

This is a mandatory 2 week programme to be conducted as soon as the students enter the institution. Normal classes start only after the induction program is over.

The induction programme has been introduced by AICTE with the following objective:

“Engineering colleges were established to train graduates well in the branch/department of admission, have a holistic outlook, and have a desire to work for national needs and beyond. The graduating student must have knowledge and skills in the area of his/her study. However, he/she must also have broad understanding of society and relationships. Character needs to be nurtured as an essential quality by which he/she would understand and fulfill his/her responsibility as an engineer, a citizen and a human being. Besides the above, several meta-skills and underlying values are needed.”

“One will have to work closely with the newly joined students in making them feel comfortable, allow them to explore their academic interests and activities, reduce competition and make them work for excellence, promote bonding within them, build relations between teachers and students, give a broader view of life, and build character. “ Hence, the purpose of this programme is to make the students feel comfortable in their new environment, open them up, set a healthy daily routine, create bonding in the batch as well as between faculty and students, develop awareness, sensitivity and understanding of the self, people around them, society at large, and nature. The following are the activities under the induction program in which the student would be fully engaged throughout the day for the entire duration of the program.

(i) Physical Activity

This would involve a daily routine of physical activity with games and sports, yoga, gardening, etc.

(ii) Creative Arts

Every student would choose one skill related to the arts whether visual arts or performing arts. Examples are painting, sculpture, pottery, music, dance etc. The student would pursue it every day for the duration of the program. These would allow for creative expression. It would develop a sense of aesthetics and also enhance creativity which would, hopefully, grow into engineering design later.

(iii) Universal Human Values

This is the anchoring activity of the Induction Programme. It gets the student to explore oneself and allows one to experience the joy of learning, stand up to peer pressure, take decisions with courage, be aware of relationships with colleagues and supporting stay in the hostel and department, be sensitive to others, etc. A module in Universal Human Values provides the base. Methodology of teaching this content is extremely important. It must not be through do's and don't's, but get students to explore and think by engaging them in a dialogue. It is best taught through group discussions and real life activities rather than lecturing. Discussions would be conducted in small groups of about 20 students with a faculty mentor each. It would be effective that the faculty mentor assigned is also the faculty advisor for the student for the full duration of the UG programme.


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(iv) Literary Activity

Literary activity would encompass reading, writing and possibly, debating, enacting a play etc.

(v) Proficiency Modules

This would address some lacunas that students might have, for example, English, computer familiarity etc.

(vi) Lectures by Eminent People

Motivational lectures by eminent people from all walks of life should be arranged to give the students exposure to people who are socially active or in public life.

(vii) Visits to Local Area

A couple of visits to the landmarks of the city, or a hospital or orphanage could be organized. This would familiarize them with the area as well as expose them to the under privileged.

(viii) Familiarization to Dept./Branch & Innovations

They should be told about what getting into a branch or department means what role it plays in society, through its technology. They should also be shown the laboratories, workshops & other facilities.

(ix) Department Specific Activities

About a week can be spent in introducing activities (games, quizzes, social interactions, small experiments, design thinking etc.) that are relevant to the particular branch of Engineering/Technology/Architecture that can serve as a motivation and kindle interest in building things (become a maker) in that particular field. This can be conducted in the form of a workshop. For example, CSE and IT students may be introduced to activities that kindle computational thinking, and get them to build simple games. ECE students may be introduced to building simple circuits as an extension of their knowledge in Science, and so on. Students may be asked to build stuff using their knowledge of science. Induction Programme is totally an activity based programme and therefore there shall be no tests / assessments during this programme.

References: Guide to Induction program from AICTE


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OBJECTIVES:

The students should be made to:

- Understand the basic communication skills in English
- Extend the speaking skills for academic, professional and social purposes
- Execute use of the electronic media such as internet and other online resources for their language development
- Inculcate the habit of reading and writing for the purpose of effective communication
- Build confidence in learners to communicate in English for all purposes

UNIT I BASICS OF COMMUNICATION 9

Listening: Basics of listening-Intensive and Extensive Listening, Barriers to Effective Listening;
Speaking: Speaking about Future plans- Giving instruction to use the product, Reading:
Skimming and Scanning, Writing: Writing about one's leisure time activities, hometown,
everyday activities etc., Grammar: Parts of speech, Prepositions, Vocabulary: Word formation.

UNIT II CREATIVE COMMUNICATION 9

Listening: Listening to short lectures /talks, Speaking: Telephonic interview, Reading: Reading Editorial and Opinion Blogs, Writing: Biographical writing - Writing a paragraph (Cause and Effect/Compare and Contrast/Narrative/Analytical) - Grammar: Gerund and Infinitive - Present Tense, Vocabulary: Abbreviations & Acronyms.

UNIT III FUNCTIONAL COMMUNICATION 9

Listening: Listening to radio and TV and taking notes - Focused audio tracks, Speaking: Role Play - Group Interaction, Reading: Reading magazines, Writing: Letter (Informal /Formal – Industrial Visit, Internship, etc), Writing a set of instructions, Grammar: Past Tense -Subject - Verb Agreement, Vocabulary: Question Tags.

UNIT IV ANALYTICAL SKILLS 9

Listening: Listening to select talks by eminent personalities, speaking: Speaking in mock Interviews, Reading: Reading advertisements, Writing: Writing a set of recommendations, Interpreting Visual Materials (Line Graphs, Pie Charts etc.), Grammar: Sentence Pattern, Future Tense, Articles, Vocabulary: Single word substitutes.

UNIT V PROFESSIONAL COMMUNICATION 9

Listening: Understanding different Accents, Listening to TED talks, Speaking: Giving impromptu talks- Making presentations, Reading: Reading and comprehending a passage, Writing: Letter to the editor- Check list, Grammar: Direct and Indirect Speech, Vocabulary: Phrasal Verbs.

TOTAL: 45 PERIODS

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OUTCOMES:

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

- Use suitable vocabulary with confidence and express their ideas both in speech and writing
- Write intelligibly avoiding grammatical errors, using a range of vocabulary, organizing their ideas logically on a topic
- Speak confidently, with one or many listeners using appropriate communicative strategies
- Read different genres of texts adopting various reading strategies
- Observe different spoken discourses/excerpts in different accents

TEXT BOOKS:

1. Kumar, Sanjay and Lata, Pushp, "Communication Skills", Oxford University Press. 2018.

REFERENCES:

1. DuttP. Kiranmai and Rajeevan Geeta, "Basic Communication Skills", Foundation Books, 2007.
2. Mohan, Krishna and Banerji Meera, "Developing Communication Skills", Macmillan Publishers India Ltd., Delhi: 2009.
3. Martin Hewings "Advanced English Grammar: A self study reference and Practice book for advanced South Asian students" Cambridge University Press, Delhi: 2016.

Mapping of COs with POs

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



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OBJECTIVES:

The students should be made to:

- Introduce the matrix techniques and to illustrate the nature of the matrix
- Remember the basic concepts of solving algebraic and transcendental equations
- Examine the differential calculus tools in solving various application problems
- Analyze the Partial differentiation, concept of total derivative, finding maxima and minima of function of two variables
- Evaluate the techniques of integration in finding area and volume

UNIT I MATRICES**9+3**

Eigenvalues and eigenvectors of a real matrix - Properties of eigenvalues and eigenvectors - Cayley-Hamilton theorem (Without proof) - Application of Cayley - Hamilton theorem (A^{-1} , A^n) - Nature of quadratic forms - Reduction of a quadratic form to canonical form by orthogonal transformation.

UNIT II SYSTEM OF LINEAR EQUATIONS**9+3**

Newton Raphson method- Bisection Method -Solution of linear system of equations by matrix method, Gauss-Jordan, Gauss- Jacobi and Gauss-Seidel methods- Eigen values of a matrix by Power method.

UNIT III DIFFERENTIAL CALCULUS**9+3**

Curvature in Cartesian co-ordinates – Centre and radius of curvature – Circle of curvature – Evolutes – Envelopes - Evolute as envelope of normal.

UNIT IV FUNCTIONS OF SEVERAL VARIABLES**9+3**

Partial derivatives - Total derivative - Differentiation of implicit functions - Jacobians - Taylor's series for functions of two variables - Maxima and minima of functions of two variables.

UNIT-V MULTIPLE INTEGRALS IN CARTESIAN COORDINATES**9+3**

Double integration- Change of order of integration- Area between two curves- Triple integration- Volume as triple integrals.

TOTAL: (45+15) PERIODS**OUTCOMES:**

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

- Know about eigenvalues and eigenvectors and its role in the system of equations.
- Remember solving ideas on algebraic and transcendental equations.
- Examine differential calculus tools in solving various application problems.
- Expand the given function as series and locate the maximum and minimum for multivariate functions.
- Evaluate the multiple integral to conduct investigation of complex problems.


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TEXT BOOKS:

1. Grewal B.S., "Higher Engineering Mathematics", Khanna Publishers, New Delhi, 44th Edition, 2017.
2. Burden, R.L and Faires, J.D, "Numerical Analysis", 9th Edition, Cengage Learning, 2018.

REFERENCES:

1. Kreyszig Erwin, "Advanced Engineering Mathematics", John Wiley and Sons, 10th Edition, New Delhi, 2018.
2. Sankara Rao. K., "Numerical Methods for Scientists and Engineers", Prentice Hall of India Pvt. Ltd, 4th Edition, New Delhi, 2021.
3. Ramana B V "Higher Engineering Mathematics", New Delhi Tata McGraw- Hill Education India Private Limited., 2021
4. Gerald. C.F., and Wheatley. P.O. "Applied Numerical Analysis" 7th Edition, Pearson Education India, 2017.

Mapping of COs with POs

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


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OBJECTIVES:**The students should be made to:**

- Impart knowledge about basic concepts of elasticity
- Understand the electrical properties of materials
- Execute the knowledge in the properties of magnetic and superconducting materials
- Comprehend and explain the fundamentals of quantum physics
- Enhance the knowledge of new engineering materials

UNIT I MECHANICAL PROPERTIES OF SOLIDS 9

Elasticity and Plasticity - stress-strain diagram and its uses - Hooke's law - factors affecting elastic modulus - bending of beams - bending moment - cantilever: theory and experiment - uniform and non-uniform bending: theory and experiment – I shaped girders and its applications.

UNIT II ELECTRICAL PROPERTIES OF MATERIALS 9

Classical free electron theory of metals - Electrical conductivity and thermal conductivity of metals - Wiedemann - Franz law - Failures of classical free electron theory - Success of Quantum free electron theory - Fermi distribution function and its variation with temperature - Density of energy states-carrier concentration of metals.

UNIT III MAGNETIC AND SUPERCONDUCTING MATERIALS 9

Classification of magnetic materials - Domain theory of ferromagnetism - Hysteresis - Soft and Hard magnetic materials - Superconducting materials – Meissner effect - Isotopic effect - BCS theory of superconductors - Type I & Type II superconductors - Applications of superconductors.

UNIT IV QUANTUM PHYSICS 9

Black body radiation - Planck's theory (derivation) - Deduction of Wien's displacement law and Rayleigh Jeans' Law from Planck's theory-de-Broglie wavelength - Properties of matter waves - Schrodinger's wave equations - Time independent and time dependent wave equations - Physical significance of wave function - Particle in a one dimensional potential box.

UNIT V NEW ENGINEERING MATERIALS 9

Metallic glasses - Types - Preparation - Properties and applications - Shape Memory Alloys (SMA) - Characteristics and applications - Advantages and disadvantages of shape memory alloys - Synthesis of nanomaterials - Top down approaches (Ball Milling) and Bottom up approaches (CVD and PVD).

TOTAL: 45 PERIODS ,
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LIST OF THE EXPERIMENTS – PHYSICS LABORATORY

1. Determination of Young's modulus of the material by Non-uniform bending method.
2. Determination of Rigidity modulus of the wire using Torsion Pendulum.
3. Determination of band gap energy of a semiconductor.
4. Determination of thickness of the thin film/wire by forming the fringe using Air wedge method.
5. Determination of velocity of ultrasonic waves in a liquid and compressibility of liquid using ultrasonic Interferometer.

TOTAL: 30 PERIODS

OUTCOMES:

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

- Gain knowledge on the basic properties of matter and its applications
- Explain the behaviour of electrical properties of materials
- Compare various types of magnetic and superconducting materials
- Get knowledge on advanced physics concepts of quantum theory
- Examine new engineering materials for industrial applications

TEXT BOOKS:

1. M.N. Avadhanulu, P.G. Kshirsagar, TVS Arun Murthy “A Text book of Engineering Physics”, S.Chand and Company Ltd, New Delhi, 11th Edition.2022.
2. Rajendran. V. “Materials Science”, McGraw Hill Education (India) Private Limited, New Delhi, 2017.
3. S.O Pillai, “Solid State Physics” New Age International Publishers, New Delhi,10th Edition, 2022.

REFERENCES:

1. R. K. Gaur and S.L. Gupta, “Engineering Physics”, Dhanpat Rai Publications, New Delhi, Reprint 2022.
2. Wahab. M.A, “Solid State Physics’ Narosa Publishing House, New Delhi, 4th Edition. 2023.
3. D. Halliday, R. Resnick and J. Walker, Principles of Physics, Wiley (11th Edition), 2020.
4. Malik.K and Singh. A.K, “Engineering Physics” TMH, New Delhi 2nd Edition - 2020.


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Mapping of COs with POs

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


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LIST OF EQUIPMENT FOR A BATCH OF 30 STUDENTS
PHYSICS LABORATORY

S.No.	Name of Equipment	Quantity Required
1	Torsional pendulum with accessories	6 Nos.
2	Non - Uniform bending with accessories	6 Nos.
3	Ultrasonic interferometer.	6 Nos.
4	Air wedge with accessories	6 Nos.
5	Band gap kit	6 Nos.


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OBJECTIVES:

The student should be made to:

- Understand the qualities of water and various water treatment approaches for domestic and industrial applications
- Remember the concepts of electrochemistry and corrosion prevention
- Examine the necessity, properties and applications of polymer and composites
- Analyze the components using phase rule and energy generation in batteries and fuel cell
- Assess the types of fuels and its quality

UNIT I WATER TECHNOLOGY

9

Sources of water - Hard and soft water - Boiler feed water-requirements - disadvantages of using hard water in boilers (Scale, Sludge, Caustic Embrittlement, Priming and Foaming) - Municipal water treatment (screening, sedimentation, coagulation, filtration and disinfection - ozonolysis, UV treatment, chlorination). Internal conditioning (Phosphate, Calgon, Colloidal and Carbonate conditioning methods) - External conditioning - Zeolite and demineralization process - desalination by reverse osmosis.

UNIT II ELECTROCHEMISTRY AND CORROSION SCIENCE

9

Electrochemistry - Nernst equation & its Applications - Electrochemical (EMF) series - Corrosion - Types - Chemical and Electrochemical corrosions - Galvanic corrosion - Differential aeration corrosion - Pitting corrosion - Corrosion control - material selection and design - sacrificial anodic method and impressed current cathodic protection method - Organic coatings - Paint and its constituents.

UNIT III POLYMERS AND COMPOSITES

9

Introduction: Functionality - degree of polymerization. Classification of polymers (Source, Structure, Synthesis and Intermolecular forces) - Mechanism of free radical polymerization - Engineering Plastics: Polyamides, Polycarbonates and Polyurethanes.

Composites: Need, Composition of composites - Definition, examples and applications of Metal matrix composites (MMC), Ceramic matrix composites (CMC) and Polymer matrix composites (PMC)

UNIT IV PHASE RULE AND ENERGY STORAGE DEVICES

9

Phase Rule - Terms involved - One Component system (water system) - Two component system (Lead-Silver system) - Storage devices - types - primary battery (dry cell), secondary battery (lead acid, lithium-ion battery) - Emerging batteries - Aluminum air battery, batteries for automobiles and satellites - Fuel cells - Hydrogen - Oxygen fuel cell.

UNIT V FUELS AND COMBUSTION

9

Fuels - Introduction - Classification of fuels - coal - Analysis of coal (proximate and ultimate) - Carbonization - Manufacture of metallurgical coke (Otto Hoffmann method) - Petroleum - Manufacture of synthetic petrol (Bergius process) - Knocking - Anti knocking - Octane number - Cetane number - Gaseous fuels - LPG, CNG - Combustion: Calorific value - higher and lower calorific values - Theoretical calculation of calorific value - Flue gas analysis (ORSAT Method).

TOTAL: 45 PERIODS

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LIST OF THE EXPERIMENTS - CHEMISTRY LABORATORY

1. Estimation of HCl using Na_2CO_3 as primary standard and determination of alkalinity in water sample.
2. Determination of total, temporary & permanent hardness of water by EDTA method.
3. Determination of Chloride content of water sample by Argentometric method.
4. Determination of strength of given hydrochloric acid using pH meter.
5. Estimation of Copper content by spectrophotometer.
6. Estimation of iron content of the given solution using potentiometer.
7. Conductometric titration of strong acid Vs strong base.

TOTAL: 30 PERIODS

OUTCOMES:

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

- Summarize on water treatment methodologies for various applications
- Recognize corrosion protection technique for practical problems
- Implement the knowledge on properties and applications of polymer and composites
- Attribute different storage devices and apply them for suitable applications in energy sectors and identify the applications on phase diagram
- Interpret the fuels and its characteristics

TEXT BOOKS:

1. P. C. Jain and Monica Jain, "Engineering Chemistry", Dhanpat Rai Publishing, Company, New Delhi, 2015.
2. S. S. Dara, "A Text Book of Engineering Chemistry", S. Chand & Co. Ltd., New Delhi, 2013.

REFERENCES:

1. Shika Agarwal, "Engineering Chemistry", Cambridge University Press, Delhi, 2016.
2. B. Sivashankar, "Engineering Chemistry", Tata Mc. Graw-Hill Publishing Company, Ltd., Delhi, 2012.
3. G Palanna, "Engineering Chemistry", Tata Mc. Graw Hill Education Private Limited, Delhi, 2017.
4. Prasanta Rath, "Engineering Chemistry", Cengage Learning India Pvt. Ltd., Delhi, 2018.


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Mapping of COs with POs

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


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LIST OF EQUIPMENT FOR A BATCH OF 30 STUDENTS
CHEMISTRY LABORATORY

S.No.	Name of Equipment	Quantity Required
1	pH Meter	10 Nos.
2	Digital Conductivity Meter	10 Nos.
3	Digital Potentiometer	10 Nos.
4	Electronic Balance	5 Nos.
5	Deionizer unit	1 No.
6	Spectrophotometer	5 Nos.


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OBJECTIVES:**The student should be made to:**

- Understand the various basic concepts like dimensioning, standards, curves and free hand sketching
- Develop the skills on projection of points, lines and plane surfaces
- Impart knowledge on projection of solids like prisms and pyramids
- Illustrate the section of solids and development of surfaces for various objects
- Acquire skills on viewing of solid objects in Isometric and Perspective projections

CONCEPTS AND CONVENTIONS (NOT FOR EXAMINATION)**2**

Importance of graphics in engineering applications - Use of drafting instruments - BIS conventions and specifications - Size, layout and folding of drawing sheets - Lettering and geometric dimensioning

UNIT I PLANE CURVES AND FREE HAND SKETCHING**9+6**

Curves used in engineering practices: Conics - Construction of ellipse, Parabola and hyperbola by eccentricity method - Construction of cycloid and involutes of square and circle- Drawing of tangents and normal to the above curves.

Visualization concepts and Free Hand sketching: Visualization principles - Representation of Three Dimensional objects - Layout of views – Free hand sketching of multiple views from pictorial views of objects.

UNIT II PROJECTION OF POINTS, LINES AND PLANE SURFACES**9+6**

Projection of points - Projection of straight lines (only First angle projections) inclined to both the principal planes - Determination of true length and true inclination by rotating line method - Projection of planes inclined to both the principal planes by rotating object method.

UNIT III PROJECTION OF SOLIDS**7+6**

Projection of simple solids like prisms, pyramids, cylinder, cone when the axis is inclined to one of the principal planes by rotating object method.

UNIT IV PROJECTION OF SECTIONED SOLIDS AND DEVELOPMENT OF SURFACES**9+6**

Sectioning of solids: prisms, pyramids, cylinder, cone in simple vertical position when the cutting plane is inclined to the one of the principal planes and perpendicular to the other - obtaining true shape of section. Development of lateral surfaces of simple and sectioned solids: prisms, pyramids, cylinder and cone.


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UNIT V ISOMETRIC AND PERSPECTIVE PROJECTIONS**9+6**

Principles of isometric projection - isometric scale - isometric projections of simple solids, truncated and frustum of solids: Prisms, pyramids, cylinder, cone - Perspective projection of simple solids: Prisms, pyramids and cylinder by visual ray method.

TOTAL: 75 (45+30) PERIODS**OUTCOMES:**

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

- Relate the engineering knowledge on dimensioning, standards, curves and free hand sketching objects
- Identify the various views on the projection of points, straight lines and plane surfaces
- Apply the knowledge on projection of solids like prisms and pyramids
- Analyze the section of solids and development of surfaces
- Develop the isometric views and perspective projection of simple solids

TEXT BOOKS:

1. Natarajan K V., "A text book of Engineering Graphics", Dhanalakshmi Publishers, Chennai, 2023.
2. Venugopal K and Prabhu Raja V., "Engineering Graphics", New Age International (P) Limited, 2024.

REFERENCES:

1. Bhatt N D and Panchal V M., "Engineering Drawing", Charotar Publishing House, 50th Edition, 2023.
2. Basant Agarwal and Agarwal C M., "Engineering Drawing", Tata McGraw Hill Publishing Company Limited, New Delhi, 2019.
3. Gopalakrishna K R., "Engineering Drawing" (Vol. I & II combined), Subhas Stores, Bangalore, 2017.

Special points applicable to End Semester Examinations on Engineering Graphics:

1. There will be five questions, each of either or type covering all units of the syllabus.
2. All questions will carry equal marks of 20 each making a total of 100.
3. The answer paper shall consist of drawing sheets of A3 size only. The students will be permitted to use an appropriate scale to fit solution within A3 size.
4. The examination will be conducted in appropriate sessions on the same day.

Mapping of COs with POs

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

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OBJECTIVES:

The students should be made to:

- Learn the extensive literature of classical tamil
- Analyze rock art paintings to modern art
- Understand folk and martial arts
- Apply the concepts of thinai in Tamils
- Realize the contribution of tamils in Indian freedom struggle

UNIT I LANGUAGE AND LITERATURE 3
Language Families in India - Dravidian Languages –Tamil as a Classical Language - Classical Literature in Tamil – Secular Nature of Sangam Literature – Distributive Justice in Sangam Literature - Management Principles in Thirukural - Tamil Epics and Impact of Buddhism & Jainism in Tamil Land - Bakthi Literature Azhwars and Nayanmars - Forms of minor Poetry - Development of Modern literature in Tamil - Contribution of Bharathiyar and Bharathidhasan.

**UNIT II HERITAGE-ROCK ART PAINTINGS TO MODERN ART–
SCULPTURE 3**
Hero stone to modern sculpture - Bronze icons - Tribes and their handicrafts - Art of temple car making - - Massive Terracotta sculptures, Village deities, Thiruvalluvar Statue at Kanyakumari, Making of musical instruments - Mridhangam, Parai, Veenai, Yash and Nadhaswaram - Role of Temples in Social and Economic Life of Tamils.

UNIT III FOLK AND MARTIAL ARTS 3
Therukoothu, Karagattam, Villu Pattu, Kaniyan Koothu, Oyillattam, Leather puppetry, Silambattam, Valari, Tiger dance - Sports and Games of Tamils.

UNIT IV THINAI CONCEPT OF TAMILS 3
Flora and Fauna of Tamils & Aham and Puram Concept from Tholkappiyam and Sangam Literature - Aram Concept of Tamils - Education and Literacy during Sangam Age - Ancient Cities and Ports of Sangam Age - Export and Import during Sangam Age - Overseas Conquest of Cholas.

**UNIT V CONTRIBUTION OF TAMILS TO INDIAN NATIONAL MOVEMENT
AND INDIAN CULTURE 3**
Contribution of Tamils to Indian Freedom Struggle - The Cultural Influence of Tamils over the other parts of India– Self-Respect Movement- Role of Siddha Medicine in Indigenous Systems of Medicine – Inscriptions & Manuscripts – Print History of Tamil Books.

TOTAL: 15 PERIODS


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OUTCOMES:

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

- Understand the extensive literature Tamil and classical nature
- Knowledge about the heritage of sculpture, painting and musical instruments
- Review on folk and martial arts of Tamil people
- Realization of thinai concepts, trade and victory of Chozha dynasty
- Understand the contribution of tamils in Indian freedom struggle, Self- esteem movement and siddha medicine

TEXT-CUM-REFERENCE BOOKS

1. தமிழக வரலாறு - மக்களும் பண்பாடும் - கே. கே. பிள்ளை (வெளியீடு:தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்).
2. கணினித் தமிழ் - முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
3. கீழடி - வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருறை -ஆற்றங்கரை நாகரீகம். (தொல்லியல் துறை வெளியீடு).
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by:International Institute of Tamil Studies.
7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by : International Institute of Tamil Studies.)
9. Keeladi – ‘Sangam City Civilization on the banks of the river Vaigai’ (Jointly Published by: Department of Archaeology & Tamilnadu Textbook and Educational Services Corporation, Tamilnadu.)
10. Studies in the History of India with Special Reference to Tamilnadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamilnadu Textbook and Educational Services Corporation, Tamilnadu.)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) – Reference Book.

Mapping of COs with POs

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


CHAIRMAN
BoS (S&H)

நோக்கங்கள்:**மாணவர்கள் கண்டிப்பாக அறிய வேண்டுவன:**

- மொழி மற்றும் இலக்கியங்களை மதிப்பிடுதல்
- பாறை மற்றும் நவீன ஓவியங்களை பகுப்பாய்தல்
- நாட்டுப்புற மற்றும் தற்காப்பு கலைகளை புரிந்து கொள்ளுதல்
- திணையில் தமிழர்களின் கருத்தை பயன்படுத்துதல்
- இந்திய கலாச்சாரத்தில் தமிழர்களின் பங்கினை நினைவு கூறுதல்

அலகு 1 மொழி மற்றும் இலக்கியம்

3

இந்திய மொழிக் குடும்பங்கள் - திராவிட மொழிகள் - தமிழ் ஒரு செம்மொழி - தமிழ் செவ்விலக்கியங்கள் -சங்க இலக்கியத்தின் சமயச் சார்பற்ற தன்மை - சங்க இலக்கியத்தில் பகிர்தல் அறம்-திருக்குறளில் மேலாண்மைக் கருத்துக்கள்- தமிழ்க் காப்பியங்கள், தமிழகத்தில் சமணப் பௌத்த சமயங்களின் தாக்கம்- பக்தி இலக்கியம், ஆழ்வார்கள் மற்றும் நாயன்மார்கள் - சிற்றிலக்கியங்கள் -தமிழில் நவீன இலக்கியத்தின் வளர்ச்சி - தமிழ் இலக்கிய வளர்ச்சியில் பாரதியார் மற்றும் பாரதிதாசன் ஆகியோரின் பங்களிப்பு.

அலகு II மரபு - பாறை ஓவியங்கள் முதல் நவீன ஓவியங்கள் வரை - சிற்பக் கலை

3

நடுகல் முதல் நவீன சிற்பங்கள் வரை - ஐம்பொன் சிலைகள் - பழங்குடியினர் மற்றும் அவர்கள் தயாரிக்கும் கைவினைப் பொருட்கள், பொம்மைகள் - தேர் செய்யும் கலை - சுடுமண் சிற்பங்கள் - நாட்டுப்புறத் தெய்வங்கள் -குமரிமுனையில் திருவள்ளுவர் சிலை - இசைக்கருவிகள் - மிருதங்கம், பறை , வீணை , யாழ், நாதஸ்வரம் - தமிழர்களின் சமூக பொருளாதார வாழ்வில் கோவில்களின் பங்கு.

அலகு III நாட்டுப்புறக் கலைகள் மற்றும் வீர விளையாட்டுகள்

3

தெருக்கூத்து, கரகாட்டம், வில்லுப்பாட்டு, கணியான் கூத்து, ஓயிலாட்டம், தோல்பாவைக் கூத்து, சிலம்பாட்டம், வளரி, புலியாட்டம், தமிழர்களின் விளையாட்டுகள்.

அலகு IV தமிழர்களின் திணைக் கோட்பாடுகள்

3

தமிழகத்தின் தாவரங்களும், விலங்குகளும் - தொல்காப்பியம் மற்றும் சங்க இலக்கியத்தில் அகம் மற்றும் புறக் கோட்பாடுகள் - தமிழர்கள் போற்றிய அறக்கோட்பாடு - சங்ககாலத்தில் தமிழகத்தில் எழுத்தறிவும், கல்வியும் -சங்ககால நகரங்களும் துறை முகங்களும் -சங்ககாலத்தில் ஏற்றுமதி மற்றும் இறக்குமதி - கடல்கடந்த நாடுகளில் சோழர்களின் வெற்றி.


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 BoS (S&H) 05/06

அலகு V இந்திய தேசிய இயக்கம் மற்றும் இந்திய பண்பாட்டிற்குத் தமிழர்களின் பங்களிப்பு 3

இந்திய விடுதலைப்போரில் தமிழர்களின் பங்கு - இந்தியாவின் பிறப்பகுதிகளில் தமிழ்ப் பண்பாட்டின் தாக்கம் - சுயமரியாதை இயக்கம் - இந்திய மருத்துவத்தில் சித்த மருத்துவத்தின் பங்கு - கல்வெட்டுகள், கையெழுத்துப்படிக்கள் - தமிழ்ப் புத்தகங்களின் அச்ச வரலாறு.

TOTAL: 15 PERIODS

முடிவுகள்:

பாடத்தின் முடிவில், மாணவர்கள் அறிந்து கொள்வன:

- மொழி மற்றும் இலக்கியங்களைப் பற்றி அறிந்து கொள்கிறார்கள்
- பாறை மற்றும் நவீன ஓவியங்களை பற்றிய அறிவுகளை கற்கின்றனர்
- நாட்டுப்புற மற்றும் தற்காப்பு கலைகளை வளர்க்க முடிகிறது
- திணை கருத்துக்கள், வர்த்தகம் மற்றும் சோழ வம்சத்தின் வெற்றி அறிய முடிகிறது
- இந்திய சுதந்திரப் போராட்டம், சுயமரியாதை இயக்கம் மற்றும் சித்த மருத்துவத்தில் தமிழர்களின் பங்களிப்பைப் புரிந்து கொள்ள முடிகிறது

உரை மற்றும் குறிப்பு புத்தகங்கள்:

1. தமிழக வரலாறு - மக்களும் பண்பாடும் - கே. கே. பிள்ளை (வெளியீடு:தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்).
2. கணினித் தமிழ் - முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
3. கீழடி - வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருறை -ஆற்றங்கரை நாகரீகம். (தொல்லியல் துறை வெளியீடு).
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL – (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by:International Institute of Tamil Studies.
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Mapping of COs with POs

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


CHAIRMAN 30/05
BoS (S&H)

OBJECTIVES:

The student should be made to:

- Acquire knowledge in calculation of area and volume of various 2D and 3D shapes and gain practical exposure in pipeline connections and carpentry
- Develop the fundamental skills in welding, machining, sheet metal and foundry works
- Illustrate the basic working principles of air conditioner, industrial robot and washing machine
- Learn the domestic, industrial wiring circuits and measure the electrical parameters
- Demonstrate the basic electronic components in PCB, assemble of smart phone, computer and LED TV

GROUP A (CIVIL & MECHANICAL)**I. CIVIL ENGINEERING PRACTICES****15****Basic Measurements**

1. Calculation of area and volume for various solid and hollow shapes, including cubical, spherical, cylindrical and conical models with different scale conversions.

Carpentry

2. Study of industrial trusses and joints in doors and windows using models.
3. Sawing and planing- Making joints: T-joint, Mortise joint, and Tenon joint.

Plumbing

4. Laying pipe connections for suction and delivery sides of the pumps and preparation of plumbing line sketches for water supply and sewage works.
5. Connecting various pipe fittings using different materials (metal, plastic, and flexible pipes) and other components which are commonly used in household appliances.

II. MECHANICAL ENGINEERING PRACTICES**15****Welding:**

- a) Arc Welding
 - i) Butt joint
 - ii) Lap joint
- b) Gas welding practice

Basic Machining:

- a) Turning and Facing
- b) Drilling and tapping

Sheet Metal work:

- a) Making of a funnel
- b) Making of a tray

Foundry work:

- a) Making a mould using solid pattern
- b) Making a mould using split pattern

Study Experiments

- a) Study of components in Air conditioner
- b) Study of components in Industrial robot
- c) Study of components in Washing machine


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GROUP B (ELECTRICAL AND ELECTRONICS)

III. ELECTRICAL ENGINEERING

15

1. Residential house wiring using switches, fuse, indicator, circuit breaker, lamp and Energy meter
2. Stair case wiring
3. Industrial wiring using switches, fuse, indicator and Energy meter
4. Measurement of electrical quantities - voltage, current, power, power factor and energy in RLC circuit
5. Calculation of energy consumption for different lamps
6. Study of fan with regulator, Iron Box and Emergency Lamp

IV. ELECTRONICS ENGINEERING

15

1. Study and identification of electronic components and Equipments-Resistors, Capacitors and Inductors
2. Assembling and testing electronic components in small PCB
3. Assembling and dismantling of Computer/Laptop
4. Assembling and dismantling of LED TV
5. Study of elements in smart phone

TOTAL: 60 PERIODS

OUTCOMES:

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

- Interpret engineering knowledge on calculation of area and volume of different geometric shapes, connecting various household fittings and making carpentry joints
- Apply engineering skills to do welding, machining, sheet metal and foundry works
- Gain knowledge on Air conditioner, Industrial robot and washing machine
- Understand the domestic, industrial wiring circuits and measure the various electrical parameters
- Analyze the basic components of electronic circuits, computer, laptop, smart phone and LED TV

Mapping of COs with POs

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


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24GE104L ENGINEERING PRACTICES LABORATORY

LIST OF EQUIPMENT FOR A BATCH OF 30 STUDENTS

GROUP A (CIVIL & MECHANICAL)

S. No	Name of Equipment	Quantity Required
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CIVIL ENGINEERING PRACTICES

Basic Measurements

1.	Sphere	03 Nos.
2.	Cylinder	03 Nos.
3.	Cone	03 Nos.
4.	Cube	03 Nos.
5.	Cuboid	03 Nos.

Carpentry

6.	Industrial truss	03 Nos.
7.	Door Joint	03 Nos.
8.	Window Joint	03 Nos.
9.	Try Square	15 Nos.
10.	Hand Saw	15 Nos.
11.	Carpentry bench vice	15 Nos.
12.	Firmer Chisel	15 Nos.
13.	Motrin Chisel	15 Nos.
14.	Iron Jack	15 Nos.
15.	Mallet	15 Nos.
16.	Bench hold fastens (C Clamp)	15 Nos.
17.	Wood Cutting Machine	2 Nos.
18.	Planer machine	2 Nos.
19.	Hand drilling Machine	2 Nos.
20.	Jig Saw	2 Nos.

Plumbing

21.	Pipe Vice	15 Nos.
22.	Die Holder with Die set	10 Nos.

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S. No	Name of Equipment	Quantity Required
-------	-------------------	-------------------

MECHANICAL ENGINEERING PRACTICES

Welding

- | | | |
|----|------------------|--------|
| 1. | Arc welding unit | 5 Nos. |
| 2. | Gas welding unit | 2 Nos. |

Basic Machining

- | | | |
|----|-------------------|--------|
| 3. | Lathe Machines | 3 Nos. |
| 4. | Drilling Machines | 2 Nos. |

Sheet Metal work

- | | | |
|-----|-------------------|--------|
| 5. | Steel rule | 5Nos. |
| 6. | Bend snips | 5 Nos. |
| 7. | Straight snips | 5 Nos. |
| 8. | Scriber | 5 Nos. |
| 9. | Divider | 5 Nos. |
| 10. | Trammel | 5 Nos. |
| 11. | Prick Punches | 5 Nos. |
| 12. | Centre punches | 5 Nos. |
| 13. | Pliers | 5 Nos. |
| 14. | Ball peen hammer | 5 Nos. |
| 15. | Cross peen hammer | 5 Nos. |
| 16. | Bull wart hammer | 5 Nos. |
| 17. | Mallet | 5 Nos. |
| 18. | Anvil | 3 Nos. |
| 19. | Swage block | 3 Nos. |
| 20. | Wire gauges | 2 Nos. |

Foundry work

- | | | |
|-----|-------------------|--------|
| 21. | Cope and Drag Box | 5 Nos. |
| 22. | Solid pattern | 5 Nos. |
| 23. | Split pattern | 5 Nos. |
| 24. | Runner | 5 Nos. |
| 25. | Riser | 5 Nos. |
| 26. | Sprue pin | 5 Nos. |
| 27. | Sand rammer | 5 Nos. |
| 28. | Trowel | 5 Nos. |

Study Experiments

- | | | |
|-----|----------------------|-------|
| 29. | Air-conditioner unit | 1 No. |
| 30. | Industrial Robot | 1 No. |
| 31. | Washing Machine | 1 No. |


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LIST OF EQUIPMENTS FOR A BATCH OF 30 STUDENTS

S. No.	Description of Equipment	Quantity Required (Nos)
Part III: Electrical Engineering		
1.	Single phase house wiring setup	5
2.	Three phase house wiring setup	3
3.	Staircase wiring setup	3
4.	Fluorescent lamp and LED with wiring setup	Each 3
5.	Emergency lamp wiring setup	2
6.	Iron box wiring setup	2
7.	Fan with Regulator	2
8.	AC Voltmeter, Ammeter, Wattmeter and Energy Meter	Each 4
9.	R-Load	4
10.	Inductive and Capacitive Load	Each 1
Part IV: Electronics Engineering		
1.	Soldering Iron, Lead	10 Set
2.	Multi meter	10
3.	Continuity tester	12
4.	Used Laptop	3
5.	Used desktop computer	3
6.	Used LED TV	3
7.	Used Smart Phone	3
8.	DC Multi-output power supply (0-5V), (0-30V)	2
9.	Resistors	200
	Capacitors	200
	Diodes	200
	Transistors	200


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 BoS(EEE) 31/05

OBJECTIVES:

The students should be made to:

- Understand the communicative competence of the learners
- Support the effective use of language in professional and academic situations
- Develop various listening strategies to comprehend various types of audio materials like lectures, discussions, videos etc.
- Focus on students' English language skills by engaging them in listening, speaking and grammar learning activities that are relevant to authentic contexts
- Determine how to efficiently use language for expressing their opinions via various media

UNIT I INTRODUCTION TO FUNDAMENTALS OF COMMUNICATION 6

Listening for general information-specific details - conversation: Introduction to classmates (formal & informal); Telephone conversation; Speaking - Self Introduction-Introducing a friend; - politeness strategies - making polite requests, making polite offers, replying to polite requests and offers - understanding basic instructions (filling out a bank application for example).

UNIT II NARRATION AND SUMMATION 6

Listening - Listening to podcasts, anecdotes / stories / event narration; documentaries and interviews with celebrities. Speaking - Narrating personal experiences / events- Talking about current and temporary situations & permanent and regular situations - describing experiences and feelings engaging in small talk- describing requirements and abilities.

UNIT III DESCRIPTION OF A PROCESS / PRODUCT 6

Listening - Listen to product and process descriptions; a classroom lecture; and advertisements about products. Speaking – Picture description- describing locations in workplaces- Giving instruction to use the product- explaining uses and purposes- Presenting a product- describing shapes and sizes and weights- talking about quantities(large & small)-talking about precautions.

UNIT IV FUNCTIONAL COMMUNICATION 6

Listening – Listening to TED Talks; Listening to lectures - and educational videos. Speaking – Small Talk; discussing and making plans-talking about tasks-talking about progress- talking about positions and directions of movement-talking about travel preparations- talking about transportation.

UNIT V PROFESSIONAL SKILLS 6

Listening – Listening to debates/ discussions; different viewpoints on an issue; and panel discussions. Speaking –making predictions- talking about a given topic.

TOTAL: 30 PERIODS


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OUTCOMES:

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

- Recognize fundamental or complicated academic content
- Identify different points of view expressed in a discussion
- Discuss it efficiently and accurately in both formal and informal communicative on contexts
- Identify the self learning and innovative practices for making effective communication process
- Express their opinions effectively in both formal and informal discussions

Mapping of COs with POs

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



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LIST OF EQUIPMENTS
Requirements for a batch of 30 students

Sl. No.	Description of Equipment/Software	Quantity required (Nos)
1	Computer	30
2	Headphones	30
3	Software: Globarena	30


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OBJECTIVES:

The students should be made to:

- Improve the reading skills for the purpose of effective communication
- Extend their acquire listening and speaking skills in both formal and informal contexts
- Apply their reading skills from online sources
- Focus on writing skills needed for academic as well as work place
- Restate support their language skills at their own pace by using the language lab

UNIT I CONVERSATION

9

Listening: Listening to informal conversations, Speaking: Short conversations in varied situations in student life, Reading: Reading Short text and longer passages for comprehension at deeper levels, Writing: Writing reviews (book / film), Grammar: Compound Nouns - Numerical Expression, Vocabulary: Cause and Effect Expressions.

UNIT II LANGUAGE IN USE

9

Listening: Listening to Situation based Dialogues, Speaking: Asking about Routine actions and giving directions, Reading: Reading a short story for appreciation and understanding, Writing: Writing Emails- Dialogue writing, Grammar: Purpose expressions-Adverbs, Vocabulary: Imperative sentences.

UNIT III ENGLISH FOR SPECIFIC PURPOSE

9

Listening: Listening strategies for deeper understanding, Speaking: Using dictionary for learning pronunciation, stress and syllable divisions, Reading: an article from Newspaper - Critical reading, Writing: Note-Making / Note-Taking - Essay writing, Grammar: Definition, Degrees of Comparison, Vocabulary: Model verbs.

UNIT IV ENGLISH FOR CAREER

9

Listening: Listening to the interviews of CEOs/ entrepreneur, Speaking: Group Discussion skills, Reading: pre reading and post reading tasks, Writing – Job application – Cover letter & Resume, Grammar: Active and Passive voice, Relative Pronouns, Vocabulary: Synonyms and Antonyms.

UNIT V REPORT WRITING

9

Listening: Listening and making notes, Speaking: Discussion on problems and solutions (case studies), Reading: Reading abstracts /Journal Articles, Writing: Minutes of meeting, Reports (Feasibility / Accident /Survey Report), Grammar: If Clause, Vocabulary: Idioms and their Meanings.

TOTAL: 45 PERIODS


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OUTCOMES:

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

- Express their opinions clearly, initiate a discussion, negotiate to use appropriate communicative strategies
- Observe different spoken excerpts critically and infer unspoken and implied meanings
- Evaluate them for ideas as well as for method of presentation by reading different genres of treats
- Make effective presentations using power point and participate successfully in Group Discussions
- Create different types of writing such as narration, description, exposition and argument as well as creative, critical, analytical and evaluative writing

TEXT BOOKS:

1. Bhatnagar, Nitin and Bhatnagar, Mamta, “Communicative English for Engineering and Professionals”, Pearson Education India, 2010.

REFERENCES:

1. Raman, Meenakshi and Sharma, Sangeetha, “Technical Communication Principles and Practice”, Oxford University Press, Delhi, 2019.
2. Andrea J, Rutherford. “Basic Communication Skills for Technology”, Pearson Education, Inc., 2013.
3. Rizvi M, Ashraf. “Effective Technical Communication”, Tata McGraw Hill Education Pvt.Ltd., Delhi,2017.

Mapping of COs with POs

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


CHAIRMAN
BoS(S&H)

OBJECTIVES:**The Student should be made to:**

- Understand the vector fields and operations involving vectors in different dimensions
- Identify the field of engineering in ODE as an effective tool for resolving practical issues
- Examine the Contour integration using a variety of complex analysis techniques
- Differentiate the concepts of numerical differentiation and integration procedures, which have significant role in the field of engineering
- Test the numerous approaches and strategies for resolving different kinds of ODEs

UNIT I VECTOR CALCULUS**9+3**

Gradient of a Scalar point function – Divergence, Curl, Solenoidal and irrotational of a vector point function – Directional Derivative – Green's, Gauss divergence and Stoke's theorems (without proof)

UNIT II ORDINARY DIFFERENTIAL EQUATIONS**9+3**

Higher order linear differential equations with constant coefficients ($e^{ax}V, x^nV$) – Method of variation of parameters – Cauchy's linear differential equations- Legendre's linear differential equations

UNIT III ANALYTIC FUNCTIONS**9+3**

Functions of a complex variable – Analytic functions: Necessary condition – Cauchy-Riemann equations and sufficient condition (excluding proofs) Harmonic and orthogonal properties of analytic function – Construction of analytic functions by Milne's method – Conformal mapping ($w = z + k, 1/z, kz$) – Bilinear transformation.

UNIT IV NUMERICAL DIFFERENTIATION AND INTEGRATION**9+3**

Newton's forward and backward difference formulae – Approximation of derivatives using interpolation polynomials – Numerical integration using Trapezoidal, Simpson's 1/3 rule – Evaluation of double integrals by Trapezoidal and Simpson's 1/3 rules.

UNIT V NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS**9+3**

Single Step methods - Taylor's series method – Euler's method – Fourth order Runge-Kutta method for solving first order equations – Multi step methods – Milne's predictor corrector methods for solving first order equations.

TOTAL: (45+15) PERIODS**OUTCOMES:****On successful completion of the course, the students will be able to,**

- Recognize the gradient, divergence, and curl of a vector point function to apply complex variables
- Solve higher order linear differential equation with constant and variable coefficients.
- Utilize conformal mapping and the analytic function to transfer them from one domain to another


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- Analyze the different approaches and strategies for resolving ordinary differential equations of both the first and second orders
- Evaluate the Taylor's series, Euler's method, and Runge - Kutta method to solve the ordinary differential equations

TEXT BOOKS:

1. Grewal B.S., "Higher Engineering Mathematics", Khanna Publishers, New Delhi, 44th Edition, 2017.
2. Burden, R.L and Faires, J.D, "Numerical Analysis", 9th Edition, Cengage Learning, 2018.

REFERENCES:

1. Kreyszig Erwin, "Advanced Engineering Mathematics", John Wiley and Sons, 10th Edition, New Delhi, 2018.
2. O'Neil, P.V. "Advanced Engineering Mathematics", Cengage Learning India Pvt., Ltd, 7th Edition New Delhi, 2013.
3. Sankara Rao. K., "Numerical Methods for Scientists and Engineers", Prentice Hall of India Pt.Ltd, 4th Edition, New Delhi, 2021.
4. Gerald. C.F., and Wheatley. P.O. "Applied Numerical Analysis" 7th Edition, Pearson Education India, 2017.

Mapping of COs with POs

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


CHAIRMAN
BoS (S&H)

OBJECTIVES:

The students should be made to:

- Understand the need of value education and human aspiration
- Know the difference between self and body
- Recognize the harmony in the family and society
- Understand harmony in nature
- Identify the human values and ethics

UNIT 1 INTRODUCTION TO VALUE EDUCATION 6+3

Value Education – need and process, Self-Exploration – process, Basic Human Aspirations - Continuous Happiness and Prosperity, Basic requirement for fulfilment of Human Aspirants, Understanding Happiness and Prosperity – Continuity of Happiness from Physical Facility.

UNIT II HARMONY IN THE HUMAN BEING 6+3

Human being as a co-existence of the self and the Body - The needs of Self and Body, Body as an Instrument - The Self as the Seer- Doer-Enjoyer, Harmony in the self, Harmony of the Self with the Body –Programme for Self – regulation and health.

UNIT III HARMONY IN THE FAMILY AND SOCIETY 6+3

Family as the basic unit of human interaction , Understanding Relationship, Trust as the foundational value, Respect as the Right Evaluation, Harmony in the society – Understanding Human Goal, Harmony from Family Order to World Family Order – Universal Human Order - Scope.

UNIT IV HARMONY IN THE NATURE AND EXISTENCE 6+3

Nature - as Collections of Units, Classification of Units into Four Orders, Interconnectedness, and mutual fulfilment among the four orders of nature, self-regulation in Nature, Understanding Existence as Units in Space, Existence as Co-existence.

**UNIT V IMPLICATIONS OF THE ABOVE HOLISTIC UNDERSTANDING OF
HARMONY ON PROFESSIONAL ETHICS 6+3**

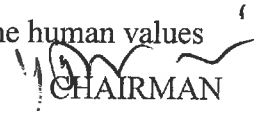
Natural Acceptance of Human Values - Definitiveness of Ethical Human Conduct, Basis for Humanistic Education, Constitution, Universal Human Order, Competence in Professional Ethics, Holistic Technologies, Production System and Management Models – Typical case, Strategies for Transition towards value based life and profession.

TOTAL: (30+15) PERIODS

OUTCOMES:

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

- Understand the significance of value education and distinguish between values and skills
- Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body
- Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings
- Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature
- Distinguish between ethical and unethical practices and understand the human values


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TEXT BOOKS:

1. R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics, Excel Books, New Delhi, 2nd Revised Edition, 2019.

REFERENCES:

1. Tripathi A N, "Human Values", New Age Intl. Publishers, New Delhi, 2009.
2. Govindarajan M, Natrajan S and Senthilkumar V S, "Engineering Ethics (Including Human Values)" Eastern Economy, PHI, 12th Edition, 2011.
3. Govindarajan M and Natrajan S, "Professional Ethics and Human Values", PHI, 2011.
4. Banerjee B P, "Foundation of Ethics and Management", Excel Publication, 2005.
5. Bajpai B L, "Indian Ethos and Modern Management", New Royal Book Co, Lucknow, Reprinted 2008.
6. Seebauer and Robert L Berry, "Fundamentals of Ethics for Scientist and Engineers", Oxford University Press, 2000.

Mapping of COs with POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C01	-	-	-	-	-	3	3	1	1	-	-	3
C02	-	-	-	-	-	2	1	2	1	-	-	3
C03	-	-	-	-	-	1	2	1	1	-	-	3
C04	-	-	-	-	-	3	3	3	1	-	-	3
C05	-	-	-	-	-	3	3	3	1	-	-	3


CHAIRMAN
BoS (S&H)

OBJECTIVES:

The students should be made to:

- Understand the interaction of ecosystem with biodiversity and its need of conservation
- Recognize the causes, preventive measures of environmental pollutants and disaster management
- Apply the necessity of conserving natural resources for the existence of living species
- Correlate the scientific and technical remedies to current environmental issues in order to ensure sustainability
- Assess the impact of overpopulation in environment

UNIT I ENVIRONMENT, ECOSYSTEMS AND BIODIVERSITY 9

Definition, scope and importance of environment - concept of an ecosystem - structure and function of an ecosystem - ecological succession - food chain - food web - structure and function of the (a) forest ecosystem (b) desert ecosystem (c) aquatic ecosystem - (pond and ocean) - Biodiversity: Hot spots of biodiversity - threats to biodiversity - values of biodiversity - endangered and endemic species - conservation of biodiversity: In-situ and ex-situ conservation methods.

UNIT II ENVIRONMENTAL POLLUTION AND NATURAL CALAMITIES 9

Definition - causes, effects and control measures of: (a) Air pollution (b) Water pollution (c) Marine pollution (d) Noise pollution (e) Nuclear hazards - solid waste and E-waste Management: role of an individual in prevention of pollution-disaster management: flood, earthquake, cyclone and landslides.

UNIT III NATURAL RESOURCES 9

Forest resources: deforestation, mining, dam and their effects on forest and tribal people - Water resources: Use and over - utilization of surface and ground water - dams-benefits and problems - Food resources: World food problems - effects of modern agriculture - fertilizer - pesticide problems, water logging, salinity - Energy resources: renewable energy sources - Solar energy, Tidal energy, Wind energy sources. Land resource: land degradation, Soil erosion and desertification - role of an individual in conservation of natural resources.

UNIT IV SOCIAL ISSUES AND SUSTAINABILITY 9

Water conservation - rain water harvesting- resettlement and rehabilitation of people; its problems and concerns - environmental ethics - acid rain, ozone layer depletion - waste land reclamation - Air (Prevention and Control of Pollution) act - Water (Prevention and control of Pollution) act - Wildlife protection act - Forest conservation act. Sustainable development- Green Chemistry: Principles of green chemistry - Environmental Impact Assessment. Sustainable habitat: Green buildings, Green materials, Energy efficiency, Sustainable transportation.

UNIT V HUMAN POPULATION AND THE ENVIRONMENT 9

Population growth, variation among nations - population explosion - family welfare programme - environment and human health - value education - HIV / AIDS - threatening of communicable diseases for human population and its prevention - women and child welfare - role of information technology in environment and human health.

TOTAL: 45 PERIODS


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BoS (S&H)

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OUTCOMES:

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

- Acquire knowledge on ecosystem, biodiversity and its conservation
- Retrieve the impacts, preventive measures of pollution and calamities
- Examine approaches that promote sustainable development
- Investigate social concerns in the environment
- Evaluate the issues of over population and communicable diseases

TEXT BOOKS:

1. Benny Joseph, "Environmental Science and Engineering", Tata McGraw-Hill, Delhi, 2nd Edition, 2018.
2. Gilbert M. Masters, "Introduction to Environmental Engineering and Science", Pearson Education Pvt., Ltd., 3rd Edition, 2016.

REFERENCES:

1. G. Tyler Miller, St. Andrews Presbyterian, "Introduction to Environmental Science", Cengage Learning India Pvt., Ltd., 2010.
2. Dharmendra S. Sengar, "Environmental Law", Prentice hall of India Pvt. Ltd, Delhi, 2007.

Mapping of COs with POs

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


CHAIRMAN
BoS (S&H)

OBJECTIVES:**The Student should be made to:**

- Learn the fundamentals of Computer and Programming.
- Understand the basics of C programming and decision making statements.
- Learn how to construct programs using array and pointer.
- Understand the concept of string and function.
- Study the concept of structure, union and files.

UNIT I FUNDAMENTALS OF COMPUTER AND PROGRAMMING 9

Computer System - Components of Computer Hardware - Data Representation - Number System and Conversion - Program Development Life Cycle - Algorithm - Control Structures - Flowchart - Pseudocode - Programming Paradigms.

UNIT II BASICS OF C PROGRAMMING 9

Overview of C - C Character Set - Identifiers and Keywords - Variable Declaration - Data types - Type Qualifiers and Type Modifiers - Structure of a C Program - Executing a C Program - Operators and Expressions - Decision-Making and Looping Statements.

UNIT III ARRAYS AND POINTERS 9

Introduction to Arrays - Types of Array - Pointers - void Pointer - Null Pointer - Arrays of Pointers - Pointer to a Pointer - Pointer to an Array - Pointer Arithmetic.

UNIT IV STRINGS AND FUNCTIONS 9

Strings - Reading String Input - String Library Functions - Command Line Arguments - Functions: Types - Declaration - Definition - Function Call - Pass by Value - Pass by Reference - Passing arrays to functions - Recursion.

UNIT V STRUCTURE, UNION AND FILES 9

Structures - Pointers to Structures - Array of Structures - Structures within a Structure - Functions and Structures - Unions - Storage Classes - Files: Streams - File type - File operations.

TOTAL: 45 PERIODS**OUTCOMES:****On successful completion of this course, the students will be able to,**

- Explain the fundamentals of computer and programming.
- Choose appropriate data types, variables and statements for solving simple problems.
- Construct programs using arrays and pointers for a given scenario.
- Build programs using strings and functions in C language.
- Develop programs using structure, union and files for a given scenario.

TEXT BOOKS:

1. Anita Goel and Ajay Mittal, "Computer Fundamentals and Programming in C", Pearson India Education Services Pvt. Ltd., 2016.


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REFERENCES:

1. Ajay Mital, "Programming in C - A Practical Approach", Pearson Education, 2015.
2. Dromey R G, "How to Solve it by Computer", Pearson Education, Fifteenth Impression, 2014.
3. Herbert Schildt, "C - The Complete Reference", Tata McGraw-Hill, 2013.
4. Ashok N Kamthane, "Computer Programming", Pearson Education, Second Edition, 2012.
5. Juneja B L and Anita Seth, "Programming in C", Cengage Learning India Pvt. Ltd., 2011.

Mapping of COs with POs :

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


CHAIRMAN
BoS (IT)

OBJECTIVES:**The student should be made to:**

- Understand the basics of biochemical properties of biological system.
- Interpret biological classification and features of Carbohydrates and lipids.
- Predict the biological classification and features of amino acids and proteins.
- Examine the pathological cell degeneration and tumors.
- Infer the importance of microbial identification and microscopic techniques on the immunity and immunological techniques.

UNIT I FUNDAMENTALS OF BIOCHEMISTRY**9**

Introduction to Biochemistry, water as a biological solvent, weak acid and bases, pH, buffers, Maintenance of Blood pH, Henderson - Hassel Balch equation, Energy in living organism, Properties of water and their applications in biological systems .Osmosis: Definition, measurement of Osmotic pressure , Biological membrane, Clinical application of Electrolytes and radioisotopes.

UNIT II CARBOHYDRATES AND LIPIDS**9**

Carbohydrates: Classification of carbohydrates – monosaccharide's - Glucose, Oligo and polysaccharides. Structure and properties of carbohydrates - Functions of carbohydrates. Lipids: Classification of lipids - Functions. Fatty acids - Nomenclature of Fatty acids – Phospholipids – Glycolipids – Lipoproteins - Amphipathic Lipids and their biological significance.

UNIT III AMINO ACIDS AND PROTEINS**9**

Amino acids: Classification – Based on structure and chemical nature, nutrition and solubility properties of amino acids, Functions of amino acids. Proteins: Classification – Structure - primary, secondary and tertiary. Properties of proteins, Nucleotides and Nucleic acids: Structural aspects – Functions – DNA - Watson-Crick model of DNA structure- RNA- Types - mRNA tRNA.

UNIT IV CELL DEGENERATION, REPAIR AND NEOPLASIA**9**

Cell injury: Reversible cell injury - Mechanism of cell injury, Cell death - Necrosis, Apoptosis, Hypoxia and Ischemia - Intracellular accumulations, Pathological calcification - Dystrophic and Metastatic, Cellular ageing. Repair: Cell regeneration, Factors influencing tissue repair, Wound healing. Neoplasia: Benign and Malignant tumors, genetic and epigenetic of carcinogenesis, Carcinogenic agents and their cellular interactions.


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UNIT V FUNDAMENTALS OF MICROBIOLOGY AND IMMUNOPATHOLOGY 9

Microscopes: Light microscope, Electron microscope - TEM & SEM. Bacteria: Morphology, Pathogenicity, Epidemiology and Laboratory Diagnosis. Virus: Morphology, Classification - DNA and RNA virus, Viral Multiplication. Immunity: Types - Innate and Acquired immunity - Antigen and Antibodies - Antigen-Antibody Reactions - Immune Response - Production of antibodies, Hypersensitivity, Immunodeficiency diseases.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Illustrate the basic principle and application of electrolytes, water and buffers in biological system.
- Examine the classification, structure, properties and metabolic pathways of carbohydrates and lipids.
- Analyze structural and functional aspects of amino acids and Proteins.
- Determine the cell injury, cell death and tumors.
- Estimate the functions of microscope and immunological techniques.

TEXT BOOKS:

1. RAFI MD "Textbook of biochemistry for Medical Student" 4th Edition, Universities Press, Orient Black swan Private Limited - New Delhi 2021.
2. U. Satyanarayana & U. Chakrapani "Biochemistry" 5th Edition, Elsevier, 2019.
3. Ramzi S Cotran, Vinay Kumar & Stanley L Robbins, "Pathologic Basis of Diseases", 10th Edition: South Asia Edition Elsevier India, 2020.
4. Ananthanarayanan & Panicker, "Microbiology" Orient black swan, 10th Edition, 2017.

REFERENCES:

1. Keith Wilson & John Walker, "Practical Biochemistry -Principles & Techniques", Oxford University Press, 2009.
2. Dubey R C and Maheswari DK. "A Text Book of Microbiology" S Chand & Company Ltd, 2007.
3. Prescott , Harley and Klein, "Microbiology", 10th Edition, Mc Graw Hill, 2017

Mapping of COs with POs, PSOs

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


Chairman 29/05
BoS (BME)

OBJECTIVES:

Students should be made to:

- Gain knowledge about weaving and ceramic technology
- Creating a design and construction technology
- Analyzing manufacturing technology
- Applying agriculture and irrigation technology
- Remembering scientific and scientific Tamil and Tamil computing

UNIT I WEAVING AND CERAMIC TECHNOLOGY**3**

Weaving Industry during Sangam Age – Ceramic technology – Black and Red Ware Potteries (BRW) – Graffiti on Potteries.

UNIT II DESIGN AND CONSTRUCTION TECHNOLOGY**3**

Designing and Structural construction House & Designs in household materials during Sangam Age - Building materials and Hero stones of Sangam age – Details of Stage Constructions in Silappathikaram - Sculptures and Temples of Mamallapuram Great Temples of Cholas and other worship places - Temples of Nayaka Period - Type study (Madurai Meenakshi Temple)- Thirumalai Nayakar Mahal - Chetti Nadu Houses, Indo -Saracenic architecture at Madras during British Period.

UNIT III MANUFACTURING TECHNOLOGY**3**

Art of Ship Building - Metallurgical studies - Iron industry - Iron smelting, steel -Copper and gold- Coins as source of history - Minting of Coins – Beads making-industries Stone beads - Glass beads - Terracotta beads -Shell beads/ bone beats - Archeological evidences - Gem stone types described in Silappathikaram.

UNIT IV AGRICULTURE AND IRRIGATION TECHNOLOGY**3**

Dam, Tank, ponds, Sluice, Significance of Kumizhi Thoompu of Chola Period, Animal Husbandry - Wells designed for cattle use - Agriculture and Agro Processing Knowledge of Sea - Fisheries– Pearl - Conche diving - Ancient Knowledge of Ocean - Knowledge Specific Society.

UNIT V SCIENTIFIC TAMIL & TAMIL COMPUTING**3**

Development of Scientific Tamil - Tamil computing – Digitalization of Tamil Books – Development of Tamil Software – Tamil Virtual Academy – Tamil Digital Library – Online Tamil Dictionaries – Sorkuvai Project.

TOTAL: 15 PERIODS**OUTCOMES:**

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

- Understand weaving under ceramic technology
- Develop new design and construction technology
- Identify the manufacturing technology
- Understand agriculture and irrigation
- Knowledge of scientific Tamil and Tamil computing


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TEXT-CUM-REFERENCE BOOKS

1. தமிழகவரலாறு - மக்களும்பண்பாடும் - கே. கே. பிள்ளை-
(வெளியீடு:தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள்
கழகம்).
2. கணினித் தமிழ் - முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
3. கீழடி - வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம்
(தொல்லியல் துறை வெளியீடு)
4. பொருறை -ஆற்றங்கரை நாகரீகம். (தொல்லியல் துறை
வெளியீடு).
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL
- (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published
by:International Institute of Tamil Studies.
7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu)
(Published by: International Institute of Tamil Studies).
8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by :
International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City Civilization on the banks of the river Vaigai' (Jointly
Published by: Department of Archaeology & Tamilnadu Textbook and Educational
Services Corporation, Tamilnadu.)
10. Studies in the History of India with Special Reference to Tamilnadu (Dr.K.K.Pillay)
(Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamilnadu
Textbook and Educational Services Corporation, Tamilnadu.)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) -
Reference Book.

Mapping of COs with POs

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


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நோக்கம்:**மாணவர்கள் கண்டிப்பாக அறிய வேண்டுவன:**

- நெசவு மற்றும் பீங்கான் தொழில்நுட்பம் பற்றிய அறிவைப் பெறுதல்
- வடிவமைப்பு மற்றும் கட்டுமான தொழில் நுட்பத்தை உருவாக்குதல்
- உற்பத்தி தொழில் நுட்பத்தை பகுப்பாய்வு செய்தல்
- விவசாயம் மற்றும் நீர்ப்பாசனத் தொழில் நுட்பத்தைப் பயன்படுத்துதல்
- அறிவியல் மற்றும் அறிவியல் தமிழ் மற்றும் தமிழ் கணிப்பொறியை நினைவுபடுத்துதல்

அலகு 1 நெசவு மற்றும் பானை தொழில் நுட்பம்**3**

சங்க காலத்தில் நெசவுத்தொழில் - பானை தொழில் நுட்பம் - கருப்பு, சிவப்பு பாண்டங்கள் - பாண்டுகளில் கீறல் குறியீடுகள்.

அலகு 2 வடிவமைப்பு மற்றும் கட்டிடத் தொழில்நுட்பம்**3**

சங்ககாலத்தில் வடிவமைப்பு மற்றும் கட்டுமானங்கள் & சங்ககாலத்தில் வீட்டுப் பொருட்களில் வடிவமைப்பு - சங்க காலத்தில் கட்டுமான பொருட்களும் நடுக்கல்லும் - சிலப்பதிகாரத்தில் மேடை அமைப்பு பற்றிய விவரங்கள் - மாமல்லபுரம் சிற்பங்களும், கோவில்களும் - சோழர் காலத்து பெருங்கோயில்கள் மற்றும் பிற வழிபாட்டுத் தலங்கள் நாயக்கர் கால கோயில்கள் - மாதிரி கட்டமைப்புகள் பற்றி அறிதல், மதுரை மீனாட்சி அம்மன் ஆலயம் மற்றும் திருமலை நாயக்கர் மஹால் - செட்டிநாட்டு வீடுகள் - பிரிட்டிஷ் காலத்தில் சென்னையில் இந்தோ - சாரோசெனிக் கட்டிடக்கலை.

அலகு 3 உற்பத்தித் தொழில்நுட்பம்**3**

கப்பல் கட்டும் கலை - உலோகவியல் - இரும்பு தொழிற்சாலை - இரும்பை உருக்குதல், எஃகு - வரலாற்றுச் சான்றுகளாக செம்பு மற்றும் தங்க நாணயங்கள் - நாணயங்கள் அச்சடிகள் - மணி உருவாக்கும் தொழிற்சாலைகள் - கல்மணிகள், கண்ணாடி மணிகள் - சுடுமண் மணிகள் - சங்கு மணிகள் - எலும்பு துண்டுகள் - தொல்லியல் சான்றுகள் - சிலப்பதிகாரத்தில் மணிகளின் வகைகள்.

அலகு 4 வேளாண்மை மற்றும் நீர்ப்பாசன தொழில்நுட்பம்**3**

அணை, குளங்கள், மதகு - சோழர்கால குமுளி தூம்பின் முக்கியத்துவம் - கால்நடை பராமரிப்பு - கால்நடைகளுக்காக வடிவமைக்கப்பட்ட கிணறுகள் - வேளாண்மை மற்றும் வேளாண்மை சார்ந்த செயல்பாடுகள் - கடல்சார் அறிவு - மீன்வளம் - முத்து மற்றும் முத்து குளித்தல் - பெருங்கடல் குறித்த பண்டைய அறிவு - அறிவுசார் சமூகம்.


 CHAIRMAN
 BoS (S&H) 05/06

அலகு 5 அறிவியல் தமிழ் மற்றும் கணித்தமிழ்

3

அறிவியல் தமிழின் வளர்ச்சி - கணித்தமிழ் வளர்ச்சி - தமிழ் நூல்களை மின்பதிப்பு செய்தல் - தமிழ் மென்பொருட்கள் உருவாக்கம் - தமிழ் இணையக் கல்விக் கழகம் - தமிழ் மின் நூலகம் - இணையத்தில் தமிழ் அகராதிகள் - சொற்குவைத் திட்டம்.

TOTAL: 15 PERIODS

முடிவுகள்:

பாடத்தின் முடிவில், மாணவர்கள் அறிந்து கொள்வன:

- பீங்கான் மற்றும் நெசவு தொழில் நுட்பத்தை புரிந்து கொள்வது
- புதிய வடிவமைப்பு மற்றும் கட்டுமான தொழில் நுட்பத்தை உருவாக்குதல்
- உற்பத்தித் தொழில் நுட்பத்தை அடையாளம் காணுதல்
- விவசாயம் மற்றும் நீர்ப்பாசனம் பற்றிய புரிதல்
- அறிவியல் தமிழ் மற்றும் தமிழ் கணினி பற்றிய அறிவு

உரை மற்றும் குறிப்பு புத்தகங்கள்:

1. தமிழகவரலாறு - மக்களும்பண்பாடும் - கே. கே. பிள்ளை- (வெளியீடு : தமிழ்நாடு பாடநூல் மற்றும் கல்வியியல் பணிகள் கழகம்).
2. கணினித் தமிழ் - முனைவர் இல. சுந்தரம். (விகடன் பிரசுரம்).
3. கீழடி - வைகை நதிக்கரையில் சங்ககால நகர நாகரிகம் (தொல்லியல் துறை வெளியீடு)
4. பொருளை -ஆற்றங்கரை நாகரீகம். (தொல்லியல் துறை வெளியீடு).
5. Social Life of Tamils (Dr.K.K.Pillay) A joint publication of TNTB & ESC and RMRL - (in print)
6. Social Life of the Tamils - The Classical Period (Dr.S.Singaravelu) (Published by:International Institute of Tamil Studies.
7. Historical Heritage of the Tamils (Dr.S.V.Subatamanian, Dr.K.D. Thirunavukkarasu) (Published by: International Institute of Tamil Studies).
8. The Contributions of the Tamils to Indian Culture (Dr.M.Valarmathi) (Published by : International Institute of Tamil Studies.)
9. Keeladi - 'Sangam City Civilization on the banks of the river Vaigai' (Jointly Published by: Department of Archaeology & Tamilnadu Textbook and Educational Services Corporation, Tamilnadu.)
10. Studies in the History of India with Special Reference to Tamilnadu (Dr.K.K.Pillay) (Published by: The Author)
11. Porunai Civilization (Jointly Published by: Department of Archaeology & Tamilnadu Textbook and Educational Services Corporation, Tamilnadu.)
12. Journey of Civilization Indus to Vaigai (R.Balakrishnan) (Published by: RMRL) - Reference Book.


CHAIRMAN
BoS (S&H)

Mapping of COs with POs

COs/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	-	-	-	-	-	-	3	3	-	2	-	3
CO2	-	-	-	-	-	-	3	3	-	2	-	3
CO3	-	-	-	-	-	-	3	3	-	2	-	3
CO4	-	-	-	-	-	-	3	3	-	2	-	3
CO5	-	-	-	-	-	-	3	3	-	2	-	3


CHAIRMAN
BoS (S&H) 30/05

OBJECTIVES:**The Student should be made to:**

- Learn how to develop C programs using conditional and looping statements.
- Study the concept of functions, arrays and strings in C language.
- Learn how to access memory using pointers in C language.
- Represent different kinds of data related to a single entity in C programming.
- Learn about the manipulation of data in permanent storage using C Programs.

LIST OF EXPERIMENTS:

1. Programs using decision making statements.
2. Programs using looping statements.
3. Programs using user defined functions and recursive functions.
4. Programs using one dimensional and two dimensional arrays.
5. Solving problems using string functions.
6. Programs using pointers and dynamic memory allocation.
7. Programs using structures and unions.
8. Programs using pointers to structures and other data types.
9. Programs using text files.
10. Programs using binary files.

TOTAL: 30 PERIODS**OUTCOMES:****On successful completion of this course, the students will be able to,**

- Implement C programs using control statements.
- Write C programs using functions, arrays and strings.
- Write C programs to access data in memory using pointers.
- Develop C programs using structures and other user defined data structures to manipulate heterogeneous data.
- Build C programs to manipulate data stored on permanent storage.

List of Equipment for a Batch of 30 Students:

- Standalone desktops with C compiler or Server with C compiler for 30 Nos.

Mapping of COs with POs :

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


 CHAIRMAN 04/06
 BoS (IT)

OBJECTIVES:

The student should be made to:

- Estimate and quantify the biomolecules.
- Conduct tests to identify Carbohydrates, Proteins and Lipids.
- Prepare Serum and Plasma from blood
- Compare different staining methods
- Identify the microbial structure of the cell

LIST OF EXPERIMENTS:

1. Preparation of solutions: a) percentage solutions b) molar solutions c) normal solutions
2. Standardization of pH meter, preparation of buffers, emulsions.
3. Spectroscopy: Determination of absorption maxima($\lambda_{\max}$) of a given solution
4. General tests for carbohydrates, proteins and lipids.
5. Identification of blood sample Collection and Preparation of serum and plasma from blood.
6. Estimation of Glucose, Creatinine, Urea and Uric acid
7. Urine physical and chemical examination (protein, reducing substances, ketones, bilirubin and blood)
8. Study of Staining Techniques
 - a. Simple staining.
 - b. Gram Staining.
 - c. AFB Staining
9. Study of Histopathological slides of benign and malignant tumors and Haematology slides of anemia and leukemia.
10. Antigen – Antibody reaction immune electrophoresis.

COURSE OUTCOMES

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

- Label the Biochemistry laboratory functional components.
- Demonstrate the basic principles of preparation of buffers
- Exhibit the separation of Serum and Plasma from blood.
- Deduct the importance of various staining methods
- Formulate the slides of anemia and leukemia

Text Books:

1. Textbook of Medical Laboratory Technology, Ramnik Sood, 6th Edition, Jaypee Brothers Medical Publishers, 2009


Chairman 29/05
BoS (BME)

Mapping of COs with POs, PSOs

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

Ashutosh

Chairman 29/05
BoS (BME)

OBJECTIVES:

The students should be made to:

- Discover the Employability and Career Skills
- Transfer them students towards grooming as a professional ethics
- Modify their Employability competencies
- Develop their confidence in order to attend interviews successfully
- Improve their Time and Stress management skills

UNIT I SOFT SKILLS DEVELOPMENT**6**

Introduction to Soft Skills - Hard skills & soft skills - Employability and Career Skills - Grooming as a professional with values - Time Management - General awareness of Current Affairs.

UNIT II DEVELOPING SELF ESTEEM**6**

Self-Introduction-organizing the material - Introducing oneself to the audience - introducing the topic - answering questions - individual presentation practice - presenting the visuals effectively - Five minutes presentation

UNIT III PROFESSIONAL SKILLS**6**

Introduction to Group Discussion - Participating in group discussions - understanding group dynamics - brainstorming the topic - questioning and clarifying - GD strategies - activities to improve GD skills

UNIT IV COMMUNICATION ETIQUETTES**6**

Interview etiquette - dress code - body language - attending job interviews - telephonic interview - one to one interview & panel interview - FAQs related to job interviews

UNIT V MANAGEMENT SKILLS**6**

Recognizing the differences between groups and teams - managing time - managing stress- networking professionally- respecting social protocols - understanding career management- developing a long- term career plan-making career changes.

TOTAL: 30 PERIODS**OUTCOMES:**

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

- Identify to create effective presentations
- Develop confidence to Participate in Group Discussions
- Prepare effectively to face employment interviews
- Improve the appropriate soft skills for working environment
- Facilitate the incorporation of fundamental knowledge to a career


CHAIRMAN 30/05/20
BoS (S&H)

Mapping of COs with POs

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



CHAIRMAN
BoS (S&H)

LIST OF EQUIPMENTS
Requirements for a batch of 30 students

Sl. No.	Description of Equipment/Software	Quantity required (Nos)
1	Computer	30
2	Headphones	30
3	Software: Globarena	30


CHAIRMAN 30/05
BoS (S&H)

OBJECTIVES:

The Student should be made to:

- Understand the vector fields and operations involving vectors in different dimensions.
- Identify the field of engineering in ODE as an effective tool for resolving practical issues.
- Examine the Contour integration using a variety of complex analysis techniques.
- Differentiate knowledge of hypothesis testing to small and large samples that play an important role in real-life problems.
- Analyze differences among group means, while controlling the Type I error rate

UNIT I VECTOR CALCULUS**9+3**

Gradient of a Scalar point function - Divergence, Curl, Solenoidal and irrotational of a vector point function - Directional Derivative - Green's, Gauss divergence and Stoke's theorems (without proof)

UNIT II ORDINARY DIFFERENTIAL EQUATIONS**9+3**

Higher order linear differential equations with constant coefficients ($e^{ax}V, x^nV$) - Method of variation of parameters - Cauchy's linear differential equations - Legendre's linear differential equations

UNIT III ANALYTIC FUNCTIONS**9+3**

Functions of a complex variable - Analytic functions: Necessary condition - Cauchy-Riemann equations and sufficient condition (statement only) Harmonic and orthogonal properties of analytic function - Construction of analytic functions by Milne's method - Conformal mapping ($w = z + k, 1/z, kz$) - Bilinear transformation.

UNIT IV TESTING OF HYPOTHESIS**9+3**

Statistical hypothesis - Large sample tests based on Normal distribution for single mean and difference of means - Small sample tests based on t distributions for testing of means and F distributions for testing of variances - Chi-square - Contingency table (test for Independency) - Goodness of fit.

UNIT V ANALYSIS OF VARIANCE**9+3**

One way classifications - two way classifications - Completely randomized design - Randomized block design - Latin square design

TOTAL: (45+15) PERIODS

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BoS (S&H)

OUTCOMES:

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

- Recognize the gradient, divergence, and curl of a vector point function to apply complex variables
- Solve higher order linear differential equation with constant and variable coefficients.
- Utilize conformal mapping and the analytic function to transfer them from one domain to another
- Analyze the concept of testing of hypothesis for small and large samples in real life problems
- Apply the concepts of analysis of variance to experimental data

TEXT BOOKS:

1. Grewal B.S., "Higher Engineering Mathematics", Khanna Publishers, New Delhi, 44th Edition, 2017.
2. Richard A. Johnson., "Probability and Statistics for Engineers", Pearson Education, 8th Edition, 2019.

REFERENCES:

1. Kreyszig Erwin, "Advanced Engineering Mathematics", John Wiley and Sons, 10th Edition, New Delhi, 2018.
2. O'Neil, P.V. "Advanced Engineering Mathematics", Cengage Learning India Pvt., Ltd, 7th Edition New Delhi, 2013.
4. Devore. J.L., "Probability and Statistics for Engineering and the Sciences, Cengage Learning, New Delhi, 8th Edition, 2021.
5. Spiegel Schiller "Probability and Statistics" Tata McGraw-Hill Publishing Company Limited, New Delhi. 3rd Edition, 2018.

Mapping of COs with POs

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


CHAIRMAN
BoS (S&H)

OBJECTIVES:

The Students should be made to:

- Understand the basic concepts of statics of particles, forces and moments.
- Evaluate the various forces involved in rigid bodies.
- Solve problems related to first and second moment of area of different sections.
- Develop knowledge to analyze the various frictional forces.
- Analyze different types of dynamics and kinematics motion in particles.

UNIT I STATICS OF PARTICLES**9+3**

Introduction - Units and dimensions - Laws of mechanics - Lami's theorem, Parallelogram and triangular law of forces - Vectorial representation of forces and moments - Coplanar forces - Resolution and composition of forces - Free body diagram - Equilibrium of a particle - Forces in space - Equilibrium of a particle in space - Equivalent systems of forces - Principle of transmissibility.

UNIT II STATICS OF RIGID BODIES**9+3**

Moment of a force about a point and about an axis - Vectorial representation of moments and couples - Scalar components of a moment - Varignon's theorem - Types of supports and their reactions - Moments and couples - Equilibrium of rigid bodies in two dimensions.

UNIT III PROPERTIES OF SURFACES AND MASS**9+3**

First moment of area, centroid of sections - Simple, Compound sections and Hollow sections - Second moment of plane areas - Simple, compound sections and Hollow sections - Parallel axis theorem and perpendicular axis theorem - Polar moment of Inertia - Product of Inertia - Introduction to mass moment of inertia of plane area.

UNIT IV KINETICS AND KINEMATICS**9+3**

Frictional force - Laws of coulomb friction - Sliding friction - Static and Kinetic friction - Belt friction - Ladder friction - Wedge friction - Rolling resistance - Displacement, velocity and relative motion.



CHAIRMAN 04/06
BoS(Civil)

UNIT V DYNAMICS OF PARTICLES & KINEMATICS OF

RIGID BODIES

9+3

Rectilinear motion - Curvilinear motion - Newton's law- D'Alembert's Principle - Work energy equation of particles - Impulse and momentum –Impact of elastic bodies -Translation and rotation of rigid Bodies - General plane motion of simple rigid bodies such as cylinder and sphere.

TOTAL: 60 PERIODS

OUTCOMES:

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

- Illustrate vectorial representation of forces and moments.
- Evaluate statics of rigid bodies in equilibrium.
- Analyze various properties of surfaces and masses.
- Determine various frictional forces applying laws of friction.
- Solve dynamic forces, kinematics of rigid bodies and its effects.

TEXT BOOKS:

1. Kottiswaran N, “Engineering Mechanics – Statics & Dynamics”, Sri Balaji Publications 11th Edition, 2017
2. Palanichamy, M.S., Nagan S., “Engineering Mechanics - Statics & Dynamics”, Tata McGraw- Hill, 3rd Edition, 2006.

REFERENCE BOOKS:

1. Parthasarathi NS and Vela Murali, “Engineering Mechanics”, Oxford University Press, 2016.
2. Bhavikatti SS., “Engineering Mechanics”, New Age International Publishers, 9th Edition, 2023.
3. Meriam J.L. and Kraige L.G., “Engineering Mechanics” - Statics-Volume 1, Dynamics-Volume Third Edition, John Wiley & Sons, 9th Edition, 2018.
4. Beer, Jhonston, Cornwell and Sanghi, “Vector mechanics for engineers: statics and dynamics”, Tenth Edition, McGraw Hill Education, 2017.



CHAIRMAN
BoS(Civil)

Mapping of COs With POs and PSOs

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


CHAIRMAN
BoS(Civil) 04/06

OBJECTIVES:

The students should be made to:

- Understand the software skills necessary for creating drafts and models of diverse buildings and intricate joinery details
- Analyze RCC isolated footing and stepped footing
- Evaluate plan, elevation and sectional views of industrial buildings
- Explain drafting plan, elevation and sectional views of residential buildings
- Create sectional views of various staircases

LIST OF EXPERIMENTS

1. Introduction to building bylaws - Symbols and sign conventions - Components of a typical residential building with load bearing walls – Developing plan, section and elevation of buildings.
2. Principles of planning, orientation and complete joinery details (Panelled and Glazed doors and windows) buildings with sloping roof, steel truss.
3. R.C.C. framed structures with stepped wall footing and isolated RCC Column footing.
4. Industrial buildings - North light roof structures.
5. Single storied residential building.
6. Staircase – Doglegged and open well stairs

TOTAL: 45 PERIODS

OUTCOMES:

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

- Develop 2D and 3D views of buildings and joinery details
- Model different views of RCC isolated footing and stepped footing
- Sketch the North light roof structures of industrial buildings.
- Draw plan, section and elevation of residential building.
- Analyze the doglegged and open well stairs.


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BoS (Civil) 04/06

Mapping of COs With POs and PSOs

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


CHAIRMAN
BoS (Civil)

24CE202L

**BUILDING DRAFTING AND MODELING
LABORATORY**

L T P C
0 0 3 1.5

LIST OF EQUIPMENTS

Requirements for a batch of 30 students

S. No.	Description of Equipment/Software	Quantity required
1	Computer System with necessary accessories	30 Nos
2	Licensed Software (AUTOCAD) for drafting	30 Licenses
3	Printer	01 No


CHAIRMAN
BoS (Civil) 04/06

OBJECTIVES:**The Student should be made to:**

- Understand the vector fields and operations involving vectors in different dimensions
- Identify the field of engineering in ODE as an effective tool for resolving practical issues
- Examine the Contour integration using a variety of complex analysis techniques
- Analyze the methodologies involved in framing real-world problems related to basic principles of complex functions
- Test the Laplace transforms can be used for effectively solving problems that occur in various branches of engineering

UNIT I VECTOR CALCULUS**9+3**

Gradient of a Scalar point function - Divergence, Curl, Solenoidal and irrotational of a vector point function - Directional Derivative - Green's, Gauss divergence and Stoke's theorems (without proof).

UNIT II ORDINARY DIFFERENTIAL EQUATIONS**9+3**

Higher order linear differential equations with constant coefficients ($e^{ax}V, x^nV$) - Method of variation of parameters - Cauchy's linear differential equations - Legendre's linear differential equations.

UNIT III ANALYTIC FUNCTIONS**9+3**

Functions of a complex variable - Analytic functions: Necessary condition - Cauchy-Riemann equations and sufficient condition (excluding proofs) Harmonic and orthogonal properties of analytic function - Construction of analytic functions by Milne's method - Conformal mapping ($w = z + k, 1/z, kz$) - Bilinear transformation.

UNIT IV COMPLEX INTEGRATION**9+3**

Taylor's and Laurent's series expansions - Singular points - Residues - Cauchy's residue theorem (excluding proof) - Evaluation of real definite integrals as contour integrals around unit circle and semi-circle (excluding poles on the real axis).

UNIT V LAPLACE TRANSFORM**9+3**

Transforms of elementary functions - Basic properties - Shifting theorems - Initial and final value theorems - Transform of periodic functions - Inverse transforms + Convolution theorem - Solution of linear second order ordinary differential equations with constant coefficients.

TOTAL: (45+15) PERIODS
CHAIRMAN 30/05
BoS (S&H)

OUTCOMES:

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

- Recognize the gradient, divergence, and curl of a vector point function to apply complex variables
- Solve higher order linear differential equation with constant and variable coefficients.
- Utilize conformal mapping and the analytic function to transfer them from one domain to another
- Analyze the knowledge of complex integration and solve various Engineering problems
- Evaluate the Laplace transform as an inverse transform of simple functions and its properties

TEXT BOOKS:

1. Grewal B.S., "Higher Engineering Mathematics", Khanna Publishers, New Delhi, 44th Edition, 2017.
2. Kreyszig Erwin, "Advanced Engineering Mathematics", John Wiley and Sons, 10th Edition, New Delhi, 2018.

REFERENCES:

1. Bali.N.P, and Manish Goyal " A Text Book of Engineering Mathematics", laxmi Publications(P) Ltd., 9th Edition, 2014.
2. Ramana B V "Higher Engineering Mathematics", New Delhi Tata McGraw- Hill Education India Private Limited., 2021.
3. Srimanta Pal and Subodh C Bhunia "Engineering Mathematics", Oxford. 2015.
4. Glyn James, "Advanced Modern Engineering Mathematics", 3rd Edition, Pearson Education, 2012.

Mapping of COs with POs

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


CHAIRMAN
BoS (S&H)

OBJECTIVES:

The Student should be made to:

- Acquire knowledge about the fundamentals of Python language
- Learn to solve problems using Python conditionals , loops and use functions to solve problems
- Apply Python data structures - lists, tuples and dictionaries to represent complex data
- Gain the knowledge in GUI Programming
- Build application that handles files and exceptions

UNIT I INTRODUCTION TO PYTHON 9

Programming Languages - Python History - Getting Started with Python - Writing a Simple program - Reading input from console - Identifiers - Variables - Simultaneous Assignments - Constants - Data Types and Operators - Operator Precedence - Evaluating expressions - Augmented Assignment operators - Type conversion - Common Python Functions - Strings and Characters - Formatting Numbers and Strings.

UNIT II CONTROL STATEMENTS AND FUNCTIONS 9

Selections: if - Two way if-else - Nested if and multi-way if-elif-else Statements - Loops: while - for - Nested Loops - break and continue - Function: Definition - Calling and Returning values - Positional and keyword arguments - Passing arguments by reference values - Scope of variables - Default Arguments - Recursion.

UNIT III DATA STRUCTURES IN PYTHON. 9

List Basics - List Methods - Passing List to Functions - Returning a List from function - Tuples - Sets - Comparing Sets and Lists - Dictionaries.

UNIT IV GUI PROGRAMMING USING PYTHON 9

Introduction - Getting started with Tkinter - Processing Events - The widget Classes - Canvas - The Geometry Managers. Combo Boxes - Menus - Pop-up menus - Mouse, key, Events and Bindings. Case Study: Bouncing Balls - Scrollbars - Standard Dialog Boxes.

UNIT V FILES AND EXCEPTION HANDLING 9

Introduction - Text Input and Output - File Dialogs - Retrieving Data from the Web - Exception Handling - Raising Exceptions - Processing Exception using Exception Objects.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Understand the basics of python programming languages
- Develop basic Python programs that solve issues by utilizing loops and conditionals
- Represent compound data using Python lists, tuples and dictionaries etc
- Develop solutions using GUI Programming in Python
- Develop programs by using files and exception handling for the given scenario


 CHAIRMAN
 BoS (AD)

TEXT BOOKS:

1. Y.Daniel Liang, "Introduction to Programming and Data Structures", 3rd Edition Pearson Education, 2023.

REFERENCES:

1. Timothy A. Budd, "Exploring Python", McGraw Hill Education (India) Private Ltd, 2017.
2. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2nd Edition, Updated for Python 3, Shroff / O'Reilly Publishers, 2016. (<http://greenteapress.com/wp/think-python/>)
3. Robert Sedgewick, Kevin Wayne, Robert Dondero, "Introduction to Programming in Python: An Inter-disciplinary Approach", Pearson India Education Services Pvt. Ltd., 2016.
4. Mark Lutz, "Learning python", O'Reilly Publication, 5th Edition, 2013.
5. Guido Van Rossum and Fred L. Drake Jr, "An Introduction to Python", Revised and Updated for Python 3.2, Network Theory Ltd., 2011.

Mapping of COs with POs

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



CHAIRMAN
BoS (AD)

OBJECTIVES:

The Student should be made to:

- Use control statements and operators in Python programs
- Create python programs using functions and strings
- Represent compound data using Python lists, dictionary and set
- Build python GUI Application with Tkinter
- Design python applications to handles files and exceptions

LIST OF EXPERIMENTS:

1. Python Program to constructs conditional statements.
2. Python Program to implement operators and built in functions.
3. Python Program to performing string operations.
4. Python Program to find the factorial of a number by using functions.
5. Python Program to manipulating the elements on list.
6. Python Program to develop a fundamental data structures in programming using dictionary and set.
7. Python program to Controlling Layout with Geometry Managers.
8. Python Program to display the calendar of the year with GUI using Tkinter.
9. Python Program to perform count the number of words in a file.
10. Python Program to implement exception handling.

TOTAL: 30 PERIODS

OUTCOMES:

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

- Solve problems using control statements and operators in python
- Construct python program using strings and functions
- Use Python lists, dictionary and set to represent compound data
- Apply Tkinter to develop GUI Application
- Develop python programs using file and exception handling

List of Equipment for a Batch of 30 Students:

Standalone desktops with Python 3 interpreter for Windows/Linux 30 Nos.

Mapping of COs with POs

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


 CHAIRMAN
 BoS (AD) 29/05

OBJECTIVES:

The Student should be made to:

- Learn the basic laws and techniques to analyze the basic electric circuits.
- Impart knowledge on solving circuit using network theorems and two port networks
- Acquire the knowledge to analyze the RLC circuits.
- Understand the construction and characteristics of Semiconductor diodes and devices.
- Familiarize the operation and characteristics of transistor like BJT and FET.

UNIT I BASIC CIRCUIT ANALYSIS**9**

Electrical Quantities – Basic Circuit Elements – Independent Voltage and Current Sources- Ohm's Law- Kirchhoff's Laws - Voltage and Current Division, Source Transformation, Star Delta Conversion- Mesh analysis and Nodal analysis for DC Circuits - Fundamentals of AC Circuits.

UNIT II NETWORK THEOREMS AND TWO PORT NETWORKS**9**

Network Theorems for DC Circuits: Thevenin's Theorem - Norton's Theorem- Superposition Theorem - Maximum Power Transfer Theorem - Two Port Networks: Z Parameters - Y Parameters - h Parameters - Relationships between Network Parameters(Z, Y, h).

UNIT III TRANSIENT RESPONSE ANALYSIS**9**

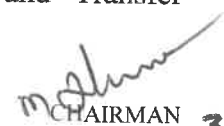
Introduction to Laplace transform for step, impulse and periodic functions-Transient Response of RL, RC and RLC Circuits using Laplace transform for DC input and AC sinusoidal input.

UNIT IV SEMICONDUCTOR DIODES AND DEVICES**9**

Classification of Semiconductors - PN Junction Diode – Structure, Operation and V-I characteristics - Diode Current equation -Transition and Diffusion Capacitances - Zener Diode - LED - Photodiode - Solar Cell - UJT - SCR.

UNIT V TRANSISTORS**9**

Bipolar Junction Transistor: Construction of BJT-Operation of NPN and PNP transistor- Input and Output characteristics of CB, CE, CC configuration - Field Effect Transistor: JFET- P Channel JFET and N Channel JFET - Construction, Operation, Drain and Transfer


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BOS/ECE 31/05

characteristics - MOSFET - Depletion MOSFET and Enhancement MOSFET - Construction, Operation and characteristics.

TOTAL: 45 PERIODS

OUTCOMES:

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

- Explain the laws and techniques associated with electric circuits.
- Examine the electric circuits using network theorems and Two port networks.
- Analyze the transient analysis of RLC circuits using Laplace transform.
- Apply the working principle of different semiconductor diodes and devices.
- Compare the different types of transistors and their characteristics.

TEXT BOOKS:

1. S. Salivahanan , “Circuit Theory Analysis and Synthesis”, Pearson Education, 1st Edition, 2021.
2. S. Salivahanan, “Electronic Devices”, Tata McGraw Hill, 1st Reprint Edition, 2014.

REFERENCES:

1. Sudhakar A and Shyam Mohan SP, “Circuits and Network Analysis and Synthesis”, 5th Edition, McGraw Hill, 2015.
2. Chakrabarti A, “Circuit Theory (Analysis and synthesis), Revised Edition, Dhanpath Rai & Sons, New Delhi, 2017.
3. Balbir Kumar, Shail. B. Jain, “Electronic devices and circuits”, 2nd Edition PHI learning private limited, 2014.
4. David A. Bell , “Electronic devices and circuits”, 5th Edition, Oxford University higher education, 2008.
5. Sedra and Smith, “Microelectronic circuits”, 7th Edition, Oxford University Press, 2017.
6. Thomas L. Floyd, “Electronic devices” Conventional current version, 10th Edition, Pearson prentice hall, 2017.


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BOS/ECE

Mapping of COs with POs and PSOs

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


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 BOS/ECE

OBJECTIVES:

The Student should be made to:

- Learn to verify the voltage and current in the circuit using Kirchhoff's laws.
- Apply the circuit analysis concepts using network theorems.
- Understand the working of RLC circuits.
- Acquire the knowledge about characteristics of diodes and transistors.
- Develop a project using electronic components.

LIST OF EXPERIMENTS:

1. Verification of KVL and KCL
2. Verification of Thevenin's and Norton's Theorem
3. Verification of Super Position Theorem
4. Verification of Maximum Power Transfer Theorem
5. Simulation and Verification of Reciprocity Theorem
6. Determination of Resonance Frequency of Series and Parallel RLC Circuits
7. Characteristics of PN Junction Diode and Zener Diode
8. Input-Output Characteristics of CE Configuration
9. Simulation of LED Characteristics
10. Characteristics of FET
11. Characteristics of SCR
12. Mini Project

TOTAL: 45 PERIODS

OUTCOMES:

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

- Apply the knowledge to verify the Kirchhoff's laws.
- Analyze and verify various types of network theorems.
- Investigate the frequency response using resonance circuits.
- Implement the knowledge about characteristics of semiconductor diodes and transistors.
- Demonstrate the project successfully using electronic components.


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BOS/ECE 31/05

Mapping of COs with POs and PSOs

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


 CHAIRMAN
 BOS/ECE 31/05

Lab Requirement for a Batch of 30 Students

1	BC 107, BC 148 , BFW10	25 Each
2	1N4007, SCR, Zener diodes	25 Each
3	Resistors, Capacitors, Inductors	Adequate Quantities
4	Digital Multimeter	10 Nos
5	Bread Boards	15 Nos
6	Voltmeter(0-15)V, (0-10)V	10 Nos
7	Ammeter (0-20)mA, (0-250) μ A	10 Nos
8	CRO (30MHz)	10 Nos.
9	Function Generators (3 MHz)	10 Nos
10	Dual Regulated Power Supplies (0 – 30V)	15 Nos
11	Standalone desktops PCs with Multisim Software(Equivalent to any open source Software)	15 Nos


CHAIRMAN
BOS/ECE 31/05

UNIT V POLY PHASE CIRCUITS

9+3

Analysis of three phase 3-wire and 4-wire circuits with star and delta connected loads, balanced and unbalanced – Phasor diagram of voltages and currents – Power and power factor measurement in the three phase circuits.

TOTAL: 45+15 PERIODS

OUTCOMES:

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

- Understand the fundamentals of electric circuit
- Apply various theorems for analyzing AC and DC circuits
- Acquire knowledge about resonant, tuned, and coupled circuits
- Analyze the transient behavior of electrical circuits
- Summarize the operation of polyphase circuits and power measurements

TEXT BOOK:

1. Sudhakar A and Shyam Mohan S P, “Circuits and Networks: Analysis and Synthesis”, 5th Edition, McGraw Hill, 2017.

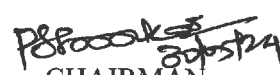
REFERENCES:

1. Chakrabarti A, “Circuit Theory (Analysis and Synthesis)”, Revised Edition, Dhanpath Rai and Co., 2023.
2. Salivahanan S, “Circuit Theory Analysis and Synthesis”, 1st Edition, Pearson Education, 2021.
3. Charles K Alexander, Matthew N O Sadiku, “Fundamentals of Electric Circuits”, McGraw-Hill Education, 6th Edition, 2019.
4. William H Hayt, Jack Kemmerly, Steven Durbin M, “Engineering Circuit Analysis”, McGraw Hill Publications, 8th Edition, 2013.
5. Robins and Miller, “Circuit Analysis: Theory and Practice”, Delmar Publishers, 5th Edition, 2012.

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CHAIRMAN
BoS (EEE)
27/5/24

Mapping of COs with POs, PSOs:

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


 CHAIRMAN
 BoS (EEE)

COURSE OBJECTIVES:

The students should be able to:

- Simulate the electric circuit problems
- Solve the electric circuits using various theorems
- Impart knowledge on transient response of electric circuits
- Understand the concept of resonance circuits
- Learn about various three-phase connections

LIST OF EXPERIMENTS:

1. Simulation and experimental verification of electrical circuit problems using Kirchhoff's voltage law.
2. Simulation and experimental verification of electrical circuit problems using Kirchhoff's current law.
3. Simulation and experimental verification of electrical circuit problems using Mesh analysis.
4. Simulation and experimental verification of electrical circuit problems using Nodal analysis.
5. Simulation and experimental verification of electrical circuit problems using Thevenin's theorem.
6. Simulation and experimental verification of electrical circuit problems using Norton's theorem.
7. Simulation and experimental verification of electrical circuit problems using Superposition theorem.
8. Simulation and experimental verification of Maximum Power transfer theorem.
9. Simulation and experimental validation of RC transients.
10. Simulation and experimental validation of RLC transients.
11. Design and implementation of series resonance circuits.
12. Simulation of three phase balanced star and delta circuits.

TOTAL: 45 PERIODS


CHAIRMAN
BoS (EEE)

COURSE OUTCOMES:

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

- Understand the fundamental circuit law for DC circuits
- Analyze the circuit problems by using various theorems
- Acquire knowledge of the transient behavior of electric circuits
- Design the resonance circuits
- Interpret various three-phase connections

Mapping of COs with POs, PSOs:

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

PSP
CHAIRMAN
BoS (EEE)
5/05/24

LIST OF EQUIPMENTS FOR A BATCH OF 30 STUDENTS

S. No.	Description of Equipment	Quantity Required (Nos)
1.	Personal computer with e-Sim/Scilab/Pspice / MATLAB /other Equivalent software Package	10
2.	Printer	1
3.	Regulated power supply (0 - 30)V	10
4.	Function Generator (3 MHz)	10
5.	Cathode Ray Oscilloscope (30 MHz)	10
6.	Digital Storage Oscilloscope (50 MHz)	1
7.	DC – Voltmeter (0 – 30)V	10
8.	DC – Ammeter (0 – 100)mA	15
9.	Multimeter	10
10.	Decade resistance, inductance and capacitance box	Each 6
11.	Bread boards	10
12.	Resistors and Capacitors of various ranges	As required
13.	Connecting Wires	As required


CHAIRMAN 31/05
BoS (EEE)

OBJECTIVES:

The student should be made to:

- Acquire knowledge in engineering drawings, Standard practices with fits and tolerances
- Study the terminologies in two dimensional drawings
- Learn the importance of projection symbols and usage of title blocks
- Gain knowledge in creation of various curves and solids
- Prepare the standard layout for various machine components with Bill of Materials

DRAWING STANDARDS**3**

Code of practice for Engineering Drawing, computational dimensioning & tolerancing, paper sizes & fits, Preparation of production drawings and reading of part drawings.

2-D DRAFTING**3**

Basic Terminologies-Drawing, Editing, Dimensioning, Line, Curves and Splines, Layering, Hatching, Mirroring, Text and types, Block, Array, Coordinate systems (absolute, relative, polar, etc.), types of sectioning

CAD PRACTICE**39**

1. Drawing of a Title Block with necessary text and projection symbol.
2. Drawing of curves like parabola, ellipse, spiral, involute using B-spline or cubic spline.
3. Drawing of front view and top view of simple solids like prism, pyramid, cylinder, cone, and dimensioning.
4. Creation of the Sectional view of assembly for the following:
 - Joins: Universal, Knuckle, Gib & Cotter
 - Bearing: Bushed Bearing
 - Coupling: Muff, Flange
 - Engine parts: Piston, Connecting Rod
 - Machine Components: Machine Vice, Plummer Block.

TOTAL: 45 PERIODS


CHAIRMAN 31/05
(BoS / MECH)

OUTCOMES:

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

- Infer engineering knowledge in creation of drawing with Standards
- Select the basic tooling commands of two dimensional drawings
- Create the title block with text and projection symbol
- Construct the various curves and solids in two dimensional drafting by using modern tools
- Develop the sectional views of various machine components with engineering knowledge

REFERENCES :

1. Bhatt N D and Panchal V M., "Machine Drawing", Charator Publishers, 51st Edition, 2022.
2. Sidheswar N, Kannaiah P and Sastry .V.V.S., "Machine Drawing", McGraw Hill Education, 2017.

Mapping of COs with POs and PSOs

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


CHAIRMAN
(BoS / MECH)

24ME201L COMPUTER AIDED DRAFTING LABORATORY

LIST OF EQUIPMENT FOR A BATCH OF 30 STUDENTS:

S. No	Description of Equipment	Quantity Required
1	Computer System with necessary accessories	30 Nos.
2	Licensed software (AUTOCAD) for Drafting	30 License
3	Printer	1 No.


CHAIRMAN
(BoS / MECH) 31/05

OBJECTIVES:

The students should be made to:

- Introduce the basic principles of agriculture and crop production
- Familiarize in crop selection and establishment procedures
- Impart basic knowledge on nutrient, pest and disease management for better crop production
- Learn the cultivation practices of various field crops
- Understand the cultivation practices of horticultural crops

UNIT I AGRICULTURE AND CROP PRODUCTION 9

Introduction to agriculture – History and Scope of agriculture in India – Agricultural sectors and Allied sectors – Field crop production and Horticulture – Principles of agronomy – Classification of crops – Cropping seasons – Factors affecting crop growth and production: genetic (internal) and environmental (external) factors – Crop management through environmental modification and adaptation of crops to the existing environment through crop cultural practices.

UNIT II CROP SELECTION AND ESTABLISHMENT 9

Regional and seasonal selection of crops – Systems of crop production – Competition among crop plants – Spacing and arrangement of crop plants – Field preparation for crops including systems of tillage – Seed: seed selection, seed treatment, sowing and planting – Nursery production – Intercultural operations.

UNIT III CROP MANAGEMENT 9

Crop water management – Crop Nutrition Management – sources of nutrients, generalized recommendation, methods and timing of applications – Crop protection: Weed, Pest and Disease management – Integrated methods of managing water, nutrients and plant protection – Harvesting: Types and methods of harvesting.

UNIT IV PRODUCTION PRACTICES OF FIELD CROPS 9

Package and practices for important field crops – Cereals: Paddy, Maize – Pulses / Grain legumes: Red gram, Black gram and Green gram – Oil seeds: Groundnut and Gingelly – Sugar crops: Sugarcane – Fibre crops: Cotton – Special purpose crops such as those grown for green manure and fodder.

UNIT V PRODUCTION PRACTICES OF HORTICULTURAL CROPS 9

Package and practices horticultural crops in Tamilnadu such as – Vegetable crops: Tomato, Chilli, Bhendi and Brinjal – Fruit crops: Mango and Banana – Flower crops: Jasmine and Chrysanthemum – Green house cultivation of horticultural crops.

TOTAL: 45 PERIODS


CHAIRMAN 30/05
BoS (AGE)

OUTCOMES:

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

- Understand basic principles for successful crop production
- Possess the knowledge on field preparation practices
- Assess the different management practices to control pest and diseases
- Analyze the field crop production practices
- Explain the new technique to cultivation of horticultural crops

TEXT BOOKS:

1. Rajendra Prasad, "Textbook of Field Crops Production, Volume 1 and 2", Indian Council of Agricultural Research, New Delhi, 2017.
2. Reddy S R, "Principles of Agronomy", Kalyani Publishers, New Delhi, 2018.

REFERENCES:

1. Crop Production Guide, Tamilnadu Agricultural University Publication, Coimbatore, 2020.
2. Kumar N, "Introduction to Spices, Plantation crops, Medicinal and Aromatic plants", Oxford and IBH Publishing Co. Pvt. Ltd., 2nd Edition, 2018.
3. Kumar N, "Introduction to Horticulture", Medtech Publications, 8th Edition, 2018.

Mapping of COs with POs and PSOs

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


CHAIRMAN 30/08
BoS (AGE)

OBJECTIVES:

The students should be made to:

- Acquire knowledge to identify and field preparation for field crops and horticultural crops
- Illustrate the seed concept and seed rate requirement
- Impart basic knowledge on nutrient, water, pest and disease management
- Learn the basic principles of crop monitoring
- Understand the science of harvesting and post harvesting

LIST OF EXPERIMENTS:

1. Identification of field crops and horticultural crops
2. Studies of field preparation for field crops
3. Studies of Seed selection, sowing and treatment procedures
4. Estimation of seed rate and germination of seeds
5. Studies of Nutrient management
6. Practicing Water management and Irrigation scheduling
7. Practicing different weed management practices
8. Study the integrated pest and diseases management practices
9. Practicing the biometric observation of crops
10. Study the Harvesting and Post harvesting methods

OUTCOMES:

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

- Identify the field crops and horticultural crops and their field preparation
- Understand the basic knowledge on seed selection and estimation of seed rate
- Illustrate the different management practices in crops
- Analyze crop monitoring data for successful crop production
- Explain the new technique and tools to harvest the crops

Mapping of COs with POs and PSOs

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

V. G. P. 30/05
CHAIRMAN
BoS (AGE)

24AG202L

CROP HUSBANDRY FIELD LABORATORY

Requirements for a batch of 30 students

- | | | |
|----|---|----|
| 1. | A wet land / garden land for a minimum of 5 cents area for each / group of students | 01 |
| 2. | An open / borewell as water source to support cultivation | 01 |

V. Gopinath
CHAIRMAN 31/05
BoS (AGE)