: Calculus

10 L

Mean value theorems: Rolle's theorem, Lagrange's Mean value theorem with their Geometrical Interpretation and applications, Cauchy's Mean value Theorem, Taylor's Series.
Applications of definite integrals to evaluate surface areas and volumes of revolutions of curves (Only in Cartesian coordinates), Definition of Improper Integral: Beta and Gamma functions and their applications.

UNIT-IV: Multivariable Calculus (Partial Differentiation and applications)**10 L**

Definitions of Limit and continuity.

Partial Differentiation: Euler's Theorem, Total derivative, Jacobian, Functional dependence & independence. Applications: Maxima and minima of functions of two variables and three variables using method of Lagrange multipliers.

UNIT-V: Multivariable Calculus (Integration)**8 L**

Evaluation of Double Integrals (Cartesian and polar coordinates), change of order of integration (only Cartesian form), Evaluation of Triple Integrals: Change of variables (Cartesian to polar) for double and (Cartesian to Spherical and Cylindrical polar coordinates) for triple integrals.

Applications: Areas (by double integrals) and volumes (by double integrals and triple integrals).

TEXT BOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010.
2. R.K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics, Narosa Publications, 5th Edition, 2016.

REFERENCE BOOKS:

1. Erwin kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.
2. G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9th Edition, Pearson, Reprint, 2002.
3. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008.
4. H. K. Dass and Er. Rajnish Verma, Higher Engineering Mathematics, S Chand and Company Limited, New Delhi.



ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)

B.Tech. For (CIVIL,EEE,MECH,ECE,CSE,CSE(CYBER SECURITY),CSE(DATA SCIENCE)
& CSE(AI & ML))

COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)

Applicable from AY 2023-24 Batch

ORDINARY DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS

B.Tech. I Year II Sem

L T P C
3 1 0 4

Pre-requisites: Mathematical Knowledge at pre-university level

Course Objectives: To learn

- Methods of solving the differential equations of first and higher order.
- Concept, properties of Laplace transforms
- Solving ordinary differential equations using Laplace transforms techniques.
- The physical quantities involved in engineering field related to vector valued functions
- The basic properties of vector valued functions and their applications to line, surface and volume integrals

Course outcomes: After learning the contents of this paper the student must be able to

- Identify whether the given differential equation of first order is exact or not
- Solve higher differential equation and apply the concept of differential equation to real world problems.
- Use the Laplace transforms techniques for solving ODE's.
- Evaluate the line, surface and volume integrals and converting them from one to another

UNIT-I: First Order ODE

8 L

Exact differential equations, Equations reducible to exact differential equations, linear and Bernoulli's equations, Orthogonal Trajectories (only in Cartesian Coordinates). Applications: Newton's law of cooling, Law of natural growth and decay.

UNIT-II: Ordinary Differential Equations of Higher Order

10 L Second order

coefficients: Legendre's equation, Cauchy-Euler equation. Applications: Electric Circuits

UNIT-III: Laplace transforms

10 L

Laplace Transforms: Laplace Transform of standard functions, First shifting theorem, Second shifting theorem, Unit step function, Dirac delta function, Laplace transforms of functions when they are multiplied and divided by 't', Laplace transforms of derivatives and integrals of function, Evaluation of integrals by Laplace transforms, Laplace transform of periodic functions, Inverse Laplace transform by different methods, convolution theorem (without proof). Applications: solving Initial value problems by Laplace Transform method.

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UNIT-IV: Vector Differentiation**10 L**

Vector point functions and scalar point functions, Gradient, Divergence and Curl, Directional derivatives, Tangent plane and normal line, Vector Identities, Scalar potential functions, Solenoidal and Irrotational vectors.

UNIT-V: Vector Integration**10 L**

Line, Surface and Volume Integrals, Theorems of Green, Gauss and Stokes (without proofs) and their applications.

TEXT BOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010
2. R.K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics, Narosa Publications, 5th Edition, 2016.

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3. H. K. Dass and Er. Rajnish Verma, Higher Engineering Mathematics, S Chand and Company Limited, New Delhi.
4. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications, Reprint, 2008.



ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)

M. Tech in STRUCTURAL ENGINEERING
COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)
Applicable from AY 2023-24 Batch

COMPUTER ORIENTED NUMERICAL METHODS (Program Elective – II)

M.Tech. I Year I Sem.

L T P C
3 0 0 3

Pre-requisites: Mathematics I and II

Course Objectives:

1. To apply the basic knowledge of Mathematics in Engineering
2. To provide a formidable base for analysis and programming using computer applications
3. To develop the ability in programming and solutions based on the various analysis tools
4. To check the consistency of system of linear equations

Course Outcomes: After completion of the course, students should be able to

1. Apply numerical methods to find the roots of an equation
2. Identify mathematical model for solution of common engineering problems
3. Formulate simple problems into programming models
4. Solve ordinary and partial differential equations

UNIT - I:

Solutions of linear equations: Direct method – Cramer's rule, Gauss – Elimination method- Gauss – Jordan elimination – Triangulation (LU Decomposition) method – Iterative methods Jacobi – Iteration method – Gauss – Seidel iteration, Successive over –relaxation method - Applications

UNIT - II:

Eigen values and eigen vectors: Jacobi method for symmetric matrices- Given's method for symmetric matrices-Householder's method for symmetric matrices-Rutishauser method of arbitrary matrices – Power method, Fast Fourier Transform (FFT)
Interpolation: Linear Interpolation - Higher order Interpolation - Lagrange Interpolation – Interpolating polynomials using finite differences- Hermite Interpolation -piece-wise and spline Interpolation.

UNIT - III:

Finite Difference and their Applications: Introduction- Differentiation formulas by Interpolating parabolas – Backward and forward and central differences- Derivation of Differentiation formulas using Taylor series- Boundary conditions- Beam deflection – Solution of characteristic value problems- Richardson's extrapolation- Use of unevenly spaced pivotal points- Integration formulae by interpolating parabolas- Numerical solution to spatial differential equations.

UNIT - IV:

Numerical Differentiation: Difference methods based on undetermined coefficients- optimum choice of step length- extrapolation method – Partial differentiation.

Numerical Integration: Method based on interpolation-method based on undetermined coefficient – Gauss – Legendre interpolation method- Runge-Kutta integration method- composite integration method – Double integration using Trapezoidal and Simpson's method.

UNIT - V:

Ordinary Differential Equation: Euler's method – Backward Euler method – Midpoint method – single step method, Taylor's series method, Runge-Kutta method Predictor-Corrector Method - Trapezoidal and Midpoint method – Implicit Runge Kutta method – Boundary value problem – Difference method – Shooting method -Structural Engineering Applications

REFERENCES:

1. Numerical Methods for Scientific and Engineering Computations. M. K. Jain - S. R. K. Iyengar – R. K. Jain Willey Eastern Limited.
2. Applied numerical Analysis by – Curtis I. Gerald- Addison Wesley – published campus.
3. Numerical Methods for Engineers Stevan C. Chopra, Raymond P. Canal Mc. Graw Hill bookcompany.
4. C Language and Numerical Methods by C. Xavier – New age international publisher.
5. Numerical methods using MATLAB by George Lindfield and John penny, Academic press

Dr. V. S. S. S.



ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY

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Date: 01-11-2023

BOARD OF STUDIES OF HUMANITIES&SCIENCES(PHYSICS)

On behalf of ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY (Autonomous), Patelguda, Sangareddy-502319. I am pleased to constitute the Board of Studies in the Department of HUMANITIES&SCIENCES(PHYSICS) for B.Tech Courses as per details given below:

S.NO	NAME	DESIGNATION	DESIGNATION IN BOS
1	Mrs.K.RENUKA	Assistant Professor & Head of the Department of Physics	Chair person
2	Dr. K.VENKATESWARA RAO	Professor of CNST,JNTUH UCESTH	JNTUH-Nominee
3	Mr.P.NARESH	Assistant Professor ,VIJETHA COLLEGE OSMANIA UNIVERSITY	Member-Other College
4	Mrs.V.NAGA LAKSHMI	Assistant Professor ,M N R COLLEGE, OSMANIA UNIVERSITY	Member-Other College
5	Mr.VISHWANATHAM SRIDHER	Manager,TCS, HYD	Member-Industry
6	Mrs.R.VIJAYA LAKSHMI	Assistant Professor, ECET	Member-College
7	Mrs.CH.SUSHMA	Assistant Professor, ECET	Member-College
8	Mr.N.RAJENDER REDDY	Assistant Professor & Head of the Department (H&S),ECET	Member-College
9	Ms.H.ASWANI	Alumni	Member-Alumni
10	Prof.P.JOHN PAUL	Principial ,ECET	Special invitee

- The above staff members of the Board of Studies in **HUMANITIES&SCIENCES (PHYSICS)** shall hold the office for a period of three years with effect from the date of issue of this order.
- The members attending the meeting of the Board of Studies are eligible for T.A. and D.A as per rules of the Institution in force.
- The members are also requested to intimate this office in case of any changes in their address and designations.
- We request you to kindly consent your willingness to be the member of this BOS


PRINCIPAL

Ellenki College of Engg. & Tech.
Patelguda (V), Ameenpur (M),
Sangareddy Dist . T.S. - 502319



ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY

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Department of Physics

Minutes of Board of Studies Meeting

Date: 17/11/2023

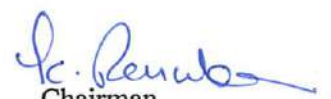
Ellenki College of Engineering & Technology was founded in the year 1999 with a vision to achieve excellence in providing all round education. Established for over two decades, ELLENKI College of Engineering & Technology is one of the premier private engineering colleges in Hyderabad. The College has got Autonomous Status from the A.Y. 2023-24 for a period of 5 years.

The first BOS meeting of Physics Department was held on 17th November, 2023 in dual mode. The minutes of meeting are as follows.

The Chairman welcomed all the members for the 1st Board of Studies meeting of the Physics Department.

1. Academic course structure for B. Tech (I year) has been discussed and drafted for ER23 Regulations.
2. Detailed syllabi for B. Tech (I Year) program have been discussed at length. The proposed syllabus has been agreed and no changes were suggested by the BOS members.

Finally the Chairman thanked to all the members for their presence and also for their valuable suggestions towards the important of the Curriculum and Syllabus of the Physics Department.


Chairman
Board of Studies

V



ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY

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Date: 17-11-2023

BOARD OF STUDIES OF HUMANITIES&SCIENCES(PHYSICS)

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SNO	NAME	DESIGNATION	DESIGNATION IN BOS	SIGNATURE
1	Mrs.K.RENUKA	Assistant Professor & Head of the Department of Physics	Chair person	
2	Dr. K.VENKATESWARA RAO	Professor of CNST, JNTUH UCESTH	JNTUH-Nominee	
3	Mr.P.NARESH	Assistant Professor, VIJETHA COLLEGE, OSMANIA UNIVERSITY	Member-Other College	
4	Mrs.V.NAGA LAKSHMI	Assistant Professor, M N R COLLEGE, OSMANIA UNIVERSITY	Member-Other College	
5	Mr.VISHWANATHAM SRIDHER	Manager, TCS, HYD	Member-Industry	
6	Mrs.R.VIJAYA LAKSHMI	Assistant Professor, ECET	Member-College	
7	Mrs.CH.SUSHMA	Assistant Professor, ECET	Member-College	
8	Mr.N.RAJENDER REDDY	Assistant Professor & Head of the Department (H&S), ECET	Member-College	
9	Ms.H.ASWANI	Alumni	Member-Alumni	
10	Prof.P.JOHN PAUL	Principial, ECET	Special invitee	

- The above staff members of the Board of Studies in HUMANITIES & SCIENCES (PHYSICS) shall hold the office for a period of three years with effect from the date of issue of this order.
- The members attending the meeting of the Board of Studies are eligible for T.A. and D.A as per rules of the Institution in force.
- The members are also requested to intimate this office in case of any changes in their address and designations.
- We request you to kindly consent your willingness to be the member of this BOS

PRINCIPAL
 Ellenki College of Engg. & Tech.
 Patelguda (V), Ameenpur (M),
 Sangareddy Dist., T.S. - 502319.



ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous Institution - UGC, Govt. of India)

(Sponsored by Ellenki Educational Society)

(Approved by AICTE, New Delhi, Affiliated to JNTUH Hyderabad, MSME - HI Govt. of India,
Accredited by NAAC, Recognition of 2(f) by UGC, ISO 9001:2015 Certified)



Humanities and Sciences

Department Of Physics

S.no	Department	Course	Subject	Branch	Year	Sem
1	Physics	B.Tech	APPLIED PHYSICS	B.Tech(CIVIL,ECE,MECH, CSM)	I	I
			APPLIED PHYSICS LABORATORY	B.Tech(CIVIL,ECE,MECH, CSM)	I	I
			APPLIED PHYSICS	B.Tech(EEE,CSE,CSC,CSD)	I	II
			APPLIED PHYSICS LABORATORY	B.Tech(EEE,CSE,CSC,CSD)	I	II


Chairman

Board of Studies

W

ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)

B.Tech. For (CIVIL, MECH, ECE & CSE(AI & ML))
COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)
Applicable from AY 2023-24 Batch

APPLIED PHYSICS

B.Tech. I Year I Sem.

L T P C
3 1 0 4

Pre-requisites: 10 + 2 Physics

Course Objectives: The objectives of this course for the student are to:

1. Understand the basic principles of quantum physics and band theory of solids.
2. Understand the underlying mechanism involved in construction and working principles of various semiconductor devices.
3. Study the fundamental concepts related to the dielectric, magnetic and energy materials.
4. Identify the importance of nanoscale, quantum confinement and various fabrication techniques.
5. Study the characteristics of lasers and optical fibres.

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

1. Understand physical world from fundamental point of view by the concepts of Quantum mechanics and visualize the difference between conductor, semiconductor, and an insulator by classification of solids.
2. Identify the role of semiconductor devices in science and engineering Applications.
3. Explore the fundamental properties of dielectric, magnetic materials and energy for their applications.
4. Appreciate the features and applications of Nanomaterials.
5. Understand various aspects of Lasers and Optical fiber and their applications in diverse fields.

UNIT - I: QUANTUM PHYSICS AND SOLIDS

Quantum Mechanics: Introduction to quantum physics, blackbody radiation – Stefan-Boltzmann's law, Wein's and Rayleigh-Jean's law, Planck's radiation law - photoelectric effect - Davisson and Germer experiment – Heisenberg uncertainty principle - Born interpretation of the wave function – time independent Schrodinger wave equation - particle in one dimensional potential box.

Solids: Symmetry in solids, free electron theory (Drude & Lorentz, Sommerfeld) - Fermi-Dirac distribution - Bloch's theorem - Kronig-Penney model – E-K diagram- effective mass of electron-origin of energy bands- classification of solids.

UNIT - II: SEMICONDUCTORS AND DEVICES

Intrinsic and extrinsic semiconductors – Hall effect - direct and indirect band gap semiconductors - construction, principle of operation and characteristics of P-N Junction diode, Zener diode and bipolar junction transistor (BJT)–LED, PIN diode, avalanche photo

diode (APD) and solar cells, their structure, materials, working principle and characteristics.

UNIT - III: DIELECTRIC, MAGNETIC AND ENERGY MATERIALS

Dielectric Materials: Basic definitions- types of polarizations (qualitative) - ferroelectric, piezoelectric, and pyroelectric materials – applications – liquid crystal displays (LCD) and crystal oscillators.

Magnetic Materials: Hysteresis - soft and hard magnetic materials - magnetostriction, magnetoresistance - applications - bubble memory devices, magnetic field sensors and multiferroics. Energy Materials: Conductivity of liquid and solid electrolytes- superionic conductors - materials and electrolytes for super capacitors - rechargeable ion batteries, solid fuel cells.

UNIT - IV: NANOTECHNOLOGY

Nanoscale, quantum confinement, surface to volume ratio, bottom-up fabrication: sol-gel, precipitation, combustion methods – top-down fabrication: ball milling - physical vapor deposition (PVD) - chemical vapor deposition (CVD) - characterization techniques - XRD, SEM & TEM - applications of nanomaterials.

UNIT - V: LASER AND FIBER OPTICS

Lasers: Laser beam characteristics-three quantum processes-Einstein coefficients and their relations-lasing action - pumping methods- ruby laser, He-Ne laser, CO₂ laser, Argon ion Laser, Nd:YAG laser- semiconductor laser-applications of laser.

Fiber Optics: Introduction to optical fiber- advantages of optical Fibers - total internal reflection- construction of optical fiber - acceptance angle - numerical aperture- classification of optical fibers- losses in optical fiber - optical fiber for communication system - applications.

TEXT BOOKS:

1. M. N. Avadhanulu, P.G. Kshirsagar & TVS Arun Murthy" A Text book of Engineering Physics"- S. Chand Publications, 11th Edition 2019.
2. Engineering Physics by Shatendra Sharma and Jyotsna Sharma, Pearson Publication, 2019
3. Semiconductor Physics and Devices- Basic Principle – Donald A, Neamen, Mc Graw Hill, 4th Edition, 2021.
4. B.K. Pandey and S. Chaturvedi, Engineering Physics, Cengage Learning, 2nd Edition, 2022.
5. Essentials of Nanoscience & Nanotechnology by Narasimha Reddy Katta, Typical Creatives NANO DIGEST, 1st Edition, 2021.

REFERENCE BOOKS:

1. Quantum Physics, H.C. Verma, TBS Publication, 2nd Edition 2012.
2. Fundamentals of Physics – Halliday, Resnick and Walker, John Wiley & Sons, 11th Edition, 2018.
3. Introduction to Solid State Physics, Charles Kittel, Wiley Eastern, 2019.
4. Elementary Solid State Physics, S.L. Gupta and V. Kumar, Pragathi Prakashan, 2019.
5. A.K. Bhandhopadhyaya - Nano Materials, New Age International, 1st Edition, 2007.
6. Energy Materials a Short Introduction to Functional Materials for Energy Conversion and Storage Aliaksandr S. Bandarenka, CRC Press Taylor & Francis Group Energy Materials Taylor & Francis Group, 1st Edition, 2022.

APPLIED PHYSICS LABORATORY

B.Tech. I Year I Sem.

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Course Objectives: The objectives of this course for the student to

1. Capable of handling instruments related to the Hall effect and photoelectric effect experiments and their measurements.
2. Understand the characteristics of various devices such as PN junction diode, Zener diode, BJT, LED, solar cell, lasers and optical fiber and measurement of energy gap and resistivity of semiconductor materials.
3. Able to measure the characteristics of dielectric constant of a given material.
4. Study the behavior of B-H curve of ferromagnetic materials.
5. Understanding the method of least squares fitting.

Course Outcomes: The students will be able to:

1. Know the determination of the Planck's constant using Photo electric effect and identify the material whether it is n-type or p-type by Hall experiment.
2. Appreciate quantum physics in semiconductor devices and optoelectronics.
3. Gain the knowledge of applications of dielectric constant.
4. Understand the variation of magnetic field and behavior of hysteresis curve.
5. Carried out data analysis.

LIST OF EXPERIMENTS:

1. Determination of work function and Planck's constant using photoelectric effect.
2. Determination of Hall co-efficient and carrier concentration of a given semiconductor.
3. Characteristics of series and parallel LCR circuits.
4. V-I characteristics of a p-n junction diode and Zener diode
5. Input and output characteristics of BJT (CE, CB & CC configurations)
6. a) V-I and L-I characteristics of light emitting diode (LED)
b) V-I Characteristics of solar cell
7. Determination of Energy gap of a semiconductor.
8. Determination of the resistivity of semiconductor by two probe method.
9. Study B-H curve of a magnetic material.
10. Determination of dielectric constant of a given material
11. a) Determination of the beam divergence of the given LASER beam
b) Determination of Acceptance Angle and Numerical Aperture of an optical fiber.
12. Understanding the method of least squares – torsional pendulum as an example.

Note: Any 8 experiments are to be performed.

REFERENCE BOOK:

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Publishers,2017.

ELLENKI COLLEGE OF ENGINEERING & TECHNOLOGY (Autonomous)

B.Tech. For (CSE,EEE,CSE(CYBER SECURITY) & CSE(DATA SCIENCE))
COURSE STRUCTURE, I YEAR PROPOSED SYLLABUS (R23 Regulations)
Applicable from AY 2023-24 Batch

APPLIED PHYSICS

B.Tech. I Year II Sem.

L	T	P	C
3	1	0	4

Pre-requisites: 10 + 2 Physics

Course Objectives: The objectives of this course for the student are to:

6. Understand the basic principles of quantum physics and band theory of solids.
7. Understand the underlying mechanism involved in construction and working principles of various semiconductor devices.
8. Study the fundamental concepts related to the dielectric, magnetic and energy materials.
9. Identify the importance of nanoscale, quantum confinement and various fabrication techniques.
10. Study the characteristics of lasers and optical fibres.

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

6. Understand physical world from fundamental point of view by the concepts of Quantum mechanics and visualize the difference between conductor, semiconductor, and an insulator by classification of solids.
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UNIT - II: SEMICONDUCTORS AND DEVICES

Intrinsic and extrinsic semiconductors – Hall effect - direct and indirect band gap

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APPLIED PHYSICS LABORATORY

B.Tech. I Year II Sem.

L	T	P	C
0	0	3	1.5

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