| Course Title: | **Computer Aided Engineering Drawing  (Common to All)** | | | |
|---|---|---|---|---|
| Course Code | **BCEDK103/203** | | CIE Marks | 50 |
| Teaching Hour/Week (L: T:P:S) | 2:0:2:0 | | SEE Marks | 50 |
| Total Hours of Teaching - Learning | 40 | | Total Marks | 100 |
| Credits | 03 | | Exam Hours | 03 |

**Course Learning Objectives:**

        **CLO1:** To understand the basic principles and conventions of engineering drawing

        **CLO2:** To use drawing as a communication mode **CLO3:** To

        generate pictorial views using CAD software **CLO4:** To

        understand the development of surfaces **CLO5:** To visualize

        engineering components

**Teaching-Learning (General Instructions):**

- Students should be made aware of powerful engineering communication tool –Drawing.
- Simple Case studies can be suitably selected by the teacher for hands on practice to induce the feel of fruitfulness of learning.
- Appropriate Models, Power Point presentation, Charts, Videos, shall be used to enhance visualization before hands on practice.
- For application problems use very generally available actual objects. (Example: For rectangular prism / object; matchbox, carton boxes, book, etc can be used. Similarly for other shapes)
- Use any CAD software for generating orthographic and pictorial views.
- Make use of sketch-book with graph sheets for manual / preparatory sketching

## Module-1

**Introduction:** *for CIE only*

Significance of Engineering drawing, BIS Conventions of Engineering Drawing, Free hand sketching of engineering drawing, Scales. Introduction to Computer Aided Drafting software, Co-ordinate system and reference planes HP, VP, RPP & LPP of 2D/3D environment. Selection of drawing sheet size and scale. Commands and creation of Lines, coordinate points, axes, polylines, square, rectangle, polygons, splines, circles, ellipse, text, move, copy, off-set, mirror, rotate, trim, extend, break, chamfer, fillet and curves.

**Orthographic Projections of Points, Lines and Planes:**

Introduction to Orthographic projections: Orthographic projections of points in 1st and 3rd quadrants. Orthographic projections of lines (Placed in First quadrant only).

Orthographic projections of planes viz triangle, square, rectangle, pentagon, hexagon, and circular laminae (Placed in First quadrant only using change of position method).

*Application on projections of Lines & Planes (For CIE only)*

## Module-2

**Orthographic Projection of Solids:**

Orthographic projection of right regular solids (**Solids Resting on HP only**): Prisms & Pyramids (triangle, square, rectangle, pentagon, hexagon), Cylinders, Cones, Cubes &Tetrahedron.

*Projections of Frustum of cone and pyramids (For practice only, not for CIE and SEE).*

| Module-3 |
|---|
| **Isometric Projections:** <br> Isometric scale, Isometric projection of hexahedron (cube), right regular prisms, pyramids, cylinders, cones and spheres. Isometric projection of combination of two simple solids. <br> **Conversion of simple isometric drawings into orthographic views**. <br> Problems on applications of Isometric projections of simple objects / engineering components. <br> *Introduction to drawing views using 3D environment (For CIE only).* |
| Module-4 |
| **Development of Lateral Surfaces of Solids:** <br> Development of lateral surfaces of right regular prisms, cylinders, pyramids and cones resting with base on HP only. <br> Development of lateral surfaces of their frustums and truncations. <br> Problems on applications of development of lateral surfaces like funnels and trays. <br> *Problems on applications of development of lateral surfaces of transition pieces connecting circular duct and rectangular duct (For CIE Only)* |
| Module-5 |
| **Multidisciplinary Applications & Practice** *(For CIE Only):* <br> **Free hand Sketching:** True free hand, Guided Free hand, Roads, Buildings, Utensils, Hand tools & Furniture's etc <br> **Drawing Simple Mechanisms;** Bicycles, Tricycles, Gear trains, Ratchets, two-wheeler cart &Four-wheeler carts to dimensions etc <br> **Electric Wiring and lighting diagrams;** Like, Automatic fire alarm, Call bell system, UPS system, Basic power distribution system using suitable software <br> **Basic Building Drawing;** Like, Architectural floor plan, basic foundation drawing, steel structures- Frames, bridges, trusses using Auto CAD or suitable software, <br> **Electronics Engineering Drawings**- Like, Simple Electronics Circuit Drawings, practice on layers concept. <br> **Graphs & Charts**: Like, Column chart, Pie chart, Line charts, Gantt charts, etc. using Microsoft Excel or any suitable software. |
| **Course Outcomes** <br> At the end of the course the student will be able to: <br>     **CO 1.** Draw and communicate the objects with definite shape and dimensions <br>     **CO 2.** Recognize and Draw the shape and size of objects through different views <br>     **CO 3.** Develop the lateral surfaces of the object <br>     **CO 4.** Create Drawing views using CAD software. <br>     **CO 5.** Identify the interdisciplinary engineering components or systems through its graphical representation. |

Assessment Details (both CIE and SEE):

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks) and that for SEE minimum passing marks is 35% of the maximum marks (18 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation (CIE)**

- CIE shall be evaluated for max. marks of 100 and later the same shall be scaled down to 50 marks as detailed below:
- CIE component should comprise of Continuous evaluation of Drawing work of students as and when the Modules are covered based on below detailed weightage.

| Module | Max. Marks Weightage | Evaluation Weightage in marks | |
| --- | --- | --- | --- |
| | | **Computer display and print out (a)** | **Sketching (b)** |
| Module 1 | 15 | 10 | 05 |
| Module 2 | 20 | 15 | 05 |
| Module 3 | 20 | 20 | 00 |
| Module 4 | 20 | 20 | 00 |
| Module 5 | 25 | 15 | 10 |
| **Total** | **100** | **80** | **20** |
| **Consideration of Class work** | **Total of [(a) + (b)] = 100 Scaled down to 30 Marks** | | |

- At least one **Test** covering all the modules is to be conducted for 100 marks and evaluation to be based SEE pattern, and the same is to be scaled down to **20Mark**s.

- The final CIE = Class work marks + Test marks

**Semester End Examination (SEE)**

- SEE shall be conducted and evaluated for maximum marks of 100. Marks obtained shall be accounted for SEE final marks, reducing it by50%
- Question paper shall be set jointly by both Internal and External Examiner and made available for each batch as per schedule. *Questions are to be set preferably from Textbooks*.
- **Related to Module-1**: One full question can be set either from "*points & lines*" or "*planes*".
- Evaluation shall be carried jointly by both the examiners.
- Scheme of Evaluation: *To be defined by the examiners jointly and the same shall be submitted to the university along with question paper.*
- One full question shall be set from each of the Module from Modules 1,2,3 and 4 as per the below tabled weightage details. *However, the student may be awarded full marks, if he/she completes a solution on computer display without sketch.*

| Module | Max. Marks Weightage | Evaluation Weightage in marks | |
|---|---|---|---|
| | | Computer display and print out (a) | Preparatory sketching (b) |
| Module 1 | 20 | 15 | 05 |
| Module 2 | 30 | 25 | 05 |
| Module 3 | 25 | 25 | 00 |
| Module 4 | 25 | 25 | 00 |
| **Total** | **100** | **90** | **10** |
| **Consideration of SEE Marks** | **Total of (a) + (b) ÷ 2 = Final SEE marks** | | |

**Suggested Learning Resources:**

**Textbooks**
- *S.N. Lal, & T Madhusudhan*:, Engineering Visualization, 1st Edition, Cengage, Publication
- *Parthasarathy N. S., Vela Murali*, Engineering Drawing, Oxford University Press,2015.

**Reference Books**
- *Bhattacharya S. K.*, Electrical Engineering Drawing, New Age International publishers, second edition 1998, reprint2005.
- *Chris Schroder*, Printed Circuit Board Design using AutoCAD, Newnes,1997.
- *K S Sai Ram* Design of Steel Structures, , Third Edition by Pearson
- *Nainan p kurian* Design of foundation systems, Narosa publications
- *A S Pabla*, Electrical power distribution, 6th edition, Tata McGraw-Hill
- *Bhatt, N.D.*, *Engineering Drawing: Plane and Solid Geometry*, 53rd edition, Charotar Publishing House Pvt. Limited, 2019.
- *K. R. Gopalakrishna, & Sudhir Gopalakrishna*: Textbook of Computer Aided Engineering Drawing, 39thEdition, Subash Stores, Bangalore,2017

**COs and POs Mapping (**CO-PO mappings are only **Indicative)**

| COs | POs | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| CO1 | 3 | 2 | | | 3 | 1 | | 1 | 1 | 3 | | 2 |
| CO2 | 3 | 2 | | | 3 | 1 | | 1 | 1 | 3 | | 2 |
| CO3 | 3 | 2 | | | 3 | 1 | | 1 | 1 | 3 | | 2 |
| CO4 | 3 | 3 | | | 3 | 1 | 1 | | 1 | 3 | | 1 |
| CO5 | 3 | 2 | | | 3 | | | | 1 | 3 | | 2 |

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

# DON BOSCO INSTITUTE OF TECHNOLOGY

**An Autonomous Institution under VTU - Belagavi,**
**Approved by AICTE – New Delhi, Recognized by Govt. of Karnataka**
Kumbalagodu, Mysore Road, Bengaluru – 560074

| Course Title: | **Applied Chemistry for Computer Science &Engineering stream** | | |
|---|---|---|---|
| Course Code: | **BCHES102/202** | CIE Marks | **50** |
| Course Type(Theory/Practical/Integrated) | **Integrated** | SEE Marks | **50** |
| | | Total Marks | **100** |
| Teaching Hours/Week(L:T:P:S) | **2:2:2:0** | Exam Hours | **03** |
| Total Hours of Pedagogy | **40 hours Theory + 10 to 12 Lab slots** | Credits | **04** |

### Course objectives

- To enable students to acquire knowledge on principles of chemistry for engineering applications.

- To develop an intuitive understanding of chemistry by emphasizing the related branches of engineering.

- To provide students with a solid foundation in analytical reasoning required to solve societal problems.

### Teaching-Learning Process

These are sample strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching–Learning more effective.

- Tutorial & remedial classes for needy students (not regular T/R)

- Conducting Makeup classes/Bridge courses for needy students

- Demonstration of concepts either by building models or by industry visit

- Experiments in laboratories shall be executed in blended mode (conventional or non–conventional methods)

- Use of ICT–Online videos, online courses

- Use of online platforms for assignments/Notes/Quizzes (Ex: Google class room)

### MODULE 1: Sensors and Energy Systems(8hr)

**Sensors**: Introduction, working, principle and applications of Conductometric sensors, Electrochemical sensors and Optical sensors (colorimetry). Sensors for the measurement of dissolved oxygen (DO). Electrochemical sensors for the pharmaceuticals. Electrochemical gas sensors for SOx and NOx. Disposable sensors in the detection of biomolecules and pesticides.

**Energy Systems**: Introduction to batteries, construction, working and applications of Lithium ion and Sodium ion batteries. Quantum Dot Sensitized Solar Cells (QDSSC's)-Principle, Properties and Applications.

**Self-learning:** Types of electrochemical sensor, Gas sensor -$O_2$ sensor, Biosensor – Glucose sensors.

| MODULE 2 : Materials for Memory and Display Systems (8hr) |
|---|

**Memory Devices:** Introduction, Basic concepts of electronic memory, History of Organic / polymer electronic memory devices, Classification of electronic memory devices, Types of organic memory devices (organic molecules, polymeric materials, organic- inorganic hybrid materials).

**Display Systems**: Photo active and electroactive materials, Nanomaterials and organic materials used in optoelectronic devices. Liquid crystals (LC's)-Introduction, classification, properties and application in Liquid Crystal Displays (LCD's). Properties and application of Organic Light Emitting Diodes (OLED's) and Quantum Light Emitting Diodes (QLED's), Light emitting electrochemical cells.

**Self-learning:** Properties and functions of Silicon (Si), Germanium(Ge), Copper(Cu), Aluminum (Al) and Brominated flame retardants in computers.

| MODULE 3: Corrosion and Electrode System (8hr) |
|---|

**Corrosion Chemistry:** Introduction, electro chemical theory of corrosion, types of corrosion- differential metal and differential aeration. Corrosion control-galvanization, anodization and sacrificial anode method. Corrosion Penetration Rate (CPR) – Introduction and numerical problem.

**Electrode System**: Introduction, types of electrodes. Ion selective electrode- definition, construction, working and applications of glass electrode. Determination of pH using glass electrode. Reference electrode -Introduction, calomel electrode–construction, working and applications of calomel electrode. Concentration cell–Definition, construction and Numerical problems.

**Analytical Techniques**: Introduction, principle and instrumentation of Conductometry; its application in the estimation of weak acid. Potentiometry; its application in the estimation of iron.

**Self-learning :**IR and UV-Visible spectroscopy.

| MODULE 4: Polymers and Green Fuels(8hr) |
|---|

**Polymers:** Introduction, Molecular weight- Number average, weight average and numerical problems. Preparation, properties and commercial applications of kevlar. Conducting polymers - synthesis and conducting mechanism of polyacetylene and commercial applications.

**Green Fuels:** Introduction, construction and working of solar photovoltaic cell, advantages, and disadvantages. Generation of energy (green hydrogen) by electrolysis of water and its advantages.

**Self-learning:** Regenerative fuel cells

| MODULE 5: E-Waste Management (8hr) |
|---|

**E-Waste:** Introduction, sources of e-waste, Composition, Characteristics, and Need of e-waste management. Toxic materials used in manufacturing electronic and electrical products, health hazards due to exposure to e-waste. Recycling and Recovery: Different approaches of recycling (separation, thermal

treatments, hydro metallurgical extraction, pyro metallurgical methods, direct recycling). Extraction of gold from E-waste. Role of stakeholders in environmental management of e-waste (producers, consumers, recyclers, and statutory bodies).

**Self-learning:** Impact of heavy metals on environment and human health.

## PRACTICAL MODULE

### A–Demonstration (any two) offline/virtual:
A1: Chemical Structure drawing using software: Chem Draw or ACD/ Chem Sketch

A2: Determination of strength of an acid in Pb-acid battery

A3: Synthesis of Iron-oxide Nanoparticles.

A4: Electrolysis of water

### B–Exercise (compulsorily any 4 to be conducted):
B1: Conductometric estimation of acid mixture

B2: Potentiometric estimation of FAS using $K_2Cr_2O_7$

B3: Determination of pKa of vinegar using pH sensor (Glass electrode)

B4: Determination of rate of corrosion of mild steel by weight loss method

B5: Estimation of total hardness of water by EDTA method

### C–Structured Enquiry (compulsorily any 4 to be conducted):
C1: Estimation of Copper present in electroplating effluent by optical sensor (colorimetry)

C2: Determination of Viscosity coefficient of lubricant (Ostwald's viscometer)

C3: Estimation of iron in TMT bar by diphenyl amine/external indicator method

C4: Estimation of Sodium present in soil/effluent sample using flame photometry

C5: Determination of Chemical Oxygen Demand(COD) of industrial waste water sample

### D–Open Ended Experiments (any two):
D1: Evaluation of acid content in beverages by using pH sensors and simulation.

D2: Construction of photovoltaic cell.

D3: Design an experiment to Identify the presence of proteins in given sample.

D4: Searching suitable PDB file and target for molecular docking.

**Course outcome (Course Skill Set)**

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

| CO1 | Identify the terms processes involved in scientific and engineering and applications |
|---|---|
| CO2 | Explain the phenomena of chemistry to describe the methods of engineering processes |
| CO3 | Solve the problems in chemistry that are pertinent in engineering applications |
| CO4 | Apply the basic concepts of chemistry to explain the chemical properties and processes |
| CO5 | Analyze properties and multidisciplinary processes associated with chemical substances in disciplinary situations |

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (**20 Marks** out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (**18 Marks** out of 50). A student

shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (**18 Marks** out of 50) in the semester-end examination(SEE), and a minimum of 40% (**40 Marks** out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):**
The CIE marks for the theory component of the IC shall be **25 Marks** and for the laboratory component **25 Marks**.

**CIE for the theory component of the IC**

- Three Tests each of **40 Marks** scale down to **15 Marks** and average of 3 test will be taken. The test will be after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totaling **10 Marks**.

 Total Marks scored (test + assignments) will be for 15+10 = **25 Marks**

**CIE for the practical component of the IC**

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 Marks** are for conducting the experiment and preparation of the laboratory record, the other **10 Marks** shall be for the test conducted at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Marks of all "experiments' write- ups + conduction + lab record" = 10+10+10 = **30 Marks** respectively. the total marks for all the experiments are added and scaled down to **15 Marks**.

- The laboratory test **(duration 02 hours)** at the end of the 15$^{th}$ week of the semester /after completion of all the experiments (whichever is early) shall be conducted for **50 Marks** and scaled down to **10 Marks.**

- Total Marks scored for the laboratory component of IC/IPCC (Lab Conduction + Lab Test) will be for 15+10 = **25 Marks**

The minimum marks to be secured in CIE to appear for SEE shall be **10 Marks** (40% of maximum marks) in the theory component and **10 Marks** (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included**.** The theory component of the IC shall be for both CIE and SEE.

**Semester End Examination(SEE):**

Theory SEE will be conducted by Institution as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

- The question paper shall be set for **100 Marks**. The medium of the question paper shall be English. The duration of SEE is 03 hours.

- The question paper will have 10 questions. Two questions per module. Each question is set for **20 Marks**. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for **100 Marks** and **marks scored out of 100 shall be proportionally reduced to 50 marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub- questions), **should have a mix of topics** under that module.

**Suggested Learning Resources: Books (Title of the Book /Name of the author /Name of the publisher/Edition and Year)**

1. Wiley Engineering Chemistry, Wiley India Pvt. Ltd. NewDelhi,2013-2$^{nd}$Edition.
2. Engineering Chemistry, Satyaprakash & Manisha Agrawal, Khanna Book Publishing, Delhi
3. A Text Book of Engg. Chemistry, Shashi Chawla, Dhanpat Rai & Co. (P) Ltd.
4. Essentials of Physical Chemistry, Bahl & Tuli, S. Chand Publishing
5. Applied Chemistry, Sunita Rattan, Kataria5. Engineering Chemistry, Baskar, Wiley
6. Engineering Chemistry–I,D.Grour Krishana, Vikas Publishing
7. A Text book of Engineering Chemistry, SSDara & Dr.SSUmare, SChand & Company Ltd., 12$^{th}$Edition, 2011.
8. A Text Book of Engineering Chemistry, R.V. Gadag and Nityananda Shetty, I. K. International Publishing house. 2$^{nd}$Edition,2016.
9. Text Book of Polymer Science, F.W.Billmeyer, John Wiley & Sons, 4$^{th}$Edition, 1999.
10. Nanotechnology A Chemical Approach to Nanomaterials, G.A.Ozin & A.C.Arsenault, RSC Publishing, 2005.
11. Corrosion Engineering, M.G. Fontana, N.D.Greene, McGraw Hill Publications, NewYork, 3$^{rd}$Edition, 1996.
12. Linden's Handbook of Batteries, Kirby W. Beard, Fifth Edition, McGraw Hill, 2019.
13. OLED Display Fundamentals and Applications, Takatoshi Tsujimura, Wiley–Blackwell, 2012
14. Supercapacitors: Materials, Systems, and Applications, MaxLu, Francois Beguin, Elzbieta Frackowiak, Wile y-VCH; 1stedition, 2013.
15. "Handbook on Electroplating with Manufacture of Electrochemical", ASIAPACIFIC BUSINESS PRESS Inc., 2017. Dr.H. Panda,
16. Expanding the Vision of Sensor Materials. National Research Council 1995, Washington DC: The National Academies Press. doi:10.17226/4782.
17. Engineering Chemistry, Edited by Dr.Mahesh B and Dr.Roopashree B, Sunstar Publisher, Bengaluru, ISBN 978-93-85155-70-3, 2022
18. High Performance Metallic Materials for Cost Sensitive Applications F.H.Froes, etal. John Wiley & Sons, 2010

19. Instrumental Methods of Analysis, Dr.K.R. Mahadik and Dr.L.Sathiyanarayanan, Nirali Prakashan, 2020

20. Principles of Instrumental Analysis, Douglas A. Skoog, F.James Holler, Stanley R. Crouch Seventh Edition, Ce Ngage Learning, 2020

21. Polymer Science, VR Gowariker, NV Viswanathan, Jayadev, Sreedhar, Newage Int. Publishers, 4th Edition, 2021

22. Engineering Chemistry PC Jain & Monica Jain, Dhanpat Rai Publication, 2015-16th Edition.

23. Nano structured materials and nanotechnology, Hari Singh, Nalwa,academicpress, 1stEdition,2002.

24. Nano technology Principles and Practices, Sulabha KK ulkarni, Capital Publishing Company, 3rdEdition 2014

25. Principles of nano technology, Phanikumar, Scitech publications, 2ndEdition, 2010.

26. Chemistry for Engineering Students, B.S. JaiPrakash, R.Venugopal, Sivakumaraiah & Pushpa Iyengar, Subash Publications, 5thEdition, 2014

27. "Engineering Chemistry", O.G.Palanna, Tata Mc Graw Hill Education Pvt. Ltd. NewDelhi, Fourth Reprint, 2015.

28. Chemistry of Engineering materials, Malini S, KS Anantha Raju, CBS publishers Pvt Ltd.,

29. Laboratory Manual Engg. Chemistry, Anupma Rajput, Dhanpat Rai & Co.

## Web links and Video Lectures (e-Resources):

- http://libgen.rs/
- https://nptel.ac.in/downloads/122101001/
- https://nptel.ac.in/courses/104/103/104103019/
- https://ndl.iitkgp.ac.in/
- https://www.youtube.com/watch?v=faESCxAWR9k
- https://www.youtube.com/watch?v=TBqXMWaxZYM&list=PLyhmwFtznRhuz8L1bb3X 9IbHrDMjHWWh
- https://www.youtube.com/watch?v=j5Hml6KN4TI
- https://www.youtube.com/watch?v=X9GHBdyYcyo
- https://www.youtube.com/watch?v=1xWBPZnEJk8
- https://www.youtube.com/watch?v=wRAo-M8xBHM

## Activity Based Learning (Suggested Activities in Class)/Practical Based learning

➢ https://www.vlab.co.in/broad-area-chemical-sciences
➢ https://demonstrations.wolfram.com/topics.php
➢ https://interestingengineering.com/science

## Cos and POs Mapping (Individual teacher has to fill up)

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

| Course Title: | **Communicative English** | | |
|---|---|---|---|
| Course Code: | **BENGK106-206** | CIEM arks | 50 |
| Course Type(Theory/Practical/Integrated) | Theory | SEE Marks | 50 |
| | | Total Marks | 100 |
| Teaching Hours/Week(L:T:P:S) | 1:0:0:0 | Exam Hours | 01Theory |
| Total Hours of Pedagogy | 15hours | Credits | 01 |

**Course objectives:** The course Communicative English (BENGK106/206) will enable the students,

1. To know about Fundamentals of Communicative English and Communication Skills in general.

2. Totra into identify the nuances of phonetics, into nation and enhance pronunciation skills for better Communication skills.

3. To impart basic English grammar and essentials of important language skills.

4. ToenhancewithEnglishvocabularyandlanguageproficiencyforbettercommunicationskills.

5. To learn about Techniques of Information Transfer through presentation.

**Teaching-Learning Process:**
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching-learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools and software's to meet the present requirements of the Global employment market.

(i) Direct instructional method (Low/Old Technology), (ii)Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning, (v)Personalized learning, (vi)Problems based learning through discussion, (vii)Following the method of expeditionary learning Tools and techniques, (viii)Use of audio visual methods through language Labs in teaching of LSRWskills.

A part from conventional lecture methods, various type so innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills in teaching of communicative skills in general.

**Language Lab :** To augment LSRW, grammar and Vocabulary skills (Listening, Speaking, Reading, Writing and Grammar,Vocabulary)throughtests,activities,exercisesetc.,comprehensiveweb-basedlearningandassessmentsystems can be referred as per the AICTE / VTU guidelines.

| Module-1 (03 hours of pedagogy) |
|---|
| **Introduction to Communicative English:** Communicative English, Fundamentals of Communicative English, Process of Communication, Barriers to Effective Communicative English, Different styles and levels in Communicative English. Interpersonal and Intrapersonal Communication Skills. |

| Module-2 (03 hours of pedagogy) |
|---|
| **Introduction to Phonetics:** Phonetic Transcription, English Pronunciation, Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non silent Letters, Syllables and Structure. Word Accent, Stress Shift and Intonation, Spelling Rules and Words of ten Miss pelt. Common Errors in Pronunciation. |

| Module-3 (03 hours of pedagogy) |
|---|
| **Basic English Communicative Grammar and Vocabulary PART-I:** Grammar: Basic English Grammar and Parts of Speech, Articles and Preposition. Question Tags, One Word Substitutes, Strong and Weak forms of words, Introduction to Vocabulary, All Types of Vocabulary – Exercises on it. |

| Module-4 (03 hours of pedagogy) |
|---|
| **Basic English Communicative Grammar and Vocabulary PART-II:** Words formation -Prefixes and Suffixes, Contractions and Abbreviations. Word Pairs (Minimal Pairs)– Exercises, Tense and Types of tenses , The Sequence of Tenses (Rules in use of Tenses) and Exercises on it. |

| Module-5 (03 hours of pedagogy) |
|---|
| **Communication Skills for Employment:** Information Transfer: Oral Presentation and its Practice. Difference between Extempore/Public Speaking, Communication Guidelines. Mother Tongue Influence (MTI), Various Techniques for Neutralization of Mother Tongue Influence. Reading and Listening Comprehensions– Exercises. |

**Course outcome (Course Skill Set)**
At the end of the course Communicative English(BENGK106/206) the student will be able to

| CO1 | Understand and apply the Fundamentals of Communication Skills in their communication skills. |
|---|---|
| CO2 | Identify the nuances of phonetics, into nation and enhance pronunciation skills. |
| CO3 | To impart basic English grammar and essentials of language skills as per present requirement. |
| CO4 | Understand and use all types of English vocabulary and language proficiency. |
| CO5 | Adopt the Techniques of Information Transfer through presentation. |

**Assessment Details (both CIE and SEE)**

The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (**20 Marks** out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (**18 Marks** out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (**40 Marks** out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):**

- Two Tests each of **25 Marks** and average of both the test will be taken. The test will be after the

completion of the syllabus of 50% and 100% respectively.

a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or

c) one-course project with report totaling **25 Marks**.

Total Marks scored (Test + Assignments) will be for 25+25 = **50 Marks**

**Semester End Examinations (SEE)**

SEE paper shall be set for 50 questions**,** each of the **01 Mark**. The pattern of the question paper is MCQ (multiple choice questions). The time allotted for SEE is 01hour**.**The student must secure a minimum of 35% of the maximum marks for SEE.

**Suggested Learning Resources:**
**Textbook:**
1) **Communication Skills** by Sanjay Kumar & Pushp Lata, Oxford University PressIndiaPvtLtd-2019.

2) **A Textbook of English Language Communication Skills,** (ISBN-978-81-955465-2-7), Published by Infinite Learning Solutions, Bengaluru - 2022.

**Reference Books:**
1. **Technical Communication** by GajendraSingh ChauhanandEtal, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited  [Latest Revised Edition] - 2019.

2. **English for Engineers** by N.P. Sudharshana and C Savitha, Cam bridge UniversityPress–2018.

3. **English Language Communication Skills–Lab Manual cum Workbook,** Cengage learning India Pvt Limited [Latest Revised Edition] – (ISBN-978-93-86668-45-5), 2019.

4. **A Course in Technical English–D Praveen Sam, K N Shoba,** Cambridge UniversityPress–2020.

**Practical English Usage** by Michael Swan, Oxford University Press–2016.

**Activity Based Learning (Suggested Activities in Class)/Practical Based learning**
- ✓ Contents related activities (Activity-based discussions)
- ✓ ForactiveparticipationofstudentsinstructthestudentstoprepareFlowchartsandHandouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

| Introduction to Electrical Engineering | | | |
|---|---|---|---|
| Course Code: | **BESCK104B** | CIE Marks | 50 |
| Course Type (Theory/Practical /Integrated ) | Theory | SEE Marks | 50 |
| | | Total Marks | 100 |
| Teaching Hours/Week (L:T:P: S) | 3:0:0:0 | Exam Hours | 03 |
| Total Hours of Pedagogy | 40 hours | Credits | 03 |

**Course objectives**

- To explain the laws used in the analysis of DC and AC circuits.

- To explain the behavior of circuit elements in single-phase circuits.

- To explain the construction and operation of transformers, DC generators and motors and induction motors.

- To introduce concepts of circuit protecting devices and earthing.

- To explain electric power generation, transmission and distribution, electricity billing, equipment and personal safety measures.

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

1. Chalk and talk

2. Animated/NPTEL videos

3. Cut sections

4. PPTs

## Module-1  (08 Hrs)

**Introduction:** Conventional and non-conventional energy resources; General structure of electrical power systems using single line diagram approach.

**Power Generation:**  Hydel, Nuclear, Solar & wind power generation (Block Diagram approach).

**DC Circuits:**

Ohm's Law and its limitations. KCL & KVL, series, parallel, series-parallel circuits. Simple Numerical.

## Module-2  (08 Hrs)

**A.C. Fundamentals:**

Equation of AC Voltage and current, waveform, time period, frequency, amplitude,  phase, phase difference, average value, RMS value, form factor, peak factor. (only definitions)

Voltage and current relationship with phasor diagrams in R, L, and C circuits. Concept of Impedance.

Analysis of R-L, R-C, R-L-C Series circuits. Active power, reactive power and apparent power. Concept of power factor. (Simple Numerical).

**Three Phase Circuits:**

Generation of Three phase AC quantity, advantages and limitations; star and delta connection, relationship between line and phase quantities (excluding proof)

## Module-3 (08 Hrs)

**DC Machines:**

**DC Generator:** Principle of operation, constructional details, induced emf expression, types of generators. Relation between induced emf and terminal voltage. Simple numerical.

**DC Motor:** Principle of operation, back emf and its significance. Torque equation, types of motors, characteristics and speed control (armature & field) of DC motors (series & shunt only). Applications of DC motors. Simple numerical.

## Module-4 (08 Hrs)

**Transformers:** Necessity of transformer, principle of operation, Types and construction of single-phase transformers, EMF equation, losses, variation of losses with respect to load. Efficiency and simple numerical.

**Three-phase induction Motors:** Concept of rotating magnetic field, Principle of operation, constructional features of motor, types – squirrel cage and wound rotor. Slip and its significance simple numerical.

## Module-5 (08 Hrs)

**Domestic Wiring:** Requirements, Types of wiring: casing, capping.Two way and three way control of load.

**Electricity Bill:** Power rating of household appliances including air conditioners, PCs, laptops, printers, etc. Definition of "unit" used for consumption of electrical energy, two-part electricity tariff, calculation of electricity bill for domestic consumers.

**Equipment Safety measures:** Working principle of Fuse and Miniature circuit breaker (MCB), merits and demerits.

**Personal safety measures:** Electric Shock, Earthing and its types, Safety Precautions to avoid shock.

**Course outcome (Course Skill Set)**

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

| | |
|---|---|
| CO1 | Understand the concepts of various energy sources and Electric circuits. |
| CO2 | Apply the basic Electrical laws to solve circuits. |
| CO3 | Discuss the construction and operation of various Electrical Machines. |
| CO4 | Identify suitable Electrical machine for practical implementation. |
| CO5 | Explain the concepts of electric power transmission and distribution, electricity billing, circuit protective devices and personal safety measures. |

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (**20 Marks** out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (**18 Marks** out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (**18 Marks** out of 50) in the semester-end examination(SEE), and a minimum of 40% (**40 Marks** out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):**

- Three Tests each of **40 Marks** scale down to **25 Marks** and average of 3 test will be taken. The test will be after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totaling **25 Marks**.

Total Marks scored (Test + Assignments) will be for 25+25 = **50 Marks**

**Semester End Examination (SEE):**

Theory SEE will be conducted by Institution as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

- The question paper shall be set for **100 Marks**. The medium of the question paper shall be English. The duration of SEE is 03 hours.

- The question paper will have 10 questions. Two questions per module. Each question is set for **20 Marks**. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for **100 Marks** and **marks scored out of 100 shall be proportionally reduced to 50 Marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

**Suggested Learning Resources:**
**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)**

**Text Books:**
    1. Basic Electrical Engineering by D C Kulshreshtha, Tata McGraw Hill, First Edition 2019.
    2. A text book of Electrical Technology by B.L. Theraja, S Chand and Company, reprint edition 2014.

**Reference Books:**
    1. Basic Electrical Engineering, D. P. Kothari and I. J. Nagrath, Tata McGraw Hill 4th edition, 2019.
    2. Principles of Electrical Engineering & Electronics by V. K. Mehta, Rohit Mehta, S. Chand and Company Publications, 2nd edition, 2015.
    3. Fundamentals of Electrical Engineering by Rajendra Prasad, PHI, 3rd edition, 2014.

**Web links and Video Lectures (e-Resources):**

- www.nptel.ac.in

**Activity Based Learning (Suggested Activities in Class)/ Practical Based learning**

- 

**COs and POs Mapping (Individual teacher has to fill up)**

|     | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | 3   | 2   | 1   | 0   | 1   | 1   | 1   | 1   | 0   | 0    | 0    | 1    |
| CO2 | 3   | 3   | 2   | 1   | 1   | 1   | 0   | 0   | 0   | 0    | 0    | 1    |
| CO3 | 3   | 2   | 1   | 1   | 1   | 1   | 1   | 1   | 0   | 0    | 0    | 1    |
| CO4 | 3   | 2   | 2   | 1   | 0   | 1   | 1   | 1   | 0   | 0    | 0    | 1    |
| CO5 | 3   | 1   | 2   | 0   | 1   | 2   | 1   | 1   | 0   | 0    | 1    | 1    |

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

*Wayanamac Education Trust ®*

# DON BOSC INSTITUTE OF TECHNOLOGY

**An Autonoous Institution under VTU - Belagavi,**
**Approved by AICTE – New Delhi, Recognized by Govt. of Karnataka**
Kumbalagodu, Mysore Road, Bengaluru – 560074

| Course Title: | | Introduction to Electronics & Communication | | |
|---|---|---|---|---|
| Course Code: | | BESCK104C/204C | CIE Marks | 50 |
| Course Type (Theory/Practical /Integrated ) | | Theory | SEE Marks | 50 |
| | | | Total Marks | 100 |
| Teaching Hours/Week (L:T:P: S) | | 03:00:00:00 | Exam Hours | 03 |
| Total Hours of Pedagogy | | 40 hours | Credits | 03 |
| Teaching Department | | ECE | QP setting | ECE |

**Course objectives**
- To prepare students with fundamental knowledge/ overview in the field of Electronics and Communication Engineering.
- To equip students with a basic foundation in electronic engineering required for comprehending the operation and application of electronic circuits, logic design, embedded systems, and communication systems.
- Professionalism & Learning Environment: To inculcate in first-year engineering students an ethical and professional attitude by providing an academic environment inclusive of effective communication, teamwork, ability to relate engineering issues to a broader social context, and life-long learning needed for a successful professional career.

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

1. Chalk and Talk
2. Power point presentation
3. Video Lecturing
4. E-sources
5. Self-learning

**Module-1 (08 hours of pedagogy)**

**Power Supplies** –Block diagram, Half-wave rectifier, Full-wave rectifiers and filters, Voltage regulators, Output resistance and voltage regulation, Voltage multipliers.

**Amplifiers** – Types of amplifiers, Gain, Input and output resistance, Frequency response, Bandwidth, Phase shift, Negative feedback, multi-stage amplifiers (Text 1)

| Module-2 (08 hours of pedagogy) |
|---|

**Oscillators** – Barkhausen criterion, sinusoidal and non-sinusoidal oscillators, Ladder network oscillator, Wein bridge oscillator, Multivibrators, Single-stage as table oscillator, Crystal controlled oscillators (Only Concepts, working, and waveforms. No mathematical derivations)

**Operational amplifiers -**Operational amplifier parameters, Operational amplifier characteristics, Operational amplifier configurations, Operational amplifier circuits. Text 1)

| Module-3 (08 hours of pedagogy) |
|---|

**Boolean Algebra and Logic Circuits:** Binary numbers, Number Base Conversion, octal & Hexa Decimal Numbers, Complements, Basic definitions, Axiomatic Definition of Boolean Algebra, Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard Forms, Other Logic Operations, Digital Logic Gates (Text 2: 1.2, 1.3, 1.4, 1.5,2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7)

**Combinational logic**: Introduction, Design procedure, Adders- Half adder, Full adder (Text 2:4.1, 4.2, 4.3)

| Module-4 (08 hours of pedagogy) |
|---|

**Embedded Systems** – Definition, Embedded systems vs general computing systems, Classification of Embedded Systems, Major application areas of Embedded Systems, Elements of an Embedded System, Core of the Embedded System, Microprocessor vs Microcontroller, RISC vs CISC

**Sensors and Interfacing** – Instrumentation and control systems, Transducers, Sensors, Actuators, LED, 7-Segment LED Display. (Text 3)

| Module-5 (07 hours of pedagogy) |
|---|

**Analog Communication Schemes** – Modern communication system scheme, Information source, andinput transducer, Transmitter, Channel or Medium – Hardwired and Soft wired, Noise, Receiver, Multiplexing, Types of communication systems. Types of modulation (only concepts) – AM, FM, Concept of Radio wave propagation (Ground, space, sky)

**Digital Modulation Schemes**: Advantages of digital communication over analog communication, ASK, FSK, PSK, Radio signal transmission Multiple access techniques. ( Text 4)

**Course outcome (Course Skill Set)**

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

| | |
|---|---|
| CO1 | Describe the concepts of electronic circuits encompassing power supplies and amplifiers. |
| CO2 | Describe the concepts and types of oscillators and amplifiers. |
| CO3 | Present the basics of digital logic engineering including data representation and combinational logic circuits. |
| CO4 | Discuss the characteristics and technological advances of embedded systems and sensors. |
| CO5 | Discuss the basics of various types of modern analog and digital modulation schemes. |

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (**20 Marks** out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (**18 marks** out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (**18 Marks** out of 50) in the semester-end examination(SEE), and a minimum of 40% (**40 Marks** out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):**

- Three Tests each of **40 Marks** scale down to **25 Marks** and average of 3 test will be taken. The test will be after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totaling **25 Marks**.

 Total Marks scored (Test + Assignments) will be for 25+25 = **50 Marks**

**Semester End Examination (SEE):**

 Theory SEE will be conducted by Institute as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

- The question paper shall be set for **100 Marks**. The medium of the question paper shall be English. The duration of SEE is 03 hours.

- The question paper will have 10 questions. Two questions per module. Each question is set for **20 Marks**. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for **100 Marks** and **marks scored out of 100 shall be proportionally reduced to 50 Marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

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**Suggested Learning Resources:**
1. Mike Tooley, 'Electronic Circuits, Fundamentals & Applications',4thEdition, Elsevier, 2015. DOI https://doi.org/10.4324/9781315737980. eBook ISBN9781315737980

2. Digital Logic and Computer Design, M. Morris Mano, PHI Learning, 2008 ISBN-978-81-203- 0417-84.

3. K V Shibu, 'Introduction to Embedded Systems', 2nd Edition, McGraw Hill Education (India), Private Limited, 2016

4. S L Kakani and Priyanka Punglia, 'Communication Systems', New Age International Publisher, 2017.

5. Cambridge University Press, 2011

6. M.A. Shah, K.A. Shah, "Nanotechnology: The Science of Small", Wiley India, ISBN 13: 9788126538683

**Web links and Video Lectures (e-Resources):**

**Practical Based learning (Any 5 experiments x 2 hours = 10 practical hours)**

**COs and POs Mapping (Individual teacher has to fill up)**

| COs | POs | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| **CO1** | **3** | **3** | **2** | | 2 | 2 | | | | | | |
| **CO2** | **3** | **2** | **3** | | 2 | 1 | | | | | | |
| **CO3** | **3** | **2** | 3 | | 3 | | | | | | | |
| **CO4** | **2** | **1** | 1 | | 2 | 1 | | | | | | 1 |
| **CO5** | **2** | **1** | 1 | | 2 | 1 | | | | | | 1 |

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

**BKBKK107-207**

Theory - 01 Credit Course

# ಬಳಕೆ ಕನ್ನಡ - baLake Kannada (Kannada for Usage)
## ಕನ್ನಡ ಕಲಿಕೆಗಾಗಿ ನಿಗದಿಪಡಿಸಿದ ಪಠ್ಯಪುಸ್ತಕ - (Prescribed Textbook to Learn Kannada)

| Course Title: | ಬಳಕೆ ಕನ್ನಡ | | |
|---|---|---|---|
| Course Code: | **BKBKK107-207** | CIE Marks | 50 |
| Course Type (Theory/Practical /Integrated | Theory | SEE Marks | 50 |
| | | Total Marks | 100 |
| Teaching Hours/Week (L:T:P: S) | 1:0:0:0 | Exam Hours | 01 Theory |
| Total Hours of Pedagogy | 15 hours | Credits | 01 |

## Course objectives : ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗಳು:

1. To Create the awareness regarding the necessity of learning local language for comfortable and healthy life.
2. To enable learners to Listen and understand the Kannada language properly.
3. To speak, read and write Kannada language as per requirement.
4. To train the learners for correct and polite conservation.
5. To know about Karnataka state and its language, literature and General information about this state.

## ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teaching-Learning Process - General Instructions) :

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

1. ಬಳಕೆ ಕನ್ನಡವನ್ನು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಬೋಧಿಸಲು ವಿಟಿಯು ಸೂಚಿಸಿರುವ ಪಠ್ಯಪುಸ್ತಕವನ್ನು ಉಪಯೋಗಿಸಬೇಕು.

2. ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್ ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಉತ್ತೇಜಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.

3. ಪ್ರತಿ ವಿದ್ಯಾರ್ಥಿ ಪುಸ್ತಕವನ್ನು ತರಗತಿಯಲ್ಲಿ ಬಳಸುವಂತೆ ನೋಡಿಕೊಳ್ಳುವುದು ಮತ್ತು ಪ್ರತಿ ಪಾಠ ಮತ್ತು ಪ್ರವಚನಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟಂತ ಪೂರಕ ಚಟುವಟಿಕೆಗಳಿಗೆ ತೊಡಗಿಸತಕ್ಕದ್ದು.

4. ಡಿಜಿಟಲ್ ತಂತ್ರಜ್ಞಾನದ ಮುಖಾಂತರ ಇತ್ತೀಚೆಗೆ ಡಿಜಿಟಲೀಕರಣ ಗೊಂಡಿರುವ ಭಾಷೆ ಕಲಿಕೆಯ ವಿಧಾನಗಳನ್ನು ಪಿಪಿಟಿ ಮತ್ತು ದೃಶ್ಯ ಮಾಧ್ಯಮದ ಮುಖಾಂತರ ಚರ್ಚಿಸಲು ಕ್ರಮಕೈಗೊಳ್ಳುವುದು. ಇದರಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ತರಗತಿಯಲ್ಲಿ ಹೆಚ್ಚು ಏಕಾಗ್ರತೆಯಿಂದ ಪಾಠ ಕೇಳಲು ಮತ್ತು ಅಧ್ಯಯನದಲ್ಲಿ ತೊಡಗಲು ಅನುಕೂಲವಾಗುತ್ತದೆ.

5. ಭಾಷಾಕಲಿಕೆಯ ಪ್ರಯೋಗಾಲಯದ ಮುಖಾಂತರ ಬಹುಬೇಗ ಕನ್ನಡ ಭಾಷೆಯನ್ನು ಕಲಿಯಲು ಅನುಕೂಲವಾಗುವಂತೆ ಕಾರ್ಯಚಟುವಟಿಕೆಗಳನ್ನು ಮತ್ತು ಕ್ರಿಯಾ ಯೋಜನೆಗಳನ್ನು ರೂಪಿಸುವುದು.

## Module - 1            (03 hours of pedagogy)

1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language.

2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conservation, Listening and Speaking Activities, Key to Transcription

3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ/ಸಂಬಂಧಿತ ಸಾರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು - Personal Pronouns, Possessive Forms, Interrogative words

## Module - 2
(03 hours of pedagogy)

1. ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪದ ಪ್ರಶ್ನೆಗಳು ಮತ್ತು ಸಂಬಂಧವಾಚಕ ನಾಮಪದಗಳು - Possessive forms of nouns, dubitive question and Relative nouns
2. ಗುಣ, ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣಬಣ ವಿಶೇಷಣಗಳು, ಸಂಖ್ಯಾವಾಚಕಗಳು Qualitative, Quantitative and Colour Adjectives, Numerals
3. ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು –ಸಪ್ತಮಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯ – (ಆ, ಅದು, ಅವು, ಅಲ್ಲಿ) –Predictive Forms, Locative Case

## Module - 3
(03 hours of pedagogy)

1. ಚತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು - Dative Cases, and Numerals
2. ಸಂಖ್ಯಾಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮರೂಪಗಳು –Ordinal numerals and Plural markers
3. ನ್ಯೂನ/ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು & ವರ್ಣ ಗುಣವಾಚಕಗಳು –Defective/Negative Verbs & Colour Adjectives

## Module- 4
(03 hours of pedagogy)

1. ಅಪ್ಪಣೆ / ಒಪ್ಪಿಗೆ, ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತು ಒತ್ತಾಯ ಆರ್ಥರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು
   Permission, Commands, encouraging and Urging words (Imperative words and sentences)
2. ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು
   Accusative Cases and Potential Forms used in General Communication
3. "ಇರು ಮತ್ತು ಇರಲ್ಲ" ಸಹಾಯಕ ಕ್ರಿಯಾಪದಗಳು, ಸಂಭಾವ್ಯಸೂಚಕ ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾ ಪದಗಳು -
   Helping Verbs "iru and iralla", Corresponding Future and Negation Verbs
4. ಹೋಲಿಕೆ (ತರತಮ) , ಸಂಬಂಧ ಸೂಚಕ, ವಸ್ತು ಸೂಚಕ ಪ್ರತ್ಯಯಗಳು ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ-
   Comparitive, Relationship, Identification and Negation Words

## Module - 5
(03 hours of pedagogy)

1. ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಗಳು -Different types of Tense, Time and Verbs
2. ದ್, -ತ್, - ತು, - ಇತು, - ಆಗಿ, - ಅಲ್ಲ, - ಗ್, -ಕ್, ಇದೆ, ಕ್ರಿಯಾ ಪ್ರತ್ಯಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ್ ಮತ್ತು ವರ್ತಮಾನ ಕಾಲ ವಾಕ್ಯ ರಚನೆ - Formation of Past, Future and Present Tense Sentences with Verb Forms
3. Kannada Vocabulary List :ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು -Kannada Words in Conversation

## Course outcome (Course Skill Set)
ಬಳಕೆ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಆಗುವ ಅನುಕೂಲಗಳು ಮತ್ತು ಫಲಿತಾಂಶಗಳು:

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

| | |
|---|---|
| CO1 | To understand the necessity of learning of local language for comfortable life. |
| CO2 | To speak, read and write Kannada language as per requirement. |
| CO3 | To communicate (converse) in Kannada language in their daily life with kannada speakers. |
| CO4 | To Listen and understand the Kannada language properly. |
| CO5 | To speak in polite conservation. |

## Assessment Details (both CIE and SEE)

The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 Marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 Marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 Marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):**

- Two Tests each of **25 Marks** and average of both the test will be taken. The test will be after the completion of the syllabus of 50% and 100% respectively.

  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totalling **25 Marks**.

  Total Marks scored (Test + Assignments) will be for 25+25 = **50 Marks**

**Semester End Examinations (SEE)**

SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is MCQ (multiple choice questions). The time allotted for SEE is 01 hour. The student must secure a minimum of 35% of the maximum marks for SEE.

## University Prescribed Textbook :

# ಬಳಕೆ ಕನ್ನಡ

### ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ

ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,

ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

**ಸೂಚನೆ :**

1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
2. ಮಾದರಿ ಪ್ರಶ್ನೆಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

**Activity Based Learning (Suggested Activities in Class)/ Practical Based learning**

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions,
- ✓ Seminars and assignments

*Wayanamac Education Trust* ®

# DON BOSCO INSTITUTE OF TECHNOLOGY
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Kumbalagodu, Mysore Road, Bengaluru – 560074

**BKSKK107-207**

### Theory - 01 Credit Course

## ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ - ಕನ್ನಡ ಬಲ್ಲ ಮತ್ತು ಕನ್ನಡ ಮಾತೃಭಾಷೆಯ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ನಿಗದಿಪಡಿಸಿದ ಪಠ್ಯಕ್ರಮ

| Course Title: | ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ | | |
|---|---|---|---|
| Course Code: | **BKSKK107-207** | CIE Marks | 50 |
| Course Type (Theory/Practical /Integrated) Theory | | SEE Marks | 50 |
| | | Total Marks | 100 |
| Teaching Hours/Week (L:T:P: S) | 1:0:0:0 | Exam Hours | 01 Theory |
| Total Hours of Pedagogy | 15 hours | Credits | 01 |

**Course objectives :** ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ ಪಠ್ಯ ಕಲಿಕೆಯ ಉದ್ದೇಶಗಳು:

The course (22KSK17/27) will enable the students,

1. ವೃತ್ತಿಪರ ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರುವುದರಿಂದ ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

2. ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ ಪರಿಚಯಿಸಿವುದು.

3. ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಮೂಡಿಸುವುದು.

4. ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ್ನು ಹಾಗೂ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ಪರಿಚಯಿಸುವುದು.

5. ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

**ಬೋಧನೆ ಮತ್ತು ಕಲಿಕಾ ವ್ಯವಸ್ಥೆ (Teaching-Learning Process - General Instructions) :**

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

1. ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡವನ್ನು ಬೋಧಿಸಲು ತರಗತಿಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಪ್ರಸ್ತುತ ಪುಸ್ತಕ ಆಧಾರಿಸಿ ಬ್ಲಾಕ್ ಬೋರ್ಡ್ ವಿಧಾನವನ್ನು ಅನುಸರಿಸುವುದು. ಪ್ರಮುಖ ಅಂಶಗಳ ಚಾರ್ಟ್ ಗಳನ್ನು ತಯಾರಿಸಲು ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಪ್ರೇರೇಪಿಸುವುದು ಮತ್ತು ತರಗತಿಯಲ್ಲಿ ಅವುಗಳನ್ನು ಚರ್ಚಿಸಲು ಅವಕಾಶ ಮಾಡಿಕೊಡುವುದು.

2. ಇತ್ತೀಚಿನ ತಂತ್ರಜ್ಞಾನದ ಅನುಕೂಲಗಳನ್ನು ಬಳಸಿಕೊಳ್ಳುವುದು - ಅಂದರೆ ಕವಿ-ಕಾವ್ಯ ಪರಿಚಯದಲ್ಲಿ ಕವಿಗಳ ಚಿತ್ರಣ ಮತ್ತು ಲೇಖನಗಳು ಮತ್ತು ಕಥೆ ಕಾವ್ಯಗಳ ಮೂಲ ಅಂಶಗಳಿಗೆ ಸಂಬಂಧಪಟ್ಟ ಧ್ವನಿ ಚಿತ್ರಗಳು, ಸಂಭಾಷಣೆಗಳು, ಈಗಾಗಲೇ ಇತರ ವಿಮರ್ಶಕರು ಬರೆದಿರುವ ವಿಮರ್ಶಾತ್ಮಕ ವಿಷಯಗಳನ್ನು ಟಿಪಿಟಿ, ಡಿಜಿಟಲ್ ಮಾಧ್ಯಮಗಳ ಮುಖಾಂತರ ವಿಶ್ಲೇಷಿಸುವುದು.

3. ನವೀನ ಮಾದರಿಯ ಸಾಹಿತ್ಯ ಬೋಧನೆಗೆ ಸಂಬಂಧಪಟ್ಟ ವಿಧಾನಗಳನ್ನು ಶಿಕ್ಷಕರು ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಅನುಕೂಲವಾಗುವ ರೀತಿಯಲ್ಲಿ ಅಳವಡಿಸಿಕೊಳ್ಳಬಹುದು.

| ಘಟಕ -1 ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷೆ ಕುರಿತಾದ ಲೇಖನಗಳು (03 hours of pedagogy) |
|---|

1. ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ - ಹಂಪ ನಾಗರಾಜಯ್ಯ

2. ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ. ವೆಂಕಟಸುಬ್ಬಯ್ಯ

3. ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ. ಎ. ಕೇಶವಮೂರ್ತಿ

| ಘಟಕ - 2 ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಭಾಗ (03 hours of pedagogy) |
|---|

1. ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ್ದಕ್ಕಿ ಮಾರಯ್ಯ, ಚೇಡರದಾಸಿಮಯ್ಯ, ಆಯ್ದಕ್ಕಿ ಲಕ್ಕಮ್ಮ.

2. ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇದರಿಂದೇನು ಫಲ – ಪುರಂದರದಾಸರು
   ತಲ್ಲಣಿಸದಿರು ಕಂಡ್ಯ ತಾಳು ಮನವೇ - ಕನಕದಾಸರು

3. ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ

| ಘಟಕ -3 ಆಧುನಿಕ ಕಾವ್ಯಭಾಗ (03 hours of pedagogy) |
|---|

1. ಡಿವಿಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂದ ಆಯ್ದ ಕೆಲವು ಭಾಗಗಳು

2. ಕುರುಡು ಕಾಂಚಾಣ : ಡಾ.ರಾ. ಬೇಂದ್ರೆ

3. ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು

| ಘಟಕ - 4 ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ (03 hours of pedagogy) |
|---|

1. ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ ಮತ್ತು ಐತಿಹ್ಯ – ಎ. ಎನ್. ಮೂರ್ತಿರಾವ್

2. ಕರಕುಶಲ ಕಲೆಗಳು ಮತ್ತು ಪರಂಪರೆಯ ವಿಜ್ಞಾನ : ಕರೀಗೌಡ ಬೀಚನಹಳ್ಳಿ

| ಘಟಕ - 5 ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಕಥೆ ಮತ್ತು ಪ್ರವಾಸ ಕಥನ (03 hours of pedagogy) |
|---|

1. ಯುಗಾದಿ : ವಸುಧೇಂದ್ರ

2. ಮೆಗಾನೆ ಎಂಬ ಗಿರಿಜನ ಪರ್ವತ : ಹಿ.ಚಿ. ಬೋರಲಿಂಗಯ್ಯ

**Course outcome (Course Skill Set)**

ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ (22KSK17/27) ಪಠ್ಯ ಕಲಿಕೆಯ ನಂತರ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ :

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

| CO1 | ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ. |
|-----|---------------------------------------------------------------------|
| CO2 | ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಫೂರ್ತಿ ಮೂಡುತ್ತದೆ. |
| CO3 | ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಹೆಚ್ಚಾಗುತ್ತದೆ. |
| CO4 | ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಹಾಗೂ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕತೆ ಹೆಚ್ಚಾಗುತ್ತದೆ. |
| CO5 | ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು. |

## Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (18 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

## Continuous Internal Evaluation(CIE):

- Two Tests each of **25 Marks** and average of both the test will be taken. The test will be after the completion of the syllabus of 50% and 100% respectively.

  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totalling **25 Marks**.

  Total Marks scored (Test + Assignments) will be for 25+25 = **50 Marks**

## Semester End Examinations (SEE)

SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is MCQ (multiple choice questions). The time allotted for SEE is 01 hour. The student must secure a minimum of 35% of the maximum marks for SEE.

## University Prescribed Textbook :

### ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ
#### ಡಾ. ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯ್ಯ ಮತ್ತು ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ,
ಪ್ರಕಟಣೆ : ಪ್ರಸಾರಾಂಗ,
ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ.

ಸೂಚನೆ :

1. ಹೆಚ್ಚಿನ ಮಾಹಿತಿ ಮತ್ತು ವಿವರಣೆಗಳಿಗೆ ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ (9900832331) ಇವರನ್ನು ಸಂಪರ್ಕಿಸಿ.
2. ಮಾದರಿ ಪ್ರಶ್ನೆಪತ್ರಿಕೆ, ಕೋರ್ಸ್ ಆಯ್ಕೆ ಮಾಹಿತಿ, ಅಧ್ಯಯನ ಸಾಮಗ್ರಿ & ಬಹು ಆಯ್ಕೆ ಮಾದರಿಯ ಪ್ರಶ್ನೆಗಳ ಕೈಪಿಡಿಗಾಗಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನೋಡುವುದು.

## Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
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# DON BOSCO INSTITUTE OF TECHNOLOGY

**An Autonomous Institution under VTU - Belagavi,**

**Approved by AICTE – New Delhi, Recognized by Govt. of Karnataka**

Kumbalagodu, Mysore Road, Bengaluru – 560074

| Course Title: | **Mathematics-I for Computer Science and Engineering stream** | | |
|---|---|---|---|
| Course Code: | **BMATS101** | CIE Marks | 50 |
| Course Type (Theory/Practical/Integrated) | Integrated | SEE Marks | 50 |
| | | Total Marks | 100 |
| Teaching Hours/Week (L:T:P: S) | 2:2:2:0 | Exam Hours | 03 |
| Total Hours of Pedagogy | 40 hours Theory + 10 to12 Lab slots | Credits | 04 |

**Course objectives:** The goal of the course **Mathematics-I for Computer Science and Engineering stream** (B**MATS101**) is to

- **Familiarize** the importance of calculus associated with one variable and multivariable for computer science and engineering.

- **Analyze** Computer science and engineering problems by applying Ordinary Differential Equations.

- **Apply** the knowledge of modular arithmetic to computer algorithms.

- **Develop** the knowledge of Linear Algebra to solve the system of equations.

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

     1. Flipped Class

     2. Chalk and Talk

     3. Blended Mode of Teaching and Learning

     4. Simulations, Interactive Simulations and Animations

     5. NPTEL and Other Videos for theory topics

     6. Smart Class Room

     7. Lab Experiment Videos

## Module-1: Calculus  (8 hours)

**Introduction to polar coordinates and curvature relating to EC & EE Engineering applications**.Polar coordinates, Polar curves, angle between the radius vector and the tangent, angle between two curves. Pedal equations. Curvature and Radius of curvature - Cartesian, Parametric, Polar and Pedal forms. Problems.

**Self-study:** Center and circle of curvature, evolutes and involutes.

**Applications:** Communication signals, Manufacturing of microphones, and Image processing.

**(RBT Levels: L1, L2 and L3)**

| Module-2: Series Expansion and Multivariable Calculus (8 hours) |
|---|

**Introduction of series expansion and partial differentiation in EC & EE Engineering applications.**

Taylor's and Maclaurin's series expansion for one variable (Statement only) – problems.

Indeterminate forms - L'Hospital's rule - Problems.

Partial differentiation, total derivative - differentiation of composite functions. Jacobian and problems.

Maxima and minima for a function of two variables. Problems.

**Self-study:** Euler's Theorem and problems. Method of Lagrange's undetermined multipliers with single constraint.

**Applications:** Series expansion in communication signals, Errors and approximations, and vector calculus.

**(RBT Levels: L1, L2 and L3)**

| Module-3: Ordinary Differential Equations (ODEs) of First Order (8 hours) |
|---|

**Introduction to first-order ordinary differential equations pertaining to the applications for EC & EE engineering.**

Linear and Bernoulli's differential equations. Exact and reducible to exact differential equations-

Integrating factors, Orthogonal trajectories, L-R and C-R circuits, Problems.

**Non-linear differential equations:** Introduction to general and singular solutions, Solvable for p only, Clairaut's equations, reducible to Clairaut's equations.Problems.

**Self-Study:** Applications of ODEs, Solvable for x and y.

**Applications of ordinary differential equations:** Rate of Growth or Decay, Conduction of heat.

**(RBT Levels: L1, L2 and L3)**

| Module-4: Modular Arithmetic (8 hours) |
|---|

**Introduction of modular arithmetic and its applications in Computer Science and Engineering.**

Introduction to Congruences, Linear Congruences, The Remainder theorem, Solving Polynomials, Linear Diophantine Equation, System of Linear Congruences, Euler's Theorem, Wilson Theorem and Fermat's little theorem. Applications of Congruences-RSA algorithm.

**Self-Study:** Divisibility, GCD, Properties of Prime Numbers, Fundamental theorem of Arithmetic.

**Applications:** Cryptography, encoding and decoding, RSA applications in public key encryption.

**(RBT Levels: L1, L2 and L3)**

| | **Module-5: Linear Algebra  (8 hours)** |
|---|---|

**Introduction of linear algebra related to EC & EE engineering applications.**

Elementary row transformation of matrix, Rank of a matrix. Consistency and Solution of system of linear equations - Gauss-elimination method, Gauss-Jordan method and approximate solution by Gauss-Seidel method. Eigenvalues and Eigenvectors, Rayleigh's power method to find the dominant Eigenvalue and Eigenvector.

**Self-Study:** Solution of system of equations by Gauss-Jacobi iterative method. Inverse of a square matrix by Cayley- Hamilton theorem.

**Applications of Linear Algebra:** Network Analysis, Markov Analysis, Critical point of a network system. Optimum solution.

**(RBT Levels: L1, L2 and L3)**

| | **List of Laboratory experiments (2 hours/week per batch/ batch strength 15) 10 lab sessions + 1 repetition class + 1 Lab Assessment** |
|---|---|
| 1 | 2D plots for Cartesian and polar curves |
| 2 | Finding angle between polar curves, curvature and radius of curvature of a given curve |
| 3 | Finding partial derivatives and Jacobian |
| 4 | Applications to Maxima and Minima of two variables |
| 5 | Solution of first-order ordinary differential equation and plotting the solution curves |
| 6 | Program to compute area, volume and centre of gravity |
| 7 | Evaluation of improper integrals |
| 8 | Numerical solution of system of linear equations, test for consistency and  graphical representation |
| 9 | Solution of system of linear equations using Gauss-Seidel iteration |
| 10 | Compute eigenvalues and eigenvectors and find the largest and smallest eigenvalue by Rayleigh power method. |

**Course outcome (Course Skill Set)**

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

| | | |
|---|---|---|
| CO1 | Apply the knowledge of calculus to solve problems related to polar curves andlearn the notion of partial differentiation to compute rate of change of multivariate functions | |
| CO2 | Analyze the solution of linear and nonlinear ordinary differential equations | |
| CO3 | Get acquainted and to apply modular arithmetic to computer algorithms | |
| CO4 | Make use of matrix theory for solving the system of linear equations and compute eigenvalues and eigenvectors | |
| CO5 | Familiarize with modern mathematical tools namely MATHEMATICA/MATLAB/ PYTHON/ SCILAB | |

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (**20 Marks** out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (**18 Marks** out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (**18 Marks** out of 50) in the semester-end examination(SEE), and a minimum of 40% (**40 Marks** out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

**Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **25 Marks** and for the laboratory component **25 Marks**.

**CIE for the theory component of the IC**

- Three Tests each of **40 Marks** scale down to **15 Marks** and average of 3 test will be taken. The test will be after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totaling **10 Marks**.

Total Marks scored (test + assignments) will be for 15+10 = **25 Marks**

**CIE for the practical component of the IC**

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 Marks** are for conducting the experiment and preparation of the laboratory record, the other **10 Marks** shall be for the test conducted at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Marks of all "experiments' write- ups + conduction + lab record" = 10+10+10 = **30 Marks** respectively. the total marks for all the experiments are added and scaled down to **15 Marks**.

- The laboratory test **(duration 02 hours)** at the end of the 15th week of the semester /after completion of all the experiments (whichever is early) shall be conducted for **50 Marks** and scaled down to **10 Marks.**

- Total Marks scored for the laboratory component of IC/IPCC (Lab Conduction + Lab Test) will be for 15+10 = **25 Marks**

- The minimum marks to be secured in CIE to appear for SEE shall be **10 Marks** (40% of maximum marks) in the theory component and **10 Marks** (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included**.** The theory component of the IC shall be for both CIE and SEE.

**Semester End Examination(SEE):**

Theory SEE will be conducted by Institution as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

- The question paper shall be set for **100 Marks**. The medium of the question paper shall be English. The duration of SEE is 03 hours.

- The question paper will have 10 questions. Two questions per module. Each question is set for **20 Marks**. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for **100 Marks** and **marks scored out of 100 shall be proportionally reduced to 50 Marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

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**Suggested Learning Resources:**
**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year) Text Books**

1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44$^{th}$Ed., 2021.

2. **E. Kreyszig**: "Advanced Engineering Mathematics", John Wiley & Sons, 10$^{th}$Ed., 2018.

**Reference Books**

1. **V. Ramana:** "Higher Engineering Mathematics" McGraw-Hill Education, 11$^{th}$ Ed., 2017

2. **Srimanta Pal & Subodh C.Bhunia**: "Engineering Mathematics" Oxford University Press,

3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10$^{th}$ Ed., 2022.

4. **C. Ray Wylie, Louis C. Barrett:** "Advanced Engineering Mathematics" McGraw – Hill Book Co., New York, 6$^{th}$ Ed., 2017.

5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015

6. **. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3$^{rd}$ Ed., 2014.

7. **James Stewart: "**Calculus" Cengage Publications, 7$^{th}$Ed., 2019.

8. **David C Lay:** "Linear Algebra and its Applications", Pearson Publishers, 4$^{th}$ Ed., 2018.

9. **Gareth Williams:** "Linear Algebra with Applications", Jones Bartlett Publishers Inc., 6$^{th}$ Ed., 2017.

**Gilbert Strang:** "Linear Algebra and its Applications", Cengage Publications, 4$^{th}$ Ed. 2022.

**Web links and Video Lectures (e-Resources):**

- http://nptel.ac.in/courses.php?disciplineID=111
- http://www.class-central.com/subject/math(MOOCs)
- http://academicearth.org/
- VTU e-Shikshana Program

VTU EDUSAT Program

**Activity Based Learning (Suggested Activities in Class)/ Practical Based learning**

- Quizzes
- Assignments
- Seminar

**COs and POs Mapping (Individual teacher has to fill up)**

| COs | POs | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| CO1 | 3 | 3 | | 2 | 3 | | | | 2 | 2 | | 2 |
| CO2 | 3 | 3 | | 2 | 3 | | | | 2 | 2 | | 2 |
| CO3 | 3 | 3 | | 2 | 3 | | | | 2 | 2 | | 2 |
| CO4 | 3 | 3 | | 2 | 3 | | | | 2 | 2 | | 2 |
| CO5 | 3 | 3 | | 2 | 3 | | | | 2 | 2 | | 2 |
| **Level 3- Highly Mapped,, Level 2-Moderately Mapped,, Level 1-Low Mapped** | | | | | | | | | | | | |

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Kumbalagodu, Mysore Road, Bengaluru – 560074

| Course Title: | **Mathematics-II for Computer Science and Engineering stream** | | | |
|---|---|---|---|---|
| Course Code: | **BMATS201** | CIE Marks | 50 |
| Course Type (Theory/Practical/Integrated) | Integrated | SEE Marks | 50 |
| | | Total Marks | 100 |
| Teaching Hours/Week (L:T:P: S) | 2:2:2:0 | Exam Hours | 03 |
| Total Hours of Pedagogy | 40 hours Theory + 10 to 12 Lab slots | Credits | 04 |

**Course objectives:** The goal of the course **Mathematics-II for Computer Science and Engineering stream**(**BMATS201**) is to

- **Familiarize** the importance of Integral calculus and Vector calculus.

- **Learn** vector spaces and linear transformations**.**

- **Develop** the knowledge of numerical methods and apply them to solve transcendental and differential equations.

**Teaching-Learning Process Pedagogy (General Instructions):**
These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. In addition to the traditional lecture method, different types of innovative teaching methods may be adopted so that the delivered lessons shall develop students' theoretical and applied mathematical skills.

2. State the need for Mathematics with Engineering Studies and Provide real-life examples.

3. Support and guide the students for self–study.

4. You will also be responsible for assigning homework, grading assignments and quizzes, and documenting students' progress.

5. Encourage the students to group learning to improve their creative and analytical skills.

6. Show short related video lectures in the following ways:

  ● As an introduction to new topics (pre-lecture activity).

  ● As a revision of topics (post-lecture activity).

  ● As additional examples (post-lecture activity).

  ● As an additional material of challenging topics (pre-and post-lecture activity).

  ● As a model solution of some exercises (post-lecture activity).

| Module-1Integral Calculus (8 hours) |
|---|

**Introduction to Integral Calculus in Computer Science &Engineering.**
**Multiple Integrals:** Evaluation of double and triple integrals, evaluation of double integrals by change

of order of integration, changing into polar coordinates. Applications to find Area and Volume by double integral. Problems.

**Beta and Gamma functions:** Definitions, properties, relation between Beta and Gamma functions. Problems.

**Self-Study:** Center of gravity, Duplication formula.
**Applications:** Antenna and wave propagation, Calculation of optimum value in various geometries. Analysis of probabilistic models.

**(RBT Levels: L1, L2 and L3)**

| Module-2   Vector Calculus(8 hours) |
|---|

**Introduction to Vector Calculus in Computer Science & Engineering.**
Scalar and vector fields. Gradient, directional derivative, curl and divergence - physical interpretation, solenoidal and irrational vector fields. Problems.

**Curvilinear coordinates:** Scale factors, base vectors, Cylindrical polar coordinates, Spherical polar coordinates, transformation between Cartesian and curvilinear systems, orthogonality. Problems.

**Self-Study:** Vector integration and Vector line integral.
**Applications:** Conservation of laws, Electrostatics, Analysis of streamlines.

| Module-3Vector Space and Linear Transformations(8 hours) |
|---|

**Importance of Vector Space and Linear Transformations in the field of Computer Science & Engineering.**

**Vector spaces:** Definition and examples, subspace, linear span, Linearly independent and dependent sets, Basis and dimension. Problems.

**Linear transformations**: Definition and examples, Algebra of transformations, Matrix of a linear transformation. Change of coordinates, Rank and nullity of a linear operator, rank-nullity theorem. Inner product spaces and orthogonality. Problems.

**Self-study:** Angles and Projections. Rotation, Reflection, Contraction and Expansion. **Applications:** Image processing, AI & ML, Graphs and networks, Computer graphics. **(RBT Levels: L1, L2 and L3)**

| Module-4Numerical Methods -1(8 hours) |
|---|

**Importance of numerical methods for discrete data in the field of computer science & engineering.**
Solution of algebraic and transcendental equations - Regula-Falsi and Newton-Raphson methods (only formulae). Problems. Finite differences, Interpolation using Newton's forward and backward difference formulae,  Newton's divided difference formula and Lagrange's interpolation formula (All formulae without proof). Problems.

**Numerical integration**: Trapezoidal, Simpson's $(1/3)^{rd}$ and $(3/8)^{th}$ rules(without proof). Problems.

**Self-Study:** Bisection method, Lagrange's inverse Interpolation.

**Applications:** Estimating the approximate roots, extremum values, Area, volume, and surface area. Errors in finite precision.
**(RBT Levels: L1, L2 and L3)**

| | Module-5 Numerical Methods -2 (8 hours) |
|---|---|

**Introduction to various numerical techniques for handling Computer Science & Engineering applications.**

**Numerical Solution of Ordinary Differential Equations (ODE's):** Numerical solution of ordinary differential equations of first order and first degree - Taylor's series method, Modified Euler's method, Runge-Kutta method of fourth order and Milne's predictor-corrector formula (No derivations of formulae). Problems.

**Self-Study:** Adam-Bashforth method.
**Applications:** Estimating the approximate solutions of ODE.
**(RBT Levels: L1, L2 and L3).**

**List of Laboratory experiments (2 hours/week per batch/ batch strength 15)**
**10 lab sessions + 1 repetition class + 1 Lab Assessment**

| 1 | Program to compute area, surface area, volume and centre of gravity |
|---|---|
| 2 | Evaluation of improper integrals |
| 3 | Finding gradient, divergent, curl and their geometrical interpretation |
| 4 | Computation of basis and dimension for a vector space and Graphical representation of linear transformation |
| 5 | Computing the inner product and orthogonality |
| 6 | Solution of algebraic and transcendental equations by Ramanujan's, Regula-Falsi and Newton-Raphson method |
| 7 | Interpolation/Extrapolation using Newton's forward and backward difference formula |
| 8 | Computation of area under the curve using Trapezoidal, Simpson's $(1/3)^{rd}$ and $(3/8)^{th}$ rule |
| 9 | Solution of ODE of first order and first degree by Taylor's series and Modified Euler's method |
| 10 | Solution of ODE of first order and first degree by Runge-Kutta $4^{th}$ order and Milne's predictor-corrector method |

**Suggested software's:** Mathematica/MatLab/Python/Scilab

**Course outcome (Course Skill Set)**
At the end of the course the student will be able to:

| CO1 | Apply the concept of change of order of integration and variables to evaluate multiple integrals and their usage in computing area and volume. |
|---|---|
| CO2 | Understand the applications of vector calculus refer to solenoidal, and irrotational vectors. Orthogonal curvilinear coordinates. |
| CO3 | Demonstrate the idea of Linear dependence and independence of sets in the vector space, and linear transformation |
| CO4 | Apply the knowledge of numerical methods in analysing the discrete data and solving the physical and engineering problems. |
| CO5 | Get familiarize with modern mathematical tools namely MATHEMATICA/ MATLAB /PYTHON/ SCILAB |

3

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (**20 Marks** out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (**18 Marks** out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (**18 Marks** out of 50) in the semester-end examination(SEE), and a minimum of 40% (**40 Marks** out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

**Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **25 Marks** and for the laboratory component **25 Marks**.

**CIE for the theory component of the IC**

- Three Tests each of **40 Marks** scale down to **15 Marks** and average of 3 test will be taken. The test will be after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.
  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totaling **10 Marks**.

Total Marks scored (test + assignments) will be for 15+10 = **25 Marks**

**CIE for the practical component of the IC**

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 Marks** are for conducting the experiment and preparation of the laboratory record, the other **10 Marks** shall be for the test conducted at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Marks of all "experiments' write- ups + conduction + lab record" = 10+10+10 = **30 Marks** respectively. the total marks for all the experiments are added and scaled down to **15 Marks**.

- The laboratory test **(duration 02 hours)** at the end of the 15th week of the semester /after completion of all the experiments (whichever is early) shall be conducted for **50 Marks** and scaled down to **10 Marks.**

- Total Marks scored for the laboratory component of IC/IPCC (Lab Conduction + Lab Test) will be for 15+10 = **25 Marks**

- The minimum marks to be secured in CIE to appear for SEE shall be **10 Marks** (40% of maximum marks) in the theory component and **10 Marks** (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the

questions from the laboratory component shall be included**. The theory component of the IC shall be for both CIE and SEE.

**Semester End Examination(SEE):**

Theory SEE will be conducted by Institution as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

- The question paper shall be set for **100 Marks**. The medium of the question paper shall be English. The duration of SEE is 03 hours.

- The question paper will have 10 questions. Two questions per module. Each question is set for **20 Marks**. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for **100 Marks** and **marks scored out of 100 shall be proportionally reduced to 50 Marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

**Suggested Learning Resources:**
**Books (Title of the Book/Name of the author/Name of the publisher/Edition and Year)**
**Text Books**
1. **B. S. Grewal**: "Higher Engineering Mathematics", Khanna Publishers, 44th Ed., 2021.
2. **E. Kreyszig**: "Advanced Engineering Mathematics", John Wiley & Sons, 10th Ed., 2018.

**Reference Books**

1. **V. Ramana:** "Higher Engineering Mathematics" McGraw-Hill Education, 11th Ed., 2017
2. **Srimanta Pal & Subodh C.Bhunia**: "Engineering Mathematics" Oxford University Press, 3rd Ed., 2016.
3. **N.P Bali and Manish Goyal**: "A Textbook of Engineering Mathematics" Laxmi Publications, 10th Ed., 2022.
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5. **Gupta C.B, Sing S.R and Mukesh Kumar:** "Engineering Mathematic for Semester I and II", Mc-Graw Hill Education(India) Pvt. Ltd 2015.
6. **H. K. Dass and Er. Rajnish Verma:** "Higher Engineering Mathematics" S. Chand Publication, 3rd Ed., 2014.
7. **James Stewart: "**Calculus" Cengage Publications, 7th Ed., 2019.
8. **David C Lay:** "Linear Algebra and its Applications", Pearson Publishers, 4th Ed., 2018.
9. **Gareth Williams:** "Linear Algebra with applications", Jones Bartlett Publishers Inc., 6th Ed., 2017.

**Gilbert Strang:** "Linear Algebra and its Applications", Cengage Publications, 4th Ed., 2022.

**Web links and Video Lectures (e-Resources):**

- http://nptel.ac.in/courses.php?disciplineID=111
- http://www.class-central.com/subject/math(MOOCs)

- http://academicearth.org/
- VTU e-Shikshana Program
- VTU EDUSAT Program

**Activity-Based Learning (Suggested Activities in Class)/ Practical-Based Learning**

- Quizzes
- Assignments
  Seminar

**COs and POs Mapping (Individual teacher has to fill up)**

| COs | POs | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|
|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| CO1 | 3 | 3 |   | 2 | 2 |   |   |   | 2 | 2 |   | 2 |
| CO2 | 3 | 3 |   | 2 | 2 |   |   |   | 2 | 2 |   | 2 |
| CO3 | 3 | 3 |   | 2 | 2 |   |   |   | 2 | 2 |   | 2 |
| CO4 | 3 | 3 |   | 2 | 2 |   |   |   | 2 | 2 |   | 2 |
| CO5 | 3 | 3 |   | 2 | 2 |   |   |   | 2 | 2 |   | 2 |

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

Wayanamac Education Trust ®

# DON BOSCO INSTITUTE OF TECHNOLOGY

**An Autonomous Institution under VTU - Belagavi,**

Accredited by NBA and NAAC with 'A' Grade

**Approved by AICTE – New Delhi, Recognized by Govt. of Karnataka**

Kumbalagodu, Mysore Road, Bengaluru – 560074

| Course Title: | | **Introduction to Python Programming** | | |
|---|---|---|---|---|
| Course Code: | | **BPLCK105B/205B** | CIE Marks | 50 |
| | | | | |
| Course Type (Theory/Practical /Integrated) | | Integrated | SEE Marks | 50 |
| | | | Total Marks | 100 |
| Teaching Hours/ Week (L:T:P:S) | | 2:0:2:0 | Exam Hours | 03 |
| | | | | |
| Total Hours of Pedagogy | | 40 hours | Credits | 03 |

**Course objectives:**

**CLO 1.** Learn the syntax and semantics of the Python programming language.

**CLO 2.** Illustrate the process of structuring the data using lists, tuples

**CLO 3.** Appraise the need for working with various documents like Excel, PDF, Word and Others.

**CLO 4.** Demonstrate the use of built-in functions to navigate the file system.

**CLO 5.** Implement the Object Oriented Programming concepts in Python.

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective

1. Use https://pythontutor.com/visualize.html#mode=edit in order to visualize the python code

2. Demonstrate and visualize basic data types (list, tuple, dictionary). 3. Chalk and talk 4. online and videos

**Module-1 (08 hrs)**

**Python Basics**: Entering Expressions into the Interactive Shell, The Integer, Floating-Point, and String Data Types, String Concatenation and Replication, Storing Values in Variables,Your First Program, Dissecting Your Program, **Flow control:** Boolean Values, Comparison Operators, Boolean Operators, Mixing Boolean and Comparison Operators, Elements of Flow Control, Program Execution, Flow Control Statements, Importing Modules, Ending a Program Early with sys.exit(), **Functions:** def Statements with Parameters, Return Valuesand return Statements, The None Value, Keyword Arguments and print(), Local and Global Scope, The global Statement, Exception Handling, A Short Program: Guess the Number.

 **Text book 1: Chapters 1–3**

| Module-2 (08 hrs) |
|---|

**Lists:** The List Data Type, Working with Lists, Augmented Assignment Operators, Methods, Example Program: Magic 8 Ball with a List, List-like Types: Strings and Tuples, References,

**Dictionaries and Structuring Data:** The Dictionary Data Type, Pretty Printing, Using Data Structures to Model Real-World Things.

**Text book 1: Chapters 4–5**

| Module-3(08 hrs) |
|---|

**Manipulating Strings:** Working with Strings, Useful String Methods, Project: Password Locker, Project: Adding Bullets to Wiki Markup

**Reading and Writing Files:** Files and File Paths, The os. path Module, The File Reading/Writing Process, Saving Variables with the shelve Module, Saving Variables with the print. Format () Function, Project: Generating Random Quiz Files, Project: Multi clip board.

**Textbook 1:Chapters 6, 8**

| Module-4(08hrs) |
|---|

**Organizing Files:** The shutil Module, Walking a Directory Tree, Compressing Files with the zip file Module, Project: Renaming Files with American-Style Dates to European-Style Dates, Project: Backing Up a Folder into a ZIP File,

**Debugging:** Raising Exceptions, Getting the Trace back asa String, Assertions, Logging, IDLE"s Debugger.

**Textbook 1:Chapters 9-10**

| Module-5(08hrs) |
|---|

**Classes and objects:** Programmer-defined types, Attributes, Rectangles, Instances as return values, Objects are mutable, Copying,

**Classes and functions:** Time, Pure functions, Modifiers, Prototyping versus planning,

**Classes and methods:** Object-oriented features, Printing objects, Another example, A more complicated example, Theinit method, Thestr method, Operator overloading, Type-based dispatch, Polymorphism, Interface and implementation.

**Textbook 2:Chapters 15–17**

**Course outcome (Course Skill Set)**

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

| | |
|---|---|
| CO1 | Demonstrate proficiency in handling loops and creation of functions. |
| CO2 | Identify the methods to create and manipulate lists, tuples and dictionaries. |
| CO3 | Develop programs for string processing and file organization |
| CO4 | Interpret the concepts of Object-Oriented Programming as used in Python. |

**Programming Exercises:**

1.a. Develop a program to read the student details like Name, USN, and Marks in three subjects display the student details, total marks and percentage with suitable messages.

b. Develop a program to read the name and year of birth of a person. Display whether the person is a senior citizen or not.

2.a. Develop a program to generate Fibonacci sequence of length (N). Read N from the console.

b. Write a function to calculate factorial of a number. Develop a program to compute binomial coefficient (Given N and R).

3. Read N numbers from the console and create a list. Develop a program to print mean, variance and standard deviation with suitable messages.

4. Read a multi-digit number (as chars) from the console. Develop a program to print the frequency of each digit with suitable message.

5. Develop a program to print 10 most frequently appearing words in a text file. [Hint: Use dictionary with distinct words and their frequency of occurrences. Sort the dictionary in the reverse order of frequency and display dictionary slice of first 10 items]

6. Develop a program to sort the contents of a text file and write the sorted contents into a separate text file. [Hint: Use string methods strip(), len(), list methods sort(), append(), and file methods open(), readlines(), and write()].

7. Develop a program to backing Up a given Folder (Folder in a current working directory) into a ZIP File by using relevant modules and suitable methods.

8. Write a function named DivExp which takes TWO parameters a, b and returns a value c (c=a/b). Write suitable assertion for a>0 in function DivExp and raise an exception for when b=0. Develop a suitable program which reads two values from the console and calls a function DivExp.

9. Define a function which takes TWO objects representing complex numbers and returns new complex number with a addition of two complex numbers. Define a suitable class 'Complex' to represent the complex number. Develop a program to read N (N >=2) complex numbers and to compute the addition of N complex numbers.

10. Develop a program that uses class Student which prompts the user to enter marks in three subjects and calculates total marks, percentage and displays the score card details. [Hint: Use list to store the marks in three subjects and total marks. Use __init__() method to initialize name, USN and the lists to store marks and total, Use get Marks() method to read marks into the list, and display() method to display the score card details.]

**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (**20 Marks** out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (**18 Marks** out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (**18 Marks** out of 50) in the semester-end examination(SEE), and a minimum of 40% (**40 Marks** out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):**

The CIE marks for the theory component of the IC shall be **25 Marks** and for the laboratory component

**25 Marks**.

**CIE for the theory component of the IC**

- Three Tests each of **40 Marks** scale down to **15 Marks** and average of 3 test will be taken. The test will be after the completion of the syllabus of 35-40%, 65-70%, and 90-100% respectively.

  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totaling **10 Marks**.

Total Marks scored (test + assignments) will be for 15+10 = **25 Marks**

**CIE for the practical component of the IC**

- On completion of every experiment/program in the laboratory, the students shall be evaluated and marks shall be awarded on the same day. The **15 Marks** are for conducting the experiment and preparation of the laboratory record, the other **10 Marks** shall be for the test conducted at the end of the semester.

- The CIE marks awarded in the case of the Practical component shall be based on the continuous evaluation of the laboratory report. Marks of all "experiments write- ups + conduction + lab record" = 10+10+10 = **30 Marks** respectively. the total marks for all the experiments are added and scaled down to **15 Marks**.

- The laboratory test **(duration 02 hours)** at the end of the 15th week of the semester /after completion of all the experiments (whichever is early) shall be conducted for **50 Marks** and scaled down to **10 Marks.**

- Total Marks scored for the laboratory component of IC/IPCC (Lab Conduction + Lab Test) will be for 15+10 = **25 Marks**

- The minimum marks to be secured in CIE to appear for SEE shall be **10 Marks** (40% of maximum marks) in the theory component and **10 Marks** (40% of maximum marks) in the practical component. The laboratory component of the IC/IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included**.** The theory component of the IC shall be for both CIE and SEE.

**Semester End Examination(SEE):**

Theory SEE will be conducted by Institution as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

- The question paper shall be set for **100 Marks**. The medium of the question paper shall be English. The duration of SEE is 03 hours.

- The question paper will have 10 questions. Two questions per module. Each question is set for **20 Marks**. The students have to answer 5 full questions, selecting one full question from each module. The student has to answer for **100 Marks** and **marks scored out of 100 shall be proportionally reduced to 50 Marks**.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub- questions), **should have a mix of topics** under that module.

**Suggested Learning Resources:**

**Text Books**

1. Al Sweigart,"Automate the Boring Stuff with Python", 1st Edition, No Starch Press, 2015. (Available under CC-BY-NC-SA license at https://automate the boring stuff.com/) (Chapters 1 to 18, except 12) for lambda functions use this link: https://www.learnbyexample.org/python-lambda-function/

2. Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2nd Edition, Green Tea Press,2015.

(Available under CC-BY-NC license at http:// green teapress. com/thinkpython2 /thinkpython2.pdf (Chapters 13, 15, 16, 17, 18) (Download pdf/html files from the above link)

**Web links and Video Lectures(e-Resources):**

- **https://www.learnbyexample.org/python/**
- **https://www.learnpython.org/**
- **https://pythontutor.com/visualize.html#mode=edit**

**Activity Based Learning (Suggested Activities in Class)/Practical Based learning**

- Quizzes for list, tuple, string dictionary slicing operations using below link

https://github.com/sushantkhara/Data-Structures-And-Algorithms-with Python /raw/

main/Python%203%20_%20400%20exercises%20and%20solutions%20for%20beginners.pdf

**Cos and Pos Mapping(Individual teacher has to fill up)**

| COs | POs | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| CO1 | | | | | | | |
| CO2 | | | | | | | |
| CO3 | | | | | | | |
| CO4 | | | | | | | |
| CO5 | | | | | | | |

**Level 3-HighlyMapped, Level 2-ModeratelyMapped, Level 1-LowMapped, Level 0 Not Mapped**

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# DON BOSCO INSTITUTE OF TECHNOLOGY
## An Autonomous Institution under VTU - Belagavi,
### Approved by AICTE – New Delhi, Recognized by Govt. of Karnataka
Kumbalagodu, Mysore Road, Bengaluru – 560074

| Course Title: | **Professional Writing Skills in English** | | |
|---|---|---|---|
| Course Code: | BPWSK206-106 | CIE Marks | 50 |
| Course Type (Theory/Practical /Integrated) | Theory | SEE Marks | 50 |
| | | Total Marks | 100 |
| Teaching Hours/Week (L:T:P: S) | 1:0:0:0 | Exam Hours | 01 Theory |
| Total Hours of Pedagogy | 15 hours | Credits | 01 |

## Course objectives:
The course Professional Writing Skills in English (BPWSK206) will enable the students,

1. To Identify the Common Errors in Writing and Speaking of English.

2. To Achieve better Technical writing and Presentation skills for employment.

3. To read Technical proposals properly and make them to write good technical reports.

4. To Acquire Employment and Workplace communication skills.

5. To learn about Techniques of Information Transfer through presentation in different level.

## Teaching-Learning Process
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective: Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools and software's to meet the present requirements of the Global employment market.

(i) Direct instructional method (Low/Old Technology), (ii) Flipped classrooms (High/advanced Technological tools), (iii) Blended learning (Combination of both), (iv) Enquiry and evaluation based learning,

(v) Personalized learning, (vi) Problems based learning through discussion, (vii) Following the method of expeditionary learning Tools and techniques, (viii) Use of audio visual methods through language Labs in teaching of of LSRW skills.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills in teaching of communicative skills in general.

## Language Lab : To augment LSRW, grammar and Vocabulary skills (Listening, Speaking, Reading, Writing and Grammar, Vocabulary) through tests, activities, exercises etc., comprehensive web-based learning and assessment systems can be referred as per the AICTE / VTU guidelines.

| Module-1 (03 hours of pedagogy) |
|---|
| **Identifying Common Errors in Writing and Speaking English:** Common errors identification in parts of speech, Use of verbs and phrasal verbs, Auxiliary verbs and their forms, Subject Verb Agreement (Concord Rules), Common errors<br><br>in Subject-verb agreement, Sequence of Tenses and errors identification in Tenses. Words Confused/Misused. |
| Module-2 (03 hours of pedagogy) |
| **Nature and Style of sensible writing: Organizing** Principles of Paragraphs in Documents, Writing Introduction and Conclusion, Importance of Proper Punctuation, Precise writing and Techniques in Essay writing, Sentence arrangements<br><br>and Corrections activities. Misplaced modifiers, Contractions, Collocations, Word Order, Errors due to the Confusion of words. |
| Module-3 (03 hours of pedagogy) |
| **Technical Reading and Writing Practices:** Technical writing process, Introduction to Technical Reports writing, Significance of Reports, Types of Reports. Introduction to Technical Proposals Writing, Types of Technical Proposals, Characteristics of Technical Proposals. Scientific Writing Process. Grammar – Voices and Reported Speech, Spotting Error & Sentence Improvement, Cloze Test and Theme Detection Exercises. |
| Module-4 (03 hours of pedagogy) |
| **Professional Communication for Employment:** Listening Comprehension, Types of Listening, Listening Barriers, Improving Listening Skills. Reading Comprehension, Tips for effective reading. Job Applications, Types of official/employment/business Letters, Resume vs. Bio Data, Profile, CV. Writing effective resume for employment, Emails,<br><br>Blog Writing and Memos. |
| Module-5 (03 hours of pedagogy) |
| **Professional Communication at Workplace**: Group Discussion and Professional Interviews, Characteristics and Strategies<br><br>of a GD and PI's, Intra and Interpersonal Communication Skills at workplace, Non-Verbal Communication Skills and its importance in GD and Interview. Presentation skills and Formal Presentations by Students, Strategies of Presentation Skills. |

**Course outcome (Course Skill Set)**
At the end of the course the student will be able to:

| | |
|---|---|
| CO1 | To understand and identify the Common Errors in Writing and Speaking. |
| CO2 | To Achieve better Technical writing and Presentation skills. |
| CO3 | To read Technical proposals properly and make them to Write good technical reports. |
| CO4 | Acquire Employment and Workplace communication skills. |
| CO5 | To learn about Techniques of Information Transfer through presentation in different level. |

**Assessment Details (both CIE and SEE)**

The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (**20 Marks** out of 50). The minimum passing mark for the SEE is 35% of the maximum marks (**18 Marks** out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (**40 Marks** out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

**Continuous Internal Evaluation(CIE):**

- Two Tests each of **25 Marks** and average of both the test will be taken. The test will be after the completion of the syllabus of 50% and 100% respectively.

  a) One Assignments and one quizzes/one seminars or b) one field survey and report presentation or c) one-course project with report totalling **25 Marks**.

 Total Marks scored (Test + Assignments) will be for 25+25 = **50 Marks**

**Semester End Examinations (SEE)**

SEE paper shall be set for 50 questions, each of the 01 mark. The pattern of the question paper is MCQ (multiple choice questions). The time allotted for SEE is 01 hour. The student must secure a minimum of 35% of the maximum marks for SEE.

**Suggested Learning Resources:**

**Textbook:**
1) **"Professional Writing Skills in English"** published by Fillip Learning – Education (ILS), Bangalore – 2022.
2) **"Functional English"** (As per AICTE 2018 Model Curriculum) (ISBN-978-93-5350-047-4) Cengage learning India Pvt Limited [Latest Edition 2019].

**Reference Books:**
1) **English for Engineers** by N.P.Sudharshana and C.Savitha, Cambridge University Press – 2018.
2) **Technical Communication** by Gajendra Singh Chauhan and Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] - 2019.
3) **Technical Communication** – Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
4) **High School English Grammar & Composition** by Wren and Martin, S Chandh & Company Ltd – 2015.

**Effective Technical Communication** – Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private

**Activity Based Learning (Suggested Activities in Class)/ Practical Based learning**
- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

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# DON BOSCO INSTITUTE OF TECHNOLOGY
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Kumbalagodu, Mysore Road, Bengaluru – 560074

| Course Title: | Scientific Foundations of Health | | |
|---|---|---|---|
| Course Code: | BSFHK158/258 | CIE Marks | 50 |
| Course Type (Theory/Practical/Integrated) | Theory | SEE Marks | 50 |
| | | Total Marks | 100 |
| Teaching Hours/Week(L:T:P:S) | 1:0:0:0 | Exam Hours | 01 |
| Total Hours of Pedagogy | 15 hours Theory | Credits | 01 |

**Course objectives**

The course Scientific Foundations of Health (22SFH18/28) will enable the students,

1. To know about Health and wellness (and its Beliefs) & It's balance for positive mindset.

2. To Build the healthy lifestyles for good health for their better future.

3. To Create a Healthy and caring relationships to meet the requirements of good/social/positive life.

4. To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future

5. To Prevent and fight against harmful diseases for good health through positive mindset

**Teaching-Learning Process**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective:

Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools. Tutorial

i. Direct instructional method (Low/Old Technology), ii. Flipped classrooms (High/advanced Technological tools), iii) Blended learning (Combination of both), iv) Enquiry and evaluation based learning, v) Personalized learning, vi) Problems based learning through discussion, vii) Following the method of expeditionary learning Tools and techniques, viii) Use of audio visual methods.

Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students in theoretical applied and practical skills.

| MODULE-1(03 hours of pedagogy) |
|---|

**Good Health & It's balance for positive mindset:** Health -Importance of Health, Influencing factors of Health, Health beliefs, Advantages of good health, Health & Behavior, Health & Society, Health & family, Health & Personality, Psychological disorders-Methods to improve good psychological health, Changing health habits for good health.

| MODULE-2 (03 hours of pedagogy) |
|---|
| **Building of healthy lifestyles for better future:** Developing healthy diet for good health, Food & health, Nutritional guidelines for good health, Obesity & overweight disorders and its management, Eating disorders, Fitness components for health, Wellness and physical function, How to avoid exercise injuries. |

| MODULE-3 (03 hours of pedagogy) |
|---|
| **Creation of Healthy and caring relationships:** Building communication skills, Friends and friendship - Education, the value of relationship and communication skills, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering. |

| MODULE-4 (03 hours of pedagogy) |
|---|
| **Avoiding risks and harmful habits:** Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, how addiction develops, Types of addictions, influencing factors of addictions, Differences between addictive people and non-addictive people & their behaviors. Effects of addictions Such as..., how to recovery from addictions. |

| MODULE-5 (03 hours of pedagogy) |
|---|
| **Preventing & fighting against diseases for good health**: How to protect from different types of infections, How to reduce risks for good health, Reducing risks & coping with chronic conditions, Management of chronic illness for Quality of life, Health & Wellness of youth :a challenge for upcoming future, Measuring of health & wealth status. |

**Course outcome (Course Skill Set):**
At the end of the course the student will be able to:

| CO1 | To understand and analyse about Health and wellness (and its Beliefs) & It's balance for positive mindset |
|---|---|
| CO2 | Develop the healthy lifestyles for good health for their better future. |
| CO3 | Build a Healthy and caring relationships to meet the requirements of good/social/positive life. |
| CO4 | To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future. |
| CO5 | Prevent and fight against harmful diseases for good health through positive mindset. |

**Assessment Details (both CIE and SEE)**

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**Suggested Learning Resources:**
**Textbook:**
**1. "Scientific Foundations of Health" – Study Material Prepared by Dr. L Thimmesha, Published in VTU**
**- University Website.**
**2. "Scientific Foundations of Health",** (ISBN-978-81-955465-6-5) published by Infinite Learning Solutions, Bangalore – 2022.
**3. Health Psychology - A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited - Open University Press.
**Reference Books:**
1. **Health Psychology** (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor – Published by Routledge 711 Third Avenue, New York, NY 10017.
2. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR - University of California, Los Angeles, McGraw Hill Education (India) Private Limited - Open University Press.
3. **SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos** and other materials / notes.
4. **Scientific Foundations of Health (Health & Welness) - General Books** published for university and colleges references by popular authors and published by the reputed publisher.

**Activity Based Learning (Suggested Activities in Class)/ Practical Based learning**
➢ Contents related activities (Activity-based discussions)

➢ For active participation of students instruct the students to prepare Flowcharts and Handouts

➢ Organizing Group wise discussions Connecting to placement activities

➢ Quizzes and Discussions, Seminars and assignments